

FINAL ALTERNATIVE URBAN AREAWIDE REVIEW UPDATE

UMORE STUDY AREA

ORIGINAL AUAR: AUGUST 2013
UPDATE 1: AUGUST 2018

10-Working Day Comment Period: September 17 –
October 1, 2018

Prepared for:
City of Rosemount, Minnesota

WSB PROJECT NO. 12383-000

FINAL ALTERNATIVE URBAN AREAWIDE REVIEW UPDATE

UMore Study Area

FOR THE
CITY OF ROSEMOUNT, MINNESOTA

10-Working Day Comment Draft

Original AUAR: August 2013
Update 1: August 2018

Prepared By:

WSB & Associates, Inc.
701 Xenia Avenue – Suite 300
Minneapolis, MN 55416
763-541-4800
amoffatt@wsbeng.com

City of Rosemount
2875 145th Street West
Rosemount, MN 55068
651-322-2020
kim.lindquist@ci.rosemount.mn.us

TABLE OF CONTENTS

TITLE SHEET

TABLE OF CONTENTS

I.	Introduction and Purpose	1
II.	Approved Development/Current Conditions.....	3
III.	Areas Remaining to be Developed.....	3
IV.	Update to the Environmental Review	3
V.	Mitigation Summary and Update	5
VI.	AUAR Update Review.....	14

Appendix A – Figures

Figure 1.	General Location Map
Figure 2.	USGS Topographic Map
Figure 3.	Aerial Photo
Figure 4.	Scenario 1
Figure 5.	Scenario 2
Figure 6.	Scenario 3
Figure 7.	Scenario 4
Figure 8.	Transition to Scenario 3
Figure 9.	Trails Map
Figure 10.	Wellhead Protection Areas

Appendix B – DNR Natural Heritage Database Review

Appendix C – Comments and Responses to the AUAR Update (to be added upon Final AUAR Update)

I. Introduction and Purpose

The UMore Study Area is approximately 4,900 acres located in the southern portion of the City of Rosemount and the northern portion of Empire Township (**Appendix A - Figure 1-3**). The City of Rosemount adopted the UMore Alternative Urban Areawide Review (AUAR) in August 2013. Pursuant to Minnesota Rules 4410.3610 Subp. 7, for the AUAR to remain valid as the environmental review document for the area, the document needs to be updated every five years until all development in the study area has received final approval. Since undeveloped areas still remain in the study area and the AUAR will expire in 2018, the purpose of this document is to update the AUAR pursuant to Minnesota Rules.

The 2013 AUAR included an analysis of four development scenarios as follows:

Scenario 1 (Figure 4, Appendix A)

Scenario 1 contains residential, commercial, industrial, mixed-use, and park/open spaces uses organized around a neighborhood, village, community, or regional center. Long-term, the plan accommodates a transit connection between the three higher density center areas and points north of the UMore site. An extensive planned system of greenways and open space meanders through the site accommodating active and passive recreational uses, preservation of natural features, and establishing corridors for wildlife movement.

On the west side of the site, development will surround a new lake that will be an amenity resulting from gravel mining operations. The gravel mining area was the subject of an Environmental Impact Statement. The Record of Decision for the UMore Park Sand and Gravel Resources Project EIS was published in November of 2010.

County State Aid Highway (CSAH) 46 bisects the site in an east/west direction forming the boundary between the City of Rosemount and Empire Township. Akron Avenue and Blaine Avenue will be extended through the site and will be transferred to Dakota County following construction and connection to the overall Dakota County highway system. In the north, the UMore Park property surrounds the Dakota County Technical College (DCTC) which abuts County State Aid Highway (CSAH) 42.

Residential uses occur in four different density classifications ranging from low density (1 – 3.5 units/acre) to high density (12 – 24 units per acre). Scenario 1 uses the maximum density within the residential ranges to determine population. Neighborhood, village, community, and regional centers contain varying mixes of residential and non-residential uses. Employment land uses, which are generally concentrated in the eastern portion of the site, include

office/business park and light industrial uses. Scenario 1 accommodates a future population of approximately 35,000 people and about 18,000 jobs.

Scenario 2 (Figure 5, Appendix A)

The quantities and locations of future land uses shown on Scenario 2 are identical to those shown on Scenario 1. Scenario 2 allows testing of an alternative that has residential densities that are more in line with the traditional densities in suburban communities like the City of Rosemount. For this scenario, the middle of the residential density ranges has been used for the low density, low-medium density, medium density and high density categories. As a result, Scenario 2 projects a future population of approximately 25,000 people and about 18,000 jobs.

Scenario 3 (Figure 6, Appendix A)

Scenario 3 is intended to examine the implications of a future land use pattern that includes expanded employment opportunities. With the exception of areas lying between Barbara and Blaine Avenues, the land use pattern shown on Scenario 3 is identical to that shown on Scenarios 1 and 2. Scenario 3 replaces largely residential uses located west of Blaine Avenue with office/business park uses and light industrial. The maximum residential densities are used, the same as used in Scenario 1. As a result, Scenario 3 accommodates a future population of approximately 31,500 people and about 24,500 jobs.

Scenario 4 – Comprehensive Plans (Figure 7, Appendix A)

Scenario 4 depicted the comprehensive plans for both the City of Rosemount and Empire Township in 2013. Both comprehensive plans recognize UMore Park and reference future growth and development. Rosemount’s plan categorizes the UMore site as Agricultural Research (AGR). The plan states, “This land use designation is used solely for the UMore Park property that is owned and operated by the University of Minnesota. It is anticipated that, after the UMore Park Master Plan is created and adopted, a major Comprehensive Plan amendment will be conducted to re-designate the land to its appropriate land use category.”

In 2018, the City is completing a Comprehensive Plan amendment to change the land use on 474 acres in the northeast corner of the study area from Agricultural Research to Business Park. This change generally reflects the land use scenarios contemplated within the AUAR for Scenario 3. While the exact location of the Business Park land use is not in the same location as shown in the AUAR Study Area, the scenario analysis does contemplate Business Park uses and the 474 acres of Business Park conforms to the AUAR analysis.

The City is also in the process of completing its 2040 Comprehensive Plan that will guide land use in the UMore Study area to reflect the AUAR land uses.

Figure 8, Appendix A shows this transition of land use from the 2030 Comprehensive Plan to the 2040 Comprehensive Plan to reflect Scenario 3. These 2040 Comprehensive Plan land uses are in conformance with or are less intensive than Scenario 3 and therefore conform to the AUAR.

There have been no changes to land use in the Empire Township portion of the study area.

The August 2013 adopted AUAR is available for review on the City's web-site at <https://www.ci.rosemount.mn.us/DocumentCenter/View/845/AUAR---Final?bidId>. This report is intended to serve as an update of the AUAR, and includes a review of the areas that have and have not developed, an update to the environmental analysis as needed, and a review of the mitigation measures.

II. Approved Development/Current Conditions

No development has been approved within the study area since 2013. The gravel mining operation in the western portion of the study area has progressed. This work is outside of the AUAR and a separate, individual Environmental Impact Study (EIS) was completed for this work in 2010.

III. Areas Remaining to be Developed

No developed has occurred or has been approved since the 2013 AUAR was adopted. The full 4,900 acres remain to be developed between the City of Rosemount and Empire Township.

Timeline: The City of Rosemount and Empire Township anticipate development to occur over the next 25 to 35 years depending on market conditions. Development is expected to be phased from the north in Rosemount along County State Aid Highway (CSAH) 42 to the south extending into Empire Township. The timing of development in the western portion of the study area will be influenced by the timing of mineral extraction and restoration of the property to accommodate urban development.

IV. Update to the Environmental Review

Threatened and Endangered Species: The DNR Natural Heritage Database information was updated for this AUAR Update. Based on this update, in addition to what was included in the original AUAR, a few additional bird species were noted by the DNR, including Bell's Vireo, Purple Martin, and Lark Sparrow. The mitigation measures from the original AUAR are adequate to address this updated information. The information from the DNR is in **Appendix B**.

Historical and Cultural Resources: Updated data from the State Historic Preservation Office (SHPO) was requested. There are no new listings within the project area since the 2013 AUAR.

Hazardous Waste and Contamination: A review of the current Minnesota Pollution Control Agency (MPCA) What's in My Neighborhood Database was completed to identify sites with known, or suspected contamination within the study area. Additional or updates sites of potential environmental concern that were not identified in the in the 2013 AUAR, and pertinent updates to sites previously identified in the 2013 AUAR, are summarized below:

New Sites

- Empire MSW Processing & SSOM Compost Facility – Located on the eastern portion of the study area at 16545 Blaine Avenue, Rosemount, MN. The site is listed on the Permitted Solid Waste Facility and Minimal Quantity Hazardous Waste Generator databases. The status of the listings is reported as active as of May 18, 2017. No violations associated for the site were reported.

Updates to Existing Sites

- U of M Rosemount Research Center – Located on the southern portion of the study area. Annual hazardous waste generation reports were submitted for the site for the years 2014, 2015, 2016, and 2018. Also, recent Superfund activities include; a VIC – Phase II Work Plan Approval in 2014, a Technical Work Plan Review in 2015, and a Site Visit in 2015.
- UMore Park - Located on the western portion of the study area. Recent MPCA Brownfields activities include a VIC – Response Action Plan Approval, Technical Work Plan Review, and Technical Review of a Remedial Investigation Report in 2014, and Site Closure in 2015. Also, recent Superfund activities include multiple Technical Report Reviews in 2015, a Remedial Investigation Work Plan Review, Sampling and Analytical Project Plan Review, Quality Assurance Project Plan Review, Work Plan Review, Technical Review of Work Plan, and Public Meeting Conducted in 2016, and a Remedial Investigation Report Review in 2017.
- Gopher Ordnance Plant - Located on the central portion of the study area. Recent Superfund activities include; a Site Visit, MDH Health Evaluation, and issuance of a Commissioner Notice Letter in 2014, other Report Type Review in 2015, and a Responsible Party Search, Remedial Investigation Report Review, and completion of a EPA Preliminary Assessment in 2016.

Municipal Water and Sewer: The City completed the “East Side Utilities Study” in May 2016. The purpose of this study was to further refine recommendations for providing municipal utility service to the East Side of Rosemount, generally east of TH52. While this study was primarily outside of the UMore study area, it did include the very eastern portion of the UMore AUAR Study Area. No changes to the UMore AUAR are needed as a result of this study. This study is available upon request.

In a June 6, 2017 memo, the City evaluated possible utility extensions to the area south of CSAH 42 and west of Dakota County Technical College to serve a small portion of the UMore Study Area. Based on the review, water and sewer could be extended to the area and no lift stations would be required to serve this planned, small residential area until such time as more development occurred in the area. No development has occurred since this 2017 study and no changes in mitigation in the AUAR resulted from this study.

The City is currently evaluating the sanitary sewer extension from the north side of CSAH 42 along the west side of TH 52 to determine if a small portion of development in the northeast corner of the UMore development could be served without the use of a lift station. This study is ongoing. However, it is not anticipated to alter the mitigation items in the UMore AUAR, but rather investigate an interim developed condition prior to the larger area being developed.

Stormwater Management: Stormwater management regulations continue to change. Within the City of Rosemount, the City's stormwater management regulations apply. Within Empire Township, the Vermillion River Watershed Joint Powers Organization's (VRWJPO) regulations apply. The City and VRWJPO have adopted new rules in 2017. Mitigation measures have been revised based on these changes.

Transportation: Since the AUAR was completed in 2013, the interchange at TH52 and CSAH 42 was reconstructed. This item was listed in the mitigation items in the AUAR. No other changes to the traffic study are needed.

Parks and Trails: The 2013 AUAR included discussion of regional trails. Dakota County has approved a master plan for the Vermillion Highlands Greenway Regional Trail. This trail is proposed to travel through the study area. The planned Vermillion Highlands Greenway Trail will connect Lebanon Hills Regional Park in Eagan to Whitetail Woods Regional Park in Farmington. This regional trail is part of the Metropolitan Regional Parks System and is governed by the Council's 2040 Regional Parks Policy Plan. The City has continued to develop its trail network throughout the city. **Figure 9, Appendix A** shows the existing and proposed trail network.

V. Mitigation Summary and Update

The mitigation measures developed in the original AUAR are outlined below. If a mitigation measure has been revised, the changes are shown with underlined or stricken text.

1. Fish, Wildlife, and Ecologically Sensitive Resources

- A. Wetlands will need to be delineated in conformance with the Wetland Conservation Act as part of the development process. Depending on the location of the wetlands, either the City of Rosemount or Empire Township will review and verify the wetland delineation.

-
- B. Wetland impact is anticipated to be minimized to the maximum extent practical and feasible throughout the review area. If wetland impacts are proposed, wetland mitigation will be required of the project proposer pursuant to current wetland regulations and City or Township requirements.
 - C. The City of Rosemount and Empire Township will require buffers around wetlands at a width dependent upon the wetland's management classification, per their respective ordinances.
 - D. Stormwater management features should incorporate native plantings of grasses, trees, and shrubs.
 - E. A loggerhead shrike survey is recommended by the DNR as part of a development project if disturbance would be planned during the nesting season within suitable habitat areas (nesting season is generally April through July). The DNR will need to be contacted before any survey work is completed.
 - F. While ideally suited habitat for Blanding's turtles is not apparent within the study area, they have been noted near the study area and some habitat in the area could be marginally suitable. Development projects should take into consideration the use of oversized culverts, surmountable curbs, and revegetation with native species.
 - G. Development plans for the northeastern corner of the site will consider incorporating the oak woodland that has been identified on the County Biological Survey as open space to protect or enhance this habitat to the extent practical.
 - H. Development plans will consider incorporating the existing or remaining wildlife habitat areas within the Regionally Significant Ecological Areas (RSEA) and other areas within the site as open space to the extent practical. However, depending on environmental remediation that may be required, disturbance of these areas may be necessary.
 - I. Tree removal within the study area that occurs as part of development will need to meet the requirements of the City's or Township's Tree Preservation Ordinance.

2. Water Use Mitigation Plan

- A. Extend trunk water main services as shown in **Figures 13-3 through 13-5** of the original AUAR consistent with the Comprehensive Water Plan (CWP). For Scenario 1, an additional 16" trunk main may be extended from the intersection of Akron Avenue and CSAH 42 to approximately 2,600 feet east of the intersection of CSAH 42 and Blaine Avenue.

-
- B. 6-8 municipal wells are recommended as a result of this development, with up to 2 of the wells being in addition to what was planned as part of the CWP. For Scenario 1, one well may be located within the study area depending upon the trunk water mains extended to the development (see **Figure 13-3 – Alt. 2** in original AUAR). Well fields have been preliminarily allocated to the north and to the east of the study area close to the future water treatment plants, in accordance with the CWP.
 - C. 2,750,000 to 3,500,000 gallons of water system storage is recommended as a result of this development, with up to 700,000 gallons being in addition to what was planned as part of the City’s CWP. The storage should be constructed in a location to best serve the entire City and overall water system.
 - D. Any abandoned wells found within the study area will be sealed in accordance with Dakota County Ordinance No. 114, Well and Water Supply Management, and Minnesota Department of Health guidelines.
 - E. In accordance with the City’s Wellhead Protection Plan (WHPP), continue protection of the existing Drinking Water Supply Management Area (DWSMA) located in the study area as shown in **Figure 13-2** in the original AUAR. A DWSMA will be established for future wells as they are constructed and the WHPP is updated.
 - F. There exists potential for future interconnection of the proposed water system in the study area between the City of Rosemount and Empire Township. Additional water system assessments and agreements between the City of Rosemount and Empire Township may be required if further development interests beyond the presented material were to arise.
 - G. Industrial and Business Park land use water demands can be highly variable depending upon the business operation or manufacturing process employed at each property. At the time of the five year AUAR evaluation, water demands from individual properties in the Industrial and Business Park land use areas should be evaluated and estimated future demands revised if necessary.
 - H. Any new wells (supply, dewatering, monitoring, or other) shall be constructed in accordance with Dakota County Ordinance 114, Minnesota Statutes Chapter 103I and Minnesota Rules Chapter 4725.

3. Erosion and Sedimentation Mitigation Plan

- A. A Storm Water Pollution Prevention Plan (SWPPP) to the extent required by NPDES regulations will be needed for any development in the study area.

Review of the SWPPP for each development will be required by the City or the Township.

4. Water Quantity and Quality Mitigation Plan

- A. Each new development within the AUAR area will need to incorporate BMPs to meet applicable water quantity and water quality regulatory requirements. These policies are outlined in the local stormwater management requirements section. The soils within the AUAR area are primarily comprised of Hydrologic Soil Group A and B soils; therefore, it is likely that these policies will be met using infiltration.
- B. Infiltration to the Rosemount or Empire Township's standards will be provided on each development site or in a regional infiltration system that is created to serve a defined drainage area. The selection of a development-specific or regional system will be based on identifying feasible areas that take into consideration soils, drainage patterns, existing and past land use, and other factors. Areas where infiltration is not feasible or where contamination is possible will not be used for infiltration practices.

Based on the City's Wellhead Protection Plan, infiltration outside the Emergency Response Area (ERA) within the Drinking Water Supply Management Area (DWSMA) (1-10-year travel zone) shown on **Figure 10, Appendix A** can be allowed with the following restrictions:

- Require NURP ponding pretreatment prior to infiltration. Encourage developer to line NURP pond to reduce infiltration and retain a wet pool volume.
- If the infiltration practice is constructed in industrial, commercial, or transportation land uses, ensure that emergency procedures for containment of spills are established and acceptable.
- Infiltration is not recommended in areas that receive discharges from vehicle fueling and maintenance.
- Infiltration is not recommended in areas that receive discharges from industrial facilities that are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.
- Infiltration is not recommended in areas where soil infiltration rates are more than 8.3 inches per hour unless soils are amended to slow the infiltration rate below 8.3 inches per hour or as allowed by a local unit of government with a current MS4 permit. This can be accomplished by providing a biofiltration compost mix at the bottom of the infiltration basin or through the use of a spray on mulch.
- Utilize additional guidance from MDH and MPCA for infiltration activities within the DWSMA.

-
- C. To protect adjacent structures, an overflow from the Lake 2162 will be developed that would allow water to overflow either to the northeast toward pond 2246 or to the South toward the Vermillion River. This overflow could potentially occur if a rainfall event occurs that exceeds a 100-year 24-hour event, and/or water elevations reach extremely high levels. Based on this analysis and the installation of the proposed BMP'S, the volume of runoff generated within the AUAR area will be significantly reduced in the future, and the corresponding probability of this overflow occurring will be also reduced from that which exists today. Discharge rates to the north will be in accordance with the City of Rosemount Comprehensive Stormwater Management Plan. Discharges to the Vermillion River from the City of Rosemount will not exceed the intercommunity flowrate standards established by the most current version of Vermillion River Watershed Joint Powers Organization (VRWJPO) model or follow the procedures outlined in the VRWJPO rules.
- D. If any storm water in the study area within Empire Township is to be directed to the City of Rosemount, the Rosemount infiltration standard will be applied to the development.
- E. Design considerations for comprehensive stormwater management should include regional ponding.
- F. Approved TMDL load reductions and implementation plans shall be addressed by a development's stormwater management plan. These will need to be addressed per the schedule identified in the current version the MS4 permit. The proposed language states "For TMDLs approved prior to the effective date of the MS4 permit the Waste Load Allocation (WLA) discharge requirement will become a requirement of the permittee".
- G. In the City of Rosemount, post-development discharge rates will be limited to 0.05 cfs/acre of the 100-year, 24-hour event. For newly developing areas, no discharge or infiltration can be assumed for purposes of establishing the 100-year, 24-hour storm event high water elevation. Storage of the runoff from the 100-year, 24-hour storm event is required to be provided on-site or in a regional basin and an appropriately sized infiltration area is required capable of infiltrating captured runoff at a rate of 1/12 of an acre-foot/acre/day. For events with longer duration, a maximum peak stormwater discharge rate will be limited to 0.05cfs/acre.
- H. In Empire Township, development that creates one or more acres of new impervious surface must incorporate volume control practices into the design sufficient to prevent an increase in the runoff volume for the 2-year 24-hour storm above 2005 conditions unless waived in accordance with Runoff Volume

Control Criteria 6. It will be required that post-development discharge rates will not be greater than pre-development discharge rates for the 1-year and 10-year, 24-hour storm critical duration events to reduce erosion impacts downstream of the site.

- I. The developer will be responsible for grading the site appropriately to provide adequate stormwater management to the extent necessary and will be required to obtain the necessary permits for stormwater management and grading, to preserve the existing natural features, and to provide water quality protection to meet MPCA Construction General Permit requirements in addition to City of Rosemount, Empire Township, and VRWJPO requirements.
- J. Stormwater will be required to be pretreated to achieve NURP standards as outlined in the City of Rosemount Engineering Guidelines prior to discharge to wetlands and Lake 2162.
- K. A SWPPP required by the NPDES regulations will be needed for any development in the study area. Review of the SWPPP for each development will be required by the City and Township.

5. Wastewater Mitigation Plan

- A. **Figures 18-3, 18-4, and 18-5** in the original AUAR show conceptual layout of gravity sewers, lift stations and forcemains to serve the proposed study area under each scenario. All of the scenarios maintain an identical pipe layout network and can be identified by sewer district or Rosemount Interceptor connection points as defined in **Figure 18-2** in the original AUAR.
- B. The East sewer district consists primarily of gravity sewers, and two lift stations and forcemains that convey wastewater north to the Rosemount Interceptor along County Road (CR) 42. The south lift station capacity ranges from 700 gpm to 900 gpm and the north lift station capacity ranges from 1,700 gpm to 2,000 gpm in capacity, depending on the scenario. Sewers within the East sewer district range between 8" and 21" in diameter.
- C. The Central sewer district consists of primarily gravity sewers, and one lift station and forcemain that convey the wastewater north to the Rosemount Interceptor along CR 42. The lift station ranges in capacity from 1,600 gpm to 2,000 gpm depending on the scenario. Sewers within the Central sewer district range in size from 8" to 24" in diameter.
- D. The Northwest sewer district consists of all gravity sewers which flows to the north and discharges to the Rosemount Interceptor along CR 42. The gravity sewer ranges in size from 8" to 21" depending on the scenario.

-
- E. Similar to the Northwest sewer district, the Southwest sewer district consists of all gravity sewers. Wastewater flows to the west where it discharges to the Rosemount Interceptor along Biscayne Ave. The gravity sewers in the Southwest district range in size from 8” to 15” in diameter.

6. Geologic Hazards and Soil Conditions Mitigation Plan

- A. NPDES Phase II Construction Site permit will be required for development within the study area. This permit requires a site specific Storm Water Pollution Prevention Plan (SWPPP) to be completed for construction. This SWPPP is required to include pollution prevention management measures for solid waste and hazardous material spills that occur during construction.
- B. Development or construction work will require conformance with the City spill response plan. Spills will be reported to the Minnesota State Duty Officer and 911, along with applicable City staff. Those authorities will in turn notify any other appropriate officials depending on the nature of the incident.
- C. For all gas stations with underground tanks, annual licensing from the MPCA will be needed.
- D. The area of partially hydric soils in the northeast corner of the site will be considered is proposed to remain as a natural open space area.
- E. Should any other conditions be identified during site development activities that have the potential to materially impact either groundwater recharge or groundwater quality, investigations will be conducted and mitigation measures will be identified to address the impact consistent with applicable State and Federal requirements.
- F. Project contingency plans should be prepared and reviewed/approved by MPCA to address potential releases of hazardous substances identified during construction activities. These plans should include current Phase I evaluations prior to beginning construction activities to identify potential releases.
- G. The City requests project proposers prepare and submit to the MPCA Construction Contingency Plans (“CCPs”) to help identify and address any potential releases of hazardous substances that may be encountered during construction activities. Phase I Environmental Site Assessments should also be completed for the proposed project area and submitted to MPCA along with the CCPs.
- H. Any business or institutional uses that use or store petroleum or other hazardous products will be subject to local and state rules regulating such uses.

7. Transportation Mitigation Plan

- A. Evaluate and compare the traffic analysis prepared as part of the AUAR in coordination with the City of Rosemount, Empire Township and Dakota County with detailed roadway mitigation. Evaluations will occur with each large scale development plan submitted for approval, the City, Township and County Comprehensive Plan updates and/or with each five year AUAR review.
- B. Expansion of CSAH 42 from Biscayne Avenue to US 52 from 4 lanes to 6 lanes when warranted by traffic volumes.
- C. Construction of an interchange to replace the existing TH 3/CSAH 42 intersection. Interchange geometry will be proposed with future studies.
- D. ~~Reconstruction of the existing interchange at CSAH 42 and US 52 as a system interchange to accommodate higher turning movements. The City of Rosemount's and Dakota County's 2030 Comprehensive Plans have identified this interchange as potentially serving a rerouted alignment of TH 55 in the future. Interchange configuration and lane geometry will be determined in future studies. – This item has been completed.~~
- E. Addition of intersection control (signal, roundabout, etc.), documented in an Intersection Control Evaluation report, at locations that meet the required traffic warrants and intersection spacing guidelines in accordance with the City, County, and Township including the updated CSAH 42 Segment 15 recommendations adopted by the County Board.
- F. Provide right-of-way required for future roadway expansion adjacent to and within the UMore property.
- G. Design and construction of the internal roadway system within the UMore development providing adequate service to each zone of development with turn lanes and traffic control as needed for safe and efficient traffic flow.
- H. Preparation of a Travel Demand Management (TDM) plan for the site, or portions thereof, prior to the first large scale development proposal. This would include, but is not limited to, action items for: transit (both bus and rail), non-motorized, and new technologies.
- I. Preparation of an Access Management Plan for the affected arterial and collector roadways prior to the first development proposal.

8. Noise Mitigation Plan

- A. Site plans for future developments should include measures such as appropriate setback distances, earthen berms, noise walls, and appropriate site design (such

as outdoor activity areas being developed away from major noise sources). Each of these items should be considered on a case-by-case basis. The site plans developed for specific projects should show the proposed locations and types of mitigation, with the estimated noise reductions for all areas projected to exceed noise standards.

9. Nearby Resources Mitigation Plan

- A. Currently, UMore Park is not receiving federal funding or permitting. Should federal funding or permitting be required in the future, the project:
 - Must comply with Section 106 of the National Historic Preservation Act of 1966 (Section 106);
 - The lead federal agency will be required to initiate consultation with applicable Native American Tribes; and
 - Additional architectural surveys may be required.
- B. Erosion control measures will be required during construction to control the loss of Waukegan soils and other soil types susceptible to erosion. All disturbed areas will be required to be re-seeded and mulched as needed.
- C. As appropriate, site and building plans will reflect and enhance any significant views of natural features.
- D. Park dedication will be in conformance to the codes and requirements of the City of Rosemount and Empire Township.

10. Visual Impact Mitigation Plan

- A. Through the development review process, the City will require appropriate screening of development in the study area to control adverse visual impacts.

11. Compatibility with Land Use Regulations Mitigation Plan

- A. If the AUAR area develops as shown in Scenarios 1, 2 or 3, changes will be needed to the City of Rosemount's Comprehensive Plan, Empire Township's Comprehensive Plan, the Metropolitan Council's 2030 Regional Development Framework, and both the City's and Township's zoning ordinances through the respective amendment processes.

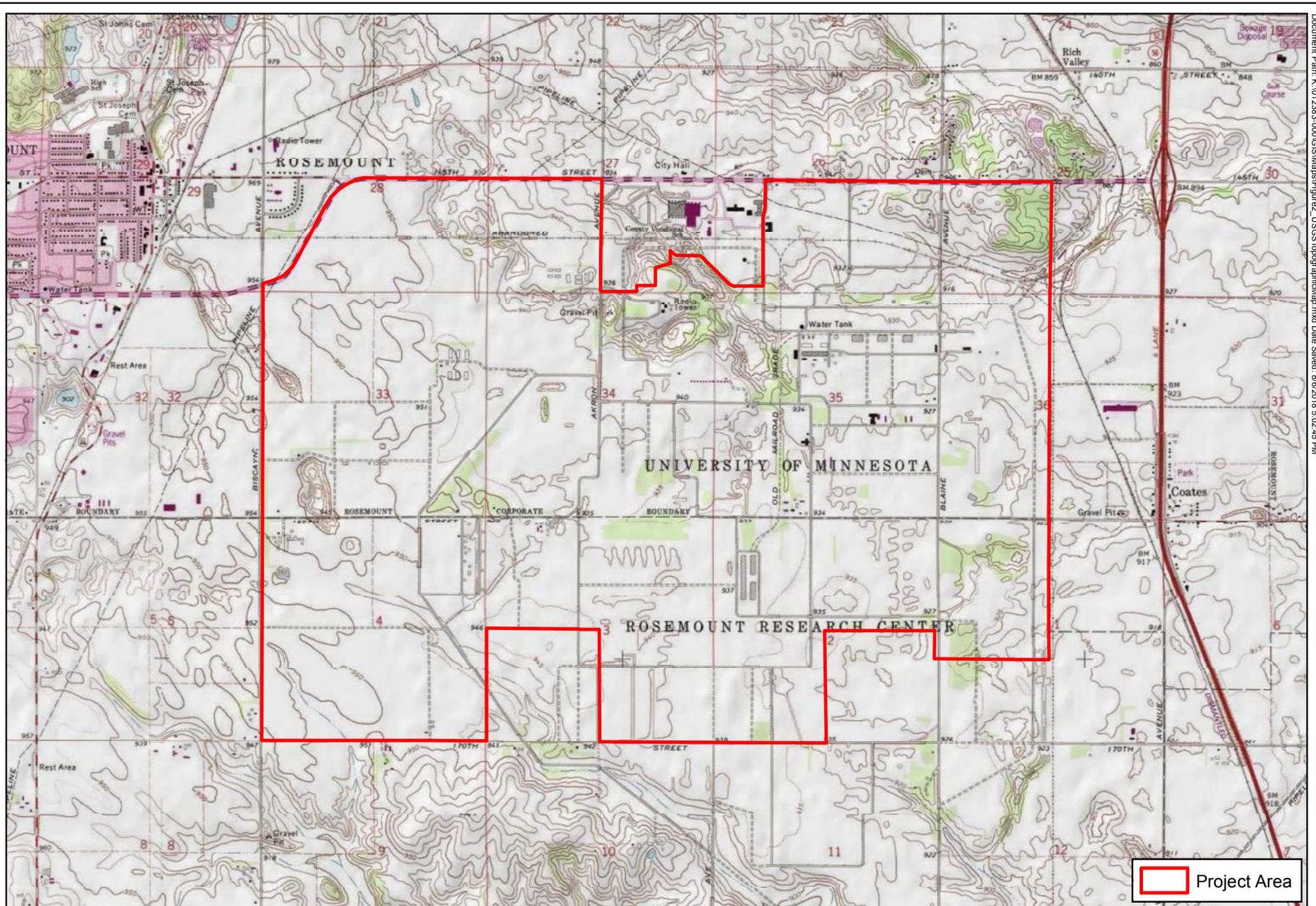
Update: The City has submitted a Comp Plan update to reflect revisions that are generally consistent with Scenario 3. The City is also updating its Comprehensive Plan. The 2040 Comprehensive Plan will reflect land uses analyzed in this AUAR.

- B. While no impacts to floodplain are anticipated, if impacts occur, mitigation in conformance with Empire Township regulations will required.

VI. AUAR Update Review

Pursuant to Minnesota Rules 4410.3610 Subp. 7, this AUAR Update has followed the appropriate review and comment process. Once the City Council adopts the AUAR Update, the AUAR will remain valid for an additional five years from the adoption date.

Appendix A - Figures



Document Path: K:\01\2015\000\GIS\MapInfo\figure_2\USGS_topographic\mapinfo_data\server\06/20/2016 9:12:28 PM



Figure 2 - USGS Topographic Map
 UMore Area AUAR Update
 City of Rosemount

N
 0 3,000 Feet
 1 inch = 3,000 feet
 WSB

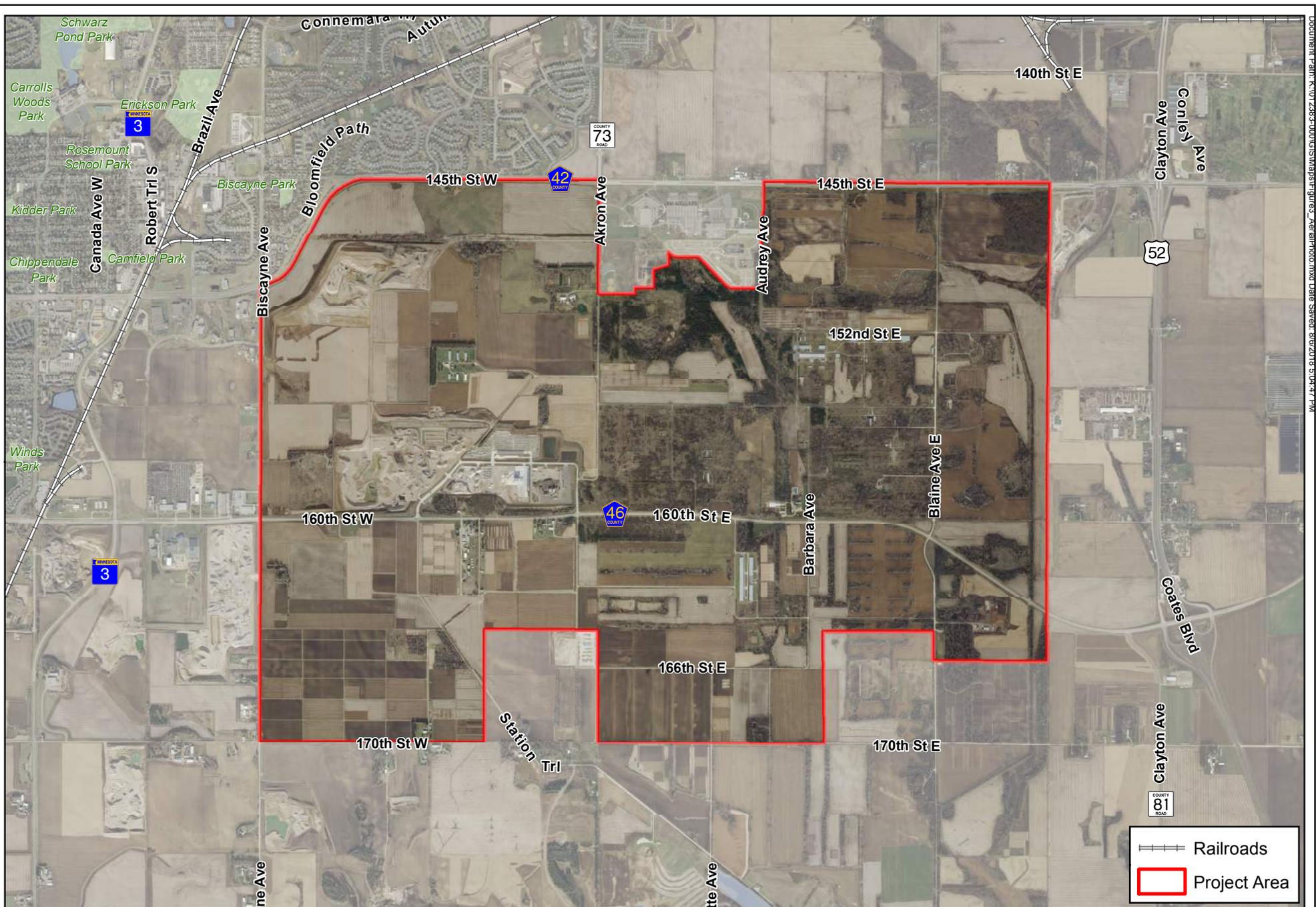
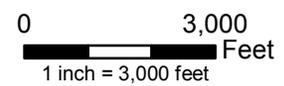
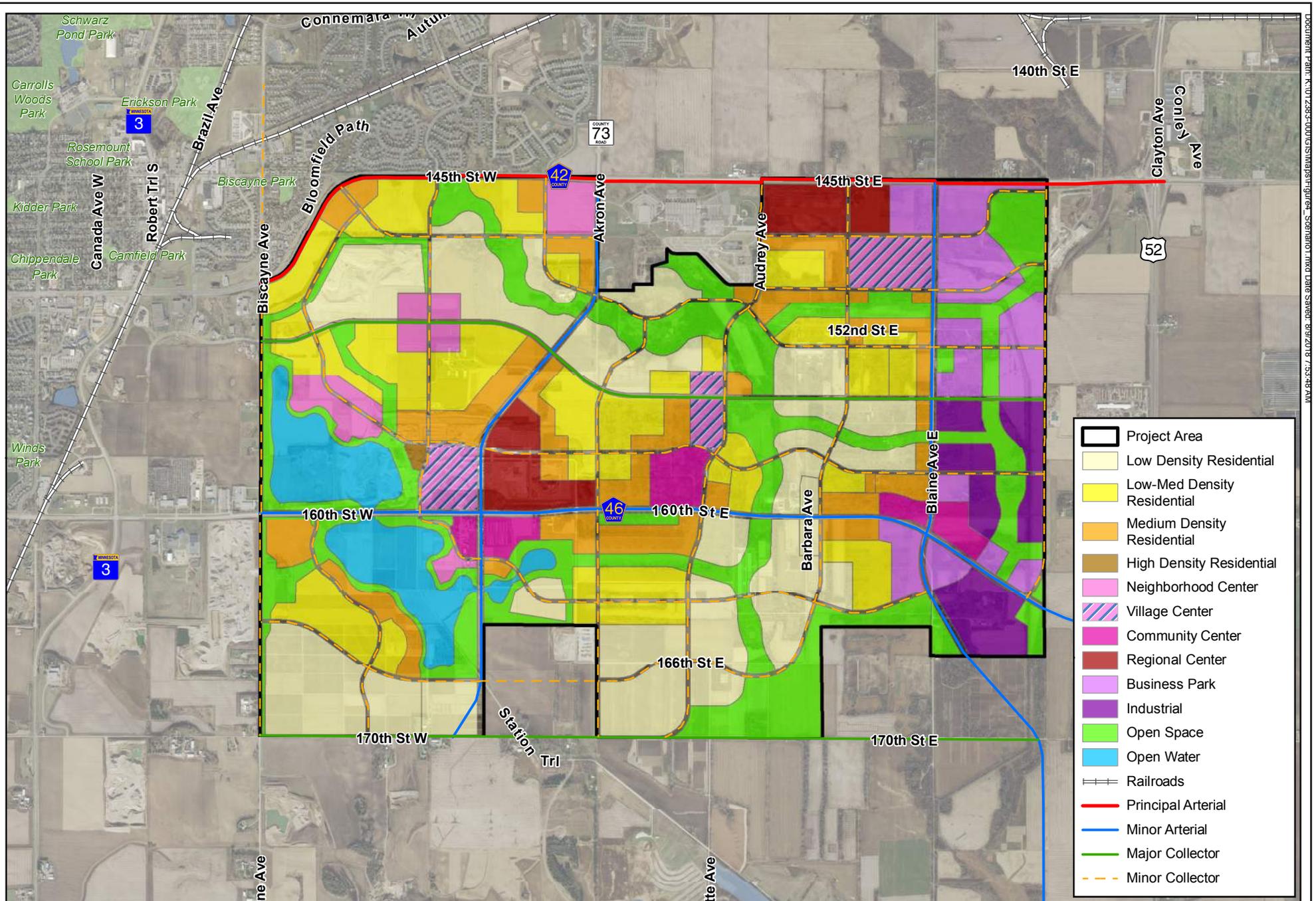


Figure 3 - Aerial Photo
UMore Area AUAR Update
City of Rosemount





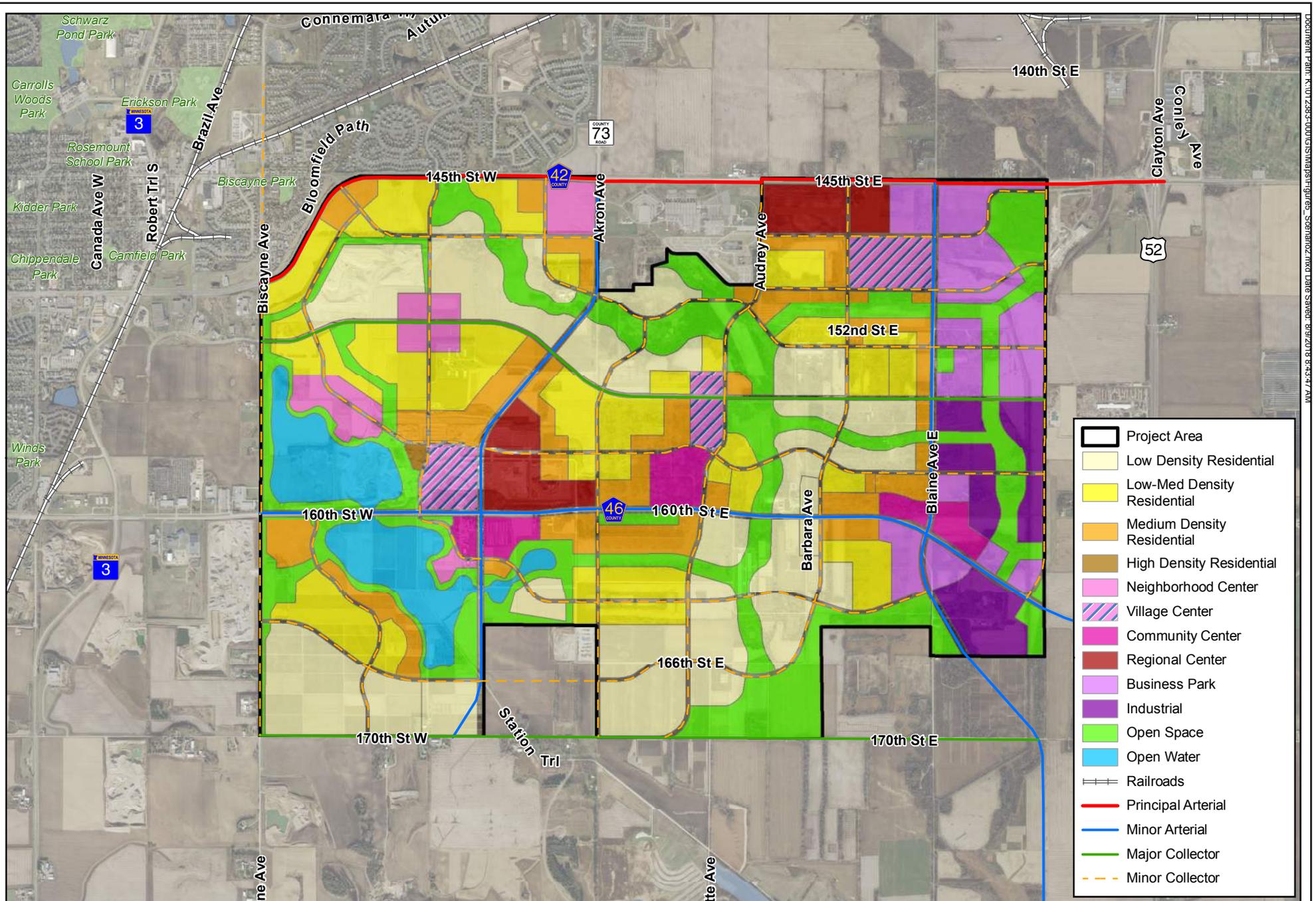
Document Path: K:\072303\00\GIS\MapServer\scenarios\1\MapServer\072015\072015_03248.AVI

Figure 4 - Scenario 1
UMore Area AUAR Update
City of Rosemount



0 3,000
Feet
1 inch = 3,000 feet





Document Path: K:\072303\00\GIS\MapServer\scenarios\Umore\Umore_Scenario2.mxd Date Saved: 8/20/15 8:43:47 AM

Figure 5 - Scenario 2
UMore Area AUAR Update
City of Rosemount



0 3,000
Feet
1 inch = 3,000 feet



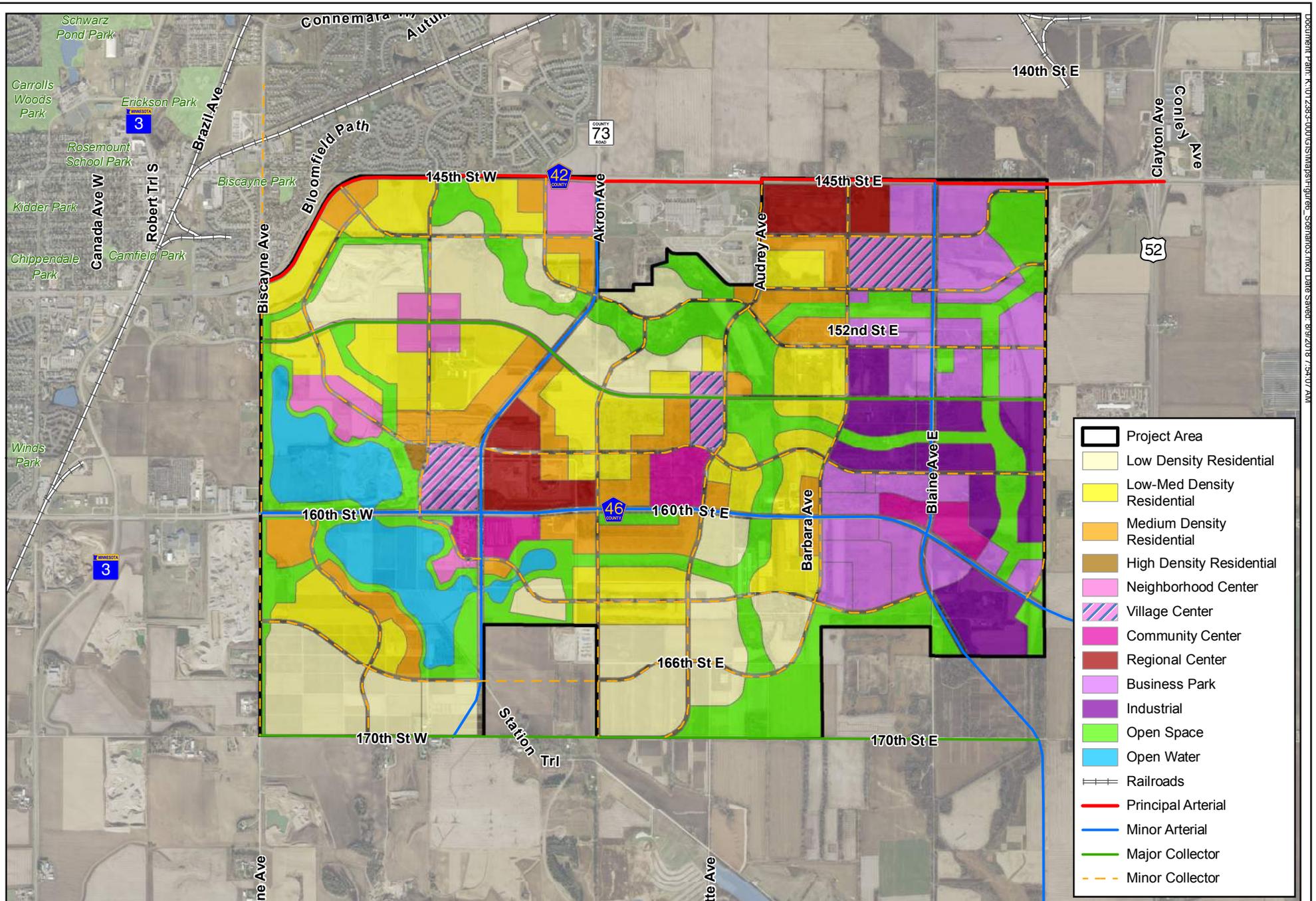


Figure 6 - Scenario 3
 UMore Area AUAR Update
 City of Rosemount

Document Path: K:\07-2005-000\GIS\MapServer\queries_spatial\3\TRK03.DWG SWARD_08/2010 7:54:07 AM

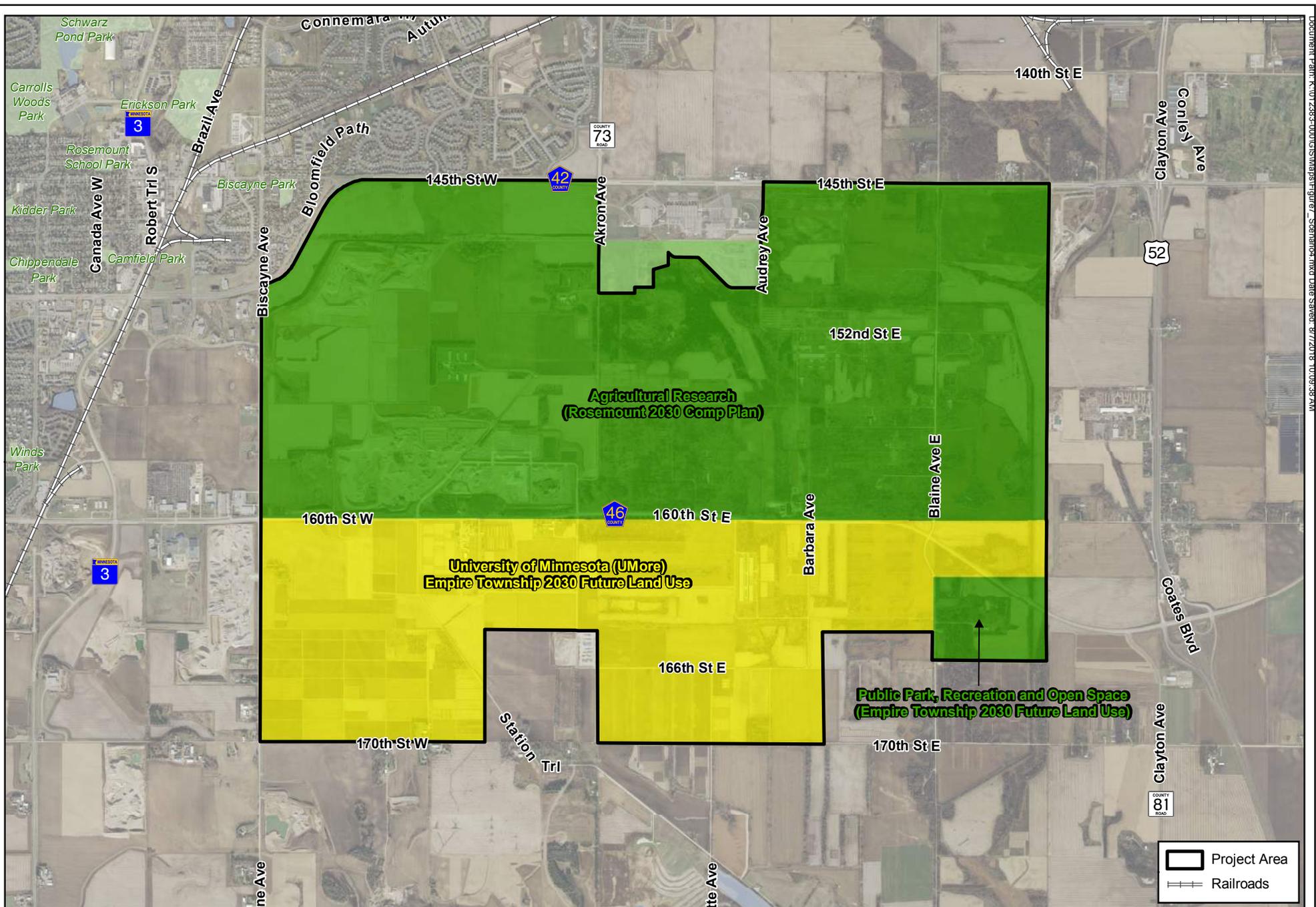
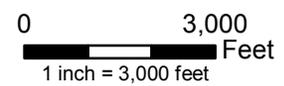


Figure 7 - Scenario 4
 UMore Area AUAR Update
 City of Rosemount



Document Path: K:\072303\00\GIS\MapServer\scenario_4\img_data\swater_072010\009357.mxd

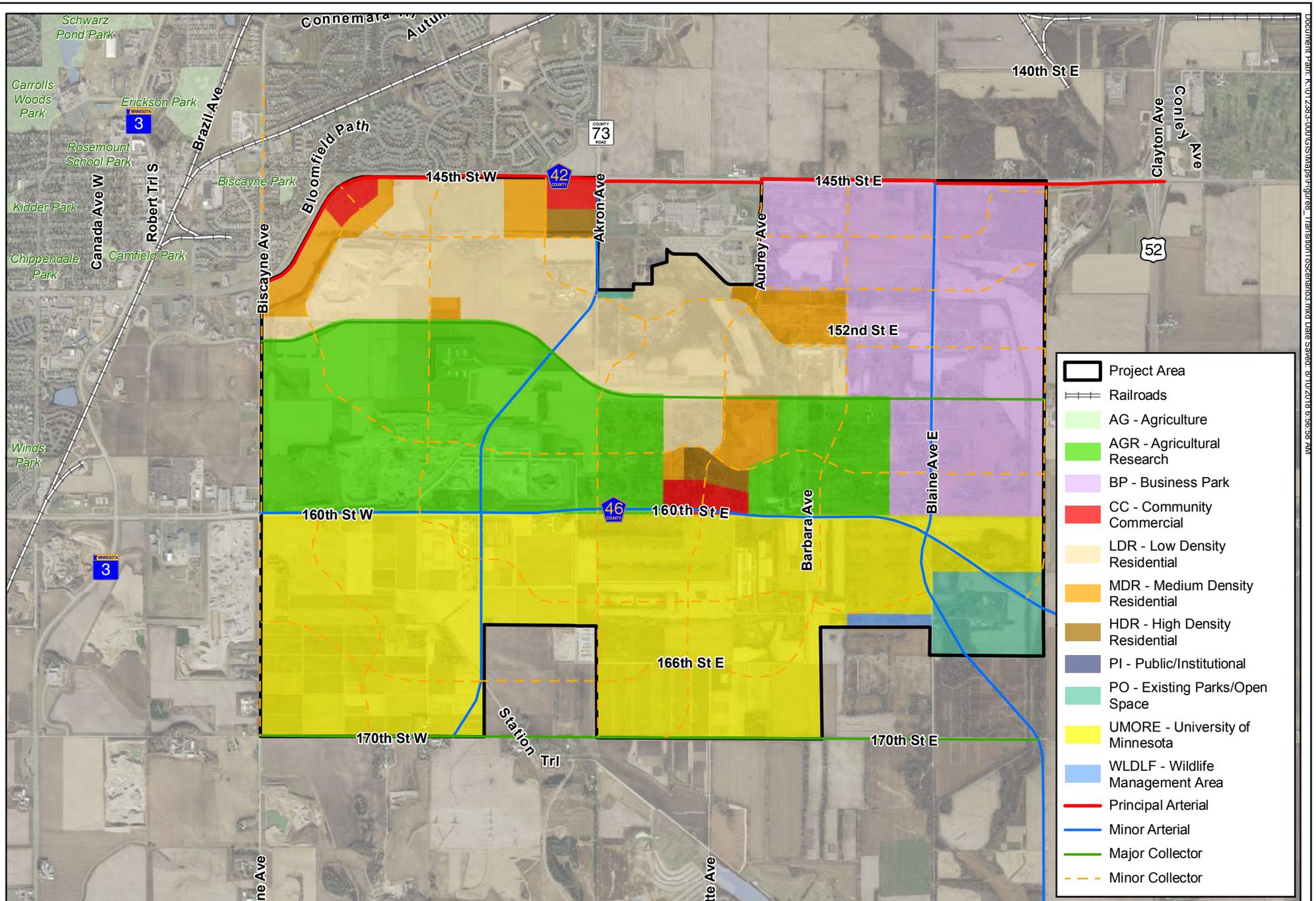
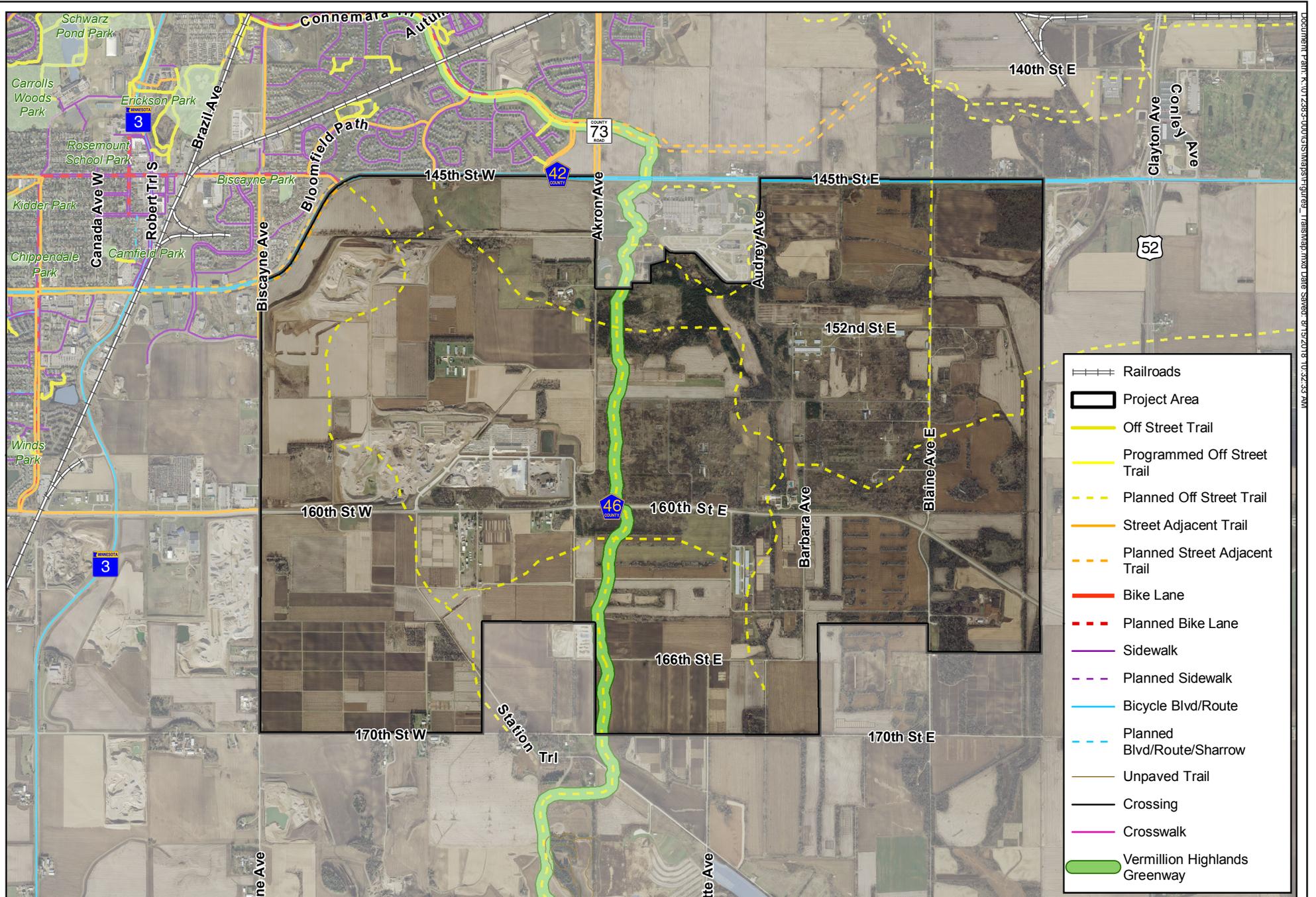


Figure 8 - Transition to Scenario 3
 UMore Area AUAR Update
 City of Rosemount

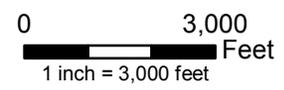
Document Path: K:\072303\00\GIS\MapServer\figure8_TransitionToScenario3.mxd Date Saved: 07/20/2016 09:38:38 AM



Document Path: K:\07-2023-000\GIS\MapServer\Training\1100 Date Saved: 9/19/2018 10:52:35 AM



Figure 9 - Trails Map
 UMore Area AUAR Update
 City of Rosemount



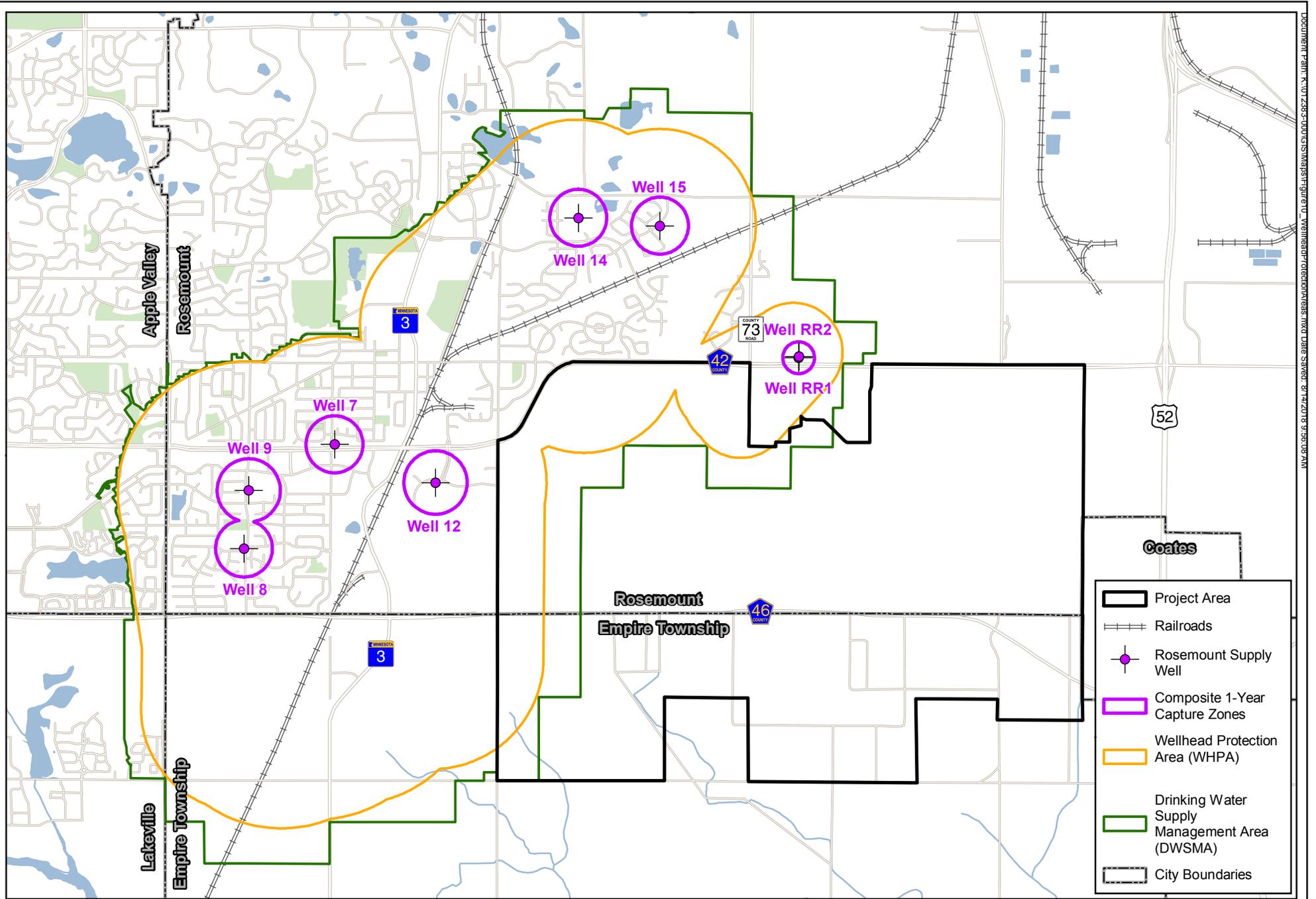


Figure 10 - Wellhead Protection Areas

UMore Area AUAR Update
City of Rosemount



0 4,000 Feet
1 inch = 4,000 feet



Document Path: K:\171242-000\GIS\MapServer\img_cache\rosemount\rosemount\fig10_wellhead\rosemount\fig10_wellhead.dwg

Appendix B - DNR Natural Heritage Database Review



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

August 31, 2018
Correspondence # ERDB 20120373-0007

Ms. Roxy Franta
WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416

RE: Natural Heritage Review of the proposed Umore AUAR Update,

County	Township (N)	Range (W)	Section(s)
Dakota	115	19	25-28,33-36
Dakota	114	19	1-4

Dear Ms. Franta,

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 (for details, please visit the [Rare Species Guide Website](#) for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following rare features may be adversely affected by the proposed project:

Ecologically Significant Areas

- The AUAR boundary contains a disturbed oak woodland in the T115N R19W Section 25. Although this woodland does not meet the minimum biodiversity threshold for statewide significance, it may have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, or as areas with high potential for restoration of native habitat.

State-listed Species

- The Loggerhead Shrike (*Lanius ludovicianus*), a state-listed endangered bird, has been documented numerous times, as recently as 2012, in the vicinity of the project site. Loggerhead Shrikes use grasslands that contain short grass and scattered perching sites such as hedgerows, shrubs, or small trees. They can be found in native prairie, pastures, shelterbelts, old fields or orchards, cemeteries, grassy roadsides, and farmyards. Shrikes frequently shift territories between years so it is not unusual for a particular nesting area to be vacant for several years before it is used again. Given the potential for this species to be found in

the vicinity of the project, avoid tree and shrub removal during the breeding season, typically April through July. **If any tree or shrub removal will occur during the breeding season, a survey for active nests will be required prior to construction.** I have attached information regarding surveying, including a list of surveyors. Contact Lisa Joyal at lisa.joyal@state.mn.us or 651-259-5901 before any survey work is initiated, as you will need to discuss potential surveyors, survey protocol, and other requirements. Please report any loggerhead shrike sightings to the DNR.

- Bell's Vireo, (*Vireo bellii*), Purple Martin (*Progne subis*), and Lark Sparrow (*Chondestes grammacus*), all state listed bird species of special concern, have been documented in the vicinity of the proposed project. Bell's Vireo nest in small trees or shrubs; Purple Martins nest in cavities or bird houses; and the Lark Sparrows typically nest on the ground. If feasible, avoid initial disturbance to grassland areas and tree/shrub removal from May 15th through August 15th to avoid disturbance of nesting birds.
- Blanding's turtles (*Emydoidea blandingii*), a state-listed threatened species, have been reported in the vicinity of the proposed project. Blanding's turtles use wetlands as well as upland areas up to and over a mile distant from wetlands. Uplands are used for nesting, basking, periods of dormancy, and traveling between wetlands. Factors believed to contribute to the decline of this species include collisions with vehicles, wetland drainage and degradation, and the development of upland habitat. Any added fatality 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.

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. **Please refer to the first list of recommendations for your project.** If greater protection for turtles is desired, the second list of additional recommendations can also be implemented. Any new curb should be Type D or Type S, as these are mountable curbs that also allow animals to exit the roadway should they attempt to cross the road. For specific recommendations pertaining to transportation projects, please refer to Curb Design and Small Animals, Preventing Entanglement, & Reducing Wildlife Vehicle Collisions in [Chapter One of the Minnesota Department of Transportation's Best Practices Manual](#). In addition, if erosion control mesh will be used, I recommend that the mesh be limited to wildlife-friendly materials (see enclosed fact sheet).

The attached flyer should be given to all contractors working in the area. If Blanding's turtles are encountered on site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they must be moved by hand out of harm's way, otherwise they are to be left undisturbed.

Environmental Review and Permitting

- The AUAR needs to address measures that will be implemented to avoid and minimize disturbance to Blanding's turtles and Loggerhead Shrikes.
- Please include a copy of this letter in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's 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 results of this Natural Heritage Review are valid for one year; the results are 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. If needed, please contact your DNR Regional Environmental Assessment Ecologist to determine whether there are other natural resource concerns associated with the proposed project. 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,



Samantha Bump
Natural Heritage Review Specialist
Samantha.Bump@state.mn.us

Enc. Blanding's Turtle Fact Sheet & Flyer
Wildlife Friendly Erosion Control
2018 Rare Species Survey Process

Links: Rare Species Guide
<http://www.dnr.state.mn.us/rsg/index.html>
DNR Regional Environmental Assessment Ecologist Contact Info
http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

Cc: Becky Horton
Leslie Parris

Preventing Entanglement by Erosion Control Blanket

Plastic mesh netting is a common component in erosion control blanket. It is utilized to hold loose fibrous materials in place (EG straw) until vegetation is established. Erosion control blanket is being utilized extensively and is effective for reducing soil erosion, benefitting both soil health and water quality. Unfortunately there is a negative aspect of the plastic mesh component: It is increasingly being documented that its interaction with reptiles and amphibians can be fatal (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Mowing machinery is also susceptible to damage due to the long lasting plastic mesh.

Potential Problems:

- Plastic netting remains a hazard long after other components have decomposed.
- Plastic mesh netting can result in entanglement and death of a variety of small animals. The most vulnerable group of animals are the reptiles and amphibians (snakes, frogs, toads, salamanders, turtles). Ducklings, small mammals, and fish have also been observed entangled in the netting.
- Road maintenance machinery can snag the plastic mesh and pull up long lengths into machinery, thus binding up machinery and causing damage and/or loss of time cleaning it out.

Suggested Alternatives:

- Do not use in known locations of reptiles or amphibians that are listed as Threatened or Endangered species.
- Limit use of blanket containing welded plastic mesh to areas away from where reptiles or amphibians are likely (near wetlands, lakes, watercourses, or rock outcrops) or habitat transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.)
- Select products with biodegradable netting (preferably made from natural fibers, though varieties of biodegradable polyesters also exist on the market). Biodegradable products will degrade under a variety of moisture and light conditions.
- DO NOT use products that require UV-light to degrade (also called “photodegradable”) as they do not degrade properly when shaded by vegetation.

Solution: Most categories of erosion control blanket and sediment control logs are available in natural net options.

- Specify ‘Natural Netting’ for rolled erosion control products, per MnDOT Spec 3885. See Table 3885-1.
- Specify ‘Natural Netting’ for sediment control logs, per MnDOT Spec 3897



The plastic mesh component of erosion control blanket becomes a net for entrapment.

Literature Referenced

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

Endangered, Threatened, and Special Concern Species of Minnesota

Blanding's Turtle
(Emydoidea blandingii)

Minnesota Status: Threatened
Federal Status: none

State Rank¹: S2
Global Rank¹: 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 <u>critical</u> 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 1 st and before June 1 st).	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

- ¹Association 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.

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 (218-308-2641); 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).