TCAAP Final AUAR and Final Mitigation Plan

PREPARED FOR:

ARDEN HILLS

In cooperation with:

RAMSEY COUNTY

PREPARED BY:

Kimley-Horn and Associates, Inc.

July 2014

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FINAL ALTERNATIVE URBAN AREAWIDE REVIEW

1. PROJECT TITLE: Twin Cities Army Ammunition Plant (TCAAP) Redevelopment Project

2. PROPOSER: CITY OF ARDEN HILLS
CONTACT PERSON: Jill Hutmacher
TITLE: Community Development Director
ADDRESS: 1245 West Highway 96
CITY, STATE ZIP: Arden Hills, MN 55112
PHONE: 651-792-7819
FAX: 651-634-5137
EMAIL: jhutmacher@cityofardenhills.org

3. RESPONSIBLE GOVERNMENTAL UNIT (RGU): CITY OF ARDEN HILLS
CONTACT PERSON: Jill Hutmacher
TITLE: Community Development Director
ADDRESS: 1245 West Highway 96
CITY, STATE ZIP: Arden Hills, MN 55112
PHONE: 651-792-7819
FAX: 651-634-5137
EMAIL: jhutmacher@cityofardenhills.org

4. REASON FOR EAW PREPARATION

AUAR Guidance: Not applicable to AUAR.

5. PROJECT LOCATION

COUNTY: Ramsey CITY/TOWNSHIP: Arden Hills

ATTACH EACH OF THE FOLLOWING TO THE EAW:

- COUNTY MAP SHOWING THE GENERAL LOCATION OF THE PROJECT (see **Figure 5-1**)
- U.S. GEOLOGICAL SURVEY 7.5 MINUTE, 1:24,000 SCALE MAP INDICATING PROJECT BOUNDARIES (PHOTOCOPY ACCEPTABLE) (see **Figure 5-2**)
- PROPOSED LAND USE PLAN (**Figure 5-3**)
- SITE PLAN SHOWING ALL SIGNIFICANT PROJECT AND NATURAL FEATURES (**Figures 5-4, 7-1, and 7-2**)

6. DESCRIPTION

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

- *Anticipated types and intensity (density) of residential and commercial/warehouse/light industrial development throughout the AUAR area;*

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

The AUAR study area is 427 acres owned by Ramsey County and located within the broader TCAAP site in Arden Hills (**Figures 5-1 and 5-2**). An additional 2.5 acres south of CR H that is owned by Ramsey County Parks has also been evaluated for future development. The County may consider swapping this small adjacent parks parcel to allow development on the west side of the study area for road improvements at County Road H. In return, Ramsey County/Parks would gain parkland in a more beneficial area adjacent to existing parkland on the east side of the study area. Therefore, the AUAR study area evaluated throughout this document refers to the 429 acre boundary. The AUAR study area is bounded by County Road (CR) 96 on the south, on the west by Trunk Highway (TH) 10 and Interstate 35W (I-35W), on the north by State of Minnesota property, and on the east by the National Guard's Arden Hills Army Training Site (AHATS) property (see **Figure 5-3**).

The TCAAP site was property of the US Department of the Army from 1941 to 1978 and was used to manufacture and test munitions. The full TCAAP site is approximately 2,400 acres, of which on the eastern 1,600 acres are licensed to the National Guard and are used for training purposes. The western portion of the site is largely vacant, with 44 abandoned buildings that were demolished in 2013. The AUAR study area, which is on the western portion of the TCAAP site, was purchased by Ramsey County to undertake contamination clean up necessary to allow development. The County intends to sell off parcels for development as market demand is generated. The City of Arden Hills, as the governing body, is initiating this environmental study. A Joint Development Authority (JDA) has been established between the City and County to represent both agencies' interests in future development. The JDA was created to implement a master plan and oversee redevelopment activities. The JDA will be the decision making body for development proposals and ensure implementation of approved mitigation plan. JDA members include two County Commissioners, two City Councilmembers, and an additional non-elected City appointee.

As part of the site development process, the City of Arden Hills has undertaken two other planning studies including development of a site Master Plan, and creation of site-specific development regulations and policies for the site. The Master Plan will confirm and refine the city's vision for site development, establish where land uses occur, and introduce the character and image of development. The development regulations and policies will refine the character and image of the development and codify the Master Plan (e.g., setbacks, heights, etc.). The final mitigation plan from this AUAR will be incorporated into the site regulations and policies.

Based on the existing Arden Hills zoning code, allowed uses within the AUAR study area include retail, non-retail commercial (i.e., office, light industrial), residential, and park (i.e., recreational). The AUAR Order approved by the City of Arden Hills defined two scenarios to be evaluated in the AUAR. The first scenario, referred to as the **Zoning Scenario**, is consistent with the City's approved comprehensive plan and the associated development limits included in the City's current zoning code. It includes up to 1,500 residential units, 500,000 square feet of retail, and 1,700,000 square feet of non-retail commercial (**Figure 5-3**).

The second scenario, referred to as the **Maximum Development Scenario**, uses the same land use framework but increases the amount of development to maximum density based on the anticipated capacity of the transportation network. This scenario includes up to 2,500 residential units, 550,000 square feet of retail, and 1,950,000 square feet of non-retail commercial (**Figure 5-3**).

In either scenario, infrastructure improvements are proposed on the site to serve the needs of future development. There will be two points of vehicle access to the site, one at CR 96 and the other at CR H. Ramsey County proposes to construct a roadway through the site, connecting these two access points. From this newly created access roadway, the city can develop a logical system of streets to provide safe and efficient access to the site. The proposed County Road will carry the majority of traffic volumes on site and will be designed as a low- speed, four-lane divided section with a trail on one side and sidewalk on the other (see **Figure 5-4**). It will be designed to County State Aid Highway (CSAH) standards. A supportive network of city streets that branch from the county road will provide access to neighborhoods and businesses. Off-site roadway improvements necessary to support both scenarios can be found in Item 18: Transportation.

The site will also contain a system of wet and dry utilities that will be constructed within the proposed County Road corridor. The City of Arden Hills will construct the public utilities (water, sanitary and storm sewer), while right of way will be made available for private utilities (gas, electric, and telecommunications). The City will be reimbursed for its infrastructure expenditures through special assessments to developers and/or property owners. All utilities are required to be installed underground per the City of Arden Hills Zoning Code (Section 1320.135). Regional stormwater management and wetland mitigation facilities will be developed on site to manage runoff, provide treatment, and serve as an integral amenity/green corridor within the planned development (see Item 11: Water Resources for more information).

Due to the presence of contaminated soils and groundwater in the AUAR study area from the prior use as an army ammunition plant, the redevelopment will be preceded by environmental cleanup efforts and soil remediation. This work began in March 2013 and is ongoing; it is anticipated to be completed by October 2015. Infrastructure improvements are expected to be constructed in 2015 - 2016, including site access, County Roadway, mass site grading, and trunk utilities. Site preparation for future development is expected to take up to two years with an anticipated completion date of 2016. Development of individual lots would then move forward in a phased approach dependent on demand over an anticipated 10 to 20 year timeframe.

6.1 *Project Magnitude Data*

For a summary of the two development scenarios, see **Table 6-1**.

TOTAL PROJECT ACREAGE:

NUMBER OF RESIDENTIAL UNITS: UNATTACHED ATTACHED MAXIMUM UNITS PER BUILDING

COMMERCIAL, INDUSTRIAL, OR INSTITUTIONAL BUILDING AREA (GROSS FLOOR SPACE): TOTAL SQUARE FEET

INDICATE AREAS OF SPECIFIC USES (IN SQUARE FEET):

OFFICE: MANUFACTURING:

RETAIL: OTHER INDUSTRIAL:

WAREHOUSE: INSTITUTIONAL:

LIGHT INDUSTRIAL: AGRICULTURAL:

OTHER COMMERCIAL (SPECIFY):

BUILDING HEIGHT: IF OVER 2 STORIES, COMPARE TO HEIGHTS OF NEARBY BUILDINGS:

Building heights of up to five stories are allowed under the current Comprehensive Plan, which is comparable to other development adjacent to the adjacent I-35W corridor.

AUAR Guidance: No changes from the EAW form, except that the information should be given for each major development scenario.

Table 6-1. Scenario Component Totals

Component	Zoning Scenario	Maximum Development Scenario
Residential Units	1,500	2,500
Retail (square feet)	500,000	550,000
Non-Retail Commercial (square feet)	1,700,000	1,950,000
Acreage	429	429
Building Height	Up to 5 stories	Up to 5 stories

There are no specific development plans for any of the land use areas within the site at this time, except for the site infrastructure. This AUAR recognizes that the density of land uses may vary from what is identified in the two scenarios being evaluated. In the 10 to 20 year development timeframe, there will likely be changes in the market, and the site must be positioned to respond to those changes. The intent of the AUAR document is to identify the worst case potential impacts and the mitigation required to compensate for those impacts.

The key factor driving site density is traffic capacity of the two site access points, and the site generated traffic volumes are driven by the mix of land use types. **Table 6-2** lists the equivalency of each land use type with regard to traffic generation. The unit rates have been blended for each land use to account for variability in the subtypes for each use (i.e., single family, multi-family, or senior housing). For example, one unit of residential space generates the same number of trips per day as 0.17 units of retail use. Thus, if density of any land use shifts from what is covered in the defined scenarios, the following table can be used to adjust the other uses accordingly as development plans are proposed and approved, so as not to exceed established thresholds for mitigation.

In other words, land use densities could be adjusted as long as the total traffic generated under the Maximum Development Scenario is not exceeded. However, it is noted that **e**ven though land use densities are flexible to facilitate development, the AUAR study area is planned as a multi-use site.

Equivalency exchange examples:

- 20 units of residential (20 dwelling units) can be replaced with 15 units of non-retail commercial (15,000 square feet) (20 x 0.75 = 15)
- 10 units of retail (10,000 square feet of gross leasable area) can be replaced with 60 units of residential (60 dwelling units) (10 x 6 = 60)

Table 6-2. Land Use Equivalency Matrix

	Residential	Retail	Non-Retail Commercial
1 Unit of Residential[1] =	1 unit of residential	0.17 units of retail	0.75 units of non-retail commercial
1 Unit of Retail[2] =	6 units of residential	1 unit of retail	4.5 units of non-retail commercial
1 Unit of Non-Retail Commercial[3] =	1.33 units of residential	0.22 units of retail	1 unit of non-retail commercial

[1] 1 Unit of Residential Development = 1 dwelling unit
[2] 1 Unit of Retail Development = 1,000 square feet gross leasable area (GLA)
[3] 1 Unit of Non-Retail Commercial Development = 1,000 square feet

7. Cover Types

AUAR Guidance: The following information should be provided instead:

a. *Cover type map, at least at the scale of a USGS topographic map, depicting:*

- *Wetlands – identified by type (Circular 39)*
- *Watercourses – rivers, streams, creeks, ditches*
- *Lakes – identify public waters status and shoreland management classification*
- *Woodlands – breakdown by classes where possible*
- *Grassland – identify native and old field*
- *Cropland*
- *Current development*

See **Figure 7-1** for a map of existing cover types.

b. *An "overlay" map showing anticipated development in relation to the cover types; this map should also depict any "protection areas," existing or proposed, that will preserve sensitive cover types. Separate maps for each major development scenario should generally be provided.*

See **Figure 7-2** shows the proposed green corridor with respect to existing cover types. .

8. Permits and Approvals Required

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

Anticipated permits and approvals are listed in **Table 8-1**.

On December 28, 2011, Ramsey County executed a $28.5 million Offer to Purchase with the U.S. General Services Administration for the TCAAP property. The county is financing the deal with $21.4 million in bonding, a $6 million transfer from its solid waste fund and $2 million in contingency funds.

In February 2012, the County Board approved a fixed-price agreement for hazardous material abatement, demolition and site remediation. Remediation costs are anticipated to be recovered when the land is ultimately sold for private development.

The City will be reimbursed for its infrastructure expenditures through special assessments to developers and/or property owners.

Table 8-1. Permits and Approvals Required

Unit of Government	Type of Application/Approval	Status
Minnesota Pollution Control Agency	National Pollutant Discharge Elimination System Stormwater Permit for Construction Activities	To be applied for
	Sanitary Sewer Extension Permit	To be applied for
	Soil and Groundwater Remediation Plan Approval	To be applied for, if needed
Minnesota Department of Health	Abandonment of Water Wells	To be applied for
	Water Main Installation Permit	To be applied for, if needed
Minnesota Department of Natural Resources	Groundwater Appropriation Permit (Construction)	To be applied for, if needed
	Public Waters Work Permit	To be applied for
Metropolitan Council	Comprehensive Plan Amendment	To be applied for
	Sanitary Sewer Extension Permit	To be applied for
Rice Creek Watershed District	Stormwater Management, Erosion Control, Floodplain Alteration, Wetland Alteration	To be applied for
Joint Development Authority	Preliminary and Final Plat approvals Development reviews/approvals	Pending, by developers
City of Arden Hills	Boundary Plat approval	To be applied for
	AUAR Approval	In process
	Comprehensive Plan Amendment	To be applied for
	Zoning Change Approval	To be applied for
	Grading, Excavation and Foundation Permits	To be applied for
	Building and Utility Permits	To be applied for
	Erosion Control Permits	To be applied for
Ramsey County	Utility permits in County Road right-of-way	To be applied for
	Access permits (connection to County Road)	To be applied for
	Hazardous waste permits	Approved

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.

The 429 acre AUAR study area is a portion of a larger 2,400 acre area commonly referred to as TCAAP. The existing land use for the entire area within the AUAR boundary is designated as P/I – Public & Institutional by the 2030 Comprehensive Plan.[1] Areas west and north of the AUAR boundary are also Public & Institutional. The Rice Creek North Regional Trail borders the site on the north and

[1] City of Arden Hills, 2030 Comprehensive Plan, September 2009

east. There is a MnDOT facility adjacent to the north side of the site (see **Figure 6-1**). South of the site are single family residential properties as well as two churches. West of the site is a manufactured home community and commercial and office uses. East of the site is the Arden Hills Army Training Site (AHATS), Arden Hills City Hall, and a Ramsey County Public Works facility. AHATS is a military training area under the control of the Minnesota National Guard and is utilized for small unit military training.

ii. PLANS. DESCRIBE PLANNED LAND USE AS IDENTIFIED IN COMPREHENSIVE PLAN (IF AVAILABLE) AND ANY OTHER APPLICABLE PLAN FOR LAND USE, WATER, OR RESOURCES MANAGEMENT BY A LOCAL, REGIONAL, STATE, OR FEDERAL AGENCY.

The City of Arden Hills 2030 Comprehensive Plan identifies the area within the AUAR boundary as MB – Mixed Business and MR – Mixed Residential. Both are described in greater detail in **Table 9-1**.

Table 9-1. Future Land Uses Identified in City of Arden Hills 2030 Comprehensive Plan

2030 Future Land Use	Description
Mixed Residential (MR)	Provides for a variety of housing types and densities in close proximity, including single-family detached homes, single-attached homes, condominiums, townhomes, apartments, and senior housing options. The anticipated average density is 10.4 units per acre with a minimum average density of six units per acre up to a maximum density of 46 units per acre. This land use is designated for the proposed TCAAP redevelopment, and the density is subject to change once a final land use plan is selected.
Mixed Business (MB)	Areas designated for a variety of businesses, including commercial, certain light industrial uses, warehousing, office, general business, retail. This designation will be used for the future business uses on the TCAAP property.

In 1996 the TCAAP Framework Plan (commonly referred to as the Vento Plan) was developed by the TCAAP Reutilization Commission appointed by Congressman Bruce Vento. In 2002 the City of Arden Hills worked with a private developer on a redevelopment plan that was ultimately withdrawn due to economic infeasibility in the recession of 2008.

The 1998 Rice Creek North Master Plan identified 113 acres of property to be acquired for the Rice Creek regional trail corridor. Located directly north of the AUAR study area, the property includes Rice Creek, an archaeological area, and wildlife habitat. This property was transferred to Ramsey County in 2006 by the National Park Service as part of the Federal Lands to Park Program. Ramsey County is obligated to make the site available for public recreational use, as well as preserve and protect the one acre archeological site located on the property. A trail and trail bridge has been constructed on this property.

The 2003 Rice Creek North Regional Trail Master Plan Amendment and 2006 Ramsey County System Plan identified an additional 49 acres of TCAAP property to be acquired as a wildlife corridor. This property, which in the process of being acquired (by end of 2014), is located adjacent to the east edge of the AUAR study area. The wildlife corridor was considered a critical link to the 1,500 acre Arden Hills Army Training Site (AHATS).

Under the 2013 Rice Creek North Regional Trail Master Plan Amendment (approved by the Metropolitan Council on August 28, 2013), an additional 60 acres is proposed to be transferred to Ramsey County Parks and Recreation for the Rice Creek North Regional Trail Corridor to be added to the wildlife corridor area. This area extends to County Road I and will facilitate the construction of

a trailhead entry driveway and additional trails. Also added is a 150 foot corridor that will establish a trail/prairie connection south to Highway 96.

iii. ZONING, INCLUDING SPECIAL DISTRICTS OR OVERLAYS SUCH AS SHORELAND, FLOODPLAIN, WILD AND SCENIC RIVERS, CRITICAL AREA, AGRICULTURAL PRESERVES, ETC.

The Arden Hills Zoning Map, July 2013, identifies the area within the AUAR boundary as M-B – Mixed Business and M-R – Mixed Residential.

As shown in **Figure 7-1**, part of Rice Creek's 100-year floodplain is within the AUAR study area. The study area is within the Rice Creek Watershed District (RCWD) and is therefore subject to RCWD's rules on floodplain alteration. Fill within the floodplain is prohibited unless compensatory floodplain storage volume is provided within the floodplain of the same water body, and a permit must be obtained from RCWD.

b. DISCUSS THE PROJECT'S COMPATIBILITY WITH NEARBY LAND USES, ZONING, AND PLANS LISTED IN ITEM 9A ABOVE, CONCENTRATING ON IMPLICATIONS FOR ENVIRONMENTAL EFFECTS.

The project area is an isolated piece of land that is separated from the rest of Arden Hills and other communities by CR 96, TH 10, I-35, CR I, and the AHATS property and has no current public access roads. Improvements to the site will make the site compatible with the 2030 Comprehensive Plan and/or zoning by allowing mixed use development of residential, retail, and non-retail commercial uses. The roadway network surrounding the project will experience an increase in traffic.

c. IDENTIFY MEASURES INCORPORATED INTO THE PROPOSED PROJECT TO MITIGATE ANY POTENTIAL INCOMPATIBILITY AS DISCUSSED IN ITEM 9B ABOVE.

The Master Plan generally locates residential uses to the east of the site and commercial uses to the west of the site along major roadways. This orientation puts less noise sensitive commercial uses between the highways and the more noise sensitive residential uses. The green corridor also encompasses the floodplain area within the AUAR study area, allowing it to be avoided by development. The green corridor will also provide regional stormwater management and wetland mitigation functions.

10. GEOLOGY, SOILS, AND TOPOGRAPHY/LAND FORMS

a. GEOLOGY - DESCRIBE THE GEOLOGY UNDERLYING THE PROJECT AREA AND IDENTIFY AND MAP ANY SUSCEPTIBLE GEOLOGIC FEATURES SUCH AS SINKHOLES, SHALLOW LIMESTONE FORMATIONS, UNCONFINED/SHALLOW AQUIFERS, OR KARST CONDITIONS. DISCUSS ANY LIMITATIONS OF THESE FEATURES FOR THE PROJECT AND ANY EFFECTS THE PROJECT COULD HAVE ON THESE FEATURES. IDENTIFY ANY PROJECT DESIGNS OR MITIGATION MEASURES TO ADDRESS EFFECTS TO GEOLOGIC FEATURES.

According the Geologic Atlas of Ramsey County (Minnesota Geological Survey, 1992), bedrock in the AUAR study area consists of Prairie du Chien Group underlain by Jordan Sandstone and St. Lawrence and Franconia Formations.

Prairie du Chien is commonly sandy or oolitic and thin-bedded dolostone for the upper half to two-thirds with the lower portion generally being massive or thick bedded dolostone and ranges from 119 to 133 feet thick. Jordan Sandstone is medium- to coarse-grained, friable, quartzose sandstone on the upper part and primarily fine-grained, feldspathic sandstone on the lower part; it ranges in thickness from 71 to 101 feet. St. Lawrence and Franconia Formations are dolomitic shale and siltstone (ranging from 34 to 59 feet thick) underlain by very fine-grained, feldspathic sandstone, generally well-cemented with dolomite (116 to 160 feet thick).

There are no karst or sinkhole features in the AUAR study area.

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 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.

Soil data was obtained from the NRCS Web Soil Survey.[2] As shown in **Table 10-1**, the study area contains nine soils types but is predominately made up of soil identified as 1039, Urban land.

Table 10-1. Soils in the AUAR Study Area

Map Unit Symbol	Map Unit Name	Acres	Percent of Study Area
132C	Hayden fine sandy loam, 6-12% slopes	1.1	0.2%
158B	Zimmerman loamy fine sand, 0-6% slopes	23.4	5.5%
158C	Zimmerman loamy fine sand, 6-12% slopes	1.9	0.4%
859B	Urban land-Zimmerman complex, 1-8% slopes	12.8	3.0%
860C	Urban land-Hayden-Kingsley complex, 3-15% slopes	22.4	5.2%
861C	Urban land-Kingsley complex, 3-15% slopes	20.2	4.7%
863	Urban land-Lino complex, 0-3% slopes	0.1	0.0%
1039	Urban land	338.4	78.9%
1813B	Lina variant loamy fine sand, 2-6% slopes	8.2	1.9%
W	Water	0.3	0.1%

According to the Geologic Atlas of Ramsey County (Minnesota Geological Survey, 1992), the surficial soils in the study area are primarily buried, coarse meltwater stream sediment; and till beneath sandy lake sediment, with small areas of till and organic sediment. The surficial deposits in heavily developed areas, such as those in the study area, are frequently covered by thick artificial fill or reworked local materials.

The topography of the AUAR study area is generally flat (see **Figure 5-2**) with the exception of the southeast corner which has moderate to steep slopes. Stabilization on these slopes will be provided by means of vegetation establishment, erosion control blankets, or other standard methods of erosion and sediment control devices.

The earthwork associated with the development will consist of excavation and embankment for the infrastructure improvements, followed by site grading for the development of individual lots. Existing topographic information indicates that a large amount of earthwork will be needed across the site. The southeast side of the site is significantly higher than the rest of the site, and may require more grading due to more varied topography and steep slopes. It is assumed that the majority of onsite earthwork should balance on site.

[2] http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, accessed November 18, 2013

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.

One stream, Rice Creek, crosses through the AUAR study area. Rice Creek is a DNR Public Water.

A wetland delineation conducted by Ramsey County found 58 areas that met the criteria to be considered wetland within the 429 acre AUAR study area. The 58 wetland areas collectively cover approximately 14.4 acres, of which approximately 6.5 acres are located within railroad or road ditches or were created as a result of site grading and runoff from impervious surfaces and may not be considered jurisdictional wetlands (see **Figure 7-1**). However, for purposes of this analysis, all areas meeting the wetland criteria (14.4 acres) were assumed jurisdictional and evaluated for impacts.

Within one mile of the AUAR study area, there are three waterbodies that are on the MPCA's Impaired Waters List: Rice Creek, Long Lake (PWI #67P), and Valentine Lake (PWI #71P), of which only Rice Creek receives runoff from the site. Round Lake is not listed as impaired by the MPCA but is known to have impaired sediment.

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.

According to historical observations by Ramsey County, groundwater is shallowest in the area directly south of Rice Creek where it is approximately 4 to 5 feet deep.

The AUAR study area is within a wellhead protection area for drinking water (see **Figure 11-1**). A wellhead protection area is a recharge area to a public well and is the area managed by the public water supplier, as identified in the wellhead protection plan, to prevent contaminants from entering public wells. Additional guidance will be required from the Minnesota Department of Health to evaluate proposed stormwater infiltration projects that are located within this area.

The Army established an extensive network of monitoring wells, groundwater extraction wells, pump houses, and associated piping within the AUAR study area in the mid-1980s which operate continuously, pumping contaminated groundwater to a treatment facility also within the AUAR study area (see **Figure 12-1**). The Army will continue to own and operate the system regardless of changes in land ownership, and will continue to conduct all required groundwater sampling and the maintenance and monitoring of groundwater treatment facilities and associated wells, well houses, and other remediation infrastructure.[3]

According to the Minnesota County Well Index, there are 170 wells located within the AUAR study area, 64 of which have not been field verified but are based on the midpoint of the Public Land Survey

[3] Wenck Associates, Inc. *Response Action Plan/Development Response Action Plan*, 2013.

locations reported by the driller. Of these 170 wells, 150 are listed as active. **Table 11-1** provides a summary of the uses recorded for the wells within the study area, as reported by the Well Index (for locations see **Figure 11-1**). Additional information on the wells, including the unique well numbers, can be found in **Appendix B**.[4] Many of the wells are active water quality monitoring wells, while many others have no specific information recorded.

Table 11-1. Well Uses within the AUAR Study Area

Well Use	Number of Wells within Study Area
Sealed/Abandoned	20
Monitoring Well	60
Industrial	3
Domestic	2
Remedial	3
Other	45
Unknown	37

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.

Metropolitan Council Environmental Services (MCES) operates the regional wastewater system. MCES provides wastewater service to the AUAR study area via a lift station and a series of interceptors.

The MCES lift station that serves the AUAR study area and southeast Mounds View is located approximately one-third mile west of CR 10 on CR H. The City of Mounds View has a 21 inch trunk sanitary sewer that runs to the northeast quadrant of the County Road I and County Road H intersection. The City also has an 18-inch trunk sanitary sewer that continues east, under I-35W and under Rice Creek in a dual inverted siphon, and into the AUAR study area.

The MCES lift station has a flow capacity of 5.8 million gallons per day (mgd). The average daily flow pumped at this lift station between 2005 and 2010 ranged from 0.47 mgd to 0.57 mgd. The corresponding allowable peak flow, reached during precipitation events, would be a maximum of just under 2.0 mgd. Therefore, the station's reserve capacity is approximately 3.8 mgd. Based on the MCES Sewer Available Charge (SAC) Program, the estimated peak flows generated by the Zoning Scenario and Maximum Development Scenario are 2.42 mgd and 2.75 mgd, respectively. Therefore, in the Maximum Development Scenario approximately 1.05 mgd of capacity would

[4] Minnesota Geological Survey & Minnesota Department of Health. County Well Index shapefile. Content last updated 1 December 2011.

remain at the lift station after the development of the AUAR study area. Both the lift station and the regional interceptors serving the study area and southeast Mounds View have sufficient capacity to accommodate the additional flow required in each Scenario.

Regional wastewater collection and treatment facilities and municipal wastewater pipes serving the study area have sufficient long-term capacity to handle the additional wastewater flow generated by both the Zoning and Maximum Development Scenarios.

Sanitary sewer will need to be extended into the AUAR study area to provide sewer service to the various lots. The use of a small lift station may be required depending on future uses, but the system will primarily be gravity-based.

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.

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

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.

   No wastewater discharge to surface waters is anticipated.

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.

Stormwater will be managed on-site, maintaining the current drainage patterns and utilizing the current outfalls to Rice Creek and Round Lake. The site will require compliance with Rice Creek Watershed District (RCWD) rules for water quality, volume control, runoff control and erosion control.

As required by RCWD, the quantity of stormwater runoff in post-development conditions will not exceed existing conditions. The runoff rate will be reduced to 80% of the existing rate because the AUAR study area is located within a Flood Management Zone as defined by RCWD. There are three existing outfalls to Rice Creek with an approximate capacity of 500 cubic feet per second, and one outfall to Round Lake with a capacity of approximately 200 cubic feet per second. Infrastructure improvements will include the rehabilitation or replacement of existing outfalls that are determined to be in poor condition.

The required treatment volume is determined by the Watershed District as a function of new impervious area. The estimated treatment volumes required based on assumed impervious area coverage in the Zoning scenario and Maximum Build scenarios are 42 acre-feet and 43 acre-feet, respectively. The primary method of treatment will be the use of multiple ponds for the removal of total phosphorous and

total suspended solids. Water reuse, bio-filtration, filtration, and stormwater wetlands are also suitable for treatment within the AUAR study area.

The northwest portion of the AUAR study area located north of Rice Creek is comprised of Type A soils with highly permeable soils and is well-suited for infiltration practices. Generally infiltration may not be feasible in some areas located south of Rice Creek, depending on the level of soil and groundwater remediation achieved. Rice Creek Watershed District considers infiltration infeasible where soils are contaminated and "directs that infiltration not be used" per Table C2 of the District rules. Given the site history, the use of infiltration practices should be used on a case-by-case basis in areas where geotechnical and environmental testing indicates that soil contamination has been remediated.

Stormwater will be conveyed to Round Lake and Rice Creek by means of underground storm sewer, vegetated swales, and wetlands. Conveyance systems will be designed in accordance with acceptable industry standards and in conformance with jurisdictional requirements.

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.

Temporary dewatering may be required during project construction, particularly for buildings to be constructed with lower levels, for which caissons could be used to facilitate installation of footings and foundations. All water pumped during construction dewatering activities will be discharged in compliance with City, Watershed, and Minnesota Department of Natural Resources (DNR) requirements and the National Pollutant Discharge Elimination System (NPDES) permit, and consistent with approved Response Action Plans, as necessary. No discharge water will be directed to surface waters without prior retention in a temporary settling basin and a determination that no contamination exists. The developer will determine if groundwater is contaminated as a basis for determining discharge to storm sewer, sanitary sewer, or through a treatment process such as the existing groundwater treatment facilities. Temporary construction dewatering will require a Temporary Water Appropriations General Permit 1997-0005 if less than 50 million gallons per year and less than one year in duration.

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.

Impacts: Given the scattered location of the site wetlands and the absence of a mass grading plan, the specific extent of wetland impacts cannot be estimated. Therefore, for purposes of this evaluation it was assumed that all 14.4 acres of wetland identified on the site would be considered waters of the US and under US Army Corps of Engineers (USACE) jurisdiction, and under the jurisdiction of the Rice Creek Watershed District as the local government unit under the Wetland Conservation Act. It was assumed for this analysis that all wetlands would be impacted by site development. However, some wetland may be preserved within the proposed site green space.

Mitigation Requirements: Based on compatible needs (wetlands need a water source, stormwater management needs a receiving area), the stormwater management areas and wetland replacement would be combined to the extent possible under current regulations. There are a number of constraints (topography, site grading) and challenges (staging of development) that will need to be addressed in order for these functions to work on-site and work together. The County and City are currently in the planning stage to design the regional stormwater/wetland mitigation plan.

The USACE and Wetland Conservation Act (WCA) mitigation requirements are similar. The USACE oversees Section 404 of the Clean Water Act and Rice Creek Watershed District implements the WCA or MN Rule 8420.

Wetland impacts are assumed to be replaced at a 2:1 ratio, meaning for every 1 acre of wetland impacted by the project, 2 acres will either be created or wetland credits will be purchased from a state wetland bank. Given the site constraints, it is anticipated that approximately half (1:1 ratio) of wetland impacts would be replaced on site with the other half being replaced off-site by purchasing credits from the state wetland bank. The current WCA requirements for on-site project specific replacement is any new wetland created onsite would receive 75% credit. This means that to reach 14.4 acres of onsite replacement, 19.2 acres of wetland would be required along with upland buffers. This amount could be decreased if not all the wetland is impacted, or not all the wetland is jurisdictional, or if RCWD allows more replacement within the adjacent Rice Creek parklands or other off-site locations.

The purchase of off-site wetland credits would include 14.4 acres. The wetland bank sites where these credits will be withdrawn from would be required to be located in the same Bank Service Area (BSA 7) and major watershed 20 (Mississippi River (Metro)).

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.

A new crossing of Rice Creek is needed at CR H for a site access road. The crossing is assumed to be via a bridge that spans the creek, wetlands and floodplain, and would allow wildlife to cross underneath. A trail crossing at this location may also be considered (under the creek bridge). It is

assumed that the bridge will be designed to have no impact on the floodplain. Ramsey County is conducting a design study for the creek crossing and the required coordination with the RCWD.

The project will not change the number or type of watercraft on any waterbody.

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.

TCAAP was constructed in 1941 to produce small-caliber ammunition and related materials. Production levels varied over time and ceased in 2005. The production operations resulted in the release of hazardous substances into the environment, and in 1983 the site was placed on the National Priorities List as the New Brighton/Arden Hills Superfund Site.[5]

According to the US Environmental Protection Agency (EPA), the wastes disposed at TCAAP included volatile organic compounds (VOCs) (including Trichloroethylene or TCE), semi-VOCs, metals, polychlorinated biphenyls (PCBs), cyanide, pesticides, and explosives. The primary impact to the surrounding communities has resulted from VOC contamination of the regional groundwater source. The AUAR study area is located in what is known as Operable Unit 2 (OU2). In 1997 a Record of Decision (ROD) for OU2 was signed, and by summer 2002 remedial and removal actions were largely complete. The remaining cleanup action required by the OU2 ROD was excavation and installation of soil covers at Site C (within the AUAR study area) which was completed in 2009. A plume of VOC-contaminated groundwater was discovered around Building 102 (see **Figure 12-1**), and the removal action was implemented and completed in 2009. An extensive long-term monitoring program for groundwater, surface water, and sediments is currently in place and will continue into the future.[6]

The US Army is the responsible party for the Superfund site. In 2010, the EPA and MPCA approved the Army's Land Use Control Remedial Design (LUCRD) document. The land use controls were aimed at areas with residual groundwater contamination, areas with residual soil contamination below the cleanup levels but above levels allowing unlimited use or unrestricted exposure, and areas with residual soil contamination above the cleanup levels (areas with covers).[5]

Additional cleanup and remediation efforts are underway for the AUAR study area and will be complete in 2015.

In accordance with MPCA Voluntary Investigation and Cleanup (VIC) Program guidance documents, a soil Response Action Plan (RAP) and Development Response Action Plan (DRAP) have been developed for the

[5] Wenck Associates, Inc. *Operable Unit 2 (OU2) Land Use Control Remedial Design (LUCRD) New Brighton/Arden Hills Superfund Site*. September 2010.
[6] US Environmental Protection Agency. Region 5 Superfund: New Brighton/Arden Hills/TCAAP (Summary). August 2013. Accessed 6 January 2014. http://www.epa.gov/region5/superfund/npl/minnesota/MN7213820908.html.

AUAR study area site. The RAP/DRAP addresses hot spots previously identified with contamination exceeding residential standards, any new contamination discovered during the remediation process, remediation conducted on newly discovered sites, and petroleum contamination. The RAP/DRAP does not address Site I, Site K, Building 101, and Building 102 in detail. These sites will be submitted to the MPCA under a separate review process.

Previous sampling on the AUAR study area site has revealed elevated levels of the following:

- Metals (antimony, arsenic, copper, iron, lead, manganese, mercury, thallium and vanadium)
- Carcinogenic PAHs (expressed as benzo(a)pyrene equivalents)
- Polychlorinated Biphenyls (PCBs) and
- Volatile Organic Compounds (VOCs)
- Petroleum-related contamination related to historical site operations and former storage tanks.

All of these soil contaminants will be remediated to comply with MPCA Tier 1 residential standards.

Thirty-six hot spots that were previously identified or identified during remediation will be remediated through excavation. According to the approved site response action plan, excavated contaminated soils will be shipped with trucks to an industrial waste facility in Rosemount, Minnesota. Sampling of the excavated area will be used to confirm remediation. If an excavated site soil sample fails to meet the remediation standards, the site will be excavated until samples clear residential standards. Sites that have undergone excavation with be filled with off-site soil.

All above-grade and subgrade structures and utilities will be removed. Testing will be conducted in instances where the contractor feels contamination is possible. If contamination is confirmed, the process of excavation and sampling detailed above will be implemented.

There is currently a groundwater treatment and recovery system within the AUAR study area as described under Item 11b. The groundwater recovery system will remain as will the groundwater treatment building and 14 extraction wells. To accommodate development, some of the piping will be relocated outside of the AUAR study area, but the piping along the western edge of the site is anticipated to remain in place (see **Figure 12-1**). In areas of previous VOC contamination, testing or abatement measures for VOC vapors may be required by the City to avoid potential impacts of VOC vapors in new building spaces.

b. PROJECT RELATED GENERATION/STORAGE OF SOLID WASTES - DESCRIBE SOLID WASTES GENERATED/STORED DURING CONSTRUCTION AND/OR OPERATION OF THE PROJECT. INDICATE METHOD OF DISPOSAL. DISCUSS POTENTIAL ENVIRONMENTAL EFFECTS FROM SOLID WASTE HANDLING, STORAGE AND DISPOSAL. IDENTIFY MEASURES TO AVOID, MINIMIZE OR MITIGATE ADVERSE EFFECTS FROM THE GENERATION/STORAGE OF SOLID WASTE INCLUDING SOURCE REDUCTION AND RECYCLING.

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

Construction of the future development would generate construction-related waste materials such as wood, packaging, excess materials, and other wastes, which would be either recycled or disposed in the proper facilities.

The proposed development would generate new demands on solid waste management and sanitation services provided in the project area. The EPA's 2011 publication *Municipal Solid Waste in the United*

States was consulted as a basis for estimating Municipal Solid Waste (MSW) generation for the proposed development. It is estimated that 4.40 pounds of MSW will be generated per person per day. An average household occupancy of 2.61 was applied to the estimated residential units based on US Census Bureau 2008-2012 data, and traffic analysis was referenced with a factor of 1.59 applied to the trips generated based on US Department of Energy Vehicle Occupancy Rates for 2010. The resulting range of MSW generated per year based upon the Zoning and Maximum Development Scenarios is 27,300 to 31,900 tons, respectively. Per EPA document *AP-42, Vol. I, Ch 2.4: Municipal Solid Waste Landfills*, it is estimated that the non-residential (commercial/industrial) waste stream will range between 33,900 to 39,600 tons per year under Zoning and Maximum Development Scenarios.

The City of Arden Hills provides weekly curbside recycling service to single family through four-plex residential homes, including townhomes. All apartment and multi-unit building owners and managers are required to provide a recycling collection program for tenants. Recycling services are available locally for commercial and industrial uses.

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.

Not required for an AUAR.

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.

Not required for an AUAR.

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

a. DESCRIBE FISH AND WILDLIFE RESOURCES AS WELL AS HABITATS AND VEGETATION ON OR IN NEAR THE SITE.

According to the Minnesota Land Cover Classification System (MLCCS), there are three primary cover types within the AUAR study area: grassland, woodland, and impervious/developed.[7] The grassland and impervious/developed areas are spread through the AUAR study area; the woodlands cover a much smaller area (see **Figure 7-1**). The woodland areas identified in **Figure 7-1** can be described as areas with scattered woody vegetation with less than 15 percent canopy cover and an understory of smooth brome grass. The woody vegetation primarily consists of small scrubby volunteer trees and shrubs generally less than 25 feet in height, including cottonwood, juniper, box elder, Siberian elm, and Russian olive. This cover is indicative of a disturbed

[7] Land cover types were grouped based on similarity. Grassland includes grassland or emergent vegetation, grassland with sparse deciduous trees, short grasses on upland soils, shrubland, tall grassland, and 4-10% impervious cover with perennial grasses. Woodland includes only upland deciduous woodland. Impervious/developed includes 26-50% impervious cover with perennial grasses, 76-90% impervious cover, buildings with 76-90% impervious cover, and pavement with 76-90% impervious cover.

site that has regenerated with opportunistic plant species. The Minnesota Biological Survey does not show any sites of biodiversity significance or native plant communities within the AUAR study area.

Just east side of the AUAR study area is the proposed Rice Creek North Regional Trail. The 2003 Rice Creek North Regional Trail Master Plan Amendment and 2006 Ramsey County System Plan identified 49 acres of TCAAP property to be acquired as a wildlife corridor. According to the 2013 Rice Creek North Regional Trail Master Plan Amendment (approved by the Metropolitan Council on August 28, 2013), an additional 60 acres is proposed to be added to the wildlife corridor (**Figure 7-1**). This wildlife corridor provides habitat for birds, small mammals, and invertebrates and has several osprey nesting platforms. It is also provides a wildlife habitat connection between the open space of AHATS and the open space of Rice Creek.

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 _20140096**) 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.

A DNR database search for the AUAR study area and surrounding area identified a number of resources known to occur near the AUAR study area, and general ecological designations portions of the site. There are no state or federal listed threatened or endangered species or rare plant communities recorded within the AUAR study area in the DNR NHIS database. State-listed occurrences found beyond the AUAR study area in or near Marsden Lake on the AHATS property include a known population of Blanding's turtles (*Emydoidea blandingii* – state-listed threatened species); trumpeter swans (*Cygnus buccinator* – state-listed species of special concern); and a population of the plains pocket mouse (*Perognathes flavescens* – state-listed species of special concern, between the gravel pit and Marsden Lake).

The proposed project is within the statewide importance area for the Blanding's turtle. The preferred habitat for this species includes calm, shallow wetlands (Type 1-3) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies). Nesting occurs in open (grassy or brushy) sandy uplands, often up to a mile from water bodies. The majority of the wetlands within the AUAR study area are not large enough to support turtles (ditches), and most of the soils are disturbed urban land. There is no record of the turtle within the AUAR study area; however, turtles are known to occur within the vicinity, and may occur within the project boundary. A turtle fact sheet that describes the habitat use and life history of the species along with two lists of recommendations for avoiding and minimizing impacts to the turtles are included in **Appendix B**.

Trumpeter swans (*Cygnus buccinator*), a state-listed species of special concern, have been observed nesting within the AHATS site on Marsden Lake. Nesting habitat includes lakes and ponds with 100 meters of open water for take-off, stable levels of unpolluted water, emergent vegetation and low levels of human disturbance. The AUAR study area does not contain any suitable nesting habitat for trumpeter swans.

The plains pocket mouse (*Perognathus flavescens*), which is a state-listed species of special concern, has also been documented within the AHATS site. There are no known occurrences of the mouse within the AUAR study area; however the northwestern corner of the site was noted by the DNR as potentially containing suitable habitat for the mouse. Suitable habitat is restricted to open, well-drained areas, typically on sandy soils with sparse, grassy or brushy vegetation. The grass vegetation in the northwest corner of the site may be too dense for this species and too far from the gravel pit population to support this species (Birney, 1999).

The DNR Central Region (in partnership with the Metropolitan Council for the 7-county metro area), have identified two Regionally Significant Ecological Areas (RSEA) within portions of the AUAR study area (**Appendix B**). One area overlaps with the portion of the site that is north of Rice Creek and the other overlaps with the eastern edge of the site near the existing substation. RSEA designations are based on the size and shape of the ecological area, land cover within the ecological area, adjacent land cover/use, and connectivity to other ecological areas. These two areas are designated primarily as a result of being part of a large expanse of vacant land within an urban area and their connectivity to Rice Creek and Marsden Lake, respectively. The purpose of the RSEA designation is to inform regional scale land use decisions, especially as it relates to balancing development and natural resource protection.

The AUAR study area is also located within the AHATS – Rice Creek Important Bird Area (IBA). IBAs are identified by Audubon Minnesota in partnership with the DNR, are part of an international conservation effort aimed at conserving critical bird habitats. IBAs are voluntary and non-regulatory, but the designation does demonstrate the biological value of this area. This particular IBA contains varied habitat, including extensive grasslands, and provides important habitat for waterfowl, raptors, and passerines within an urban landscape. A minimum of 166 bird species have been observed within the IBA boundary, which encompasses the original 2,400 acre TCAAP parcel.

In 2013, four of five osprey nests/nesting platforms were removed from the AUAR study area by Ramsey County under a DNR permit. Platforms were relocated to adjacent Ramsey County parkland property. One platform remains on the powerpole at the pumphouse near the east edge of the AUAR study area. The pumphouse and pole will remain within the site. There is a reported bald eagle nesting site on the west side of Round Lake, which is approximately 0.5 miles from the southwest corner of the AUAR study area. Both bird species nest near lakes.

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.

Habitat for the three listed species within the AUAR study area is poor compared to the habitat present within the adjacent AHATS site. No direct or indirect effects are anticipated on state-listed species, based on implementation of recommendations provided by the DNR fact sheet for the Blanding's turtle.

It is anticipated that creation of a green corridor through the AUAR study area will provide habitat elements for turtles, birds and other wildlife. This corridor will provide an important link to the Rice Creek corridor and the County's adjacent wildlife corridor. The City may also consider building guidelines that minimize the amount or type of glass used on multi-story building to minimize bird strikes.

The development of the AUAR study area will not impact existing bald eagle or osprey nesting sites, or prevent nesting activity.

d. IDENTIFY MEASURES THAT WILL BE TAKEN TO AVOID, MINIMIZE, OR MITIGATE ADVERSE EFFECTS TO FISH, WILDLIFE, PLANT COMMUNITIES, AND SENSITIVE ECOLOGICAL RESOURCES.

Measures to minimize and avoid impacts to Blanding's turtle will be required for all development plan approvals. Specific measures are outlined in the draft mitigation plan.

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.

SHPO conducted a search of the Minnesota Archaeological Inventory and Historic Structures Inventory for Sections 9 and 16 of Township 30, Range 23 in Arden Hills (dated December 31, 2013) (see **Appendix B**). The sites listed in **Table 14-1** are those that are located in quarter sections that intersect with the AUAR study area. This does not necessarily mean that the identified sites are within the AUAR study area because specific locations are not identified in the inventory. All sites possibly within the AUAR study area, based on the quarter section identifications, are listed below and were evaluated for the purposes of this analysis.

Table 14-1. Scenario Component Totals

Site/ Inventory #	Name	Twp	Range	Section	Quarter Section	Acres
Archaeological Sites						
21RA0022	Trap Shooting Area	30	23	9	SW-SE-NW	0.5
21RA0056	Historic artifact scatter	30	23	16	SW-SE	0.1
21RA0058	Prehistoric lithic scatter	30	23	9	NW-SW-SW	1.5
21RA0059	Prehistoric lithic scatter	30	23	9	SE-SW-NW	1.4
21RA0060	Historic artifact scatter	30	23	16	NW-NW-NW	0.1
21RA0061	Prehistoric flake	30	23	9	SE-SW-NE	0.1
Historical/Architectural Sites						
RA-AHC-006	Twin Cities Army Ammunition Plant	30	23	9, 16		
RA-AHC-007	Special Weapons Plant (Building 104)	30	23	9	SW-SW	
RA-AHC-008	General Purpose Storage Building (Building 152)	30	23	9	SE-SW	
RA-AHC-009	General Purpose Storage Building (Building 174)	30	23	16	NW-NE	
RA-AHC-010	Maintenance Shop (Building 176)	30	23	16	NW-NE	
RA-AHC-014	General Purpose Storage (Building 190)	30	23	9	SW-SE	
RA-AHC-015	Peroxide Resinate Cake Drying House #1 (Building 192A)	30	23	9	SW-NE	
RA-AHC-016	Peroxide Resinate Cake Drying House #1 (Building 192B)	30	23	9	SW-NE	
RA-AHC-017	Office Building (Building 199)	30	23	9	SW-NE	
RA-AHC-035	Sub/SWIT Station (Building 567A)	30	23	16	NW-SE	
RA-AHC-036	Sub/SWIT Station (Building 567B)	30	23	16	NW-SE	
RA-AHC-037	Lumber Shed (Building 717)	30	23	9	SW-SE	
RA-AHC-038	General Purpose Storage (Building 908)	30	23	9	SW-SE	
RA-AHC-039	General Purpose Storage (Building 909)	30	23	9	SW-SE	
RA-AHC-040	General Purpose Storage (Building 961)	30	23	16	SW-SE	

In previous site investigations, the Trap Shooting Area (21RA0022) was found to contain a pre-contact American Indian habitation/resource procurement site of approximately 0.3 acres. It sits near a western slope of Rice Creek in the Rice Creek Corridor, an area undisturbed by plowing or by the grading and filling historically conducted at the TCAAP site. It sits just outside of the AUAR study area, within the county park land. Artifacts found at the site include pottery and lithics. The other five archaeological sites identified in the SHPO file search were previously evaluated as part of the 2011 Environmental Assessment prepared by the General Services Administration (GSA) for the TCAAP study area. The archaeological investigations concluded that none of these sites were eligible for listing on the National Register of Historic Places (NRHP). The State Historic Preservation Office (SHPO) concurred with this determination, as captured in a Memorandum of Agreement signed in 2010. Based on these previous findings, no impacts to archaeological properties are anticipated as a result of the development of the AUAR study area.

In the same 2011 EA, six World War II-era structures on the TCAAP site that were considered eligible for inclusion on the NRHP were expected to be demolished . The documentation performed on those six buildings met the requirements for Section 106 compliance, and the Memorandum of Agreement states that the GSA adequately addressed and satisfied their obligations to comply with Section 106 of the National Historic Preservation Act. All but one building within the AUAR study area were removed in 2013, and the remaining building (#502) is set to be demolished in 2014. Thus, there will be no structures remaining on the site and no impacts to historic/architectural properties will occur from the development of the AUAR study area.

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.

The structures within the AUAR study area have been or will be demolished prior to construction of the AUAR study area. Building heights under the proposed development scenarios would range from one to six stories in the larger part of the site and up to eight stories within the smaller site area north of Rice Creek. The proposed redevelopment would occur in an urbanized area, surrounded by multiple-lane highways on the south and west (across which are residential, church, and commercial properties), AHATS to the east, and Rice Creek North Regional Trail and a MnDOT facility to the north. Lighting requirements for future development will be outlined in the forthcoming Development Regulations and Policies for the site.

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.

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

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.

Typical of most developments, the proposed development will generate air pollution as a result of increased motor vehicle activity. Motor vehicles emit a variety of air pollutants including carbon monoxide (CO), hydrocarbons, nitrogen oxides, and particulates. The primary pollutant of concern is CO, which is a byproduct of the combustion process of motor vehicles. CO concentrations are highest where vehicles idle for extended periods of time. For this reason, CO concentrations are generally highest in the vicinity of signalized intersections where vehicles are delayed and emitting CO. Generally, concentrations approaching state air quality standards are found within about 100 feet of a roadway source. Further from the road, the CO in the air is dispersed by the wind such that concentrations rapidly decrease.

The Indirect Source Permit (ISP) rule 7023.9010 was terminated in 2001; therefore, an ISP is not required for the proposed development. A hot spot air quality screening was conducted and is described below.

The EPA has approved a screening method to determine which intersections need analysis for potential hot spot air quality impacts. The screening analysis consists of two criteria. If either criterion is met, then an intersection analysis would be required.

The first criterion is to determine whether the total daily approach volume of the AUAR study area exceeds 79,400 AADT. If it does, then an analysis would be required. The approach volumes at all of the signalized intersections near the AUAR study area are below approximately 40,000 AADT, with the highest being at the intersection of Lexington Avenue and CR 96, and all are well below the threshold of 79,400. Therefore, the first criterion is not met.

The second criterion compares the AUAR study area to the locations of 10 intersections that the MPCA has identified as having the highest volumes in the metro area. If any of these 10 intersections were affected by either development scenario then analysis would be required. The nearest of these intersections is five miles away, at the intersection of TH 252 and 66th Street in Brooklyn Center, and would not be impacted by the development; therefore, the second criterion is not met. As a result, no hot spot analysis is needed, and no measurable change in air quality is anticipated under either of the development scenarios.

No air quality mitigation is required.

c. DUST AND ODORS - DESCRIBE SOURCES, CHARACTERISTICS, DURATION, QUANTITIES, AND INTENSITY OF DUST AND ODORS GENERATED DURING PROJECT CONSTRUCTION AND OPERATION. (FUGITIVE DUST MAY BE DISCUSSED UNDER ITEM 16A). DISCUSS THE EFFECT OF DUST AND ODORS IN THE VICINITY OF THE PROJECT INCLUDING NEARBY SENSITIVE RECEPTORS AND QUALITY OF LIFE. IDENTIFY MEASURES THAT WILL BE TAKEN TO MINIMIZE OR MITIGATE THE EFFECTS OF DUST AND ODORS.

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

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.

AUAR Guidance: Noise need not be addressed in an AUAR, unless there is some unusual reason to do so. The RGU might want to discuss as part of the mitigation plan, however, any construction noise ordinances in effect. If the area will include or adjoin major noise sources, a noise analysis is needed to determine if any noise levels in

excel of standards would occur, and if so, to identify appropriate mitigation measures. With respect to traffic-generated noise, the noise analysis should be based on the traffic analysis of Item 18.

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. It should also be noted that all county roads are exempt from State noise standards.

A sound increase of three dBA is barely noticeable by the human ear, a five 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 three dBA increase in noise, which is just barely noticeable to most people. On the other hand, if traffic increases by a factor of 10, the resulting sound level will increase by about 10 dBA and be heard as twice as loud.

Traffic volumes in the project area are either on roadways that do not have receivers that are sensitive to noise, or, the traffic levels attributable to the project are well below the amount that would generate a sound increase that could be noticeable. Residential areas exist on US 10 between CR 96 and I-35W, as well as along CR 96 to the east of the project. The highest traffic volume generated by the project is projected to be approximately 5,000 vehicles per day on US10 between CR 96 and I-35W, which is approximately 10 percent of the background total daily traffic volume of approximately 50,000 that will exist on this roadway segment. The highest traffic volume generated by the project on CR 96 east of the project area is projected to be approximately 10,000 vehicles per day, which is approximately 40 percent of the background total daily traffic volume of approximately 25,000 that will exist on this roadway segment. Noise walls are currently being constructed along CR 96 west of US 10, and along US 10 for a short distance north of CR 96, as part of the 96/10 interchange construction project.

The AUAR study area will be developed such that any land use activities that are sensitive to noise will have sufficient setbacks from existing noise sources to thereby reduce the potential for any noise impact. These details will be determined as the project development proceeds.

Construction within the AUAR study area will result in increases in traffic noise of less than 3.0 dBA. A change in sound levels of three dBA is barely noticeable by the human ear. Therefore, the change in traffic noise levels is not anticipated to be readily perceptible. To the extent possible, construction activities will be conducted in a way such that noise levels are minimized, and that nighttime construction activities are kept to a minimum.

18. TRANSPORTATION

AUAR Guidance: For AUAR reviews a detailed traffic analysis will be needed, conforming to the MnDOT guidance as listed on the EAW form. The results of the traffic analysis must be used in the response to section 22 and in the noise aspect of section 24.

NOTE: Refer to the Traffic Study for the AUAR study area (included as Appendix D) for figures with numbers starting with T (e.g., Figure T4).

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.

Parking

The number of parking spaces in each scenario is estimated in **Table 18-1**. The parking generation is based on the 4th Edition of the *Institute of Transportation Engineers Parking Generation* (2010), and is based on

the land use information for the Minimum and Maximum Development Scenarios as described as part of the Trip Generation section of this document. The existing site has no parking.

The proposed land uses are expected to generate parking demand within the AUAR study area. The weekday peak parking demand for the residential, retail, and office/non-retail land uses of the proposed development was calculated based on blended rates. For non-retail/commercial a mix of office and light industrial was used. For residential parking, the rates use estimates of proportions of apartments, townhouses and single family homes. The residential uses are proposed to have private parking, and parking spaces are not proposed to be shared with public parking associated with the rest of the proposed development.

Table 18-1. Parking Demand Estimate Summary

Land Use Description	ITE Land Use Code	Size		Average Peak Parking Rate (stalls)	Parking Demand (stalls)
Minimum Development Scenario					
Residential	210/221	1,500	DU	1.6	2,400
Retail	820	500	ksf	3.8	1,900
Non-retail Commercial	110/701	1,700	ksf	2.2	3,800
				Total	8,100
Maximum Development Scenario					
Residential	210/221	2,500	DU	1.6	3,900
Retail	820	550	ksf	3.8	2,100
Non-retail Commercial	110/701	1,950	ksf	2.2	4,400
				Total	10,400

Transportation Network Analysis Scenarios

Due to increases in background traffic and the proposed AUAR study area redevelopment, transportation network changes are anticipated to occur in the future. Several long term improvements are being considered by Ramsey County and MnDOT adjacent to the AUAR study area. Changes at the CR H and I-35W interchange will influence trip distribution for the proposed AUAR study area. These improvements are shown in **Figure 18-1**. A description of the various transportation networks assumed under each scenario is included below.

Internal Site Development Roadway System

The internal roadway system will consist of a north/south spine road, owned and operated by Ramsey County in addition to a network of local streets. The spine road will be consistent with County State Aid Standards (CSAH) for intersection spacing which is ¼ mile minimum spacing for full access intersections and $^1/_8$ minimum spacing for right-in/right-out accesses. The intent of the County would be to have the roadway classified as a Class A Minor Arterial Highway Expander. The minor streets will primarily provide access to residences and private businesses. As the site development is refined, the roadway system will be modified to provide access, while also satisfying access spacing requirements to maintain reasonable mobility.

Local and Regional Roadway System Connections

The transportation network analysis for the surrounding system has been analyzed for the following conditions:

Existing

The existing roadway geometry is shown on **Figure T4** (**Appendix D**). This scenario considers existing traffic and existing roadway geometry including the recently completed construction of the TH 10/CR 96 interchange completed in 2013.

2030 No Build

The 2030 No Build roadway geometry is shown on **Figure T5** (**Appendix D**). This scenario considers 2030 background traffic and 2030 roadway geometry that include programmed improvements. The only difference between existing and 2030 is the addition of Highway Safety Improvement Program (HSIP) funded improvements at the intersection of TH10 at County Road H.

2030 Baseline for the Minimum Development Scenario

The 2030 Baseline geometry is shown on **Figure T6** (**Appendix D**). This scenario considers infrastructure improvements at the CR 96 and I-35W interchange, Old Highway 8 at CR 96 intersection, CR H and I35W interchange, and CR 10 and CR H intersection

2030 Baseline for Maximum Development Scenario

The infrastructure improvements for this scenario are the same as in Minimum development scenario.

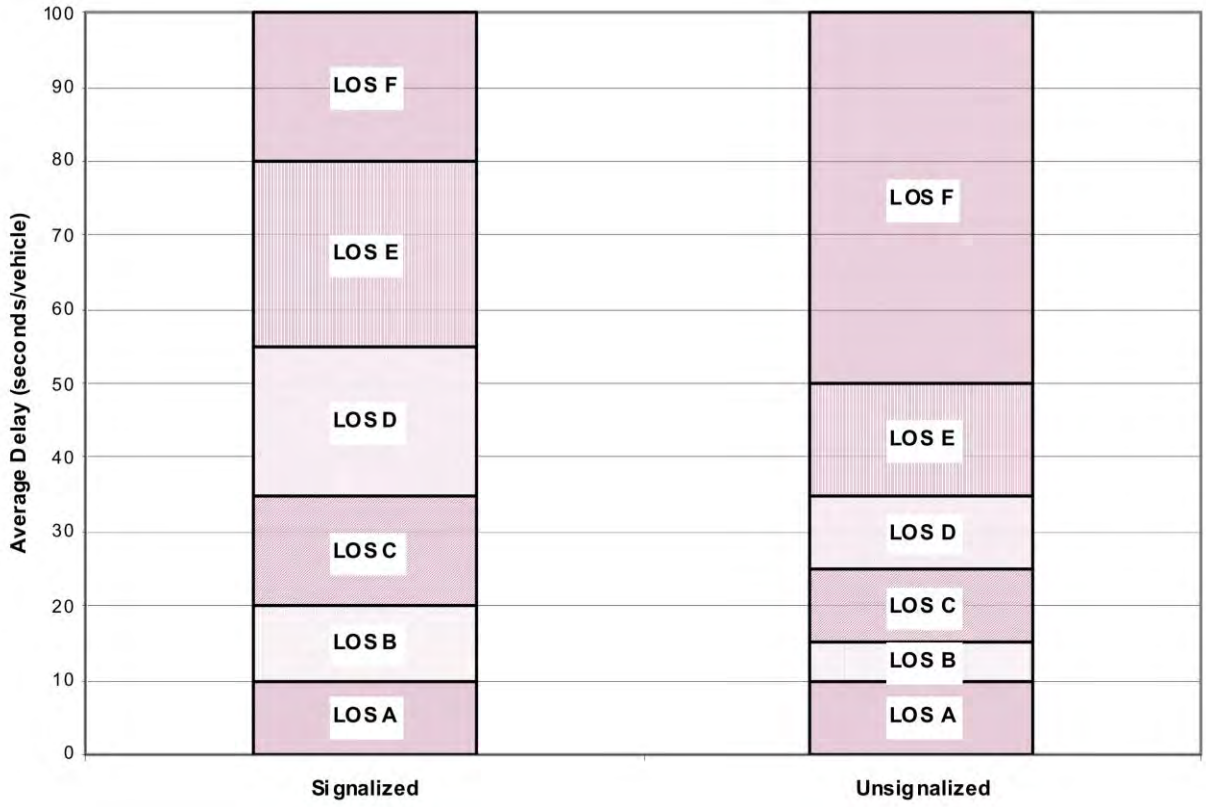
Traffic Study Area

Figure T4 (**Appendix D**) shows the 14 intersections that were analyzed.

Local Roadway System Traffic Operations Analysis Methodology

The traffic operations analysis for the local roadway system was completed in Synchro/SimTraffic, a software program that applies the methodologies of the Highway Capacity Manual. This tool was used to evaluate intersection volume/capacity ratio, delay, and level of service, and queuing. Capacity analysis results identify a Level of Service (LOS) which indicates how well an intersection operates. Intersections are given a ranking from LOS A through LOS F. LOS A indicates the best traffic operation and LOS F indicates an intersection that is operating over capacity. LOS A through D is generally considered acceptable for peak hour conditions in an urban area. The traffic operations were analyzed for the AM and PM peak hours to properly identify potential impacts and recommended mitigation measures.

This study used the LOS D/E boundary as an indicator of satisfactory traffic operations. The exhibit below displays the LOS thresholds for signalized and unsignalized intersections.



Regional Roadway System

The regional roadway system is expected to include many improvements in the near future. Changes include reconstruction of I-35W interchanges at CR H and CR 96. For this traffic study, these changes were included for purposes of regional trip distribution and anticipated intersection geometrics. An analysis of the freeway operations will be conducted as part of the Interstate Access Modification Request, as required for these interchange projects. Any significant changes in the AUAR study area redevelopment plan will need to be analyzed as either an AUAR update, or the applicable regional roadway system projects.

Existing Conditions Traffic Analysis

The existing conditions analysis includes both unsignalized and signalized intersections. For this AUAR level analysis, signal timing for all scenarios have been optimized to provide estimates of potential traffic operational conditions. The results are presented in **Table 18-2**.

Table 18-2. Existing Peak Hour Analysis Results

Intersection	2013 Existing AM		2013 Existing PM	
	LOS	Operational Issues	LOS	Operational Issues
Old Hwy 8 and CR 96	D	Westbound left turn delay is unacceptable	F	Northbound movements fail due to high volumes being processed by an unsignalized intersection
CR 96 and SB I-35W Ramp	E	• Westbound left turn operating at an unacceptable LOS due to lack of acceptable gaps • Southbound left turn operating at an unacceptable LOS due to high volumes and lack of acceptable gaps on CR 96	F	Southbound left turn and westbound left operate at LOS F due to lack of acceptable gaps and higher volumes similar to operations experienced at the CR-96 and I-35W NB ramps
CR 96 and NB I-35W Ramp	F	Northbound left turn and northbound right turn movements operating at an unacceptable LOS due to the lack of acceptable gaps in the traffic flow in the East/West direction	F	• Multiple movements fail including the northbound left and right turn due to lack of acceptable gaps on CR 96 • Eastbound left turn fails due to lack of acceptable gaps in the CR 96 traffic stream
Round Lake Rd W and CR 96	B	Not applicable	D	Not applicable
Old Hwy 10 and CR 96	B	Not applicable	C	Not applicable
CR 96 at US 10 NB Ramp	A	Not applicable	A	Not applicable
CR 96 and North Heights Church Access	B	Not applicable	A	Not applicable
CR H and US 10	C	Not applicable	C	Not applicable
CR H and SB I-35W	A	Not applicable	A	Not applicable
CR H and NB I-35W	A	Not applicable	A	Not applicable
CR I and SB I-35W	B	Not applicable	C	Not applicable
CR I and NB I-35W	B	Not applicable	B	Not applicable
CR I and Old Hwy 8	A	Not applicable	A	Not applicable
CR I and N Fairview Ave	A	Not applicable	A	Not applicable

An operations analysis was conducted for the 14 intersections in the analysis area to determine current operational issues within the AUAR study area. Current volumes were obtained from the Draft TCAAP Redevelopment Traffic Study, performed by SEH dated August 29, 2007. All existing conditions geometrics for this analysis were based on field verified existing intersection geometrics.

Trip Generation

A summary of the Minimum and Maximum Development Scenario trip generation calculations for the AM and PM peak hours are shown in **Table 18-3** and **Table 18-4**.

Table 18-3. Minimum Development Scenario Trip Generation

Use	Units / K sq. ft.	Total Daily Trips	AM Trips In	AM Trips Out	AM Trips	PM Trips In	PM Trips Out	PM Trips
Residential	1,500	11,050	210	650	860	660	405	1,065
Retail	500	21,350	300	180	480	890	965	1,855
Non-retail Commercial	1,700	16,480	1,995	280	2,275	370	1,815	2,185
Total		*48,880*	*2,505*	*1,110*	*3,615*	*1,920*	*3,185*	*5,105*
15% Transit and Multi-use Reduction Factor		*41,550*	*2,130*	*945*	*3,075*	*1,630*	*2,710*	*4,340*

Table 18-4. Maximum Development Scenario Trip Generation

Use	Units / K sq. ft.	Total Daily Trips	AM Trips In	AM Trips Out	AM Trips	PM Trips In	PM Trips Out	PM Trips
Residential	2,500	18,395	350	1,085	1,435	1,100	675	1,775
Retail	550	23,485	325	200	525	980	1,060	2,040
Non-retail Commercial	1,950	18,285	2,195	305	2,500	415	2,010	2,425
Total		*60,165*	*2,870*	*1,590*	*4,460*	*2,495*	*3,745*	*6,240*
15% Transit and Multi-use Reduction Factor		*51,140*	*2,440*	*1,350*	*3,790*	*2,120*	*3,185*	*5,305*

Trip Distribution

The anticipated directional trip distribution for site users is provided in the Traffic Impact Analysis report included as **Appendix D**.

Transit

Transit service exists in areas adjacent the project area, and two park and ride lots exist along CR H. As the project evolves, Metro Transit will be engaged to evaluate potential transit route changes, and to potentially consider the addition of park and ride lots within the project area.

The City of Arden Hills and Ramsey County are also interested in bringing additional transit options to the TCAAP site. Metro Transit's "A Line" Bus Rapid Transit (BRT) service along 46th Street, Ford Parkway, and Snelling Avenue from Minneapolis to Roseville (Rosedale Center) will be open for service in 2015. A future extension of the A Line from Rosedale Center to the TCAAP site is being studied by the Metropolitan Council.

Existing Park and Ride Lots:

There are two existing park and ride stations along CR H. One is immediately west of I-35W south of CR H, and the other is in the northwest quadrant of CR H at TH 10, also known as the Mermaid Supper Club Parking Lot.

Existing Transit Service:

The area is currently served by the following transit routes:

- Route 860 (County Road 10, and accessing the Mermaid Park and Ride)
- Route 250 (I-35W, and accessing the CR H park and ride)
- Routes 252 and Route 288 pass the area on I-35W without any stops.
- Route 261 travels along Lexington Avenue and Tanglewood Drive, to the east of the project boundary.

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.

Detailed documentation of the traffic forecasts and associated analysis are included in the Traffic Impact Analysis in **Appendix D**. The following sections include summaries of the information included in that report.

Traffic Forecasts

The No Build Year 2030 background traffic forecasts were previously prepared for the Draft TCAAP Redevelopment. **Figure T10** (**Appendix D**) shows the peak hour turning movement volumes. Traffic forecasts for the year 2030 that include the AUAR study area traffic were developed by adding the AUAR study area generated trips to the future year 2030 background traffic forecasts. Project specific trip generation estimates for the AM and PM peak periods were calculated for each proposed development scenario based on the proposed land use type and size. Trip generation rates from the 9th Edition of the Institute of Transportation Engineers Trip Generation were used to calculate development-generated traffic. A number of assumptions were made related to internal trip capture (trips that are made on-site between the various proposed uses), pass-by trips (trips already existing within the AUAR study area that make use of the proposed AUAR study area development land uses), and mode split (trips by transit, walking, or biking). The trip reductions were based on typical rates found in the general project area, United States Census data, and commuter surveys that showed a reduction of approximately 15 percent of trips due to transit, multi-use, pass-by and internal capture rates.

No Build Conditions Traffic Analysis

The operations analysis was conducted for the 14 intersections in the analysis area to determine how traffic will operate within the AUAR Study Area in the 2030 forecast year before the AUAR study area project is implemented. Future Year 2030 background traffic as shown in **Figure T10** (**Appendix D**) was obtained from the Draft TCAAP Redevelopment.

Compared to existing conditions, the only geometric changes in the AUAR study area were the improvements at CR H at TH 10, where HSIP funds are presumed to be utilized for improvements, as shown in **Figure T5** (**Appendix D**). These planned improvements include reconstructing the east and west legs of the CR 10 / TH 10 / County Road H intersection to include dedicated right-turn, left-turn, and through lanes in each direction. Therefore the only tangible change for this operations analysis is changing the westbound shared through/left lane to one exclusive through lane and one exclusive left turn lane.

During the 2030 AM No Build scenario, all but one intersection is expected to operate at an LOS of D or better. The intersection of CR 96 and I-35W NB ramps is expected to operate at an LOS of F with major delay occurring on the NB movements.

During the 2030 PM No Build scenario, six of the intersections are expected to operate at an LOS F and the other seven intersections are expected to operate at LOS C or better (see **Table 18-5**).

Table 18-5. 2030 Peak Hour Traffic Analysis Results

Intersection	LOS					
	2030 No Build		2030 Baseline Min		2030 Baseline Max	
	AM	PM	AM	PM	AM	PM
Old Hwy 8 and CR 96	C	F	C	E	C	E
CR 96 and SB I-35W Ramp	A	F	C	C	B	C
CR 96 and NB I-35W Ramp	F	F	C	C	B	C
Round Lake Rd W and CR 96	C	F	B	C	B	C
Old Hwy 10 and CR 96	B	F	C	D	C	C
CR 96 at US 10 NB Ramp	A	A	A	A	A	A
CR 96 and TCAAP Property/North Heights Church Access	A	F	F	F	F	F
CR H and US-10	B	C	D	F	E	F
CR H and SB I-35W	A	A	B	B	C	E
CR H and NB I-35W	A	A	A	A	A	C
CR I and SB I-35W	D	C	C	C	C	C
CR I and NB I-35W	A	A	A	B	B	B
CR I and Old Hwy 8	A	A	A	C	A	B
CR I and N Fairview Ave	A	A	A	A	A	A

Baseline Roadway Network Scenario Analyses

Minimum Development Scenario

The minimum baseline development scenario turning movements were generated by adding the site generated traffic to the 2030 No Build traffic volumes. These turning movement traffic volumes are shown in

Figure T15 (**Appendix D**). The improvements that were considered between the baseline and No Build scenarios primarily were discussed previously. Overall the baseline improvements helped the system maintain an LOS D or better at almost all of the intersections with the exception of the CR 96 and the Property access located at the entrance to the AUAR study area site in the AM peak (LOS F). The major movement contributing to the LOS F is the westbound movements. Due to a high westbound through volume and a lack of capacity, the traffic conditions deteriorate causing high delays.

During the PM peak three intersections are expected to operate at LOS E or LOS F (see **Table 18-5**).

Maximum Development Scenario

The maximum baseline development scenario turning movements were generated by adding the site generated traffic to the 2030 No Build scenario turning movement volumes. The turning movement volumes for this scenario are shown in **Figure T17** (**Appendix D**). The improvements that were considered between the baseline and No Build scenarios primarily consisted of signalizing the CR-96 and I-35W ramps as well as some geometric changes discussed previously. Similarly to the Minimum Baseline Scenario there are some intersections that are operating at LOS E or F (see **Table 18-5**).

c. IDENTIFY MEASURES THAT WILL BE TAKEN TO MINIMIZE OR MITIGATE PROJECT RELATED TRANSPORTATION EFFECTS.

Mitigated Roadway Network Scenario Traffic Analyses

Minimum Development Scenario Results

The analysis for this 2030 Minimum scenario incorporated the 2030 minimum baseline elements plus the following recommended mitigation measures:

- TH 96 westbound auxiliary lane from east of the project boundary to TH 10.
- Re-introduction of CR H southbound loop access to I-35W (removed as part of the baseline scenarios), which remains barrier separated from I-35W southbound exit ramp to TH 10 southbound, and enters I-35W after joining the TH 10 southbound access ramp to I-35W southbound.
- The County is in the process of redesigning the I-35W/CR 96 interchange. The new interchange will be designed to accommodate anticipated future traffic, including the TCAAP development.
- At the intersection of Round Lake Road W at CR 96, the lane use of the northbound center lane is recommended to be modified from an existing shared left/through lane to a shared left/through/right lane.
- At the intersection of CR H at TH 10, an additional eastbound left turn lane is recommended.

With these mitigation measures incorporated, all intersections were operating at LOS D or better with no anticipated operational issues in the AM and PM scenarios. The analysis results are presented in **Table 18-6**.

Table 18-6. 2030 Minimum Development Scenario Peak Hour Mitigation Traffic Analysis Results

Intersection	2030 Baseline Min Mitigated AM	2030 Baseline Min Mitigated PM
	LOS	LOS
Old Hwy 8 and CR 96	C	C
CR 96 and SB I-35W Ramp	C	C
CR 96 and NB I-35W Ramp	B	C
Round Lake Rd W and CR 96	C	C
Old Hwy 10 and CR 96	C	D

Intersection	2030 Baseline Min Mitigated AM	2030 Baseline Min Mitigated PM
	LOS	LOS
CR 96 at US 10 NB Ramp	A	A
CR 96 and TCAAP Property/ North Heights Church Access	C	C
CR H and US-10	D	D
CR H and SB I-35W	B	B
CR H and NB I-35W	A	A
CR I and SB I-35W	C	C
CR I and NB I-35W	B	B
CR I and Old Hwy 8	A	A
CR I and N Fairview Ave	A	A

Maximum Development Scenario Results

The analysis for this 2030 Maximum scenario incorporated the 2030 minimum scenario mitigation elements plus recommended mitigation measures as follows:

- The addition of a new northbound I-35W exit to CR H, with a single lane approach to the roundabout on CR H.
- An additional southbound left turn lane at the southbound exit from I-35W to CR H.
- With these mitigation measures incorporated, all intersections were operating at LOS D or better with no anticipated operational issues in the AM and PM scenarios. The analysis results are presented in **Table 18-7**.

Table 18-7. 2030 Maximum Development Scenario Peak Hour Mitigation Traffic Analysis Results

Intersection	2030 Baseline Max Mitigated AM	2030 Baseline Max Mitigated PM
	LOS	LOS
Old Hwy 8 and CR 96	C	C
CR 96 and SB I-35W Ramp	C	C
CR 96 and NB I-35W Ramp	C	C
Round Lake Rd W and CR 96	C	C
Old Hwy 10 and CR 96	C	C
CR 96 at US 10 NB Ramp	A	A
CR 96 and TCAAP Property/ North Heights Church Access	C	D
CR H and US-10	C	D
CR H and SB I-35W	B	B
CR H and NB I-35W	A	C
CR I and SB I-35W	C	C
CR I and NB I-35W	B	B
CR I and Old Hwy 8	A	A
CR I and N Fairview Ave	A	A

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

AUAR Guidance: Because the AUAR process by its nature is intended to deal with cumulative potential effects from all future developments within the AUAR area, it is presumed that the responses to all sections on the EAW form automatically encompass the impacts from all anticipated developments within the AUAR area. However, the total impact on the environment with respect to any of the sections on the EAW form may also be influenced by past, present, and reasonably foreseeable future projects outside of the AUAR area. The cumulative potential effect descriptions may be provided as part of the responses to other appropriate EAW sections, or in response to this section.

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.

The following projects have been identified as reasonably foreseeable and have the potential to interact with either Scenario as to cause varying degrees of reasonably foreseeable cumulative impacts. Each of the identified projects is or has elements that are geographically proximate to the AUAR Study Area.

Past projects are incorporated via existing conditions identified within and adjacent to the AUAR study area, specifically with regard to traffic analysis.

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.

Interstate 35W at County Road 96 interchange

Ramsey County will be leading an effort to replace the current County Road 96 bridge over I-35W. The purpose of this project will be to expand capacity at the interchange to meet future traffic demand. Construction is projected to be complete in 2015. This project is in the process of preliminary design and environmental review.

Interstate 35W at County Road H interchange

Ramsey County will be leading an effort to replace the current County Road H bridge over I-35W. The purpose of this project will be to expand capacity at the interchange to meet future traffic demand and add additional ramps to access I-35W to and from CR H. Preliminary concepts show a 5-lane cross section with two through lanes in both directions and a left turn. Additional ramps are also proposed from I-35W northbound to CR H and from CR H to I-35W southbound. Construction is projected to be complete in 2016. Phases 1 and 2 of these improvements are planned by Ramsey County (**Figure 18-1**) while phases 3 and 4 are mitigation measures that would be required by the AUAR study area development.

County Road 10/Highway 10 at County Road H intersection

Funding for safety improvements at the intersection of CR H and CR 10/Highway 10 has been identified and is included in the MnDOT Highway Safety Improvement Plan. Additional capacity will be needed at this intersection with development at the AUAR study area site. The timing of planning and construction will be coordinated in the future.

Roadway Connections to County Road I

Ramsey County has indicated that at some future time a roadway connection from the AUAR study area to County Road I may be deemed necessary. Extending Old Highway 8 which provides access to the MnDOT parcel north of the AUAR study area that includes a driving facility, is one possible opportunity, but is only 80 feet east of the I-35W east ramp/Rice Creek Parkway intersection. Extending North Fairview Avenue south into the northeast corner of the site is another possible opportunity. These connections may provide relief to the intersection at the east ramps of I-35W and County Road H as well as provide additional emergency vehicle access to the AUAR study area, however, is not determined necessary based on current traffic studies (thru 2030). Relevant traffic and environmental studies related to these connections would be completed in a separate document, if and when it is determined necessary.

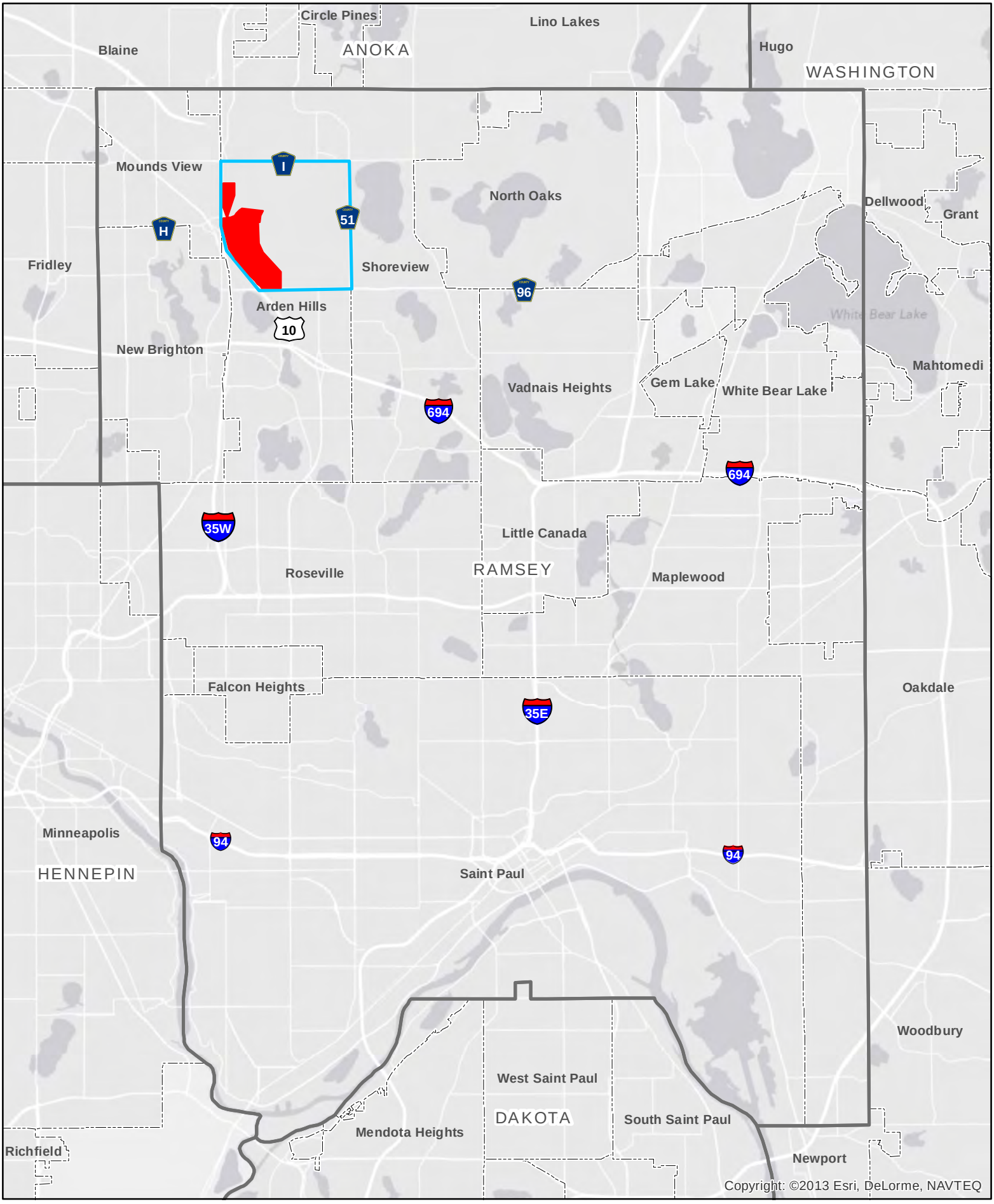
c. DISCUSS THE NATURE OF THE CUMULATIVE POTENTIAL EFFECTS AND SUMMARIZE ANY OTHER AVAILABLE INFORMATION RELEVANT TO DETERMINING WHETHER THERE IS POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL EFFECTS DUE TO THESE CUMULATIVE EFFECTS.

Impacts resulting from the development of the AUAR study area include wetlands, wildlife, soil remediation, and traffic. Impacts of the future road projects may have impacts to wetlands and traffic. The planned future road improvements will result in a cumulative benefit to traffic conditions. All other impacts from these future projects will be addressed via regulatory permitting and approval measures, therefore individually mitigated to ensure no cumulative impacts occur to resources such as wetlands.

20. OTHER POTENTIAL ENVIRONMENTAL EFFECTS

IF THE PROJECT MAY CAUSE ANY ADDITIONAL ENVIRONMENTAL EFFECTS NOT ADDRESSED BY ITEMS 1 TO 19, DESCRIBE THE EFFECTS HERE, DISCUSS THE HOW THE ENVIRONMENT WILL BE AFFECTED, AND IDENTIFY MEASURES THAT WILL BE TAKEN TO MINIMIZE AND MITIGATE THESE EFFECTS.

No additional environmental effects are anticipated.



AUAR Study Area
TCAAP Site
County Boundary
N
0 1 2 Miles

Kimley-Horn and Associates, Inc.

Figure 5-1. Project Location
TCAAP AUAR

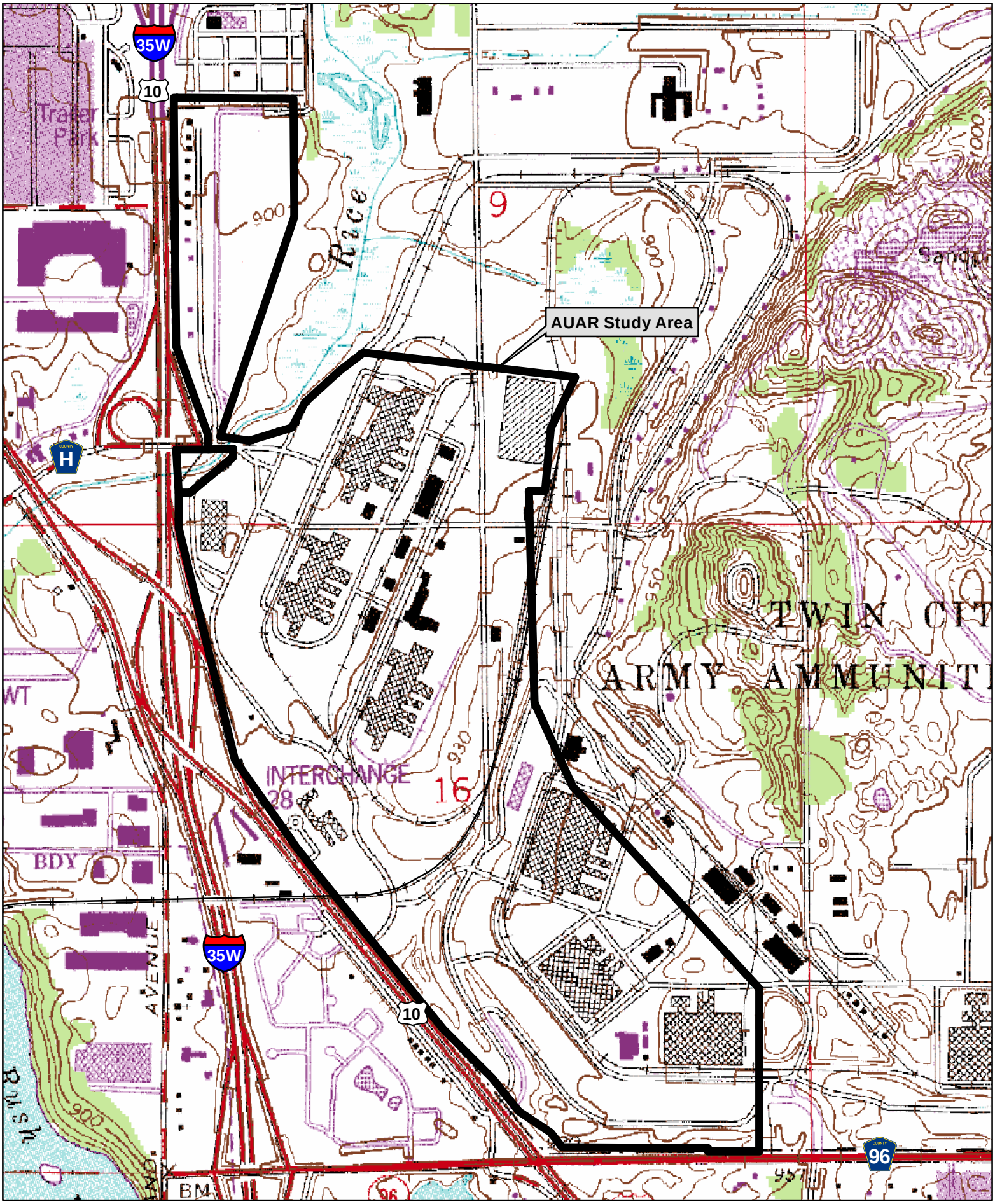
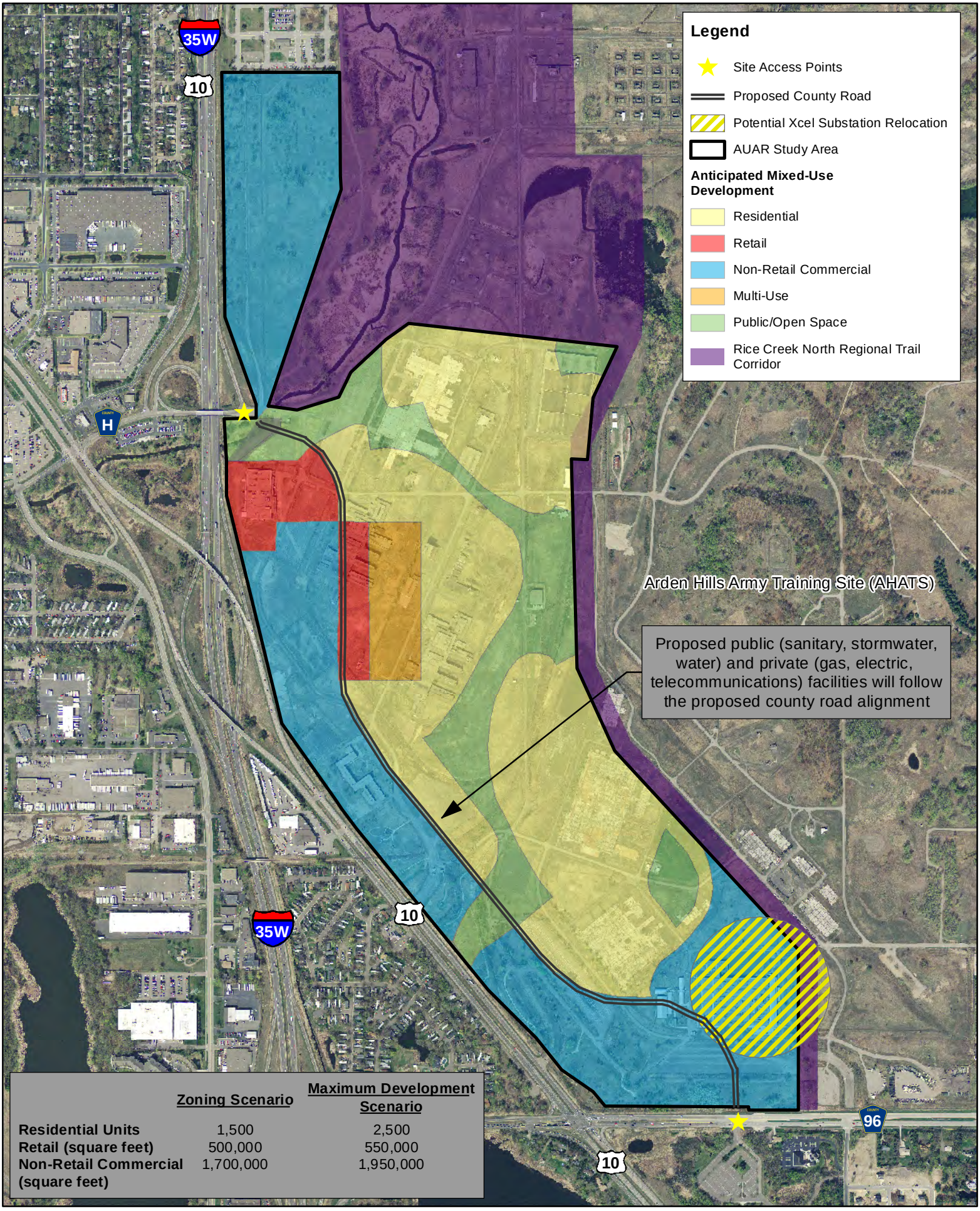


Figure 5-2. USGS 7.5 Minute Topographic Map
TCAAP AUAR

Kimley-Horn and Associates, Inc.



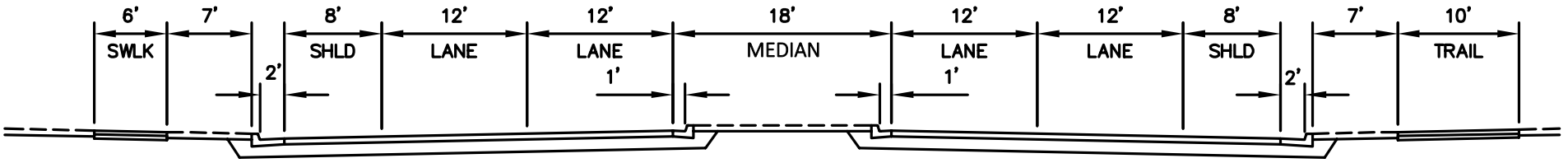
	Zoning Scenario	Maximum Development Scenario
Residential Units	1,500	2,500
Retail (square feet)	500,000	550,000
Non-Retail Commercial (square feet)	1,700,000	1,950,000

Kimley-Horn and Associates, Inc.

N

0 500 1,000 Feet

Figure 5-3. Anticipated Development
TCAAP AUAR



SPINE ROAD TYPICAL SECTION

Kimley-Horn and Associates, Inc.

Figure 5-4. Proposed County Road Typical Section

TCAAP AUAR

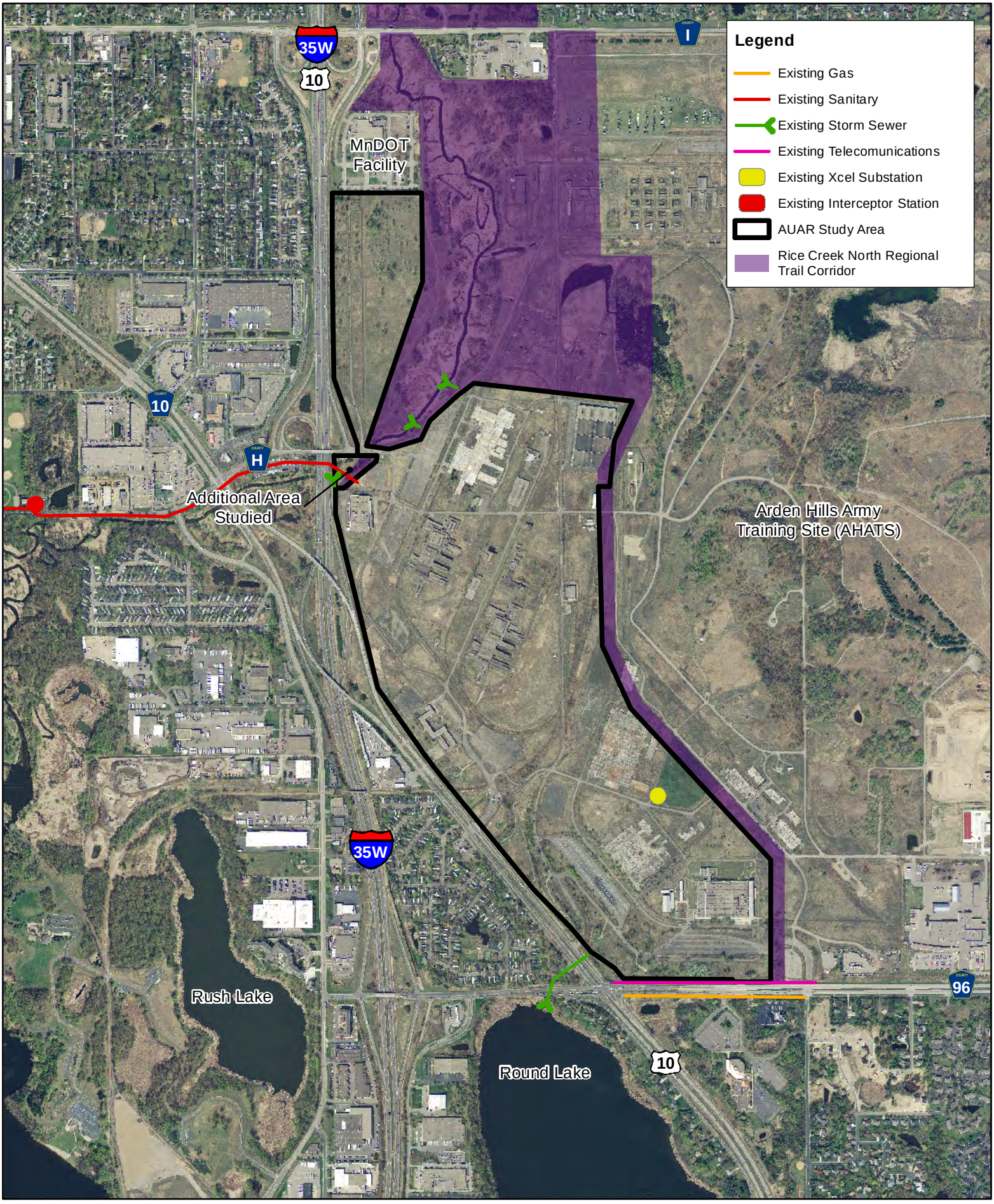


Figure 6-1. Project Area and Existing Utilities
TCAAP AUAR

Kimley-Horn and Associates, Inc.

N

0 600 1,200 Feet

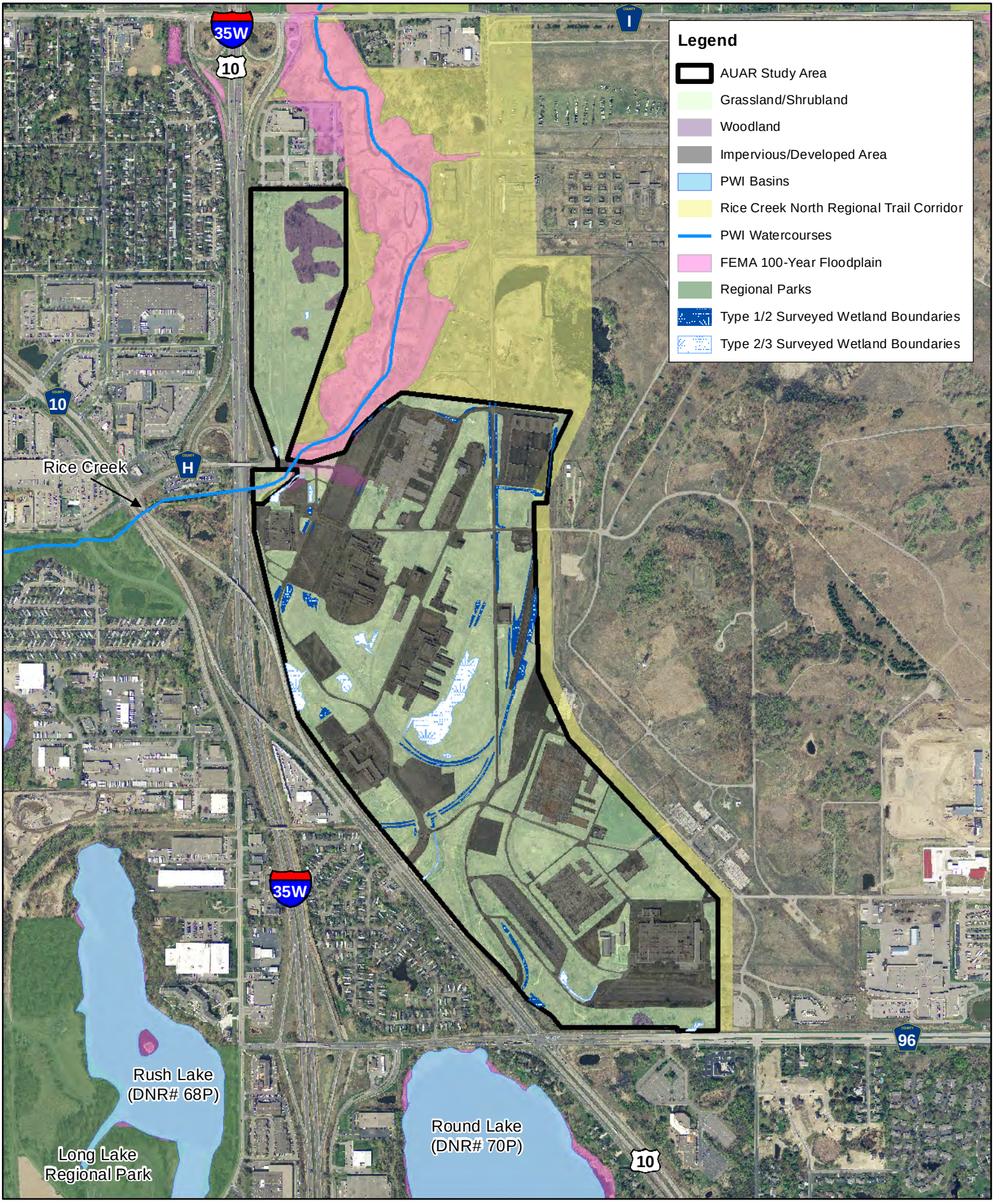


Figure 7-1. Existing Cover Types
TCAAP AUAR

Kimley-Horn and Associates, Inc.

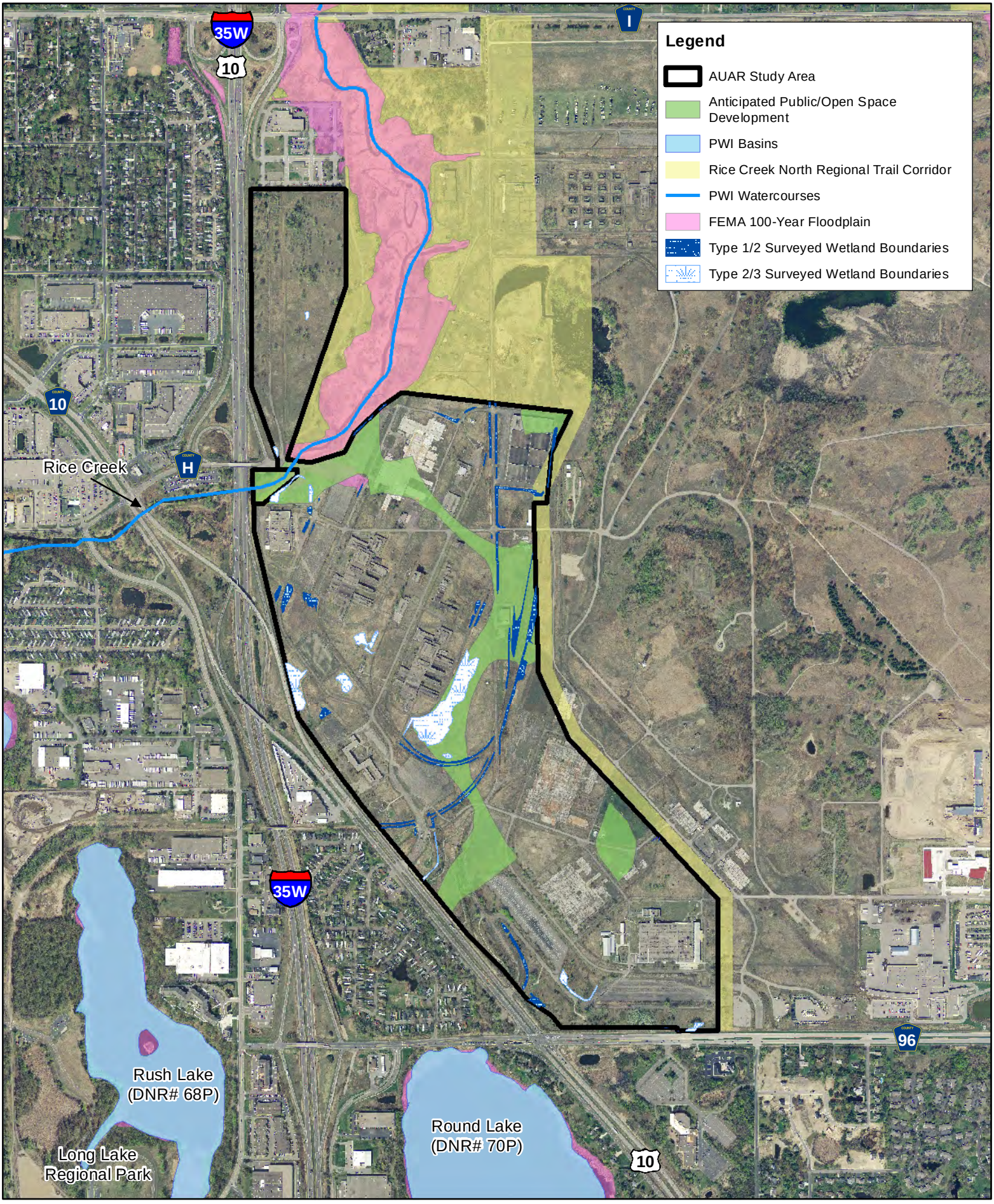
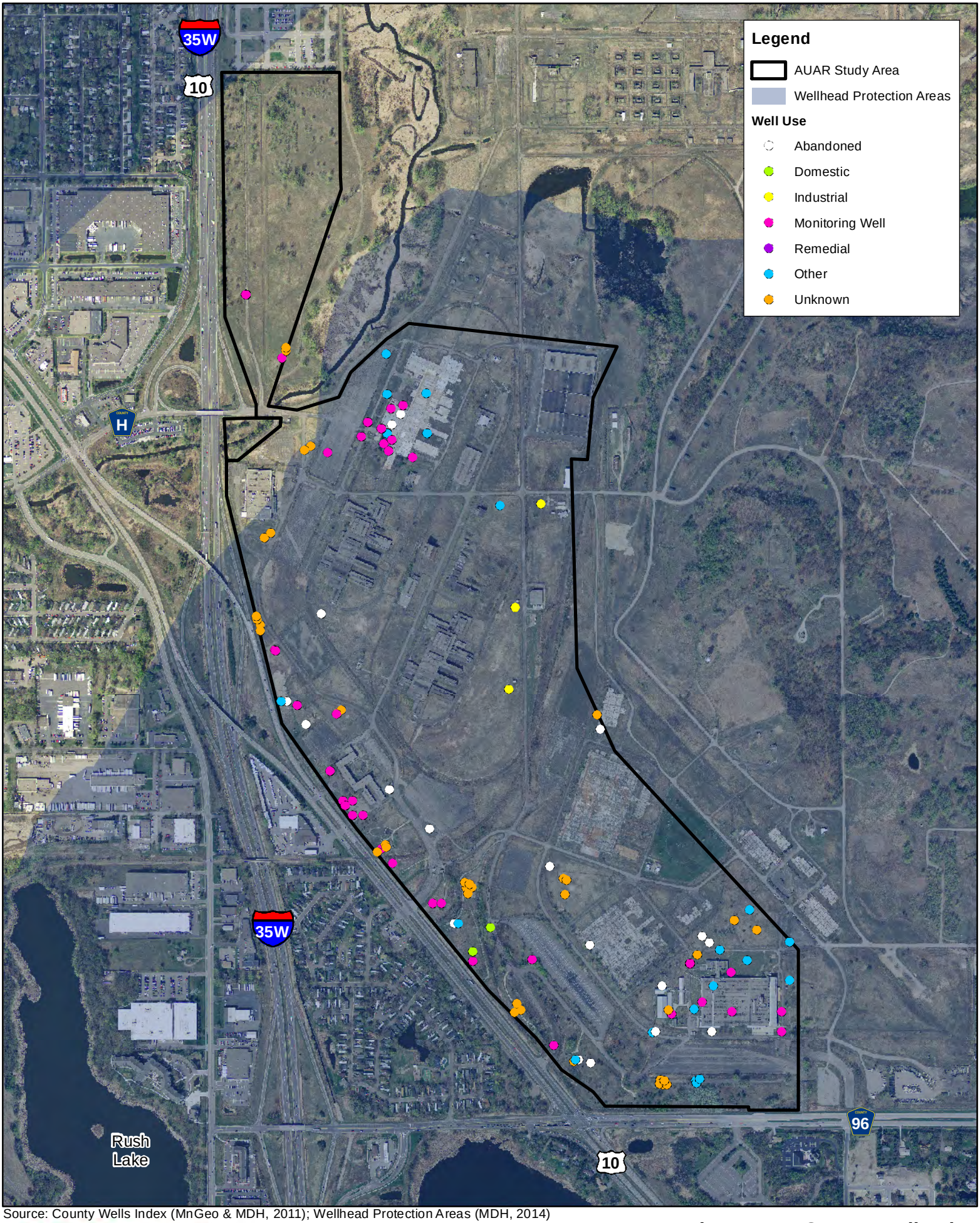


Figure 7-2. Green Corridor
TCAAP AUAR

Kimley-Horn and Associates, Inc.

N

0 500 1,000 Feet



Source: County Wells Index (MnGeo & MDH, 2011); Wellhead Protection Areas (MDH, 2014)

Kimley-Horn and Associates, Inc.

N

0 500 1,000 Feet

Figure 11-1. County Well Index
TCAAP AUAR

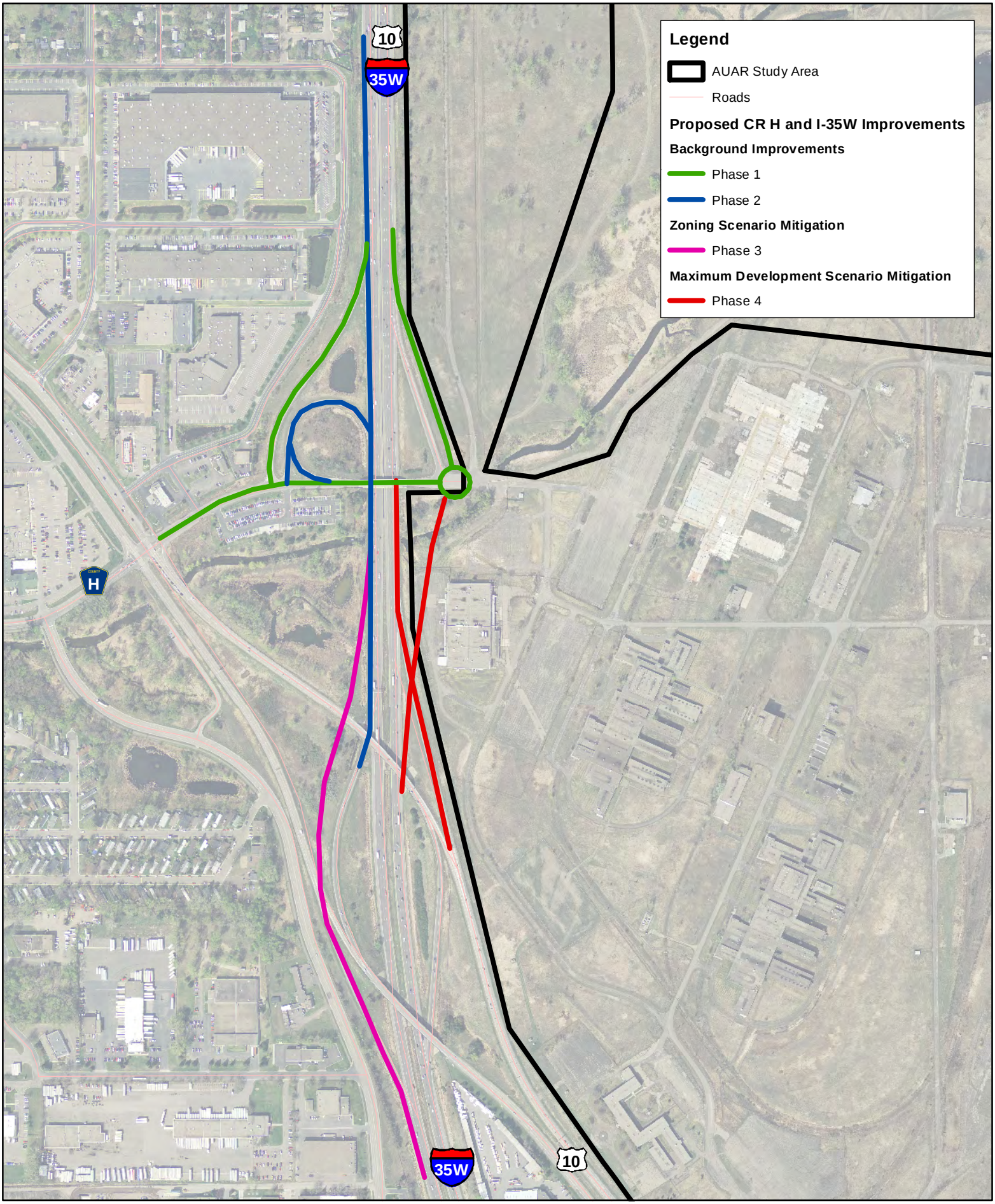
Source: Wenck, 2011

Kimley-Horn and Associates, Inc.

N

0 500 1,000 Feet

Figure 12-1. Site Remediation
TCAAP AUAR



Kimley-Horn and Associates, Inc.

N

0 300 600 Feet

Figure 18-1. County Road H and I-35W Interchange Improvements

TCAAP AUAR

FINAL MITIGATION PLAN

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

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

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

There were no impacts identified in Sections 9, 10, 14, 15, 16, 17, 19, or 20; therefore, these areas require no mitigation and are not included in the Final Mitigation Plan. The remaining sections have identified regulatory requirements and/or mitigation measures that reduce the level of potential impact of development within the study area. The plan is formatted consistent with the sections of the AUAR for ease of reference.

8. Permits and Approvals Required

Unit of Government	Type of Application/Approval	Status
Minnesota Pollution Control Agency	National Pollutant Discharge Elimination System Stormwater Permit for Construction Activities	To be applied for
	Sanitary Sewer Extension Permit	To be applied for
	Soil and Groundwater Remediation Plan Approval	To be applied for, if needed
Minnesota Department of Health	Abandonment of Water Wells	To be applied for
	Water Main Installation Permit	To be applied for, if needed
Minnesota Department of Natural Resources	Groundwater Appropriation Permit (Construction)	To be applied for, if needed
	Public Waters Work Permit	To be applied for
Metropolitan Council	Comprehensive Plan Amendment	To be applied for
	Sanitary Sewer Extension Permit	To be applied for
Rice Creek Watershed District	Stormwater Management, Erosion Control, Floodplain Alteration, Wetland Alteration	To be applied for
Joint Development Authority	Preliminary and Final Plat approvals Development reviews/approvals	Pending, by developers
City of Arden Hills	Boundary Plat approval	To be applied for
	AUAR Approval	In process
	Comprehensive Plan Amendment	To be applied for
	Zoning Change Approval	To be applied for
	Grading, Excavation and Foundation Permits	To be applied for
	Building and Utility Permits	To be applied for
	Erosion Control Permits	To be applied for
Ramsey County	Utility permits in County Road right-of-way	To be applied for
	Access permits (connection to County Road)	To be applied for
	Hazardous waste permits	Approved

11. Water Resources

Potential impacts and mitigation measures are the same under both Development Scenarios for water resources.

Potential Impacts

- Regional wastewater collection and treatment facilities and municipal wastewater pipes serving the Study Area have sufficient long-term capacity to handle the additional wastewater flow generated by both the Zoning and Maximum Development Scenarios.
- Sanitary sewer will need to be extended into the Study Area to provide sewer service to the various lots.
- Temporary dewatering may be required during project construction, particularly for buildings to be constructed with lower levels, for which caissons could be used to facilitate installation of footings and foundations.

- All water pumped during construction dewatering activities will be discharged in compliance with City, Watershed, and Minnesota Department of Natural Resources (DNR) requirements and the National Pollutant Discharge Elimination System (NPDES) permit and site RAP.
- Up to 14.4 acres of wetland may be impacted by development. Wetlands should be avoided where preservation of wetland is feasible.
- A new crossing of Rice Creek would be required for site access.

Mitigation Strategies

- The use of a small lift station may be required depending on future uses for sanitary sewer, but the system will primarily be gravity-based.
- Stormwater will be managed on-site, maintaining the current drainage patterns and utilizing the current outfalls to Rice Creek and Round Lake.
- Stormwater will be conveyed to Round Lake and Rice Creek by means of underground storm sewer, vegetated swales, and wetlands. Conveyance systems will be designed in accordance with acceptable industry standards and in conformance with jurisdictional requirements.
- The runoff rate will be reduced to 80% of the existing rate because the Study Area is located within a Flood Management Zone as defined by the RCWD.
- The primary method of stormwater treatment will be the use of multiple ponds for the removal of total phosphorous and total suspended solids. Water reuse, bio-filtration, filtration, and stormwater wetlands are also suitable for treatment within the Study Area.
- No discharge water will be directed to surface waters without prior retention in a temporary settling basin and a determination that no contamination exists. The developer will determine if groundwater is contaminated as a basis for determining discharge to storm sewer, sanitary sewer, or through a treatment process such as the existing groundwater treatment facilities. Temporary construction dewatering will require a Temporary Water Appropriations General Permit 1997-0005 if less than 50 million gallons per year and less than one year in duration.
- Wetland impacts will be replaced at a 2:1 ratio, through a combination of on and off-site replacement through plans/permit approved by the RCWD and Army Corps of Engineers
- The crossing would be via a bridge that spans the creek, wetlands and floodplain, and would allow wildlife to cross underneath. A trail crossing at this location may also be considered (under the creek bridge). The bridge will be designed to avoid impact on the floodplain.

How Mitigation will be Applied and Assured

- Water resources mitigation will be regulated through the RCWD, Army Corps of Engineers, and PCA review processes. Other water resource mitigation will be regulated through the JDA review process. Proposed PUD and/or site plans must address relevant mitigation measures prior to final approval by the JDA.

Involvement by Other Agencies, if applicable

- Metropolitan Council Environmental Services
- The site will require compliance with Rice Creek Watershed District rules for water quality, volume control, runoff control and erosion control.
- All water pumped during construction dewatering activities will be discharged in compliance with the City and Minnesota Department of Natural Resources (DNR) requirements, and the National Pollutant Discharge Elimination System (NPDES) permit and site RAP.

12. Contamination/Hazardous Materials/Solid Wastes

The potential to encounter contaminants is the same under both Development Scenarios.

Potential Impacts

- The soil on site is currently being remediated to residential standards.
- Radon abatement is required for all new residential structures, which also satisfies any Volatile Organic Compound (VOC) residual vapor concerns.
- Vapor retarders are required for all new commercial buildings.
- Construction of the future development would generate construction-related waste materials such as wood, packaging, excess materials, and other wastes.
- The range of municipal solid waste generated per year based upon the Zoning and Maximum Development Scenarios is 27,300 to 31,900 tons, respectively.

Mitigation Strategies

- Handling of site contaminants is addressed in the overall RAP approved for the site and/or within the 4 subarea RAPs addressing key hot spot remediation.
- In areas of previous VOC contamination, testing or abatement measures for VOC vapors may be required by the City to avoid potential impacts of VOC vapors in new building spaces.
- Construction materials would be either recycled or disposed in the proper facilities.
- Solid waste recycling will be required by city code for residential users and may be added to city code in the future for commercial users.

How Mitigation will be Applied and Assured

- Mitigation will be regulated through the JDA review process. Proposed PUD and/or site plans must address relevant mitigation measures prior to final approval by the JDA.

Involvement by Other Agencies, if applicable

- The developer will coordinate with the MPCA regarding the required plans, material handling, and disposal.

13. Fish, Plant Communities, And Sensitive Ecological Resources

Potential Impacts

- The AUAR study area is within the statewide importance area for the Blanding's turtle
- Two Regionally Significant Ecological Areas (RSEA) exist within portions of the AUAR study area
- One osprey nest will remain on site

Mitigation Strategies

- DNR recommendations for minimizing impacts to turtles during construction will be required for all development activities
- Creation of a green corridor through the AUAR study area will provide habitat elements for turtles, birds and other wildlife. This corridor will provide an important link to the Rice Creek corridor and the County's adjacent wildlife corridor and is compatible with the RSEA and IBA designations.
- The City may also consider building guidelines that minimize the amount or type of glass used on multi-story building to minimize bird strikes.
- The nesting platform at the water treatment building will be avoided by development.

How Mitigation will be Applied and Assured

- Mitigation will be regulated through the JDA review process. Proposed PUD and/or site plans must address relevant mitigation measures prior to final approval by the JDA.

Involvement by Other Agencies, if applicable

- The developer will coordinate with the DNR regarding minimizing habitat impacts. The County will coordinate with the DNR regarding the creation/design of the green space area.

18. TRANSPORTATION

Potential Impacts

- Increased traffic on the regional roadway network surrounding the site.

Mitigation Strategies

Minimum Development Scenario

- TH 96 westbound auxiliary lane from east of the project boundary to TH 10.
- Re-introduction of CR H southbound loop access to I-35W (removed as part of the baseline scenarios), which remains barrier separated from I-35W southbound exit ramp to TH 10 southbound, and enters I-35W after joining the TH 10 southbound access ramp to I-35W southbound.
- The County is in the process of redesigning the I-35W/CR 96 interchange. The new interchange will be designed to accommodate anticipated future traffic, including the TCAAP development.
- At the intersection of Round Lake Road W at CR 96, the lane use of the northbound center lane is recommended to be re-striped from an existing shared left/through lane to a shared left/through/right lane.
- At the intersection of CR H at TH 10, an additional eastbound left turn lane is recommended.

Maximum Development Scenario

In addition to the Minimum Development Scenario mitigation described above, these additional mitigation measures are recommended for the Maximum Development Scenario:

- The addition of a new northbound I-35W exit to CR H, with a single lane approach to the roundabout on CR H.
- An additional southbound left turn lane at the southbound exit from I-35W to CR H.

How Mitigation will be Applied and Assured

Mitigation will be regulated through the JDA approval and permitting process. Proposed master development plans, planned unit development and subdivision applications, plats, and/or site plans must address relevant mitigation measures prior to final approval by the JDA. Implementation of feasible mitigation measures will be addressed through developer agreements with the JDA, which may require a security for land and infrastructure improvements and/or revoke the right to acquire building permits until all feasible mitigation measures have been addressed.

Involvement by Other Agencies, if applicable

The City of Arden Hills will continue to work with Ramsey County and all transportation partners in the provision of an efficient transportation system.

Appendix A. Response to Comments on the Draft AUAR

Minnesota Department of Health

MINNESOTA MDH DEPARTMENT OF HEALTH

Protecting, maintaining and improving the health of all Minnesotans

May 28, 2014

Jill Hutmacher
Community Development Director
City of Arden Hills
1245 West Highway 96
Arden Hills, MN 55112

Dear Ms. Hutmacher,

Thank you for providing the Minnesota Department of Health (MDH) with the opportunity to comment on the Alternative Urban Areawide Review for the Twin Cities Army Ammunition Plant (TCAAP) project.

A

Affordable Housing
Preserving affordable housing supports home-ownership and housing stability, improves community stability, and fosters social networks. This is important for health in a number of ways. When residents spend less than 30 percent of pre-tax income on housing (affordability threshold) they have more money to spend on healthcare, doctor visits, medication, and healthy food. Additionally, instable housing – or frequent mobility – can cause stress and other mental health conditions like depression. The supply of stable, affordable housing is shrinking and demand is increasing.

The project could provide a mix of housing densities with the current mixed residential zoning designation. This designation includes single-family detached homes, single-attached homes, condominiums, townhomes, apartments, and senior housing options. The City should consider incorporating this range of housing types into the project as well as providing affordable housing options.

B

Energy/Climate Change
To limit contributions to climate change and help achieve Minnesota's greenhouse gas (GHG) emissions reduction targets of 15% by 2015 and 30% by 2025, MDH recommends that all projects in Minnesota evaluate options for reducing GHG emissions. The project should consider ways to conserve energy, reduce energy use, eliminate or reduce greenhouse gas emissions, and promote the use of renewable energy.

C

Flooding
Future climate conditions are anticipated to result in increased frequency and intensity of floods. Construction within designated floodplains can reduce the effectiveness of these areas in containing flood water. Additionally, people living in floodplain areas will be at increased risk for flood-related human health impacts, such as injuries, drowning, and other health issues.

General Information: 651-201-5000 • Toll-free: 888-345-0823 • TTY: 651-201-5797 • www.health.state.mn.us
An equal opportunity employer

A: The City of Arden Hill's draft Master Plan contemplates a mix of housing types including condominiums, townhomes, apartments, and senior housing to meet affordable and life cycle housing needs. The City has negotiated affordable and life cycle housing goals with the Metropolitan Council. As the city of Arden Hills is fully developed with the exception of the TCAAP site, additional life cycle and affordable housing to meet negotiated goals is expected to be developed on TCAAP to the extent it is economically feasible.

B: The City and County are committed to incorporating sustainable features into the site and will identify such features through the development regulations. The Joint Development Authority (JDA) has approved the issuance of a Request for Proposals for an Integration and Resiliency Framework study. The selected consultants will identify opportunities for an energy system that sustains economic development, reduces adverse environmental impacts, and supports a high quality of life and a healthy lifestyle. The JDA will also be appointing an Energy Advisory Task Force to assist the JDA and its consultants with this work.

The project's vicinity to Rice Creek and the associated 100 year flood zone could make it susceptible to flood events both within and outside of this flood zone. The public/open space area is proposed within the flood zone but there is also a portion of proposed residential development that is located within this zone. Extreme rainfall events have increased 31% in Minnesota since 1958 and there have been four 1,000 year rainfall events in Minnesota since 2004. The project should consider whether proposed stormwater infrastructure would have capacity for such extreme rainfall events.

Health Impact Assessment

A Health Impact Assessment (HIA) is a research and community engagement process that can be used to help ensure that people's health and concerns are considered when decisions on infrastructure and land use projects are being made. The National Research Council defines HIA as "a structured process that uses scientific data, professional expertise, and stakeholder input to identify and evaluate public-health consequences of proposals and suggests actions that could be taken to minimize adverse health impacts and optimize beneficial ones." HIAs have been used to provide important health information to decision makers on a wide range of projects outside the typical health arena, including comprehensive plans, brownfield redevelopment, transportation projects, energy policies, and housing projects. Over 100 HIAs have been performed in the US to help improve public health. Ten HIAs have been completed in Minnesota, mostly on comprehensive plans and transportation projects.

D

An HIA could provide additional health information for policy makers in determining how to balance health and citizens' concerns with the economic benefits of the project. An HIA could be scaled according to available resources and still answer some of the health questions posed by the community. An HIA could provide recommendations to policy makers to support possible positive health outcomes and to mitigate or prevent possible negative health outcomes to improve the public's health and to inform zoning, permitting, and monitoring policies.

Physical Activity

Encouraging physical activity by providing parks, recreational facilities, and trails can be an effective strategy to improve the public's health. The project site is adjacent to Long Lake Regional Park, Rice Creek Regional Trail Corridor, and the Rice Lake Chain of Lakes Park Reserve. The project should consider bicycle and pedestrian connections, accessibility, and wayfinding so that future users of the site would have safe and convenient access to these facilities. Additionally, trips taken by bike or foot versus automobile save energy and do not emit pollutants or greenhouses gases. The project should consider bicycle and pedestrian connections between proposed uses, i.e. bicycle and pedestrian connections between proposed commercial and residential areas so that future residents could walk or bike to shopping and dining, etc.

E

Demolition

Prior to the demolition of remaining structures and utilities on site an inspection must be conducted according to 40 CFR 61 – National Emissions Standards for Hazardous Air Pollutants (NESHAP). Any required asbestos inspection activities must be completed in compliance with the Minnesota Asbestos Abatement Act and Rules, described in Minnesota Statutes, Sections 326.70 to 326.81 and Minnesota Rules, Parts 4620.3000 to 4620.3724. For additional information or for assistance interpreting the results of the asbestos survey, contact MDH staff at (651) 201-4620 or health.asbestos-lead@state.mn.us. Additionally, a pre-demolition survey must be conducted according to Minnesota Rules 7035.0805 to properly identify all hazardous

F

C: The project will meet Rice Creek Watershed District rules for rate, floodplain elevation, and water quality. The District is adopting the revised National Oceanographic and Atmospheric Administration's Atlas-14 standards for storm design intensity, duration, and frequency. The Rice Creek remeander portion of the project will increase floodplain volume. Multiple ponds, vegetative filters, and wetland mitigation areas will treat runoff water quality equivalent to a 95% treatment volume criterion.

D: The preparation of a Health Impact Assessment (HIA) is not a requirement of the AUAR process.

E: Connections between uses and to surrounding amenities have been incorporated into the project. The spine road through the development will have a trail on one side and a sidewalk on the other, and there will be a supportive network of city streets to provide access to neighborhoods and businesses. Also, as discussed in Section 9 of the AUAR, a 150 foot corridor will be established to provide a trail/prairie connection from County Road I to Highway 96.

waste in the facility. Specific Questions concerning the pre-demolition survey need to be directed to the Minnesota Pollution Control Agency at (651) 296-6300.

G

Hazardous Materials
The AUAR notes that soil testing outside of hot spots and remediated areas will be conducted in instances where the contractor feels contamination may be possible. However, it is unclear how this determination of potential contamination will be made. Disturbing unknown contaminated soils during construction could spread hazardous materials into remediated areas. The AUAR should provide clear guidelines for establishing the presence of hazardous materials in soils prior to their disturbance during construction.

H

Storm Water Runoff/ Impervious Surfaces
The substantial increase in impervious surfaces at project build out will increase the amount of stormwater runoff from the site. Stormwater runoff picks up and carries with it many different pollutants that are found on paved surfaces such as sediment, nitrogen, phosphorus, bacteria, oil, grease, trash, pesticides and metals. Reducing stormwater runoff helps prevent contaminated runoff from entering streams, lakes and other water bodies, which may be used for recreational purposes or drinking water. Waterborne illnesses from recreational swimming and drinking water are associated with runoff. An increase in impervious surfaces also has been shown to lead to higher flood peaks.

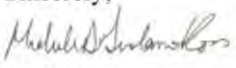
Future climate conditions are anticipated to result in increased frequency and intensity of storm events. The project should consider whether stormwater infrastructure and retention facilities designed for larger storm events would be appropriate to accommodate anticipated future climatic events.

I

Well Construction
New wells that are constructed in Minnesota must be constructed according to the requirements of Minnesota Statutes, Chapter 103I, and Minnesota Rules, Chapter 4725. Any wells constructed for dewatering or water quality monitoring will be subject to these requirements. Abandoned wells will need to be properly sealed. Additional information is available on the MDH website at Well Construction and Well Sealing. For additional information, contact MDH staff at (651) 201-4600 or health.wells@state.mn.us.

Health starts where we live, learn, work, and play. To create and maintain healthy Minnesota communities, we have to think in terms of health in all policies. Thank you again for the opportunity to provide comments on this AUAR for the TCAAP project. Feel free to contact me at (651) 201-4927 or michele.ross@state.mn.us if you have any questions.

Sincerely,



Michele Ross
Environmental Review Coordinator
Minnesota Department of Health
PO Box 64975
Saint Paul, MN 55164-0975

F: Comment noted. Demolition surveys were completed for all removed structures and asbestos removal is underway.

G: Site soil is currently being remediated to meet MPCA Tier 1 Residential Soil Reference Values (SRVs). Groundwater remains the responsibility of the federal government under its Federal Facilities Agreement and Record of Decision with the US EPA and MPCA. As part of the County's process of remediating site soil impacts, all known releases of hazardous substances are being removed from the site or treated to make them safe for residential use. This includes all impacts known when the County acquired the site, as well as any impacts identified through the removal of at- and below-grade improvements at the site.

In addition, the County is completing incremental soil sampling in former TCAAP operational areas across the site using an Incremental Sampling Methodology (ISM) that has been approved by both the US EPA and the MPCA for use at this site. The purpose of the ISM sampling is to help rule out the presence of any currently unidentified soil impacts. Any areas of soil impacts identified through this ISM sampling will also be remediated to meet Tier 1 Residential SRVs. When the remediation and ISM sampling activities are complete and all impacts have been addressed, the MPCA will issue a Commissioner's Certificate of Completion (the highest level of liability insurance issued by the MPCA), and existing land use restrictions will be modified consistent with the cleanup that was completed at the site. Any additional sampling would be optional for the party moving forward with a proposed redevelopment within the site.

H: The project will meet Rice Creek Watershed District rules for rate, floodplain elevation, and water quality. The District is adopting the revised National Oceanographic and Atmospheric Administration’s Atlas-14 standards for storm design intensity, duration, and frequency.

I: Comment noted. The County has worked with the Army to properly seal as many onsite wells as possible. Any additional abandoned wells will be capped and sealed in accordance with Minnesota Department of Health requirements. No new public water supply wells are anticipated.

Minnesota Department of Transportation

Minnesota Department of Transportation
Metropolitan District
Waters Edge Building
1500 County Road B2 West
Roseville, MN 55113

May 28, 2014

Jill Hutmacher
Arden Hills Community Development Director
1245 West Highway 96
Arden Hills, MN 55112

SUBJECT: TCAAP AUAR
Mn/DOT Review # AUAR14-005 (Revised)
Northeast of US 10 and CSAH 96
Arden Hills, Ramsey County
Control Section 6205

Dear Ms. Hutmacher:

A Thank you for the opportunity to review the TCAAP AUAR. Please note that MnDOT's review of this AUAR does not constitute approval of a regional traffic analysis and is not a specific approval for access or new roadway improvements. As plans are refined, we would like the opportunity to meet with our partners and to review the updated information. Additionally, MnDOT has several construction projects planned in the area. Ramsey County, Arden Hills, and MnDOT should continue to work closely in planning for highway changes. MnDOT's staff has reviewed the AUAR and has the following comments:

I-35W/County Road H Interchange:

B The proposed I-35W/County Road (CR) H interchange improvements, stages 3 and 4, will require approval from the Joint Interchange Planning Review committee. This committee consists of the Metropolitan Council, FHWA, and MnDOT. Please contact Karen Scheffing (651-234-7784) in MnDOT Metro District's Planning Section for more information on this process.

C Stages 2, 3 and 4 of the proposed interchange improvements are not shown in enough detail so that it is clear that they are indeed buildable. We are not requesting additional information at this time but sharing information. MnDOT's specific concerns include…

a. Stage 2 – It is unclear whether the westbound CR 10 bridge will provide adequate clearance with the 2-lane ramp from southbound I-35W to eastbound US 10 and a barrier separated entrance from CR H loop to US 10.
b. Stage 3 – It is unclear whether there is adequate space for the crossing of the proposed ramp under eastbound CR 10. The drawing does not show

A: Comment noted. Coordination with MnDOT will continue as the TCAAP and other related projects advance.

B: Comment noted. A submittal to the Interchange Review Committee (IRC) is being assembled. It is understood that approval is required by the IRC prior to making interchange modifications.

the horizontal impact of maintaining eastbound CR 10 to southbound I-35W.

c. Stage 4 –Vertical profiles for both ramps would be helpful in understanding the grades necessary to meet the clearances and the touch down points. This will also help provide MnDOT with an understanding as we develop a project that would involve widening the westbound US 10 to northbound I-35W ramp to 2 lanes. This information could potentially minimize rework.

D MnDOT will not support plans which will add capacity or traffic volume to the I-35W/CR H interchange if it retains the existing weaving from the CR H loop to southbound I-35W. The loop should be closed (likely in stage 1) until the barrier separation is in place (likely stage 2).

E The CR H bridge will need to accommodate: the planned MnPASS lane; the 2- lane ramps connecting US 10 with I-35W to and from the north; and the loop to eastbound US 10 and in stage 3, southbound I-35W.

For questions concerning these comments, please contact Tony Fischer (651-234-7875) in MnDOT Metro District's Traffic Section.

Review Submittal Options:
Mn/DOT's goal is to complete the review of plans within 30 days. Submittals sent in electronically can usually be turned around faster. There are four submittal options. Please submit either:

1. One (1) electronic pdf. version of the plans. Mn/DOT can accept the plans via e-mail at metrodevreviews.dot@state.mn.us provided that each separate e-mail is under 20 megabytes.
2. Three (3) sets of full size plans. Although submitting seven sets of full size plans will expedite the review process. Plans can be sent to:

   Mn/DOT – Metro District Planning Section
   Development Reviews Coordinator
   1500 West County Road B-2
   Roseville, MN 55113

3. One (1) compact disk.
4. Plans can also be submitted to Mn/DOT's External FTP Site. Please send files to: ftp://ftp2.dot.state.mn.us/pub/incoming/MetroWatersEdge/Planning Internet Explorer doesn't work using ftp so please use an FTP Client or your Windows Explorer (My Computer). Also, please send a note to metrodevreviews.dot@state.mn.us indicating that the plans have been submitted on the FTP site.

C: Comment noted. MnDOT has been involved in all interchange planning completed to date and will continue to be included in future interchange planning and design activities. An Interstate Access Modification Request (IAMR) will be completed as part of the current I-35W and CSAH 96 interchange design project being led by Ramsey County.

D: Comment noted. A submittal to the Interchange Review Committee (IRC) is being assembled. It is understood that approval is required by the IRC prior to making interchange modifications.

E: Comment noted, see response to Comment D above. The County is aware of the planned MnPASS lane, and this will be accommodated as a part of any modifications to the I-35W and County Road H interchange.

If you have any questions concerning this review please feel free to contact me at (651) 234-7794.

Sincerely,

Tod Sherman
Planning Supervisor

Copy sent via E-Mail:
Buck Craig, Permits
Nancy Jacobson, Design
Brian Kelly, Water Resources
Lee Williams, Right-of-Way
Mark Lindeberg, Area Engineer
Karen Scheffing, Planning
Tony Fischer, Traffic
Gayle Gedstad, Traffic
Russell Owen, Metropolitan Council
Joe Lux, Ramsey County
Jill Hutmacher, jhutmacher@cityofardenhills.org

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Minnesota Pollution Control Agency

Minnesota Pollution Control Agency
520 Lafayette Road North | St. Paul, Minnesota 55155-4194 | 651-296-6300
800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us | Equal Opportunity Employer

May 27, 2014

Ms. Jill Hutmacher
City of Arden Hills
Community Development Director
1245 West Highway 96
Arden Hills, MN 55112

Re: Twin Cities Army Ammunition Plant (TCCAP) Redevelopment Project Alternative Urban Areawide Review

Dear Ms. Hutmacher:

A Thank you for the opportunity to review and comment on the Alternative Urban Areawide Review (AUAR) for the TCCAP project (Project) located in the city of Arden Hills, Minnesota. Minnesota Pollution Control Agency (MPCA) staff has reviewed the AUAR and have no comments at this time.

We appreciate the opportunity to review this project. Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit action(s) by the MPCA. Ultimately, it is the responsibility of the Project proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions concerning our review of this AUAR, please contact me at 651-757-2482.

Sincerely,

Kevin Kain
Planner Principal
Environmental Review Unit
Resource Management and Assistance Division

KK:bt

cc: Craig Affeldt, MPCA, St. Paul

A: Comment noted. Thank you for your review.

Metropolitan Council

Metropolitan Council

May 28, 2014

Jill Hutmacher, Community Development Director
City of Arden Hills
1245 West Highway 96
Arden Hills, MN 55112

RE: TCAAP Draft Alternative Urban Areawide Review and Draft Mitigation Plan
Metropolitan Council Review File No. 21237-1
Metropolitan Council District 10

Dear Ms. Hutmacher:

A The Metropolitan Council received the TCAAP Draft Alternative Urban Areawide Review (AUAR) and Draft Mitigation Plan on April 25, 2014, and has completed its review to determine its accuracy and completeness in addressing regional concerns. The Council concludes that the Draft AUAR is complete with respect to regional concerns and raises no major issues of consistency with Council policies.

However, staff offers the following specific comments for your consideration.

B ***Item 6 – Project Description – Future Comprehensive Plan Amendment***
The draft AUAR states that Scenario One, the *Zoning Scenario*, is consistent with the City's approved comprehensive plan (Plan). It further states that Scenario Two, the *Maximum Development Scenario* "uses the same land use framework but increases the amount of development to maximum density based upon the maximum density of the transportation network," implying that it is also consistent with the City's Plan. While the overall amount of development may be consistent, planned land uses appear to be reorganized on the site according to Figure 5-3. The draft AUAR should clarify that the comprehensive plan amendment will reflect the land use plan selection and align with the final organization of those land uses on the subject property, including any adjustments to land use densities or intensities, if needed. The Metropolitan Council will review and consider forecast and regional system implications during its review of that comprehensive plan amendment.

C ***Item 6 – Project Description – Rice Creek North Regional Trail Corridor***
The draft AUAR describes a 2.5 acres of parkland that Ramsey County may consider swapping to allow development on the west side of the AUAR study area, in exchange for land adjacent to existing parkland on the east side of the study area. The 2.5 acre parcel is part of the Rice Creek North Regional Trail Corridor, which is owned and operated by Ramsey County. The regional trail corridor is a component of the Regional Parks System and is governed by the Metropolitan Council's *Regional Parks Policy Plan*. If Ramsey County pursues this land exchange, an amendment to the Rice Creek North Regional Trail Master Plan must be approved by the Metropolitan Council. The land exchange will also need to comply with the System Protection requirements delineated in the *Regional Parks Policy Plan* that is in effect at the time of the land exchange.

D ***Item 8 – Permits and Approvals Required***
In accordance with Minnesota Statute Section 473.513, at the time the City makes application to the Minnesota Pollution Control Agency (MPCA) for a permit to construct each segment of sanitary sewer for the proposed project, a copy of the plans, design data, and a location map of the project will also need to be submitted to the Metropolitan Council. The Council's Environmental Service Municipal Services

www.metrocouncil.org
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A: Comment noted.

B: At the completion of the master planning process, the City will request a comprehensive plan amendment consistent with the approved TCAAP zoning, future land use map, and densities.

C: Comment noted. If the land exchange is pursued, the process to amend the Rice Creek North Regional Trail Master Plan would be followed, and the exchange would comply with the requirements of the Regional Parks Policy Plan.

staff will need to review, comment, and recommend issuance of the construction permit by the MPCA before connection can be made to the City's wastewater disposal system.

Item 9 – Land Use

E This section of the draft AUAR refers to "Rice Creek Regional Park" cutting across the site. This reference should be revised to "Rice Creek North Regional Trail."

Item 11 – Water Resources

F Future analysis may be needed to evaluate potential water supply impacts resulting from severe contamination on the TCAAP property and neighboring areas.

G New development and redevelopment always provide opportunities to reduce water use and manage water supplies. Council encourages implementation of new water conservation and stormwater management strategies as part of construction and site landcaping. The Council's Conservation Toolbox and Stormwater Reuse Guide may be useful tools to reduce per capita water demand. Both can be found on the Council's Water Supply Planning website at http://www.metrocouncil.org/Wastewater-Water/Planning/Water-Supply-Planning/Guidance-and-Planning-Tools.aspx.

Item 11.b.ii – Stormwater

H The National Weather Service's Hydrometeorological Design Studies Center released new precipitation frequency estimates in June of 2013 for many of the Midwestern states, including Minnesota, in a publication termed the *NOAA Atlas 14 Point Precipitation Frequency Estimates*. (see http://www.dnr.state.mn.us/climate/noaa_atlas_14.html and http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=mn) These data supersede the TP40 data that have been used to predict rainfall distributions in the US since 1961.

The new estimates result in generally higher projected rainfall events for the average 50- and 100-year recurrence intervals in the Twin Cities Metropolitan Area. The AUAR documents do not indicate what 24-hour duration rainfall accumulation would be utilized for the 100-year (average recurrence interval) event to design the stormwater management facilities that will serve this development area. The new *Atlas 14* precipitation frequency data estimates indicate that future 100-year rainfall recurrence interval events should now be estimated to be approximately 7.31". These new data should be utilized by the City, Watershed, and project proposers in the calculation of runoff from the site to insure that proposed stormwater conveyance, treatment, and infiltration facilities will be properly sized to accommodate future runoff events.

Item 13 – Fish, Plant Communities, and Sensitive Ecological Resources

I The draft AUAR identifies on Figure 7-1 – Existing Cover Types, the presence of Woodland on the AUAR site. The majority of the remnant woodland areas appear to be present in the northwest portion of the study area bounded by TH10, the MnDOT Facility, and Ramsey County Park Parcels. The document does not describe the type and quality of woodlands present on the site, and the extent to which they will be incorporated into the site's future development. As noted by the DNR in their February 18, 2014 comment letter in the document, much of the northwest portion of the study area (and the County Parks parcels and AHATS property to the east) are within a Regionally Significant Ecological Area, based upon the ecologically significant quality of terrestrial and wetland vegetation in the areas. The Council encourages the City to incorporate an evaluation of the site woodlands in the final AUAR and give consideration to preserving and incorporating as many as possible as an amenity into the stormwater treatment and infiltration system planned for the northwest portion of the study area through density transfer, park dedication, and other means as appropriate.

D: Comment noted. The materials described will be submitted to the Metropolitan Council Environmental Service Municipal Services staff for review at the appropriate time. This has been added to the permits/approvals table in Section 8 of the AUAR, also included as part of the Mitigation Plan.

E: The text has been revised as noted.

F: Several monitoring wells will be maintained on the site for continued monitoring of groundwater by the Army. On-site water will be supplied by Saint Paul via the City of Roseville water system, not from local groundwater. Remediation of soil contamination is in the process of being completed to residential standards, and, therefore, does not pose a future threat to groundwater.

G: A regional stormwater system approach is being explored for implementation on the site as part of a separate process being led by the County and City.

H: Stormwater modeling was conducted consistent with the requirements and standards set by the state and the Rice Creek Watershed District (RCWD). The RCWD rules were updated in 2013 to incorporate updated watershed management practices. Stormwater management design calculations will take into account the recently published Atlas 14 data when sizing facilities.

I: The woodland areas identified in Figure 7-1 can be described as areas with scattered woody vegetation with less than 15 percent canopy cover and an understory of smooth brome grass and goldenrod. The woody vegetation primarily consists of small scrubby volunteer trees and shrubs, most less than 25 feet in height, including cottonwood, juniper, box elder, Siberian elm, and Russian olive. This cover is indicative of a disturbed site that has regenerated with opportunistic plant species. The City's development guidelines will encourage the preservation of open/green space and infiltration where feasible.

J The draft AUAR states that the study area and adjacent AHATS property are within one of the state's fifteen designated areas of statewide importance for the Blanding's turtle, a state-listed threatened species. The Council recommends, consistent with MnDNR impact-minimization guidance, that the proposed new County roadway through the site and local internal roadways specify the utilization of sloping, surmountable curbing throughout the project site. We suggest using Minnesota Department of Transportation Curb and Gutter Design No. S524 or similar design profile. The use of standard, near-vertical B424 or similar curbing would be expected to result in nearly full mortality of the area's turtle population by entrapping them within the roadway as they move into the area from the AHATS property and attempt to cross roadways in search of potential upland nesting areas. The simple change to a more gently sloping curb will reduce their mortality risk without negative impacts to storm water flow, driver and pedestrian safety, or maintenance activities.

K This section also referes to the "Rice Creek North Regional Trail Master Plan Amendment (July 9, 2013 draft)." The master plan amendment was approved by the Ramsey County Board of Commissioners on June 25, 2013 and by the Metropolitan Council on August 28, 2013, so the plan is no longer in draft format.

Item 18 – Transportation

L Please review Appendix D of the Transportation Policy Plan for criteria and characteristics of the various functional roadway classifications categories to determine the most appropriate classification for the north-south spine road, proposed in this AUAR to be classified as a Class A Minor Arterial Highway Expander. Requests for functional classification changes in the region must be made to the TAC Planning committee and can be sent to the committee secretary, Bob Paddock (651-602-1340) at the Metropolitan Council offices.

M The proposed I-35W/County Road (CR) H interchange improvements, stages 3 and 4, will need to be reviewed by the Joint Interchange Planning Review committee, composed of staff from Metropolitan Council, FHWA, and MnDOT. Contact Karen Scheffing at the MnDOT Metro district office about this request. In addition, any changes to a controlled access highway in the seven county metropolitan area will require approval of the Metropolitan Council prior to construction. This approval is normally requested at the time the final environmental documentation, such as an FEIS or FONSI, is prepared.

Figures 6-1, 7-1, 7-2, T-2

N These figures have an area in red labeled "Ramsey County Regional Trail and Wildlife Corridor." This area reflects the land that was added to the Rice Creek North Regional Trail corridor as part of the master plan amendment approved by the Metropolitan Council on August 28, 2013. The parkland adjacent to the northern portion of the area shown in red is also part of the Rice Creek North Regional Trail corridor. These maps should be updated to accurately reflect the entire Rice Creek North Regional Trail and Wildlife Corridor.

Draft Mitigation Plan

Item 13a. Fish, Plant Communities, and Sensitive Ecological Resources Mitigation Strategies

O This section should discuss how the proposed green corridor will interact with Ramsey County's wildlife corridor. It is important to provide habitat for wildlife within the green corridor and the wildlife corridor, but the safe movement of wildlife between these corridors and the AHATS site should not be overlooked.

J: Onsite roadways under the jurisdiction of the County will follow MnDOT State Aid design standards. The type and height of curbing will be dictated by the function and design speed of the roadway. The County will consider surmountable curbing if permitted by the governing standards.

K: The text has been updated to refer to the final version of the master plan amendment.

L: We anticipate that the spine road will be classified as a Class A Minor Arterial-Expander.

M: Comment noted. A submittal to the Interchange Review Committee (IRC) is being assembled. It is understood that approval is required by the IRC prior to making interchange modifications.

N: Figures have been updated to reflect the entire Rice Creek North Regional Trail Corridor as shown in the 2013 Rice Creek North Regional Trail Master Plan Amendment.

O: The mitigation plan describes the intent of the proposed green corridor to provide an extension of the adjacent wildlife corridor within the Rice Creek North Regional Trail through the site. The green corridor will provide a combination of green space (wetland, upland, stormwater collection, habitat) and trail connections, similar to the Regional Trail area. These attributes are consistent and compatible with the regional trail corridor.

P

Figure T2 Site Plan with Access Roads and Regional Access Roadway System Map
This map shows a potential roadway project crossing the Rice Creek North Regional Trail to provide access to the AHATS site. Future planning for this roadway should be coordinated with Ramsey County Parks to ensure that the road and trail crossing is safely designed for future regional trail users.

Appendix C. TCAAP Traffic Study

Q

All traffic generated from the development was generated using the ITE trip generation manual (9th edition). This method is generally not recommended for large developments due to the inability to account for the effect of intra-development trips or regional-scale impacts. Local data has also shown that many ITE trip generation rates are likely higher than observed in this region. Additionally, much of the data underlying ITE trip generation rates is primarily relatively old and does not take into account recently observed trends of lower per-person travel.

Specifically, the ITE rates used in the Traffic Study were for land uses 252, 230, 224, 220, 210, 820, 710, 150, and 110. In all of these land use types, inspection of the Trip Generation Manual itself shows a relatively wide variation of rates, with standard deviations usually in excess of 50% of the rate itself. In particular, rates for land use categories 710, 110, 150, 224, and 8 are based on a very low number of studies and should be used with extreme caution.

The unmitigated traffic analysis results show many intersections operating with average delays in excess of 180 seconds. These delays are unrealistic and do not take into account likely diversion of trips to other roadways that would occur. Forecasts using a regional scale model would show this.

R

The mitigations proposed for the minimum and maximum development scenarios are mostly relatively minor. Any new freeway access at H will need to be reviewed by the MnDOT/Metropolitan Council interchange committee for consistency with the *Transportation Policy Plan*, as discussed earlier in this letter.

The Council will take no formal action on the Draft AUAR. If you have any questions or need further information, please contact me at 651-602-1895.

Sincerely,

LisaBeth Barajas, Manager
Local Planning Assistance

CC: Crystal Sheppeck, MHFA
Tod Sherman, Development Reviews Coordinator, MnDOT - Metro Division
Marie McCarthy, Metropolitan Council District 10
Keith Buttleman, Environmental Services
Raya Esmaeili, Reviews Coordinator

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P: Comment noted. Ramsey County Parks has been involved in the planning completed thus far related to potential Rice Creek crossing locations. Ramsey County Parks will be involved in a separate project led by Ramsey County that will complete the planning and design of the spine road.

Q: Comment noted. The trip generation for the project was reduced by 15% to account for multi-use trips and transit trip reductions. Diversion of trips to other roadways was developed manually as part of the traffic study.

R: Comment noted. A submittal to the Interchange Review Committee (IRC) is being assembled. It is understood that approval is required by the IRC prior to making interchange modifications.

Rice Creek Watershed District

RCWD
RICE CREEK WATERSHED DISTRICT

May 28, 2014

Jill Hutmacher
Community Development Director
City of Arden Hills
1245 West Highway 96
Arden Hills, MN 55112

RE: TCAAP Draft AUAR and Draft Mitigation Plan

Dear Ms. Hutmacher,

A The Rice Creek Watershed District (RCWD) has no direct comments with regards to the TCAAP Draft AUAR and Draft Mitigation Plan (AUAR) dated April 2014 to be addressed during the AUAR process. This memorandum is intended to provide additional details in regards to the stormwater and other permitting requirements for the Rice Creek Watershed District (RCWD). It covers a pre-application review of the proposed Twin Cities Army Ammunition Plan (TCAAP) redevelopment project for compliance with the July 2013 RCWD Rules (Rules). The comments are based on an understanding of the project as described in the AUAR. This is a pre-application permit review and not a formal permit application. The applicant must submit a permit application prior to receiving formal review comments and Board approval. This memorandum is indented to provide an overview of the key technical points related to permitting and is not a comprehensive analysis of the Rules. Ultimately the applicant is responsible for compliance with the Rules. Please note that the Rules are currently in the amendment process with an expected implementation date in the fall of 2014. The applicant will be responsible for

B compliance with the Rules in place at the time of the permit submission.

Stormwater:

Water Quality Requirements:

The Water Quality requirement are covered under Section C.6 of the RCWD Rules. The required Water Quality Treatment volume is calculated differently for public linear projects and site development per Rule C6.

For site development, the water quality volume is equal to:

1.1-inches x new/reconstructed impervious area ÷ TP factor*.

For public linear projects the water quality volume is equal to:

0.75-inches x new/reconstructed impervious area*.

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A: Comment noted. Thank you for your review.

*If a NURP pond is chosen, the applicant shall size the dead storage of the pond based on 2.5-inches over the contributing drainage area.

The project area drains to two Resources of Concerns (ROC): the drainage to Round Lake and drainage to Middle Rice Creek (Long Lake is the ROC). The water quality treatment must occur within the same ROC.

The applicant must maximize the area treated, however not more than 15% of the site may be untreated. The applicant must remove TSS to the extent practicable on all untreated areas.

If feasible, infiltration is the preferred method of stormwater water quality treatment. The applicant is required to document why infiltration is not feasible. The major reasons that are potentially present on the site are: Low permeability soils (Hydrologic Soil Group (HSG) C and D), contamination and less than 3-foot of separation from the seasonal high ground water.

We understand that soil and groundwater contamination are present on site based on its past use as an Army ammunition manufacturing plant. The applicant should identify the areas (and the contaminant) where infiltration is not advisable. Additionally, the applicant should identify any extra design requirements if BMPs are placed within the contaminated areas (e.g. lining of the BMP). Additional Better Site Design Techniques especially applicable to the site specific conditions include:

1) Maximizing existing green space and Low Impact Development stormwater management methods to reduce the amount of impervious surface to the maximum extent practicable to minimize the volume of storm water runoff requiring treatment;

2) Separating and treating storm water runoff source generation areas into those that are:

a) reasonably known to be absent of contamination because of impervious surface, berms, diversion channels, or other means are to separate the area from land known to be contaminated; and

b) those areas where the presence of soil contamination is reasonably foreseeable and the ability to separate storm water runoff is impractical, infeasible or unattainable.

3) Capture and reuse the stormwater runoff on the project site (e.g., for irrigation purposes) for those areas described by 2) b) above where feasible and practicable.

4) The preferential use of filtration, bio-filtration, storm water ponds and other appropriate means and methods which "seal" the BMP (e.g., use of clay or synthetic liner) for treating stormwater runoff from those areas describe in 2) b) above or when the proposed BMP would be constructed in an area of soil contamination or result in the infiltrated water potentially reaching contaminated groundwater, rather than the use of infiltration BMPs.

The project is located in a wellhead protection area, but is outside of the 1-year emergency response zone. As such, infiltration should be used where feasible, unless there is a specific conflict with the wellhead protection plan or MDH guidance.

The applicant must submit soil borings taken at the locations of all proposed BMPs (unless infiltration is ruled out due to contamination). The borings should identify indicators of the seasonal high water elevation (e.g. redox features, mottling) if present. If infiltration is not considered feasible, the applicant may choose other water quality BMP practices to meet the water quality treatment requirements. However for the non-public linear portion of the project, the applicant must use the appropriate TP factor found in Table C1 of the Rules. The applicant must comply with the appropriate BMP design standards found in Section C.9.

Rate Control Requirements:

The project is located within the flood management zone. Thus, for the site development the applicant shall provide peak rate control beyond the existing condition peak rate of runoff by reducing the peak rate to ≤80% of the existing condition, in aggregate for the site for the 2-year, 10-year and 100-year 24-hour rainfall events. Additionally, any increase in a critical event rate at a specific point of discharge from the site must be limited and cause no adverse downgradient impact.

The current Rules base these events off of the NOAA Technical Paper #40 (TP-40) values. However the Rule amendment, as currently proposed will require the use of the Atlas 14 values.

The applicant must submit a HydroCAD or other TR-20 based model demonstrating compliance with Rule C.7. The following shall be incorporated into the model:

- Existing curve numbers for pervious surfaces must be in accordance to Table C.3 of Rule C.
- Composite curve numbers for the combined pervious / impervious area are not allowed. Runoff from pervious and impervious surfaces must be modeled separately.
- Drainage calculations must include the 10-Day snow melt event for proposed conditions to determine if the snowmelt or 100-year rainfall is the critical event.
- The applicant may incorporate the buildings demolished under permit 13-023 as existing impervious area.

The AUAR refers to three existing outfalls to Rice Creek and one outfall to Round Lake with associated capacities. It is unclear what these are, or where they are located. RCWD will consider compliance with the Rules based on the above analysis. The proposed outfalls must have the capacity to handle the proposed rates, regardless of the existing conditions.

Comprehensive Stormwater Management Plan:

The applicant may wish to develop a Comprehensive Stormwater Management Plan (CSMP) for the site. This is a way that the planning authority may plan or build regional BMPs for a proposed development. Further guidance can be found on the District website www.ricecreek.org. A pre-application meeting may be set up to discuss the specifics required for the CSMP.

Wetlands:

The project is not located in a Comprehensive Wetland Protection and Management Plan Area. As such, the applicant shall comply with WCA for the majority of the wetland related items. The applicant should review section F.5 of the Rules for additional RCWD on-site replacement plan requirements, if applicable.

Additionally, any discharge to wetland must conform to the Bounce and Inundation Criteria found under Rule C.8. Wetland susceptibility will be determined by the District upon submittal of the delineation report(s).

Floodplain:

The regulatory floodplain for Rice Creek is 881.8 from I-35W to County Road H. Any fill greater than 10 cubic yards placed below the floodplain elevations must be mitigated per Rule E.

All structures low floor entries must be set at least 2-feet above the regulatory floodplain.

Bridges and Culvert Crossings:

The AUAR indicates that a new crossing (proposed as a bridge) will be necessary for Rice Creek at County Road H. Bridges and culvert crossings must conform to Rule G, which includes the following parameters:

- Preserve existing design hydraulic capacity
- Retain existing navigational capacity
- Not adversely affect water quality
- Be designed to allow for future erosion, scour, and sedimentation considerations.

The RCWD looks forward to reviewing the final design during the permitting process. Feel free to contact the RCWD at any point during the design stages with questions or concerts. If you have any further questions please contact me at (763) 398-3079 or ntomczik@ricecreek.org.

Sincerely,

Nick Tomczik
Permit Coordinator/Wetland Specialist

Cc: Phil Belfiori, RCWD
Mark Deutschman, HEI

B: The City thanks the Rice Creek Watershed District for its insights into design details and permit requirements. RCWD will be engaged during the development and design of the green corridor, stormwater management plans, wetland mitigtation, and other parameters for which the District has jurisdiction. The City looks forward to working through the design details with RCWD staff.

City of Shoreview

City Council:
Sandy Martin, Mayor
Emy Johnson
Terry Quigley
Ady Wickstrom
Ben Withhart

Shoreview

City of Shoreview
4600 Victoria Street North
Shoreview, MN 55126
651-490-4600 phone
651-490-4699 fax
www.shoreviewmn.gov

May 27, 2014

Ms. Jill Hutmacher
Community Development Director
City of Arden Hills
1245 West Highway 96
Arden Hills, MN 55112

Re: Twin Cities Army Ammunition Plant (TCAAP) Redevelopment Project
Draft Alternative Urban Areawide Review

Dear Ms. Hutmacher:

The City of Shoreview received the Draft Alternative Urban Areawide Review for the TCAAP Redevelopment Project in the City of Arden Hills. The document has been reviewed and the following comments summarize Shoreview's concerns with the redevelopment proposal.

A

Study Area Delineation

The boundary of the study area does not encompass Rice Creek, the Ramsey County Regional Trail and Wildlife Corridor or extend fully north to County Road I. Future development of the TCAAP property will have an impact on these features but are not addressed since it is not within the delineated boundary of the study area. The study area should be expanded or additional information provided in order to determine the full impact on these natural features and the adjacent transportation network that includes Shoreview.

B

9. Land Use

In 2013, the Rice Creek Regional Trail Master Plan was amended to include an additional 60 acres proposed to be transferred to Ramsey County Parks and Recreation for the Rice Creek North Regional Trail Corridor. The addition of this land will enable the construction of a trailhead entry driveway and additional trails along with a trail corridor that will provide a linkage to Highway 96. At-grade crossings were anticipated at County Road I and Highway 96.

This area is outside of the delineated study area, therefore, the AUAR does not address these improvements and potential impacts on County Road I (including a future pedestrian trail crossing) and adjoining land uses. Future development efforts should preserve the integrity of this trail corridor and provide local connections.

A: AUAR boundaries are typcially defined by the land areas that are to be modified by future development. The impact analysis can and does extend beyond the study area boundaries to evaluate impacts of the change on adjacent land uses. The potential impact of site development on Rice Creek was addressed in the stormwater and other sections of the Draft AUAR. Impacts will be minimal downstream as water quantity and quality will be managed to existing conditions or better, as required by state and local regulations and permits. A new crossing of Rice Creek will be necessary and will be designed to have no floodplain impact and to allow for wildlife and pedestrian crossings, which will be coordinated through Rice Creek Watershed District requirements. The site development will enhance the Rice Creek North Regional Trail system by extending the trail and green space corridor through the site.

The transportation concerns of Shoreview are further addressed in the following response to comments.

B: The intent of the project is to preserve and enhance the integrity of the regional trail. The City recognizes the value and importance of the regional trail and has included trails within the site to provide local access to the regional trail.

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TCAAP AUAR Comment Letter
City of Shoreview

18. Transportation

The AUAR states that the County has indicated a roadway connection from the study area to County Road I may be deemed necessary at some future time. While the potential connection has not been identified, the AUAR indicates that such a connection would provide relief to the I-35W/County Road H intersection, as well as provide additional emergency vehicle access to the study area. However, the connection is not deemed necessary according the traffic study used in the AUAR and would require further analysis.

It is difficult to assess potential impacts to this possible road connection as there are no details provided through the AUAR. However, Shoreview staff has had numerous conversations with MnDOT, Ramsey County and Arden Hills through the past several years about possible roadway connection to County Road I and the impact that these connections may have on both the local transportation system and access to the interstate system. Shoreview would seek additional dialogue and input on the transportation plan as more details become available and request consideration in addressing the following concerns:

C

- Aligning a future road connection with Rice Creek Parkway has the potential to change the character of roadway given that it will become an attractive alternative for the congestion at I-35W/Highway 10 corridor in the peak rush hour. Rice Creek Parkway was designed and built (funded completely by Shoreview) to serve as 30 mph collector street, with a current ADT of 5,000. Such a connection to Rice Creek Parkway could result in the roadway transforming to more of a regionally-significant route, with potential impacts our residential land uses in the area because the traffic volumes, as well as the vehicle distribution (a lot more trucks and heavy commercial).
- It is unclear how a potential six-legged intersection of Rice Creek Parkway/Count Road I/TCAAP/I-35W Freeway Ramp would function and to preserve existing access to I-35W. The City of Shoreview strongly desires to maintain existing access to and from I-35W at County Road I for our residents.

D

E

The AUAR does not provide sufficient details about this potential for a future connection to County Road I. More detailed analysis including traffic projections and alignment options need to be identified so the impacts to the road system and adjoining land uses in Shoreview can be determined. A collaborative approach involving MnDOT, Ramsey County and adjoining cities should be initiated to assess and review the transportation impacts from future improvements that support the TCAAP development.

I hope these comments are helpful as the City of Arden Hills continues to work on this redevelopment project. Please contact me if you have any questions or need further clarification

C: Comment noted. Shoreview has been involved in all interchange planning completed to date and will continue to be included in future interchange planning and design activities particularly as related to any proposed modifications to the I-35W and County Road I interchange. A separate project will include additional traffic analysis, environmental documentation, and the preliminary and final design of the I-35W and County Road H interchange will include conceptual level planning of potential modifications to I-35W and County Road I interchange. The TCAAP Infrastructure project being led by Ramsey County will include evaluation of a connection of the roadway from the northern part of the site to County Road I.

D: Comment noted. See the response to the City of Shoreview Comment C.

E: Comment noted. See the response to the City of Shoreview Comment C.

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TCAAP AUAR Comment Letter
City of Shoreview

regarding our comments. I can be reached at 651-490-4682 or via e-mail at kcastle@shoreviewmn.gov.

Sincerely,

Kathleen Castle
City Planner

c. Terry Schwerm, City Manager
Mark Maloney. Public Works Director
Tom Simonson, Community Development Director

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Lyle Salmela

TCAAP DRAFT AUAR **April 16, 2014**

Director Hutmacher

This responds to the Kimley-Horn to Council memo dated April, 14, 2014 that the public comment period for the TCAAP AUAR ends on May 28, 2014. My comments and concerns are as follows:

A. VOC/RADON Abatement

A The International Residential Building Code (2006, revisited in 2014) is enforced by the Minnesota State and Arden Hills building codes. It requires radon abatement for all new residential structures. The Minnesota Health Department (MDH) has said that radon abatement satisfies all VOC concerns. Thus all new residential structures at TCAAP should be protected and abated for radon and VOC's. The public should have this knowledge and it should be discussed with the MDH radon/VOC regulatory personnel.

B On page 16, the AUAR states that VOC's will be remediated to comply with MPCA Tier 1 residential standards. This may be misleading because VOC's/radon are not remediated but abated by building codes and construction standards. The RAP/DRAP should address this further. Where can the public review the RAP/DRAP?

C Commercial and industrial construction requires vapor barriers under concrete slabs. Whether to provide further code regulation would be up to the city to amend the applicable codes. To prevent past 3M and General Mills issues it should be discussed. I have discussed this with Dave Scherbel of your staff.

B. Transportation - H/35W

D County Road H/35W interchange – 2016 rebuild. Will phases 1-4 (figure 18-1) come in succession until the total project is done or on separate start and completion dates? If not in succession then phase 4 should be included with phase 1, because major construction would be on the same side of 35W. Also a traffic lane should connect Hwy 10 north with the H roundabout.

E It appears that the traffic analysis is based on the full build out of TCAAP and 2030 35W traffic. The analysis does not mention anything about what the Metro Council, Ramsey County, MNDOT, Metro Transit, Chamber of Commerce and 35W corridor cities including Arden Hills have for further plans for I35W north and I694. The AUAR should address what these governmental bodies are planning and how they view this rebuild.

Lyle Salmela – 651-636-6461

A: Currently all residential buildings regulated by the residential state energy code, chapter 1322, are required to have radon control per the 2006 International Residential Code Appendix F – Radon Control Control Methods, with state amendments. The location on site of residential buildings does not matter as all residential buildings need to have radon control.

Commerical buildings are not required to have radon control but are required to have a six millimeter vapor retarder with joints lapped to a minimum of six inches applied directly beneath the concrete slab, per Internatinal Building Code 1910: Minimum slab provisions.

All buildings are requied to have the foundations either damproofed or waterproofed per state building code, International Building Code section 1807 (commercial buildings), and International Residential Code section 406 (residential buildings).

The above items are mandatory per the state building code adopted by the City of Arden Hills and have been added to the Mitigationi Plan under Item 12.

B: Remediation to MPCA Tier 1 Residential Soil Reference Values will occur. Soil gas risks will be mitigated as described in response to the previous comment.

Documents are available for review at Ramsey County Office of Property Management, Metro Square, Suite 2200, 121 Seventh Place East, Saint Paul, MN 55101.

C: Soil gas risks will be mitigated as described in response to Lyle Salmela Comment A.

D: Exact phasing has not been determined, although it is anticipated that Phases 1 and 2 will be completed prior to Phases 3 and 4. This is driven by a variety of factors including existing access locations, funding, changes in traffic patterns caused by the development, and available roadway capacity. A connection is planned from County Road H to northbound I-35W/TH 10 at what could be a roundabout controlled intersection.

E: This analysis considers the anticipated growth in regional traffic and programmed projects that would impact the regional roadway network. Appropriate involvement by a variety of governmental entities will occur, as required, during future planning and design activities and as part of the Metropolitan Council's Transportation Policy Plan.

Appendix B. Correspondence

Haase, Rachel

From: Haase, Rachel
Sent: Monday, October 28, 2013 2:22 PM
To: 'review.NHIS@state.mn.us'
Subject: TCAAP NHIS Data Review Request
Attachments: TCAAP NHIS Data Request.pdf; USGS Map.pdf; Aerial Map.pdf; Project Location.pdf

To whom it may concern,

The City of Arden Hills has a redevelopment project that is in need of NHIS review. The project is located in Township 30, Range 23, Sections 9 and 16, in Arden Hills, Ramsey County, Minnesota. The review request, an aerial of the project site, a USGS map, and a project location map are attached for review.

The Twin Cities Army Ammunition Plan (TCAAP) is a 427 acre site that was used for the production of conventional ammunition and weapons components from 1941-1976, and now contains over 100 vacant and unoccupied structures and numerous access roads and parking lots which are in the process of being removed and remediated. The area surrounding the site is a moderately developed suburban mix of commercial, retail, industrial, and residential buildings. The site is being redeveloped to become a mixed-use development.

Please let me know if you have any questions.

Best,
Rachel Haase

Rachel Haase
Kimley-Horn and Associates, Inc. | 2550 University Avenue West | Suite 238N | St. Paul, MN 55114
Direct: 651.643.0412 | Office: 651.645.4197 | rachel.haase@kimley-horn.com | www.kimley-horn.com

NO STAPLES
PLEASE

2012	For Agency Use Only:		
	Received _____ Due _____ Inv _____	#Sec _____	Contact Rqsted? _____
	Search Radius _____mi. L / I / D EM Map'd _____	#EOs _____	Survey Rqsted? _____
	NoR / NoF / NoE / Std / Sub Let _____ Log out _____	#Com _____	
		Related ERDB# _____	

NATURAL HERITAGE INFORMATION SYSTEM (NHIS) DATA REQUEST FORM

Please read the instructions on page 3 before filling out the form. Thank you!

WHO IS REQUESTING THE INFORMATION?

Mr.
■ Ms.

Name and Title Rachel Haase

Agency/Company Kimley-Horn and Associates

Mailing Address 2550 University Avenue West, Suite 238N, St. Paul, MN 55114
(Street) (City) (State) (Zip Code)

Phone 651-643-0412 e-mail rachel.haase@kimley-horn.com Responses will be sent via email. If you prefer US Mail check here: ☐

THIS INFORMATION IS BEING REQUESTED FOR A:

☐ Federal EA ☐ State EAW ☐ PUC Site or Route Application ☐ Watershed Plan ☐ BER
☐ Federal EIS ☐ State EIS ☐ Local Government Permit ☐ Research Project
☐ NEPA Checklist ☑ Other (describe) Alternative Urban Areawide Review (AUAR)

☐ Check here if this project is funded through any of the following grant programs: Lessard-Sams Outdoor Heritage Council (L-SOHC), Conservation Partners Legacy (CPL), or Legislative-Citizen Commission on Minnesota Resources (LCCMR).

INFORMATION WE NEED FROM YOU:

1) **Enclose a map** of the project boundary/area of interest (topographic maps or aerial photos are preferred).
2) Please **provide a GIS shapefile*** (NAD 83, UTM Zone 15N) of the project boundary/area of interest.
3) List the following locational information* (attach additional sheets if necessary):

For Agency Use: Region / MCBS Status

For Agency Use: TRS Confirmed ☐

County	Township #	Range #	Section(s) (please list **all** sections)
Ramsey	30	23	9, 16

4) Please provide the following information (attach additional sheets if necessary):

Project Name: Twin Cities Army Ammunition Plant (TCAAP) AUAR

Project Proposer: City of Arden Hills

Description of Project (including types of disturbance anticipated from the project):

TCAAP is a 427 acre site that was used for the production of conventional ammunition and weapons components from 1941-1976, and now contains over 100 vacant and unoccupied structures and numerous access roads and parking lots which are in the process of being removed and remediated. The area surrounding the site is a moderately developed suburban mix of commercial, retail, industrial, and residential buildings. The site is being redeveloped to become a mixed-use development.

Describe the existing land use of the project site. What types of land cover / habitat will be impacted by the proposed project?

vacant industrial

List any waterbodies (e.g., rivers, intermittent streams, lakes, wetlands) that may be affected by the proposed project, and discuss how they may be impacted (e.g., dewatering, discharge, riverbed disturbance).

Rice Creek - potential road crossing

Does the project have the potential to affect any groundwater resources (e.g., groundwater appropriation, change in recharge, or contamination)?

No

To your knowledge, has the project undergone a previous Natural Heritage review? If so, please list the correspondence #: ERDB # _____. How does this request differ from the previous request (e.g., change in scope, change in boundary, project being revived, project expansion, different phase)?

N/A

To your knowledge, have any native plant community or rare species surveys been conducted within the site? If so, please list: No

List any DNR Permits or Licenses that you will be applying for or have already applied for as part of this project:

Potential Public Waters Work Permit

INFORMATION WE PROVIDE TO YOU:

1) The response will include a Natural Heritage letter. If applicable, the letter will discuss potential effects to rare features.

☐ Check here if you are interested in a list of rare features in the vicinity of the area of interest but you do **not** need a review of potential effects to rare features. Please list the reason a review is not needed:

_____

2) Depending on the results of the query or review, the response may include an Index Report of known aggregation sites and known occurrences of federally and state-listed plants and animals* within an approximate one-mile radius of the project boundary/area of interest. The Index Report and Natural Heritage letter can be included in any public environmental review document.

3) A Detailed Report that contains more information on each occurrence may also be requested. Please note that the Detailed Report may contain specific location information that is protected under *Minnesota Statutes*, section 84.0872, subd. 2, and, as such, the Detailed Report may not be included in any public document (e.g., an EAW).

☑ Check here if you would like to request a Detailed Report. Please note that if the results of the review are 'No Effects' or a standard comment, a Detailed Report may not be available.

FEES / TURNAROUND TIME

There is a fee* for this service. Requests generally take **3-4 weeks** from date of receipt to process, and are processed in the order received.

I have read the entire form and instructions, and the information supplied above is complete and accurate. I understand that material supplied to me from the Natural Heritage Information System is copyrighted and that I am not permitted to reproduce or publish any of this copyrighted material without prior written permission from the DNR. Further, if permission to publish is given, I understand that I must credit the Minnesota Division of Ecological and Water Resources, Minnesota Department of Natural Resources, as the source of the material.

Signature **(required)** Rachel Haas	Note: Digital signatures representing the name of a person shall be sufficient to show that such person has signed this document.

Mail or email completed form to:
Lisa Joyal, Endangered Species Review Coordinator
Division of Ecological and Water Resources
Minnesota Department of Natural Resources
500 Lafayette Road, Box 25
St. Paul, Minnesota 55155
Review.NHIS@state.mn.us

Form is available at
http://files.dnr.state.mn.us/eco/nhnrp/nhis_data_request.pdf

Revised March 2, 2012

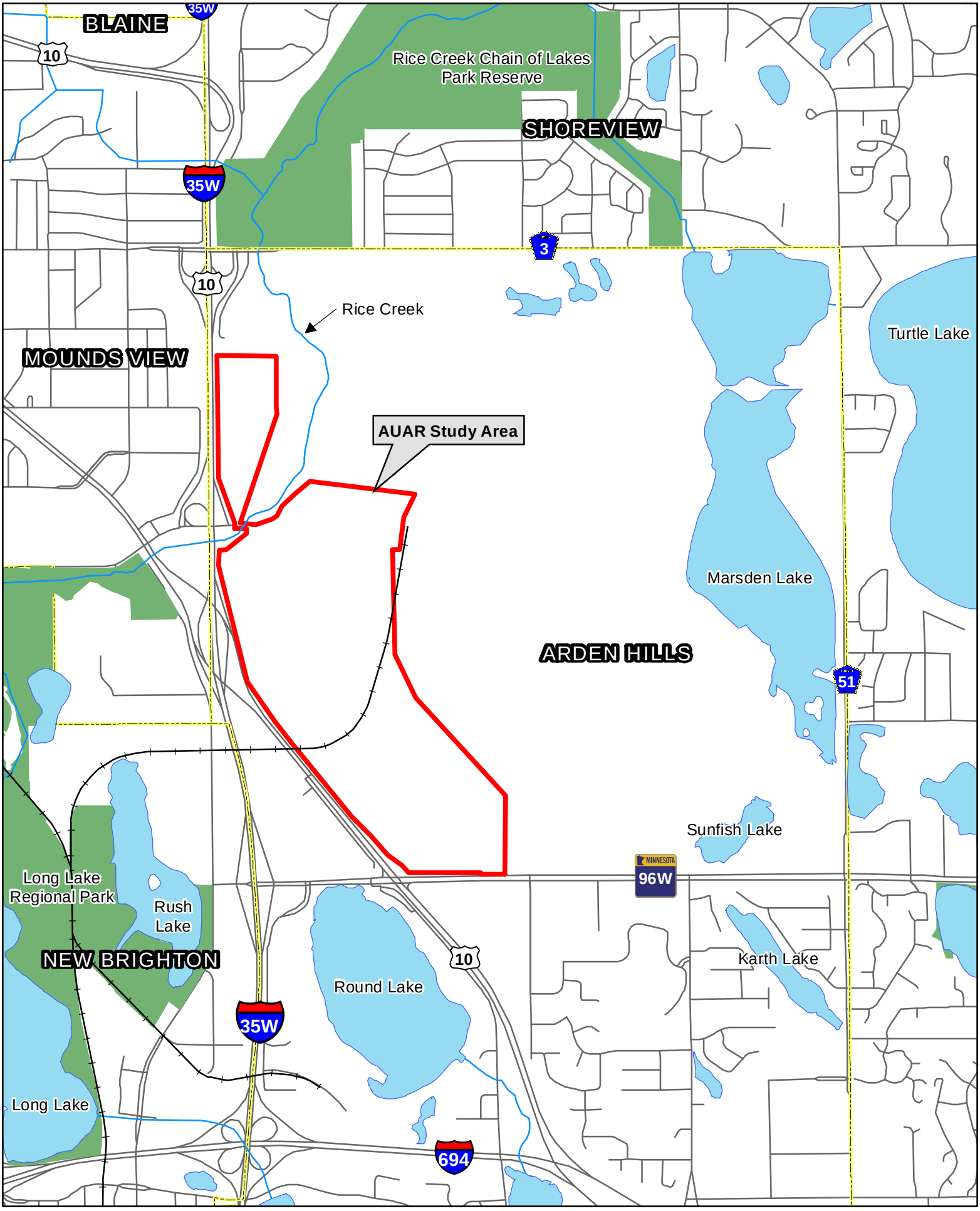
* Please see the instructions on page 3.

Kimley-Horn and Associates, Inc.

N

0 500 1,000 Feet

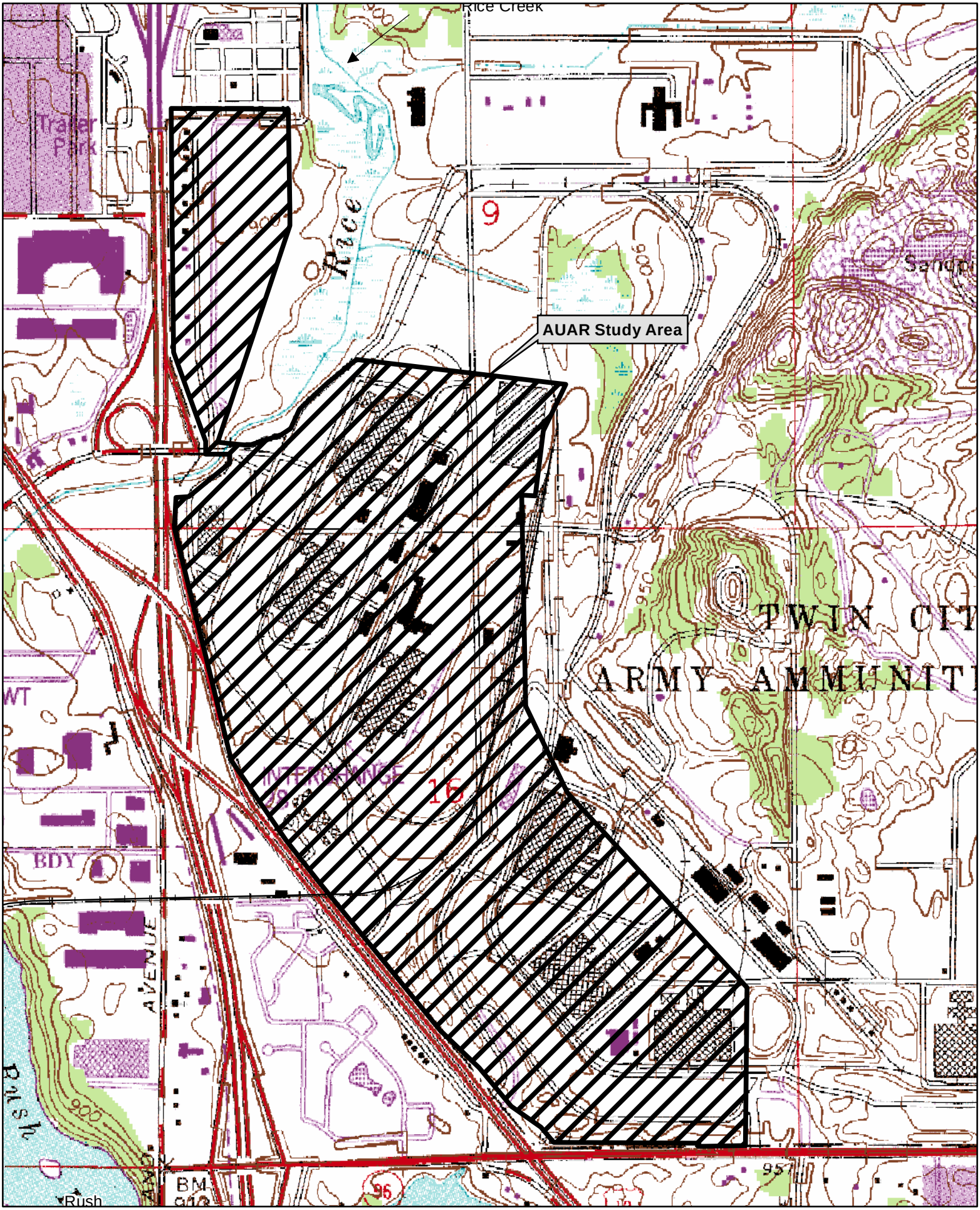
TCAAP AUAR
Aerial Map



Kimley-Horn and Associates, Inc.

TCAAP AUAR

Project Location



TCAAP AUAR

USGS 7.5 Minute Topographic Map

Minnesota Department of Natural Resources
Division of Ecological and Water Resources, Box 25
500 Lafayette Road
St. Paul, Minnesota 55155-4025
Phone: (651) 259-5109 E-mail: lisa.joyal@state.mn.us

February 18, 2014 **Correspondence # ERDB 20140096**

Ms. Rachel Haase
Kimley-Horn and Associates, Inc.
2550 University Avenue West, Suite 238N
St. Paul, MN 55114

RE: Natural Heritage Review of the proposed Twin Cities Army Ammunition Plant AUAR, T30N R23N Sections 9 & 16, Ramsey County

Dear Ms. Haase,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, rare features have been documented within the search area. Please note that the following **rare features *may* be adversely affected** by the proposed project and should be addressed in the Alternative Urban Areawide Review:

- The project boundary overlaps portions of two Central Region Regionally Significant Ecological Areas (RSEA; see enclosed map). The DNR Central Region (in partnership with the Metropolitan Council for the 7-county metro area), identified these ecologically significant terrestrial and wetland areas by conducting a landscape-scale assessment based on the size and shape of the ecological area, land cover within the ecological area, adjacent land cover/use, and connectivity to other ecological areas. The purpose of the data is to inform regional scale land use decisions, especially as it relates to balancing development and natural resource protection. A GIS shapefile of this data layer can be downloaded from the DNR Data Deli at http://deli.dnr.state.mn.us. Additional information, including pdf versions of the RSEA maps, is available at http://www.dnr.state.mn.us/rsea/index.html. If you would like help interpreting the RSEA data or would like assistance with designing the project's greenspace, please contact Hannah Texler, Regional Plant Ecologist for DNR's Central Region, at 651-259-5811 or hannah.texler@state.mn.us.

- The proposed project is within the AHATS – Rice Creek Important Bird Area (IBA; see enclosed map). Important Birds Areas, identified by Audubon Minnesota in partnership with the DNR, are part of an international conservation effort aimed at conserving critical bird habitats. They are voluntary and non-regulatory, but the designation does demonstrate the biological value of this area. This particular IBA contains varied habitat, including extensive grasslands, and provides important habitat for waterfowl, raptors, and passerines within an urban landscape. A minimum of 166 species have been observed within the IBA boundaries, including several Species of Greatest Conservation Need as identified in Minnesota's State Wildlife Action Plan (http://www.dnr.state.mn.us/cwcs/index.html).

- There are multiple observations of trumpeter swans (*Cygnus buccinator*), a state-listed species of special concern, nesting within the Twin Cities Army Ammunition Plant. During the breeding season, trumpeter swans select small ponds and lakes with extensive beds of cattails, bulrush, sedges, and/or horsetail. Ideal habitat includes about 100 m of open water for take-off, stable levels of unpolluted water, emergent vegetation, low levels of human disturbance, and the presence of muskrat (*Ondatra zibethicus*) houses and American beaver (*Castor canadensis*) lodges for use as nesting platforms. Threats to the trumpeter swan population in Minnesota include lead poisoning, illegal shooting, the loss or degradation of wetland habitat, and collisions with transmission lines. Of particular concern would be any habitat destruction or construction disturbance during the breeding season. However, based on aerial photographs, the proposed project boundary does not appear to contain any suitable nesting habitat.

- Plains pocket mouse (*Perognathus flavescens*), a state-listed species of special concern, was documented within the Twin Cities Army Ammunition Plant in the 1990's. This population is the largest known plains pocket mouse population in the state. In Minnesota, this species is restricted to open, well-drained areas, typically on sandy soils with sparse, grassy, or brushy vegetation. Threats to the plains pocket mouse include habitat destruction and natural succession. While there are no known occurrences of this species within the project boundary, it is possible that portions of the project include suitable habitat (e.g., the northernmost section which is within a Central Region Regionally Significant Ecological Area).

- The proposed project is within an area of statewide importance to the Blanding's turtle (*Emydoidea blandingii)*, a state-listed threatened species. There are 15 such areas in the state. These areas are relied upon to maintain the species' security within Minnesota, and the DNR considers them of the highest priority for Blanding's turtle research and management activities. Although we have no records from directly within the project site, turtles are known to occur in the vicinity of the project (including within Rice Creek) and may occur within the project boundary. Blanding's turtles not only use wetlands, but also upland areas up to and over a mile distant from wetlands. Uplands are used for nesting, basking, periods of dormancy, and traveling between wetlands. Because of the tendency to travel long distances over land, Blanding's turtles regularly travel across roads and are therefore susceptible to collisions with vehicles. Any added mortality can be detrimental to populations of Blanding's turtles, as these turtles have a low reproduction rate that depends upon a high survival rate to maintain population levels. Other factors believed to contribute to the decline of this species include wetland drainage and degradation, and the development of upland habitat.

  For your information, I have attached a Blanding's turtle fact sheet that describes the habitat use and life history of this species. The fact sheet also provides two lists of recommendations for avoiding and minimizing impacts to this rare turtle. The first list is relevant for all areas inhabited by Blanding's turtles while the second list contains additional protective measures for areas known to be of statewide importance to this species. Because the proposed project is within one of these areas, **please refer to both lists of recommendations**. In particular, there are specific recommendations regarding roads, utilities, landscaping, timing of construction, and sediment and erosion control that will pertain to this project. In addition, please refer to the enclosed fact sheet for recommendations on the use of wildlife friendly erosion control. For further assistance regarding the Blanding's turtle, please contact Erica Hoaglund, DNR Regional Nongame Specialist, at 651-259-5772.

Minnesota's endangered species law (*Minnesota Statutes*, section 84.0895) and associated rules (*Minnesota Rules*, part 6212.1800 to 6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit. Given the protected status of this species and given that the proposed project is within an area of statewide importance to this species, **the DNR requests that a Blanding's Turtle Avoidance and Minimization Plan be submitted for DNR review prior to any construction activities**. The plan should identify potential impacts to the Blanding's turtle and document any measures that will be implemented to avoid and minimize disturbance to this species. Please contact me if you have any questions regarding the Avoidance and Minimization Plan.

If it is determined that a Public Waters Work Permit is needed for the potential crossing of Rice Creek, additional requirements/conditions may be included in the Permit.

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

For environmental review purposes, the Natural Heritage letter is valid for one year; it is only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. To determine whether there are other natural resource concerns associated with the proposed project, please contact your DNR Regional Environmental Assessment Ecologist (contact information available at http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html). Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,

Lisa Joyal

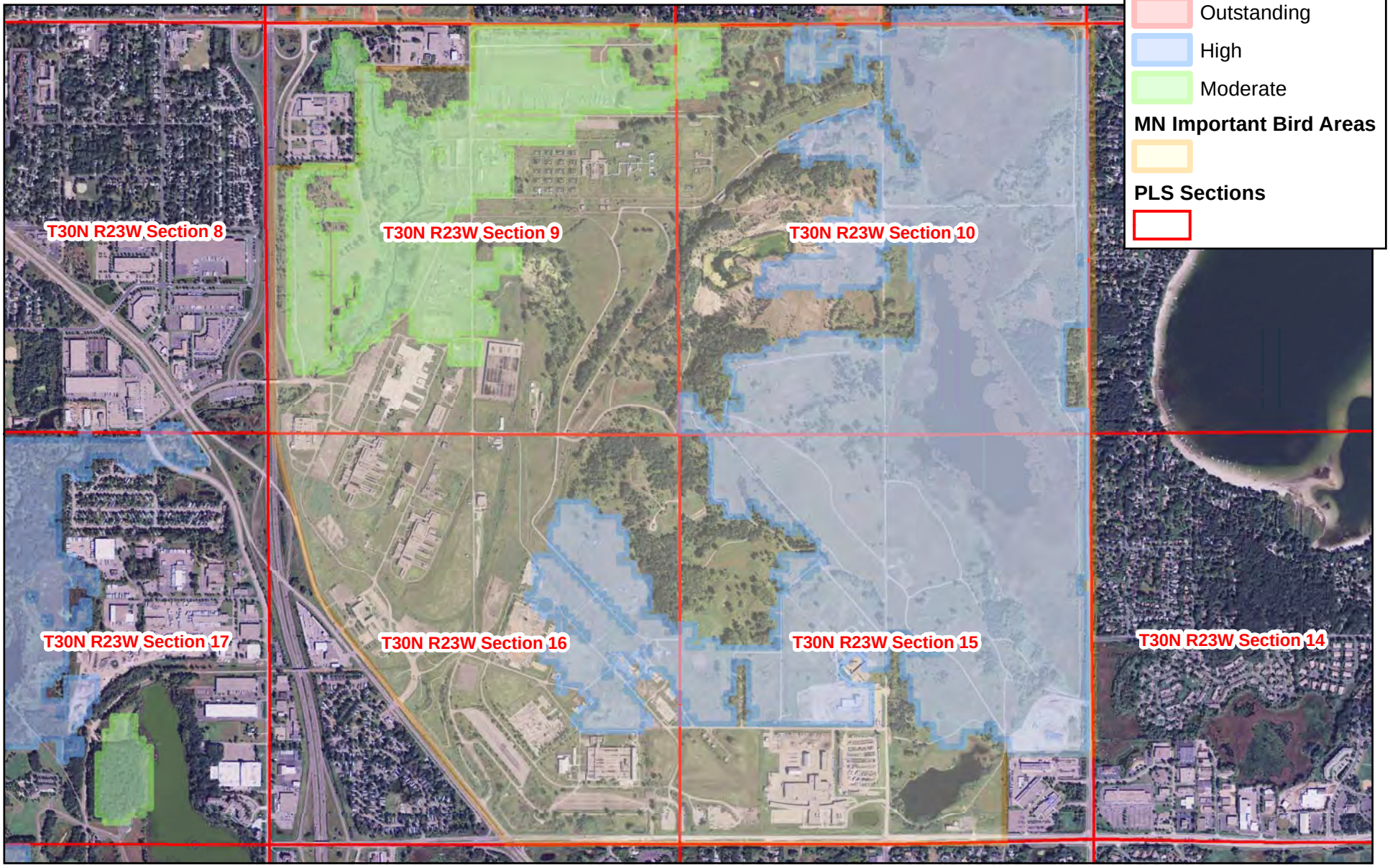
Lisa Joyal
Endangered Species Review Coordinator

enc. Map
Blanding's Turtle Fact Sheet and Flyer
Wildlife Friendly Erosion Control

cc: Brooke Haworth
Erica Hoaglund
Hannah Texler
Molly Shodeen

Link: DNR Rare Species Guide (info on the biology, habitat use, and conservation of rare species)
http://www.dnr.state.mn.us/rsg/index.html

Twin Cities Army Ammunition Plant
AUAR
ERDB #20140096



Legend

Central Region RSEAs

- Outstanding
- High
- Moderate

MN Important Bird Areas

PLS Sections

0 0.25 0.5 1 Miles

N

CAUTION

BLANDING'S TURTLES

MAY BE ENCOUNTERED IN THIS AREA

The unique and rare Blanding's turtle has been found in this area. Blanding's turtles are state-listed as Threatened and are protected under Minnesota Statute 84.095, Protection of Threatened and Endangered Species. Please be careful of turtles on roads and in construction sites. For additional information on turtles, or to report a Blanding's turtle sighting, contact the DNR Nongame Specialist nearest you: Bemidji (218-308-2653); Grand Rapids (218-327-4518); New Ulm (507-359-6033); Rochester (507-206-2820); or St. Paul (651-259-5772).

DESCRIPTION: The Blanding's turtle is a medium to large turtle (5 to 10 inches) with a black or dark blue, dome-shaped shell with muted yellow spots and bars. The bottom of the shell is hinged across the front third, enabling the turtle to pull the front edge of the lower shell firmly against the top shell to provide additional protection when threatened. The head, legs, and tail are dark brown or blue-gray with small dots of light brown or yellow. A distinctive field mark is the bright yellow chin and neck.

BLANDING'S TURTLES DO NOT MAKE GOOD PETS
IT IS ILLEGAL TO KEEP THIS THREATENED SPECIES IN CAPTIVITY

SUMMARY OF RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS TO BLANDING'S TURTLE POPULATIONS

(see Blanding's Turtle Fact Sheet for full recommendations)

- This flyer should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.
- Turtles that are in imminent danger should be moved, by hand, out of harm's way. Turtles that are not in imminent danger should be left undisturbed to continue their travel among wetlands and/or nest sites.
- If a Blanding's turtle nests in your yard, do not disturb the nest and do not allow pets near the nest.
- Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.
- Small, vegetated temporary wetlands should not be dredged, deepened, or filled.
- All wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.
- Roads should be kept to minimum standards on widths and lanes.
- Roads should be ditched, not curbed or below grade. If curbs must be used, 4" high curbs at a 3:1 slope are preferred.
- Culverts under roads crossing wetland areas, between wetland areas, or between wetland and nesting areas should be at least 36 in. diameter and flat-bottomed or elliptical.
- Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.
- Utility access and maintenance roads should be kept to a minimum.
- Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.
- Terrain should be left with as much natural contour as possible.
- Graded areas should be revegetated with native grasses and forbs.
- Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).

Compiled by the Minnesota Department of Natural Resources Division of Ecological and Water Resources, Updated August 2012
Endangered Species Review Coordinator, 500 Lafayette Rd., Box 25, St. Paul, MN 55155 / 651-259-5109

Environmental Review Fact Sheet Series

Endangered, Threatened, and Special Concern Species of Minnesota

Blanding's Turtle

(*Emydoidea blandingii*)

Minnesota Status:	Threatened	State Rank[1]:	S2
Federal Status:	none	Global Rank[1]:	G4

HABITAT USE

Blanding's turtles need both wetland and upland habitats to complete their life cycle. The types of wetlands used include ponds, marshes, shrub swamps, bogs, and ditches and streams with slow-moving water. In Minnesota, Blanding's turtles are primarily marsh and pond inhabitants. Calm, shallow water bodies (Type 1-3 wetlands) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies) are preferred, and extensive marshes bordering rivers provide excellent habitat. Small temporary wetlands (those that dry up in the late summer or fall) are frequently used in spring and summer -- these fishless pools are amphibian and invertebrate breeding habitat, which provides an important food source for Blanding's turtles. Also, the warmer water of these shallower areas probably aids in the development of eggs within the female turtle. Nesting occurs in open (grassy or brushy) sandy uplands, often some distance from water bodies. Frequently, nesting occurs in traditional nesting grounds on undeveloped land. Blanding's turtles have also been known to nest successfully on residential property (especially in low density housing situations), and to utilize disturbed areas such as farm fields, gardens, under power lines, and road shoulders (especially of dirt roads). Although Blanding's turtles may travel through woodlots during their seasonal movements, shady areas (including forests and lawns with shade trees) are not used for nesting. Wetlands with deeper water are needed in times of drought, and during the winter. Blanding's turtles overwinter in the muddy bottoms of deeper marshes and ponds, or other water bodies where they are protected from freezing.

LIFE HISTORY

Individuals emerge from overwintering and begin basking in late March or early April on warm, sunny days. The increase in body temperature which occurs during basking is necessary for egg development within the female turtle. Nesting in Minnesota typically occurs during June, and females are most active in late afternoon and at dusk. Nesting can occur as much as a mile from wetlands. The nest is dug by the female in an open sandy area and 6-15 eggs are laid. The female turtle returns to the marsh within 24 hours of laying eggs. After a development period of approximately two months, hatchlings leave the nest from mid-August through early-October. Nesting females and hatchlings are often at risk of being killed while crossing roads between wetlands and nesting areas. In addition to movements associated with nesting, all ages and both sexes move between wetlands from April through November. These movements peak in June and July and again in September and October as turtles move to and from overwintering sites. In late autumn (typically November), Blanding's turtles bury themselves in the substrate (the mud at the bottom) of deeper wetlands to overwinter.

IMPACTS / THREATS / CAUSES OF DECLINE

- loss of wetland habitat through drainage or flooding (converting wetlands into ponds or lakes)
- loss of upland habitat through development or conversion to agriculture
- human disturbance, including collection for the pet trade* and road kills during seasonal movements
- increase in predator populations (skunks, raccoons, etc.) which prey on nests and young

*It is illegal to possess this threatened species.

RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS

These recommendations apply to typical construction projects and general land use within Blanding's turtle habitat, and are provided to help local governments, developers, contractors, and homeowners minimize or avoid detrimental impacts to Blanding's turtle populations. **List 1** describes minimum measures which we recommend to prevent harm to Blanding's turtles during construction or other work within Blanding's turtle habitat. **List 2** contains recommendations which offer even greater protection for Blanding's turtles populations; this list should be used *in addition to the first list* in areas which are known to be of state-wide importance to Blanding's turtles (contact the DNR's Natural Heritage and Nongame Research Program if you wish to determine if your project or home is in one of these areas), or in any other area where greater protection for Blanding's turtles is desired.

List 1. Recommendations for all areas inhabited by Blanding's turtles.	**List 2. *Additional* recommendations for areas known to be of state-wide importance to Blanding's turtles.**
GENERAL	
A flyer with an illustration of a Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.	Turtle crossing signs can be installed adjacent to road-crossing areas used by Blanding's turtles to increase public awareness and reduce road kills.
Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed.	Workers in the area should be aware that Blanding's turtles nest in June, generally after 4pm, and should be advised to minimize disturbance if turtles are seen.
If a Blanding's turtle nests in your yard, do not disturb the nest.	If you would like to provide more protection for a Blanding's turtle nest on your property, see "Protecting Blanding's Turtle Nests" on page 3 of this fact sheet.
Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.	Construction in potential nesting areas should be limited to the period between September 15 and June 1 (this is the time when activity of adults and hatchlings in upland areas is at a minimum).
WETLANDS	
Small, vegetated temporary wetlands (Types 2 & 3) should not be dredged, deepened, filled, or converted to storm water retention basins (these wetlands provide important habitat during spring and summer).	Shallow portions of wetlands should not be disturbed during prime basking time (mid morning to mid- afternoon in May and June). A wide buffer should be left along the shore to minimize human activity near wetlands (basking Blanding's turtles are more easily disturbed than other turtle species).
Wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.	Wetlands should be protected from road, lawn, and other chemical run-off by a vegetated buffer strip at least 50' wide. This area should be left unmowed and in a natural condition.
ROADS	
Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).	Tunnels should be considered in areas with concentrations of turtle crossings (more than 10 turtles per year per 100 meters of road), and in areas of lower density if the level of road use would make a safe crossing impossible for turtles. Contact your DNR Regional Nongame Specialist for further information on wildlife tunnels.
Roads should be ditched, not curbed or below grade. If curbs must be used, 4 inch high curbs at a 3:1 slope are preferred (Blanding's turtles have great difficulty climbing traditional curbs; curbs and below grade roads trap turtles on the road and can cause road kills).	Roads should be ditched, not curbed or below grade.

ROADS cont.	
Culverts between wetland areas, or between wetland areas and nesting areas, should be 36 inches or greater in diameter, and elliptical or flat-bottomed.	Road placement should avoid separating wetlands from adjacent upland nesting sites, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details).
Wetland crossings should be bridged, or include raised roadways with culverts which are 36 in or greater in diameter and flat-bottomed or elliptical (raised roadways discourage turtles from leaving the wetland to bask on roads).	Road placement should avoid bisecting wetlands, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details). This is especially important for roads with more than 2 lanes.
Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.	Roads crossing streams should be bridged.
UTILITIES	
Utility access and maintenance roads should be kept to a minimum (this reduces road-kill potential).	
Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.	
LANDSCAPING AND VEGETATION MANAGEMENT	
Terrain should be left with as much natural contour as possible.	As much natural landscape as possible should be preserved (installation of sod or wood chips, paving, and planting of trees within nesting habitat can make that habitat unusable to nesting Blanding's turtles).
Graded areas should be revegetated with native grasses and forbs (some non-natives form dense patches through which it is difficult for turtles to travel).	Open space should include some areas at higher elevations for nesting. These areas should be retained in native vegetation, and should be connected to wetlands by a wide corridor of native vegetation.
Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).	Ditches and utility access roads should not be mowed or managed through use of chemicals. If vegetation management is required, it should be done mechanically, as infrequently as possible, and fall through spring (mowing can kill turtles present during mowing, and makes it easier for predators to locate turtles crossing roads).

Protecting Blanding's Turtle Nests: Most predation on turtle nests occurs within 48 hours after the eggs are laid. After this time, the scent is gone from the nest and it is more difficult for predators to locate the nest. Nests more than a week old probably do not need additional protection, unless they are in a particularly vulnerable spot, such as a yard where pets may disturb the nest. Turtle nests can be protected from predators and other disturbance by covering them with a piece of wire fencing (such as chicken wire), secured to the ground with stakes or rocks. The piece of fencing should measure at least 2 ft. x 2 ft., and should be of medium sized mesh (openings should be about 2 in. x 2 in.). It is ***very important*** that the fencing be **removed before August 1st** so the young turtles can escape from the nest when they hatch!

REFERENCES

[1]Association for Biodiversity Information. "Heritage Status: Global, National, and Subnational Conservation Status Ranks." NatureServe. Version 1.3 (9 April 2001). http://www.natureserve.org/ranking.htm (15 April 2001).

Coffin, B., and L. Pfannmuller. 1988. Minnesota's Endangered Flora and Fauna. University of Minnesota Press, Minneapolis, 473 pp.

REFERENCES (cont.)

Moriarty, J. J., and M. Linck. 1994. Suggested guidelines for projects occurring in Blanding's turtle habitat. Unpublished report to the Minnesota DNR. 8 pp.

Oldfield, B., and J. J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, 237 pp.

Sajwaj, T. D., and J. W. Lang. 2000. Thermal ecology of Blanding's turtle in central Minnesota. Chelonian Conservation and Biology 3(4):626-636.

Wildlife Friendly Erosion Control

Wildlife entanglement in, and death from, plastic netting and other man-made plastic materials has been documented in birds (Johnson, 1990; Fuller-Perrine and Tobin, 1993), fish (Johnson, 1990), mammals (Derraik, 2002), and reptiles (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Yet the use of these materials continues in many cases, without consideration for wildlife impacts. Plastic netting is frequently used for erosion control during construction and landscape projects and can negatively impact terrestrial and aquatic wildlife populations as well as snag in maintenance machinery resulting in costly repairs and delays. However, wildlife friendly erosion control materials do exist, and are sold by several large erosion control material companies. Below are a few key considerations before starting a project.

Know Your Options

- Remember to consult with local natural resource authorities (DNR, USFWS, etc.) before starting a project. They can help you identify sensitive areas and rare species.
- When erosion control is necessary, select products with biodegradable netting (natural fiber, biodegradable polyesters, etc.).
- DO NOT use products that require UV-light to biodegrade (also called, "photodegradable"). These do not biodegrade properly when shaded by vegetation.
- Use netting with rectangular shaped mesh (not square mesh).
- Use netting with flexible (non-welded) mesh.

Woven 100% natural fiber erosion control materials being utilized along a central Minnesota stream. ©MN DNR, Nick Proulx

Fish trapped and killed by welded-plastic square erosion control mesh improperly placed along a small central Minnesota stream. Photo courtesy of Ben Lowe.

Know the Landscape

- It is especially important to use wildlife friendly erosion control around:
    - Areas with threatened or endangered species.
    - Wetlands, rivers, lakes, and other watercourses.
    - Habitat transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.).
    - Areas with threatened or endangered species.
- Use erosion mesh wisely, not all areas with disturbed ground necessitate its use. Do not use plastic mesh unless it is specifically required. Other erosion control options exist (open weave textile (OWT), rolled erosion control products (RECPs) with woven natural fiber netting).

Protect Wildlife

- Avoid photodegradable erosion control materials where possible.
- Use only biodegradable materials (typically made from natural fibers), preferably those that will biodegrade under a variety of conditions.
- Wildlife friendly erosion control material costs are often similar to conventional plastic netting.

Plains Gartersnake trapped and killed by welded-plastic square erosion control mesh placed along a newly installed cement culvert in southern Minnesota. ©MN DNR, Carol Hall

A small vole that was strangled and killed by plastic erosion control material with welded and square mesh. Photo taken in southern Minnesota and provided courtesy of Tom Jessen.

Literature Referenced

Barton, C. and K. Kinkead. 2005. Do erosion control and snakes mesh? Soil and Water Conservation Society 60:33A-35A.

Derraik, J.G.B. 2002. The pollution of the marine environment by plastic debris: a aeview. Marine Pollution Bulletin 44:842-852.

Fuller-Perrine, L.D., and M.E. Tobin. 1993. A method for applying and removing bird-exclusion netting in commercial vineyards. Wildlife Society Bulletin 21:47-51.

Johnson, S.W. 1990. Distribution, abundance, and source of entanglement debris and other plastics on Alaskan beaches, 1982-1988. Proceedings of the Second International Conference on Marine Debris 331-348.

Kapfer, J. M., and R. A. Paloski. 2011. On the threat to snakes of mesh deployed for erosion control and wildlife exclusion. Herpetological Conservation and Biology 6:1-9.

Minnesota DEPARTMENT OF NATURAL RESOURCES

NONGAME WILDLIFE PROGRAM • MINNESOTA DEPARTMENT OF NATURAL RESOURCES •

Kimley-Horn
and Associates, Inc.

Suite 238N
2550 University Avenue West
St. Paul, Minnesota
55114

December 16, 2013

Mary Ann Heidemann
Minnesota State Historic Preservation Office
345 Kellogg Boulevard West
St. Paul, MN 55 102

RE: TCAAP Multi-Use Development

Dear Dr. Heidemann:

In accordance with the Minnesota Environmental Quality Board's guidance on preparing an Alternative Urban Areawide Review (AUAR), we would like to initiate consultation on the Twin Cities Army Ammunition Plant (TCAAP) in Arden Hills, Ramsey County, Minnesota.

The TCAAP is a 427-acre site located east of I-35 in Arden Hills, Minnesota. The site was used for the production of conventional ammunition and weapons components from 1941-1976, and now contains a number of vacant and unoccupied structures, access roads, and parking lots which are in the process of being removed and remediated. The area surrounding the site is a moderately developed suburban mix of commercial, retail, industrial, and residential buildings, with military use to the immediate east. The site is being redeveloped to become a mixed-use development.

Two development scenarios are proposed to be evaluated in the TCAAP AUAR:

The **minimum development scenario** includes up to 1,500 residential units; 500,000 square feet of retail; and 1,700,000 square feet of non-retail commercial.

The **maximum development scenario** includes up to 2,500 residential units; 550,000 square feet of retail; and 1,950,000 square feet of non-retail commercial.

The project area is shown on Figure 1 (attached). According to a review of datasets representing properties listed on the National Register of Historic Places, the closest site is over 2 miles from the project area.

Previous consultation with the SHPO regarding the TCAAP site was completed as part of the disposal of the land by the General Services Administration (GSA), before it was purchased by Ramsey County. A Memorandum of Agreement (MOA) regarding historic resources was signed by the Minnesota SHPO in January 2010. The MOA states that GSA adequately satisfied their obligations to comply with Section 106.

We are writing at this time to initiate consultation and confirm the level of investigation required (if any). Thank you in advance for your review of this submittal, and we look forward to hearing from you.

Sincerely,

Jessica Laabs, AICP
Kimley-Horn and Associates, Inc.
Environmental Planner

Enc: Project Area map

Kimley-Horn and Associates, Inc.

N

0 500 1,000 Feet

TCAAP AUAR
Aerial Map

Haase, Rachel

From: Laabs, Jessica
Sent: Friday, January 03, 2014 1:31 PM
To: Haase, Rachel
Subject: FW: TCAAP AUAR data search
Attachments: Archaeology.rtf; Historic.rtf

From: Thomas Cinadr [mailto:thomas.cinadr@mnhs.org]
Sent: Tuesday, December 31, 2013 10:16 AM
To: Laabs, Jessica
Subject: Re: TCAAP AUAR data search

THIS EMAIL IS NOT A PROJECT CLEARANCE.

This message simply reports the results of the cultural resources database search you requested. The database search produced results for only previously known archaeological sites and historic properties. Please read the note below carefully.

Archaeological sites and historic properties were identified in a search of the Minnesota Archaeological Inventory and Historic Structures Inventory for the search area requested. **Reports containing the results of the search are attached.**

The result of this database search provides a listing of recorded archaeological sites and historic architectural properties that are included in the current SHPO databases. Because the majority of archaeological sites in the state and many historic architectural properties have not been recorded, important sites or structures may exist within the search area and may be affected by development projects within that area. Additional research, including field survey, may be necessary to adequately assess the area's potential to contain historic properties.

If you require a comprehensive assessment of a project's potential to impact archaeological sites or historic architectural properties, you may need to hire a qualified archaeologist and/or historian. If you need assistance with a project review, please contact Kelly Gragg-Johnson in Review and Compliance @ 651-259-3455 or by email at kelly.graggjohnson@mnhs.org.

The Minnesota SHPO Survey Manuals and Database Metadata and Contractor Lists can be found at
http://www.mnhs.org/shpo/survey/inventories.htm

SHPO research hours are 8:00 AM – 4:00 PM Tuesday-Friday.

The Office is closed on Mondays.

Tom Cinadr
Survey and Information Management Coordinator

Minnesota State Historic Preservation Office
Minnesota Historical Society
345 Kellogg Blvd. West
St. Paul, MN 55102

651-259-3453

On Thu, Dec 26, 2013 at 3:42 PM, <Jessica.Laabs@kimley-horn.com> wrote:

Hello Thomas,

Per the email below, I am writing to request a database search for the TCAAP site in Arden Hills, MN located within Township 30, Range 23, Sections 9 and 16.

The attached letter gives additional background information, if needed.

Please let me know if there is anything else you need to complete the search.

Thank you!

Jessica

Jessica Laabs, AICP

Kimley-Horn and Associates, Inc.

2550 University Avenue West, Suite 238N

St. Paul, MN 55114

651-643-0437 (direct)

651-645-4197 (main office)

jessica.laabs@kimley-horn.com

From: Leslie Coburn [mailto:leslie.coburn@mnhs.org]
Sent: Wednesday, December 18, 2013 3:07 PM
To: Laabs, Jessica
Cc: Thomas Cinadr; Kelly Gragg-Johnson
Subject: TCAAP AUAR preparation

Hello, Ms. Laabs--

We received your request to consult with our office on the preparation of the AUAR for the TCAAP project. The 2008 EQB guidance document is a bit misleading in that it recommends contacting our office to determine whether historical or cultural resources would be impacted by the project. What this means is that you should contact our information coordinator, Thomas Cinadr, to request a search of our resources databases. But without a federal or state agency involvement at this point in the project plans, we would not conduct a review of the project.

The GSA has fulfilled the stipulations in its MOA, as your letter states.

Please contact Thomas Cinadr by email at thomas.cinadr@mnhs.org for a database search. Be sure to include the Township, Range, and Section location information for the areas you'd like searched. He'll send you a report via email.

Please let me know if you have questions.

--

Leslie Coburn

Government Programs and Compliance Technician

(651) 259-3457

State Historic Preservation Office

Minnesota Historical Society ~ 345 Kellogg Blvd W. ~ St. Paul, MN 55102

Archaeological Site Locations

Site Number	Site Name	Twp.	Range	Sec.	Quarter Sections	Acres	Phase	Site Description	Tradition	Context	Reports	NR	CEF	DOE
County:	**Ramsey**													
21RA0022	Trap Shooting Area	30	23	9	SW-SE-NW	0.5	1	AS			RA-95-04		Yes	
21RA0056		30	23	16	SW-SE	0.1	1	AS			RA-08-02			
21RA0057		30	23	9	NE-NE-SW	2	1	LS			RA-08-02			
21RA0058		30	23	9	NW-SW-SW	1.5	1	LS			RA-08-02			
21RA0059		30	23	9	SE-SW-NW	1.4	1	LS			RA-08-02			
		30	23	9	N-NW-SW	1.4	1	LS			RA-08-02			
21RA0060		30	23	16	NW-NW-NW	0.1	1	AS			RA-08-02			
21RA0061		30	23	9	SE-SW-NE	0.1	1	SA			RA-08-02			

History/Architecture Inventory

PROPERTY NAME	ADDRESS	Twp	Range	Sec	Quarters	USGS	Report	NRHP	CEF	DOE	Inventory Number
COUNTY: Ramsey											
CITY/TOWNSHIP: Arden Hills											
Twin Cities Army Ammunition Plant	off CSAH 96	30	23	16		New Brighton	XX-2001-8H		Y		RA-AHC-006
Twin Cities Army Ammunition Plant		30	23	16		New Brighton	RA-96-6H		Y		RA-AHC-006
Twin Cities Army Ammunition Plant		30	23	16		New Brighton	RA-96-5H		Y		RA-AHC-006
Twin Cities Army Ammunition Plant		30	23	16		New Brighton	RA-87-2H		Y		RA-AHC-006
Special Weapons Plant (Building 104)	Twin Cities Army Ammunitions Plant	30	23	9	SW-SW	New Brighton	RA-2004-1H				RA-AHC-007
General Purpose Storage Building (Building 152)		30	23	9	SE-SW	New Brighton	RA-2004-1H				RA-AHC-008
General Purpose Storage Building (Building 174)		30	23	16	NW-NE	New Brighton	RA-2004-1H				RA-AHC-009
Maintenance Shop (Building 176)		30	23	16	NW-NE	New Brighton	RA-2004-1H				RA-AHC-010
Air Compressor Building (Building 187)		30	23	9	SE-NW	New Brighton	RA-2004-1H				RA-AHC-011
Small Arms Ammunition Magazine (Building 188)		30	23	9	SE-NW	New Brighton	RA-2004-1H				RA-AHC-012
Blank Cartridge Building (Building 189)		30	23	9	SE-NW	New Brighton	RA-2004-1H				RA-AHC-013
General Purpose Storage (Building 190)		30	23	9	SW-SE	New Brighton	RA-2004-1H				RA-AHC-014
Peroxide Resinate Cake Drying House #1 (Building 192A)		30	23	9	SW-NE	New Brighton	RA-2004-1H				RA-AHC-015
Peroxide Resinate Cake Drying House #2 (Building 192B)		30	23	9	SW-NE	New Brighton	RA-2004-1H				RA-AHC-016
Office Building (Building 199)		30	23	9	SW-NE	New Brighton	RA-2004-1H				RA-AHC-017
Change House (Building 304)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-018
Vehicle Storage Shed (Building 314)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-019
Utility Building (Building 315)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-020
Explosives Manufacturing Plant (Building 327)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-021

PROPERTY NAME	ADDRESS	Twp	Range	Sec	Quarters	USGS	Report	NRHP	CEF	DOE	Inventory Number
COUNTY: Ramsey											
CITY/TOWNSHIP: Arden Hills											
Explosives Manufacturing Plant (Building 328)	Twin Cities Army Ammunitions Plant	30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-022
High Explosives Magazine (Building 329)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-023
Explosives Manufacturing Plant (Building 330)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-024
Explosives Manufacturing Plant (Building 338A)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-025
Explosives Manufacturing Plant (Building 338B)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-026
Explosives Manufacturing Plant (Building 338C)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-027
Ordnace Manufacturing Plant (Building 338D)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-028
High Explosives Magazine (Building 372)		30	23	9	SE-NE	New Brighton	RA-2004-1H				RA-AHC-029
Sub/SWIT Station (Building 567A)		30	23	16	NW-SE	New Brighton	RA-2004-1H				RA-AHC-035
Sub/SWIT Station (Building 567B)		30	23	16	NW-SE	New Brighton	RA-2004-1H				RA-AHC-036
Lumber Shed (Building 717)		30	23	9	SW-SE	New Brighton	RA-2004-1H				RA-AHC-037
General Purpose Storage (Building 908)		30	23	9	SW-SE	New Brighton	RA-2004-1H				RA-AHC-038
General Purpose Storage (Building 909)		30	23	9	SW-SE	New Brighton	RA-2004-1H				RA-AHC-039
General Purpose Storage (Building 961)		30	23	16	SW-SE	New Brighton	RA-2004-1H				RA-AHC-040

Appendix C. County Well Index Information for Wells within the AUAR Study Area

Additional information on individual wells can be accessed at http://www.health.state.mn.us/divs/eh/cwi/.

Unique Well No.	Well Name	Township	Range	Section	Subsection	Status	Use
194701	01U620	30	23W	9	CDCBCA	Active	Monitor Well
194702	01U621	30	23W	9	CCDADA	Active	Monitor Well
194703	01U622	30	23W	9	CDBCDD	Sealed	Abandoned
194704	01U623	30	23W	9	CDCBAC	Sealed	Abandoned
194716	01U634 H504U1 0W4 1984	30	23W	16	DACCBC	Sealed	Abandoned
194717	01U638 H508U1 0W8 1984	30	23W	16	DDBCCD	Sealed	Abandoned
194718	01U639 H509U1 0W9 1984	30	23W	16	DDBDBC	Active	Monitor Well
194719	01U640 H510U1 0W10 1984	30	23W	16	DDACCC	Active	Monitor Well
194720	01U631 H501U1 0W1 1984	30	23W	16	DDBABC	Active	Monitor Well
194721	01U632 H502U1 0W2 1984	30	23W	16	DDACBC	Active	Monitor Well
194722	01U635 H505U1 0W5 1984	30	23W	16	DCAACB	Sealed	Abandoned
194723	01U636 H506U1 0W6 1984	30	23W	16	DCADBD	Active	Monitor Well
194725	01U612	30	23W	9	CDBCDC	Active	Monitor Well
194726	01U613	30	23W	9	CDBDCC	Active	Monitor Well
194727	01U615	30	23W	9	CDCBBD	Active	Monitor Well
194728	01U616	30	23W	9	CDCBDB	Active	Monitor Well
194729	01U617	30	23W	9	CDCBBB	Active	Monitor Well
194730	01U618	30	23W	9	CDCBDC	Active	Monitor Well
194731	01U619	30	23W	9	CDCDBB	Active	Monitor Well
194758	01U612	30	23W	9	CDBCDC	Active	Monitor Well
194759	01U613	30	23W	9	CDBDCC	Active	Monitor Well
194760	01U615	30	23W	9	CDCBBD	Active	Monitor Well
194761	01U616	30	23W	9	CDCBDB	Active	Monitor Well
194770	01U617	30	23W	9	CDCBBB	Active	Monitor Well
194771	01U618	30	23W	9	CDCBDC	Active	Monitor Well
194772	01U619	30	23W	9	CDCDBB	Active	Monitor Well
206753	TCAAP NO.6	30	23W	16	ACBDDC	Sealed	Abandoned
206754	TCAAP NO.1	30	23W	16	ABBBD	Active	Industrial
206756	TCAAP NO.2	30	23W	16	BADADC	Active	Industrial
206758	TCAAP NO.3	30	23W	16	BDAADC	Active	Industrial
233152	PSB-2	30	23W	16	CADBAB	Active	
233153	PSB-3	30	23W	16	DCDDBB	Active	
233167	PSB-17	30	23W	16	ACBDDB	Active	

Unique Well No.	Well Name	Township	Range	Section	Subsection	Status	Use
233171	PSB-21	30	23W	16	DBBCDD	Active	
234135	ST-1-U3	30	23W	16	BBCA	Active	
234136	ST-1-M3	30	23W	16	DBBD	Active	
234137	ST-1-L3	30	23W	16	BBCD	Active	
234138	ST-1-U4	30	23W	16	BBCD	Active	
234139	ST-2-U3	30	23W	16	CAAC	Active	
234140	ST-2-M3	30	23W	16	CAAC	Active	
234141	ST-2-L3	30	23W	16	CADB	Active	
234142	ST-3-U3	30	23W	16	DCDD	Active	
234143	ST-3-M3	30	23W	16	DCDD	Active	
234144	ST-3-L3	30	23W	16	DCDD	Active	
234162	ST-13-U3	30	23W	9	CCAB	Active	
234163	ST-13-M3	30	23W	9	CCAB	Active	
234176	ST-21-U3	30	23W	16	DBBC	Active	
234193	ST-3-U4	30	23W	16	DCDD	Active	
234194	ST-2-U4	30	23W	16	CADB	Active	
234220	PSB-50	30	23W	16	BCBA	Active	Other
234221	PSB-50A	30	23W	16	BCBA	Sealed	Abandoned
234222	PSB-51	30	23W	16	BCAC	Sealed	Abandoned
234224	PSB-53	30	23W	16	DCCB	Active	Other
234225	PSB-53A	30	23W	16	DCCB	Sealed	Abandoned
234226	PSB-54	30	23W	16	DCAC	Active	Other
234227	PSB-54A	30	23W	16	DCAC	Sealed	Abandoned
234228	PSB-55	30	23W	16	DCDD	Active	Other
234229	PSB-55A	30	23W	16	DCDD	Active	Other
234230	PSB-55A	30	23W	16	DCDD	Active	Other
234231	PSB-56	30	23W	16	DDBA	Active	Other
234237	PSB-62	30	23W	16	CACA	Sealed	Abandoned
234238	PSB-62A	30	23W	16	CADB	Active	Other
234240	PSB-64	30	23W	16	DDBB	Active	Other
234257	PSB-27	30	23W	16	DACA	Active	Other
234258	PSB-28	30	23W	16	DACC	Active	Other
234259	PSB-29	30	23W	16	DCAD	Active	Other
234261	PSB-31	30	23W	16	BAAA	Active	Other
235736	S-75	30	23W	9	CCDB	Active	
235737	S-76	30	23W	16	BBBA	Active	
235738	S-77	30	23W	16	CABB	Active	
235739	S-78	30	23W	16	CDAA	Active	
235743	S-84	30	23W	16	BCAD	Active	
235750	S-21-L3	30	23W	16	DBCBAA	Active	

Unique Well No.	Well Name	Township	Range	Section	Subsection	Status	Use
235751	S-27-L3	30	23W	16	DACACC	Active	
235752	S-28-L3	30	23W	16	DACCCC	Active	
235753	S-29-L3	30	23W	16	DCADBA	Active	
236069	S-84-U3	30	23W	16	BCADCA	Active	
236072	S-79-U3	30	23W	16	DCCACB	Active	
236073	S-78-U3	30	23W	16	CDADAA	Active	
236074	S-78-L3	30	23W	16	CDAADC	Active	
236075	S-77-U3	30	23W	16	CABBCD	Active	
236076	S-77-L3	30	23W	16	CABBCD	Active	
236077	S-76-U3	30	23W	16	BBBDAB	Active	
236078	S-75-U3	30	23W	9	CCDBDC	Active	
236469	S-27-PJ	30	23W	16	DACACD	Active	
421425	03U659-OW529	30	23W	16	DDBCBB	Active	Monitor Well
421438	03U671 PD-1	30	23W	16	DBCCCC	Active	Monitor Well
426848	03U701, 701-U3	30	23W	16	CBAAAB	Active	Monitor Well
426849	04U701, 701-U4	30	23W	16	CBAABA	Active	Monitor Well
426850	03U702, 702-U3	30	23W	16	BCDDCC	Active	Monitor Well
426876	0U4702, 702-U4	30	23W	16	BCDDCD	Active	Monitor Well
426877	04U077 077-U4	30	23W	16	CABCBD	Active	Monitor Well
426878	03U703, 703-U3	30	23W	16	DCCBBA	Active	Monitor Well
426879	03U708, 708-U3	30	23W	16	CADCCA	Active	Domestic
426880	04U708, 708-U4	30	23W	16	CADCCD	Active	Monitor Well
426881	03U709, 709-U3	30	23W	16	CACABD	Active	Monitor Well
426882	04U709, 709-U4	30	23W	16	CACABD	Active	Monitor Well
440887	03L084	30	23W	16	BCADCA	Active	Monitor Well
440895	01U130	30	23W	16	BBDCAB	Sealed	Abandoned
453829	04J708 708-U4J	30	23W	16	CADCDB	Active	Monitor Well
453830	04J713 713-U4J	30	23W	9	CCABBD	Active	Monitor Well
453832	04U714 714-U4	30	23W	16	BBCDCA	Active	Monitor Well
508117	04J702 702-U4J	30	23W	16	BCDDCD	Active	Monitor Well
508118	04J077 077-U4J	30	23W	16	CABBCD	Active	Monitor Well
508119	04U713 713-U4	30	23W	16	BCACBB	Active	Monitor Well
508120	04J714 714-U4J	30	23W	16	BBCDCA	Active	Monitor Well
Wells With Locations That Have Not Been Field Verified							
236189	01U601 OW-1-83	30	23W	9	CDCA	Active	Other
236190	01U602 0W-2-83	30	23W	9	CDBD	Active	Other
236191	01U603 0W-3-83	30	23W	9	CDBC	Active	Other
236192	01U604 0W-4-83	30	23W	9	CDBC	Active	Other
236193	01U605 0W-5-83	30	23W	9	CDBB	Active	Other
236194	01U524 A-4	30	23W	16	BDCC	Sealed	Abandoned

Unique Well No.	Well Name	Township	Range	Section	Subsection	Status	Use
236195	01U527 V-8	30	23W	16	CABA	Sealed	Abandoned
236196	01U525 N-5	30	23W	16	DBCD	Sealed	Abandoned
236197	01U526 V-12	30	23W	16	DBBC	Sealed	Abandoned
242127	01U607 OW-7	30	23W	9	CDBD	Active	Other
242128	01U608 OW-8	30	23W	9	CDCA	Active	Other
242129	01U609 OW-9	30	23W	9	CDCA	Active	Other
242130	01U610 OW-10	30	23W	9	CDCA	Active	Other
242131	01U611 OW-11	30	23W	9	CDCA	Active	Other
242132	03U647 H517U3 0W17	30	23W	16	DDAB	Active	Other
242133	03U648 H518U3 0W18	30	23W	16	DADC	Active	Other
242134	01U652 H522U1 0W22	30	23W	16	DACC	Sealed	Abandoned
242160	03L079 S79-L3	30	23W	16	DCCA	Sealed	Abandoned
242182	01U624A BP1-85A	30	23W	9	CDCB	Active	Other
242183	01U624B BP1-85B	30	23W	9	CDCB	Active	Other
242184	01U624C BP1-85C	30	23W	9	CDCB	Active	Other
242185	01U624D BP1-85D	30	23W	9	CDCB	Active	Other
242186	01U625A BP2-85A	30	23W	9	CDCB	Active	Other
242187	01U625B BP2-85B	30	23W	9	CDCB	Active	Other
242188	01U625C BP2-85C	30	23W	9	CDCB	Active	Other
242189	01U625D BP2-85D	30	23W	9	CDCB	Active	Other
242190	01U626A BP3-85A	30	23W	9	CDCB	Active	Other
242191	01U626B BP3-85B	30	23W	9	CDCB	Active	Other
242192	01U626C BP3-85C	30	23W	9	CDCB	Active	Other
242193	01U626D BP3-85D	30	23W	9	CDCB	Active	Other
242194	01U627A BP4-85A	30	23W	9	CDCB	Active	Other
242195	01U627B BP4-85B	30	23W	9	CDCB	Active	Other
242196	01U627C BP4-85C	30	23W	9	CDCB	Active	Other
242197	01U627D BP4-85D	30	23W	9	CDCB	Active	Other
242198	01U628A BP5-85A	30	23W	9	CDCB	Active	Other
242199	01U628B BP5-85B	30	23W	9	CDCB	Active	Other
242200	01U628C BP 5-85C	30	23W	9	CDCB	Active	Other
242201	01U628D BP 5-85D	30	23W	9	CDCB	Active	Other
482083	TWIN CITIES ARMY AMMUNIT	30	23W	16	D	Active	Monitor Well
482084	TWIN CITIES ARMY AMMUNIT	30	23W	16	D	Active	Monitor Well
482085	TWIN CITIES ARMY AMMUNIT	30	23W	16	D	Active	Monitor Well
482086	TWIN CITIES ARMY AMMUNIT	30	23W	16	D	Active	Monitor Well

Unique Well No.	Well Name	Township	Range	Section	Subsection	Status	Use
482087	TWIN CITIES ARMY AMMUNIT	30	23W	16	D	Active	Monitor Well
482088	TWIN CITIES ARMY AMMUNIT	30	23W	16	D	Active	Monitor Well
482089	TWIN CITIES ARMY AMMUNIT	30	23W	16	D	Active	Monitor Well
482090	TWIN CITIES ARMY AMMUNIT	30	23W	16	D	Active	Monitor Well
519956	03-L-833	30	23W	16	BCD	Active	Monitor Well
519957	04-U-833	30	23W	16	BCD	Active	Monitor Well
563028	GUCK, MICHAEL & KATHY	30	23W	16	CAD	Active	Domestic
642161	ARMY	30	23W	9	CCD	Active	Monitor Well
650819	U.S. ARMY	30	23W	9	CBC	Active	Monitor Well
650820	U.S. ARMY	30	23W	9	CBC	Active	Monitor Well
650821	US ARMY	30	23W	9	CBC	Active	Monitor Well
650832	FIX, MIKE	30	23W	9	CBC	Active	Remedial
650833	FIX, MIKE	30	23W	9	CBC	Active	Remedial
650834	FIX, MIKE	30	23W	9	CBC	Active	Remedial
658728	U.S. ARMY	30	23W	9	CBC	Active	Monitor Well
658729	U.S. ARMY	30	23W	9	CBC	Active	Monitor Well
658730	U.S. ARMY	30	23W	9	CBC	Active	Monitor Well
658733	U.S. ARMY	30	23W	9	CBC	Active	Monitor Well
658734	U.S. ARMY	30	23W	9	CBC	Active	Monitor Well
658735	U.S. ARMY	30	23W	9	CBC	Active	Monitor Well
658737	U.S. ARMY	30	23W	9	CBC	Sealed	Abandoned
658738	U.S. ARMY	30	23W	9	CBC	Sealed	Abandoned

Appendix D. TCAAP Traffic Study

Traffic Study

TCAAP

Arden Hills, MN

Prepared for:

City of Arden Hills

Prepared by:

Kimley-Horn and Associates, Inc.
Saint Paul, Minnesota

March 2014
160593006

Kimley-Horn
and Associates, Inc.

Kimley-Horn and Associates, Inc.

Traffic Study

TCAAP

Arden Hills, MN

Prepared for:

City of Arden Hills

Prepared by:

Kimley-Horn and Associates, Inc.
Saint Paul, Minnesota

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

By: Brandon J. Bourdon

Brandon J. Bourdon
License No. 43709

Date: March 10, 2014

Kimley-Horn and Associates, Inc.

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1. Introduction

This traffic analysis has been conducted as part of the preparation of an Areawide Urban Alternative Review for the TCAAP site development. This memorandum includes additional detail about the analysis results than the AUAR, and a more comprehensive summary of the results provided in the AUAR. To determine the impacts on the local roadway network, a traffic operations analysis was conducted for intersections within the vicinity of the Proposed Project for the various development scenarios, and mitigation measures are identified based on the results. The project location is shown in **Figure T1**. A more detailed project area, including the AUAR Study Area boundary is shown in **Figure T2**.

2. Methodology

The traffic analysis includes two site development scenarios and roadway network scenarios to address traffic impacts found in future conditions. This section defines the scenarios to be analyzed, and the methodology toward the definition of the mitigation measures to be included in the AUAR mitigation plan. Each of the elements below include both AM and PM peak hour condition analyses.

a. Analysis Scenario Descriptions

- **Site Development Scenarios**

In addition to Existing and 2030 No Build Scenarios, the development scenarios include a Year 2030 Minimum Development Scenario and a Year 2030 Maximum Development Scenario. The minimum development scenario is the anticipated land use based on zoning requirements for the City of Arden Hills, which provided a constrained analysis. A year 2030 Maximum Development Scenario has also been analyzed to evaluate a land use mix that maximizes the acceptable use of available and potential infrastructure, seeking a balance of financial feasibility, while maintaining community livability and sustainability. **Table 1** shows the land use that has been identified for the two land use scenarios.

Table 1 – Land Use Plan Scenarios

Minimum Scenario	
Use	Units / K sq. ft.
Residential	1,500
Retail	500
Non-retail Commercial	1,700

Maximum Scenario	
Use	Units / K sq. ft.
Residential	2,500
Retail	550
Non-retail Commercial	1,950

- **Transportation Network Analysis Scenarios**

Due to increases in background traffic and the proposed TCAAP redevelopment, transportation network changes are anticipated to occur in the future. Several long term improvements are being considered in the project study area. Changes at the CR H and I-35W interchange will influence trip distribution for the proposed TCAAP project. These projects are shown in **Figure T3**. A description of the various transportation networks under each scenario is included below.

Internal Site Development Roadway System

The internal roadway system will consist of a north/south spine road, owned and operated by Ramsey County in addition to a network of local streets. The spine road will be consistent with County State Aid Standards (CSAH) for intersection spacing which is ¼ mile minimum spacing for full access intersections and $^{1}/_{8}$ minimum spacing for right-in/right-out accesses. The minor streets will primarily provide access to residences and private businesses accesses. As the site development is refined, the roadway system will be modified to provide access, sustaining access spacing requirements result in reasonable mobility.

Local and Regional Roadway System Connections

The transportation network analysis for the surrounding system has been analyzed for the following conditions:

1) Existing

The existing roadway geometry is shown on **Figure T4**. This scenario considers the following:

- Existing traffic
- Existing roadway geometry including the recently completed construction of the TH 10/CSAH 96 interchange completed in 2013.

2) 2030 No Build

The 2030 No Build roadway geometry is shown on **Figure T5**.

- 2030 background traffic
- 2030 roadway geometry that include programmed improvements. The only difference between existing and 2030 is the addition of Highway Safety Improvement Program (HSIP) funded improvements at the intersection of TH10 at County Road H. The changes include modifying the current shared westbound through/left turn lane into an exclusive westbound through lane, and an exclusive westbound left turn lane and traffic signal phase modifications.

3) 2030 Baseline for the Minimum Development Scenario

The 2030 Baseline geometry is shown on **Figure T6**. The following infrastructure improvements are included:

- Improvements described above for the 2030 No Build Scenario
- CR 96 and I-35W area improvements:
    - Construct traffic signals at the:
        - CR 96/Old Highway 8 and
        - I-35W Interchange ramp terminals intersections.
    - Provide two eastbound and two westbound through lanes between Old Highway 8 and Round Lake Boulevard
    - Provide two eastbound and westbound left turn lanes to access I-35W
    - Old Highway 8 at CR 96 Intersection:
        - Replace shared northbound through / right turn lane with one exclusive northbound through lane and one exclusive northbound right turn lane

        - Replace shared southbound through / left turn lane with one exclusive southbound through lane and one exclusive southbound left turn lane
- CR H and I35W interchange improvements shown in **Figure T3**
- CR 10 and CR H improvements (double left WB to SB)
    - Provide dual left turn lanes for these movements:
        - Westbound
        - Northbound
        - Southbound
    - Provide a second through lane for eastbound and westbound approaches
- Improve CR H at I-35W northbound ramps to a 2-lane roundabout with two approach lanes from the east and west, and one approach lane from the northeast and one entry lane to northbound I-35W.

4) 2030 Baseline for Maximum Development Scenario

- Same infrastructure improvements as in Minimum development scenario

5) 2030 Minimum Development Scenario with Mitigation

The geometry for this scenario is shown in **Figure T7**.The analysis for this 2030 Minimum scenario incorporated the 2030 minimum baseline elements plus the following recommended mitigation measures:

- TH 96 westbound auxiliary lane from west of the project boundary to TH 10.
- Re-introduction of CR H southbound loop access to I-35W (removed as part of the baseline scenarios), which remains barrier separated from I-35W southbound exit ramp to TH 10 southbound, and enters I-35W after joining the TH 10 southbound access ramp to I-35W southbound.
- At the I-35W/CR 96 west ramp intersection, an additional southbound left turn lane is recommended
- At the I-35W/CR 96 east ramp intersection, an additional northbound lane is recommended in order to provide one exclusive left turn lane, one shared left, through, right lane, and an exclusive right turn lane.
- At the intersection of Round Lake Road W at CR 96, the lane use of the center lane is recommended to be modified from an existing shared left/through lane to a shared left/through/right lane.
- At the intersection of CR H at TH 10, an additional eastbound left turn lane is recommended.

6) 2030 Maximum scenario mitigation

The geometry for this scenario is shown in **Figure T8**. The analysis for this 2030 Maximum scenario incorporated the 2030 minimum scenario mitigation elements plus recommended mitigation measures as follows:

- The addition of a new northbound I-35W exit to CR H, with a single lane approach to the roundabout on CR H.
- An additional southbound left turn lane at the southbound exit from I-35W to CR H.

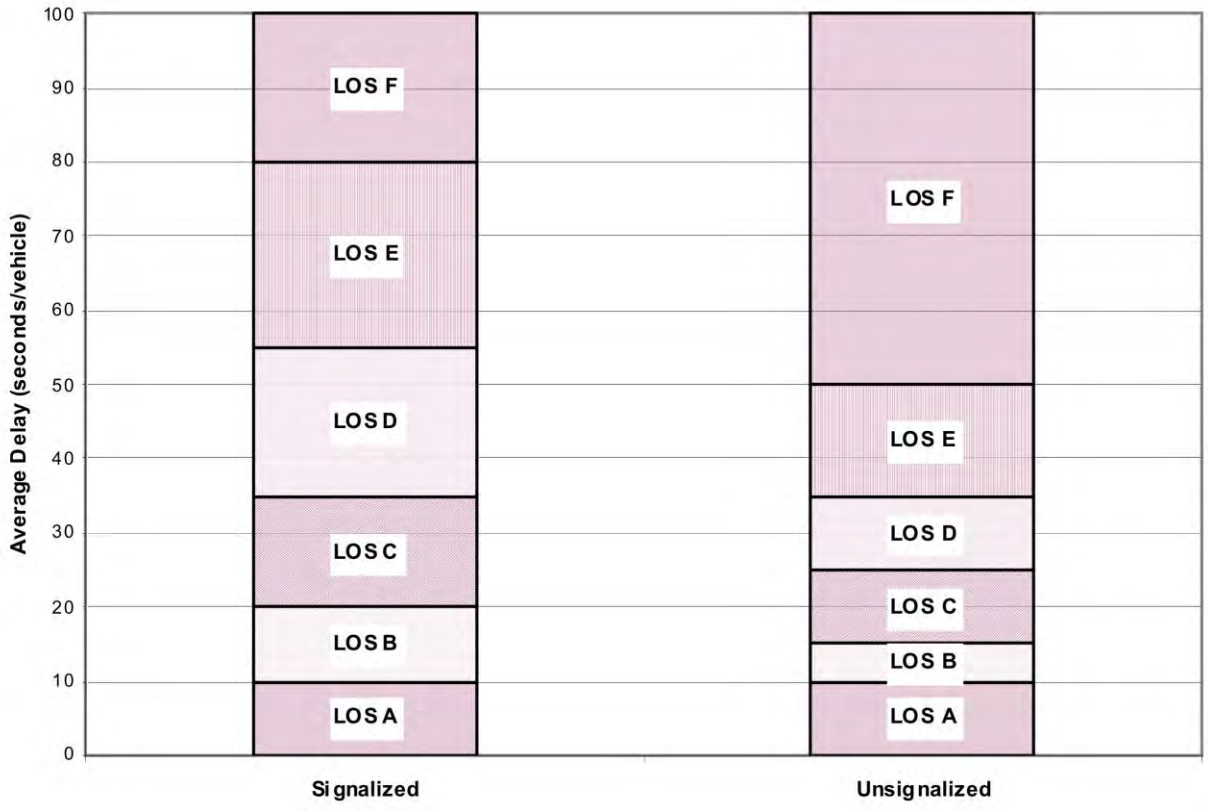
b. Traffic Study Area

The roadway network that would be expected to have potential traffic impacts is generally bounded by TH 10, I-35W on the west, County Road I on the north, the eastern project boundary on the east, and County Road 96 on the south. **Figure T4** shows the 14 intersections that were analyzed.

c. Local Roadway System Traffic Operations Analysis Methodology

The traffic operations analysis for the local roadway system was completed in Synchro/SimTraffic, a software program that applies the methodologies of the Highway Capacity Manual. This tool was used to evaluate intersection volume/capacity ratio, delay, and level of service, and queuing. Capacity analysis results identify a Level of Service (LOS) which indicates how well an intersection operates. Intersections are given a ranking from LOS A through LOS F. LOS A indicates the best traffic operation and LOS F indicates an intersection that is operating over capacity. LOS A through D is generally considered acceptable for peak hour conditions in an urban area. The traffic operations were analyzed for the AM and PM peak hours to properly identify potential impacts and recommended mitigation measures.

This study used the LOS D/E boundary as an indicator of satisfactory traffic operations. The exhibit below displays the LOS thresholds for signalized and unsignalized intersections.



d. Regional Roadway System

The regional roadway system is expected to experience many changes in the near future. Changes include reconstruction of I-35W interchanges at CR H and CR 96. For this traffic study, these

changes were included for purposes of regional trip distribution and anticipated intersection geometrics. An analysis of the freeway operations will be conducted as part of the Interstate Access Modification Request, and required for these interchange projects. Any significant changes in the TCAAP redevelopment plan will need to be analyzed as either an AUAR update, or the applicable regional roadway system projects.

3. Parking

The number of parking spaces in each scenario is provided in **Table 2**. The parking generation is based on the 4th Edition of the *Institute of Transportation Engineers Parking Generation* (2010), and is based on the land use information for the Minimum and Maximum Development Scenarios as described as part of the Trip Generation section of this memorandum.

The proposed land uses are expected to generate parking demand within the AUAR Study Area. The weekday peak parking demand for the residential, retail, and office/non-retail land uses of the proposed development was calculated based on blended rates. For non-retail/commercial a mix of office and light industrial was used. For residential parking, the rates use estimates of proportions of apartments, townhouses and single family homes. The residential uses are proposed to have private parking, and parking spaces are not proposed to be shared with public parking associated with the rest of the proposed development.

Table 2 – Parking Demand Estimate Summary

Land Use Description	ITE Land Use Code	Size		Average Peak Parking Rate (stalls)	Parking Demand (stalls)
Minimum Development Scenario					
Residential	210/221	1,500	DU	1.6	2,400
Retail	820	500	ksf	3.8	1,900
Non-retail Commercial	110/701	1,700	ksf	2.2	3,800
Total					8,100
Maximum Development Scenario					
Residential	210/221	2,500	DU	1.6	3,900
Retail	820	550	ksf	3.8	2,100
Non-retail Commercial	110/701	1,950	ksf	2.2	4,400
Total					10,400

4. Existing Conditions Analysis

The existing conditions analysis includes both unsignalized and signalized intersections. For this AUAR level analysis, signal timing for all scenarios have been optimized to provide estimates of potential traffic operational conditions. The results are presented in **Table 3**.

Existing geometry includes the 2013 reconstruction of the new grade separation of County Road 96 at TH 10, and is shown in **Figure T4**.

Figures showing the peak hour traffic volumes used in the analysis for this scenario can be found in **Figure T9**.

Table 3 – Existing Peak Hour Analysis Results

Intersection	2013 Existing AM		2013 Existing PM	
	LOS	Delay(sec)	LOS	Delay(sec)
Old Hwy 8 and CR 96	D	28	F	78
CR 96 and SB I-35W Ramp	E	39	F	105
CR 96 and NB I-35W Ramp	F	93	F	156
Round Lake Rd W and CR 96	B	10	D	50
TH 10 West Ramp and CR 96	B	11	C	23
CR 96 at US 10 NB Ramp	A	No Control	A	No Control
CR 96 and TCAAP Property/North Heights Church Access	B	10	A	6
CR H and US 10	C	24	C	21
CR H and SB I-35W	A	3	A	3
CR H and NB I-35W	A	2	A	3
CR I and SB I-35W	B	13	C	15
CR I and NB I-35W	B	12	B	18
CR I and Old Hwy 8	A	4	A	2
CR I and N Fairview Ave	A	5	A	3

An operations analysis was conducted for the 14 intersections in the analysis area to determine current operational issues within the AUAR study area. Current volumes were obtained from the Draft TCAAP Redevelopment, performed by SEH dated August 29, 2007. All geometries were based on intersection geometries.

During the 2013 AM peak most of the intersections are operating at LOS C or better, with the exception of the intersections of:

- CR 96 and I-35W NB Ramps
    - Northbound left turn delay exceeds 180 seconds/vehicle and northbound right turn delay in excess of 100 seconds/vehicle. These are due to the lack of acceptable gaps in the traffic flow in the East/West direction.
- CR 96 and I-35 SB Ramps
    - The westbound left turn is operating at an unacceptable LOS do to the lack of acceptable gaps and the southbound left turn delay is 99 seconds/vehicle due to high volumes and lack of acceptable gaps on CR 96
- CR 96 and Old Hwy 8
    - The westbound left turn delay is 65 seconds/vehicle.

During the 2013 PM peak, three intersections operate at LOS E or higher.

- CR-96 and I-35W NB Ramps
    - Multiple movements fail including the northbound left and right turn due to the lack of acceptable gaps on CR 96. The eastbound left turn fails due to the lack of acceptable gaps in the CR 96 traffic stream.

- CR-96 and I-35W SB Ramps
    - The southbound left turn and westbound left all operate at LOS F due to a lack in acceptable gaps and higher volumes similar to the operations experienced at the CR-96 and I-35W NB ramps.
- CR-96 and Old Hwy 8
    - The northbound movements fail due to high volumes being processed by an unsignalized intersection.

5. No Build Conditions Analysis

The operations analysis was conducted for the 14 intersections in the analysis area to determine how traffic will operate within the AUAR Study Area in the 2030 forecast year before the TCAAP project is implemented. Future Year 2030 background traffic as shown in **Figure T10** was obtained from the Draft TCAAP Redevelopment.

Compared to existing conditions, the only geometric changes in the study area were the improvements at CR H at TH 10, where HSIP funds are presumed to be utilized for improvements, as shown in **Figure T5**. These planned improvements include reconstructing the east and west legs of the CSAH 10 / TH 10 / County Road H intersection to include dedicated right-turn, left-turn, and through lanes in each direction. Therefore the only tangible change for this operations analysis is changing the westbound shared through/left lane to one exclusive through lane and one exclusive left turn lane.

During the 2030 AM No Build scenario, all but one intersection is expected to operate at an LOS of D or better. The intersection of CR 96 and I-35W NB ramps is expected to operate at an LOS of F with major delay occurring on the NB movements. This is attributed to increased volume in all directions.

During the 2030 PM No Build scenario, six of the intersections are expected to operate at an LOS F and the other seven intersections are expected to operate at LOS C or better. The six intersections operating at LOS F are:

- Old Hwy 8 and CR 96
    - The NB right turn is expected to operate at an unacceptable LOS. The SB left turn is also expected to operate at an unacceptable LOS.
- CR 96 and I-35W SB Ramps
    - Multiple movements are expected to fail, due to an increase in background traffic contributing to a breakdown at the unsignalized intersection. The failing movements are:
        - SB Left turn
        - SB Right turn
        - WB Left turn
        - WB Through
- CR 96 and I-35W NB Ramps
    - Multiple movements are expected to fail due to an increase in traffic at an already congested intersection. The failing movements are:

        - NB Left turn
        - NB Right turn
        - EB Left turn
        - WB Through
        - WB Right turn
- Round Lake Road W and CR 96
    - This intersection is expected to have multiple movements fail due to backups from the I-35W SB Ramps. The NB Left turn and WB movements at Round Lake Road W cannot efficiently travel due to the constraints west of the intersection.
- TH 10 West Ramp and CR 96
    - The WB, SB Right turns and NB Left turns are expected to experience extremely high delays due to the backups from the I-35W interchange.
- CR 96 and the TCAAP Property/North Heights Church Access
    - The NB left turn and right turn are expected to experience heavy delays, due to queues from I-35W. The westbound movements are delayed due to the queues from I-35W as well.

Results of the analysis are shown in **Table 4**.

Table 4 – 2030 No Build Peak Hour Traffic Analysis Results

Intersection	2030 No Build AM		2030 No Build PM	
	LOS	Delay	LOS	Delay
Old Hwy 8 and CR 96	C	19	F	72
CR 96 and SB I-35W Ramp	A	8	F	*
CR 96 and NB I-35W Ramp	F	*	F	*
Round Lake Rd W and CR 96	C	32	F	*
TH 10 West Ramp and CR 96	B	14	F	145
CR 96 at US 10 NB Ramp	A	No Control	A	No Control
CR 96 and TCAAP Property/North Heights Church Access	A	6	F	*
CR H and US-10	B	16	C	25
CR H and SB I-35W	A	3	A	3
CR H and NB I-35W	A	2	A	4
CR I and SB I-35W	D	31	C	15
CR I and NB I-35W	A	9	A	9
CR I and Old Hwy 8	A	4	A	3
CR I and N Fairview Ave	A	6	A	5
* Delay exceeds 180 seconds/vehicle				

6. Traffic Forecasts

The No Build Year 2030 background traffic forecasts were previously prepared for the Draft TCAAP Redevelopment. **Figure T10** shows the peak hour turning movement volumes. Traffic forecasts for the year 2030 that include the TCAAP project traffic were developed by adding the project site generated trips to the future year 2030 background traffic forecasts. Project specific trip generation estimates for the AM and PM peak periods were calculated for each proposed development scenario based on the proposed land use type and size. Trip generation rates from the 9th Edition of the Institute of Transportation Engineers Trip Generation were used to calculate development-generated traffic. A number of assumptions were made related to internal trip capture (trips that are made on-site between the various proposed uses), pass-by trips (trips already existing within the study area that make use of the proposed TCAAP development land uses), and mode split (trips by transit, walking, or biking). The trip reductions were based on typical rates found in the general project area, United States Census data, and commuter surveys that showed a reduction of approximately 15 percent of trips due to transit, multi-use, pass-by and internal capture rates.

7. Trip Generation

A summary of the Minimum and Maximum Development Scenario trip generation calculations for the AM and PM peak hours are shown in **Table 5** and **Table 6**.

Table 5 – Minimum Development Scenario Trip Generation

Minimum Development Scenario								
Use	Units / K sq. ft.	Total Daily Trips	AM Trips In	AM Trips Out	AM Trips	PM Trips In	PM Trips Out	PM Trips
Residential	1,500	11,050	210	650	860	660	405	1,065
Retail	500	21,350	300	180	480	890	965	1,855
Non-retail Commercial	1,700	16,480	1,995	280	2,275	370	1,815	2,185
	Total	48,880	2,505	1,110	3,615	1,920	3,185	5,105
	15% Transit and Multi-use Reduction Factor*	41,550	2,130	945	3,075	1,630	2,710	4,340

Minimum Development Scenario Trip Generation

Minimum Development Scenario												
Code	Land Use Description	Independent Variable	No. of Units	Avg Rate or Eq	Daily	AM			PM			
					Total Trips	AM Trips In	AM Trips Out	AM Trips	PM Trips In	PM Trips Out	PM Trips
252	Senior Adult Housing-Attached	Occ. Dwelling Unit(s)	150	Avg	515	10	20	30	20	15	35
230	Residential Condominium/Townhouse	Dwelling Unit(s)	300	Avg	1,745	20	110	130	105	50	155
224	Rental Townhouse	Dwelling Unit(s)	225	Avg	1,795	50	105	155	85	80	165
220	Apartment	Dwelling Unit(s)	300	Avg	1,995	30	120	150	120	65	185
210	Single-Family Detached Housing	Dwelling Unit(s)	525	Avg	5,000	100	295	395	330	195	525
820	Shopping Center	1,000 Sq Ft GLA	500	Avg	21,350	300	180	480	890	965	1,855
710	General Office Building (1)	1,000 Sq Ft	1350	Avg	14,890	1,855	255	2,110	340	1,670	2,010
150	Warehousing	1,000 Sq Ft	250	Avg	890	60	15	75	20	60	80
110	General Light Industrial	1,000 Sq Ft	100	Avg	700	80	10	90	10	85	95
Total					48,880	2,505	1,110	3,615	1,920	3,185	5,105
15% Transit and Multi-use Reduction Factor*					41,550	2,130	945	3,075	1,630	2,705	4,340

Table 6 – Maximum Development Scenario Trip Generation

Maximum Development Scenario								
Use	Units / K sq. ft.	Total Daily Trips	AM Trips In	AM Trips Out	AM Trips	PM Trips In	PM Trips Out	PM Trips
Residential	2,500	18,395	350	1,085	1,435	1,100	675	1,775
Retail	550	23,485	325	200	525	980	1,060	2,040
Non-retail Commercial	1,950	18,285	2,195	305	2,500	415	2,010	2,425
	Total	60,165	2,870	1,590	4,460	2,495	3,745	6,240
	15% Transit and Multi-use Reduction Factor*	51,140	2,440	1,350	3,790	2,120	3,185	5,305

Maximum Development Scenario Trip Generation

Maximum Development Scenario											
Code	Land Use Description	Independent Variable	No. of Units	Avg Rate or Eq	Daily	AM			PM		
					Total Trips	AM Trips In	AM Trips Out	AM Trips	PM Trips In	PM Trips Out	PM Trips
252	Senior Adult Housing-Attached	Occ. Dwelling Unit(s)	250	Avg	860	15	30	45	35	25	60
230	Residential Condominium/Townhouse	Dwelling Unit(s)	500	Avg	2,905	35	185	220	175	85	260
224	Rental Townhouse	Dwelling Unit(s)	375	Avg	2,975	85	175	260	140	130	270
220	Apartment	Dwelling Unit(s)	500	Avg	3,325	50	205	255	200	110	310
210	Single-Family Detached Housing	Dwelling Unit(s)	875	Avg	8,330	165	490	655	550	325	875
820	Shopping Center	1,000 Sq Ft GLA	550	Avg	23,485	325	200	525	980	1,060	2,040
710	General Office Building (1)	1,000 Sq Ft	1450	Avg	15,995	1,990	270	2,260	365	1,795	2,160
150	Warehousing	1,000 Sq Ft	350	Avg	1,245	85	20	105	30	85	115
110	General Light Industrial	1,000 Sq Ft	150	Avg	1,045	120	15	135	20	130	150
Total					60,165	2,870	1,590	4,460	2,495	3,745	6,240
15% Transit and Multi-use Reduction Factor*					51,140	2,440	1,350	3,790	2,120	3,185	5,305

8. Trip Distribution

a. Minimum Development Scenario Baseline Distribution

The directional trip distribution for the site-generated traffic was developed based on a review of existing traffic patterns and users and the Twin Cities Regional Travel Demand Model. The anticipated directional trip distribution for site users is shown in **Figure T11**. For the baseline scenario, roadway improvements include items described previously for the existing, No Build and Baseline transportation networks.

The associated site generated turning movement volumes for the Minimum Development Scenario Baseline Distribution are shown in **Figure T14**, and the total resulting turn movement volumes for the scenario are shown in **Figure T15**. For these baseline (unmitigated) development scenarios, access to I-35W southbound from the project site is not provided from County Road H. Therefore access to I-35W requires trips to continue further west to the intersection of County Road H and TH 10, to gain access to southbound I-35W.

b. Maximum Development Scenario Baseline Distribution

The associated site generated turning movement volumes are shown in **Figure T16**, and the total resulting turn movement volumes for the scenario are shown in **Figure T17**. For this unmitigated development scenario, access to I-35W southbound from the project site is provided via a reconstructed loop from County Road H with the addition of a divided ramp that crosses under the TH 10 southbound entrance to I 35W southbound. Therefore trips destined to I-35W southbound no longer continue west to the intersection of County Road H at TH 10 to gain access to I-35W southbound.

c. Minimum Development Scenario Mitigated Distribution

The directional trip distribution for the Maximum Development Scenario Mitigated Distribution is shown in **Figure T12**. Because the mitigation scenarios were analyzed with varying transportation system networks, the site-generated traffic distribution varies by scenario. Mitigation measures described in the roadway geometry section of this document includes the re-introduction of CR H southbound loop access to I-35W (removed as part of the baseline scenarios), which remains barrier separated from I-35W southbound exit ramp to TH 10 southbound, and enters I-35W after joining the TH 10 southbound access ramp to I-35W southbound. This change impacts site trip distribution and the result is shown in **Figure T18**, and the total resulting turn movement volumes for the scenario are shown in **Figure T19.**

d. Maximum Development Scenario Mitigated Distribution

The directional trip distribution for the Maximum Development Scenario Mitigated Distribution is shown in **Figure T13**. In addition to the Minimum Development Scenario mitigation measure, the Maximum Development Scenario mitigation measures also include the addition of a new northbound I-35W exit to CR H, with a single lane approach to the roundabout on CR H. This change impacts site trip distribution and the result is shown in **Figure T20**, and the total resulting turn movement volumes for the scenario are shown in **Figure T21.**

9. Baseline Roadway Network Scenario Analyses

a. Minimum Development Scenario

The minimum baseline development scenario turning movements were generated by adding the site generated traffic to the 2030 No Build traffic volumes. These turning movement traffic volumes are shown in **Figure T15**. The improvements that were considered between the baseline and no build scenarios primarily were discussed previously. Overall the baseline improvements helped the system maintain an LOS D or better at almost all of the intersections with the exception of the CR 96/ TCAAP Property access in the AM peak (LOS F). The major movement contributing to the LOS F is the westbound movements. Due to a high westbound through volume and a lack of capacity, the traffic conditions deteriorate causing high delays.

During the PM peak three intersections are expected to operate at LOS E or LOS F. Which are further described below:

- Old Hwy 8 and CR-96
    - The traffic volumes on the southbound left and northbound right cause significant delays and impact the overall LOS at the intersection. These movements are both operating at an unacceptable LOS.
- CR-96 and TCAAP Property/North Heights Church Access
    - Similarly to the AM peak the WB through movement demand exceeds capacity causing major delays for westbound traffic.
- CR-H and US-10
    - The high demands on the northbound through movements and the westbound movements are causing high delays and queues that affect the overall LOS of the intersection.

The delays and LOS for this scenario can be seen in **Table 7** below.

Table 7 – 2030 Minimum Development Scenario Peak Hour Baseline Analysis Results

Intersection	2030 Baseline Min AM		2030 Baseline Min PM	
	LOS	Delay (sec)	LOS	Delay (sec)
Old Hwy 8 and CR 96	C	25	E	66
CR 96 and SB I-35W Ramp	C	20	C	33
CR 96 and NB I-35W Ramp	C	21	C	27
Round Lake Rd W and CR 96	B	18	C	22
TH 10 West Ramp and CR 96	C	28	D	42
CR 96 at US 10 NB Ramp	A	No Control	A	No Control
CR 96 and TCAAP Property/North Heights Church Access	F	139	F	116
CR H and US 10	D	39	F	98
CR H and SB I-35W	B	13	B	16
CR H and NB I-35W	A	4	A	9
CR I and SB I-35W	C	20	C	20
CR I and NB I-35W	A	9	B	12
CR I and Old Hwy 8	A	4	C	18
CR I and N Fairview Ave	A	6	A	5

b. Maximum Development Scenario

The maximum baseline development scenario turning movements were generated by adding the site generated traffic to the 2030 No Build scenario turning movement volumes. The turning movement volumes for this scenario are shown in **Figure T17**. The improvements that were considered between the baseline and no build scenarios primarily consisted of signalizing the CR-96 and I-35W ramps as well as some geometric changes discussed previously. Similarly to the Minimum Baseline Scenario there are some intersections that are operating at LOS E or F. The analysis results are summarized in **Table 8**, and a summary of their operations are:

- Old Hwy 8 and CR-96
    - The intersection overall is operating at LOS E during the AM and PM peak due to poor operations for the northbound right and the southbound left.
- CR-96 and TCAAP Property/North Heights Church Access
    - The westbound movement is operating over capacity due to the large volume of westbound through traffic.
- CR-H and US-10
    - The intersection operates at undesirable levels during the AM and PM peak because the northbound through movement is operating over capacity and the westbound left and through movements queues are blocking the right turn movement.
- CR-H and I-35W Southbound Ramps

- The Westbound through and right movements are failing due to queues from CR-H and US-10. These queues block the right turn movement resulting in overall intersection failure.

Table 8 – 2030 Maximum Development Scenario Peak Hour Baseline Analysis Results

Intersection	2030 Baseline Max AM		2030 Baseline Max PM	
	LOS	Delay (sec)	LOS	Delay (sec)
Old Hwy 8 and CR 96	C	22	E	62
CR 96 and SB I-35W Ramp	B	15	C	33
CR 96 and NB I-35W Ramp	B	20	C	30
Round Lake Rd W and CR 96	B	17	C	23
TH 10 West Ramp and CR 96	C	26	C	30
CR 96 at US 10 NB Ramp	A	No Control	A	No Control
CR 96 and TCAAP Property/North Heights Church Access	F	142	F	135
CR H and US-10	E	63	F	117
CR H and SB I-35W	C	32	E	66
CR H and NB I-35W	A	4	C	19
CR I and SB I-35W	C	26	C	23
CR I and NB I-35W	B	11	B	12
CR I and Old Hwy 8	A	8	B	10
CR I and N Fairview Ave	A	6	A	6

10. Mitigated Roadway Network Scenario Analyses

a. Minimum Development Scenario

Based on the results under the unmitigated scenario, the intersections that were failing and or had failing movements were reevaluated with the mitigations stated previously. After mitigation all intersections were operating at LOS D or better with no anticipated operational issues in the AM and PM scenarios. The analysis results are presented in **Table 9**, and the total traffic turning movement volumes are shown in **Figure T19**

Table 9 – 2030 Minimum Development Scenario Peak Hour Mitigation Analysis Results

Intersection	2030 Baseline Min Mitigated AM		2030 Baseline Min Mitigated PM	
	LOS	Delay (sec)	LOS	Delay (sec)
Old Hwy 8 and CR 96	C	21	C	29
CR 96 and SB I-35W Ramp	C	20	C	30
CR 96 and NB I-35W Ramp	B	19	C	30
Round Lake Rd W and CR 96	C	24	C	25
TH 10 West Ramp and CR 96	C	28	D	39
CR 96 at US 10 NB Ramp	A	No Control	A	No Control
CR 96 and TCAAP Property/North Heights Church Access	C	21	C	29
CR H and US-10	D	38	D	44
CR H and SB I-35W	B	18	B	11
CR H and NB I-35W	A	4	A	9
CR I and SB I-35W	C	25	C	22
CR I and NB I-35W	B	13	B	13
CR I and Old Hwy 8	A	5	A	5
CR I and N Fairview Ave	A	6	A	5

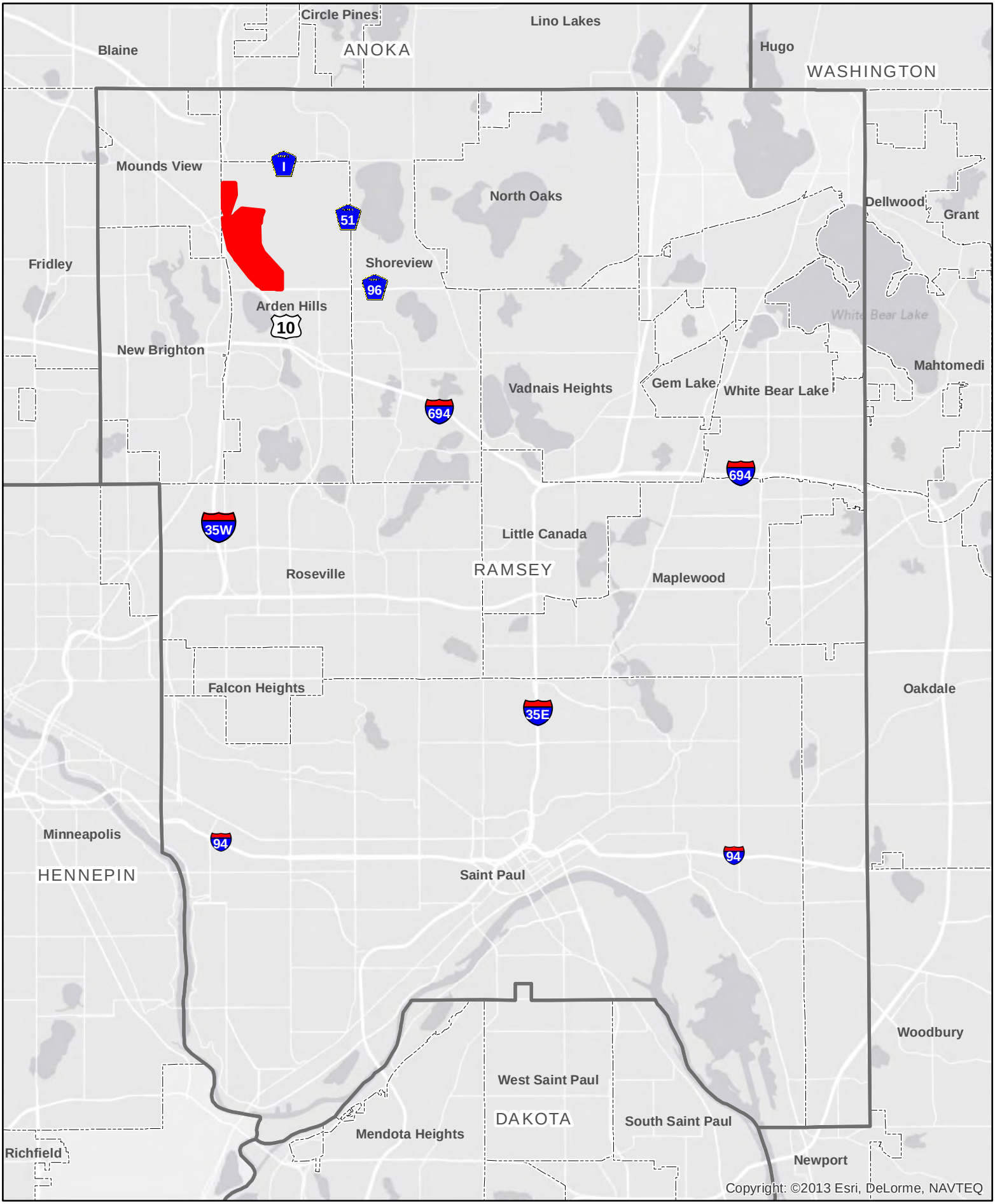
b. Maximum Development Scenario

Based on results under the unmitigated maximum scenario, the failing intersections and or failing movements were reevaluated with the mitigations previously described. After mitigation, all intersections were operating at LOS D or better with no anticipated operational issues in the AM and PM scenarios. The analysis results are presented in **Table 10**, and the total traffic turning movement volumes are shown in **Figure T21.**

Table 10 – 2030 Maximum Development Scenario Peak Hour Mitigation Analysis Results

Intersection	2030 Baseline Max Mitigated AM		2030 Baseline Max Mitigated PM	
	LOS	Delay (sec)	LOS	Delay (sec)
Old Hwy 8 and CR 96	C	23	C	23
CR 96 and SB I-35W Ramp	C	22	C	24
CR 96 and NB I-35W Ramp	C	24	C	33
Round Lake Rd W and CR 96	C	22	C	27
TH 10 West Ramp and CR 96	C	27	C	29
CR 96 at US 10 NB Ramp	A	No Control	A	No Control
CR 96 and TCAAP Property/North Heights Church Access	C	29	D	42
CR H and US-10	C	28	D	36
CR H and SB I-35W	B	18	B	16
CR H and NB I-35W	A	4	C	19
CR I and SB I-35W	C	26	C	22
CR I and NB I-35W	B	15	B	13
CR I and Old Hwy 8	A	6	A	4
CR I and N Fairview Ave	A	6	A	6

Figures in Appendix:



AUAR Study Area

County Boundary

N

0 1 2 Miles

Figure T1. Project Location Map
TCAAP Traffic Analysis

ARDEN HILLS

Kimley-Horn and Associates, Inc.

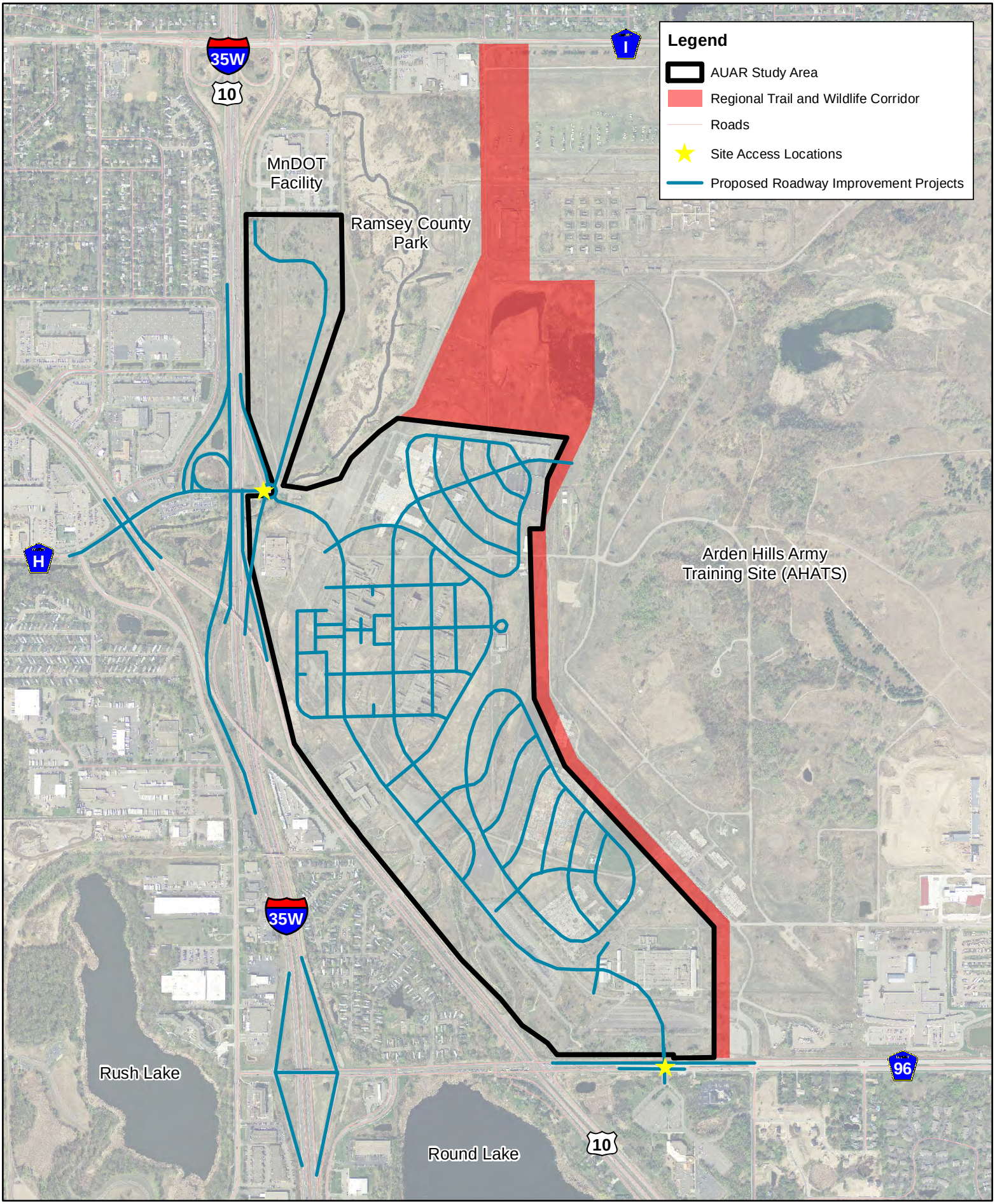


Figure T2. Site Plan with Access Roads and Regional Access Roadway System

TCAAP Traffic Analysis

ARDEN HILLS

Kimley-Horn and Associates, Inc.

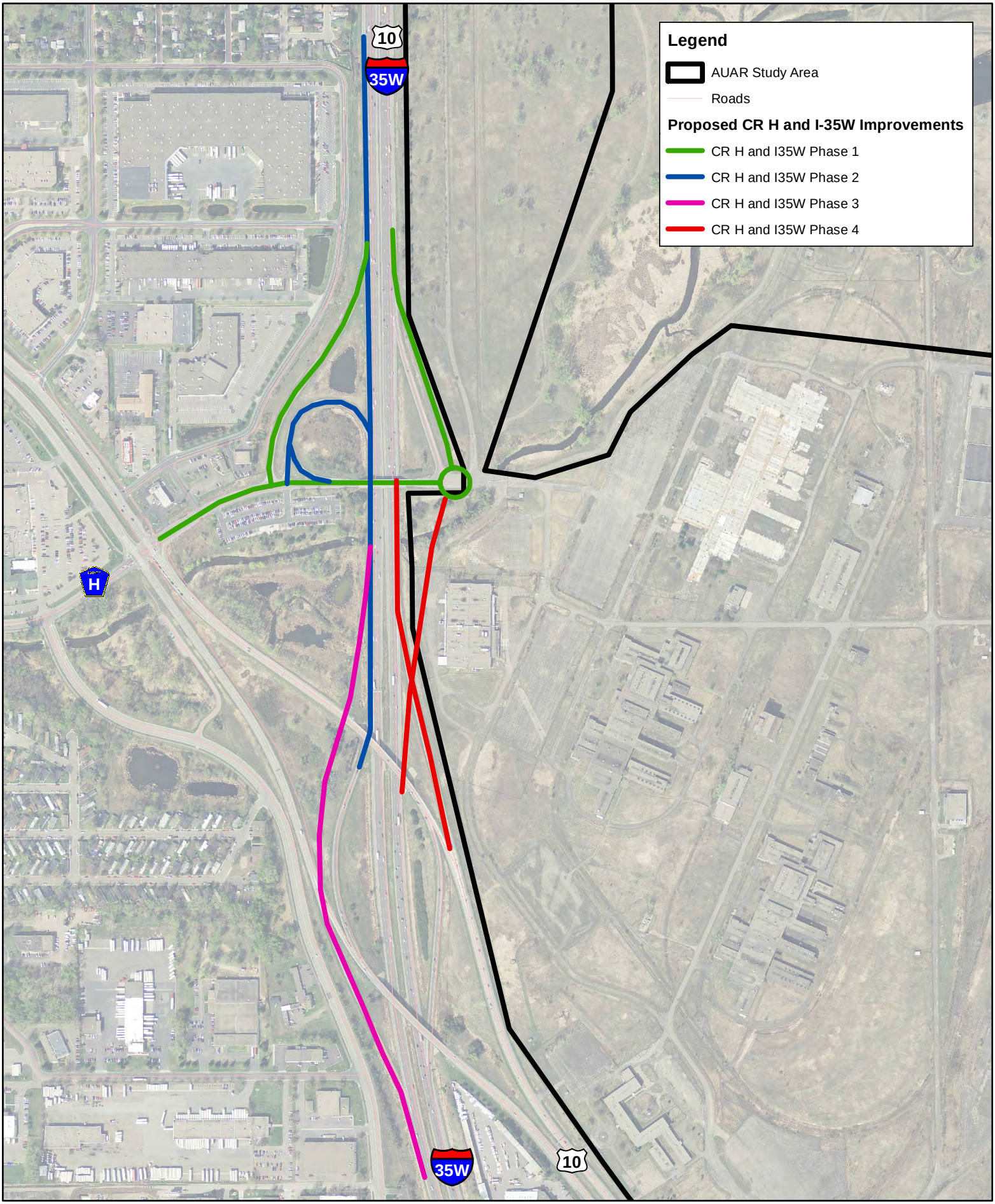


Figure T3. Proposed County Road H and I-35W Interchange

TCAAP Traffic Analysis

ARDEN HILLS

Kimley-Horn and Associates, Inc.

N

0 600 1,200 Feet

Figure T4 - Existing 2013 Roadway Geometry

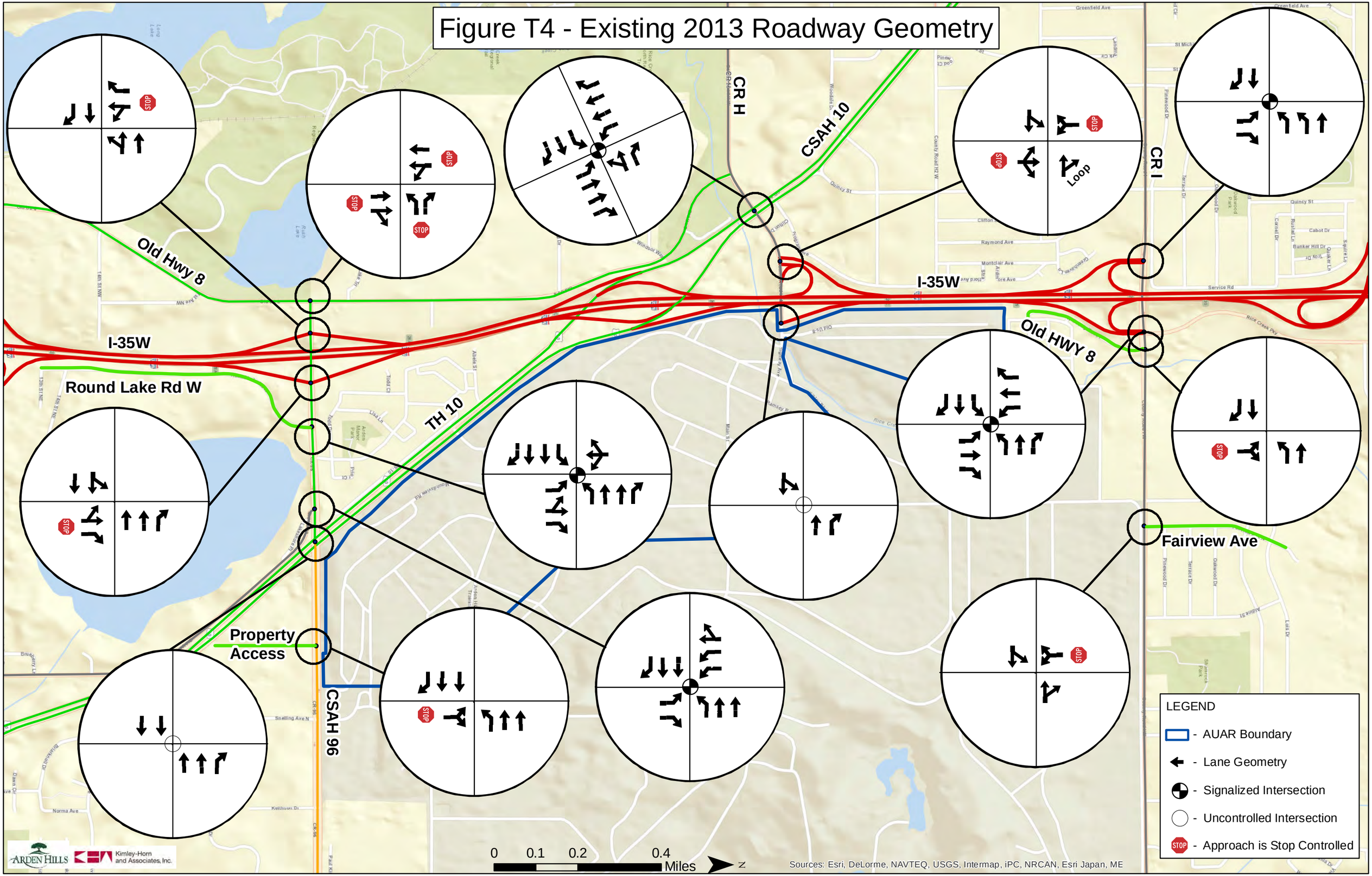


Figure T5 - 2030 No Build Roadway Geometry

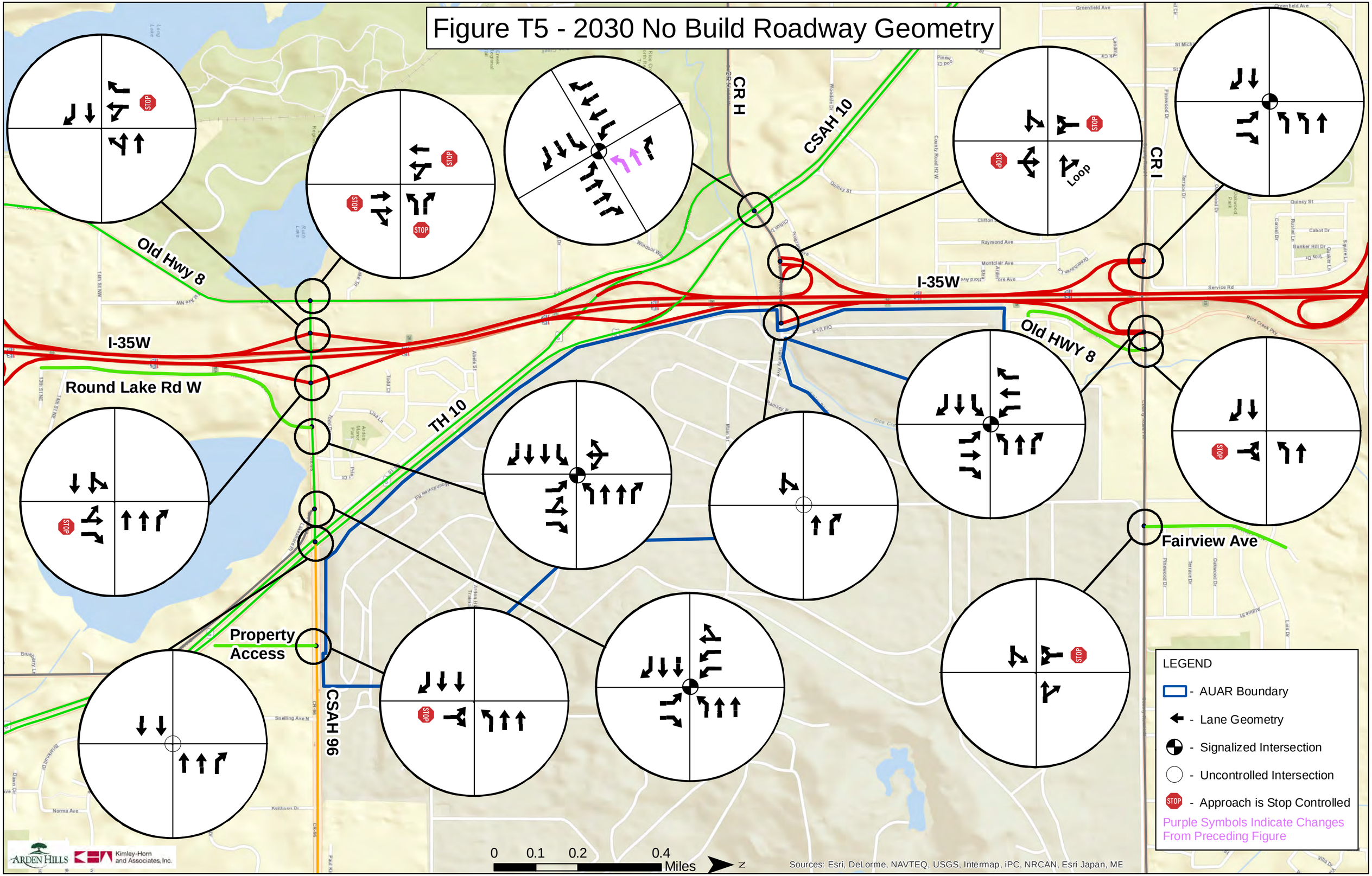


Figure T6 - 2030 Baseline Roadway Geometry

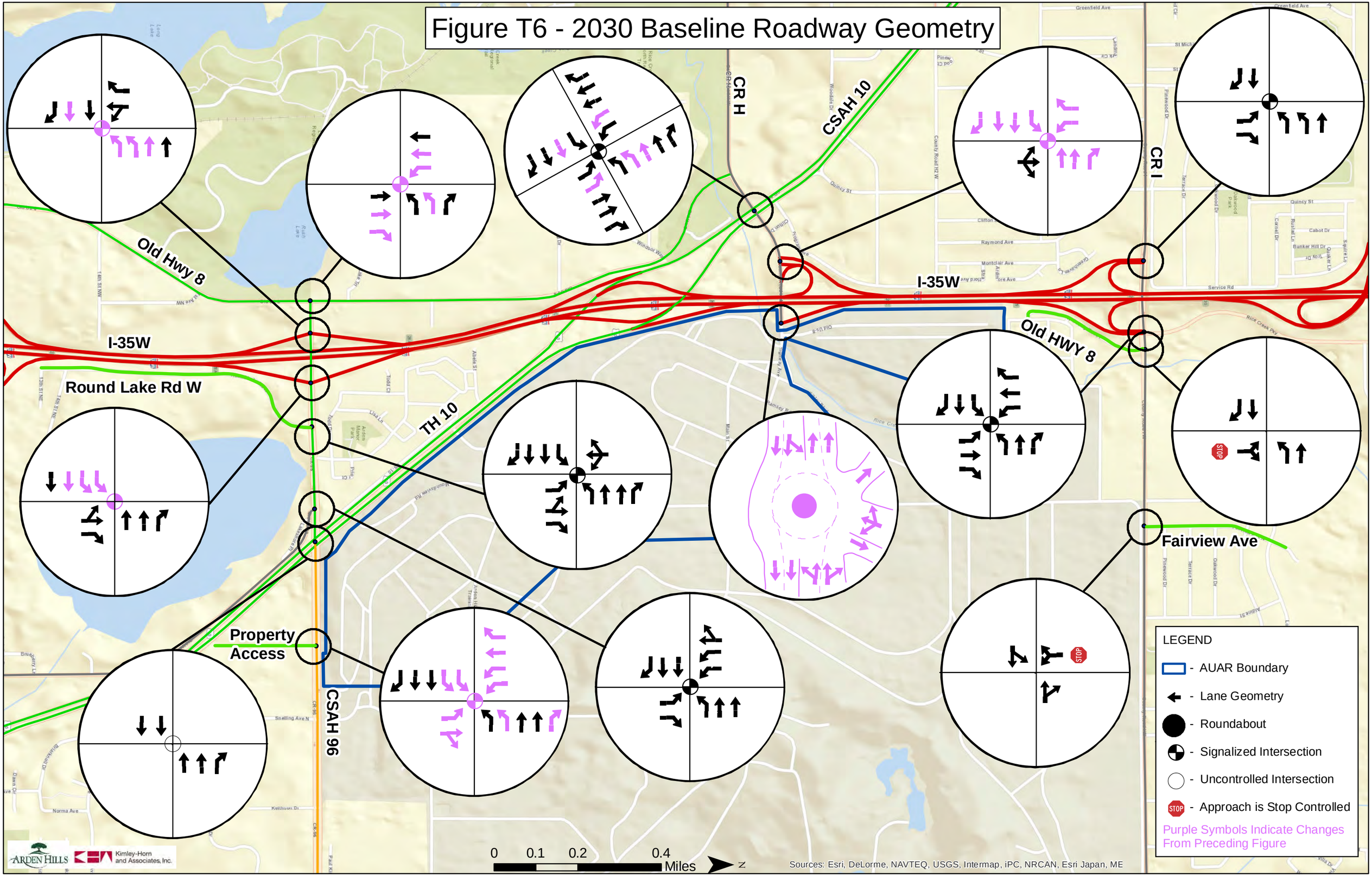


Figure T7 - 2030 Minimum Development Scenario Roadway Mitigation Geometry

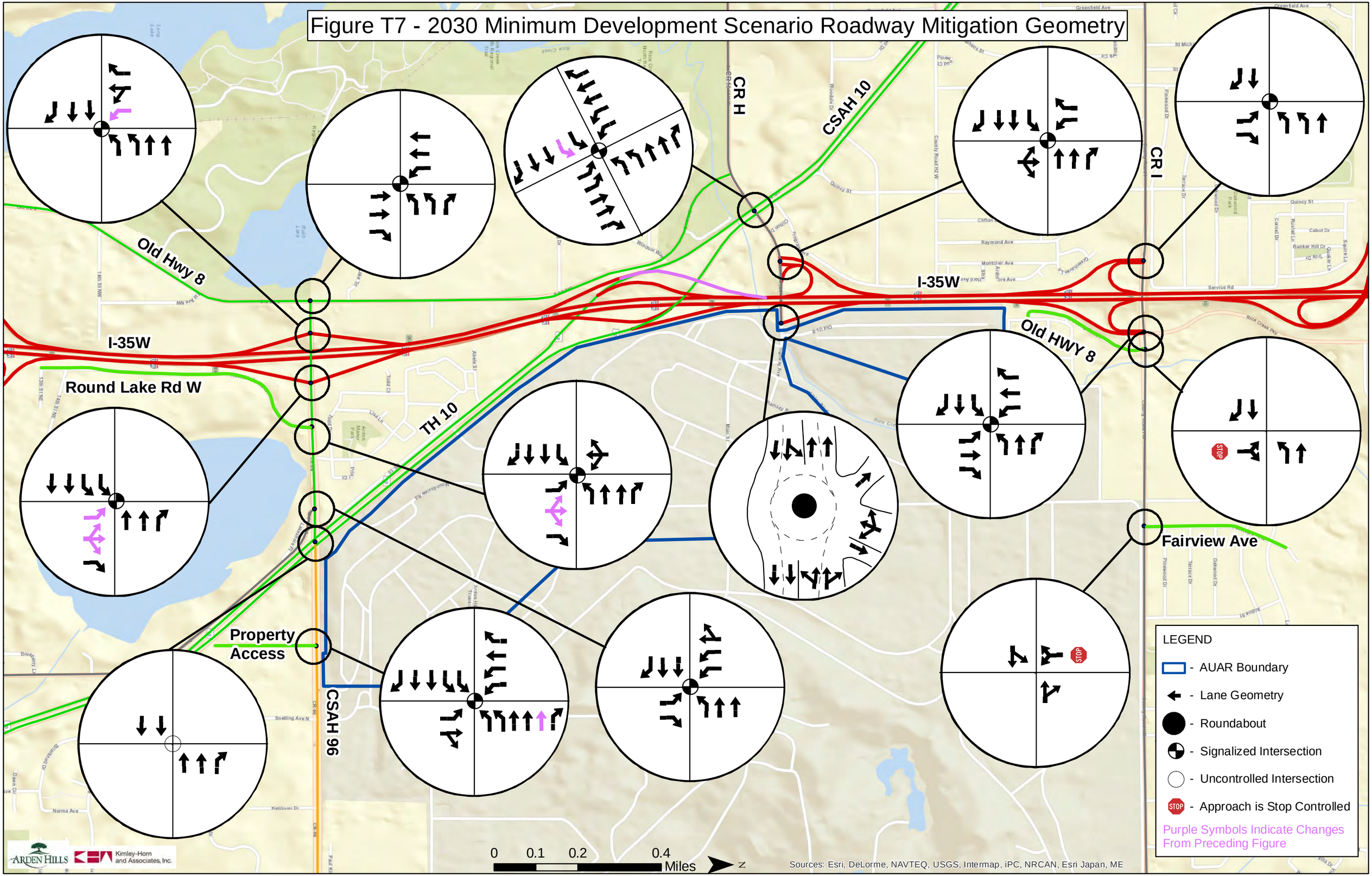


Figure T8 - 2030 Maximum Development Scenario Roadway Mitigation Geometry

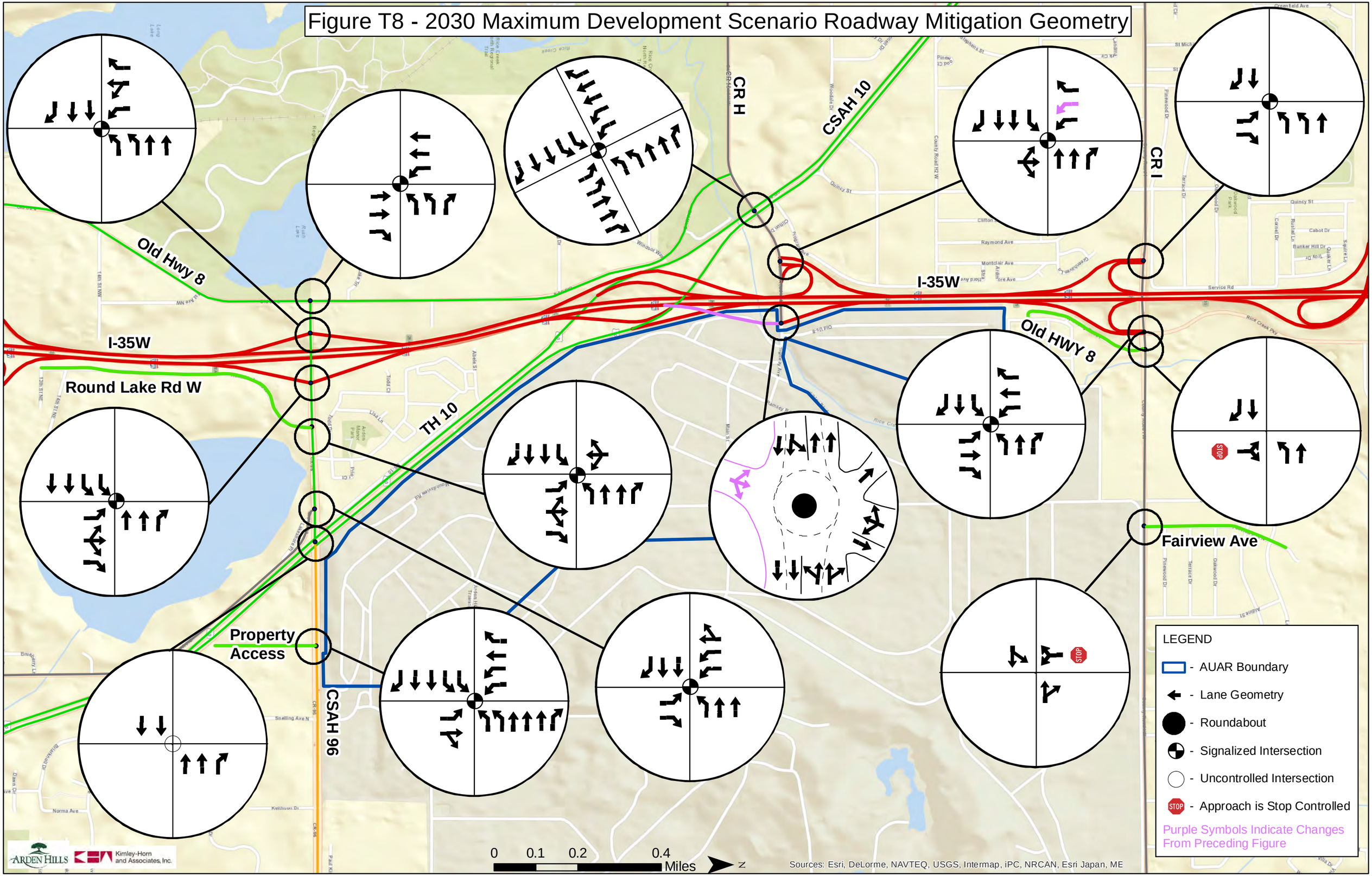


Figure T9 - Existing 2013 Traffic

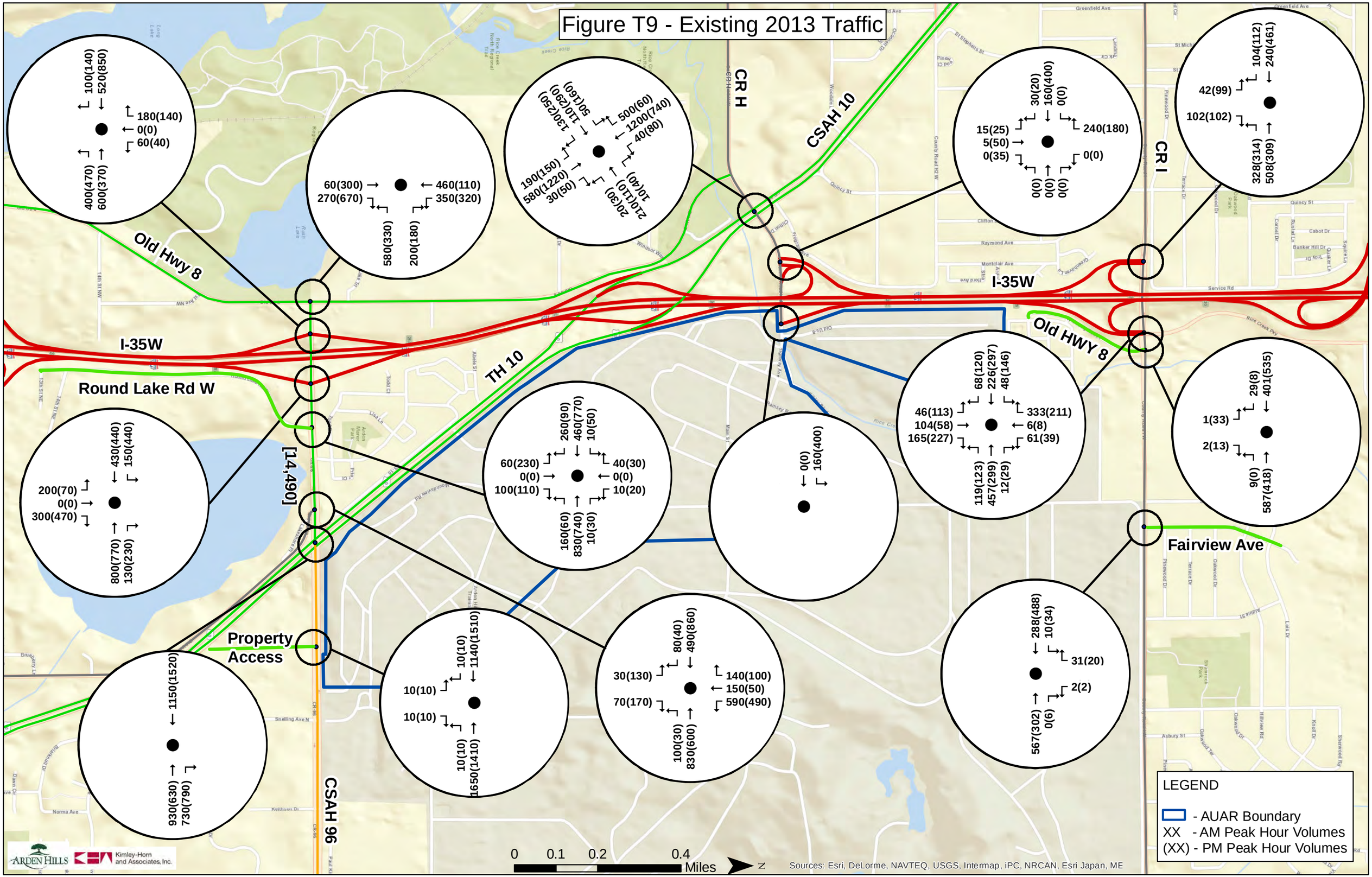


Figure T10 - 2030 No Build Traffic

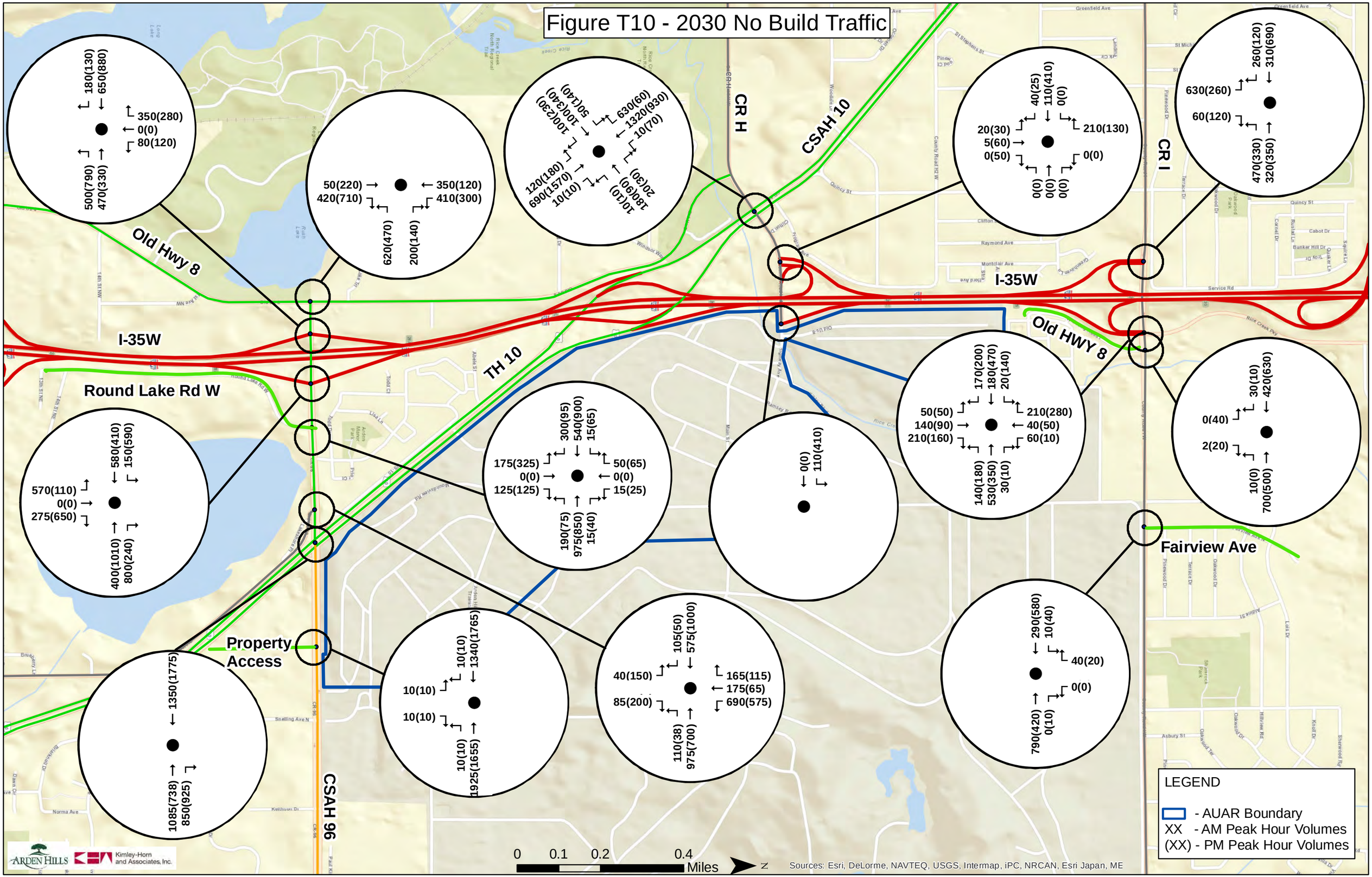


Figure T11 - 2030 Baseline Geometry Site Distribution

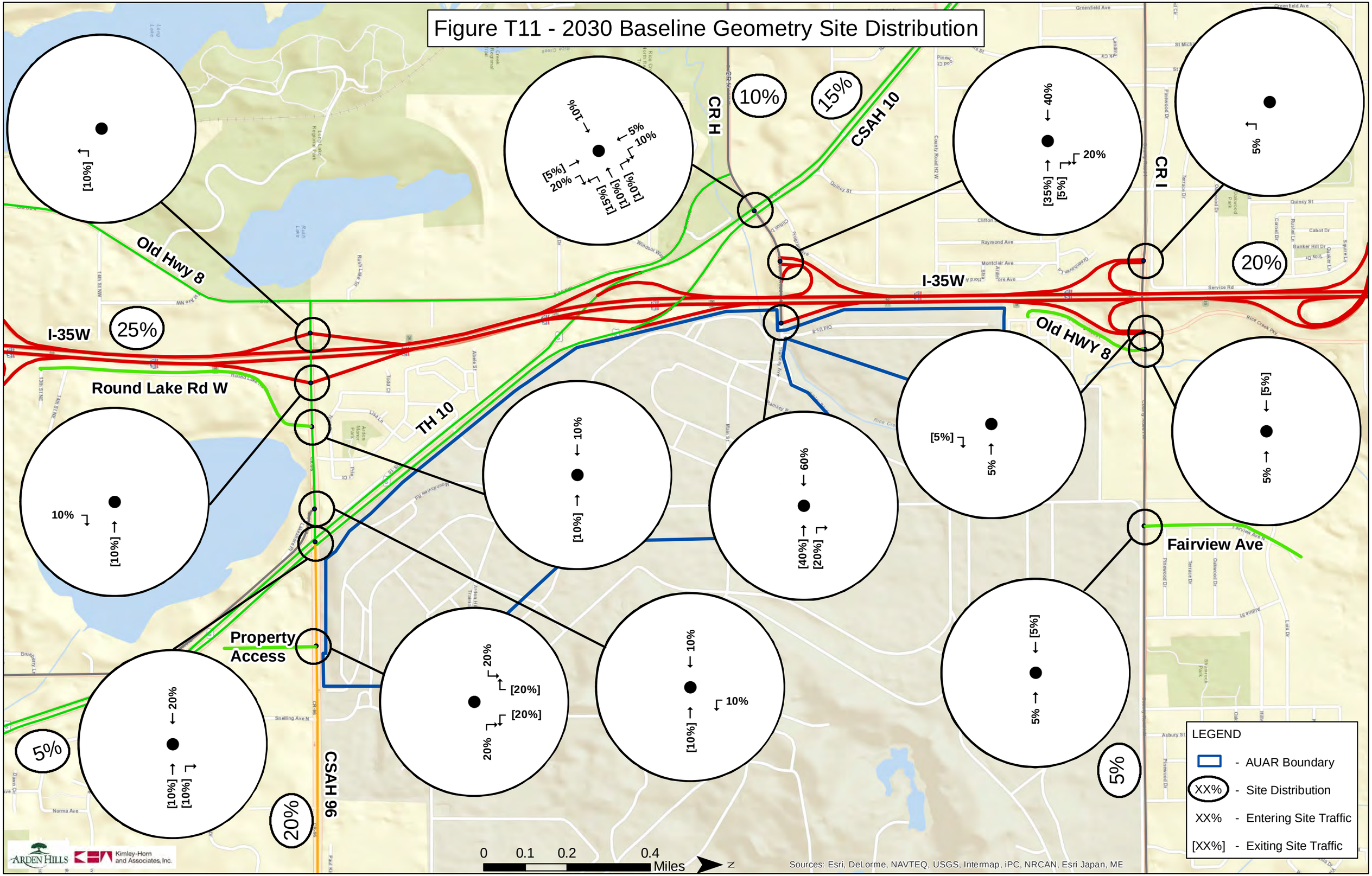


Figure T12 - 2030 Minimum Development Scenario Mitigated Site Distribution

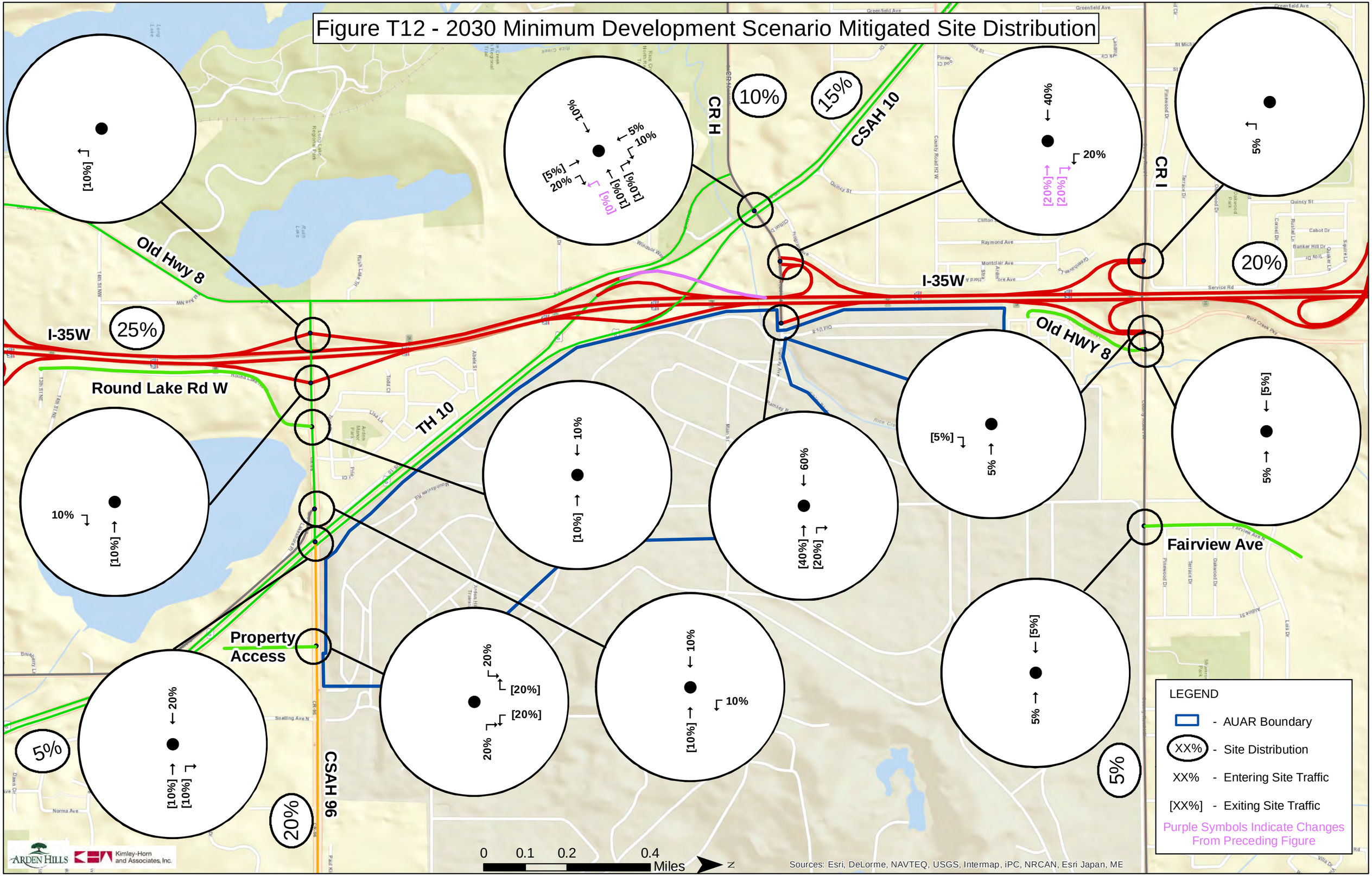


Figure T13 - 2030 Maximum Development Scenario Mitigated Site Distribution

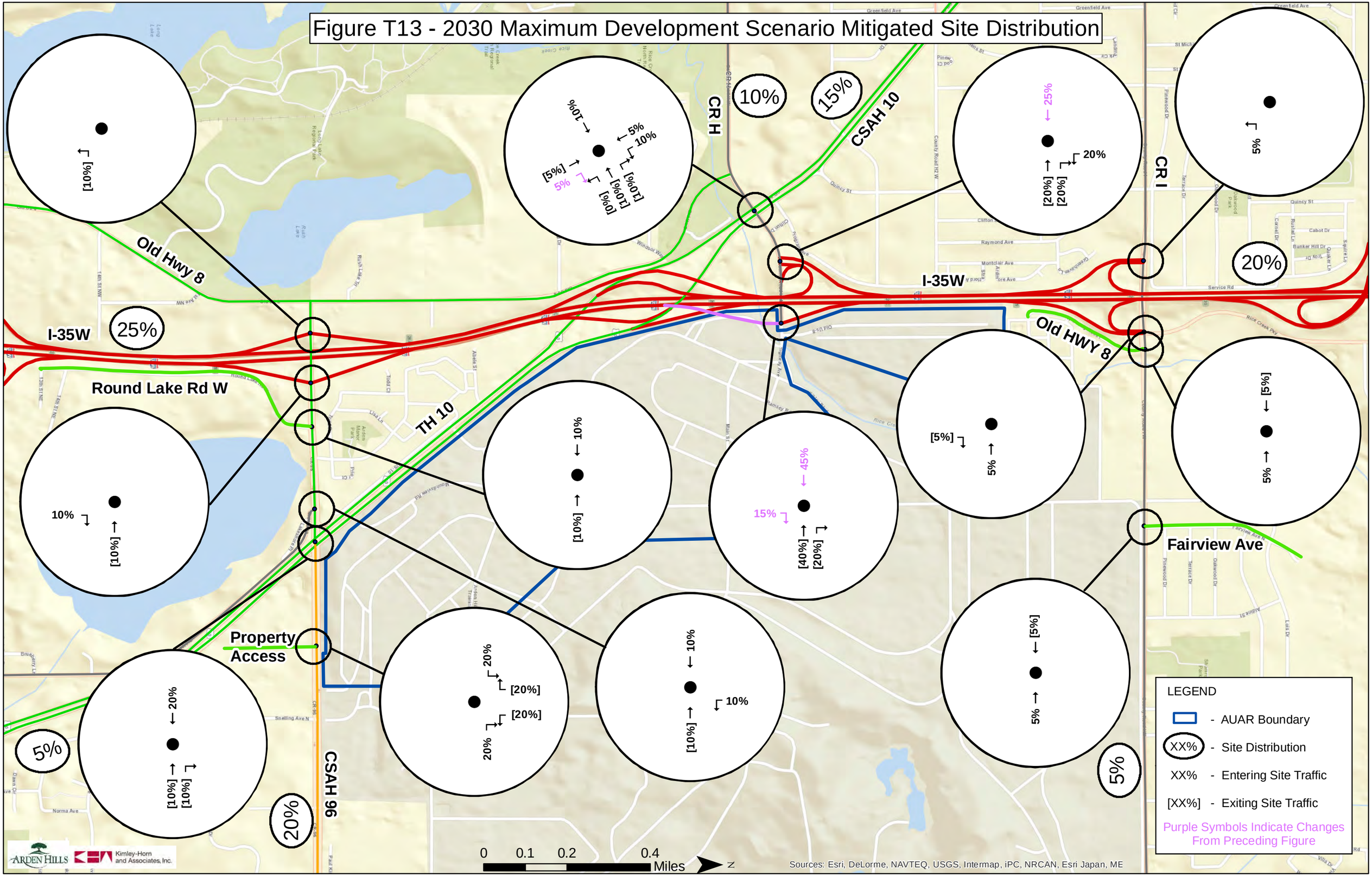


Figure T14 - 2030 Minimum Development Scenario Site Traffic (Baseline Distribution)

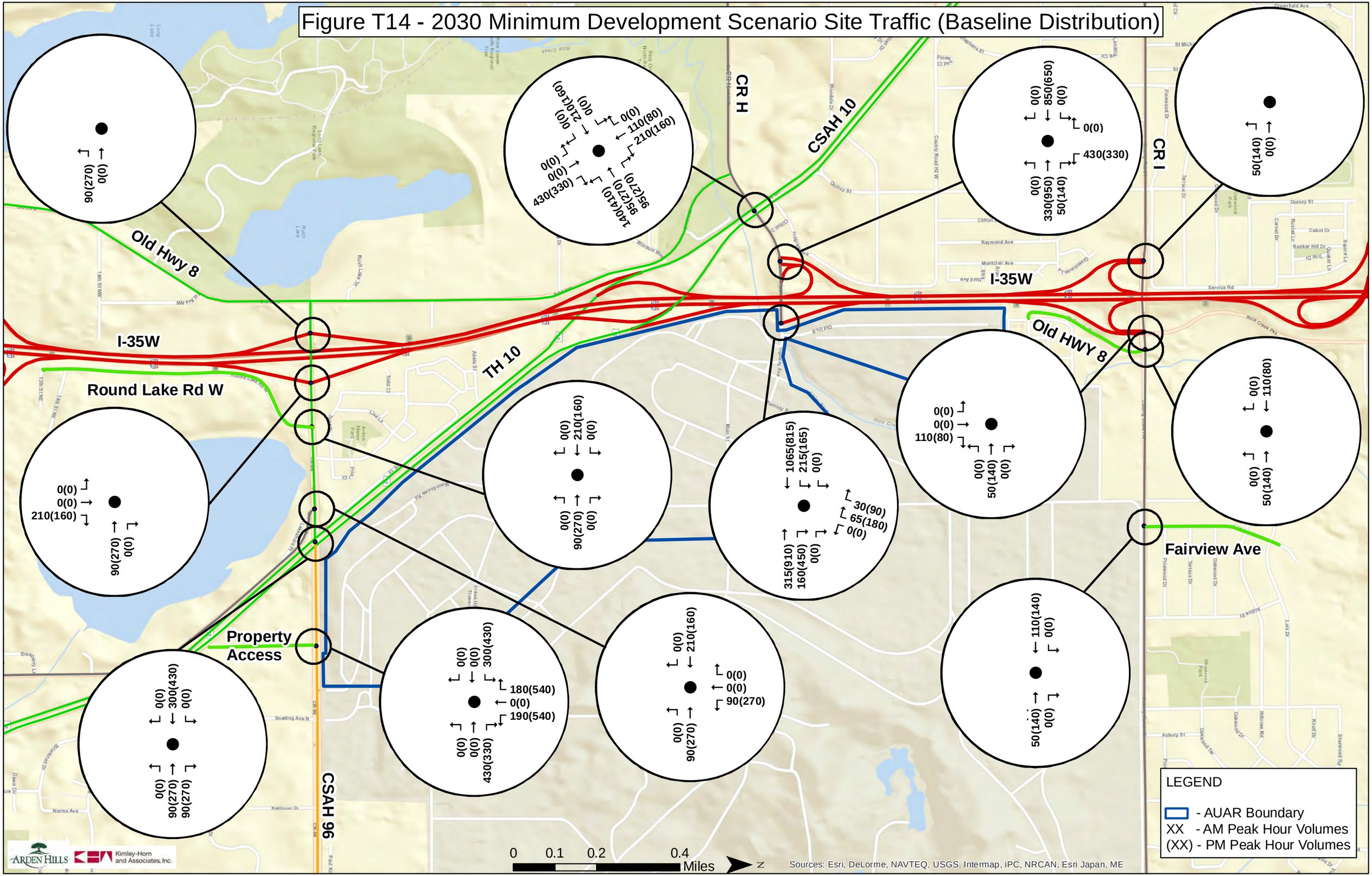


Figure T15 - 2030 Minimum Development Scenario Total Traffic (Baseline Distribution)

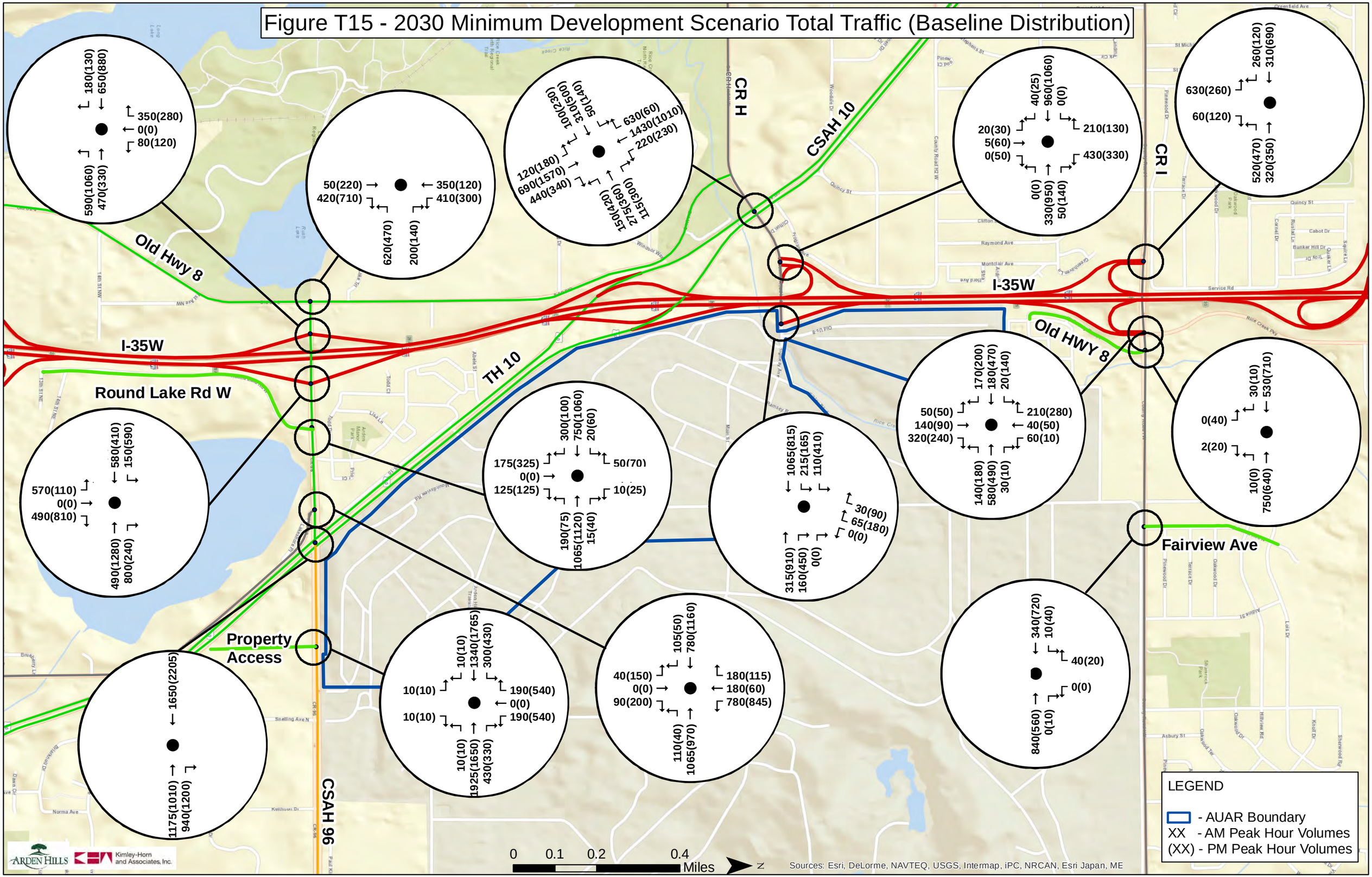


Figure T16 - 2030 Maximum Development Scenario Site Traffic (Baseline Distribution)

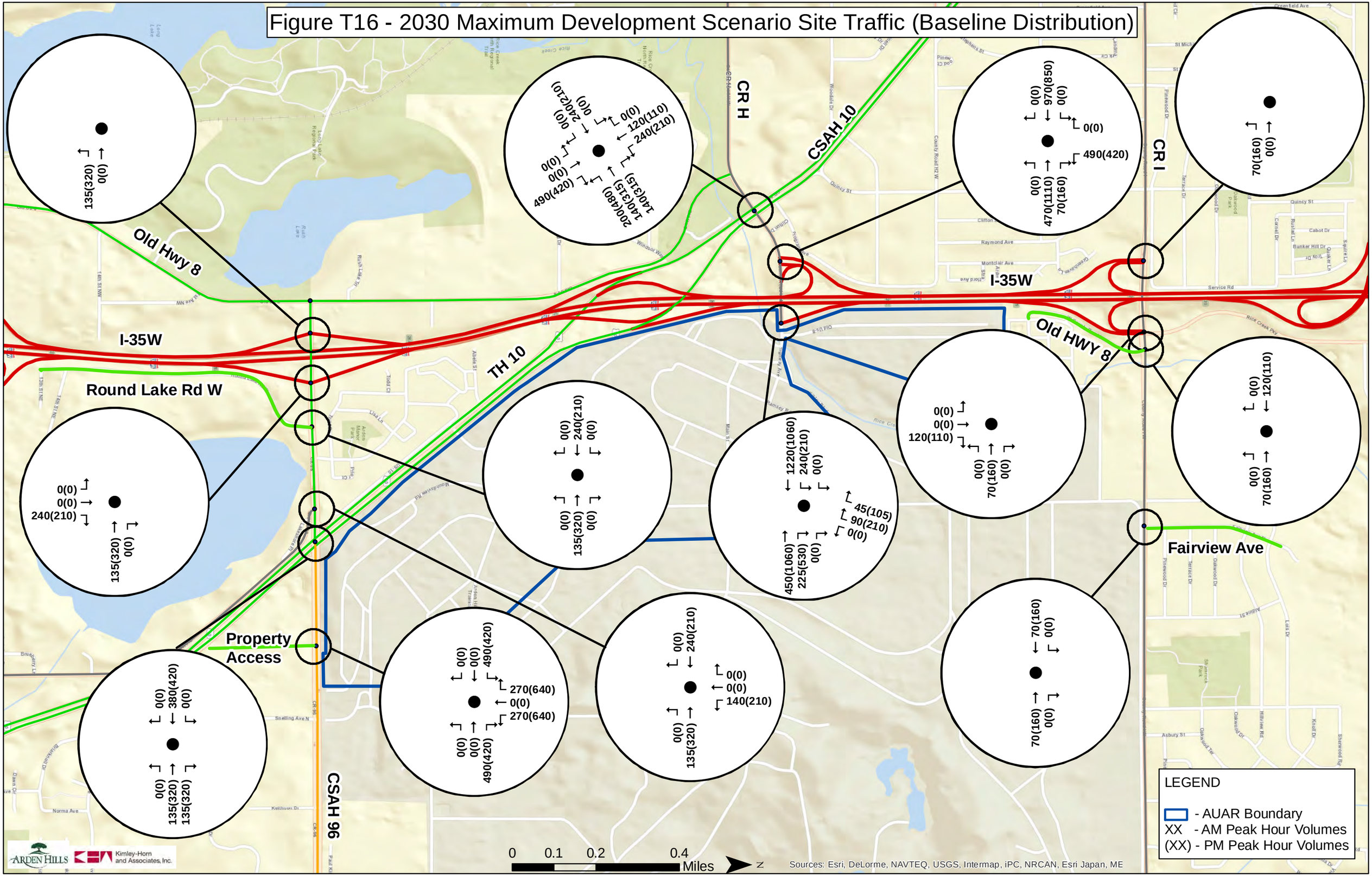


Figure T17 - 2030 Maximum Development Scenario Total Traffic (Baseline Distribution)

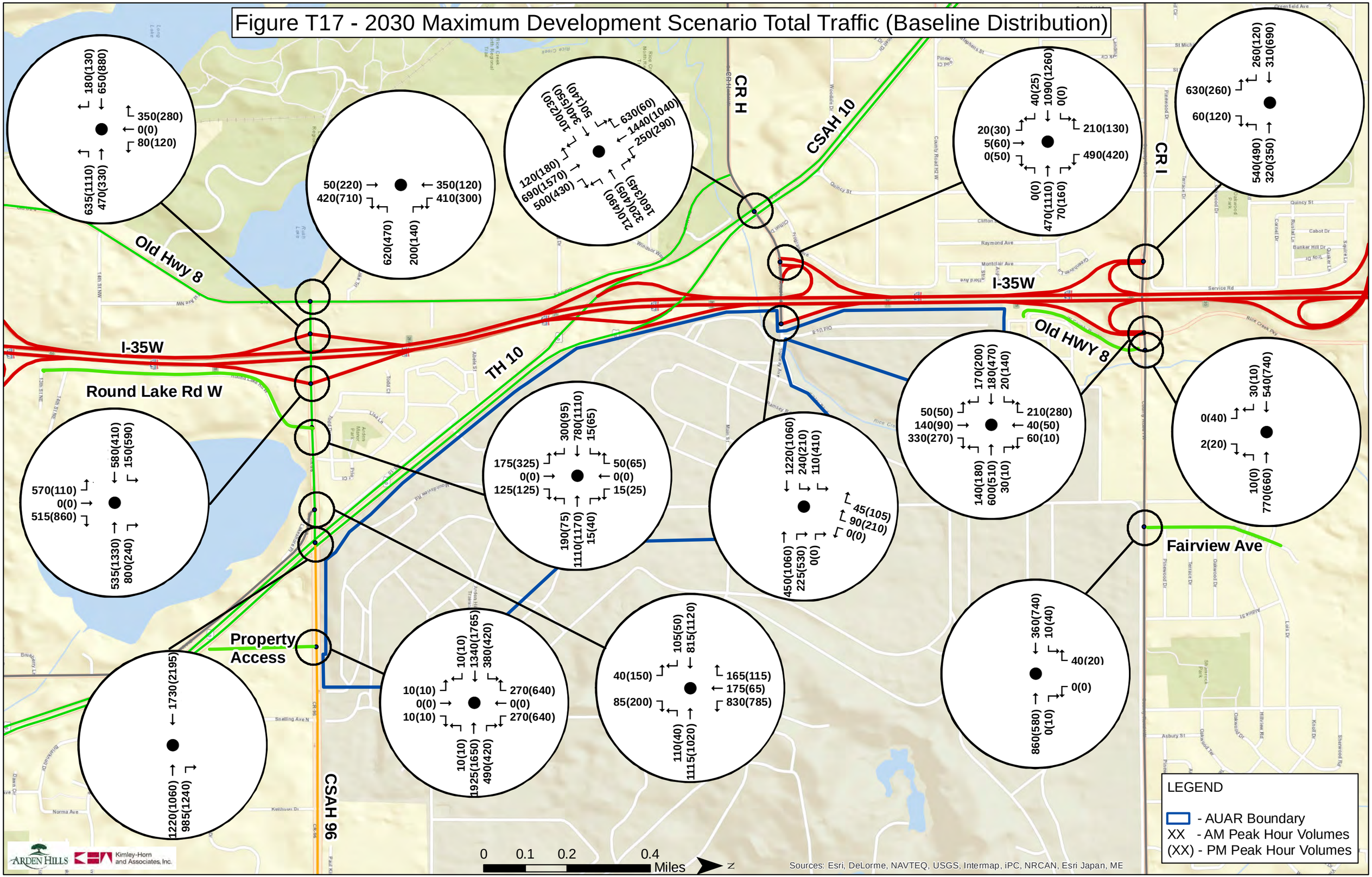


Figure T18 - 2030 Minimum Development Scenario SiteTraffic (Mitigated Distribution)

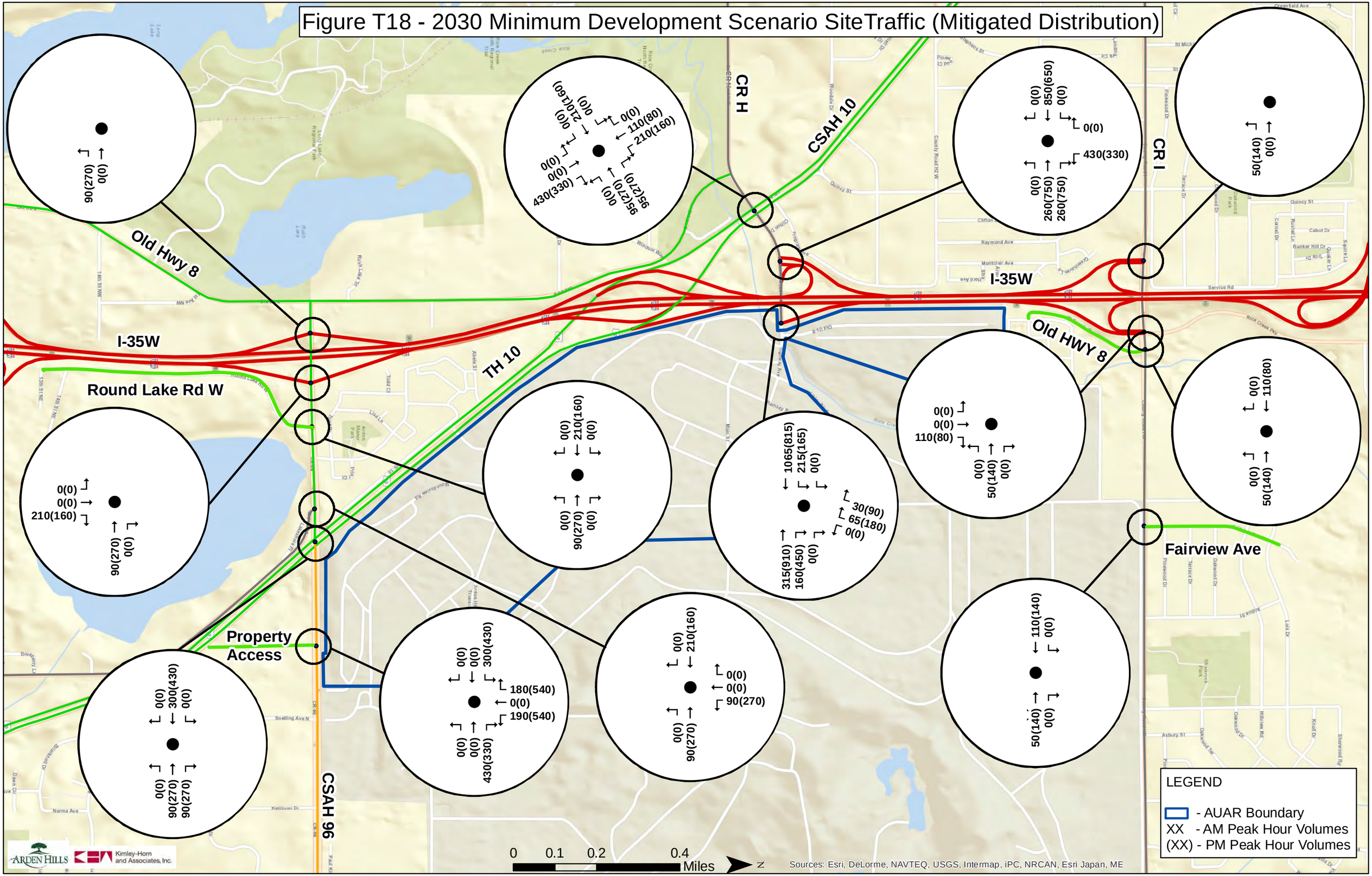


Figure T19 - 2030 Minimum Development Scenario Total Traffic (Mitigated Distribution)

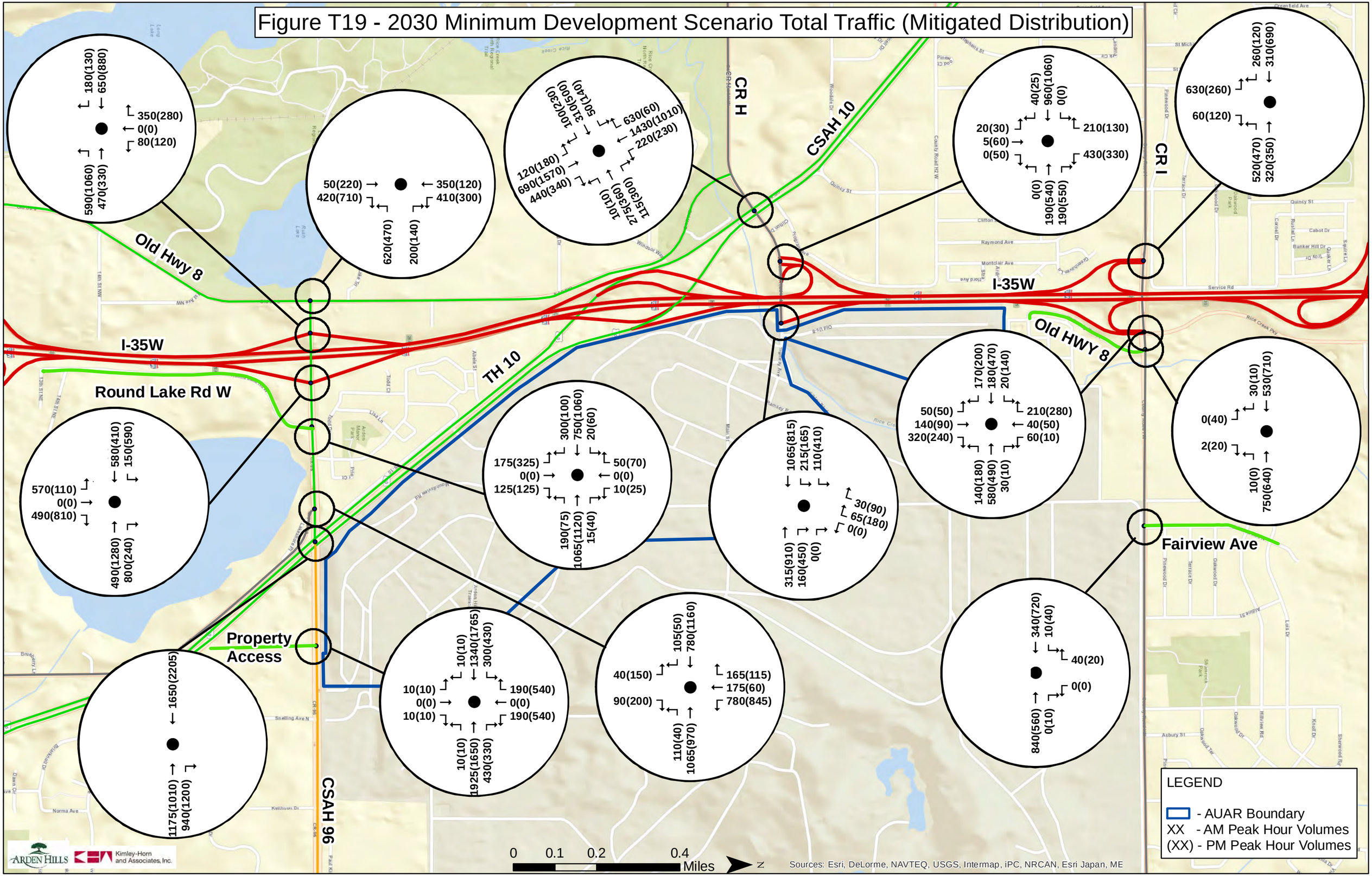
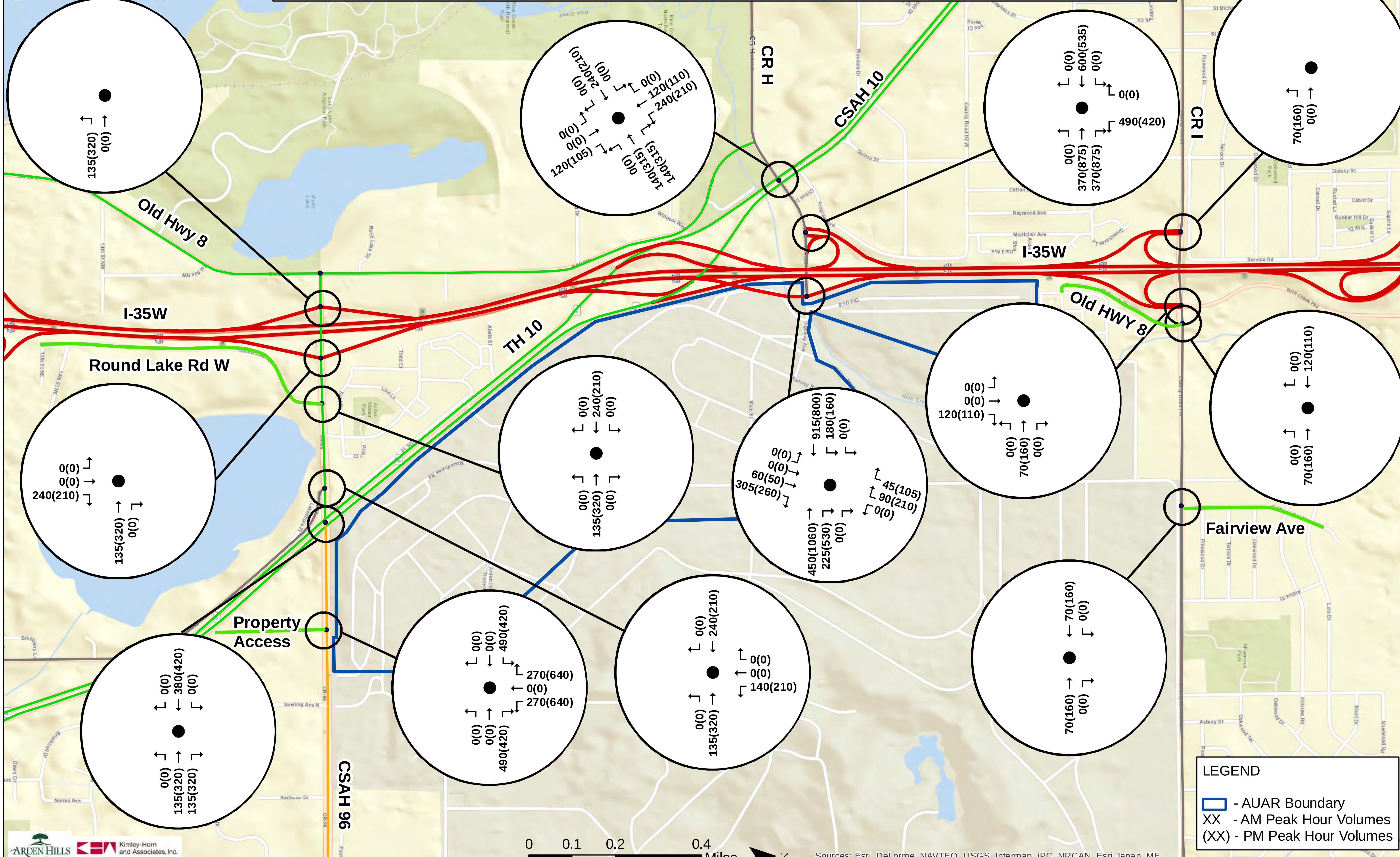


Figure T20 - 2030 Maximum Development Scenario Site Traffic (Mitigated Distribution)



LEGEND
- AUAR Boundary
XX - AM Peak Hour Volumes
(XX) - PM Peak Hour Volumes

Figure T21 - Maximum Development Scenario Total Traffic (Mitigated Distribution)