PC Members: Brad Smith, Nicole Kruckman, Thomas Humphrey, Melissa Hanson, Todd Priebe and Harry Anderson
City Staff: Community Development Specialist Renee Christianson, Planner I Haley Sevening and City Engineer Rich Revering

AGENDA

TUESDAY, NOVEMBER 26, 2019 @ 7:00 PM
COUNCIL CHAMBERS – NEW MARKET AREA HALL
601 MAIN STREET, PO BOX 99, ELKO NEW MARKET, MN 55020

1. **CALL TO ORDER**

2. **PLEDGE OF ALLEGIANCE**

3. **APPROVAL OF AGENDA**
   Consider Approval of the Agenda

4. **PUBLIC COMMENT** (public opportunity to comment on items not listed on the agenda)

5. **ANNOUNCEMENTS**
   A. None

6. **APPROVAL OF MINUTES**
   Consider Approval of the following:
   A. October 29, 2019 Minutes

7. **PUBLIC HEARINGS**
   A. None

8. **GENERAL BUSINESS**
   A. Adelmann Property – Review of Draft AUAR
   B. 2040 Comprehensive Land Use Plan – Review of Draft

9. **MISCELLANEOUS**
   A. Community Development Updates & Reports
   B. Planning Commission Questions & Comments

10. **ADJOURNMENT**

BOARD NOTICE:
TO DETERMINE IF A QUORUM WILL BE PRESENT, PLEASE CONTACT ELKO NEW MARKET AREA HALL AT 952-461-2777 IF YOU ARE UNABLE TO ATTEND

PUBLIC NOTICE:
ANYONE SPEAKING TO THE BOARD SHALL STATE THEIR NAME AND ADDRESS FOR THE RECORD

MINUTES
CITY OF ELKO NEW MARKET
PLANNING COMMISSION MEETING
OCTOBER 29, 2019
7:00 PM

1. CALL TO ORDER

Vice-Chairman Humphrey called the meeting of the Elko New Market Planning Commission to order at 7:00 p.m.

Commission members present:	Humphrey, Kruckman, Hanson and Priebe
Members absent and excused:	Smith, and Ex-officio member Anderson
Staff Present:	Community Development Specialist Christianson, Planner Sevening, City Engineer Revering

2. PLEDGE OF ALLEGIANCE

Vice-Chairman Humphrey led the Planning Commission in the Pledge of Allegiance.

3. APPROVAL OF AGENDA

A motion was made by Hansen, seconded by Kruckman to approve the agenda as submitted. Motion carried: (4-0).

4. PUBLIC COMMENT

There was no public comment.

5. ANNOUNCEMENTS

There were no announcements.

6. APPROVAL OF MINUTES

A. It was moved by Priebe and seconded by Hansen to approve the minutes of the October 29, 2019 meeting as submitted. Commissioner Kruckman questioned portions of the minutes related to discussions regarding recreational vehicle storage, specifically related to the possibility of establishing a setback for a recreational vehicle to the curb of a street. Following discussion on the matter, a vote was taken and the motion passed: (4-0).

7. PUBLIC HEARINGS

A. Request for PUD Amendment for Pete's Hill, Elko 34, LLC, applicant

Christianson reviewed the recently approved residential development of Pete's Hill, which was approved by way of Planned Unit Development (PUD) zoning. The approved PUD ordinance, which was approved on August 22nd, outlined the deviations which were allowed from the City Code as part of the development approval. The developer has now requested an amendment to the PUD to allow surmountable curbing within the townhome portion of the development. She explained that the City Code requires B618 / insurmountable curbing on all City streets. She showed examples of both curbing types using engineering detail plates and photographs. Christianson displayed a drawing of the development that showed the areas adjacent to the townhomes where surmountable curbing is being supported by City staff.

Christianson advised the Planning Commission that the topic of surmountable versus insurmountable curbing was discussed with the Planning Commission in 2017 and the decision was made at that time to leave the existing City regulations, which required insurmountable curbing, in place.

Christianson explained that the portion of the subdivision where surmountable curb is being requested has narrow lots, approximately 50' in width. She stated that the City Engineer and Public Works Director have no opposition to the surmountable curbing in the requested area of the subdivision based on the narrow width of the lots.

Vice-Chairman Humphrey questioned why this request was not included in the original development proposal. Christianson stated that the developer indicated that he has never worked in a community that requires insurmountable curbing so he did not consider that the City might require it. She also stated that the City's engineering specification manual did not contain a detail plate for insurmountable curbing but did contain a detail plate for surmountable curbing, which was a cause for confusion by the developer's engineer.

Developer John Wichmann addressed the Planning Commission and indicated that they would prefer the surmountable curbing in the entire development but he felt a good compromise was to allow it in the townhome portion of the development that had narrow lots.

Vice-Chairman Humphrey opened the public hearing at 7:15 p.m. and with no public comments, he closed the public hearing at 7:15 p.m. It was then moved by Hansen, seconded by Priebe to recommend approval of the request to allow surmountable curbing adjacent to only the following lots:

- Lots 15 – 30, Block 1, Pete's Hill
- Lots 1 – 3, Block 2, Pete's Hill
- Lots 1 – 4, Block 3, Pete's Hill

And noting that all remaining portions of the development, other than adjacent to the aforementioned lots, shall be constructed using B618 insurmountable curbing as required by City Code, noting the recommendation for approval being for the following reasons:

1. The style of homes to be constructed on the lots, and the corresponding locations of driveways, has not yet been determined.
2. The lots in the townhome portion of the development are narrower than a typical single-family lot.

Motion carried (4-0).

8. GENERAL BUSINESS

A. Consider Zoning Ordinance Amendments – Garbage/Refuse and Recreational Vehicle Parking

Planner Sevening presented the agenda item, which was a continuation from the September Planning Commission meeting. She introduced the topic noting that a citywide inventory had been conducted in August regarding the storage of garbage cans and recreational vehicles on residential lots in the City. She noted that 44% of the properties in the City had violations related to storage of garbage cans, and 16% of the properties in the City had violations related to the storage of recreational vehicles. She stated that staff had decided at that time not to enforce the ordinances as currently written because there were more than 900 homes in violation of these Codes. Alternatively, staff inquired with the City Council regarding the matter to determine if they wanted staff to enforce the ordinances as written, or if they wanted to consider an amendment to the ordinance. The City Council requested that the Planning Commission review the City Code related to these two items. At the September Planning Commission meeting there was discussion on the matter which resulted in the Planning Commission directing staff to draft a zoning ordinance amendment.

Sevening reviewed current ordinance language regarding storage of garbage containers and recreational vehicle parking. She then reviewed the proposed amendments as follows:

<u>Section 11-4-1 - Storage of garbage and refuse containers:</u>

- Distinguishes commercial, industrial, and multi-family residential properties from single family residential properties
- Replaces wood with maintenance free material as an acceptable screening material (for commercial, industrial, and multi-family residential properties)
- Single family residential properties can store garbage cans in side yard adjacent to garage, do not need to be screened from view
- Dumpsters or refuse containers used for construction purposes are exempt from location and screening requirements

<u>Section 11-8-2 - Recreational Vehicle Parking:</u>

- Adds ATVs, dirt bikes, dune buggies, go-karts, golf carts, ice houses, jet skis, snowmobiles, and UTVs as recreational vehicles
- Exempts non-motorized watercrafts from section and regulates them as exterior storage (canoes, kayaks, paddleboards)
- Identifies three seasonal classifications (warm weather season, cold weather season, or year-round) for recreational vehicles

DRAFT

    - Permits up to 2 recreational vehicles to be parked in the driveway during periods of seasonal use
- Requires that all recreational vehicles be emptied of refuse, debris, junk, or other materials
- Limits recreational vehicles to 30 feet in length
- Prohibits recreational vehicles from extending into or obstructing the public sidewalk or public right-of-way
- Allows only one recreational vehicle exceeding 24 feet to be parked on residential property
- Removes the screening requirement for recreational vehicles
- Permits recreational vehicles to be parked in the rear or side yard on a surface of concrete, bitumen, or pavers entirely outside of the drainage and utility easement with a five (5) foot setback from property lines
- Includes exception for properties with existing gravel side parking areas
- Note: Staff completed an inventory for residential properties with gravel side parking areas and found that 51 properties currently have them.
- Enumerates recreational vehicles parked on a trailer as 1 recreational vehicle
- Removes nonconforming location permit

Regarding recreational vehicle parking, feedback and discussion was as follows:

- Commissioner Priebe asked is the tongue of a trailer would be included in the maximum allowable (30') length, or if the length requirement would apply only to the recreational vehicle (such as a boat) and not the trailer.
- Vice-Chairman Humphrey stated that any portion of the trailer should not extend into the public right-of-way.
- Commissioner Kruckman stated that she felt the tongue of trailer should be allowed within the right-of-way because a person can see over the trailer tongue and it would not obstruct a person's view.
- There was much discussion by the Planning Commission about whether there should just be a minimum setback requirement from the curb within the entire City. City staff noted that the right-of-way width on streets within the City varies greatly; there is not uniformity in boulevard widths.
- Christianson stated that the City Attorney would need to render an opinion about allowing parking of recreational vehicles, and specifically the tongue of a trailer, within the City right-of-way/boulevards. The Planning Commission requested a legal opinion on the matter.
- Humphrey expressed his desire to have an easily understood ordinance and an enforceable ordinance.
- Sevening stated that she had completed an inventory of all properties in the City which currently have gravel side parking areas alongside their garages. These would be considered grandfathered under the draft ordinance which requires a paved or concrete surface.

Regarding the storage of garbage cans, feedback and discussion was as follows:

- Kruckman expressed concern about people having to move landscaping along sides of homes to accommodate garbage can storage.
- Priebe expressed concern about people having to do extra snow removal to place garbage cans on the side of the home.
- Priebe stated that it was not a good use of City staff time to enforce codes related to storage of garbage cans.
- Kruckman stated that she felt the City Code should regulate overflowing garbage cans but not the placement/location of garbage can storage. Christianson stated this topic (overflowing garbage cans) is currently regulated under another section of the City Code.
- Christianson reviewed the statistics regarding storage of garbage cans, stating that of the 44% who were currently not complying with City Code, approximately 50% of those already had garbage cans stored on the side of the home. Therefore, approximately 22% of the homes in the City would not be complying with the proposed draft ordinance.
- Kruckman asked what the concern was about the storage garbage cans. Christianson stated that the concern was the visual impact on the neighborhood.
- Sevening stated that City staff has received complaints regarding where people store their garbage cans, which is what prompted the discussion on the topic.
- Hansen stated that she feels the current draft ordinance is a compromise between the current ordinance, which does not allow garbage cans to be stored outside, and not regulating their placement.
- Kruckman wants to concentrate on regulating overflowing trash and not garbage can placement.
- Hansen and Humphrey stated that they support the draft ordinance as presented, which allow outside storage of garbage cans on the side of the garage but not in the front yard.
- Kruckman and Priebe stated that they do not believe that the placement of garbage cans should be regulated by the City.
- Sevening reviewed Sections 5-1-5 and 11-4-3-A of the City Code that currently state garbage must be contained within enclosed containers.

Sevening explained that a public hearing is required for the proposed zoning ordinance amendments. She also explained how the City might advertise any proposed and/or adopted amendments to the ordinance such as Facebook posts, etc.

Christianson advised the Commission that City staff needed to advance two large projects being worked on so this ordinance amendment item may not be scheduled for discussion on the next Planning Commission meeting. Vice-Chairman Humphrey suggested that the most important projects be advanced as a priority, and that these possible ordinance amendments be processed before the spring of 2020. Staff indicated that they had enough information and feedback from the Commission to schedule a public hearing in the future.

9. MISCELLANEOUS

A. Community Development Updates

Christianson noted that a report containing Community Development updates was included in the Planning Commission Packet. Specifically reviewed was the status of the Christmas Pines, Boulder Heights, Dakota Acres 1st and 2nd Additions, Elko New Market Commerce Center, and the Degross property.

B. Planning Commission Questions and Comments

Commissioner Hansen suggested that the packets be digital and not printed. Christianson noted that a laptop would be needed at the Planning Commission meeting if they wanted only a digital copy of the packet. Humphrey requested a digital packet only. Priebe requested a printed packet.

10. ADJOURNMENT

The meeting was adjourned at 8:16 p.m. by order of the Vice-Chair.

Submitted by:

Renee L. Christianson

Renee Christianson
Community Development Specialist

DRAFT

601 Main Street
Elko New Market, MN 55054
phone: 952-461-2777 fax: 952-461-2782

MEMORANDUM

TO: PLANNING COMMISSION
CC JIM CONNELLY, APPRO DEVELOPMENT
FROM: RENEE CHRISTIANSON, COMMUNITY DEVELOPMENT SPECIALIST
REQUEST: REVIEW OF CONCEPT PLANS FOR ADELMANN PROPERTIES
DATE: NOVEMBER 26, 2019

Background / History

The Adelmann family owns several properties on the west side of the I-35 / CR 2 interchange, as depicted on the attached drawing. The area on the north side of Co Rd 2 contains approximately 191.71 acres and the area on the south side contains approximately 50.92 acres (source: Scott County GIS). The properties are currently guided by the City's 2030 Comprehensive Plan to primarily commercial and some residential (see attached map). The draft 2040 Comprehensive Plan has a portion of the property re-guided to land uses that allow limited industrial uses in some areas.

In the spring of 2017 the City of Elko New Market was the conduit for grant funding from the Scott County CDA which provided funding to the Adelmann family for preparation of concept development plans for the property. The Adelmanns engaged Appro Development from Lakeville to assist them with oversight of the project. The Adelmanns and Appro worked with City staff and the Planning Commission to develop an overall concept plan for the property (attached). The concept development plan (and associated marketing materials) were finalized and accepted by the City Council on September 27, 2018. It is important to remember that the concept development plans are fairly high level and do not depict lot lines, lot sizes, setbacks, etc. so the City's ability to review the plans was limited. What was agreed upon was future land uses within the study area and an overall general project layout.

Following completion of the concept development plans and marketing materials in the fall of 2018, the City was the conduit for grant funding from the Scott County CDA which is providing funding to the Adelmann family for preparation of an Alternative Urban Areawide Review (AUAR). An AUAR is a planning tool that local governments use to understand how development scenarios will affect the environment of the community before and after a development occurs. The process is designed to look at the cumulative impacts of anticipated development within a given geographic area. Information from an AUAR can be used to inform local planning and zoning decisions.

The purpose of this agenda item is for staff to review with the Planning Commission the overall findings outlined in the draft AUAR, and so the Commission can express any comments or concerns before the item is forwarded to the City Council for review. The AUAR is not being printed as part of the Planning Commission packet because it exceeds 700 pages. A digital copy of the current draft AUAR can be found in the digital Planning Commission packet on the City's website.

Staff Comments/Recommendation:
Staff will provide a presentation at the Planning Commission meeting, outlining findings contained within the draft AUAR.

Adelmann Property - History
In 2007 the City and Adelmann's entered into a Memorandum of Understanding (MOU) regarding future development of their property located north of CSAH 2. The MOU outlined tasks that needed to be completed before the development of the property could occur, including:

- ✓ Extension of the Metropolitan Council Sanitary Sewer Interceptor
- ✓ Development of a concept plan for the property for review by the City
- ✓ An Orderly Annexation Agreement between the City and the Town
- ✓ Completion of an Interchange Design Study by County and City
- ✓ Update of the City's 2030 Comprehensive Plan
- Completion of an AUAR (environmental study) by the Adelmann's
- ✓ City and Adelmann's entering into a Pre-development Agreement prior to Annexation
- Annexation
- Adelmann's placing escrow funds with the City for City costs

In 2012 the City and Township entered into an Orderly Annexation Agreement (OAA) which outlined terms and conditions for annexation of the property located north of CSAH 2. The agreement outlines that the property can be annexed by the City by adoption of a resolution, upon the following:

- Property owner application for annexation
- Execution of a pre-development agreement by the City and the property owner, and
- The City determining that the proposal does not constitute a premature subdivision

Since the times of the above agreements (MOU & OAA) a number of items have occurred in preparation of development of the property, including:

- Extension of the Metropolitan Council Sanitary Sewer Interceptor (2010)
- Completion the City's 2030 Comprehensive Plan (2010)
- Study of the future interchange design (2010 and 2016)
- Agreement by government agencies of future interchange design (2016)
- Preliminary geotechnical exploration (2017)
- Preparation of concept development plans and marketing materials (2018)
- Preparation of, and concurrence with, a Wetland Delineation Report for the property (2018)
- Preparation of a Traffic Impact Study (2018)
- Preparation of a Phase I Environmental Site Assessment (2018)

Attachments:
Location Map
2030 Land Use Designations
DRAFT 2040 Land Use Map
Overall Site Plan
Northern Site Plan
Southern Site Plan

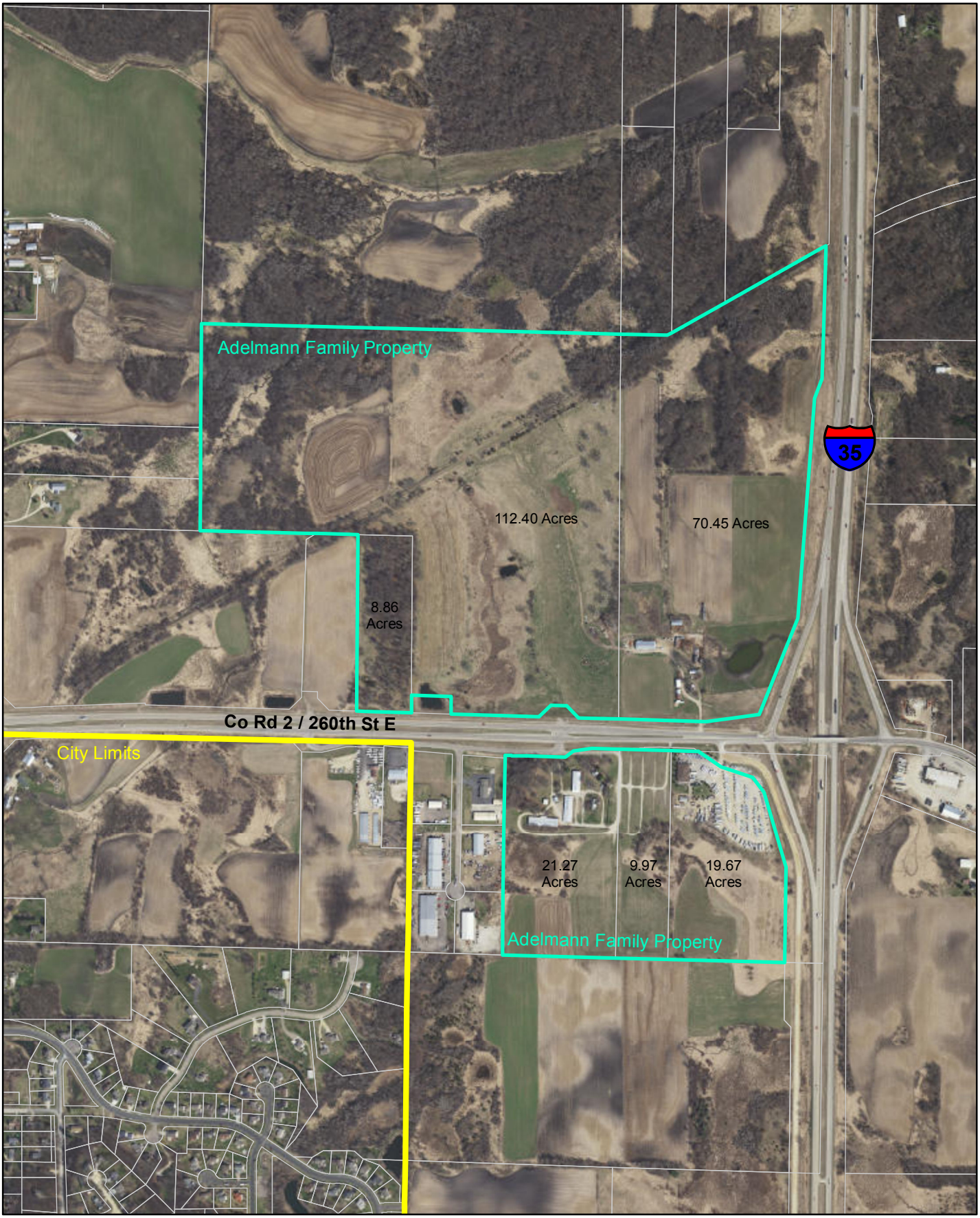
North property, view looking northwest

North property, view looking northeast

South property, view looking southeast

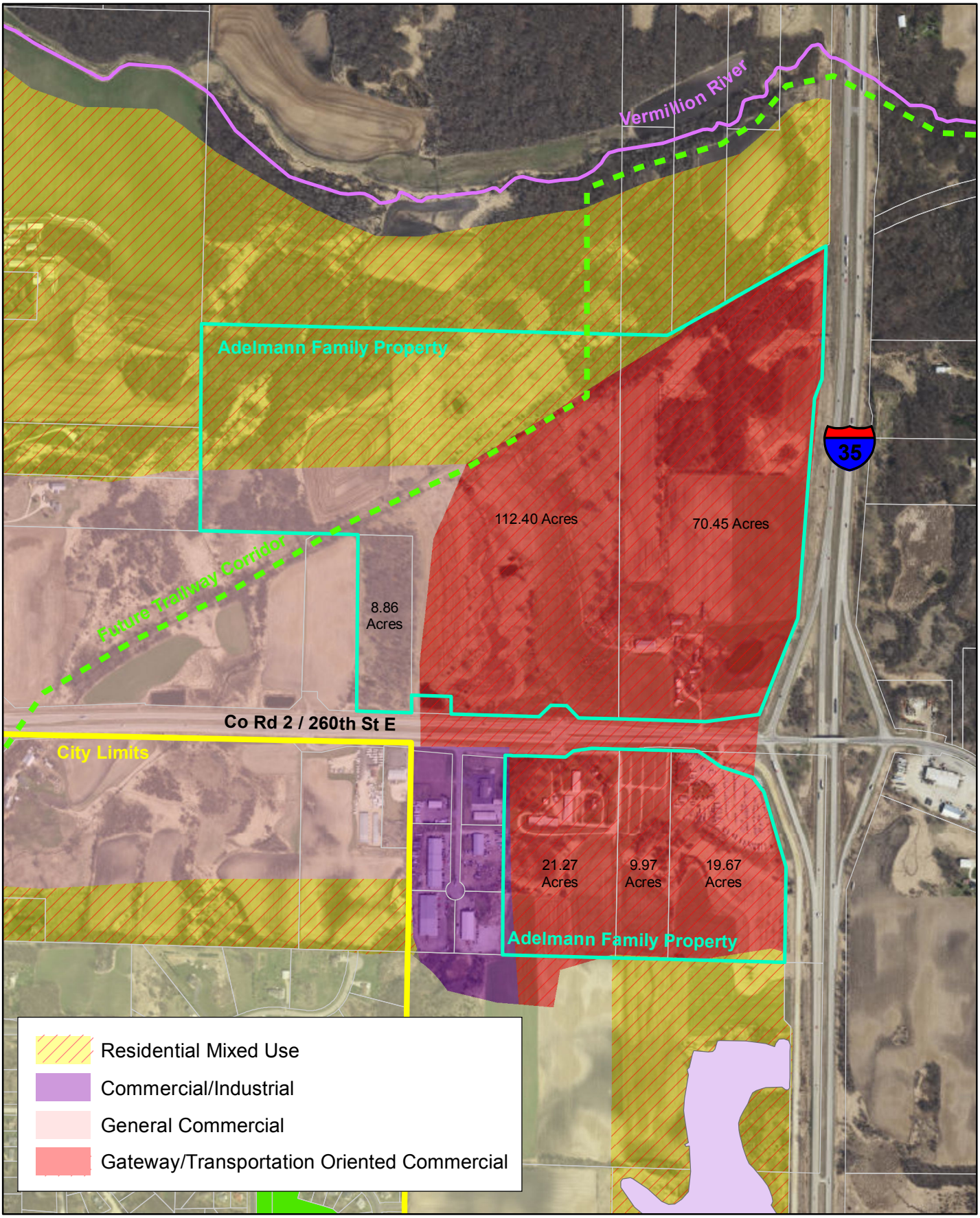
South property, view looking southeast

Adelmann Family Properties



0 250 500 1,000 1,500 2,000
Feet

Adelmann Family Properties
2030 Comp Plan Designations



0 250 500 1,000 1,500 2,000 Feet

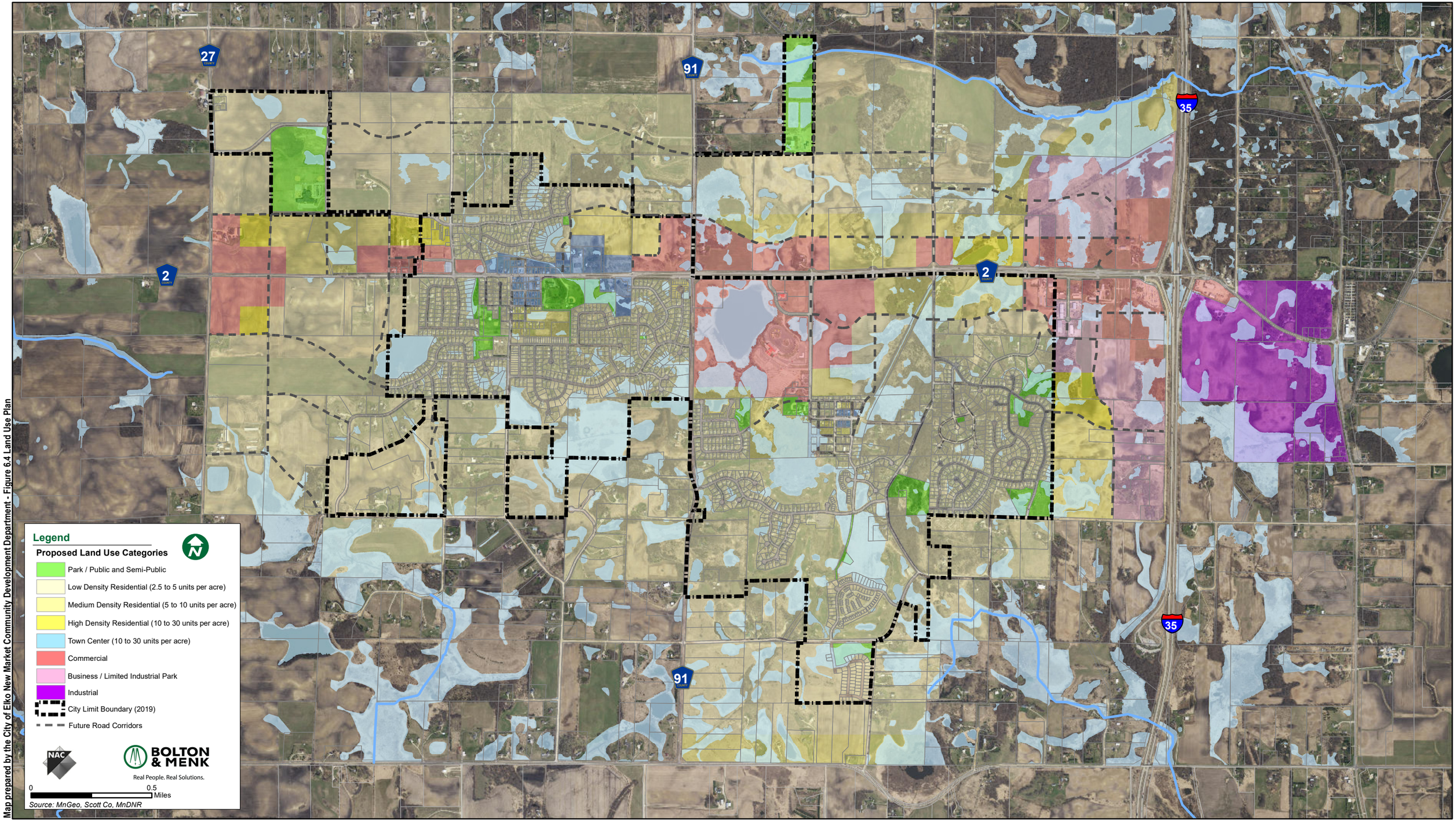
DRAFT

2040 Comprehensive Plan

Elko New Market, MN

2040 Land Use Plan

Figure 6.4



Map prepared by the City of Elko New Market Community Development Department - Figure 6.4 Land Use Plan

Overall Concept Plan

SUMMARY

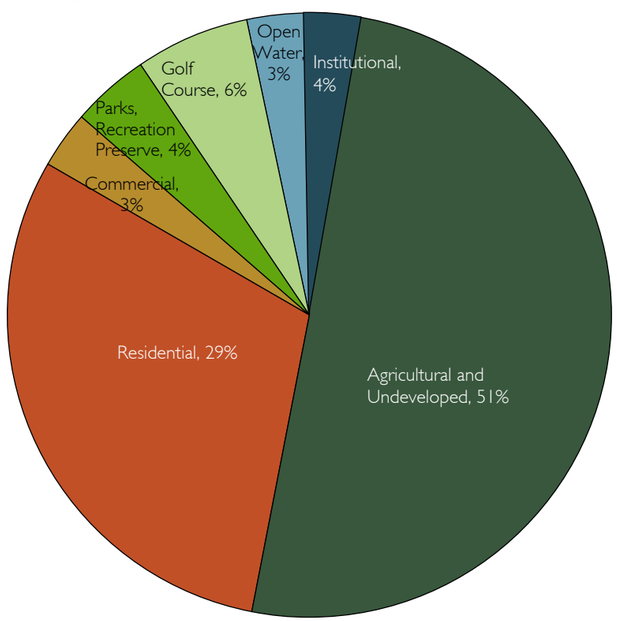
The expansive property is versatile for a wide range of development types. With its abundant wetlands (48.98 acres) acting as natural buffers between the various uses, visual separation throughout the site will be a key feature. Design standards will support a cohesive vision for The Property and support high-quality design.

The development over time will add the following:

BUSINESS CAMPUS DISTRICT	10.81 AC
BUSINESS / LIMITED INDUSTRIAL PARK	57.72 AC
HIGHWAY (GATEWAY) BUSINESS/ COMMERCIAL DISTRICT	82.29 AC
MEDIUM DENSITY RESIDENTIAL DISTRICT	7.20 AC

EXISTING ELKO NEW MARKET LAND USES

Source: MET Council & NAC



North Concept Plan

SUMMARY

The area located to the north and south of CSAH 2 should be seen as the first development priority. The land is guided to Highway (Gateway) Business, and is commercial use. The land has high visibility to those entering or exiting Elko New Market and is the first impression to the city. Careful detail to appearance with high quality development is anticipated within this area.

Retail stores and services, grocery, quick-service restaurants, etc. can keep family in-mind and provide additional attraction for future residents of the city while providing opportunities for services that are not locally available.

Future development along Interstate 35 provides high visibility for larger commercial uses – such as vehicle or implemented dealerships. In the northeast corner there is an opportunity for a business campus that would have high visibility and be surrounded by natural buffers from neighboring businesses. The locational strengths of the site, including the high visibility/accessibility, will continue to hold their value over time.

Tucked away, in the central portion of the site is a business / limited industrial park district. The limited manufacturing and general contractor operations facilities can serve the region, providing jobs to local and surrounding cities. A centralized pathway is provided to promote a healthy community and break from the standard daily routine. The pathways provide direct access to the county trail corridor system and to the retail services.

To the northwest of the site, a medium density residential area can begin to flourish. With 1-percent of the city land developed for multi-family residential and 28-percent for single-family detached (MET Council and NAC), the area provides alternative housing options including four-plexes and townhomes. The shared access will have direct transportation to CSAH 2 and to the Interstate. On days where a vehicle is not required, the communities within this area have the most direct access to the county trail system and to the local amenities the site has to offer.

Flexibility will be needed as the northern section of the site develops because it would be ideal to develop over time.

The North Concept includes developable areas of:

HIGHWAY (GATEWAY) BUSINESS/COMMERCIAL DISTRICT	52.45 AC
BUSINESS / LIMITED INDUSTRIAL PARK	53.76 AC
BUSINESS CAMPUS DISTRICT	10.81 AC
MEDIUM DENSITY RESIDENTIAL DISTRICT	7.20 AC

South Concept Plan

SUMMARY

South of CSAH 2, retail services, offices, hospitality, and limited manufacturing can coexist and provide additional services to travelers. The exit for Elko New Market is approximately 20 miles between Lakeville and Lonsdale. With typical gas and quick service amenities at these locations, there is an opportunity to expand upon these same services and become a new gateway stop along the Interstate. The right-out access of the site allows for vehicles to quickly reach I-35 while having a larger variety of retail and restaurants. The south has the same advantage as the north; with high visibility from the county roadway and Interstate, there is an opportunity to become a city staple and provide services currently not available within the city. Additionally, the site is located within a mile from the Elko Speedway and the Drive-in Theater - two of the principal attractions of the city.

Setback from the busy Interstate and buffered by natural wetlands, to the southeast portion provides an opportunity for hospitality to be developed. The closest hotel to the city is approximately 8 miles away, in New Prague. Amenities, like the north development, will be interconnected with sidewalks and trails, giving travelers the opportunity to explore the development and the option of a short-drive or bike ride to other features of the city.

The South Concept includes developable areas of:

HIGHWAY (GATEWAY) BUSINESS/ COMMERCIAL DISTRICT	29.84 AC
BUSINESS / LIMITED INDUSTRIAL PARK	3.96 AC

ADELMANN FAMILY PROPERTY
Draft Alternative Urban Areawide Review and Draft Mitigation Plan

August 1, 2019 DRAFT

Prepared For:
City of Elko New Market
601 Main Street
Elko New Market, MN 55054

Prepared By:
ISG
7900 International Drive, Suite 550
Minneapolis, MN 55425

ARCHITECTURE + ENGINEERING + ENVIRONMENTAL + PLANNING

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APPENDICES

Appendix A: Project Location Maps ..... A

Figure 1. Project Location Map

Figure 2. USGS Topographic Map

Figure 3. AUAR Boundary and LiDAR Map

Appendix B: Land Use Features ..... B

Figure 4. Current Zoning Map

Figure 5. Future Land Use Map

Figure 6. MPCA Permitted Features

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Figure 7. Existing Land Cover Type

Figure 8. Proposed Land Cover Type

Figure 9. NRCS Soil Survey

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Figure 12. Current Infrastructure Facilities

Figure 13. Proposed Infrastructure Improvements

Figure 14. Existing Stormwater Facilities and Drainage Areas

Figure 15. Proposed Stormwater Facilities and Drainage Areas

Figure 16. Existing Road Classification

Figure 17. Proposed Road Classification

Figure 18. Sidewalks and Trails Map

EXHIBITS

Exhibit A. Overall Site Plan

Exhibit B. Preliminary Geotechnical Report

Exhibit C. Minnesota Wetland Conservation Act + U.S. Army Corps of Engineers Approvals

Exhibit D. Adelmann Phase I Environmental Site Assessment Report

Exhibit E. Minnesota Department of Natural Resources NHIS Letter + Correspondence

Exhibit F. State Historic Preservation Office Correspondence

Exhibit G. Traffic Study

Executive Summary:

The Adelmann Family Property is located along County State Aid Highway 2 (260th Street East) and Interstate 35, east of Elko New Market in Scott County. The property is comprised of six parcels totaling 242.5 acres which define the AUAR Study Area. Proposed future land uses within the AUAR Study area include business/limited industrial park (104.7 acres), commercial (93.7 acres), medium density residential (19.3 acres), and 24.8 acres of public road right-of-way.

One development scenario is proposed within the three developed land uses, and is comprised of a business district (10.81 acres), business/limited industrial park (57.72 acres), highway (gateway) business/commercial district (82.29 acres), and 7.20 acres of medium density residential for 6 Townhouses and 8 Four-Plex (32 units). Non-developed acreage will remain as previously developed, wetlands, wooded/forested, and brush/grassland.

Phased development will occur over several years, beginning with portions of the property located adjacent to the CSAH 2 (260th St. E.) corridor. infrastructure needs associated with a projected full build out of the AUAR Study Area will include the following sanitary sewer and water service, stormwater management, public roads and trails, and access improvements to County State Aid Highway 2 (260th Street East).

The initial draft mitigation plan specifies measures or procedures that will be used to avoid, minimize, or mitigate the potential impacts of development within the AUAR Study Area. There were no impacts identified in AUAR Items 10, 14, 15, 16, 17, 19, 20, or 21; therefore, these areas require no mitigation and are not included in this initial draft Mitigation Plan. The remaining AUAR items (8, 9, 11, 12, 13, and 18) have identified regulatory requirements and/or mitigation measures that reduce the level of potential impact of development within the AUAR Study Area.

DRAFT ALTERNATIVE URBAN AREAWIDE REVIEW

This Alternative Urban Areawide Review (AUAR) follows the format of an Environmental Assessment Worksheet (EAW, July 2013 version). Where the AUAR guidance (*Recommended Content and Format Alternative Urban Areawide Review Documents, September 2008*) provided by the Minnesota Environmental Quality Board (EQB) indicates that an AUAR response should differ notably from what is required for an EAW, the guidance is noted in *italics and underlined*.

1. Project Title:
Adelmann Family Property

2. Proposer:
Adelmann Farms New Market, LLC
Contact person: Dave Adelmann
Title: Owner
Address: 8640 Harriet Avenue
City, State, ZIP: Bloomington, MN 55420
Phone: 612.919.1379
Fax: N/A
Email: dave@richfieldplumbing.com

3. RGU:
City of Elko New Market
Contact person: Renee Christianson
Title: Community Development Specialist
Address: 601 Main Street
City, State,ZIP: Elko New Market, MN 55054
Phone: 952.461.2777
Fax: N/A
Email: rchristianson@cienm.mn.us

4. Reason for EAW Preparation: *(check one)*

Required:
☐ *EIS Scoping*
☐ *Mandatory EAW*

Discretionary:
☐ *Citizen petition*
☐ *RGU discretion*
☐ *Proposer initiated*

AUAR Guidance: Not applicable to an AUAR

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):
AUAR Guidance: Not applicable to an AUAR

5. Project Location:
County: Scott
City/Township: Elko New Market Township
PLS Location (Section, Township, Range): S ½ of Sec. 23 and NE ¼ of Sec. 26, T113N, R21W
Watershed (81 major watershed scale): Mississippi River-Lake Pepin major watershed (38)
Tax Parcel Number: 139.89230090, 89230081, 89230040, 89260071, 89260050 & 89260030
GPS Coordinates: Long 44.5757, Long -93.3038
Mailing address: 10675, 10680, 10880, and 10881 - 260th St. E., Elko New Market Township, MN 55020

AUAR Guidance: Location and maps. a. The county map is not needed for an AUAR. b. The USGS map should be included. c. Instead of a site plan, include: (1) a map clearly depicting the boundaries of the AUAR and any subdistricts used in the AUAR analysis; (2) land use and planning and zoning maps as required in conjunction with items 9 and 27; and (3) a cover map as required for item 10. Additional maps may be included throughout the document wherever maps are useful for displaying relevant information.

At a minimum attach each of the following to the EAW:

- *County map showing the general location of the project;* **Appendix A – Figure 1.**

- *U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); USGS maps at this scale is unreadable due to the linear features and large project area.* **Appendix A – Figure 2.**

- *Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.* **Appendix B – Figures 7, 8,** and **Exhibit A.**

6. Project 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 on 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 242.5 acre Adelmann Family Property is located along CSAH 2 (260th St. E.) and Interstate 35 near Elko New Market in Scott County. Proposed future land uses on the property include business/limited industrial park (104.7 acres), commercial (93.7 acres), medium density residential (19.3 acres), and 24.8 acres of public road right-of-way (**Appendix B – Figure 5**). All proposed future landuses are consistent with the uses proposed in the City of Elko New Market's 2040 Land Use Plan.

One development scenario is proposed within the three developed land uses (**Exhibit A**), comprised of a business district (10.81 acres), business/limited industrial park (57.72 acres), highway (gateway) business/commercial district (82.29 acres), and 7.20 acres of medium density residential for 6 Townhouses and 8 Four-Plex (32 units). Non-developed acreage will remain as previously developed, wetlands, wooded/forested, and brush/grassland.

Phased development will occur over several years, beginning with portions of the property located adjacent to the CSAH 2 corridor. Municipal sanitary sewer service is located within the north side right-of-way of CSAH 2, therefore development north and south of CSAH 2 may occur independently or concurrently, and is anticipated to expand further north and south from CSAH 2 within the AUAR Study Area (**Appendix B – Figure 12**). Additional infrastructure needs associated with a projected full build out of the AUAR Study Area will include the following:

Sanitary Sewer: Direct connection to the Metropolitan Council Environmental Services (MCES) sanitary sewer interceptor is proposed for portions of the AUAR Study Area south of CSAH 2 and a portion of the AUAR Study Area in the south east quarter located north of CSAH 2 (**Appendix B – Figure 13**). The remaining portion of the AUAR Study Area will be serviced by the addition of a new trunk sanitary sewer located along the abandoned railroad grade, which will flow northeast into the MCES interceptor. Full buildout of the AUAR Study Area will yield approximately 400,000 gallons per day into the MCES interceptor. Wastewater flows from the AUAR Study Area will not temporarily disrupt or negatively impact the efficiency or capacity of the MCES collection and treatment system (Empire plant in Empire Township, Dakota County). Sanitary sewer lines in the AUAR Study Area will range from 8 to 18 inches in diameter to service

the users within the AUAR Study Area. Additional information on sanitary sewer infrastructure improvements and can be found in question No. 11.

Water Service: Potable water is currently located to the west of the Study Area, along CSAH 2. The existing 16-inch watermain will be extended to the two CSAH 2 access points to service the AUAR Study Area (**Appendix B – Figure 13**). Interior watermains will range from 12 to 16 inches in diameter with private service line connections. Water demand at projected full build out is estimated at 402,620 gallons per day. Additional information on potable water infrastructure improvements can be found in question No. 11.

Surface Water: A total of fourteen subwatersheds are proposed for the AUAR Study Area, see **Appendix D**, **Figure 15** for additional detail. These proposed subwatersheds provide dedicated land use for one or two proposed stormwater ponding areas, in addition to existing stormwater ponds. All ponds will be constructed in upland areas with 10.0 acres of total designated land use. The full build out scenario is expected to have 5.85 acres of cumulative wetland impacts at multiple locations throughout the AUAR Study Area. Project proposers whom intend to propose wetland impacts will be required to submit a formal sequencing analysis and wetland replacement plan for each lot or parcel. Additional information for surface water and stormwater control can be found in question No. 11.

Transportation: Anticipated improvements by 2031 include improvements to the overpass bridge and intersections 5 and 6 that will be necessary regardless of the associated development status at the AUAR Study Area. Additional recommended improvements include upgrades to the intersections of CSAH 2 and Xerxes Avenue, CSAH 2 and the Frontage Road, CSAH 2 and Irving Avenue, and CSAH 2 and the Interstate 35 ramps. The AUAR Study Area transportation corridors should be monitored and reevaluated on a regular basis as development occurs and as projections change. Additional information for transportation infrastructure improvements can be found in question No. 18.

The summary of the magnitude of the development scenario is provided in Table 6-1.

Table 6-1. Project Size + Type

Total Project Acreage	242.5
Linear project length	Not Applicable
Number and type of residential units	6 Townhouses, 8 Four-Plex (32 units). 38 Units Total (7.20 Acres).
Commercial building area (in acres)	93.10
Industrial building area (in acres)	57.72
Institutional building area (in square feet)	Not Applicable
Other Uses	Not Applicable
Structure height(s)	35 foot maximum per city ordinance

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

The project location for the AUAR Study Area is a high visibility area for motorists entering and exiting Elko New Market from the CSAH 2 and Interstate 35 corridors. The 242.5 acre project site is well suited for the variety of uses proposed including highway-oriented commercial, light industrial, business campus, and medium density residential. The size and location of the AUAR Study Area allows for a variety of uses intended to complement and expand upon the services, housing stock, and light manufacturing currently located in Elko New Market, while simultaneously serving as an eastern gateway to the community. The proximity of the AUAR Study Area to Interstate 35 accommodates easy access to the highway while still allowing

developable acreage for the expansion of highway-oriented uses like a variety of retail offerings and restaurants. Proximity to major thoroughfares also is appealing to commercial and light industrial users in the AUAR Study Area that may need to transport goods and services utilizing these transportation networks.

This project is not being carried out by a governmental unit and approval of this project is determined by the City of Elko New Market (as the Responsible Government Unit for this AUAR).

Beneficiaries of the project include the project proposer, local economy, area residents, potential businesses and future service providers locating to the AUAR Study Area. The local economy will benefit from additional temporary jobs during the phased construction, and full/part time jobs during operations of the various businesses and industries locating to the AUAR Study Area.

b. *Are future stages of this development including development on any other property planned or likely to happen?* ☐*Yes* ☑No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

All planned and future phases of the development concept for the AUAR Study Area are included in this AUAR.

c. *Is this project a subsequent stage of an earlier project?* ☐*Yes* ☑No
If yes, briefly describe the past development, timeline and any past environmental review.

Pursuant to the "3-year look-back rule" (MN Rules 4410.4300 Subp. 1), surrounding development/projects that were previously constructed are not defined as an earlier project. These projects do not meet the criteria listed for 'timing' which include: the existing project began after April 21, 1997, the construction of the existing project commenced less than three years before the date the application was submitted for the proposed project ("3-year look back), and the existing project was not reviewed under a former environmental review.

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

AUAR Guidance: The following information should be provided:

a. *Cover type map, at least at the scale of USGS topographic map, depicting:*
   i. *Wetlands – identified by type (Circular 39)*
   ii. *Watercourses – rivers, streams, creeks, ditches*
   iii. *Lakes – identify public waters status and shoreland management classification*
   iv. *Woodlands – breakdown by classes were possible*
   v. *Grassland – identify native and old field*
   vi. *Cropland*
   vii. *Current development*

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.*

Figures 7 and 8 show existing and proposed land cover types within the AUAR Study Area.

Table 7-1. Land Cover Types (Existing vs. Proposed Acres)

Land Cover Type	Before		After	
	Acres	Percentage	Acres	Percentage
Wetlands	42.5	18%	36.6*	15%
Deep Water/Streams**	0	0%	0	0%
Wooded/Forest	57.5	24%	24.4	10%
Brush/Grassland	71.5	29%	14.7	6%
Cropland	48.8	20%	0	0%
Lawn/Landscaping	9.9	4%	54.1***	23%
Impervious Surface	11.8	5%	102.7	42%
Stormwater Ponds	0.50	<1%	10.0	4%
Other (describe)	0	0%	0	0%
TOTAL	**242.5**	**100%**	**242.5**	**100%**

**Estimated wetland impacts (temporary and permanent) will be determined during design of each individual parcel, lot, block, and phase of infrastructure. After acreages assumes permanent wetland impact conversion to Impervious Surface and/or Lawn/Landscape. Refer to Question 11.b.iv.1 for additional information.*

***Assumes streams that are two meters or more in depth during low flow conditions (per EQB's EAW Guidelines, October 2013). The project does not propose any temporary or permanent deep water or stream impacts.*

****Assumes a portion of this acreage will be seeded to native grass species in areas that will not be regularly mowed or maintained (areas To Be Determined).*

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

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

Table 8-1. Financial Assistance

Funding Source	Fiscal Amount/Structure	Status
Scott County Economic Development Agency-Economic Development Incentive Program (Corridor Readiness Grant)	$103,334 (2017) $77,500 (2018)	2018 Distributed. 2018 Pending.

All required permits and approvals will be obtained prior to construction. Any necessary permits or approvals not listed in **Table 8-2** have not intentionally been omitted.

Table 8-2. Permits + Approvals

Unit of Government	Type of Application	Status
U.S. Army Corps of Engineers (USACE)	Section 401/404 of the Clean Water Act	To Be Obtained
Minnesota Pollution Control Agency (MPCA)	NPDES Construction Stormwater Permit	To Be Obtained
	NPDES Industrial Stormwater Permit	To Be Obtained (if applicable)
	Sanitary Sewer Extension	To Be Obtained
	Air Emissions Permit	To Be Obtained (if applicable)
	Hazardous Waste Generator License (Small to Minimal)	To Be Obtained (if needed)
Minnesota Department of Natural Resources (MDNR)	Water Appropriations For Construction Dewatering	To Be Obtained (if needed)
Minnesota Department of Health (MDH)	Watermain Extension	To Be Obtained

	Well Abandonment	To Be Submitted
Vermillion River Watershed Joint Powers Organization	Project Review	To Be Submitted (if applicable)
Scott County	Final Plat	To Be Submitted
	Work in Right of Way	To Be Submitted
	Access Permit	To Be Submitted (if applicable)
	Utility Accommodation Permit	To Be Obtained
City of Elko New Market	AUAR Approval	In Progress
	Developers Agreement	To Be Submitted
	Preliminary and Final Plat	To Be Submitted
	Filling/Grading Permits	To Be Obtained
	Stormwater Management Plan	To Be Obtained
	Building, Plumbing, Electrical, and HVAC Permitting and Inspection	To Be Obtained
	Wetland Replacement Plan (pursuant to Wetland Conservation Act)	To Be Obtained
	Annexation	To Be Submitted
	Property Rezoning	To Be Submitted
	Site Plan Review	To Be Submitted
	Conditional Use Permit (per site)	To Be Obtained
	Site Permit	To Be Obtained
	Vacation of Right-of-Way or Easement (if applicable)	To Be Submitted (if applicable)

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.

Land use within the AUAR Study Area is composed of a single farmstead with barn and outbuildings, flea market venue, grassland/pasture, wetlands, agricultural fields, forested

upland, and light commercial businesses. Based on historical aerial photographs, the land has been farmed since at least 1937 and the light commercial businesses have been in operation since the 1970s. Land use east of the AUAR Study Area is the Interstate 35 corridor and the adjacent areas are a mixture of residential developments, spaced out single family homes, farmsteads, agricultural fields, pastureland, upland and wetland forest, and commercial businesses.

The project is not located within or near a local, State, or Federal Park, or other public recreational facility. An existing multiuse trail is on the northern side of County Road 2, currently ending at the County Road 2/I-35 interchange. No vulnerable populations (nursing homes, daycares, schools, etc.) are located within or adjacent to the AUAR Study Area. Portions of the AUAR Study Area includes farmlands of statewide importance. Please refer to question 10.b for additional soils information.

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.

AUAR Guidance: Water-related land use management districts should be delineated on appropriate maps and the land use restrictions applicable in those districts should be described. If any variances or deviations from these restrictions within the AUAR area are envisioned, this should be discussed.

City of Elko New Market 2030 Comprehensive Plan (February 25, 2010)

The proposed development scenario was reviewed for conformance to the current City of Elko New Market's 2030 Comprehensive Plan by reviewing the applicable chapters of Land Use, Natural Resources, and Public Facilities, and Appendices A, B, C, D, and E. For the purposes of this AUAR, the City of Elko New Market's 2030 Comprehensive Plan was used to determine conformity considering the City is currently in the process of updating their comprehensive plan looking ahead to 2040. Based on conversations with the City at the time of preparing this AUAR, it is expected the proposed land uses within the AUAR Study Area will be in conformance with the uses proposed in the 2040 Future Land Use Plan, including: Business/Limited Industrial, Commercial, and Medium Density Residential.

Chapter 4: Land Use
Proposed uses at the AUAR Study Area meet the intent and goals outlined in this chapter of the 2030 Comprehensive Plan. The I-35 Corridor and County Road 2, primary transportation routes where the AUAR Study Area is located, were identified as prime locations for commercial and industrial uses. Additionally, the AUAR Study Area is currently designated as Gateway/Transportation Oriented Commercial on the Future Land Use Map. This designation recognizes the interchange of County Road 2/I-35 as the entrance to the Elko New Market community and requires certain architectural standards and landscaping requirements to create aesthetically welcoming developments. The proposed land uses of commercial, business/limited industrial, and medium-density residential at the AUAR Study Area meet the intended uses outlined in the Land Use chapter of the 2030 Comprehensive Plan.

Chapter 7: Natural Resources
Portions of the AUAR Study Area are located in or adjacent to an identified concentration of natural resources surrounding the Vermillion River including grassland, shrubland, and woodland. Additional design considerations will be reviewed on a per development lot or parcel basis to ensure protection of adjacent natural resources, including but not limited to, erosion control measures, wetland preservation or enhancement, and open space designation.

Chapter 9: Public Facilities
The development scenario does not conflict with this chapter's goals, existing or proposed facilities, infrastructure improvements or expansion, or existing and proposed public utilities. Proposed sanitary system and watermain facilities within the AUAR Study Area will provide the adequate capacity to accommodate the proposed development scenario. Additionally, the City's existing and proposed trunk watermain and sanitary sewer system can accommodated the anticipated flows, treatment capacities, and demands from the full-buildout development scenario.

Appendix A: Transportation Plan
The AUAR Study Area location is identified as a short-term improvement for both planning and implementation for upgrades with the I-35/CSAH 2 interchange. These upgrades are expected to accommodate the additional commercial and industrial development at the AUAR Study Area and corresponding traffic increases to the local roadway system.

Appendix B: Park + Trail Plan
The AUAR Study Area is currently out of the service area of the existing parks in the Elko New Market community. Appendix B proposes trail enhancements to the existing multiuse trail running adjacent to the AUAR Study Area and an additional trail running through the southwest portion of the site. The 8,656 LF trail network proposed at the AUAR Study Area will connect to the Scott County Trailway Corridor and the proposed City Trailway Corridor. Proposed trail and green space development at the AUAR Study Area are complimentary to this Appendix to the City of Elko New Market 2030 Comprehensive Plan.

Appendix C: Water Plan
The AUAR Study Area will connect to the proposed watermain extension along the south side of CSAH 2. Water utility upgrades identified in this Appendix to the 2030 Comprehensive Plan support the proposed uses and development at the AUAR Study Area location.

Appendix D: Sanitary Sewer Plan
Proposed sanitary sewer improvements identified in this Appendix to the 2030 Comprehensive Plan support the proposed uses and scale of development at the AUAR Study Area.

Appendix E: Storm Water Management Plan
Storm water management practices proposed at the AUAR Study Area are compatible with the water quantity and quality and erosion control goals and policies as identified in this Appendix to the 2030 Comprehensive Plan.

Scott County 2040 Comprehensive Plan (December 18, 2018)

The draft of the Scott County 2040 Comprehensive Plan was reviewed for conformance to the proposed development scenario. The development scenario conforms to the goals and objectives cited in the following Land Use and Parks and Trails chapters of the Comprehensive Plan:

Chapter 5: Land Use
The Scott County 2040 Comprehensive designates land use in the AUAR Study Area as General Commercial and Urban Business Reserve. The General Commercial designation supports the proposed land uses on the site and states that new development will be allowed provided all necessary infrastructure is available. The Urban Business Reserve designation reserves the land in the AUAR Study Area for commercial and industrial development with limited residential development. The proposed land uses at the AUAR

Study Area are in conformance with the land use designation in Scott County's 2040 Comprehensive Plan.

Chapter 7: Parks and Trails
The AUAR Study Area is identified in this chapter as a future study to determine park and trail development needs. The proposed trails and green spaces at the AUAR Study Area will complement future park(s) or trail development adjacent to or near to the AUAR Study Area.

Scott County Local Water Management Plan (2018-2028)

The project does not conflict with the identified water resources and objectives of the plan.

Vermillion River Watershed Joint Powers Organization Rules (2016 Management Plan Update)

Development within the AUAR Study Area may be subject to the current applicable standards and rules of the VRWJPO; including Wetland Alteration (Section 6.00), Buffer (Section 7.00), Erosion and Sediment Control (Section 8.00), Stormwater Management (Section 9.00), Drainage Alteration (Section 10.00). The authority and scope of the VRWJPO rules (per Section 1.00) will apply to each individual lot or parcel within the AUAR Study Area if found nonconforming to the City of Elko New Market's Storm Water Management Plan (Appendix E, 2030 Comprehensive Plan).

Additionally, according to Appendix B of the 2016 Management Plan Update, the VRWJPO has the authority to review and comment on development plans at project sites larger than 40 acres as well as projects that are located at sites near or impacting watercourses or unique natural resources. The project proposed for the AUAR Study Area is larger than 40 acres in size and may be located or impact watercourses or unique natural resources, giving the VRWJPO authority to review proposed development.

MPCA Impaired Waters List

The Vermillion River (a listed MPCA Section 303d Impaired Waters for Escherichia coli and Mercury in fish tissue) is located 0.16 miles north of the AUAR Study Area (**Appendix C-Figure 10**). There are no other special waters within a 1-mile radius of the Project site.

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

The AUAR Study Area is currently under Scott County planning and zoning jurisdiction, with the portion of the AUAR Study Area north of County Road 2 zoned as Urban Business Reserve (UBR) and the portion of the AUAR Study Area south of County Road 2 zoned as both UBR and General Commercial (C-1) where the existing light commercial use is located. The Urban Business Reserve (UBR) district designates land for eventual urban and commercial uses once served it is by public utilities. The zoning designation may be amended once the land is annexed into an adjoining city or the site is developed and served by public utilities. The portion of the site zoned as C-1 allows for general retail and commercial uses. The intent is for the AUAR Study Area to eventually be annexed into the City of Elko New Market, at which time it would be zoned in the Urban Reserve (UR) district, the base zoning designation at the time of annexation.

Based on the proposed variety of uses at the AUAR Study Area, portions of the site will need to be rezoned to the following Elko New Market zoning classifications:

Business Campus District (B-7)
Outlined in the development concept, approximately 16.95 acres of the AUAR Study Area will need to be rezoned to allow for the uses defined in the B-7 district including business offices and wholesale showrooms. Development is intended for these uses with a high level of landscaping (minimum 30% area), amenities, pedestrian circulation, and architectural standards.

Limited Industrial (I-1)
Outlined in the development concept, approximately 99.16 acres of the AUAR Study Area will need to be rezoned to allow for the uses defined in the I-1 district including light manufacturing, business offices, and wholesale showrooms with limited amounts of associated truck traffic. I-1 district requires a minimum 25% area to be landscaped.

Highway (Gateway) Business District (B-4)
Outlined in the development concept, approximately 103.97 acres of the AUAR Study Area will need to be rezoned to allow for the uses defined in the B-4 district including service-oriented and commercial uses. Development is intended with these uses with a high regard for architectural appearance and site design to create an aesthetically appealing gateway to the larger Elko New Market community. The B-4 district requires a minimum 30% area to be landscaped.

Medium Density Residential District (R-3)
Outlined in the development concept, approximately 22.48 acres of the AUAR Study Area will need to be rezoned to allow for the uses defined in the R-3 district including a variety of housing options like two-family dwellings, three-plexes, four-plexes, townhomes, and condominiums. The R-3 district requires a minimum 50% area to be landscaped.

The AUAR Study Area is not located in a shoreland district, floodplain, wild and scenic river segment, critical area, agricultural preserve, or airport safety zone.

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

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

The AUAR must include a statement of certification from the RGU that its comprehensive plan complies with the requirements set out at 4410.3610, subpart 1. The AUAR document should discuss the proposed AUAR area development in the context of the comprehensive plan. If this has not been done as part of the responses to items 6, 9, 18, 21, and others, it must be addressed here; a brief synopsis should be presented here if the material has been presented in detail under other items. Necessary amendments to comprehensive plan elements to allow for any of the development scenarios should be noted. If there are any management plans of any other local, state, or federal agencies applicable to the AUAR area, the document must discuss the compatibility of the plan with the various development scenarios studied, with emphasis on any incompatible elements.

There are no identified environmental conflicts or incompatibilities between the proposed project and nearby land uses, zoning, or other local or regional plans. Please refer to the information provided in item 9a. Trail enhancements to the existing multiuse trail to the north of CH 2 are planned as a component of the pedestrian circulation concept intended for the AUAR Study Area.

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

There are no identified environmental conflicts/incompatibilities between the proposed project and nearby land uses, zoning, or other local or regional plans. Please refer to the information provided in item 9a.

Design considerations included to protect and enhance natural resources surrounding the Vermillion River include stormwater detention onsite, wetland buffers and replacement, undeveloped open spaces and natural areas, and tree protection. The proposed 9.5 acres of stormwater detention is assumed based on the amount of impervious surface of the full buildout scenario. Additional stormwater control measures will be designed and constructed as individual parcels and lots develop within the AUAR Study Area. Each individual lot or project will be required to meet the stormwater management standards set forth in the current city code, ordinances, and NPDES Construction Stormwater Permit at the time of application.

Wetlands on site may be replaced in the northern portion of the AUAR Study Area to create a natural area and a buffer between the development scenario and Vermillion River, if feasible. Trees will be also be preserved in the northern portion of the site to enhance the natural area and buffer.

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.*

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

The Minnesota Geological Survey (http://www.mngs.umn.edu/service.htm) indicates one type of bedrock (St. Croix Horst sandstones) within the AUAR Study Area. Bedrock within the region varies from approximately 204 to 260 feet. The site is located on Sandstone, siltstone, and conglomerate of the Hinckley, Fond du Lac, and Solar Church Terrain.

There are no known or mapped sinkholes, shallow limestone, shallow aquifers, or karst features identified within or near the AUAR Study Area. The geotechnical report did not identify any sinkholes, shallow limestone, shallow aquifers, or karst features within the AUAR Study Area. The Minnesota Geospatial Commons-Karst Features Inventory Points was also reviewed for these features, which yielded no known mapped occurrences within or near the AUAR Study Area. (ftp://ftp.gisdata.mn.gov/pub/gdrs/data/pub/us_mn_state_dnr/geos_karst_feature_inventory_pts/metadata/preview/jpg)

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.*

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

The NRCS Web Soil Survey (September 12, 2018) was reviewed for mapped soil unit characteristics within the AUAR Study Area. Mapped soils consist of 15 soil types, of which the predominant soil type is Hayden Loam soils, 2-6% slopes (30 percent of the AUAR Study Area). Soil characteristics and attributes are provided in the following **Table 10-1** and illustrated on **Figure 9** in **Appendix C**.

Table 10-1. Soil Characteristics within AUAR Study Area

Soil Symbol	Soil Unit Name	Acres	HEL	Hydrologic Group*	Hydric Rating	Farmland Classification
Bc	Blue Earth mucky silt loam, 0-1% slopes	3	NHEL	B/C	Hydric	Prime (if drained)
LbD	Estherville-Burnsville complex, 12-50% slopes	16	HEL	A	Predom. Non-Hydric	Not Prime
LbC	Estherville-Burnsville complex, 6-12% slopes	0.8	PHEL	A	Predom. Non-Hydric	Not Prime
Ga	Glencoe silty clay loam, 0-1% slopes	44	NHEL	C/D	Hydric	Prime (if drained)
HaD	Hayden loam, 10-22% slopes	4	HEL	C	Predom. Non-Hydric	Not Prime
HaD2	Hayden loam, moderately eroded, 10-22% slopes	5	HEL	C	Predom. Non-Hydric	Not Prime
HaE2	Hayden loam, 18-25% slopes	0.23	HEL	B	Non-Hydric	Not Prime
HaB	Hayden loam, 2-6% slopes	73	NHEL	C	Predom. Non-Hydric	Prime
HaC	Hayden loam, 6-10% slopes	8	PHEL	C	Predom. Non-Hydric	Statewide Importance
HaC2	Hayden loam, moderately eroded, 6-10% slopes	37	PHEL	C	Predom. Non-Hydric	Statewide Importance
HcD3	Hayden soils, severely eroded, 12-18% slopes	2	HEL	B	Non-Hydric	Not Prime
HcC3	Hayden soils, severely eroded, 6-12% slopes	2	PHEL	B	Non-Hydric	Statewide Importance
PbA	Houghton muck, 0-1% slopes	9	NHEL	A/D	Hydric	Not Prime
PaA	Klossner muck, 0-1% slopes	0.20	NHEL	C/D	Hydric	Statewide Importance
Wb	Webster-Glencoe silty clay loams	38	NHEL	B/D	Hydric	Prime (if drained)

Legend:

Highly Erodible Land
HEL: Highly Erodible Land
PHEL: Potentially Highly Erodible Land

*Infiltration Rate
A: >0.30 inches/hour
B: 0.15-0.30 inches/hour

Hydric Rating
Hydric: 100%
Predominately Hydric: >67% and <100%

NHEL: Not Highly Erodible Land	*C: 0.05-0.15 inches/hour*	*Partially Hydric: >33% and <67%*
	D: <0.05 inches/hour	*Predominately Non-Hydric: <1% and <33%*
		Not Hydric: 0% hydric

A majority of the AUAR Study Area is mapped as Prime Farmland or Prime Farmland if Drained (65 percent of the AUAR Study Area). The remaining soils are mapped as either Farmland of Statewide Importance or Not Prime Farmland.

Topography of the AUAR Study Area ranges is generalized as rolling from 1,058 to 1,134 msl with higher elevations located in the southern half of the AUAR Study Area, and sloping north towards the abandoned railroad tracks and further north to the Vermillion River (**Figure 3** in **Appendix A**). Steep slopes (12% or greater) can be found in the northeast and southern portions of the AUAR Study Area.

The geotechnical evaluation report was completed for several locations within the AUAR Study Area on November 20, 2017 (**Exhibit B**). Eighteen (18) soil borings were taken throughout the site from a depth of 15 to 25 feet. Clay topsoil was present in most of the borings from 2 to 12 feet deep. General underlying soils consisted on lean clay or sandy lean clay and sands with varying amounts of silt, clay, and gravel. Glacial till was present in most of the borings below the topsoil and Alluvial deposits, at a depth of 7.5 to 25 feet.

Site conditions are consistent with the anticipated soil and hydrological conditions, requiring typical grading and excavation of unsuitable soils before development. Erosion capabilities of the soils are moderately susceptible as described by the NRCS Soil Erodibility (Kw) Factor rating which ranges from 0.24 and 0.37. Earthwork within the AUAR Study Area will be phased, starting with the excavation and embankment for infrastructure improvements, followed by the site grading for the development of individual sites. Construction activities will temporarily expose soils to an increased risk of erosion from wind and precipitation. Appropriate erosion and sediment control best management practices (BMPs) will be selected and defined by each individual lot's Stormwater Pollution Prevention Plan (SWPPP). BMP selections will be based on the potential risk of erosion, current site conditions, and maintenance through the duration of each construction phase to reduce the potential of sedimentation occurring to surface water resources or migrating offsite. Temporary BMPs will be inspected and maintained (per the NPDES Construction Stormwater Permit) until permanent vegetation and stabilization has occurred. Permanent BMPs will be incorporated into each individual project design and Stormwater Pollution Prevention Plan (SWPPP) to minimize post-construction erosion and sedimentation.

11. Water Resources:

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

a. *Describe surface water and groundwater features on or near the site 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 MDNR Public Waters Inventory number(s), if any.

There are no lakes, designated wildlife lakes, migratory waterfowl feeding/resting areas, trout streams/lakes, MPCA or MDNR listed calcareous fens, and county or jurisdictional ditches within one mile of the AUAR Study Area.

One unnamed USGS stream is located in the northwest corner of the AUAR Study Area. The unnamed watercourse is a tributary of the Vermillion River, which is located approximately 0.16 miles north of the AUAR Study Area (**Appendix C – Figure 10**). The Vermillion River continues to flow northeast and east before discharging into the Mississippi River 36 miles east of the AUAR Study Area.

The MDNR Public Waters Inventory identifies the Vermillion River and three unnamed wetlands (#70000500, 70029600, 70032500) within one mile of the AUAR Study Area (**Appendix C – Figure 10**). The Vermillion River segment within the AUAR Study Area (AUID 07040001-516) is designated as a Section 303d listed 2018 impaired waters for Escherichia coli and mercury in fish tissue. Both impairments have an EPA-approved Total Maximum Daily Load (TMDL) and TMDL Implementation Plan.

Twenty-two (22) wetlands totaling 42.45 acres were delineated in the AUAR Study Area (**Appendix C – Figure 7**). The wetland boundaries and types were approved by the Local Government Unit (City of Elko New Market, application #ELNM3-18) of the Minnesota Wetland Conservation Act and U.S. Army Corps of Engineers (File No. 2018-03159-JTB). The delineated wetlands were Type 2- Fresh (wet) Meadow/Sedge Meadow, Type 3- Shallow Marsh, Type 4- Deep Marsh, Type 5- Shallow, Open Water, Type 6- Shrub-carr, and Type 7- Hardwood swamp wetlands. Please refer to **Exhibit C** and EAW item 11.b.iv. for additional detailed information.

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 onsite or nearby, explain the methodology used to determine this.*

1) The Minnesota Department of Natural Resources Cooperative Groundwater Monitoring Website maintains data on ground water levels. The closest observation well to the project location is MDNR Well #19097, which is located approximately 4 miles southeast of the AUAR Study Area. Water levels in the most recent data record (October 7, 2015) were measured at 1,004.42 ft. MSL.

   The geotechnical report (**Exhibit B**) encountered shallow groundwater at 2-5 feet below the ground surface in five borings (located at B2, B6, B8, B17, and B18). A majority of the remaining borings encountered groundwater from 7-15 feet, with three boring locations not encountering any groundwater. The report expects groundwater to be encountered in the range of 1,069 to 1,111 feet MSL, but may vary depending on relation to surface water or drainage ways.

2) The AUAR Study Area is not located within the City of Elko New Market Wellhead Protection Area (Elko-New Market) or the Drinking Water Supply Management Area.

3) According to the Minnesota Department of Health – Minnesota Well Index Online, there are five identified wells located within the AUAR Study Area (**Appendix D – Figure 12**).

Table 11-1. MDH Minnesota Well Index

Unique ID	Name	Well Type	Status
234025	Hole A	Test Well	Unknown
509171	N.D.S.	Domestic	Active
234026	Hole B	Test Well	Unknown
249593	Trader's Market 1	LN	Active
234027	Hole C	Test Well	Unknown

The previous and current landowners are not aware of any onsite or adjacent aquifers, springs, seeps, or wells, such as old farm wells or artesian wells that are not registered by the Minnesota Department of Health's Minnesota Well Index.

No permanent wells are proposed within the AUAR Study Area once construction has concluded.

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.

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

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

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

Wastewater flows are expected to be typical of wastewater flows and characteristics from residential, commercial, and light industrial land uses. No pre-treatment of waste flows is expected based on the proposed land uses. Wastewater volumes of up to 400,000 gallons per day are anticipated from the AUAR Study Area after full build out occurs. Proposed sanitary sewer pipe diameters will be 8 to 18 inches.

The existing 42-inch sanitary sewer Metropolitan Council Environmental Services (MCES) interceptor flows west to east along the north side of CSAH 2. An 18-inch and 27-inch sanitary sewer stub are located at the intersection of the eastern access Frontage Road with CSAH 2. **Appendix D – Figure 13** illustrates a boundary that indicates the approximate area which could be served immediately with the MCES interceptor. Connection to the MCES interceptor will provide service to portions of the AUAR Study Area south of CSAH 2 and the approximate south east quarter of the AUAR Study Area north of CSAH 2. The remaining north half and southwest portions of the AUAR Study Area would be serviced by a new trunk sanitary sewer along the abandoned railroad grade, which flows northeast into the MCES interceptor (yellow line on **Figure 13, Appendix A**). Construction staging of the proposed sanitary sewer system would begin at the eastern access of the Frontage Road with CSAH 2.

The City of Elko New Market's wastewater treatment system was decommissioned in 2011. All waste flows from the City currently discharge directly into the MCES interceptor with a capacity of 2.9 million gallons per day. The MCES interceptor flows east to the Empire plant (Empire Township, Dakota County). Waste water flows from the AUAR Study Area would not temporarily disrupt or negatively affect the operational efficiency of the MCES collection and treatment system.

The proposed sanitary sewer system layout, flows, and connections to MCES interceptor are consistent with planned improvements and projected sanitary sewer system capacity detailed in the City of Elko New Market 2030 Comprehensive Plan.

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.*

   There is no wastewater discharge proposed to any subsurface sewage treatment systems (SSTS).

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

   There is no wastewater discharge proposed to any surface water or groundwater resources.

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.*

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

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

The northern portion of the AUAR Study Area generally drains north towards the Vermillion River, while areas south of CSAH 2 (260th St. E.) drain east under Interstate 35 to a tributary of the Vermillion River (**Appendix D – Figure 14**). The composition of existing stormwater runoff is primarily high in total suspended solids, phosphorus, and nitrates from the dominant agricultural use within the AUAR Study Area.

Temporary erosion and sediment control best management practices (BMPs) will initially be installed, maintained/repaired, and amended throughout construction as required to remain compliant with the current NPDES Construction Stormwater Permit requirements at the time of permit coverage. SWPPP development and NPDES Construction Stormwater Permit coverage will occur per buildable lot, in phases of multiple lots, or by individual parcels as development progresses throughout the AUAR Study Area.

Temporary BMPs may include (but are not limited to) silt fence, bio-rolls/filter logs, rock construction entrances, mulch/hydro mulch, and permanent native seeding or turf seeding in appropriate areas.

The project's co-permittees (primary contractor and owner) will be jointly responsible for all SWPPP components. The primary contractor will be responsible for all SWPPP components during active construction which includes amending the SWPPP as necessary, installation, maintenance, and repair of all temporary erosion and sediment control BMPs.

The quality of post-construction stormwater runoff from the project will be typical of an urban land use with impervious surfaces and lawn/landscaping generating higher concentrations of total suspended solids and total phosphorus. Stormwater runoff is proposed to be conveyed into three major drainage area (two north and one south of CSAH 2/260th St. E.). Three subwatersheds are proposed in the northeast major drainage area, seven subwatersheds in the northwest major drainage area, and four subwatersheds within the south major drainage area (**Appendix D – Figure 15**).

Proposed subwatersheds provide dedicated land use for one or two proposed stormwater ponding areas, in addition to the existing stormwater ponds located north and adjacent to CSAH 2 (260th St. E.) and south of the Featherlite Trailer Sales site (**Appendix D –**

Figure 14). All proposed stormwater ponds will be constructed in upland areas with 9.5 acres of total designated land use.

All proposed stormwater ponding areas assume a one inch water quality volume over the net new impervious surfaces within the proposed subwatershed to reduce overall flow rates. Proposed impervious surfaces were averaged to seventy-two percent (72%) of the total impervious surfaces within the AUAR Study Area (**Appendix D – Figure 8**). The proposed business/limited industrial park (72% impervious), commercial (85% impervious), and medium density residential (65% impervious) land uses were used to calculate the average percentage impervious surfaces (**Appendix B – Figure 5**).

Conceptual pond locations and footprints (size) are placed in the most suitable locations of each proposed subwatershed based on existing topography (**Appendix D – Figure 15**) and developable scenario. The geotechnical report results show undesirable low permeable soils (clay, lean clay sand) that are not adequate and functional for infiltration systems, therefore volume reduction techniques will be customized to each individual pond design. Additional stormwater management areas may be required on lots and parcels to meet the no net increase of stormwater runoff from existing conditions.

Final pond design and permanent stormwater treatment requirements will adhere to the current NPDES Construction Stormwater permit, City of Elko New Market Storm Water Management Plan, and applicable Vermillion River Watershed Joint Powers Organization (VRWJPO) standards.

Currently, according to Appendix B of the VRWJPO's 2016 Management Plan Update, the VRWJPO has the authority to review and comment on development plans at project sites larger than 40 acres as well as projects that are located at sites near or impacting watercourses or unique natural resources. The AUAR Study Area is larger than 40 acres in size and may be located or impact watercourses or unique natural resources, giving the VRWJPO authority to review all future proposed developments.

Stormwater runoff from the AUAR Study Area will not discharge to any "priority lake" as identified by the Metropolitan Council. Stormwater runoff is not anticipated to negatively affect the quality or quantity of adjacent wetlands and streams on or near the AUAR Study Area.

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 MDNR 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.*

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

Short-term temporary construction dewatering of surface or ground waters may be required at the time of construction (depending on current field conditions) to facilitate construction activities for the placement of structural footings and utility lines. If dewatering is anticipated to exceed 10,000 gallons per day or 1,000,000 gallons per

year, the contractor will be required to obtain a Water Appropriations Permit from the Department of Natural Resources (MDNR) Division of Waters prior to initiating such activities. Measures to avoid, minimize, or mitigate the environmental effects from construction related to dewatering are unknown at this time, and therefore will be determined when developing the dewatering plan as required by a Stormwater Pollution Prevention Plan amendment of the NPDES Construction Stormwater Permit.

The 5 registered active and unknown wells will be sealed according to MDH standards by a licensed well contractor. If unidentified wells are discovered during construction they will be reported to the Minnesota Department of Health then sealed according to MDH standards by a licensed well contractor.

Potable water service will be provided from the City of Elko New Market's existing municipal wells and distribution system. The City currently draws water from two of four wells (Elko #2, Elko #3, New Market #2, and New Market #3) and one emergency backup well (New Market #1). Total capacity of these municipal wells is 1,300 gallons per minute, producing 1.56 million gallons per day.

Potable public water service is located to the west of the AUAR Study Area, along the south side of 260th St. E. (CSAH 2) at France Avenue. The intent is to connect the entire AUAR Study Area to the City of Elko New Market's existing 16-inch watermain by extending a 16-inch line to the two road accesses to the site along CSAH 2. Watermain interior of the AUAR Study Area will be 12 to 16 inch in diameter with private service line connections.

Water demand for the full-build out scenario is estimated at 402,620 gallons per day based on proposed future land use acreages (**Exhibit A**). The individual future land use demands are shown in the following Table 11-2.

Table 11-2. Estimated Potable Water Demand

Future Land Use Type	Gallons Per Day/Acre	Land Use Acres	Estimated Water Demand (Gallons Per Day)
Business/Limited Industrial Park	3,500	57.7	202,020
Commercial/Business Campus District	2,000	93.1	186,200
Medium Density Residential	2,000*	7.2	14,400

**Assumed 100 gallons per day/person at 2.5 people/unit with 8 units/acre*

The City's water treatment system can currently supply 2.419 million gallons per day (MGD) of potable water to its distribution system. Under existing conditions and based on historical data, the City's peak day demand is expected to be 1.303 MGD which allows for 1.116 MGD of availability for new demand.

The City maintains two elevated water towers which combined, total 400,000 gallons of capacity. Along with other system storage, the City currently has approximately 318,000 gallons of "excess" finished water storage capacity which allows for new development.

Static water pressure in the vicinity range from approximately 52 psi to 74 psi dependent upon the water elevation within the water towers. Assuming high service pumps were contributing and all reservoirs were full at the time of a large fire demand, the City estimates the system could deliver 4,450 gallons per minute for at least 1.7 hours. This

assumes the distribution and delivery system at the affected site will have adequate capacity to accommodate the maximum flow.

iv. Surface Waters

1) *Wetlands – Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. 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.*

   Road layouts avoid most of the delineated wetlands while providing functional traffic flows throughout the AUAR Study Area. For the purpose of this AUAR evaluation, assumptions on the placement of impervious surfaces, buildable lots/parcel boundaries, and individual building locations were overlaid onto delineated wetlands to estimate up to 5.85 acres of cumulative wetland impacts at multiple locations as a result of the full build out scenario (**Exhibit A**).

   Project proposers whom intend to propose wetland impacts will be required to submit a formal sequencing analysis with a wetland replacement plan upon finalization of the construction plans for each lot or property parcel. The wetland replacement plan will specify compensatory mitigation for all unavoidable permanent wetland impacts. The wetland impact areas will be mitigated onsite and/or through the purchase of offsite wetland bank credits from an approved wetland bank.

   Exact locations of suitable onsite replacement sites or mitigation banks are speculative for this evaluation and is subject to change. As development within the AUAR Study Area progresses and grading plans are completed, potential onsite wetland mitigation areas would be evaluated by the City of Elko New Market (Local Government Unit for the Wetland Conservation Act) and U.S. Army Corps of Engineers. Potential onsite mitigation locations may include areas north of the abandoned railroad grade and/or adjacent to proposed stormwater management ponds (if feasible).

   The purchase of wetland mitigation bank credits is entirely dependent on available bank credits in Bank Service Area No. 8 at the time of the replacement plan application. The wetland replacement plan will comply with the Minnesota Wetland Conservation Act (MN Rules 8420) and Section 404 of the Federal Clean Water Act.

   The proposed permanent wetland impacts will be negligible in scale to the host watersheds.

2) *Other surface waters – Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize*

turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.

AUAR Guidance: This item need only be addressed if the AUAR area would include or adjoin recreational water bodies.

One new road crossing is proposed over the Unnamed USGS stream located in the northwest portion of the AUAR Study Area. The purpose of the major collector road is to connect with a future road to provide an east-west travel corridor from Xerxes Avenue (County Road 19) to the AUAR Study Area and future developments west of the AUAR Study Area (**Appendix D – Figure 17**). The crossing is assumed to be designed with a box culvert(s) with natural stream bottom and structural features to not impede fish passage or habitat. Stormwater runoff from the road sections will be treated to applicable permit and regulatory requirements. Development within the AUAR Study Area will not change the number or type of watercraft on any water body.

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.*

Minnesota Pollution Control Agency (MPCA) records indicate 27 sites within a one mile radius of the AUAR Study Area, including one site within the AUAR Study Area. The MPCA's Master Entity System (MES) dataset of known sites within one mile of the AUAR Study Area is illustrated on **Figure 6** in **Appendix B**. There are eight documented spills or leaks from above or below ground storage tanks or hazardous waste storage/generators/sites within one mile of the AUAR Study Area.

APPRO Development authorized ISG to conduct a Phase I Environmental Site Assessment of the AUAR Study Area (Report dated September 14, 2018; **Exhibit D**). The purpose of the Phase I was to evaluate the potential for any hazardous substances or materials present on the site. Several visual indicators of hazardous materials, containers, distressed vegetation, soil mounds, odors, or suspicious land use activities were observed during the site visit in 2018. City and County officials were also interviewed and both were aware of multiple historical contaminations on the site.

ISG did identify one Historical Recognized Environmental Condition (HREC) and two Recognized Environmental Conditions (REC) associated with the AUAR Study Area. The HREC is associated with the release of gasoline from the former Registered Leaking Storage Tanks (LUAST), which was remediated to the satisfaction of the regulatory agencies and the site was issued a regulatory site closure. The two RECs were based on environmental hazards observed from several areas of solid waste, hazardous materials, 55 gallon drums, and unregistered above ground/below ground storage tanks and other hazardous liquid containers.

Depending on the specific activities or land disturbing activities that are planned, further investigation and testing may be warranted in order to document the presence or absence of contamination at the subject property and/or whether contamination levels could be above

thresholds that might require reporting to the applicable agencies or regulated handling and/or disposal.

If potentially contaminated materials (or other environmental hazards) are discovered during construction activities, the project proposer/contractor will immediately cease activities in the area, then take appropriate and reasonable actions to contain and reduce the human health/environmental risk prior to contacting the State of Minnesota Duty Officer, Scott County, and project proposers representative. The development of a Contingency Plan or Response Action Plan will be initiated if analytical results characterize the discovered materials as a regulated contaminated waste.

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,

Solid and liquid wastes generated from construction materials and equipment are expected in minimal amounts during periods of active construction. Wastes may include scrap wood, packaging, excess building materials, and sediment laden construction dewatering. The contractor will be required to immediately haul offsite and/or temporarily store and dispose (or recycle) of all waste in accordance with MPCA regulations and the NPDES Construction Stormwater Permit. Construction products will be kept in their manufactured containers and secured prior to the end of each work day.

Operational non-hazardous waste will be temporarily stored onsite (residential and commercial dumpsters) and disposed offsite by a waste hauler. Waste reduction and recycling will be implemented in accordance with facility operational plans (if applicable) and available waste hauler programs.

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.*

AUAR Guidance: For C, Potential locations of storage tanks associated with commercial uses in the AUAR should be identified (e.g. gasoline tanks at service stations.

Hazardous materials (portable fuel tanks and lubricants) may be used for equipment operations and temporarily placed onsite in sealed containers (at all times) and under secured restricted access during non-working hours. These materials will only be used during active construction for refueling and maintenance of construction equipment. To ensure that fuel spills do not contaminate surface and ground waters, construction and maintenance activities would occur at reasonable distances from surface waters and steep sloped areas. The contractor will be required to abide by the Pollution Prevention Management Measures of the NPDES Construction Stormwater Permit. All hazardous materials will be removed from the site upon completion of construction.

Small quantities of hazardous materials will be stored and used within commercial and industrial buildings for general equipment maintenance, repair, or general cleaning use during normal operations (i.e. lubricants for mechanical processing equipment, cleaning solutions, etc.). These materials are stored in their original portable containers from the manufacturer or vendor and housed indoors at all times. All hazardous materials will be inventoried and included in a Spill Prevention Control and Countermeasure Plan (if applicable per the facility), Hazardous Communications Plan, and Facility Plan. The types and quantities of chemicals are not expected to trigger the Superfund Amendments and Reauthorization Act (SARA) thresholds and/or tier II reporting. The potential for environmental impacts from accidental spills is minimal considering all storage, disposal, and hazardous material uses will take place indoors.

Exterior above/below underground storage tanks containing petroleum products or hazardous waste may be constructed by future owners, tenants, and operators of individual parcels or lots. Potential storage tanks may include gasoline, diesel, or other hazardous liquid and gas substances for light industrial processes. Individual business owners, tenants, and operators will be required to incorporate the necessary site design parameters and required secondary containment with other preventative best management practices for the safe handling and storage of the specific hazardous substances.

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.*

Hazardous waste generation and storage is expected to be minimal based on the proposed future land uses. Individual businesses may be required to obtain a Minnesota Pollution Control Agency Hazardous Waste Generator License (Small to Minimal). Hazardous wastes created from routine construction activities are not expected. If unusual construction activities generate hazardous wastes, the project proposer and construction administrator will follow applicable local and state safe handling and disposal procedures.

13. Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features):

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

AUAR Guidance: The description of the wildlife and fish resources should be related to the habitat types depicted on the cover types maps (of item 7). Any differences in impacts between development scenarios should be highlighted in the discussion.

The AUAR Study Area is currently active agricultural land, pasture for cattle (portions of brush/grassland), forested, and wetland. According to Table 13-1, the majority cover type (49%) is cropland and brush/grassland. One unnamed USGS stream is located in the northwest corner of the AUAR Study Area. The unnamed watercourse is a tributary of the Vermillion River, which is located approximately 0.16 miles north of the AUAR Study Area (**Appendix C – Figure 10**). Areas surrounding the AUAR Study Area have similar fish and wildlife resources, which consist of rolling hills of agricultural row crops, wetlands, and wooded areas. Several wildlife species are assumed to occupy the surrounding habitats of the site, which are further described in EAW Question No. 13.b.

Table 13-1. Existing Land Cover Types

Land Cover Type	Acres	Percentage
Wetlands	42.5	18%
Deep Water/Streams**	0	0%
Wooded/Forest	57.5	24%
Brush/Grassland	71.5	29%
Cropland	48.8	20%
Lawn/Landscaping	9.9	4%
Impervious Surface	11.8	5%
Stormwater Ponds	0.50	<1%
Other (describe)	0	0%
TOTAL	**242.5**	**100%**

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 20180074) *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.*

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

The MDNR Natural Heritage Information System (NHIS) search was completed for the entire proposed AUAR Study Area (refer to **Exhibit E**). The AUAR Study Area is not located within a Minnesota Biological Survey (MBS) site of biodiversity significance, nor are any state-listed species, or native plant communities known to exist within or adjacent to the AUAR Study Area. Search results identified one documented rare feature within a one-mile radius of the AUAR Study Area that may be adversely affected by the proposed project. The western half of the north AUAR Study Area (north of CSAH 2- 260th St. E.) is within a Central Region Regionally Significant Ecological Area (RSEA) that is ranked High (refer to **Figure 11**). The MDNR 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 for local communities, especially as it relates to balancing development and natural resource protection. The designation provides no restrictive land use or development provisions. No specific habitat or species survey work has been conducted within the AUAR Study Area, however, a majority of the RSEA within the AUAR Study Area is comprised of agricultural land use.

The site may currently be utilized by migratory birds in the spring and fall. These species would typically include common waterfowl species and Mourning Doves. Other common wildlife species may utilize the AUAR Study Area for food and/or cover throughout the year. These species may include (but not limited to); Whitetail Deer, Ring-Neck Pheasant, Cotton-Tail Rabbit, Raccoon, Red Fox, Coyote, Opossum, Striped Skunk, Red-Tailed Hawk, American Kestrel, American Crow, Wild Turkey, and Red Wing Blackbird.

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.*

Approximately half of the AUAR Study Area provides temporary and low quality habitat cover value to the local wildlife populations during the growing season when row-crop agriculture and grazing cattle are present. Agricultural food sources also provide temporary value to the local and migratory waterfowl that may utilize the site during short-term migration periods of the year. The remaining natural habitats (wooded/forested and wetlands) will be impacted by up to 17% of their pre-project areas.

Wildlife may be temporarily displaced during construction activities. However, common wildlife is expected to occasionally visit or re-establish residence on the site and adjacent sites following construction. There are no anticipated effects to threatened and endangered species as a result of the proposed project.

Where current or future infestations of invasive plant species are identified (e.g. *Phalaris arundinacea*), appropriate control methods will be applied during construction and operations to limit the spread and impact of invasive species. During construction all disturbed lands will be permanently seeded to prevent the establishment and spread of invasive plant species.

One new road crossing is proposed over the Unnamed USGS for the purpose of providing a major collector road to connect with a future road to provide an east-west travel corridor from Xerxes Avenue (County Road 19) to the AUAR Study Area and future developments west of the AUAR Study Area (**Appendix D – Figure 17**). The crossing is assumed to be designed with a box culvert(s) with natural stream bottom and structural features to not impede fish passage or habitat. Stormwater runoff from the road sections will be treated to applicable permit and regulatory requirements.

A majority of the surrounding area is currently utilized for agricultural purposes; therefore, removal of the existing habitat within the AUAR Study Area will have a minimal effect on the quantity of available food and cover to the local wildlife populations.

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

The layout of the proposed development (**Exhibit A**) has been designed to avoid and minimize impacts to the natural habitats in the following locations:

- Unavoidable wetland impacts will be minimized to the greatest extent feasible, considering the site constraints and the distribution of wetlands within the AUAR Study Area (such as special considerations per MN Rules 8420.0515).

- Tree removals will be limited to the extent possible within each lot or property parcel. A majority of the forested area is located in the northern portion of the site, where development will be limited. Additionally, trees and shrubs will be planted as part of the landscaping plan for the associated development.

- Native prairie seeding may be incorporated in some non-mowed areas such as buffers along the perimeters of proposed stormwater ponds.

- The USGS stream crossing is assumed to be designed with a box culvert(s) with natural stream bottom and structural features to not impede fish passage or habitat. Stormwater runoff from the road sections will be treated to applicable permit and regulatory requirements prior to discharging into the stream.

- Measures to prevent the spread of invasive species during construction include; working in non-infested areas first before moving to infested areas, thoroughly cleaning equipment after working in infested areas and before mobilizing to a different portion of the AUAR Study Area or a different off-site project, and revegetating disturbed areas as soon as possible after construction is completed in an area.

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.

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

Information was requested and received from the Minnesota Historical Society State Historic Preservation Office (SHPO) on October 17, 2018 (**Exhibit F**). Upon SHPO conducting a search of the Minnesota Archaeological Inventory and Historic Structures Inventory, no previously known archaeological sites were identified within the same sections as the proposed project.

There are two historic structures listed in the vicinity of the project: The Mendota-Big Sioux River Road.: Dodd Road. Section (SC-NMT-007) is listed in Sections 24 and 25 of Township 113 North, Range 21 West, and east of interstate 35. The proposed project will have no direct or indirect adverse impacts to the surrounding historical structures.

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.

AUAR Guidance: Any impacts on such resources present in the AUAR should be addressed. This would include both direct physical impacts and impacts on visual quality or integrity.

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

There are no scenic views or vistas on or in the vicinity of the project site. Views are primarily of pasture or active agricultural land, the community of Elko New Market to the southwest of the AUAR Study Area, and Interstate 35 along the eastern project limits.

Under the proposed development scenario, exterior building materials will consist of steel, metal, concrete, wood or other building materials as approved by the Minnesota State Building Code. Building heights are variable, however, most heights will be less than 45 feet. Perimeter landscaping and exterior lighting will be determined during the final design of each individual lot, as required by the applicable City of Elko New Market Development Ordinances. During the construction process there will be some temporary, minor disturbances to views due to construction machinery and temporary lighting. No visual nuisances, such as intense glare or significant light plumes are anticipated following development.

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 to assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.*

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

   Portable air emission sources such as generators, concrete plant, etc. may be used during certain phases of construction. Each piece of construction equipment will be used onsite, and therefore would be a previously permitted air emission source.

   Boilers for water heating, HVAC systems, and emergency backup generators are stationary source emissions that maybe used to heat and cool the buildings during normal operations. The fuel source is expected to be natural gas; therefore, negligible amounts of hazardous or criteria pollutants, or greenhouse gases may be emitted. Equipment selections (if applicable) have not been finalized as they will be dependent on the final development plan and the future tenants needs. The pollutants, pollution control equipment (if needed), and regulatory requirements are unknown at this time, however are expected to be below state and federal regulatory thresholds. Each future tenant will evaluate the expected emissions, limits, and monitoring requirements as it relates to the current MPCA Air Emission Permit regulations.

   There are no existing permitted air facilities or sensitive receptors within the vicinity of the AUAR Study Area.

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

   AUAR Guidance: Although the Pollution Control Agency no longer issues Indirect Source Permits, traffic-related air quality may still be an issue if the traffic analysis indicates that development would cause or worsen traffic congestion. The general guidance for item 22 in EAW Guidelines should still be followed. Questions about the details of air quality analysis should be directed to the MPCA staff.

The development scenario will increase truck and vehicle trips per day, however total trips per day are not anticipated to significantly increase traffic congestion or decrease capacity to the local roadway system. Please refer to Item 18.b. for additional information. The project will not result in a significant decrease in air quality as congestion or diesel idling is not anticipated as a result of the full buildout development scenario.

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

Dust common to construction and earth moving practices is expected (in the form of fugitive dust) during periods of dry weather. Dust will be visually monitored and recorded in conjunction with the NPDES Construction Stormwater Permit and City of Elko New Market inspections. Appropriate dust control best management practices (such as soil wetting, misting/water vapor, and hydraulic additives) may be implemented (upon inspection or public complaint) by the contractor as necessary to control dust from leaving each construction site during all phases of construction. Specific dust control best management practices will be determined and implemented (as necessary) based on severity, weather conditions (i.e. wind speed), and current site conditions.

Dust and odors caused from vehicles in the parking lots and loading docks will vary depending on the number and types of vehicles actively moving in one area and current weather conditions. Pollutants generated from vehicle exhausts may concentrate and linger (possibly where vehicles congregate) which may cause a short-term odor that eventually dissipates.

Odors during normal operations are not anticipated to occur following development. Planned land use includes Business/Limited Industrial, Commercial, and Residential. Nuisance odors are not anticipated to occur at the project property boundaries or to offsite receptors.

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

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

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

Existing and proposed ambient noise sources include vehicle traffic (local roads, County Road 2, and I-35) and potential light industrial operations generated from portions of the AUAR Study Area slated for limited industrial development. Temporary exterior noise is expected while construction is taking place onsite which may range from 65-95 dBA, with construction taking place during the hours stipulated in Elko New Market City Code Chapter 5, Section 5.2.

Post-construction exterior noise is anticipated to be generated from intermittent truck traffic, loading/unloading activities, vehicle traffic on local roads, and stationary facility equipment (heating/cooling systems, ventilation fans, etc.). All exterior noise is expected to be less than the State of Minnesota noise rules in an industrial land use setting (<75 dBA) and commercial land use setting (<65 dBA) for the areas with limited industrial uses and commercial uses, respectively.

Normal operational and exterior noises for the commercial and industrial uses at the AUAR Study Area will not exceed the State of Minnesota statutory limits for residential receptors (NAC 1) for the portion of the AUAR Study Area planned for mixed-used residential uses (Minnesota Rules 7030.0040). There are no known adjacent sensitive noise receptors to the AUAR Study Area.

18. Transportation:

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

Heavy traffic will likely occur during the construction phase of the project with truck traffic, concrete and precast delivery, HVAC, electrical, utilities, etc. The total average daily traffic generated during construction will likely vary throughout construction ranging from minimal traffic on holidays and weekends to multi-crew operations on weekdays with favorable weather. The number of vehicles will also vary depending on the general contractor selected for construction, the contractor's means and methods, and the amount of active construction simultaneously occurring within AUAR Study Area.

Once fully built as proposed **(Exhibit A)**, the AUAR Study Area will offer 3,519 parking stalls and 120 large vehicle parking stalls. Estimated total average daily traffic generated is expected to be approximately 34,000 vehicles per day for the full build out scenario as shown in the Traffic Impact Study **(Exhibit G)**. However, many of these trips are internally captured within the development or are pulled from the existing highway traffic stream. After adjusting for internal captured and "pass-by" trips, the total average daily traffic new to the adjacent road network is 22,000 vehicles per day.

The land uses that make up this plan, as shown in the Traffic Impact Study prepared for this development, include the following:

- General Light Industrial (ITE Code 110)
- Manufacturing (ITE Code 140)
- Mini-Warehouse (ITE Code 151)
- Residential Condominium/Townhouse (ITE Code 230)
- Hotel (ITE Code 310)
- Single Tenant Office Building (ITE Code 715)
- Medical-Dental Office Building (ITE Code 720)
- Tractor Supply Store (ITE Code 810)
- Furniture Store (ITE Code 890)
- Shopping Center (ITE Code 820)

- Specialty Retail Center (ITE Code 826)
- Automobile Parts Sales (ITE Code 834)
- Automobile Sales (ITE Code 841)
- Recreational Vehicle Sales (ITE Code 842)
- Supermarket (ITE Code 850)
- Furniture Store (ITE Code 890)
- High Turnover (Sit-Down) Restaurant (ITE Code 932)
- Fast-Food Restaurants with Drive-Through Windows (ITE Code 934)
- Coffee/Donut Shop with Drive-Through Window (ITE Code 937)
- Gasoline/Service Station with Convenience Market (ITE Code 945)

The types and sizes of businesses that move into the development will ultimately determine the total daily traffic for the development. The individual land uses above may each generate their peak traffic at different times during the day. However, these differences will likely balance out and the maximum peak hour traffic is expected to occur during or near the adjacent highway's peak hours of traffic: weekdays from 7:00 AM to 8:00 AM and weekdays from 4:00 PM to 5:00 PM. By the time the development is fully developed, peak hour traffic is expected to be about 3,000 vehicles per day in the morning and 3,700 vehicles per day in the afternoon. Again, many of these trips are internally captured within the development or are pulled from the adjacent highway traffic. After adjusting for internal capture and "pass-by" trips, about 1,900 vehicles would be added to the road network during the morning peak hour and 2,400 vehicles during the evening peak hour. These trip generation numbers were determined using the ITE Trip Generation Manual 9th Edition and the ITE Trip Generation Handbook 2nd Edition.

Neither the City of Elko New Market nor Scott County offer formal public transportation to the AUAR Study Area. However, a land use goal as stated in the 2030 Elko New Market Comprehensive Plan is to "Encourage an integrate approach to land use, transportation and natural resources, including development review for a sufficient level of supportive services and infrastructure, compatibility of land use and natural features, support of pedestrian and transit oriented development of land use, and economic stability of the land use." While no mass transit plans for this area have been identified at this time, public transportation would benefit the development area by reducing the amount of vehicular traffic entering, exiting, and circulating within the AUAR Study Area.

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

AUAR Guideline: 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 vehicle related air emissions (16.b) and in the noise aspect of item 17.

Per the Minnesota DOT Access Management Manual, a Traffic Impact Study is needed to identify capacity deficiencies at intersections affected by the planned development and to help identify feasible solutions to the deficiencies. A technical analysis was prepared **(Exhibit G)**, analyzing the area's existing conditions, future year conditions without the proposed development, and future year conditions with the proposed development. Areas requiring mitigation were identified, and recommendations were developed to address the deficiencies. Outputs of modeling calculations were prepared and placed in the report's appendices. Summaries of these modeling calculations were also provided within the report body. A comprehensive Traffic Impact Study was prepared **(Exhibit G)**, and can be referred to for additional detail on

background traffic growth, trip generation, trip distribution, trip assignment, internal capture, and pass-by trip calculations.

This development's traffic impacts on CSAH 2 were analyzed using Synchro and SimTraffic software. By 2031, eastbound and westbound directions of CSAH 2 are expected to operate at an acceptable level of service (LOS A and B) during the studied peak. However, the adjacent minor streets including Xerxes Avenue, Newton Circle, Irving Avenue, and the northbound and southbound I-35 ramps are expected to operate at varying levels of service ranging from acceptable to unacceptable (LOS A to LOS F). In 2038 or full development, levels of service for eastbound and westbound CSAH 2 are expected to decrease, and the side street levels of service will generally be unacceptable.

By 2031, improvements to the interstate overpass bridge and Intersections 5 and 6 will be needed regardless of proposed development construction. Interim and long term options for I-35 interchange improvements have been detailed in the 2010 "CH 2 / I-35 Interchange Area Management Plan" (IAMP), which is available from the Minnesota Department of Transportation.

To accommodate development anticipated to occur by 2031, improvements to the studied intersections are needed. As the development builds out, additional improvements will be needed. As businesses move into to the development, traffic impact studies should be conducted as needed in order to track interim improvement needs. Additionally, the Study Area should be re-evaluated if growth projections, as described in the traffic impact study, change.

Based on the modeled 2031 and full build out conditions described in the Traffic Impact Study, to accommodate both major and minor street traffic, improvements are recommended at CSAH 2's intersections with Xerxes Avenue, the Frontage Road, Irving Avenue, the I-35 ramps, and some road links. The following are minimum recommendations:

- Implement roundabouts or traffic signal control at CSAH 2's Intersections with Xerxes Avenue, the east access of the Frontage Road, and both I-35 ramps.
- Two travel lanes should be maintained both eastbound and westbound through the studied area.
- Close access to Irving Avenue and route to new access road to the west, as shown in the development plan.
- At the I-35 overpass, widen the bridge to accommodate 4 travel lanes.
- Proposed business driveways should be placed in locations as to avoid impacts to future intersection turn lanes.

Assuming improvements to accommodate initial (2031) development are implemented as recommended, the following are minimum recommendations:

- Implement roundabouts or traffic signal control at CSAH 2's intersection with the west access of the Frontage Road if warranted according to future traffic impact studies.
- Add turn lanes at CSAH 2's intersection with the east access of the Frontage Road and the southbound I-35 ramp.
- Proposed business driveways should be placed in locations as to avoid impacts to future intersection turn lanes.

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

Temporary traffic disruptions are not anticipated or planned for this project once construction is complete. If disruptions to local public roads are needed, proper traffic control measures will be implemented as specified in the Minnesota Manual of Uniform Traffic Control Devices (MMUTCD). There are no identified long-term traffic minimization plans associated with facility operations.

The types of business that move into the development, and the development rate, will largely determine when changes in permanent intersection control are needed. Once traffic impact studies conclude that traffic signals are warranted in the near future, further study will be required to design the new traffic signals. Intersection improvements should consider Scott County's "Appendix A3 – Minimum Access Spacing Guidelines", as provided in the County's 2040 Comprehensive Plan. Once the recommended improvements are implemented, the area should be monitored as regular drivers adjust to the new traffic patterns. The AUAR Study Area corridors should be reevaluated on a regular basis as the area develops or as growth projections change.

19. Impact on Infrastructure and Public Services:

AUAR Guidance: This item should first of all summarize information on physical infrastructure presented under items (such 6, 17, 18 and 21). Other major infrastructure or public services not covered under other items should be discussed as well – this includes major social services such as schools, police, fire, etc. The RGU must be careful to include project-associated infrastructure as an explicit part of the AUAR review if it is to exempt from project-specific review in the future.

Fire and Police Protection Services

The Scott County Sherriff currently provides police protection for the AUAR Study Area. Once annexed into the City of Elko New Market, police protection will be the responsibility of the Elko New Market Police Department. Both the Scott County Sherriff and the Elko New Market Police Department have the capacity to respond and provide services to the AUAR Study Area. Additionally, the Elko New Market Fire Department protects 48 square miles, including New Market Township where the AUAR Study Area is currently located. Fire service can be provided to the AUAR Study Area in a timely manner. Hydrants will be located at all public road intersections and intermediately spaced within the AUAR Study Area to allow for adequate fire protection of all proposed buildings and structures.

Schools

The AUAR Study Area is served by the Lakeville School District. The district is able to accommodate any additional students that may accompany the multi-unit residential portion of the development concept. Proposed residential units include six townhouses and eight four-plex units.

Future Road Infrastructure Needs

According to the modeling done for the traffic study included in **Exhibit G**, by 2031 improvements to the interstate overpass bridge and the CSAH 2/I-35 intersection will be needed regardless of construction relating to the proposed development at the AUAR Study Area. Improvements needed as a result of the proposed development, including the addition of traffic signals, may be needed to accommodate development associated with Phase 1 of the development concept. Additional improvements, including the installation of additional traffic signals, may be needed to accommodate development associated with Phase 2 of the development concept. Additional detail on specific recommended improvements can be found in Section 18.

City Maintenance

As the development of the AUAR Study Area progresses following the development concept, municipal streets will be added to the individual sites as needed. With the addition of these new streets, additional maintenance will be necessary to keep the streets safe and convenient for continued public use. The City will maintain the public right-of-way in the AUAR Study Area as it is developed and assume maintenance responsibility accordingly.

Refuse Collection

Solid waste collection will be contracted through the individual property owners and be handled by a licensed solid waste hauler through the City of Elko New Market. Property owners will be

encouraged to compost and recycle. Any industrial waste generated from the industrial uses will adhere to additional industrial waste management guidelines.

Municipal Water
Potable public water service is located to the west of the AUAR Study Area, along the south side of CSAH 2 (260th St. E.). The intent is to connect the entire AUAR Study Area to the existing 16-inch watermain by extending a 16-inch line to the two road accesses to the site along CSAH 2. Watermain interior of the AUAR Study Area will be 12 to 16 inch in diameter with private service line connections.

Sanitary Sewer
The existing Metropolitan Council Environmental Services (MCES) sanitary interceptor runs parallel along CSAH 2 and to the north at the intersection with CSAH 2. Service will be provided throughout the AUAR Study Area with 18-inch and 27-inch stubs located in the eastern portion of the site.

Stormwater Management
The northern portion of the AUAR Study Area drains north toward to the Vermillion River and the southern section of the AUAR Study Area flows east under Interstate 35 and eventually drains into a tributary to the Vermillion River. The majority of stormwater is managed on site through a number of treatment basins located throughout the proposed development. Additional detail can be referenced in Section 11.

20. 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 items on the EAW form automatically encompass the impacts from all anticipated developments within the AUAR area.

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

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

The geographical scales of the individual projects occurring in the proposed AUAR Study Area are limited to each project site, surrounding project sites within the AUAR Study Area, and adjacent natural resources to the AUAR Study Area. Environmental impacts (air, land, and water) will be required to meet Local, State, and Federal regulations through obtaining the applicable permits and providing engineering controls and/or mitigation (as required). Therefore, any potential project impacts that may result are not anticipated to combine with other environmental effects to result in a cumulative potential effect. Construction within the proposer's AUAR Study Area is expected to begin in 2020, however no additional phases within the AUAR Study Area are proposed at this time.

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*.

There are no planned or foreseeable interim or future projects (other than detailed in this AUAR) by the project proposer within the Adelmann Property. It is expected that private development

projects by other project proposers (outside of the AUAR Study Area) will occur on other properties located within or near the City of Elko New Market. To date, the type, size, and scale of these future private projects are unknown; therefore, the cumulative potential effects from future private projects on nearby resources cannot be determined at this time.

Future public project is known within the same geographical scales however, the specific time frames are unknown. By 2031, improvements to the CSAH 2/I-35 interstate overpass bridge will be needed regardless of proposed development construction. Interim and long term options for I-35 interchange improvements have been detailed in the 2010 "CH 2 / I-35 Interchange Area Management Plan" (IAMP), which is available from the Minnesota Department of Transportation.

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.*

Environmental impacts to habitat, air, and water resources will be mitigated or minimized through implemented engineering controls as required by current and applicable regulatory programs (refer to **Table 8-2** Permits and Approvals). The long-term operations of the businesses and residential units may contribute to a minimal increase to the cumulative potential effects (past and present) on the surrounding surface water resources (wetlands, ditches, etc.) and air emissions from increased traffic. The proposed project is not anticipated to contribute to any significant environmental effects.

In addition to the potential environmental impacts addressed by items 1 to 18, the economic, employment, and sociological impacts of the project were considered. The economic and social impacts of the project on the local community are anticipated to be beneficial by bringing additional employment opportunities during construction and operations of the businesses.

21. 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.*

AUAR Guidance: If applicable, this item should be answered as requested by the EAW form.

There are no other known or potential environmental effects that were not discussed in items 1 to 20.

DRAFT MITIGATION PLAN

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

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

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

There were no impacts identified in Items 10, 14, 15, 16, 17, 19, 20, or 21; therefore, these areas require no mitigation and are not included in this Mitigation Plan. The remaining AUAR items (8, 9, 11, 12, 13, and 18) have identified regulatory requirements and/or mitigation measures that reduce the level of potential impact of development within the AUAR Study Area. The Mitigation Plan is formatted consistent with the sections of the AUAR for each of reference.

8. *Permits and Approvals Required:*

All required permits and approvals will be obtained prior to construction. Any necessary permits or approvals not listed in **Table 8-2** have not intentionally been omitted.

Table 8-2. Permits and Approvals

Unit of Government	Type of Application	Status
U.S. Army Corps of Engineers (USACE)	Section 401/404 of the Clean Water Act	To Be Obtained
Minnesota Pollution Control Agency (MPCA)	NPDES Construction Stormwater Permit	To Be Obtained
	NPDES Industrial Stormwater Permit	To Be Obtained (if applicable)
	Sanitary Sewer Extension	To Be Obtained
	Air Emissions Permit	To Be Obtained (if applicable)
	Hazardous Waste Generator License (Small to Minimal)	To Be Obtained (if needed)
Minnesota Department of Natural Resources (MDNR)	Water Appropriations For Construction Dewatering	To Be Obtained (if needed)
Minnesota Department of Health (MDH)	Watermain Extension	To Be Obtained
	Well Abandonment	To Be Submitted
Vermillion River Watershed Joint Powers Organization	Project Review	To Be Submitted (if applicable)
Scott County	Final Plat	To Be Submitted
	Work in Right of Way	To Be Submitted
	Access Permit	To Be Submitted (if applicable)
	Utility Accommodation Permit	To Be Obtained

City of Elko New Market	AUAR Approval	In Progress
	Developers Agreement	To Be Submitted
	Preliminary and Final Plat	To Be Submitted
	Filling/Grading Permits	To Be Obtained
	Stormwater Management Plan	To Be Obtained
	Building, Plumbing, Electrical, and HVAC Permitting and Inspection	To Be Obtained
	Wetland Replacement Plan (pursuant to Wetland Conservation Act)	To Be Obtained
	Annexation	To Be Submitted
	Property Rezoning	To Be Submitted
	Site Plan Review	To Be Submitted
	Conditional Use Permit (per site)	To Be Obtained
	Site Permit	To Be Obtained
	Vacation of Right-of-Way or Easement (if applicable)	To Be Submitted (if applicable)

9. Land Use

Potential Impacts

- Chapter 7 (Natural Resources) of the City of Elko New Market 2030 Comprehensive Plan indicates portions of the AUAR Study Area are located in or adjacent to an identified concentration of natural resources surrounding the Vermillion River including grassland, shrubland, and woodland.

Mitigation Strategies

- Additional design considerations will be reviewed on a per development lot or parcel basis to ensure protection of adjacent natural resources, including but not limited to, erosion control measures, wetland preservation or enhancement, conservation easement dedication, and open space designation.

How Mitigation will be Applied and Assured

- Prior to approval of a development or parcel, natural resources within the project area will be reviewed for potential impacts and appropriate avoidance and minimization measures employed into the site design layout.

Involvement by Other agencies

- Developers seeking approval of individual projects will coordinate with City of Elko New Market, Scott County, and MDNR to determine the natural resources impacted and specific mitigation strategies during the entitlement process.

11. Water Resources

Potential Impacts

- One new road crossing is proposed over the Unnamed USGS stream located in the northwest portion of the AUAR Study Area

- Up to 5.85 acres of the 42.45 acres of delineated wetland may be impacted as a result of the full buildout scenario assumptions on the placement of impervious surfaces, buildable lots/parcel boundaries, and individual building locations.

- Shallow groundwater was encountered (2-15 feet below ground surface; 1,069 to 1,111 MSL) in several soil borings. Temporary dewatering excavations and operations may be required during project construction.

- The quality of post-construction stormwater runoff from the full buildout scenario will be typical of an urban land use with impervious surfaces and lawn/landscaping generating higher concentrations of total suspended solids and total phosphorus.

Mitigation Strategies

- The unnamed USGS stream crossing is assumed to be designed with a box culvert(s) with natural stream bottom and structural features to not impede fish, amphibian, or reptile passage or habitat. Instream construction would require temporary bypass and/or dewatering best management practices and seasonal restrictions. Stormwater runoff from the road sections will be treated to applicable permit and regulatory requirements.

- Project proposers whom intend to propose wetland impacts will be required to submit a formal sequencing analysis with a wetland replacement plan upon finalization of the construction plans for each lot or property parcel.

- Temporary dewatering operations will be phased as best as feasible to minimize short-term direct and indirect impacts to in-stream habitat and surrounding water resources.

- The quantity and discharge rate of stormwater runoff in post-development conditions will be designed to meet a no net increase of stormwater runoff from existing conditions.

- Stormwater runoff is proposed to be conveyed into three major drainage areas with multiple subwatersheds within each drainage area. Each subwatershed provides dedicated land use for one or two proposed stormwater ponding areas, in addition to the existing stormwater ponds. Additional stormwater management areas may be required on lots and parcels to meet the no net increase of stormwater runoff from existing conditions. Infrastructure will be built throughout the AUAR study area to convey stormwater runoff into each subwatershed area to help achieve water quantity requirements.

How Mitigation will be Applied and Assured

- Given the site constraints, it is anticipated that a portion of the wetland impacts may be replaced on site and the rest would be replaced by purchasing bank credits from a state wetland bank.

- 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.

- All proposed stormwater ponding areas will be constructed in upland areas with 9.5 acres of total designated land use. Stormwater pond designs assume a one inch water quality volume over the net new impervious surfaces within the proposed subwatershed to reduce overall flow rates. The geotechnical report results show undesirable low permeable soils (clay, lean clay

sand) that are not adequate and functional for infiltration systems, therefore volume reduction techniques will be customized to each individual pond design.

- Final pond design and permanent stormwater treatment requirements will adhere to the current NPDES Construction Stormwater permit, City of Elko New Market Storm Water Management Plan, and applicable Vermillion River Watershed Joint Powers Organization (VRWJPO) standards.

- Maintenance of the stormwater management areas will be performed by either the City of Elko New Market or the private developers to ensure long term effectiveness of the facilities.

Involvement by Other Agencies (if applicable)

- The proposed development(s) within the AUAR Study Area will require compliance with the MDNR, Vermillion River Watershed Joint Powers Organization and the City of Elko New Market for water appropriations, water quality, volume control, runoff control, and erosion control.

- Wetland replacement plans and potential wetland mitigation areas would be evaluated by both the City of Elko New Market as the Wetland Conservation Act (WCA) Local Government Unit (LGU) and the USACE.

12. Contamination/Hazardous Materials/Wastes

Potential Impacts

- The Phase I Environmental Site Assessment identified one Historical Recognized Environmental Condition (HREC) and two Recognized Environmental Conditions (REC) associated with the AUAR Study Area.

- Construction generated waste materials such as scrap wood, packaging, excess building materials, and other wastes.

- Toxic or hazardous substances may be used during project construction.

- Small quantities of hazardous materials and wastes may be stored and used within commercial and industrial buildings for general equipment maintenance, repair, or general cleaning use during normal operations (i.e. lubricants for mechanical processing equipment, cleaning solutions, etc.).

Mitigation Strategies

- Depending on the specific activities or land disturbing activities that are planned, further investigation and testing may be warranted in order to document the presence or absence of contamination at the subject property and/or whether contamination levels could be above thresholds that might require reporting to the applicable agencies or regulated handling and/or disposal.

- Contractors will be required to immediately haul offsite and/or temporarily store and dispose (or recycle) of all waste in accordance with MPCA regulations and the NPDES Construction Stormwater Permit.

- Construction products will be kept in their manufactured containers and secured prior to the end of each work day.

- Operational non-hazardous waste will be temporarily stored onsite (residential and commercial dumpsters) and disposed offsite by a waste hauler. Waste reduction and recycling will be implemented in accordance with facility operational plans (if applicable) and available waste hauler programs.

- Individual business owners, tenants, and operators will be required to incorporate the necessary site design parameters and required secondary containment with other preventative best management practices for the safe handling and storage of the specific hazardous materials and wastes.

How Mitigation will be Applied and Assured

- If potentially contaminated materials (or other environmental hazards) are discovered during construction activities, the project proposer/contractor will immediately cease activities in the area, then take appropriate and reasonable actions to contain and reduce the human health/environmental risk. The development of a Contingency Plan or Response Action Plan will be initiated if analytical results characterize the discovered materials as a regulated contaminated waste.

- Contractors will be required to abide by the Pollution Prevention Management Measures of the NPDES Construction Stormwater Permit and applicable MPCA regulations. All hazardous materials will be removed from the site upon completion of construction.

- All hazardous materials will be inventoried and included in a Spill Prevention Control and Countermeasure Plan (if applicable per the facility), Hazardous Communications Plan, and Facility Plan.

Involvement by Other Agencies (if applicable)

- The developer(s)/project representative will contact and coordinate remediation efforts with the State of Minnesota Duty Officer and MPCA.

- Individual businesses may be required to obtain a Minnesota Pollution Control Agency Hazardous Waste Generator License (Small to Minimal).

13. Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)

Potential Impacts

- One new road crossing is proposed over the Unnamed USGS stream located in the northwest portion of the AUAR Study Area

- Approximately half of the AUAR Study Area provides temporary and low quality habitat cover value to the local wildlife populations during the growing season when row-crop agriculture and grazing cattle are present. The remaining natural habitats (wooded/forested and wetlands) will be impacted by up to 17% of their pre-project areas.

- Up to 5.85 acres of the 42.45 acres of delineated wetland may be impacted as a result of the full buildout scenario assumptions on the placement of impervious surfaces, buildable lots/parcel boundaries, and individual building locations.

Mitigation Strategies

- The unnamed USGS stream crossing is assumed to be designed with a box culvert(s) with natural stream bottom and structural features to not impede fish, amphibian, or reptile passage or habitat.

- Tree removals will be limited to the extent possible within each lot or property parcel. Development will be minimized in the northern portion of the site, where significant tree stands exist.

- Native prairie seeding may be incorporated in some non-mowed areas such as buffers along the upland perimeters of proposed stormwater ponds.

- Alternative site design layouts will be considered to avoid or minimize temporary and permanent impacts to wetland areas.

How Mitigation will be Applied and Assured

- Native seeding, trees and shrubs will be incorporated into the landscaping plans for the associated developments.

- Avoidance and minimization of proposed wetland impacts must be demonstrated for each proposed wetland impact and meet the criteria of Minnesota Rules 8420 and Section 404 of the Federal Clean Water Act.

Involvement by Other Agencies (if applicable)

- Developers seeking approval of individual projects will coordinate with City of Elko New Market, Scott County, and MDNR to determine the natural resources impacted and specific mitigation strategies during the entitlement process.

- Wetland replacement plans and potential wetland mitigation areas would be evaluated by both the City of Elko New Market as the Wetland Conservation Act (WCA) Local Government Unit (LGU) and the USACE.

18. Transportation

Potential Impacts

- Parking suitable for traffic counts and vehicle types based on anticipated land uses are needed.
- Peak hour traffic is expected to be approximately 3,000 vehicles per day in the morning) and 3,700 vehicles per day in the afternoon from trips internally captured and pulled from adjacent highway traffic. After adjusting for internal capture and "pass-by" trips, about 1,900 vehicles would be added to the road network during the morning peak hour (7:00 Am to 8:00 AM) and 2,400 vehicles during the evening peak hour (4:00 PM to 5:00 PM).
- The types of business that move into the development, and the development rate, will largely determine when changes in permanent intersection control are needed.

Mitigation Strategies

- Provide adequate number of parking spaces and configurations per individual lot or parcel.

- Close Irving Avenue's existing access to CSAH 2 and route existing Irving Avenue users to a new roadway within the internal AUAR Study Area.

- Place proposed business driveways within AUAR Study Area in appropriate locations to avoid impacts to turn lanes of future CSAH 2 and internal AUAR Study Area intersections.

- The AUAR Study Area corridors will be reevaluated on a regular basis as the area develops or as growth projections change, at the discretion of the City of Elko New Market and/or Scott County officials.

- Following the recommendations derived from the proposed 2031 traffic conditions model. Implement roundabouts or traffic signal control at CSAH 2's Intersections with Xerxes Avenue, the east access of the Frontage Road, and both I-35 ramps.

How Mitigation will be Applied and Assured

- Once fully built as proposed, the AUAR Study Area will offer 3,519 parking stalls and 120 large vehicle parking stalls.
- Closing Irving Avenue's access to CSAH 2 when new connecting internal road is constructed.

- Regulate the placement of proposed business driveways during City of Elko New Market's driveway permit review process.
- Once traffic impact studies conclude that traffic signals are warranted in the near future, further study will be required to design the new traffic signals. Intersection improvements should consider Scott County's "Appendix A3 – Minimum Access Spacing Guidelines", as provided in the County's 2040 Comprehensive Plan.
- Once the recommended improvements are implemented, the area will be monitored as regular drivers adjust to the new traffic patterns.

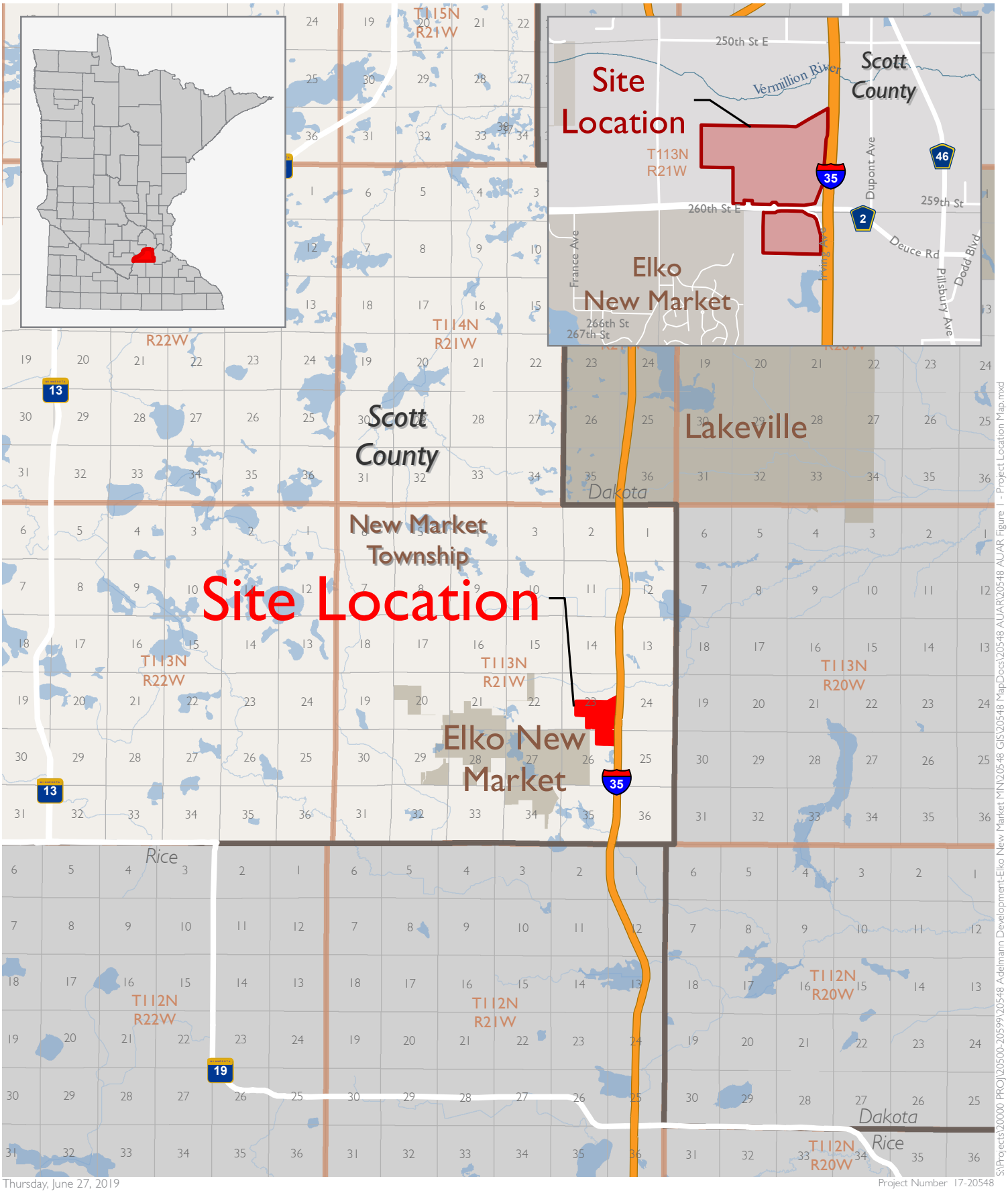
Involvement by Other Agencies (if applicable)

- Lay out internal AUAR Study Area roadway/intersection network with the City of Elko New Market officials.

- Developer(s) will coordinate with the City of Elko New Market, Scott County, and MnDOT as needed to implement the off-site roadway improvements.

APPENDIX A: PROJECT LOCATION MAPS

Figure 1. Project Location Map
Figure 2. USGS Topographic Map
Figure 3. AUAR Boundary and LiDAR Map



Thursday, June 27, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 1 - Project Location Map.mxd

0 1 2 Miles

1 in = 2 miles

N

Figure 1

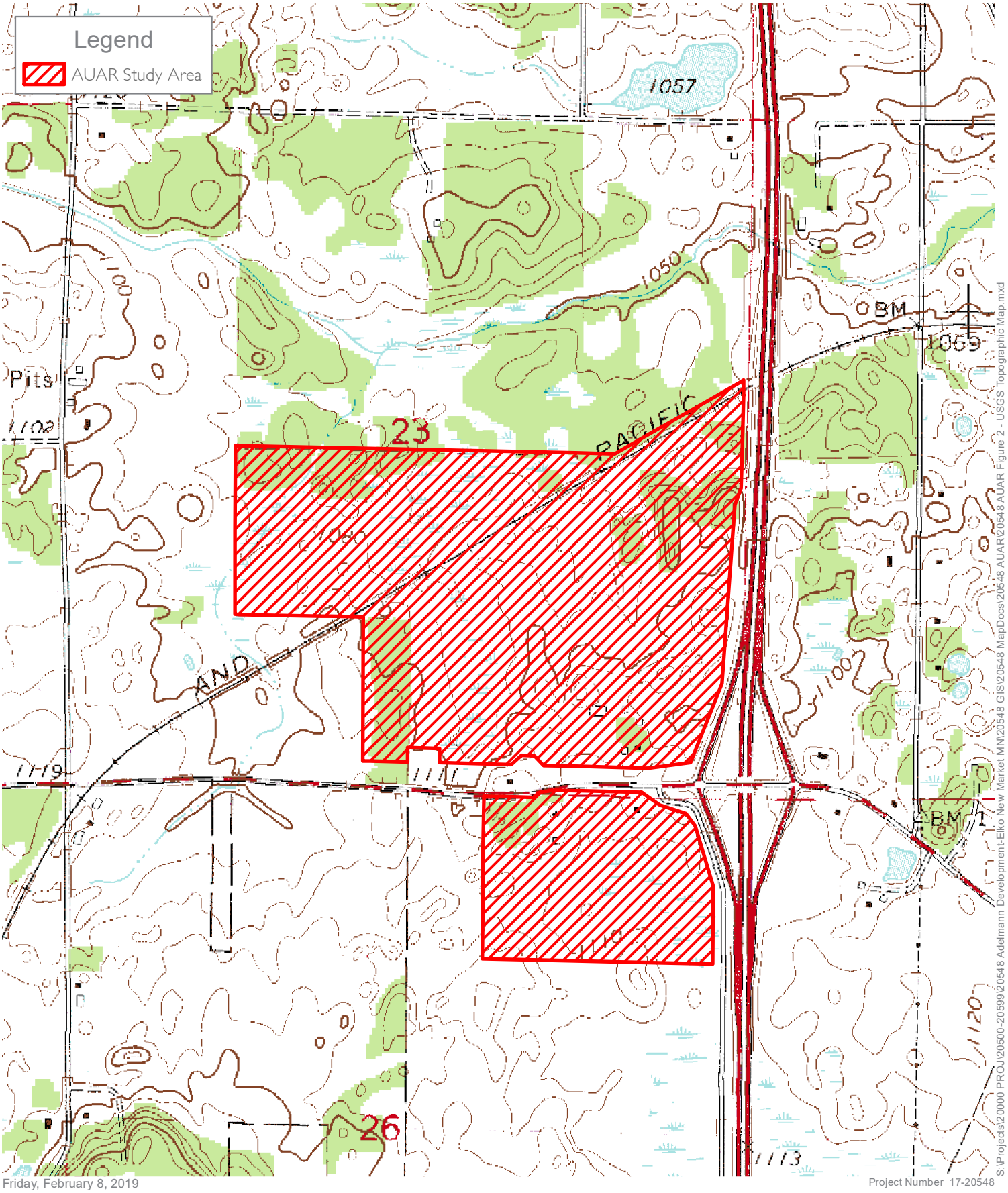
Project Location Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Municipalities (MN DOT, 6/24/2016)
Lakes (MN DNR, July, 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)

ISG



Friday, February 8, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 2 - USGS Topographic Map.mxd

0 500 1,000 Feet

1 in = 1,000 ft

N

Figure 2

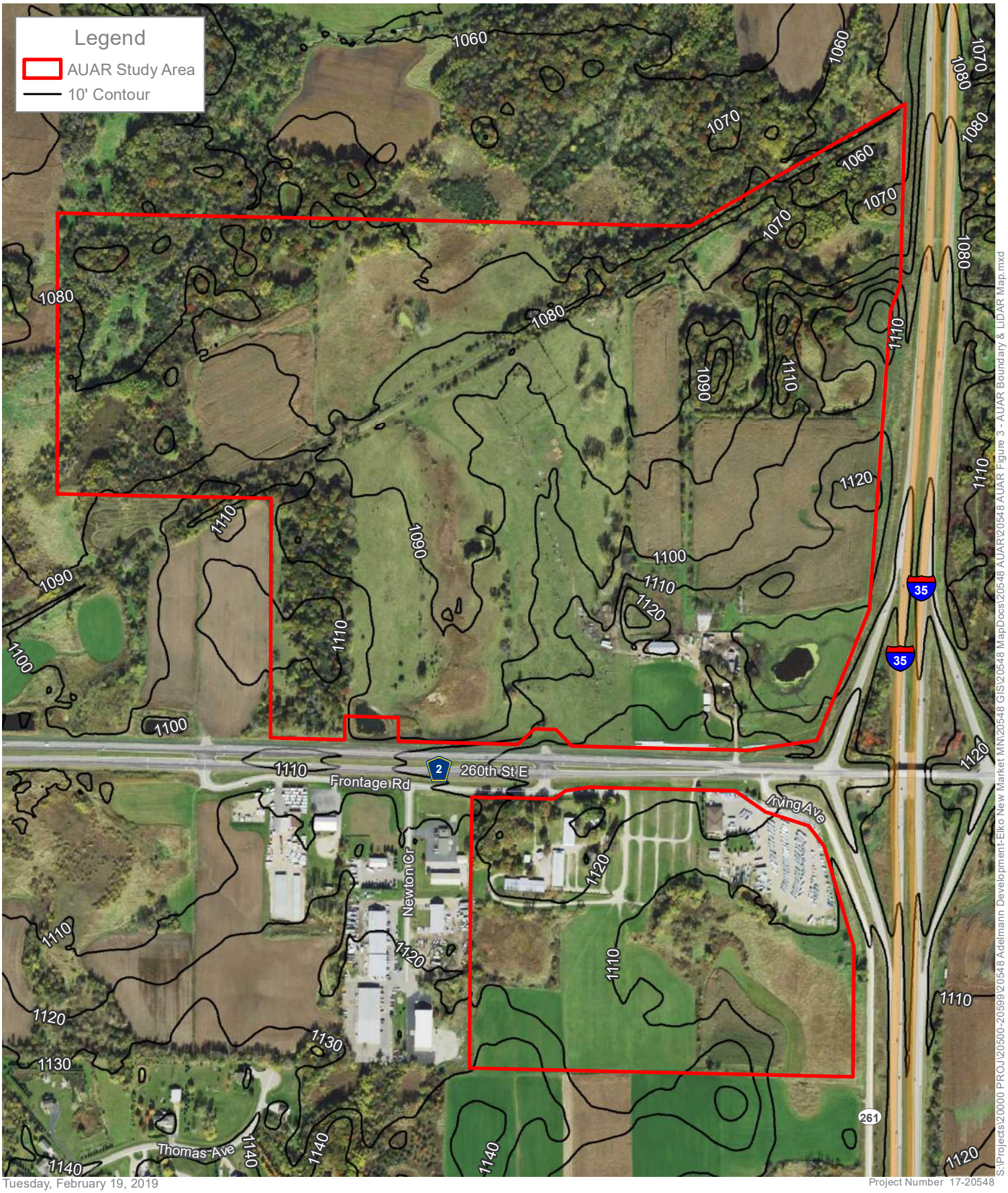
USGS Topographic Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
24k USGS Topo (MN State)

ISG



Tuesday, February 19, 2019

Project Number 17-20548

0 300 600 Feet

1 in = 600 ft

N

Figure 3

AUAR Boundary and LiDAR Map

Adelmann Family Property

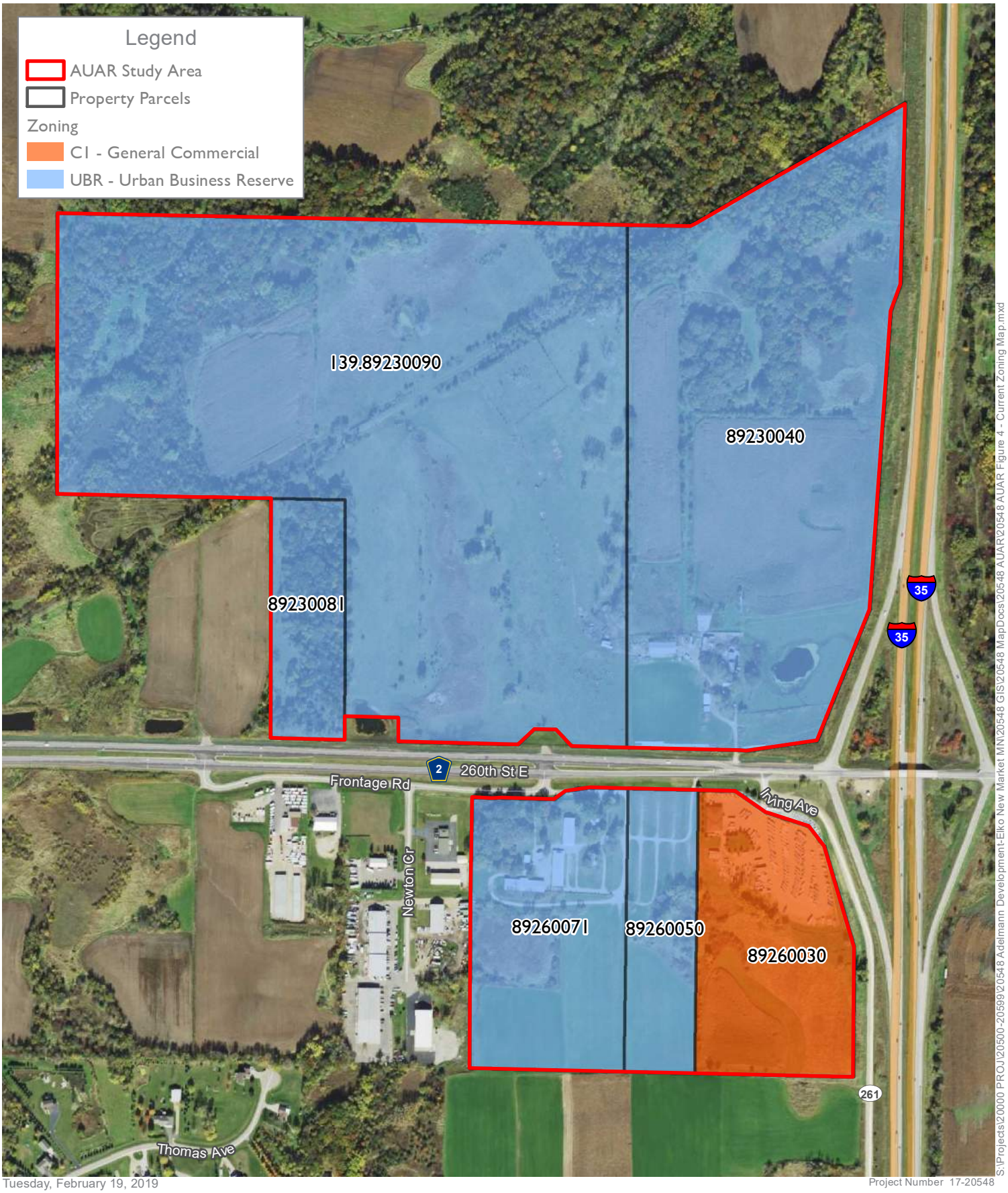
New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Contours (MnGeo LiDAR, 2011)

ISG

APPENDIX B: LAND USE FEATURES

Figure 4. Current Zoning Map
Figure 5. Future Land Use Map
Figure 6. MPCA Permitted Features



Tuesday, February 19, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 4 - Current Zoning Map.mxd

0 300 600 Feet

1 in = 600 ft

N

Figure 4

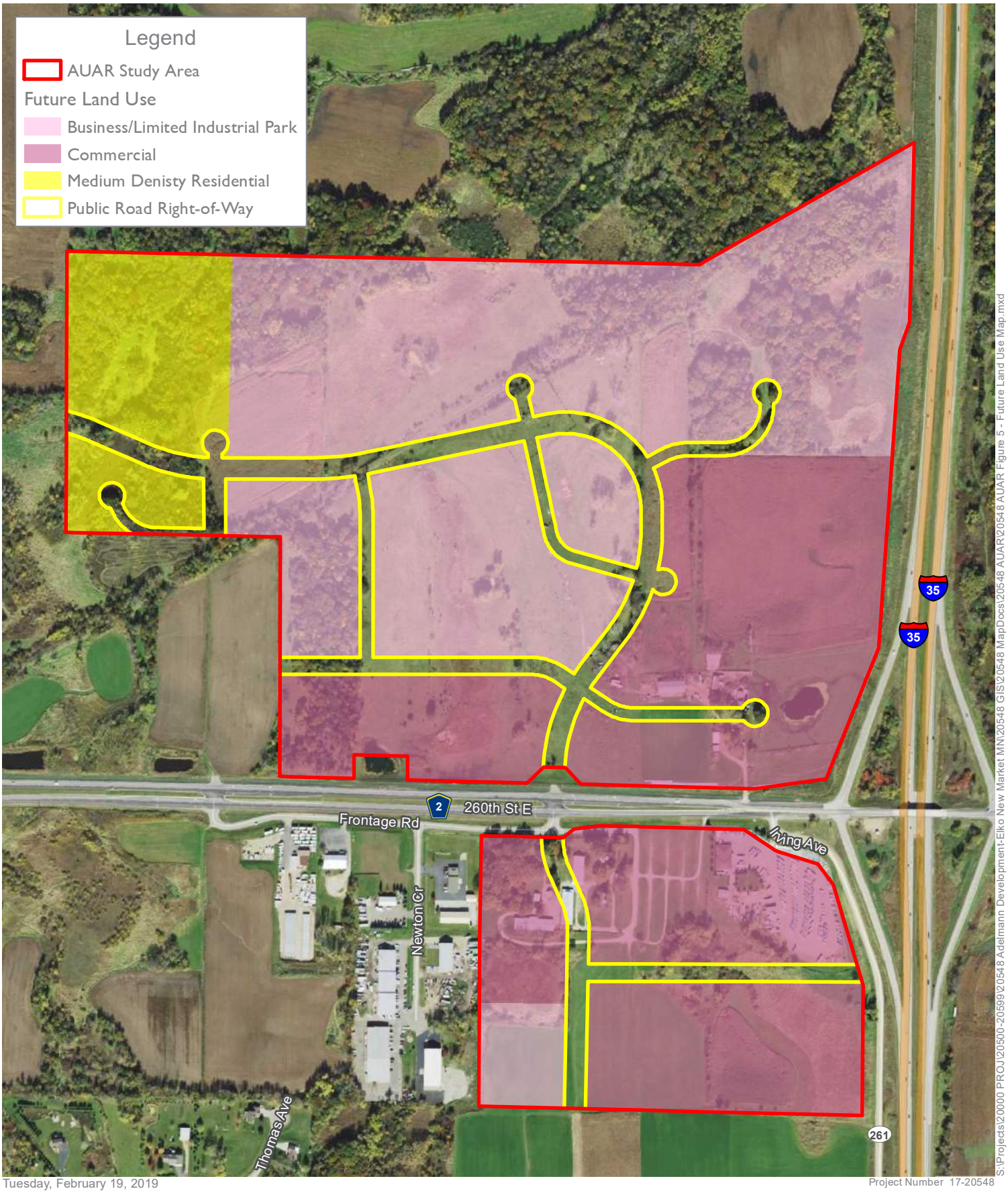
Current Zoning Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Zoning/Parcels (Scott County, 2017)

ISG



Tuesday, February 19, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 5 - Future Land Use Map.mxd

0 300 600 Feet

1 in = 600 ft

N

Figure 5

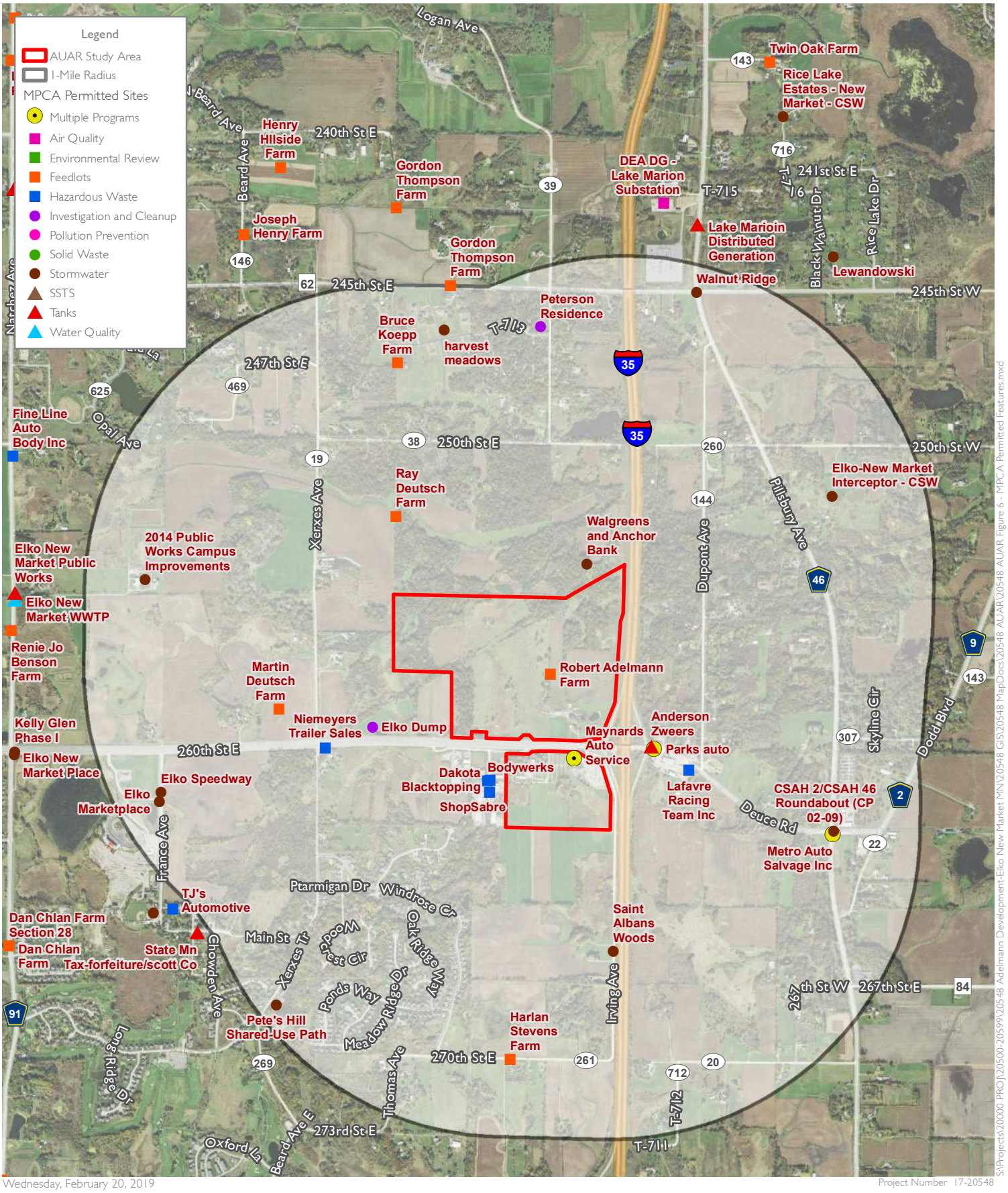
Future Land Use Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)

ISG



0 1,100 2,200 Feet

1 in = 2,200 ft

N

Figure 6

MPCA Permitted Features

Adelmann Family Property

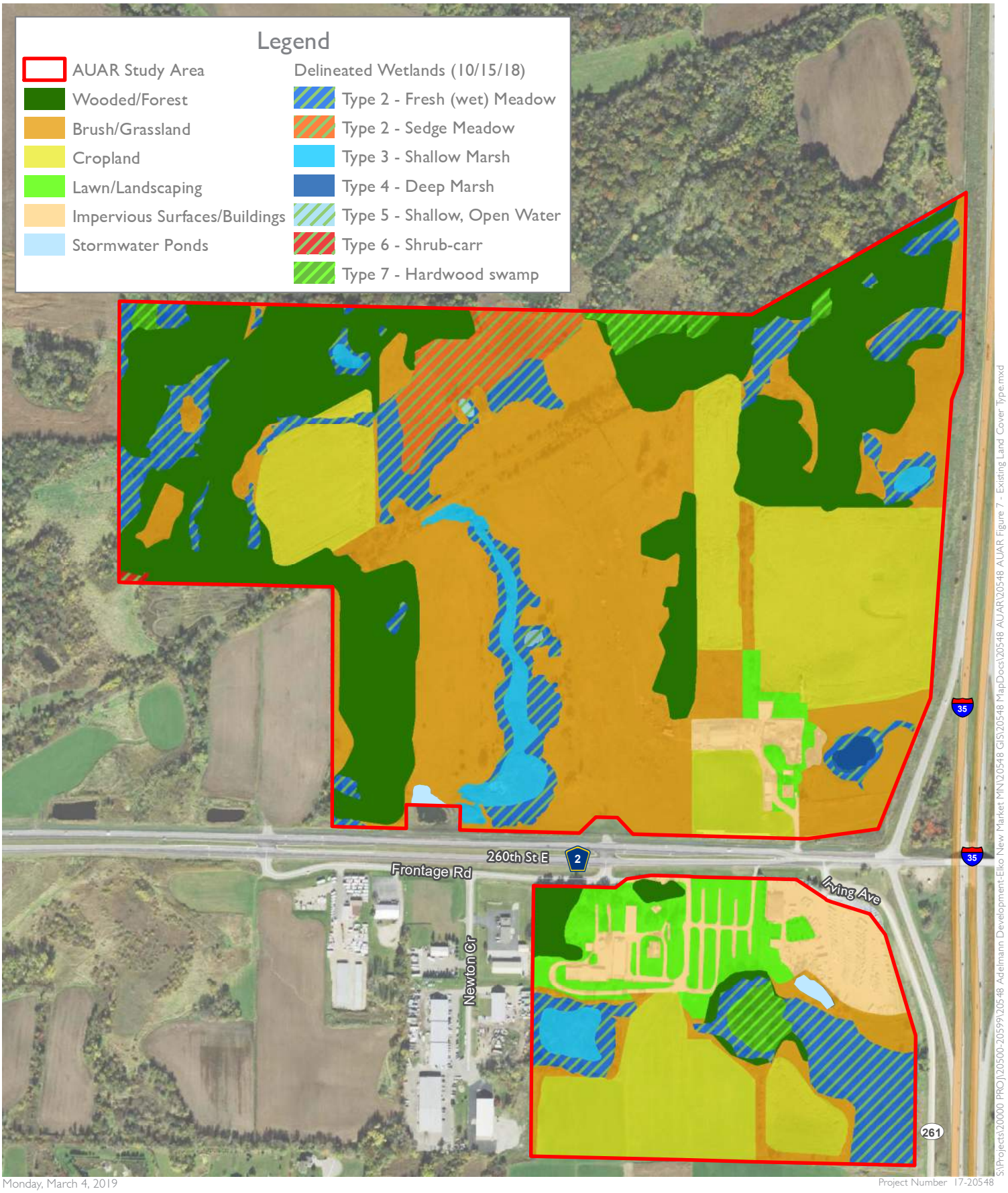
New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Permitted Sites (MPCA, 7/20/2017)

ISG

APPENDIX C: NATURAL RESOURCES

Figure 7. Existing Land Cover Type
Figure 8. Proposed Land Cover Type
Figure 9. NRCS Soil Survey
Figure 10. Surface Hydrology Features
Figure 11. Ecological Features



Monday, March 4, 2019

Project Number 17-20548

Figure 7

Existing Land Cover Type

Adelmann Family Property

New Market Twp, Scott County, Minnesota

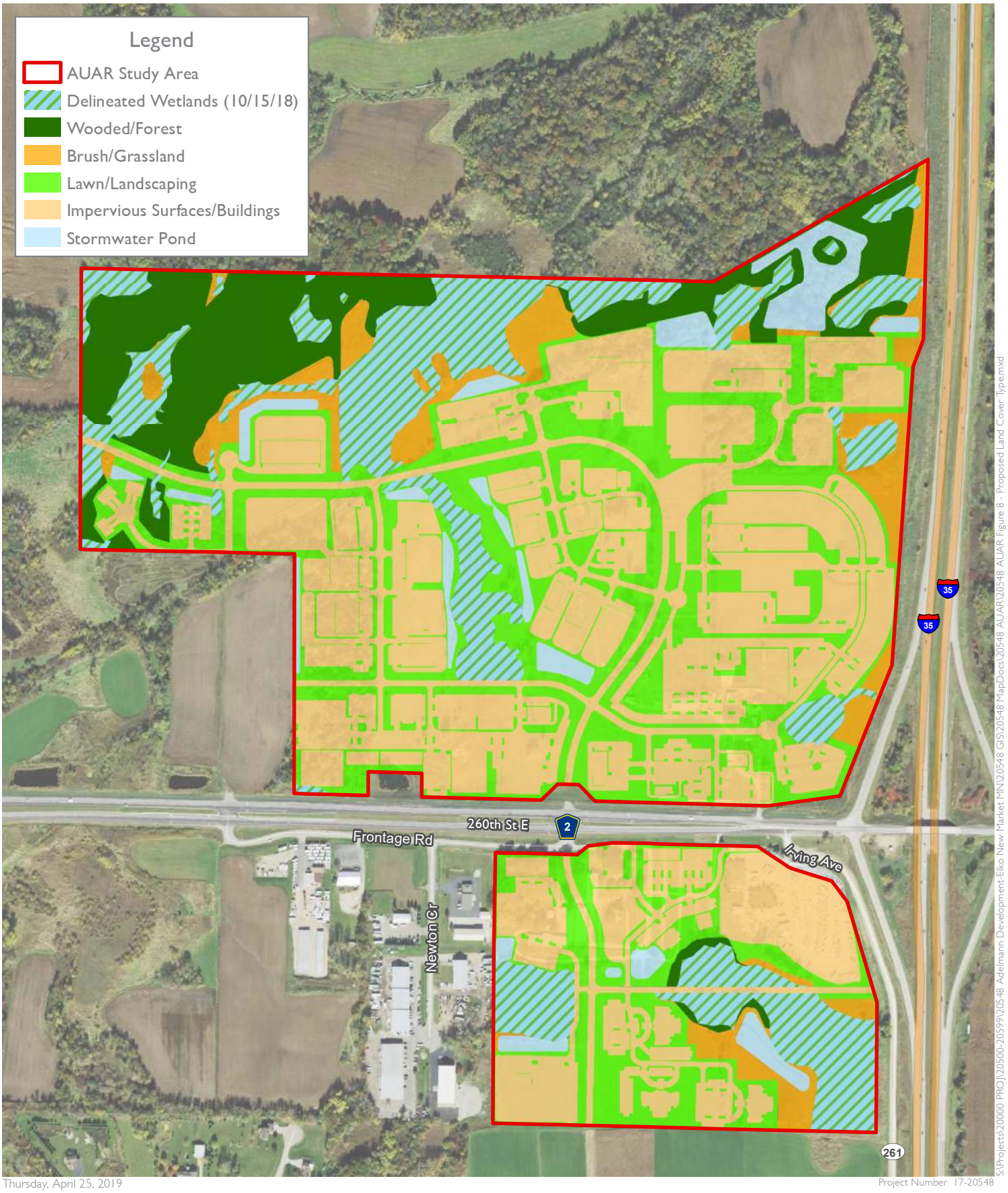
0 300 600 Feet

1 in = 600 ft

N

Source(s):
Orthophoto (MnGeo WMS, 2017)
Wetland Delineation (ISG, 2018)

ISG



Thursday, April 25, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 8 - Proposed Land Cover Type.mxd

0 300 600 Feet

1 in = 600 ft

N

Figure 8

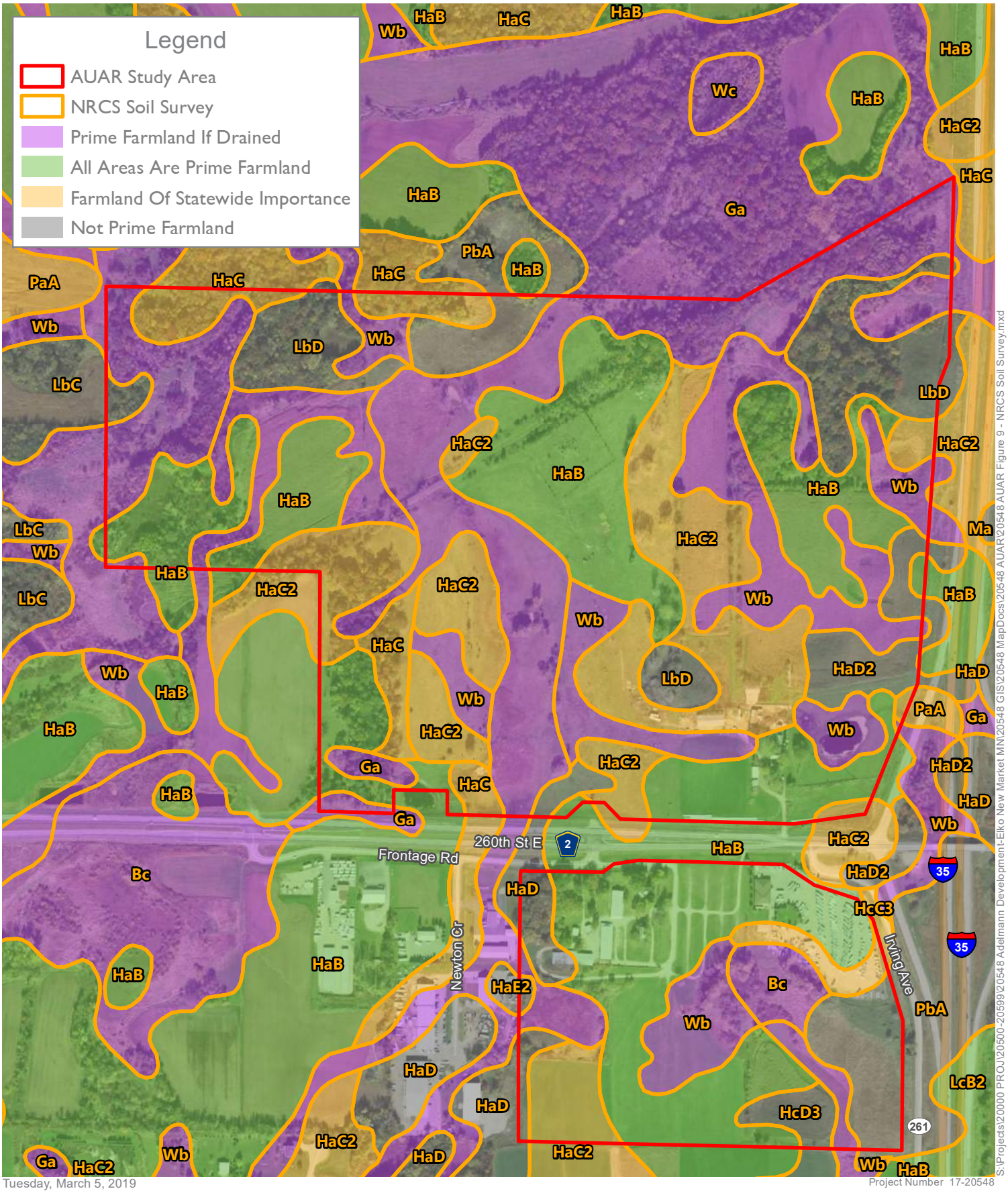
Proposed Land Cover Type

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Wetland Delineation (ISG, 2018)

ISG



Tuesday, March 5, 2019

Project Number 17-20548

0 300 600 Feet

1 in = 600 ft

N

Figure 9

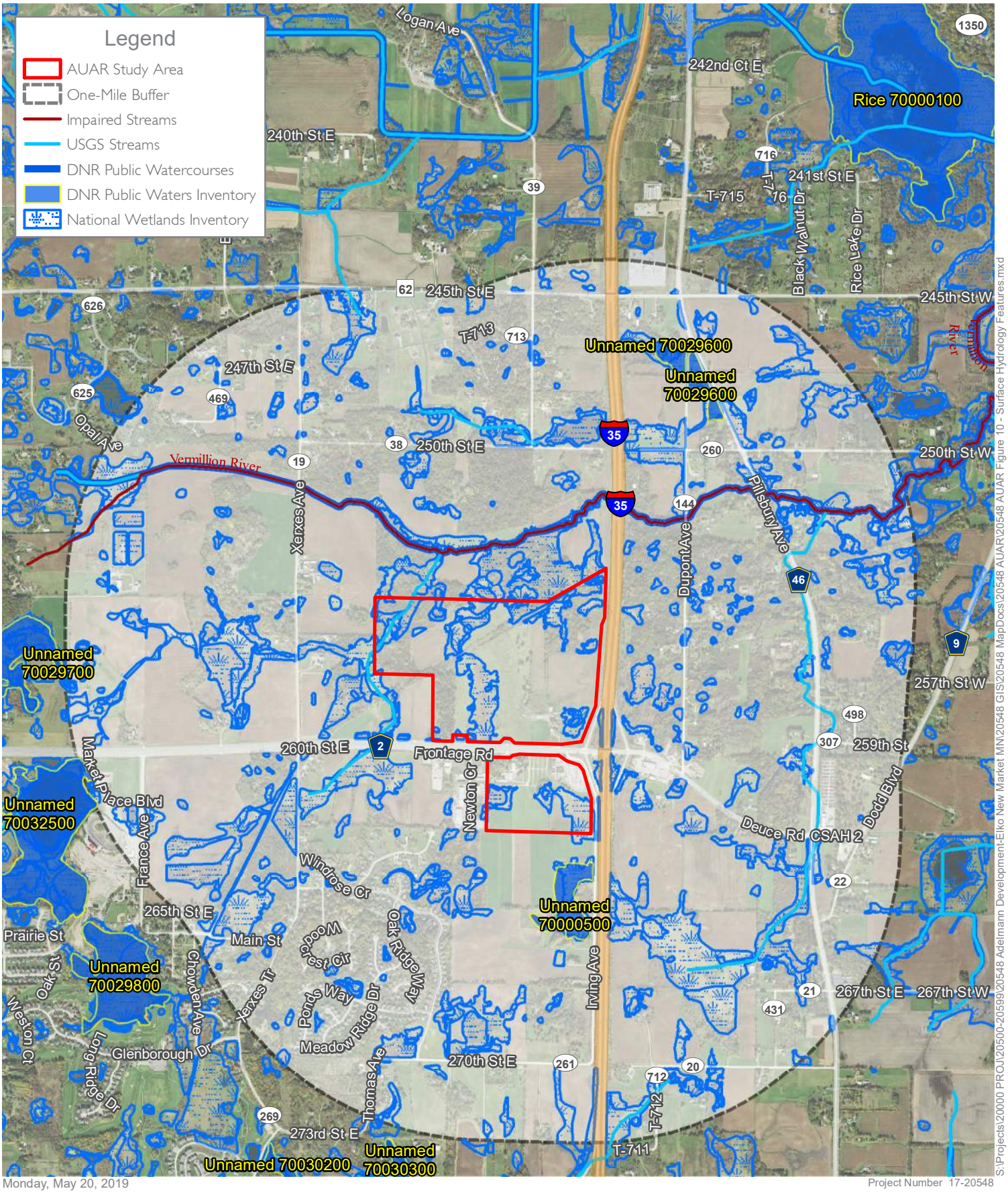
NRCS Soil Survey

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Soil Survey (USDA, NRCS, 2018)

ISG



Monday, May 20, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 10 - Surface Hydrology Features.mxd

0 1,100 2,200 Feet

1 in = 2,200 ft

N

Figure 10

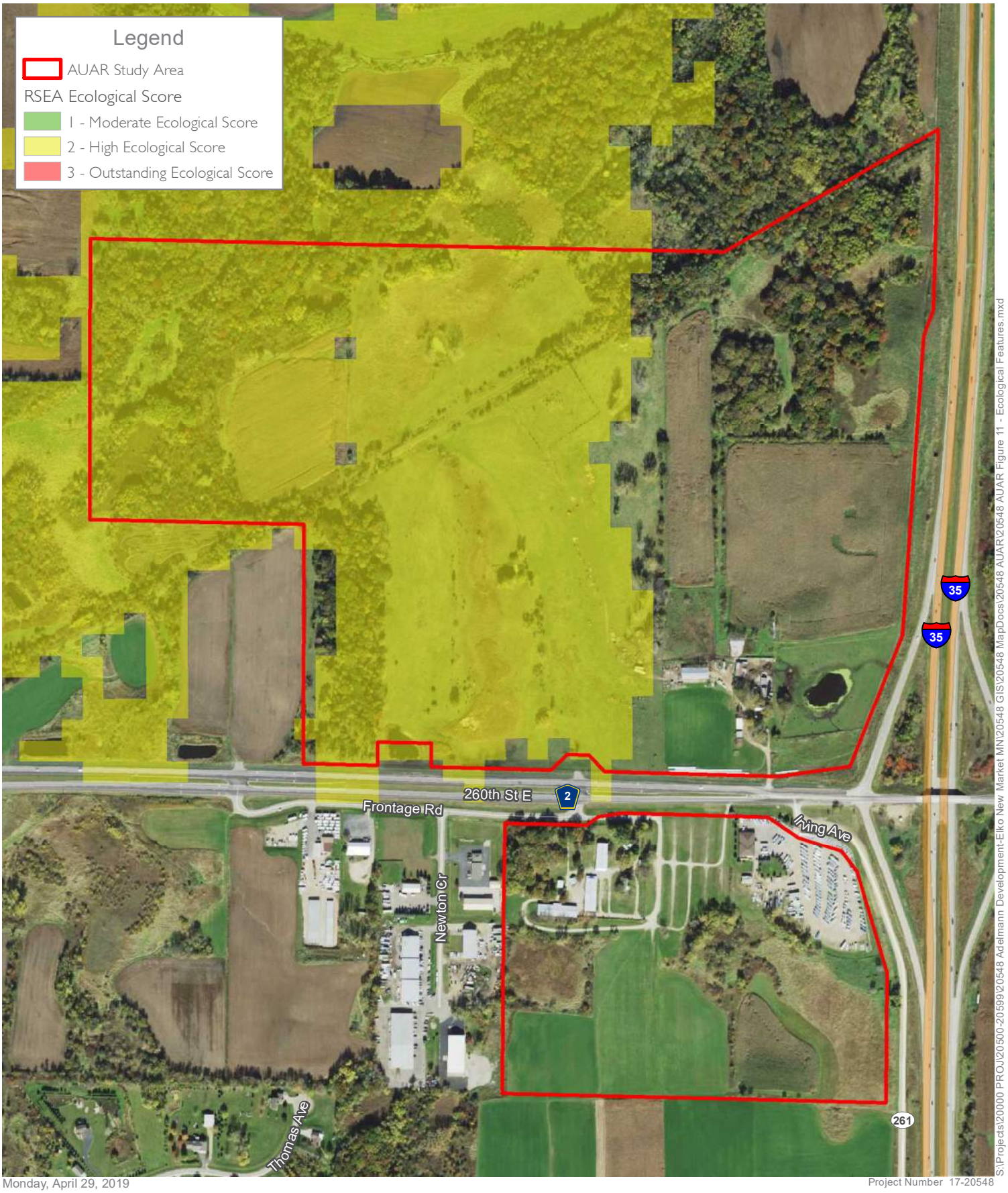
Surface Hydrology Features

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Impaired Waters (MPCA, 2012)
NWI (MN DNR, 2014)
PWI (MN DNR, 2008)

ISG



Monday, April 29, 2019

Project Number 17-20548

0 300 600 Feet

1 in = 600 ft

N

Figure 11

Ecological Features

Adelmann Family Property

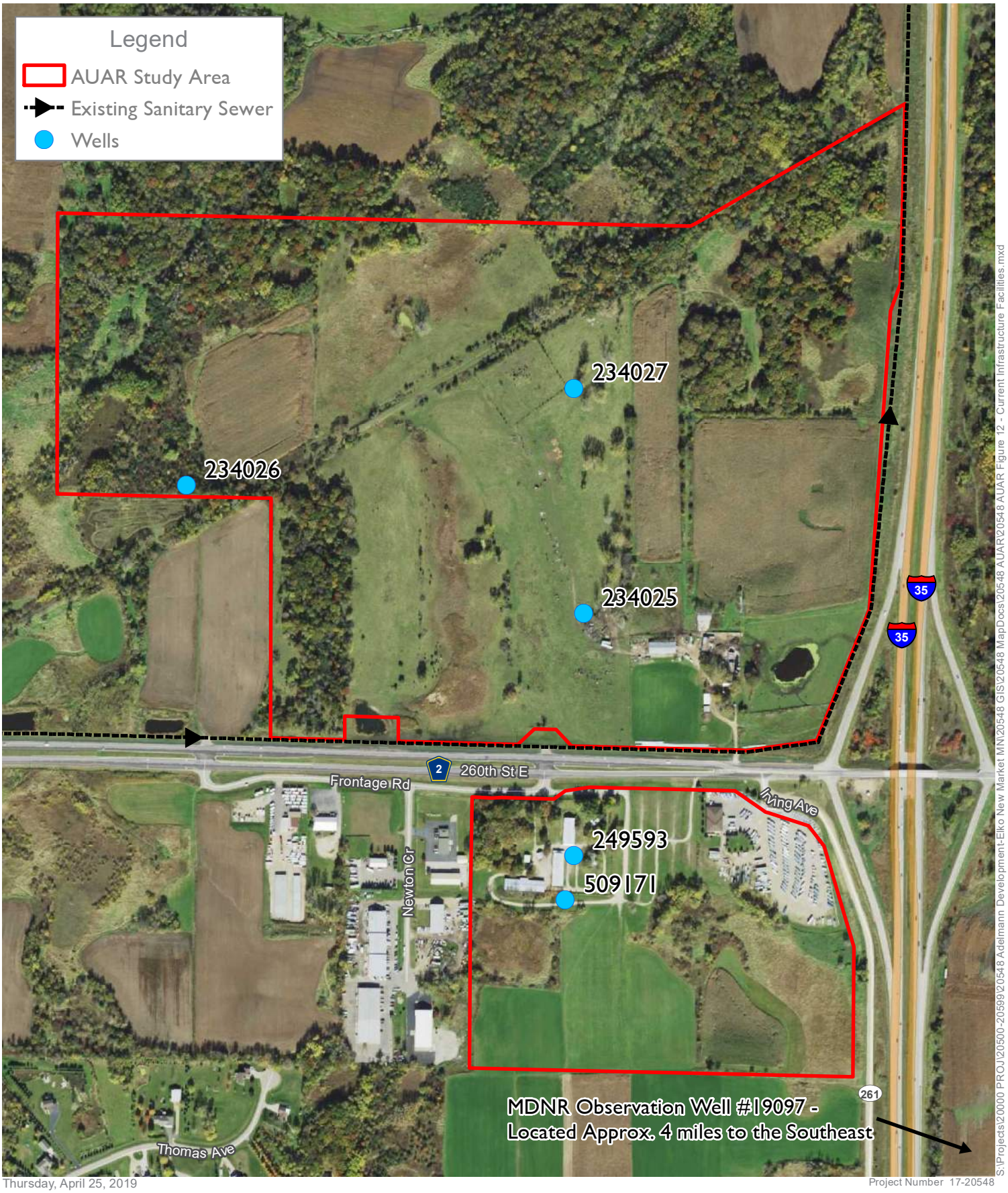
New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Ecological Score (MnDNR, 2000)

ISG

APPENDIX D: PUBLIC INFRASTRUCTURE

Figure 12. Current Infrastructure Facilities
Figure 13. Proposed Infrastructure Improvements
Figure 14. Existing Stormwater Facilities and Drainage Areas
Figure 15. Proposed Stormwater Facilities and Drainage Areas
Figure 16. Existing Road Classification
Figure 17. Proposed Road Classification
Figure 18. Sidewalks and Trails Map



Thursday, April 25, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 12 - Current Infrastructure Facilities.mxd

0 300 600 Feet

1 in = 600 ft

N

Figure 12

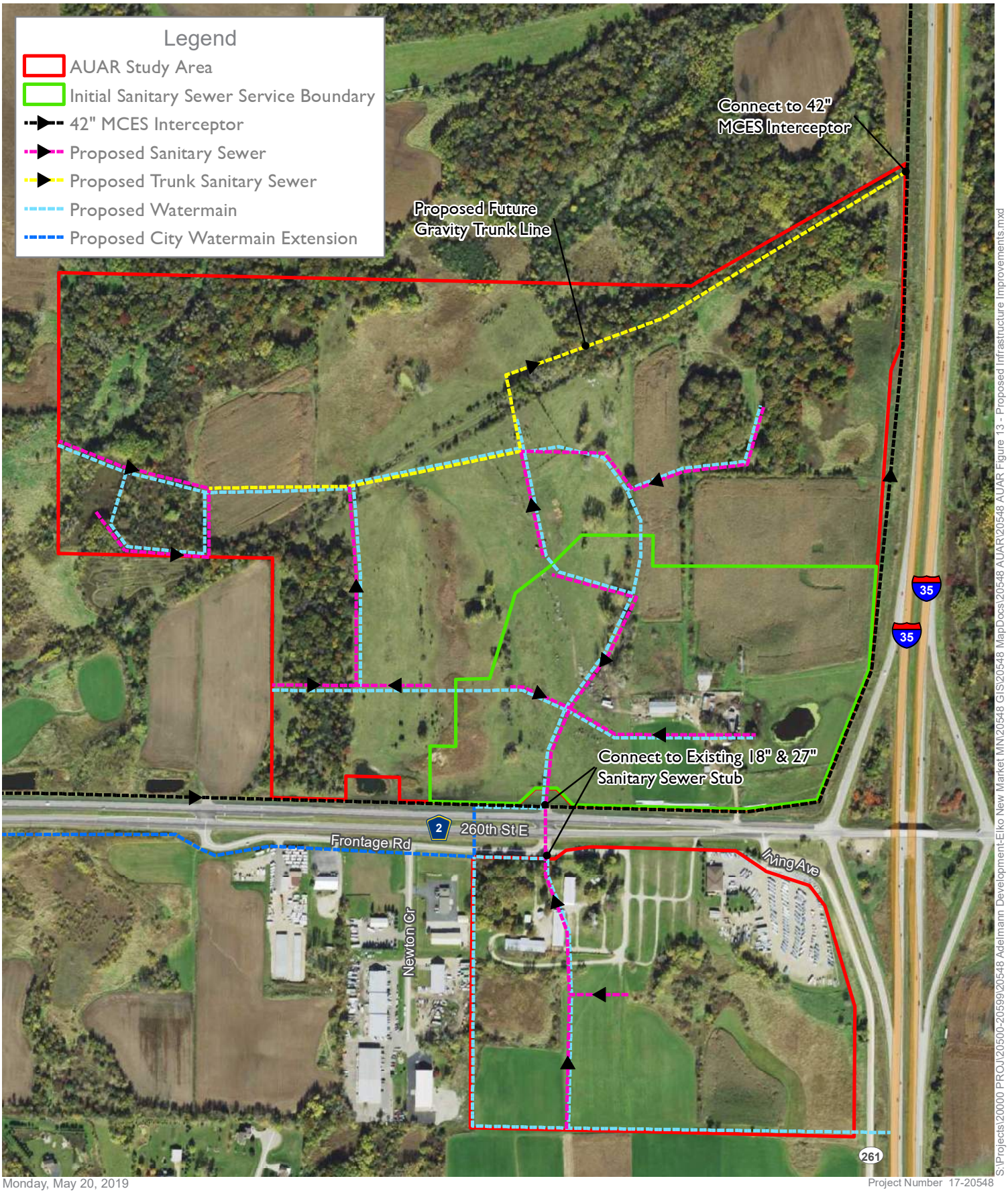
Current Infrastructure Facilities

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Wells (MN Geological Survey, 2018)

ISG



Monday, May 20, 2019

Project Number 17-20548

0 300 600 Feet

1 in = 600 ft

N

Figure 13

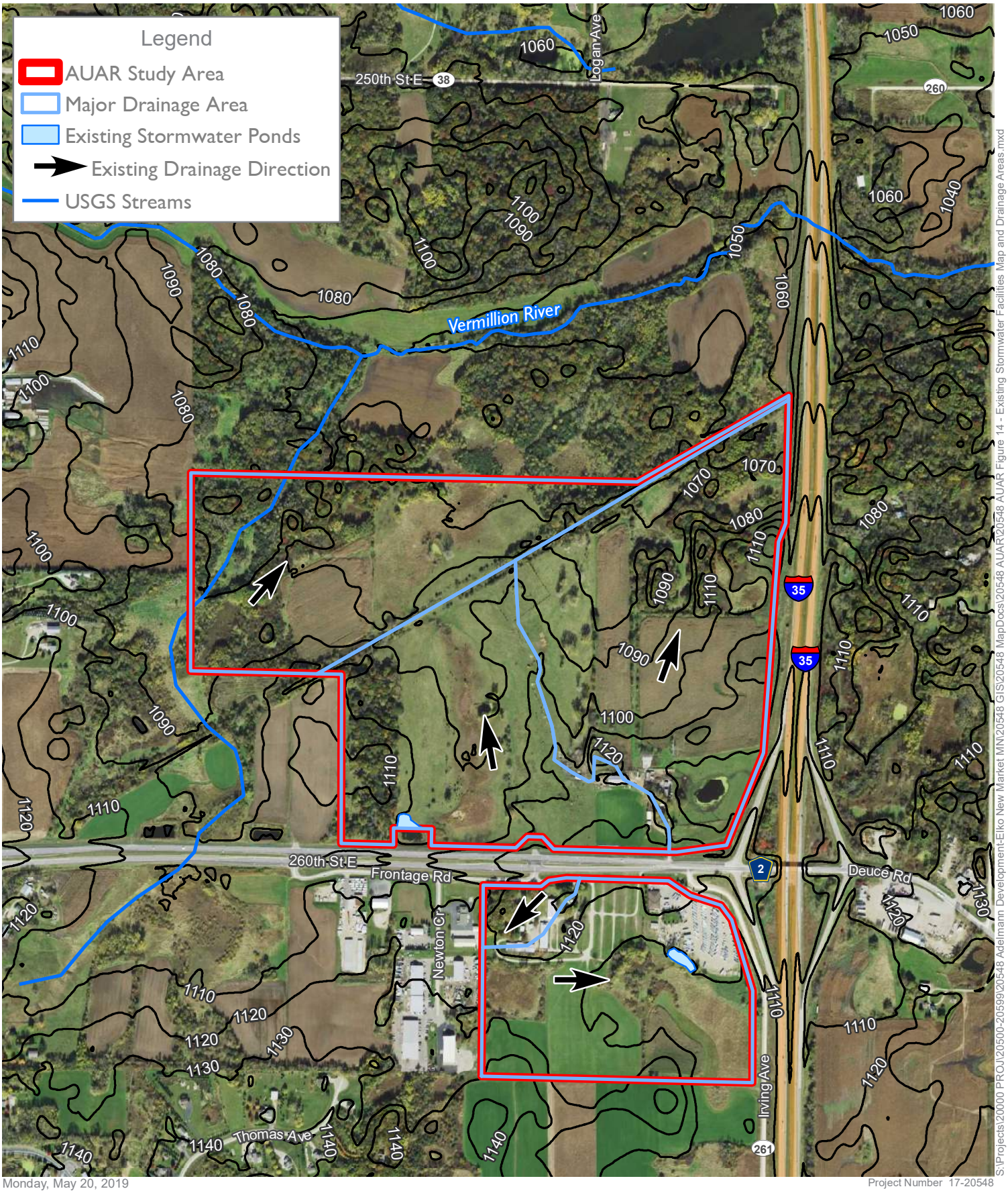
Proposed Infrastructure Improvements

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)

ISG



Monday, May 20, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 14 - Existing Stormwater Facilities Map and Drainage Areas.mxd

Figure 14

Existing Stormwater Facilities and Drainage Areas

Adelmann Family Property

New Market Twp, Scott County, Minnesota

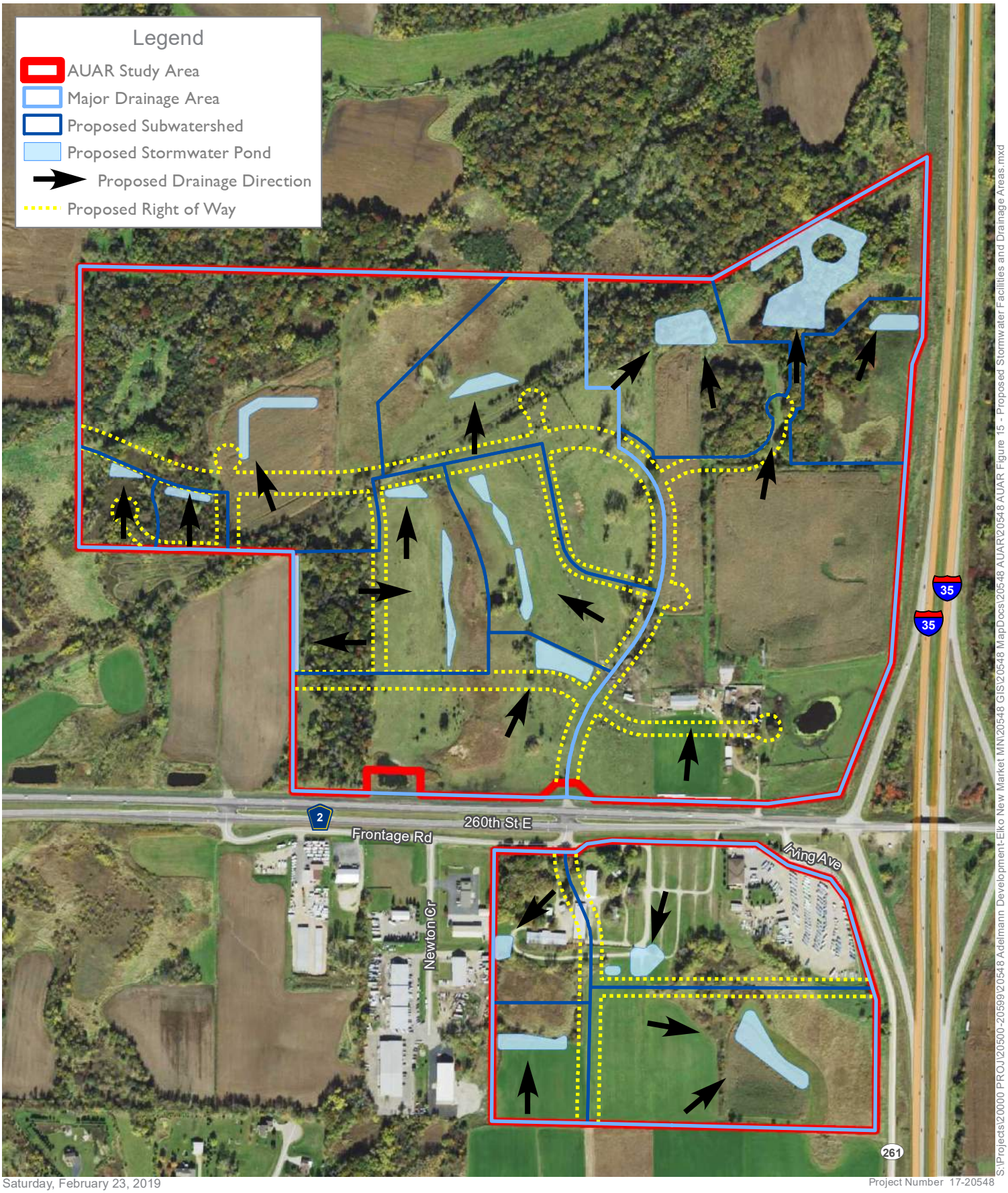
0 425 850 Feet

1 in = 850 ft

N

Source(s):
Orthophoto (MnGeo WMS, 2017)
Streams (USGS, 2009)

ISG



Saturday, February 23, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 15 - Proposed Stormwater Facilities and Drainage Areas.mxd

0 300 600 Feet

1 in = 600 ft

N

Figure 15

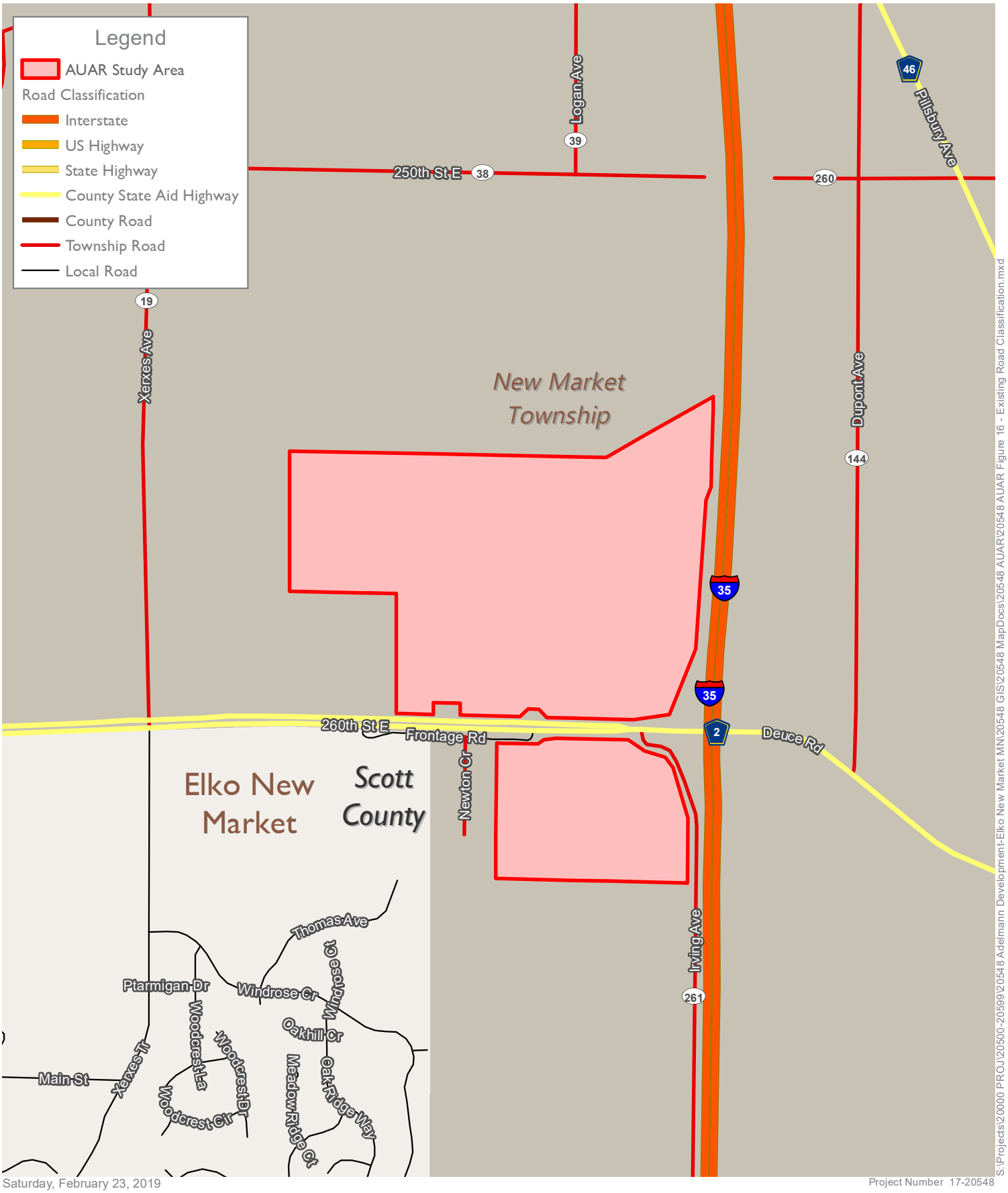
Proposed Stormwater Facilities and Drainage Areas

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)

ISG



0 600 1,200 Feet

1 in = 1,200 ft

N

Figure 16

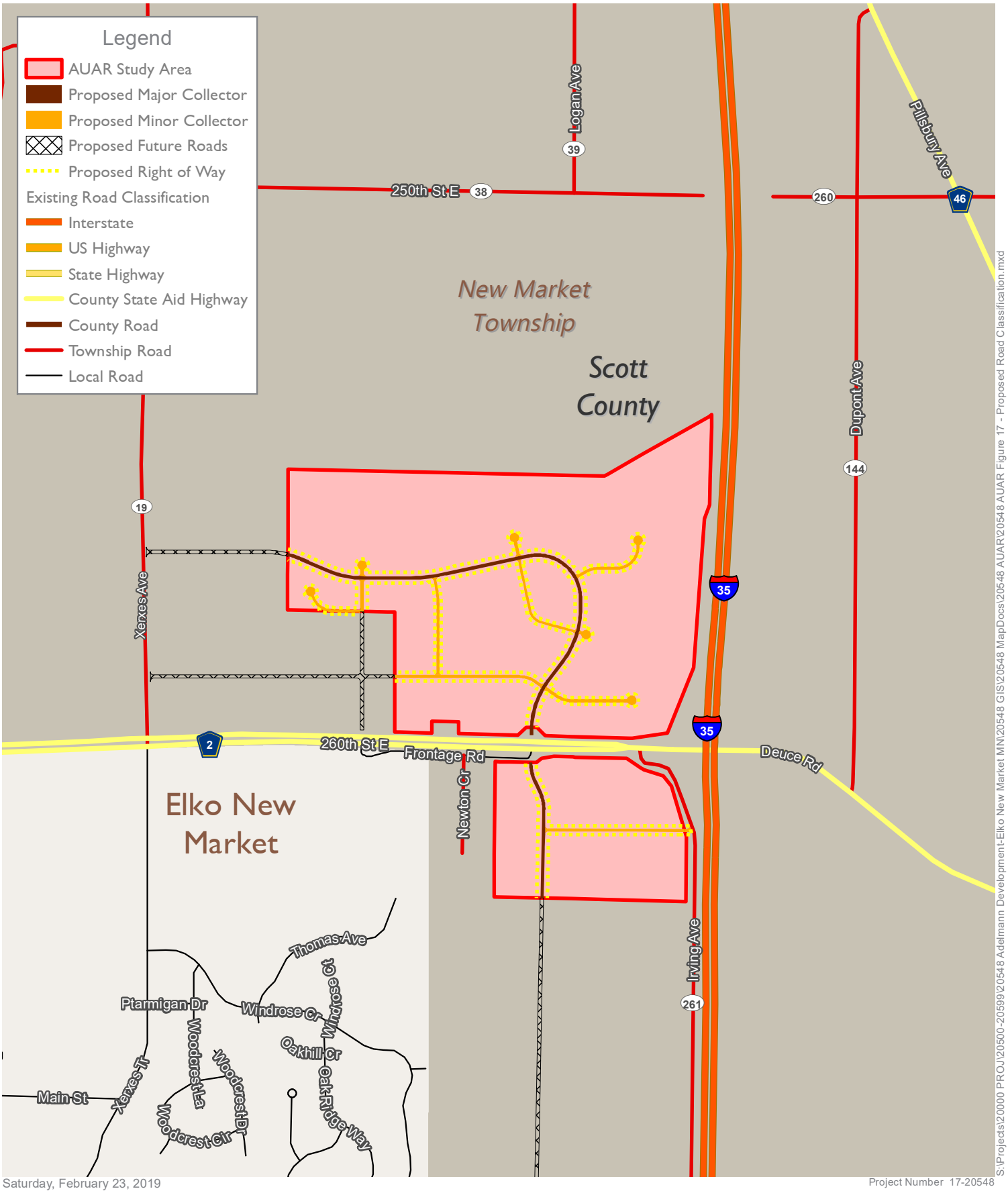
Existing Road Classification

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Municipalities (MN DOT, 6/24/2016)
Counties (MN DNR, July 2013)
Roads (MnDOT, 2012)

ISG



Saturday, February 23, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 17 - Proposed Road Classification.mxd

0 600 1,200 Feet

1 in = 1,200 ft

N

Figure 17

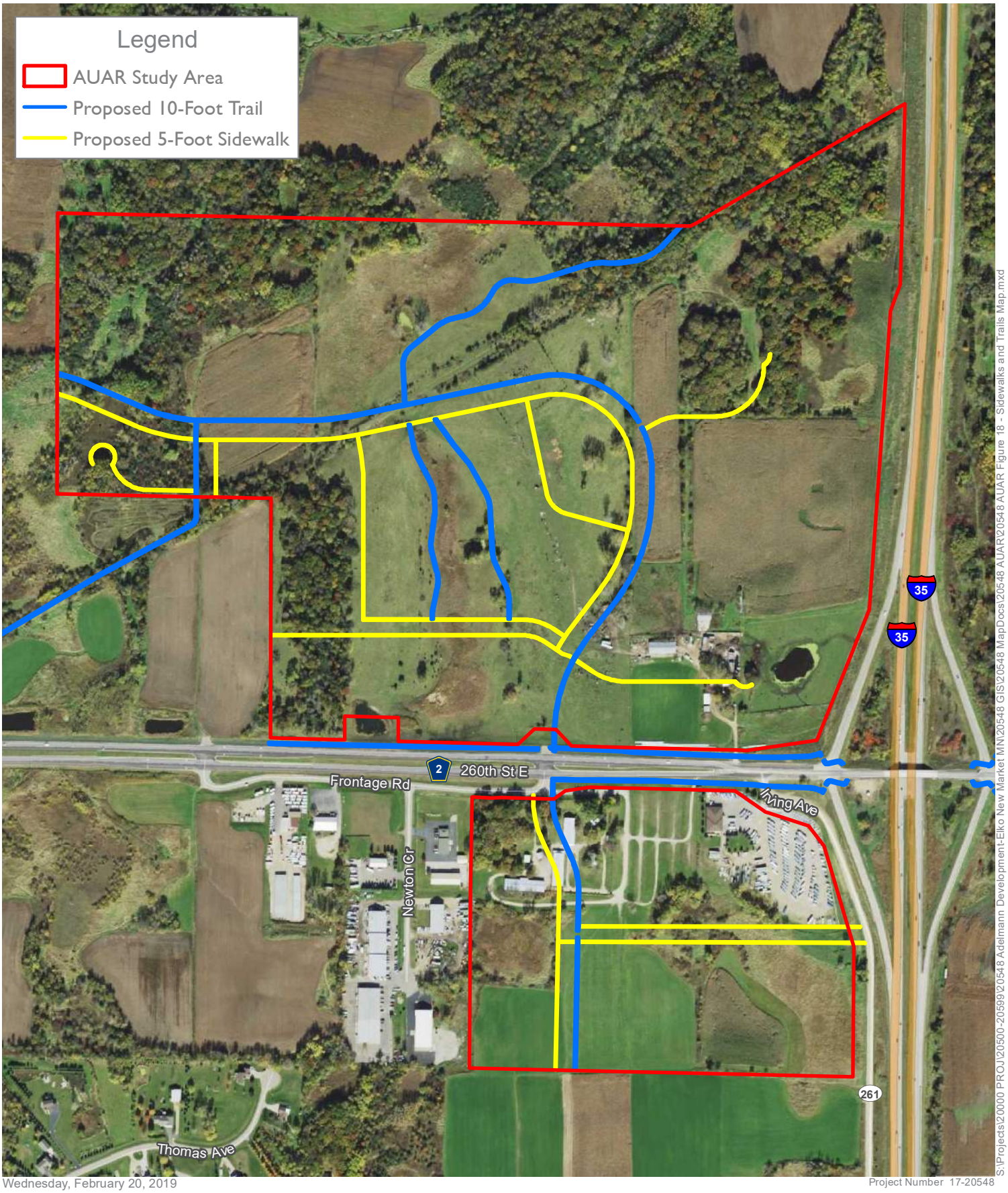
Proposed Road Classification

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Municipalities (MN DOT, 6/24/2016)
Counties (MN DNR, July 2013)

ISG



Wednesday, February 20, 2019

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 AUAR\20548 AUAR Figure 18 - Sidewalks and Trails Map.mxd

0 300 600 Feet

1 in = 600 ft

N

Figure 18

Sidewalks and Trails Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)

ISG

EXHIBIT A:

Overall Site Plan

Overall Concept Plan

SUMMARY

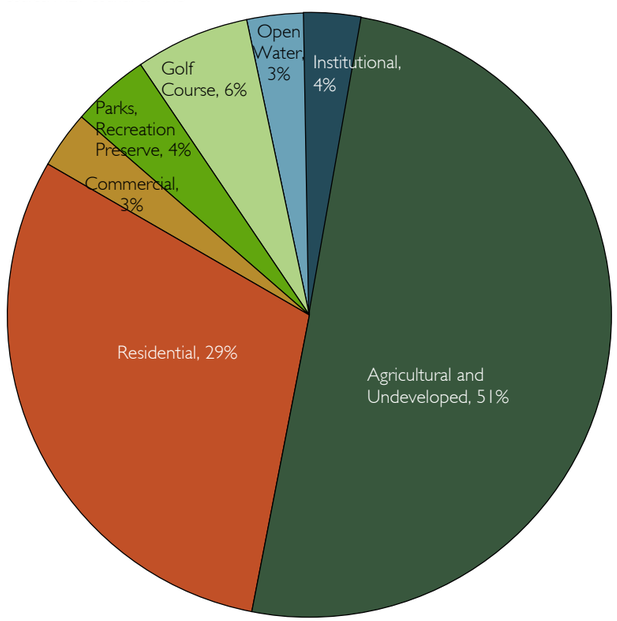
The expansive property is versatile for a wide range of development types. With its abundant wetlands (48.98 acres) acting as natural buffers between the various uses, visual separation throughout the site will be a key feature. Design standards will support a cohesive vision for The Property and support high-quality design.

The development over time will add the following:

BUSINESS CAMPUS DISTRICT	10.81 AC
BUSINESS / LIMITED INDUSTRIAL PARK	57.72 AC
HIGHWAY (GATEWAY) BUSINESS/ COMMERCIAL DISTRICT	82.29 AC
MEDIUM DENSITY RESIDENTIAL DISTRICT	7.20 AC

EXISTING ELKO NEW MARKET LAND USES

Source: MET Council & NAC



North Concept Plan

SUMMARY

The area located to the north and south of CSAH 2 should be seen as the first development priority. The land is guided to Highway (Gateway) Business, and is commercial use. The land has high visibility to those entering or exiting Elko New Market and is the first impression to the city. Careful detail to appearance with high quality development is anticipated within this area.

Retail stores and services, grocery, quick-service restaurants, etc. can keep family in-mind and provide additional attraction for future residents of the city while providing opportunities for services that are not locally available.

Future development along Interstate 35 provides high visibility for larger commercial uses – such as vehicle or implemented dealerships. In the northeast corner there is an opportunity for a business campus that would have high visibility and be surrounded by natural buffers from neighboring businesses. The locational strengths of the site, including the high visibility/accessibility, will continue to hold their value over time.

Tucked away, in the central portion of the site is a business / limited industrial park district. The limited manufacturing and general contractor operations facilities can serve the region, providing jobs to local and surrounding cities. A centralized pathway is provided to promote a healthy community and break from the standard daily routine. The pathways provide direct access to the county trail corridor system and to the retail services.

To the northwest of the site, a medium density residential area can begin to flourish. With 1-percent of the city land developed for multi-family residential and 28-percent for single-family detached (MET Council and NAC), the area provides alternative housing options including four-plexes and townhomes. The shared access will have direct transportation to CSAH 2 and to the Interstate. On days where a vehicle is not required, the communities within this area have the most direct access to the county trail system and to the local amenities the site has to offer.

Flexibility will be needed as the northern section of the site develops because it would be ideal to develop over time.

The North Concept includes developable areas of:

HIGHWAY (GATEWAY) BUSINESS/COMMERCIAL DISTRICT	52.45 AC
BUSINESS / LIMITED INDUSTRIAL PARK	53.76 AC
BUSINESS CAMPUS DISTRICT	10.81 AC
MEDIUM DENSITY RESIDENTIAL DISTRICT	7.20 AC

South Concept Plan

SUMMARY

South of CSAH 2, retail services, offices, hospitality, and limited manufacturing can coexist and provide additional services to travelers. The exit for Elko New Market is approximately 20 miles between Lakeville and Lonsdale. With typical gas and quick service amenities at these locations, there is an opportunity to expand upon these same services and become a new gateway stop along the Interstate. The right-out access of the site allows for vehicles to quickly reach I-35 while having a larger variety of retail and restaurants. The south has the same advantage as the north; with high visibility from the county roadway and Interstate, there is an opportunity to become a city staple and provide services currently not available within the city. Additionally, the site is located within a mile from the Elko Speedway and the Drive-in Theater - two of the principal attractions of the city.

Setback from the busy Interstate and buffered by natural wetlands, to the southeast portion provides an opportunity for hospitality to be developed. The closest hotel to the city is approximately 8 miles away, in New Prague. Amenities, like the north development, will be interconnected with sidewalks and trails, giving travelers the opportunity to explore the development and the option of a short-drive or bike ride to other features of the city.

The South Concept includes developable areas of:

HIGHWAY (GATEWAY) BUSINESS/ COMMERCIAL DISTRICT	29.84 AC
BUSINESS / LIMITED INDUSTRIAL PARK	3.96 AC

EXHIBIT B:

Preliminary Geotechnical Report

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Preliminary Geotechnical Exploration Program
Proposed Site Development – Adelman Property

NW and SW Corners of I35 and 260th Street East
Elko New Market, Minnesota
Element Materials Technology St. Paul Inc. Project No. ESP026601P

Prepared for:

APPRO Development

November 20, 2017

Professional Certification:
I hereby certify that this plan, specification or 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.

Mark Straight, P.E.
Senior Project Engineer
MN Reg. No. 41658

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element™

November 20, 2017

Mr. Jim Connelly
APPRO Development
21476 Grenada Avenue
Lakeville, MN 55044

jimc@approdevelopment.com

RE: Preliminary Geotechnical Exploration Program
Proposed Site Development – Adelman Property
NW and SW Corners of I35 and 260th Street East
Elko New Market, Minnesota
Element Materials Technology St. Paul Inc. Project No. ESP026601P

Dear Mr. Connelly:

We have completed the geotechnical exploration and engineering analysis for the above referenced project. This report presents the results of our field and laboratory testing programs, and provides recommendations concerning the soil and groundwater conditions as they relate to the proposed site development.

The soil samples will be retained in our laboratory for 30 days, at which time we will dispose of them. If you desire Element Materials Technology St. Paul Inc. to retain the samples longer than 30 days, please notify us.

We are pleased to be of service to you in this important phase of the project. If there are any questions regarding the information contained in this report or if we can be of further service to you, please contact John Starke at (651) 659-7429, email: john.starke@elemnet.com or Mark Straight at (651) 659-7447, email: mark.straight@element.com.

Respectfully Submitted,

ELEMENT MATERIALS TECHNOLOGY ST. PAUL INC.

John Starke, P.E.
Senior Geotechnical Engineer
MN Reg. No. 23546

Mark Straight, P.E.
Senior Project Engineer
MN Reg. No. 41658

1.0 INTRODUCTION

This report presents the results of our recent geotechnical exploration program conducted for the proposed site development at the Adelman property located in Elko New Market, Minnesota. We understand a geotechnical exploration program was required to evaluate subsurface conditions within the project area and to aid in the design and construction of buildings and structures.

1.1 Scope of Work

We recently performed a geotechnical exploration program in accordance with our proposal dated October 14, 2016 and your subsequent email authorization to proceed. The scope of our work for the project was as follows:

1. Arrange to have buried public utilities marked through the Gopher-State One-Call system.
2. Explore the subsurface soil and groundwater conditions by drilling eighteen (18) Standard Penetration Test (SPT) soil borings to unit depths ranging from approximately 15' to 25' or to auger refusal upon bedrock/obstruction if occurring at shallower depth using an all-terrain mounted drill rig. Backfill the borings with auger cuttings, bentonite chips, or grout as per Minnesota Department of Health (MDH) guidelines.
3. Visually classify the extracted soil samples and perform laboratory testing on selected samples including moisture content, Atterberg Limits and grain size distribution tests to aid in soil classification and to determine engineering properties.
4. Prepare a geotechnical report which includes the following information:
   a. Logs of the soil test borings showing the soil and groundwater data, including N-values.
   b. A site plan showing the approximate boring locations.
   c. Written description of encountered soil and groundwater conditions.

d. Recommendations for site preparation for buildings and structures, roadways and stormwater infiltration basins including, allowable soil bearing capacities, backfilling and structural fill requirements, modulus of subgrade reaction for floor slabs and general support for floor slabs, utility cut and backfill procedures, and general roadway subgrade design parameters.
e. Estimates of soil infiltration rates based on encountered soils and laboratory gradation test results if applicable.
f. Discussion concerning other geotechnical items which may impact the constructability or geotechnical suitability of the site.

The scope of our work for this project and report is intended for geotechnical purposes only. This scope is not intended to explore for the presence or extent of environmental contamination at the site.

2.0 FIELD TESTING PROGRAM

2.1 Soil Borings

Eighteen (18) Standard Penetration Test (SPT) borings were drilled at the project site between September 15, 2017 and September 22, 2017. The approximate boring locations are shown on the attached Boring Location Plan. The borings were field staked and ground surface elevations measured and provided by ISG, a subcontractor of APPRO Development (APPRO), at the locations shown on the Boring Location Plan.

The SPT borings were performed with an all-terrain mounted rotary drill rig using split-barrel sampling procedures. Water level observations were made in the boreholes during and upon completion of the drilling and sampling operations. During the field operations, the drill crew maintained logs of the subsurface conditions including changes in stratigraphy and observed groundwater levels. The boring logs are attached.

After completion of the drilling operations, the boreholes were backfilled/grouted per the Minnesota Department of Health (MDH) guidelines.

Sampling and classification of soils were performed in general accordance with American Standards for Testing and Materials (ASTM) procedures, and are described on an attached sheet.

2.2 Surface Conditions

The combined project area encompasses approximately 200 acres of land located north and south of 260th Street East as shown outlined on the attached Boring Location Plan.

Project Area South of 260th Street East

The project area south of 260th Street East encompassing approximately 50 acres includes separate land uses; Twin Cities Featherlite Trailers, a commercial property, an apparently unoccupied private residence with outbuildings, active agricultural croplands and wetland areas. The project area is bounded on the east side by Irving Avenue and on the north side by 260th Street East and Newton Circle. Featherlite Trailers located at the northeast corner of the project area is an active trailer sales business having commercial/retail buildings and trailers present across this property. An apparently unoccupied private residence with several large outbuildings is located at the northwest corner of the project area bounded on the north side by Newton Circle. Located between the private residence and Twin Cities Featherlite Trailers is a grassed area bisected by gravel roadways presumably used for vehicle parking for flea market events held at the private residence property. The southern portion of the project area contains wetlands and agricultural lands. Two large wetland areas are present on the east and west central portions of the project area. Cropland encompasses the balance of the property to the south. Topography across the project area gently slopes from the north and south towards the east central portion of the site. Topography across the site ranges from an approximate high elevation of 1130' MSL near the north and south boundary to a low elevation of 1104' MSL near the east central portion of the site.

Project Area North of 260th Street East

The project area north of 260th Street East encompasses approximately 150 acres and includes a private residence and outbuildings located near the south east corner of the site, active and fallow croplands, woodlands, and wetlands. The project area is bounded on the east side by I35 and on the south side by 260th Street East. Bisecting the property, extending in a northeast to southwest orientation is an inactive railroad alignment. North of the rail alignment the property is dominated by wetlands, woodlands and cropland. The Vermillion River bisects the west portion of the project area, north of the rail alignment. A large wetland area is present mid-section of the project area, connected the north and south areas via culvert extending beneath the rail bed. A smaller wetland area is present at the northeast corner of the property. Ponds are present in the low wetland areas. Woodland areas are predominate at the northwest, west, and northeast corners of the project area. South of the rail alignment, east and west of the wetland area are active and fallow croplands. Topography across this area is somewhat variable ranging from an approximate high elevation of 1118' MSL near the south central portion of the property to low elevation of 1060' MSL at the far northeast corner. Higher elevations are generally present along the southeastern side of the project area, adjacent to I35. Lower elevations are generally present within the wetland areas, central to the project area and at the northeast corner of the property.

2.3 Subsurface Conditions

The subsurface conditions encountered at the test boring locations are shown on the test boring and test pit logs. The boring logs also indicate the possible geologic origin of the materials encountered. We wish to point out that the subsurface conditions at other times and locations on the site may differ from those found at our test locations. If different conditions are encountered during construction, it is necessary that you contact us so that our recommendations can be reviewed.

The borings indicated a generalized geologic soil profile consisting of topsoil at the surface underlain by various layers of predominately glacial till and alluvium soils.

Project Area South of 260th Street East (Borings B1 through B3)

The ground surface was mantled with approximately 2' to 2½' of topsoil consisting of black organic lean clay at borings B1 and B2. At boring B3, approximately 8" of aggregate base course was encounter at the surface. At borings B1 and B2 underlying the topsoil, extending to approximately 7½' to 12', respectively, was fine alluvium soil consisting of brown to gray Lean Clay (CL) with lenses of sand and silt. Based upon SPT blow counts (N-Values) obtained during drilling activities, the lean clay soil strength consistency ranged from very soft to firm at increased depth. Glacial till comprised of sandy lean clay with various amounts of gravel was encountered beneath the fine alluvium extending to the borings termination depth of 20½'. The glacial till was in a soft to firm condition based on the SPT blow counts.

At boring B3, below the aggregate base course material, extending to the boring termination depth of 20½' was coarse alluvium consisting of Silty Sand (SM) and Sand with Silt (SP-SM) with various amounts of gravel. Based upon SPT results (N-values) the density of the sand layers generally ranged from medium dense to dense.

Project Area North of 260th Street East (Borings B4 through B18)

With the exception of boring B10, at these boring locations the ground surface is mantled with approximately 1' to 4½' of topsoil consisting of predominately black organic sandy silt or organic sandy lean clay. At boring B10, fill soil consisting of a mixture of sandy silt and clayey sand was present from the ground surface to a depth of approximately 2'. A buried topsoil layer was then encountered extending to approximately 3½' below the drilling surface of boring B10.

Generally underlying the topsoil layers and extending to the termination depth of the borings was alternating stratum of fine alluvium, coarse alluvium, and glacial till soils consisting predominately of Lean Clay or Sandy Lean Clay (CL) and Sands with varying

amounts of silt and clay (SP, SP-SM, SM and SC) and gravel. The consistency of the cohesive clay layers based upon the SPT blow count (N-Value) generally ranged from soft to hard with increasing depth. The cohesive clay layers show a color profile ranging from brown to gray and generally increase in density with depth.

Generally the density of cohesionless sand layers based upon SPT blow counts (N-Values) ranged from loose to dense. At boring B14 very loose to loose Sand (SP), Sand with Silt (SP-SM), and Silt (ML) was present below the surface topsoil layer extending to a depth of approximately 16'.

Cobbles and possible boulders were encountered at several locations within the soil profile as shown on the soil boring logs. Soil borings B5, B7, B11, and B17 terminated upon drilling obstructions that most likely were cobbles and/or boulders encountered at depth. Boulders appeared to be also present at the surface and near soil boring location B11. We caution that cobbles, boulders and gravel pockets may also be present at other locations within site away from our soil borings.

2.4 Water Level Conditions

Water level observations were made during and after completion of the drilling operations. Groundwater was encountered at the time of drilling in all soil borings as noted on the attached boring logs except borings B7, B11, and B16. Groundwater was generally encountered below the drilling surface at depths ranging from approximately 2' at boring B18 to 15' at boring B10. The following tabulation lists groundwater depth and elevation recorded at each of the borings during drilling operations.

Boring No.	Recorded Water Depth (ft.)	Existing Ground Surface Elevation MSL (ft.)	Groundwater Elevation MSL (Nearest ½ ft.)
B1	12½	1110.3	1098
B2	5	1115.8	1111
B3	9	1117.5	1108½
B4	9½	1118.6	1109
B5	11	1111.2	1100
B6	4(2)	1087.5	1083½
B7	-(1)	1113.3	-
B8	3(2)	1072.0	1069
B9	13½	1085.1	1071½
B10	15	1108.6	1093½
B11	-(1)	1113.9	-
B12	9	1103.4	1094½
B13	7	1095.8	1089
B14	9½	1096.1	1086½
B15	7½	1085.9	1078½
B16	-(1)	1079.6	-
B17	3	1080.6	1077½
B18	2	1076.6	1074½

(1) Groundwater was not observed during drilling operations.

(2) Perched groundwater encountered at this location. Groundwater rose within the borehole during drilling operations.

Mottled and iron oxide stained soils were observed within several soil samples collected. This indicates groundwater was previously present within these soil layers.

In general, water levels may fluctuate throughout the year depending on variations in the amount of precipitation, degree of evaporation, surface run-off characteristics and other related hydrogeological factors.

It should be noted that silty and clayey soils encountered in the borings are relatively impervious or slow draining, it may take several days for groundwater in a borehole to rise to its hydrostatic level. If more accurate water level determinations are required, piezometers should be installed and the water level monitored over a period of time.

Groundwater may impact site grading activities if encountered during construction. The earthwork contractor should pay particular close attention to the area surrounding B17 and B18 where the ground surface elevation is low and groundwater is shallow. We recommend that the groundwater elevation in low areas of the site be reassessed prior to site construction. This can be accomplished by excavating test pits in these low areas and observing groundwater infiltration rates. The earthwork contractor may need to perform excavations as needed in selected areas around the site to fully evaluate groundwater conditions prior to construction. Excavations should be performed with at-grade equipment such as backhoes in an effort as to not disturb underlying supportive soils where groundwater and excessive moisture is present. Additional moisture conditioning (i.e. scarifying/disking and drying soils, etc.) may also be required by the earthwork contractor to obtain proper soil compaction and stability to soil layers as needed.

3.0 LABORATORY REVIEW AND TESTING

The soil samples obtained during the drilling operations were logged, labeled, sealed and delivered to our laboratory for further review. An Element geotechnical engineer classified the soil samples in general conformance with ASTM Standards. Selected soils were tested for moisture content determination, Atterberg Limits, and grain size distribution. The moisture content of the soil tested ranged from approximately 4 to 22 percent. Generally, the clayey type soils were on the higher moisture content range and could exceed optimal moisture conditions for obtaining proper compaction. In our opinion as a result of the higher moisture contents encountered, scarifying and drying the soil would be required during mass earthwork operations. The data obtained from the field and laboratory review are shown on the boring logs. The laboratory test results are either shown on the boring logs or attached to this report.

4.0 ENGINEERING REVIEW

The engineering recommendations made in this report are based on our understanding of the project as described in the following paragraphs. The recommendations are valid for a specific set of project conditions. If the characteristics of the project change from those indicated in this section, it is necessary that we be notified so we may determine whether the new conditions affect our recommendations.

4.1 Project Data

Preliminary project design information was not available to us at the time of this report preparation. However, we understand the site development concepts include a mix of commercial and light industrial type buildings. We were informed the buildings would be one or two story structures and generally constructed of precast concrete walls with steel columns, steel bar joists and metal roof decks. Structural loading conditions and foundation bearing loads were not specified however, considering this type of structures planned, we anticipate foundation bearing pressure loads ranging from approximately 2500 to 3000 pounds per square foot (psf) for these types of structures.

Site roads would need to be constructed to permit vehicle access to the various site use locations within the project area. We assume medium duty, typical 10-ton pavement section roadways would be constructed to meet these needs with more light duty 7-ton pavement sections used for general parking areas for cars and small trucks. We expect that the main access to project areas would be via 260th Street E. Furthermore, we were informed that infiltration ponds would be positioned in the vicinity of borings B1, B4, B14, and B16 depending on the encountered soil and groundwater conditions found at these locations.

4.2 Discussion/Building Site Preparation

Due to variability of the site topography we expect significant earthwork will be required to achieve a near level site grading plan. Presently, preliminary site development plans were not available to us for review and to aid us in developing appropriate soil correction plans for the construction sites. We request as these plans become available we are contracted to review our recommendations and provide additional comments as needed.

The borings generally encountered 1' to 2' of topsoil underlain by predominately coarse alluvium, fine alluvium, and glacial till soils. Generally the natural soils encountered beneath the overburden topsoil should be suitable for site development, however some softer/looser zones of soils were encounter during drilling that could influence site construction. Generally the soils strengthen with increased depth. In our opinion, the topsoil and very soft fine alluvial clays/silts near the surface are unsuitable for supporting new construction and would need to be soil corrected prior to foundation placement. In areas where loose granular sands were encountered additional soil compaction should be performed to aid in increasing density within these loose layers and minimize differential settlements prior to placing structures.

We do not recommend re-using highly frost susceptible soils including silt, topsoil, and fat clays as engineered fill to support the new construction. These soil types where encountered would need to be replaced with suitable engineered fill. In our opinion, moisture conditioning (i.e. scarifying, drying, disking, etc.) would be required of existing suitable natural soil to obtain the proper soil compaction requirements for building pad construction.

In our opinion, it should be feasible to support buildings on a normal spread footing foundation system following a site soil correction. Site preparation should consist of removing the surface vegetation, topsoil, thick tree root mats/stumps where encountered, and very soft clays/silts from the proposed building areas. Any

demolished building structures/pavements including utility lines or cisterns should also be removed by licensed contractors where applicable. Care during site preparation should be provided as to not to damage/undermine the surrounding construction or street areas.

The competent inorganic native soils should be suitable for building support. This would exclude the soft clays where encountered at the footing subgrade elevation. We recommend if these soft and loose layers were encountered within the upper 4' of the footing/foundation subgrade be excavated and replace with engineered fill as described below. The final excavation depths should be field verified after the final grading plan is established. Actual subcuts would depend on final grade elevation relative to where very soft clays were encountered and the building foundation design grade.

Any granular soil if encountered/exposed during earthwork activities should be subjected to thorough surface densification using a heavy, self-propelled vibratory compactor prior to additional fill placement provided the soils are not saturated and/or groundwater is present. We recommend the compactor make at least five (5) passes in mutually perpendicular directions. If perched water is present within granular layers this operation should be evaluated at the time of construction.

The following tabulation states the minimum recommended depth to competent soils for building support at the respective boring locations:

Boring Number	Existing Ground Surface Elevation (ft.) MSL	Minimum Excavation Depth (ft.)	Approximate Elevation of Competent Soil (Nearest ½ ft.) MSL
B1	1110.3	5	1105½
B2	1115.8	12	1104
B3	1117.5	2	1115½
B4	1118.6	2	1116½
B5	1111.2	1½	1109½
B6	1087.5	4	1083½
B7	1113.3	1½	1111½
B8	1072.0	4	1068
B9	1085.1	2	1083
B10	1108.6	4	1104½
B11	1113.9	1½	1112½
B12	1103.4	1½	1102
B13	1095.8	6	1090
B14	1096.1	7	1089
B15	1085.9	4½	1081½
B16	1079.6	2	1077½
B17	1080.6	4½	1076
B18	1076.6	7	1069½

Deeper excavations may be required in and around existing wetland areas depending on final construction plans. The recommended excavation depths should be evaluated by the geotechnical engineer once the preliminary site grading plans become available. At boring B2 soft clay soils were observed to depths of approximately 12'. If buildings and or structures are planned for this location, we recommend further investigation be conducted such as test pits to assess soil bearing capacity and load/settlement response for the structure foundation design.

Deeper excavations may be required to establish final site design grades (i.e. pond/infiltration areas, building pads, roads, etc.). We caution that soil conditions may change away from our boring locations and site review should be performed during

construction to perform additional testing to verify existing site conditions. This would include performing additional test pits for visual observations and soil compaction testing.

The subcuts were estimated based if a structure was planned at the boring location. We recommend that once the preliminary site development plans are complete, Element should review and update the above depth of subgrade cut based upon building specifications. Additional test pits and/or soil borings should be performed on the site to further identify the extent and quality of soft soils/loose soils in planned development areas once the preliminary site grading plan becomes available.

In the event that contaminated soil is encountered, proper environmental sampling, testing and disposal of site impacted soils should be performed. Environmental consultants should be hired to perform appropriate monitoring and testing during construction as needed. Contingences including specific environmental testing and soil disposal should be placed in the project budget to properly deal with impacted soils and unknowns if encountered during site construction. All encountered construction debris should be properly disposed of per standard construction practices.

Isolated dewatering may be required where perched groundwater is encountered to facilitate earthwork activities. This may be more prevalent in low lying areas or areas adjacent to existing wetlands where groundwater was noticed during our drilling activities. We noted that groundwater was observed in borings B17 and B18 close to the ground surface at depths of 3' and 2', respectively. If development is planned in these areas additional dewatering and drainage structures most likely would be required to facilitate earthwork activities and future development. Also excavation would need to be performed with at grade equipment such as large backhoes as to aid in minimizing disturbances to underlying saturated soils.

Test pitting should be performed by the contractor in the presence of the geotechnical engineer or their representative in order to help verify depths of subcuts. The

excavation bottoms should be observed by the geotechnical engineer to document the exposed soil conditions. This is a requirement of FHA Data Sheet 79G, "Land Development with Controlled Earthwork", if applicable to your project.

Where the excavation extends below bottom footing elevation, we recommend providing lateral oversize equal to 2' plus the depth of fill required to attain bottom of footing elevation (i.e. 2+1V:1H lateral oversize). This over-sizing is necessary to support the lateral loads exerted by the footings through the fill system. An illustration of this over-sizing is attached to this report. The walls of the excavation should be properly braced and shored if suitable sloping of excavations cannot be provided.

After the recommended excavation, engineered fill should be placed to attain final grades. We recommend the use of granular soil preferably having less than 20% passing the #200 sieve. The on-site inorganic soils, excluding: existing site fill, soil fouled or mixed with topsoil, topsoil, organic material, debris, existing construction, hydric soils, and/or silt/fat clay, or saturated soils that do not allow for proper soil compaction; may be used as engineered fill, provided the specified compaction level can be achieved. We anticipate some moisture conditioning (i.e. scarifying/disking and air drying, etc.) would most likely be required based on the apparent moisture of the soil samples obtained during the drilling work.

Below foundations and floor slabs, the engineered fill should be compacted to at least 98% of the Standard Proctor maximum dry density (ASTM D: 698). The moisture content of the fill should be maintained within 3% of optimum as determined by the Standard Proctor test, at the time of placement. Soil compaction tests should be performed to verify that proper compaction is achieved in the fill. We recommend in areas where fill is placed in depths greater than 10' to attain design grades that the specified soil compaction level be increased to a minimum of 100% of the Standard Proctor test. The increased soil density requirement will aid in minimizing post construction settlements occurring with structures placed on deep fill areas. We also recommend that a construction delay be built into the construction schedule where deep

fills exceed 15' to 20' to allow initial consolidation of underlying soils to occur of areas where deep fills are expected.

Fill compacted with heavy, self-propelled compaction equipment should be placed in lifts not exceeding 12 inches in loose thickness. Fill compacted with hand-operated compaction equipment should be placed in lifts not exceeding 6 inches in loose thickness.

The silty and clayey soils encountered at this site are susceptible to disturbance from construction traffic, especially in wet conditions. Therefore, we recommend positive surface drainage should be maintained so water is not allowed to pond on site and promote soil disturbance. We also recommend using the appropriate at-grade excavation equipment (i.e. backhoes, etc.) during earthwork operations to limit soil disturbance and degrading the underlying supportive soil. If soil becomes disturbed, additional excavation may be required.

After the recommended site preparation and soil correction has been performed, it is our opinion that footings can be designed for a net allowable bearing pressure of up to 3000 psf. This bearing pressure includes a factor of safety of at least three against shear failure of foundations. In our opinion, total and differential settlement should not exceed about one inch and one-half inch, respectively.

All perimeter foundations in heated building space should be placed at a minimum depth of 42 inches below exterior grades for frost protection. Interior footings may be placed at any convenient depth below the floor slab. In unheated areas where deeper frost penetration may occur, we recommend that the foundations have a minimum soil cover of 60 inches for frost protection.

4.3 Floor Slab Recommendations

Soil corrections as outlined above would need to be performed to support the floor slabs of the planned structures. Particular attention should be paid to properly compacting

the fill against the foundations and within the utility trench backfill beneath the floor slabs. Inadequate compaction at these locations may cause cracking of the slab from subsidence of the fill. The floor slabs may be designed to be structurally independent of the building foundations or walls.

All backfill placed to support the floor slabs, including within utility runs, should be compacted to at least 95% of the Standard Proctor (ASTM D: 698). If the floor slabs are used to support vehicle traffic then the compaction level should be increased to 100%. We recommend the upper 8" of the subgrade immediately below the floor consist of free draining sand containing less than 5% passing the #200 sieve or pea-gravel or gravel equivalent. The sand/pea gravel will help reduce capillary moisture transmission to the slab. In our opinion, a modulus of subgrade reaction, k, of 180 pounds per square inch per inch (pci) can be used in the floor slab design provided the soil corrections are performed as outlined in this report.

If moisture sensitive floor coverings are planned for the floor slab areas we recommend contacting the flooring manufacturing to determine the type of vapor barrier system required. We recommend a vapor barrier be placed directly below the floor slab to minimize moisture transmission through the floor slab concrete. Due to the high moisture contents of the on-site soils and perched groundwater conditions we recommend that a minimum thickness of 12-mil vapor barrier be used. The vapor barrier should be properly sealed around all edges prior to concrete slab placement.

The soil borings did encounter groundwater at several locations at the time of drilling. The highest groundwater relative to the drilling surface was at boring location B18 where groundwater was encountered at a depth of 2'. It can be expected that in areas of close proximity to wetlands, higher groundwater levels could be present certain times of the year. We recommend that if building and structures are planned in these areas a thorough analysis of the seasonal high groundwater levels should be conducted. Typical requirements by municipalities specify that the design of the lowest foundation slab elevations should be placed a minimum of 2' to 3' above the seasonal high

groundwater elevation. FHA "79G" loan requirements specify a 4' separation, if applicable to your project. Final design plans for slab areas should account for providing a suitable separation distance from the seasonal high groundwater levels.

4.4 Pavement Subgrade Preparation

We understand that the proposed pavement areas will be used primarily for commercial business traffic including semi-tractor trailers, large trucks and automobiles with an occasional garbage truck, moving van and/or bus. These pavement areas will be built for drive lanes, loading dock, and or staging areas supporting the development. Based upon similar type projects we assume that the pavement design needs to conform to a typical minimum 10-ton design standard for these areas. It is also our understanding that lighter duty 7-ton pavement areas would be constructed for light duty parking areas for cars and small trucks servicing the commercial development. We have assumed a design life of 20 years, typical of these types of pavement construction, with normal maintenance anticipated for our design.

In bituminous pavement design, the critical portion of the subgrade is the upper 3-foot zone in heavy-duty areas. This zone provides the primary strength and stability needed for flexible pavement materials.

Minimum site preparation should include removal of the surface vegetation, topsoil, any encountered existing unsuitable fill, existing construction, very soft clays and/or clayey sands and other surficial organics, stumps and thick root mats where encountered. Additional subcuts where applicable should be performed in street areas to allow for placement of a minimum of 2' thick granular layer beneath the Class 5 aggregate base underlain by geotextile fabric. In areas where existing granular sandy soils are present the excavation may be minimized. These areas should be inspected and tested to verify they meet the project specifications. The geotextile fabric should meet MnDOT Specification 3733 Type V for separating materials. The fabric should be properly sewn or overlapped per MnDOT Specifications. Construction traffic other than foot traffic should remain off of the fabric as not to damage it during placement. In selected low

lying areas and where very soft clays/silts are encountered the sand section should be increased to 2' thick. Appropriate transitions between section changes should be noted in the design documents. We recommend that the transitions/tapers should be a minimum of 20:1 (H:V) where different sections are coming together.

Based on the borings, the majority of the exposed soils will be primarily lean clays and silty/clayey sands. These natural soils at final subcut grade should be subjected to test rolling to help identify any weak zones in need of correction. Unstable subgrade should be removed and replaced prior to additional fill placement.

Where additional fill is needed in the upper 2 feet of subgrade, we recommend "Select Granular Borrow", which means Mn/Dot Specification 3149.2B is used and fill material is compacted to at least 100% Standard Proctor maximum dry density (ASTM D: 698). Portions of the natural on-site sands encountered in the borings would meet this requirement. The moisture content should be within 2% of the optimum as determined by the Standard Proctor tests. The compaction level can be reduced to 95% below the upper 3-foot zone.

The subgrade should be uniformly sloped to facilitate drainage of the base material within the pavement system, and to avoid any ponding of water beneath the pavement. Drain-tile should be incorporated into the design and placed at the bottom of the sand section behind the curb to collect any groundwater and divert it to appropriate storm sewers or drainage structures and/or outfalls. This is especially important when less permeable soils are below the base material. Final pavement design should take into consideration both positive surface and subsurface drainage.

We also recommend performing a proofroll test at final subgrade elevation prior to aggregate base and pavement placement to detect any unstable zones at subgrade and base grade elevations. The proofroll should be performed with a heavy, rubber tired vehicle such as a loaded tandem-axle dump truck traveling at walking speed over the

subgrade. If excessive yielding or rutting is noticed, additional soil corrections below subgrade should be performed.

4.5 Pavement Thickness Design

Assuming the pavement subgrade preparation is performed as recommended in the preceding section and the subgrade soils are judged suitable based on a proofroll test, we recommend the following pavement design be used:

Pavement Section	Pavement Thickness	
	Light Duty 7-Ton	Heavy Duty 10-Ton
Mn/DOT Spec. 2360 Type SP 12.5 Bituminous Wearing Course Mix (2,C) (SPWEB240C)	2"	2"
Mn/DOT Spec. 2360 Type SP 12.5 Bituminous Non Wear Course Mix (2,C) (SPNWB230C)	2"	3"
Mn/DOT Spec. 3138 Class 5 Aggregate Base, 100% Crushed Limestone Base Aggregate	9"	12"
Mn/DOT Spec. 3149.2B Select Granular Borrow	12"	24"
Mn/DOT Spec. 3733 Type V Geotextile Fabric	--	--
Approved Subgrade – Passes Proof-Roll Test	--	--

The recommended thickness is based on the recommended compacted select granular borrow layer placed beneath the Class 5 aggregate base. Pavement areas should also include drain-tile systems incorporated into the design placed at the bottom of the sand section and connected to the storm sewer system or suitable outfalls to allow for proper drainage so water does not pond beneath the pavement.

The above design assumes that a regular, conscientious maintenance program is performed. It is possible that seal coating may extend the pavement life somewhat. We caution that reduced pavement thickness may result in a reduced service life and increased maintenance.

The thicknesses recommended are assumed a minimum for construction. The design also assumed the aggregate base will be compacted to a minimum of 100% of the Standard Proctor density and the bituminous pavement placed and compacted to 92%

of the maximum theoretical density. Alternative pavement designs are available and may be applicable depending on the final proposed construction for the project site. We should be contacted to provide additional recommendations as needed as project plans are being finalized for the site.

The designer/developer should strongly consider utilization of a concrete pavement section in lieu of the bituminous pavement discussed above especially in loading or unloading areas, aprons/dolly pads for trailer and/or large truck storage, or in garbage bin areas where large truck traffic may impact bituminous pavement significantly. We recommend placement of a minimum of ten (10) inches of compacted Mn/DOT Class V aggregate base supporting a minimum concrete slab thickness of eight (8) inches after the subgrade is prepared as outlined above. The aggregate base provides a constructible base for concrete placement, reduces faulting, and helps dissipate loads. It is very critical for the proper performance of the concrete pavement section to be placed over approved subgrade. Proper soil compaction of the subgrade and around utilities is critical in the performance of the pavement and to minimize pavement settlements. Appropriate panel sizing, jointing, doweling, and edge reinforcement are critical for performance of the rigid pavement.

The concrete should have a minimum 28-day unit compressive strength of 4,000 psi and a minimum flexural strength of 580 psi. We recommend specifying 5 to 8 percent air entrainment to provide resistance to freeze-thaw deterioration. The designer should also designate a maximum water-cement ratio of 0.45 using a water-cement ratio of 0.40 or less for concrete exposed to deicers. We recommend the pavement be constructed in accordance with the American Concrete Institute: ACI 330-"Guide for Design and Construction of Concrete Parking Lots".

4.6 Underground Utilities

The undisturbed natural soils encountered in the borings appear to be suitable for support of typical buried utilities. The utilities should bear upon suitable natural soil or compacted engineered fill. The utilities should not be placed on topsoil or thick layers of

uncompacted fill. In areas where appreciable amounts of gravel, tree roots, cobbles or boulders are encountered we recommend over excavation and placement of a suitable pipe bedding material. The pipe bedding material should encompass the utility. Our concern is that the gravel, cobbles or boulders may damage the utilities by applying point loads to the pipes especially during backfilling operations. The gravel, cobbles, or boulders should be replaced with suitable engineered fill a suitable distance around the pipe of a minimum of 1'.

If loose/soft soils are encountered in the bottom of utility trenches, some subcutting or recompaction of the soils may be required. Isolated dewatering may be required to facilitate utility installation and backfilling procedures where invert pipe elevations are at or below the water table or where perched groundwater conditions are encountered. Geotextile fabric may also be required beneath bedding materials in wet soil condition areas. Fill placed as utility bedding should be either crushed rock or clean, well-graded granular soil. Due to the characteristics of the soils encountered at this site, proper shoring and/or size/slope of the excavation per OSHA guidelines should be used during utility installation.

All backfill in underground utility trenches should be placed and compacted as recommended in previous sections of this report. Utility trench backfill in paved areas should be compacted to 100% of the Standard Proctor value within the upper 3' of subgrade and a minimum of 95% below the top 3'.

4.7 Subsurface Water Control

As indicated in Section 2.4 of this report groundwater was observed in a number of borings during drilling. The observed groundwater levels in the soil borings depend on normal variations in precipitation and surface runoff amounts. It should be noted that the high ground water may affect site construction, especially in areas close to existing wetlands. The earthwork contractor should be made aware of potential high groundwater conditions at the site and be prepared to address during construction. Isolated dewatering may be required where the water table is encountered depending

on final design elevations of utilities or other structures placed at depth. Surface water should be controlled by maintaining positive surface drainage away from the building and paved areas.

4.8 Below Grade Walls and Lateral Earth Pressure

Backfill placed against the below-grade foundation walls will exert lateral loads against these walls. The lateral loads could be minimized if free-draining granular soils are used as backfill immediately against the walls. This would include sand classified as SP or SP-SM, containing no more than 10% material passing the #200 sieve, and preferably no more than 50% passing the #40 sieve. The granular backfill should extend at least two feet laterally from the bottom of the foundation walls and extend outward at a 30-degree angle to the surface. In areas that will support structures such as sidewalks or slabs, the exterior fill should be compacted to 95% of Standard Proctor density. Backfill under paved areas should be compacted to 100% of the Standard Proctor in the upper three feet. The backfill should not be placed until either the walls are adequately braced or after the floor has been installed, so as not to damage the foundation walls.

Using the free-draining backfill, it is our opinion the sands may transmit a lateral pressure to the foundation wall equivalent to that of a fluid having a density of 40 pounds per cubic foot (pcf) and 55 pcf in the active and at-rest pressure conditions, respectively. Usage of clay backfill may result in lateral earth pressures of 80 pcf or more, in the at-rest condition. We do not recommend using silt or fat clay or hydric soils as wall backfill. These soils should be replaced with suitable engineered fill where encountered.

If on-site soils are to be used for wall backfill the design should account for this much higher lateral pressure these soils will impose on the foundation walls as noted above.

The clayey and silty soils will exert higher lateral pressures on the basement/loading dock walls. Usage of clay backfill may result in lateral earth pressures of 80 pcf or

more, in the at-rest condition. In addition, these soils have low drainage capability. If water is allowed to enter this type of backfill, significant water pressures in addition to the soil pressures may also develop. Therefore, if you elect to backfill with the on-site clayey and silty soils, it is imperative that the proposed construction is designed to withstand the increased lateral pressure. Also, below grade foundation walls should be properly water-proofed and insulated per standard construction practices. Positive drainage away from the structures must be maintained during and at the completion of construction.

In addition to the soil pressure, water entering behind the walls may exert more pressures. Therefore, we recommend exterior drain tile be installed for the below grade walls. The drain tile system should be installed below floor grade on the outside of the foundation wall and should be surrounded by at least six inches of washed, coarse aggregate material which is enveloped in a geotextile fabric. The drain tile should be connected to a suitable outfall or sump where water can be discharged from the system. We are including a typical exterior drain tile system sketch attached to this report.

4.9 Soil Design Parameters – Retaining Wall Structures

We have estimated the earth pressure coefficients for active, at-rest and passive conditions for the soil types encountered at the site in the following tabulation:

Soil Type	N-value	Unit Wet Weight (pcf)	Active Earth Pressure Coefficient (K_a)	At-Rest Earth Pressure Coefficient (K_o)	Passive Earth Pressure Coefficient (K_p)	Coefficient of Sliding Friction
Sand (SP) to Sand with Silt (SP-SM)	4-14	115	0.31	0.47	3.2	0.45
	14+	120	0.27	0.43	3.7	0.45
Silty Sand (SM)	< 10	120	0.38	0.55	2.7	0.35
	10-25	125	0.35	0.52	2.9	0.40
	> 25	125	0.31	0.47	3.2	0.40
Clayey Sand (SC)	15-25	125	0.35	0.52	2.9	0.40
	> 25	125	0.31	0.47	3.2	0.40
Clays (CL)	All	125	0.41	0.58	2.5	0.35

The values in the preceding table do not include a factor of safety. The design engineer should also determine the appropriate surcharge if applicable to use in the design depending on the type of structure and what it is retaining. Again, we recommend performing the soil correction as outlined above and utilizing granular soils with less than 20% passing the #200 sieve as fill soil. These values were provided for informational purposes to aid the design team.

We recommend that the soils exposed at the bottom of proposed retaining walls (if included with project design) and the supportive fill behind/below the walls be observed and tested by the project soil engineer or their representatives to verify soil bearing capacity, soil types, and soil density for the intended wall design. This includes the appropriate aggregate drainage layers and geotextile reinforcement behind the walls. It is our understanding that the retaining walls would be designed by others and are in the preliminary planning phase at the time of this report. We should be contacted once final plans for the retaining walls type/design are made available so as to provide additional recommendations as needed.

4.10 Proposed Storm Water Infiltration Basins/Ponds

We understand that the proposed construction may include storm water infiltration basins and/or storm water ponds near borings B1, B4, B14, and B16. The soils at the basins preliminary design elevations, approximately 3' to 8½' below existing site grades, includes Lean Clay (CL), Clayey Sand (SC), Silty Sand (SM), and Sand (SP) with various amounts of gravel. In our opinion Lean clay (CL), Clayey Sand (SC), and Silty Sand (SM) type soils do not provide for good infiltration. These soils when encountered at the basin locations (borings B1 and B4) should be over excavated and replaced with clean granular sand or gravel with subsurface drainage systems (as needed) to obtain reasonable infiltration rates. This may not be cost effective. The designers should evaluate moving the infiltration basins to locations where more granular soils are present and better infiltration may be expected.

Conversely, lean clay soils if properly prepared and compacted may provide good pond liner material. We estimate the lean clay soils encountered by our soil borings (boring B1) would have permeability in the range of 10^{-5} to 10^{-6} cm/sec, or less, if properly prepared and compacted. Moisture conditioning (i.e. wetting or drying the soil) may be required during earthwork activities to obtain the proper soil compaction. Over excavation and slope stabilization may still be needed to be performed where pockets of sandy fill or sand lenses are encountered within close proximity of pond bottom and side slopes/walls of the proposed pond areas. Clayey soil exposed at the bottom and side slopes of the ponds should be uniformly compacted to a minimum of 92% of the Standard Proctor density in the upper 2' of exposed soil for this pond type.

Site preparation for infiltration basins should include stripping topsoil and excavating to basin bottoms. Additional excavation would be required to remove clayey/silty soil types that do not provide for good infiltration and replace with suitable drainage material if an infiltration basin type is preferred. Excavations for infiltration basins should also allow for the appropriate surface treatment to be placed carefully at the surface as to not compact underlying soils.

It should be noted that more silt and clay particles in the soil will lower permeability, which will lower the rate at which infiltration will occur through these soil layers.

Infiltration rates depend on void ratio, gradation, and the amount of fines in the soil. Material and fines washed into the basins and ponds can fill pore spaces and reduce infiltration over time. We recommend infiltration basins be properly maintained during their design life.

Construction traffic and other disturbances in the infiltration basin area can decrease infiltration rates by further compacting the soil and reducing voids. Topsoil layers placed at the surface and erosion into the basin can also further reduce infiltration.

During site construction we recommend soil testing be performed to verify soil conditions including classifying soil types and density of the soil used in the construction of the infiltration basins and ponds. During construction, approved soils placed in the infiltration basin should be scarified with a backhoe and placed without compacting the soil to minimize decreasing the infiltration rate. Additional testing may include performing a double ring infiltration test (ASTM: D3385) at the bottom of the basin after it has been constructed to verify the infiltration rate is sufficient for the design. We can perform this testing service if requested

Based on the provided site information, our soil borings performed at proposed basin locations, and laboratory test results estimated infiltration rates for various soil types are tabulated below.

Infiltration Basin Boring No.	Existing Ground Surface El. MSL (ft.)	Estimated Basin Bottom Design El. MSL (ft.)	Soil Type/ Classification at Basin Bottom Design Elevation	Hydrologic[1] Soil Group at Basin Bottom Design El.	Estimated Infiltration Rate at Basin Bottom Design El. (inches/hour)[3]
B1[2]	1110.3	1107.0	Lean Clay (CL)	D	0.06
B4	1118.6	1110.0	Silty Sand (SM)/Clayey Sand (SC)	C	0.2
B14	1096.1	1090.0	Sand (SP)/Sand with Silt (SP-SM)	B	0.45
B16	1079.6	1073.0	Sand (SP)/Silty Sand (SM)	B	0.45

(1) Soil Hydrologic Group Classification derived from the MN Stormwater Manual.

(2) Location not recommended for infiltration basin.

(3) Groundwater was encountered within the borings and this may affect the rate at which infiltration may occur, especially if the groundwater is at or higher than the proposed basin bottom. This should be taken into account with the design of the basins.

Considering the very low soil infiltration rates noted at boring B1, we recommend the basin at this location be designed for a stormwater retention pond or be relocated to a more favorable soil environment, having greater infiltration capacity.

4.11 General Comments

We recommend that all geotechnical related work, including foundation construction, subgrade preparation, and engineered fill placement, be observed by the project geotechnical engineer or their representatives. The geotechnical engineer will perform appropriate testing to verify the geotechnical conditions that have been anticipated during preparation of this report.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Excavation Safety

All excavations should comply with applicable O.S.H.A. standards including O.S.H.A. 29 CFR, Part 1926, Subpart P, "Excavations and Trenches". Excavation safety is the responsibility of the contractor. Reference to these O.S.H.A. requirements should be included in the project specifications.

5.2 Cold Weather Construction

Construction during cold weather should be exercised with care. We have included a sheet entitled “Precautions for Excavating and Refilling During Cold Weather”.

5.3 Field Observations and Testing

As variations in soil conditions may exist at locations and elevations other than those of our borings, we recommend the geotechnical engineer be retained to observe the soil conditions during site preparation. We recommend in-place field compaction tests be performed in the compacted fill.

5.4 Soil Sensitivity

The silty and clayey soils at this site are susceptible to disturbance from construction traffic, especially in wet conditions. If the soils become disturbed, additional excavation may be required. Therefore, proper excavation equipment should be used to minimize the potential for disturbance.

5.5 Additional Construction Precautions and Considerations

Moisture conditioning of the on-site soils may be required to obtain the proper soil compaction requirements. This may include scarifying or disking soils placed in thin lifts to allow to air dry as needed or adding moisture as needed to soil to obtain proper compaction. In our opinion, the use of proper soil compaction equipment should be used on site to obtain soil density requirements. This may include large self-propelled vibratory sheep-foot compactors used in clayey soil areas and smooth drum compactors in sandy areas.

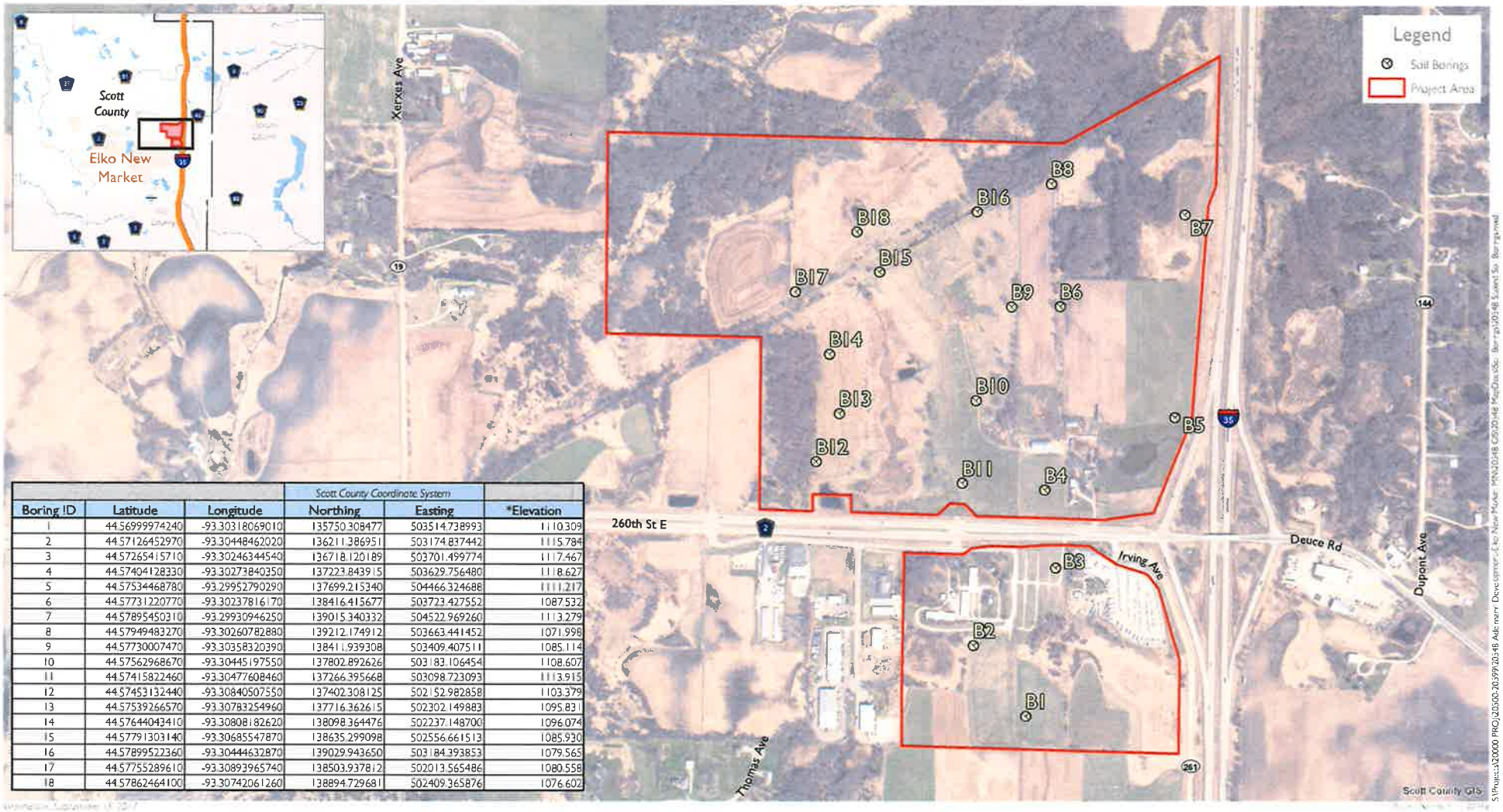
Due to the wide variety of soil types and conditions encountered on this site we recommend contingency be placed in the project budget to account for these variables. This may include but not limited to unit pricing in the bid documents for disposal of construction debris, deeper excavation than anticipated, the possible need to import select granular fill, moisture conditioning of soils, additional earthwork operations for the separation of unsuitable fill from usable fill, and additional testing/inspection work associated with this site, etc. We also recommend that a plan is in place for disposing of unsuitable soil at a location that would not affect future development. This may include placing the unsuitable fill in green space areas where structures or paved surfaces are not planned such as non-structural berms or open field areas, etc.

It is our understanding that this project is in the preliminary design phase and changes to the existing design may occur. If the design changes and moves subsequent to our work we should be contacted and contracted to provide additional engineering and analysis as needed.

6.0 REMARKS

This report is for the exclusive use of the parties to which it is addressed. The soil testing and geotechnical engineering services performed by Element Materials Technology St. Paul, Inc. for this project have been conducted in a manner with the level of skill and care ordinarily exercised by other members of the profession currently practicing in this area under similar budgetary and time constraints. No warranty, express or implied, is made.

Attachments:
- -Soil Boring Location Plans (1 page)
- -Soil Boring Logs B1-B18 (18 pages)
- -Grainsize Distribution Test Reports (17 pages)
- -Liquid and Plastic Limits Test Reports (2 pages)
- -Symbols and Terminology on Test Boring Logs (1 page)
- -Field Exploration Procedures (1 page)
- -Prerequisites for Sound Engineering Practice (1 page)
- -Excavation Oversizing (1 page)
- -Typical Exterior Drain-tile System (1 page)
- -Construction Observations and Testing (1 page)
- -Precautions for Excavating and Refilling During Cold Weather (1 page)
- -Requirements for FHA Earthwork Testing (1 page)
- -Risk Associated with Excavation Under Water (1-page)



			Scott County Coordinate System		
Boring ID	Latitude	Longitude	Northing	Easting	*Elevation
1	44.56999974240	-93.30318069010	135750.308477	503514.738993	1110.309
2	44.57126452970	-93.30448462020	136211.386951	503174.837442	1115.784
3	44.57265415710	-93.30246344540	136718.120189	503701.499774	1117.467
4	44.57404128330	-93.30273840350	137223.843915	503629.756480	1118.627
5	44.57534468780	-93.29952790290	137699.215340	504466.324688	1111.217
6	44.57731220770	-93.30237816170	138416.415677	503723.427552	1087.532
7	44.57895450310	-93.29930946250	139015.340332	504522.969260	1113.279
8	44.57949483270	-93.30260782880	139212.174912	503663.441452	1071.998
9	44.57730007470	-93.30358320390	138411.939308	503409.407511	1085.114
10	44.57562968670	-93.30445197550	137802.892626	503183.106454	1108.607
11	44.57415822460	-93.30477608460	137266.395668	503098.723093	1113.915
12	44.57453132440	-93.30840507550	137402.308125	502152.982858	1103.379
13	44.57539266570	-93.30783254960	137716.362615	502302.149883	1095.831
14	44.57644043410	-93.30808182620	138098.364476	502237.148700	1096.074
15	44.57791303140	-93.30685547870	138635.299098	502556.661513	1085.930
16	44.57899522360	-93.30444632870	139029.943650	503184.393853	1079.565
17	44.57755289610	-93.30893965740	138503.937812	502013.565486	1080.558
18	44.57862464100	-93.30742061260	138894.729681	502409.365876	1076.602

* Elevation values were generated from the Scott County LiDAR (model 1 meter DEM).

0 300 600 Feet

N

Figure 1
Staked Soil Borings
Adelmann Property
Elko New Market, Scott County, Minnesota

Source(s):
Orthophoto (Scott County 2016)
Soil Boring GPS (ISG, 9/11/2017)

ISG

Project No. ESP026601P

LOG OF BORING NO. B1

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 135750.308477,
Easting 503514.738993

Surface Elev.: **1110.3** ft. Datum: **MSL**

Description	Elev.	Depth (FT.)	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
TOPSOIL, organic lean clay, black to dark brown, moist (TOPSOIL)			TOPSOIL	AS	1	AUGER	12			
				AS	2	AUGER	12			
2.5	1107.8			5	3	SS	18	16		
LEAN CLAY, with sand, brown to gray, iron oxide staining present at 4', moist, soft to firm (CL)			FINE ALLUVIUM	6	4	SS	18	18		
		5								
7.5	1102.8			9	5	SS	18			Pq=1.75tsf
SANDY LEAN CLAY, with a little gravel, lenses of waterbearing sand at 12.5', brown to gray mottled, moist to wet, firm to hard (CL)			GLACIAL TILL	9	6	SS	18			
		10								
∇				9	7	SS	18			
				21	8	SS	18			
		15								
				16	9	SS	18			
20.5	1089.8	20								
End of Boring										

WATER LEVEL OBSERVATIONS	
WL	∇ 12.5

element materials technology
662 Cromwell Ave.
St. Paul, MN 55114
Telephone: 651-645-3601

STARTED	9/15/17	FINISHED	9/15/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	WG
LOGGED BY	WG	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B2

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 136211.386951,
Easting 503174.837442

Surface Elev.: 1115.8 ft. Datum: MSL

Description	Elev.	GEOLOGY	DEPTH (FT.)	BLOWS/12" N - VALUE RQD	NUMBER	TYPE	IN. RECOVERED IN. DRIVEN	MOISTURE, %	DRY DENSITY PCF	ADDITIONAL DATA/ REMARKS
TOPSOIL, organic lean clay, black to dark brown, moist (TOPSOIL)		TOPSOIL		AS	1	AUGER	12			
				AS	2	AUGER	12			
2.0	1113.8									
LEAN CLAY, with lenses of waterbearing sand and silt, brown to gray, iron oxide staining, moist to wet, very soft to soft (CL)		FINE ALLUVIUM		6	3	SS	18	18		
∇				3	4	SS	18			
			5							
				7	5	SS	18			
				5	6	SS	18			
			10							
12.0	1103.8									
SANDY LEAN CLAY, with a little gravel, brown to gray mottled, moist to wet, soft to firm (CL)		GLACIAL TILL		7	7	SS	18			
				14	8	SS	18			
			15							
				12	9	SS	18			
20.5	1095.3		20							
End of Boring										

WATER LEVEL OBSERVATIONS	
WL	∇ 5.0

element™ materials technology
662 Cromwell Ave.
St. Paul, MN 55114
Telephone: 651-645-3601

STARTED	9/15/17	FINISHED	9/15/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	WG
LOGGED BY	WG	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/29/17

Project No. ESP026601P

LOG OF BORING NO. B3

CLIENT: APPRO Development

ARCHITECT/ENGINEER: ISG

SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota

PROJECT: Adelman Elko New Market Property Development

Northing 136718.120189,
Easting 503701.499774

Surface Elev.: **1117.5** ft. Datum: **MSL**

Depth (ft.)	Description	Elev.	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
0.7	FILL, sand with silt and gravel aggregate base course, brown, moist (FILL)	1116.8	FILL	AS	1	SS	12			
	SILTY SAND, with a little gravel, fine to medium grained, brown, moist, loose (SM)		COARSE ALLUVIUM	AS	2	SS	12			
				8	3	SS	18	9		p200=20.8%
4.0	SAND with SILT, with a little gravel, fine to medium grained, brown, moist to waterbearing at 9', medium dense (SP-SM)	1113.5		13	4	SS	18			
5				23	5	SS	18			
	∇			21	6	SS	18			
10										
12.0	SILTY SAND, with gravel and cobbles, fine to medium grained, brown, wet, medium dense to dense (SM)	1105.5		25	7	SS	18			
15				32*	8	SS	18			*N-values influenced by gravel and cobbles.
19.0	SAND with SILT, with gravel and cobbles, fine to medium grained, brown, wet, dense (SP-SM)	1098.5		40*	9	SS	18			
20										
20.5	End of Boring	1097.0								

WATER LEVEL OBSERVATIONS	
WL	∇ 9.0

element materials technology
662 Cromwell Ave.
St. Paul, MN 55114
Telephone: 651-645-3601

STARTED	9/15/17	FINISHED	9/15/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	WG
LOGGED BY	WG	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B4

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 137223.843915, Easting 503629.756480

Surface Elev.: **1118.6** ft. Datum: **MSL**

Depth (ft.)	Elev.	Description	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
		TOPSOIL, organic sandy silt, black, moist (TOPSOIL)	TOPSOIL	AS	1	AUGER	12			
1.5	1117.1			AS	2	AUGER	12			
		SILTY SAND, with a little gravel, lenses of clayey sand, fine to medium grained, brown, moist, loose to medium dense (SM)	COARSE ALLUVIUM	10	3	SS	18			
5				10	4	SS	18	13		p200=23.5%
7.0	1111.6									
		SILTY SAND, with gravel, lenses of clayey sand and silt from 9' to 10.5', fine to medium grained, brown to gray, moist to wet, loose to medium dense (SM) ∇		24	5	SS	18	9		p200=21.1%
10				12	6	SS	18	12		p200=28.8%
12.0	1106.6									
		LEAN CLAY, with sand, gray, moist, firm (CL)	GLACIAL TILL	9	7	SS	18	22		p200=72.1%
13.5	1105.1									
		CLAYEY SAND, with gravel, fine to medium grained, brown and gray, moist to wet, medium dense (SC)	GLACIAL OUTWASH	21	8	SS	18			
15.5	1103.1									
		LEAN CLAY, with a little gravel, lenses of sand, gray to brown, iron oxide staining, moist, hard (CL)	GLACIAL TILL							
20				18	9	SS	18			Pq=2.5tsf
25				18	10	SS	18			
25.5	1093.1	End of Boring								

WATER LEVEL OBSERVATIONS	
WL	∇ 9.5

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Telephone: 651-645-3601

STARTED	9/18/17	FINISHED	9/18/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B5

CLIENT: APPRO Development

ARCHITECT/ENGINEER: ISG

SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota

PROJECT: Adelman Elko New Market Property Development

Northing 137699.215340
Easting 504466.324688

Surface Elev.: 1111.2 ft. Datum: MSL

Depth	Elev.	Description	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
1.0	1110.2	TOPSOIL, organic sandy silt, black, moist (TOPSOIL)	TOPSOIL	AS	1	AUGER	12			
		SILTY SAND, with a little gravel, fine to medium grained, brown, moist, medium dense to dense (SM)	COARSE ALLUVIUM	AS	2	AUGER	12			
				16	3	SS	18			
				18	4	SS	18	9		p200=23.0%
5										
				32*	5	SS	18			
				35*	6	SS	18			*N-values influenced by gravel and cobbles.
10										
10.5	1100.7	SAND with SILT, with gravel and cobbles, fine to medium grained, brown, wet to waterbearing, dense (SP-SM)								
				43*	7	SS	18			
				31*	8	SS	18			
15										
19.3	1092.0	End of Boring		50*	9	SS	3			*Boring terminated at 19.5' due to obstruction, cobbles or boulders.

WATER LEVEL OBSERVATIONS

WL	∇ 11.0

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STARTED	9/15/17	FINISHED	9/15/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	WG
LOGGED BY	WG	APPROVED	MAS

Project No. ESP026601P

LOG OF BORING NO. B6

CLIENT: APPRO Development

ARCHITECT/ENGINEER: ISG

SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota

PROJECT: Adelman Elko New Market Property Development

Northing 138416.415677
Easting 503723.427552

Surface Elev.: **1087.5** ft. Datum: **MSL**

Description	Elev.	Depth (ft.)	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered / In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
TOPSOIL, organic sandy silt, roots, black, moist (TOPSOIL)			TOPSOIL	AS	1	AUGER	12			
				AS	2	AUGER	12			
2.0	1085.5									
SILTY SAND, with gravel, lenses of clayey sand, fine to medium grained, brown, iron oxide staining, wet to waterbearing, very loose to medium dense (SM)			COARSE ALLUVIUM	4	3	SS	18			
		5		18	4	SS	18			
				13	5	SS	18	8		p200=22.6%
9.0	1078.5									
SILTY SAND, with gravel, cobbles, fine to medium grained, brown, wet, medium dense to dense (SM)		10		24	6	SS	18			
				23	7	SS	18			
		15		31*	8	SS	18			*N-value influenced by gravel and cobbles.
19.5	1068.0									
20.5 SAND, with a little gravel, fine to medium grained, brown, wet, medium dense (SP)	1067.0	20		17	9	SS	18			
End of Boring										

WATER LEVEL OBSERVATIONS		
WL	▽	9.0
WL	▼	4.0

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STARTED	9/22/17	FINISHED	9/22/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B7

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 139015.340332
Easting 504522.969260

Surface Elev.: **1113.3** ft. Datum: **MSL**

Depth	Elev.	Description	Geology	Depth (ft.)	Blows/12" N-Value RQD	Number	Type	In. Recovered In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
1.0	1112.3	TOPSOIL, organic silty sand with a little gravel, black, moist (TOPSOIL)	TOPSOIL		AS	1	AUGER	12			
		SILTY SAND, with a little gravel, lenses of clayey sand, fine to medium grained, brown, moist, loose to medium dense (SM)	COARSE ALLUVIUM		AS	2	AUGER	12			
					16	3	SS	18	11		p200=30.6%
				5	9	4	SS	18			
5.5	1107.8	LEAN CLAY, with a little sand, brown and gray mottled, moist, soft (CL)	FINE ALLUVIUM								
					6	5	SS	18			
8.5	1104.8	SILTY SAND, with gravel and cobbles, fine to medium grained, brown, moist, medium dense to dense (SM)	COARSE ALLUVIUM								
				10	24	6	SS	18			
					33	7	SS	18			
				15	25	8	SS	18			Boring terminated at 18' due to obstruction, cobbles or boulders.
18.0	1095.3	End of Boring									

WATER LEVEL OBSERVATIONS	
	None

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STARTED	9/15/17	FINISHED	9/15/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	WG
LOGGED BY	WG	APPROVED	MAS

Project No. ESP026601P

LOG OF BORING NO. B8

CLIENT: APPRO Development

ARCHITECT/ENGINEER: ISG

SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota

PROJECT: Adelman Elko New Market Property Development

Northing 139212.174912
Easting 503663.441452

Surface Elev.: 1072.0 ft. Datum: MSL

Description	Elev.	Geology	Depth (ft.)	Blows/12" N-Value RQD	Number	Type	In. Recovered In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
TOPSOIL, organic sandy lean clay, black, moist (TOPSOIL)		TOPSOIL		AS	1	AUGER	12			
				AS	2	AUGER	12			
2.5	1069.5			5	3	SS	18			Pq=1.25tsf
LEAN CLAY, with lenses of silt and waterbearing sand, gray, moist to wet, soft (CL)		FINE ALLUVIUM		8	4	SS	18			Pq=2.0tsf
			5							
7.0	1065.0									
SAND, with gravel, cobbles, fine to medium grained, brown, waterbearing, medium dense to loose (SP)		COARSE ALLUVIUM		52*	5	SS	18			*N-value influenced by cobbles.
			10	13	6	SS	18			
				5	7	SS	18			
13.5	1058.5									
SILTY CLAY, lenses of sand, with a little gravel, gray, moist, soft to firm (CL-ML)		GLACIAL TILL	15	10	8	SS	18	14		Pq=4.0tsf LL = 16 PL = 4
				14	9	SS	18			
20.5	1051.5		20							
End of boring										

WATER LEVEL OBSERVATIONS		
WL	▽	7.0
WL	▼	3.0

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Telephone: 651-645-3601

STARTED	9/21/17	FINISHED	9/21/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

Project No. ESP026601P

LOG OF BORING NO. B9

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 138411.939308
Easting 503409.407511

Surface Elev.: **1085.1** ft. Datum: **MSL**

Elev.	Description	Geology	Depth (ft.)	Blows/12" N-Value RQD	Number	Type	In. Recovered / In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
	TOPSOIL, sandy silt, with a little gravel, organic matter, black to dark brown, moist (TOPSOIL)	TOPSOIL		AS	1	AUGER	12			
				AS	2	AUGER	12			
2.0 / 1083.1	CLAYEY SAND, with gravel, cobbles, fine to medium grained, brown, moist, medium dense (SC)	COARSE ALLUVIUM		27	3	SS	18			
			5	50*	4	SS	18			*N-value influenced by cobbles.
5.5 / 1079.6	LEAN CLAY, with a little sand, brown, moist, firm to hard (CL)	FINE ALLUVIUM		9	5	SS	18	16		Pq=1.75tsf LL = 26 PL = 11
9.5 / 1075.6	SILTY SAND, with gravel, cobbles, mostly fine grained, brown, wet to waterbearing, medium dense to dense (SM)	COARSE ALLUVIUM	10	20	6	SS	18			
	∇			36*	7	SS	18			*N-value influenced by cobbles.
			15	30	8	SS	18			
19.0 / 1066.1	LEAN CLAY, with a little sand and gravel, brown, moist, hard (CL)	GLACIAL TILL	20	23	9	SS	18			
20.5 / 1064.6	End of Boring									

WATER LEVEL OBSERVATIONS	
WL	∇ 13.5

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Telephone: 651-645-3601

STARTED	9/19/17	FINISHED	9/19/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B10

CLIENT: APPRO Development

ARCHITECT/ENGINEER: ISG

SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota

PROJECT: Adelman Elko New Market Property Development

Northing 137802.892626
Easting 503183.106454

Surface Elev.: 1108.6 ft. Datum: MSL

Description	Elev.	Depth	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered / In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
FILL, a mixture of sandy silt and clayey sand, dark brown to brown, moist (FILL)	1106.6	2.0	FILL	AS	1	AUGER	12			
				AS	2	AUGER	12			
TOPSOIL, sandy silt, black to dark brown, moist (TOPSOIL)	1105.1	3.5	TOPSOIL	13	3	SS	18			
LEAN CLAY, with sand, brown, moist, firm (CL)	1100.1	8.5	FINE ALLUVIUM	9	4	SS	18			
		5		10	5	SS	18			
SILTY SAND, with gravel, fine to medium grained, brown, wet to waterbearing, medium dense to dense (SM)	1088.1	20.5	COARSE ALLUVIUM	17	6	SS	18			
		10		33*	7	SS	18			*N-values influenced by cobbles.
		15		26*	8	SS	18			
		20		11	9	SS	18			
LEAN CLAY, with a little sand and gravel, brown, moist, firm (CL)	1082.6	26.0	GLACIAL TILL							
		25		10	10	SS	18			
End of Boring										

WATER LEVEL OBSERVATIONS

WL	∇ 15.0

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Telephone: 651-645-3601

STARTED	9/19/17	FINISHED	9/19/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B11

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 137266.395668
Easting 503098.723093

Surface Elev.: **1113.9** ft. Datum: **MSL**

Depth	Elev.	Description	Geology	Blows/12" N-value RQD	Number	Type	In. Recovered / In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
1.0	1112.9	TOPSOIL, sandy silt, black to dark brown, moist (TOPSOIL)	TOPSOIL	AS	1	AUGER	12			Boulders present at/near the surface.
		SILTY SAND, with gravel and cobbles, fine to medium grained, brown, moist, medium dense to dense (SM)	COARSE ALLUVIUM	AS	2	AUGER	12			
				14	3	SS	18			
5				>50*	4	SS	18			*N-value influenced by cobbles.
				18	5	SS	18			
10				>25*	6	SS	12			*Boring terminated at 10' due to obstruction, cobbles or boulder.
10.0	1103.9	End of Boring								

WATER LEVEL OBSERVATIONS	
	None

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St. Paul, MN 55114
Telephone: 651-645-3601

STARTED	9/18/17	FINISHED	9/18/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

Project No. ESP026601P

LOG OF BORING NO. B12

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 137402.308125
Easting 502152.982858

Surface Elev.: **1103.4** ft. Datum: **MSL**

Depth	Description	Elev.	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered / In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
1.0	TOPSOIL, clayey sand, dark brown, moist (TOPSOIL)	1102.4	TOPSOIL	AS	1	AUGER	12			
	SILTY SAND, with a little gravel, fine to medium grained, dark brown to brown, moist to wet, medium dense (SM)		COARSE ALLUVIUM	AS	2	AUGER	12			
				19	3	SS	18			
5				16	4	SS	18	8		p200=28.8%
				37*	5	SS	18			*N-value influenced by cobbles.
9.5	∇	1093.9		5	6	SS	18			Pq=0.25tsf
10	LEAN CLAY, brown to gray, moist, soft (CL)		FINE ALLUVIUM							
12.0		1091.4								
	SANDY LEAN CLAY, with gravel and cobbles, brown to gray, moist, firm to hard (CL)		GLACIAL TILL	15	7	SS	18			
15				18	8	SS	18			
20				38*	9	SS	18			*N-value influenced by cobbles, Pq=4.5tsf
20.5	End of Boring	1082.9								

WATER LEVEL OBSERVATIONS	
WL	∇ 9.0

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Telephone: 651-645-3601

STARTED	9/20/17	FINISHED	9/20/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B13

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 137716.362615
Easting 502302.149883

Surface Elev.: **1095.8** ft. Datum: **MSL**

Depth	Description	Elev.	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
	TOPSOIL, a mixture of organic silty sand and sandy silt, black, moist (TOPSOIL)		TOPSOIL	AS	1	AUGER	12			
				AS	2	AUGER	12			
2.0	SILTY SAND, with a little gravel, lenses of clayey sand, fine to medium grained, brown to gray, moist to wet, loose (SM)	1093.8	COARSE ALLUVIUM	6	3	SS	18			
				5	4	SS	18	15		p200=26.5%
6.0	SAND, with a little gravel, medium to coarse grained, brown, wet to waterbearing, medium dense (SP) ∇	1089.8		22	5	SS	18			
8.5	LEAN CLAY, with sand and a little gravel, brown to gray mottled, moist, firm to hard (CL)	1087.3	GLACIAL TILL	19	6	SS	18			Pq=3.0tsf
				14	7	SS	18			
				22	8	SS	18			
				9	9	SS	18			
20.5	End of Boring	1075.3								

Depth (FT.): 5, 10, 15, 20

WATER LEVEL OBSERVATIONS	
WL	∇ 7.0

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Telephone: 651-645-3601

STARTED	9/20/17	FINISHED	9/20/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B14

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 138098.364476
Easting 502237.148700

Surface Elev.: **1096.1** ft. Datum: **MSL**

Depth	Elev.	Geology	Samples: BLOWS/12" N - VALUE RQD	Number	Type	IN. RECOVERED IN. DRIVEN	Tests: MOISTURE, %	DRY DENSITY PCF	ADDITIONAL DATA/ REMARKS
1.0	1095.1	TOPSOIL: TOPSOIL, organic silty sand, dark brown some black, moist (TOPSOIL)	AS	1	AUGER	12			
		COARSE ALLUVIUM: SAND, mostly fine grained, brown, moist to wet, very loose to loose (SP)	AS	2	AUGER	12			
			4	3	SS	18			
5			4	4	SS	18	9		p200=4.0%
7.0	1089.1	SAND with SILT, mostly fine grained, lenses of silt from 12' to 13.5', brown, wet to waterbearing, loose to very loose (SP-SM) ∇	6	5	SS	18	18		p200=6.3%
10			6	6	SS	18	20		p200=5.4%
			3	7	SS	18			
14.5	1081.6	FINE ALLUVIUM: SILT, gray, wet, loose (ML)	6	8	SS	18			
15									
16.0	1080.1	GLACIAL TILL: SANDY LEAN CLAY, with a little gravel, gray, moist, soft (CL)							
20			8	9	SS	18			Pq=3.5tsf
20.5	1075.6	End of Boring							

WATER LEVEL OBSERVATIONS	
WL	∇ 9.5

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Telephone: 651-645-3601

STARTED	9/20/17	FINISHED	9/20/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/29/17

Project No. ESP026601P

LOG OF BORING NO. B15

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 138635.299098
Easting 502556.661513

Surface Elev.: **1085.9** ft. Datum: **MSL**

Depth (ft.)	Elev.	Description	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
		TOPSOIL, organic sandy silt, black, moist (TOPSOIL)	TOPSOIL	AS	1	AUGER	12			
1.5	1084.4			AS	2	AUGER	12			
		LEAN CLAY, with a little sand, dark brown, moist, soft (CL)	FINE ALLUVIUM	7	3	SS	18			Pq=2.0tsf
4.5	1081.4			7	4	SS	18			
		SAND with SILT, with a little gravel, brown, wet to waterbearing, loose to medium dense (SP-SM)	COARSE ALLUVIUM							
		∇		19	5	SS	18			
8.5	1077.4									
		SILTY SAND, with gravel, fine to medium grained, brown, wet, medium dense to dense (SM)		11	6	SS	18			
				25	7	SS	18	10		p200=17.2%
				19	8	SS	18			
				29	9	SS	18			
20.5	1065.4	End of Boring								

WATER LEVEL OBSERVATIONS	
WL	∇ 7.5

element™ materials technology
662 Cromwell Ave.
St. Paul, MN 55114
Telephone: 651-645-3601

STARTED	9/21/17	FINISHED	9/21/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B16

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 139029.943650
Easting 503184.393853

Surface Elev.: **1079.6** ft. Datum: **MSL**

Description	Elev.	GEOLOGY	DEPTH (FT.)	BLOWS/12" N - VALUE RQD	NUMBER	TYPE	IN. RECOVERED IN. DRIVEN	MOISTURE, %	DRY DENSITY PCF	ADDITIONAL DATA/ REMARKS
TOPSOIL, organic sandy silt, black to dark brown, moist (TOPSOIL)		TOPSOIL		AS	1	AUGER	12			
				AS	2	AUGER	12			
2.0	1077.6									
SILTY SAND, with gravel, cobbles, fine to medium grained, brown, moist, medium dense (SM)		COARSE ALLUVIUM		25	3	SS	18			
			5	46*	4	SS	18			*N-value influenced by cobbles.
5.5	1074.1									
SAND, with a little gravel, mostly medium grained, brown, moist, medium dense (SP)				12	5	SS	18	4		p200=4.5%
9.0	1070.6									
SILTY SAND, with a little gravel, fine to medium grained, brown, moist, medium dense (SM)			10	17	6	SS	18	9		p200=21.5%
				28	7	SS	18			
			15	20	8	SS	18			
15.5	1064.1									
LEAN CLAY, with a little sand and gravel, brown, moist, hard (CL)		GLACIAL TILL								
			20	18	9	SS	18			
20.5	1059.1									
End of Boring										

WATER LEVEL OBSERVATIONS	
	None

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St. Paul, MN 55114
Telephone: 651-645-3601

STARTED	9/19/17	FINISHED	9/19/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

ELEMENT LOG ESP026601P - ADELMAN NEW MARKET DEVELOPMENT - APPRO.GPJ LOG A GNNN08.GDT 11/27/17

Project No. ESP026601P

LOG OF BORING NO. B17

CLIENT: APPRO Development	ARCHITECT/ENGINEER: ISG
SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota	PROJECT: Adelman Elko New Market Property Development

Northing 138503.937812
Easting 502013.565486

Surface Elev.: **1080.6** ft. Datum: **MSL**

Description	Elev.	GEOLOGY	DEPTH (FT.)	BLOWS/12" N - VALUE RQD	NUMBER	TYPE	IN. RECOVERED IN. DRIVEN	MOISTURE, %	DRY DENSITY PCF	ADDITIONAL DATA/ REMARKS
TOPSOIL, organic sandy clay, black, moist (TOPSOIL)		TOPSOIL		AS	1	AUGER	12			
				AS	2	AUGER	12			
2.0	1078.6									
LEAN CLAY, dark brown to brown, wet, very soft to soft (CL) ∇		FINE ALLUVIUM		1	3	SS	18			
4.5	1076.1									
SAND WITH SILT, a little gravel, fine to medium grained, brown, waterbearing, loose to medium dense (SP-SM)		COARSE ALLUVIUM	5	5	4	SS	18			
				13	5	SS	18			
			10	9	6	SS	18	18		p200=6.0%
				12	7	SS	18			Boring terminated at 14' due to obstruction. Possible cobble or boulder.
14.0	1066.6									
End of Boring										

WATER LEVEL OBSERVATIONS	
WL	∇ 3.0

element™ materials technology
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St. Paul, MN 55114
Telephone: 651-645-3601

STARTED	9/20/17	FINISHED	9/20/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

Project No. ESP026601P

LOG OF BORING NO. B18

CLIENT: APPRO Development

ARCHITECT/ENGINEER: ISG

SITE: 260th Street East and Interstate 35, Elko New Market, Minnesota

PROJECT: Adelman Elko New Market Property Development

Northing 138894.729681
Easting 502409.365876

Surface Elev.: 1076.6 ft. Datum: MSL

Description	Elev.	Depth	Geology	Blows/12" N-Value RQD	Number	Type	In. Recovered / In. Driven	Moisture, %	Dry Density PCF	Additional Data/ Remarks
TOPSOIL, organic lean clay, with a little sand, black, moist (CL-OL)			TOPSOIL	AS	1	AUGER	12			
				AS	2	AUGER	12			
				2	3	SS	18			
	1072.1	4.5		2	4	SS	18			
CLAYEY SAND with a little gravel, fine grained, dark brown to brown, wet, very loose (SC)	1070.6	6.0	COARSE ALLUVIUM							
SAND, with gravel, fine to medium grained, brown, waterbearing, loose to medium dense (SP)		5		9	5	SS	18			
		10		10	6	SS	18			
				11	7	SS	18			
	1061.1	15.5		15	8	SS	18			Hydrostatic pressure at 10' affected drilling and sample recovery below 15'. Boring terminated at 15.5'.
End of Boring		15								

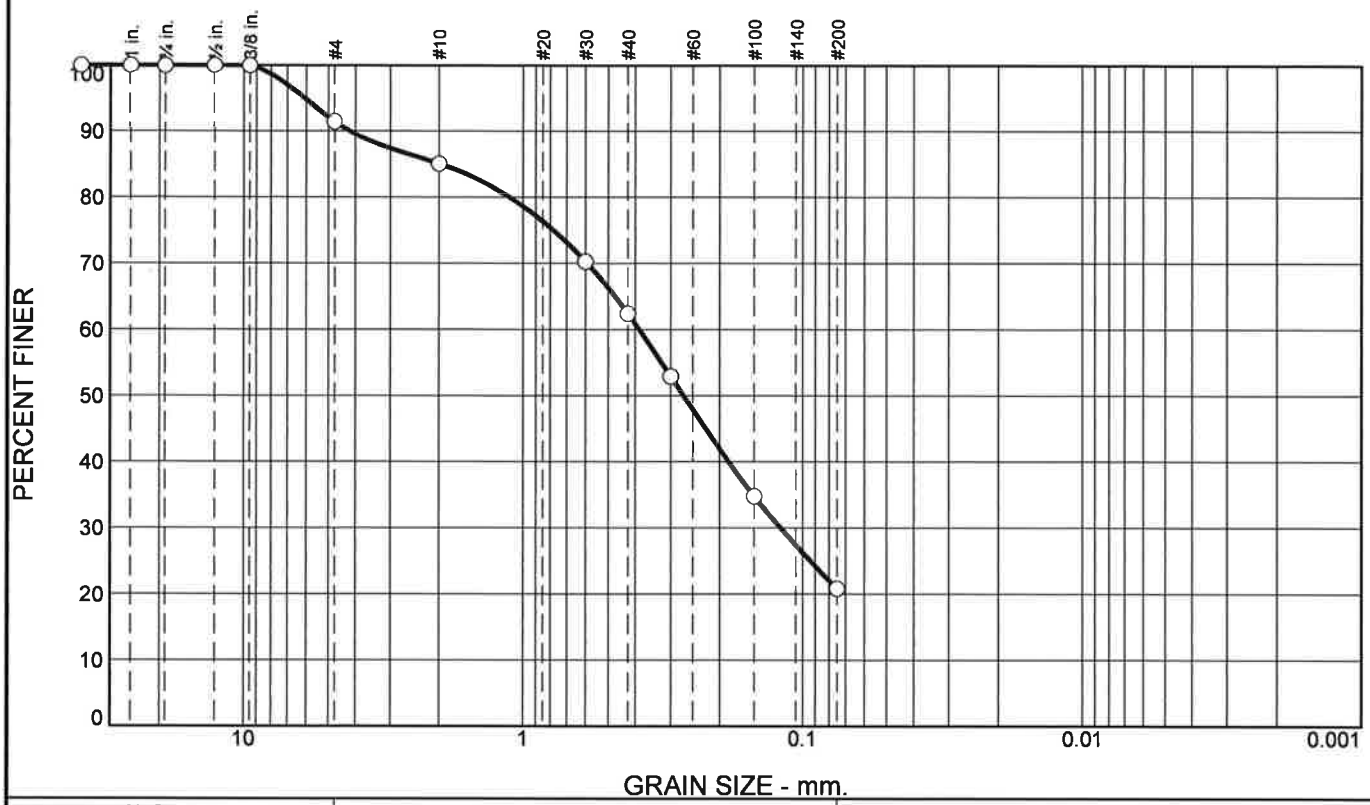
WATER LEVEL OBSERVATIONS

WL	∇ 2.0

element™ materials technology
662 Cromwell Ave.
St. Paul, MN 55114
Telephone: 651-645-3601

STARTED	9/20/17	FINISHED	9/20/17
DRILL CO.	Element	DRILL RIG	ATV
DRILLER	KK	ASS'T DRILLER	DB
LOGGED BY	DB	APPROVED	MAS

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.6	6.3	22.7	41.6	20.8	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	91.4		
#10	85.1		
#30	70.2		
#40	62.4		
#50	52.9		
#100	34.8		
#200	20.8		

* (no specification provided)

Material Description

SILTY SAND with a little gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 4.1800 D_{85}= 1.9753 D_{60}= 0.3878
D_{50}= 0.2701 D_{30}= 0.1203 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 8.9%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

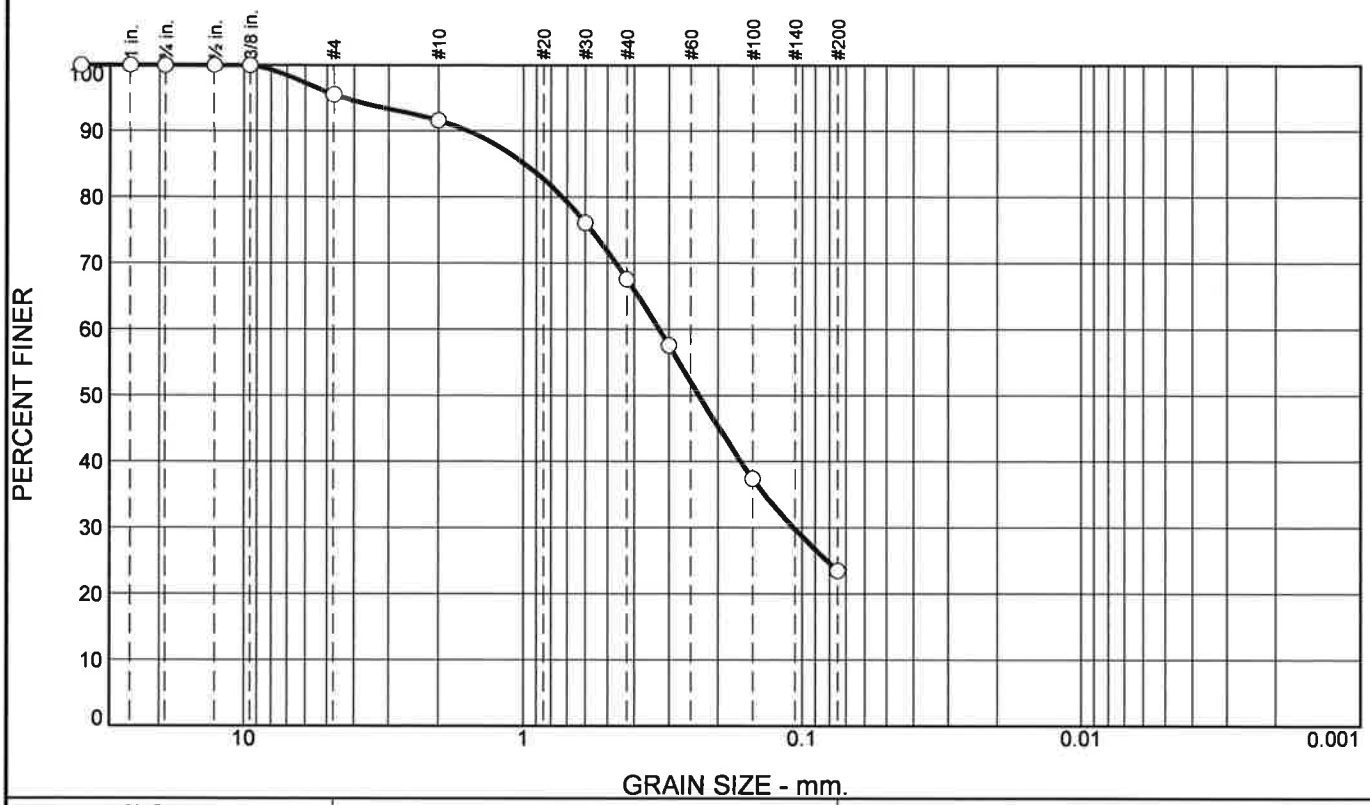
Location: Soil Boring 3
Sample Number: 03 **Depth:** 2'-3.5'
Date Sampled: 9-15-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.5	3.9	24.1	44.0	23.5	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	95.5		
#10	91.6		
#30	76.1		
#40	67.5		
#50	57.6		
#100	37.4		
#200	23.5		

* (no specification provided)

Material Description

SILTY SAND, with a little gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 1.5730 D_{85}= 0.9906 D_{60}= 0.3256
D_{50}= 0.2340 D_{30}= 0.1071 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 12.8%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

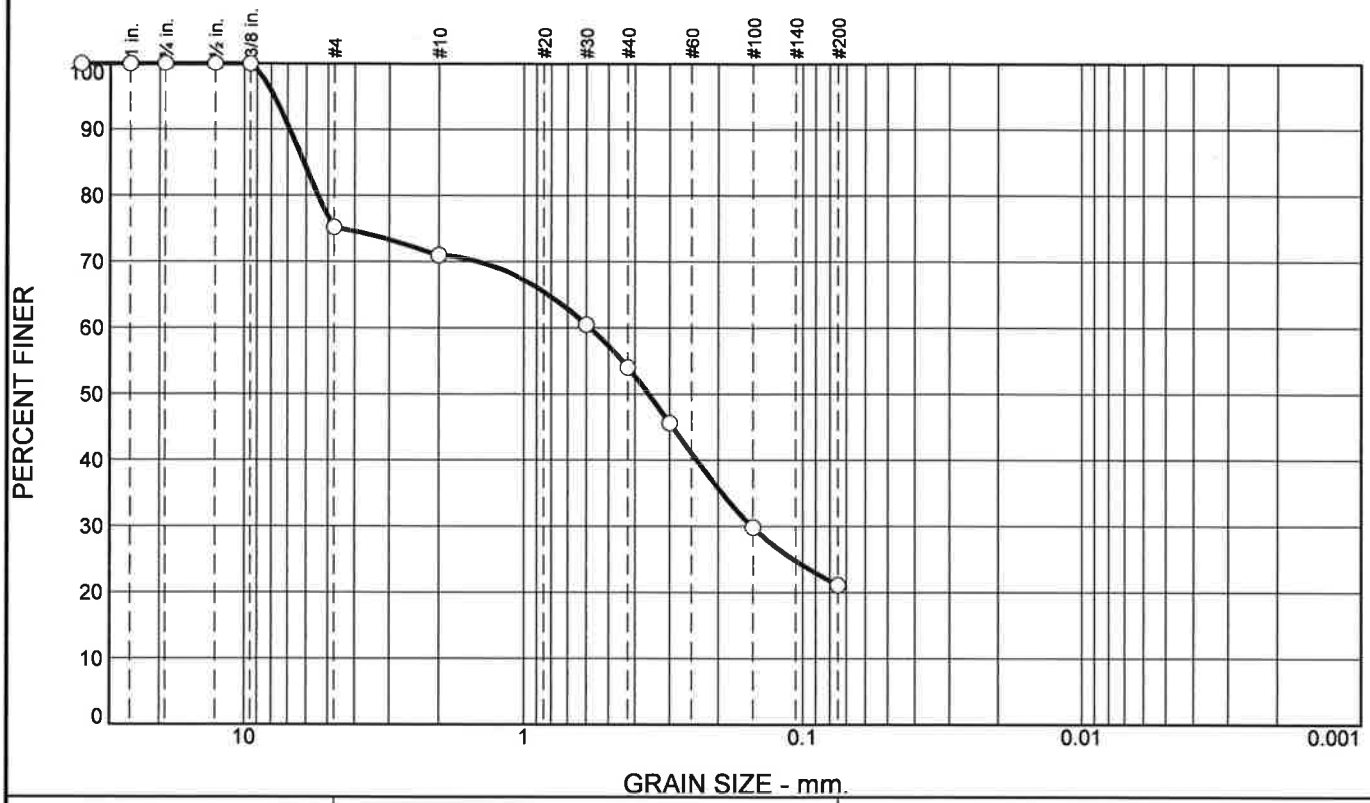
Location: Soil Boring 4
Sample Number: 04 **Depth:** 4'-5.5'
Date Sampled: 9-18-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	24.8	4.2	17.0	32.9	21.1	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	75.2		
#10	71.0		
#30	60.5		
#40	54.0		
#50	45.6		
#100	29.9		
#200	21.1		

* (no specification provided)

Material Description

SILTY SAND, with gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 6.8686 D_{85}= 6.1192 D_{60}= 0.5836
D_{50}= 0.3575 D_{30}= 0.1512 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 8.5%

Date Received: 10-3-17 **Date Tested:** 10-5-17

Tested By: L.Tran

Checked By: J. Starke, P.E.

Title: Sr. Geotechnical Engineer

Location: Soil Boring 4
Sample Number: 05 **Depth:** 7'-8.5'

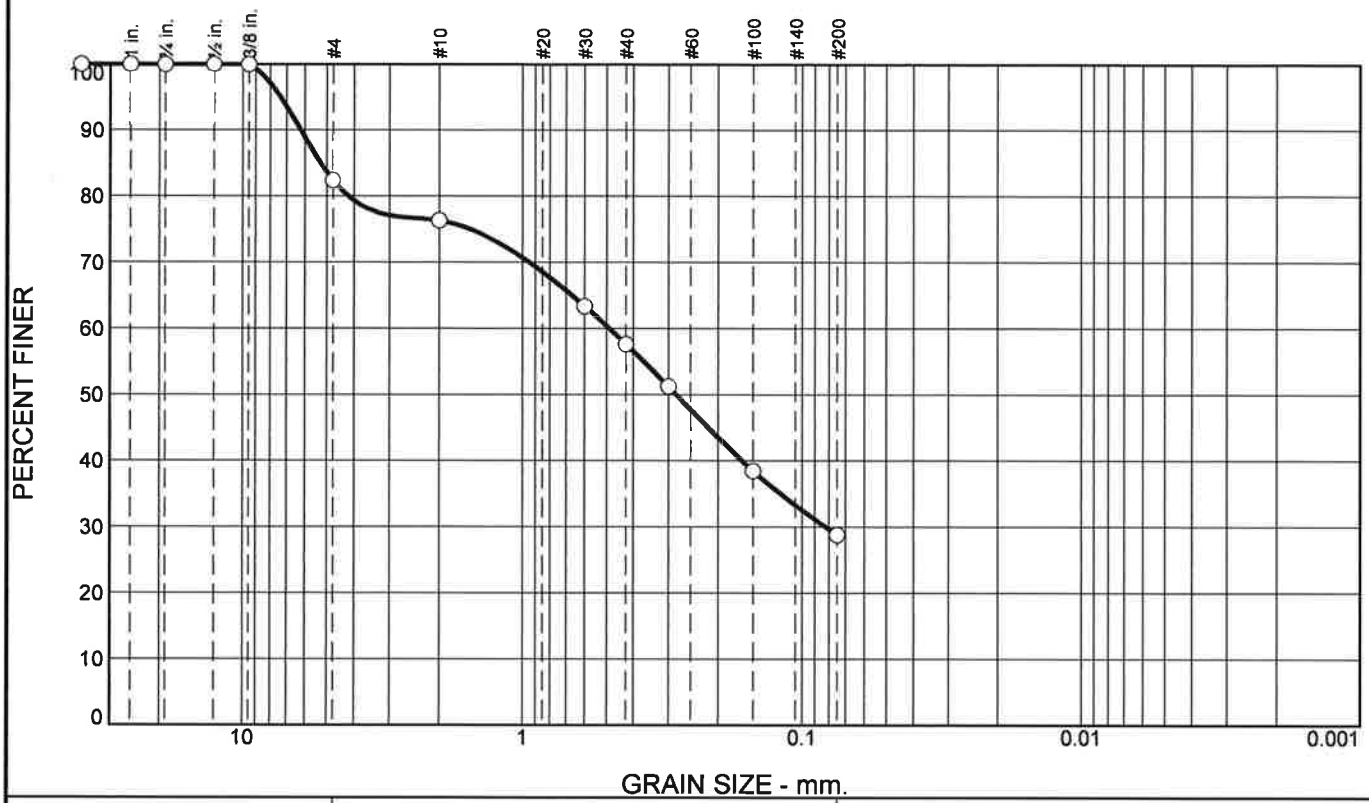
Date Sampled: 9-18-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	17.6	6.1	18.7	28.8	28.8	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	82.4		
#10	76.3		
#30	63.3		
#40	57.6		
#50	51.2		
#100	38.5		
#200	28.8		

* (no specification provided)

Material Description

SILTY SAND, with gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 6.2233 D_{85}= 5.2687 D_{60}= 0.4891
D_{50}= 0.2813 D_{30}= 0.0823 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 11.8%

Date Received: 10-3-17 **Date Tested:** 10-5-17

Tested By: L.Tran

Checked By: J. Starke, P.E.

Title: Sr. Geotechnical Engineer

Location: Soil Boring 4
Sample Number: 06 **Depth:** 9'-10.5'

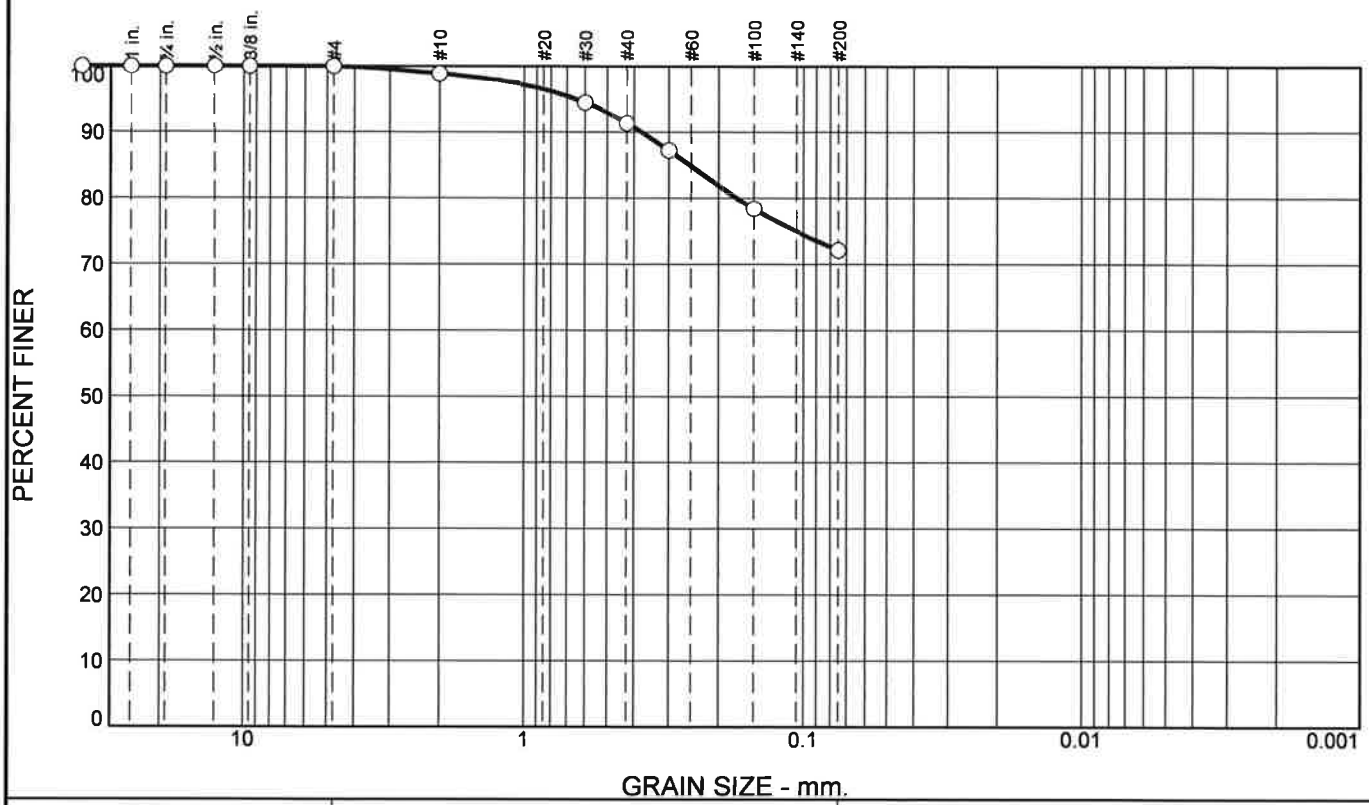
Date Sampled: 9-18-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.1	7.5	19.3	72.1	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#10	98.9		
#30	94.5		
#40	91.4		
#50	87.2		
#100	78.4		
#200	72.1		

* (no specification provided)

Material Description

LEAN CLAY, with SAND, gray (CL)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= CL AASHTO (M 145)=

Coefficients

D_{90}= 0.3751 D_{85}= 0.2532 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 22.3%

Date Received: 10-3-17 **Date Tested:** 10-5-17

Tested By: L.Tran

Checked By: J. Starke, P.E.

Title: Sr. Geotechnical Engineer

Location: Soil Boring 4
Sample Number: 07 **Depth:** 12'-13.5'

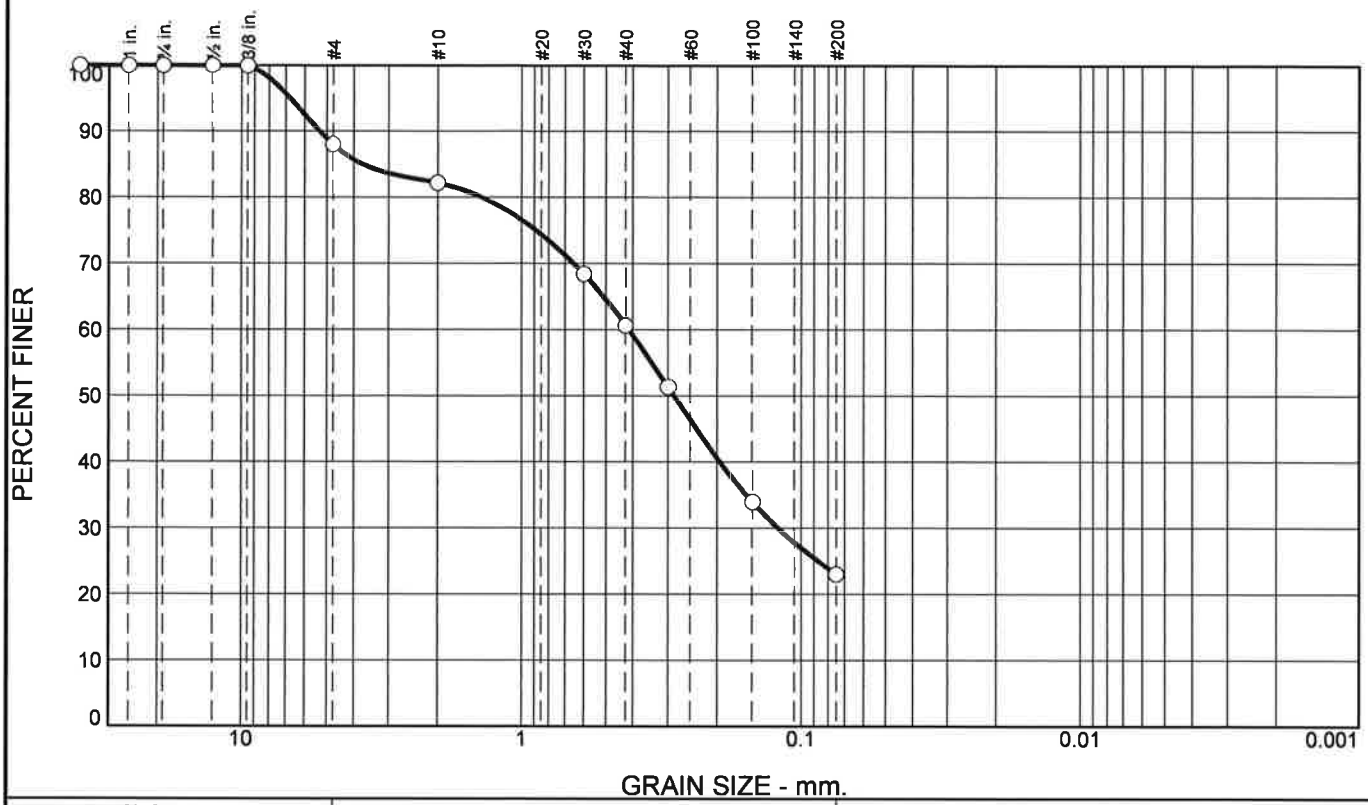
Date Sampled: 9-18-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.0	5.8	21.6	37.6	23.0	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	88.0		
#10	82.2		
#30	68.4		
#40	60.6		
#50	51.4		
#100	34.0		
#200	23.0		

* (no specification provided)

Material Description

SILTY SAND, with a little gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 5.3143 D_{85}= 3.7218 D_{60}= 0.4142
D_{50}= 0.2856 D_{30}= 0.1210 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 8.8%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

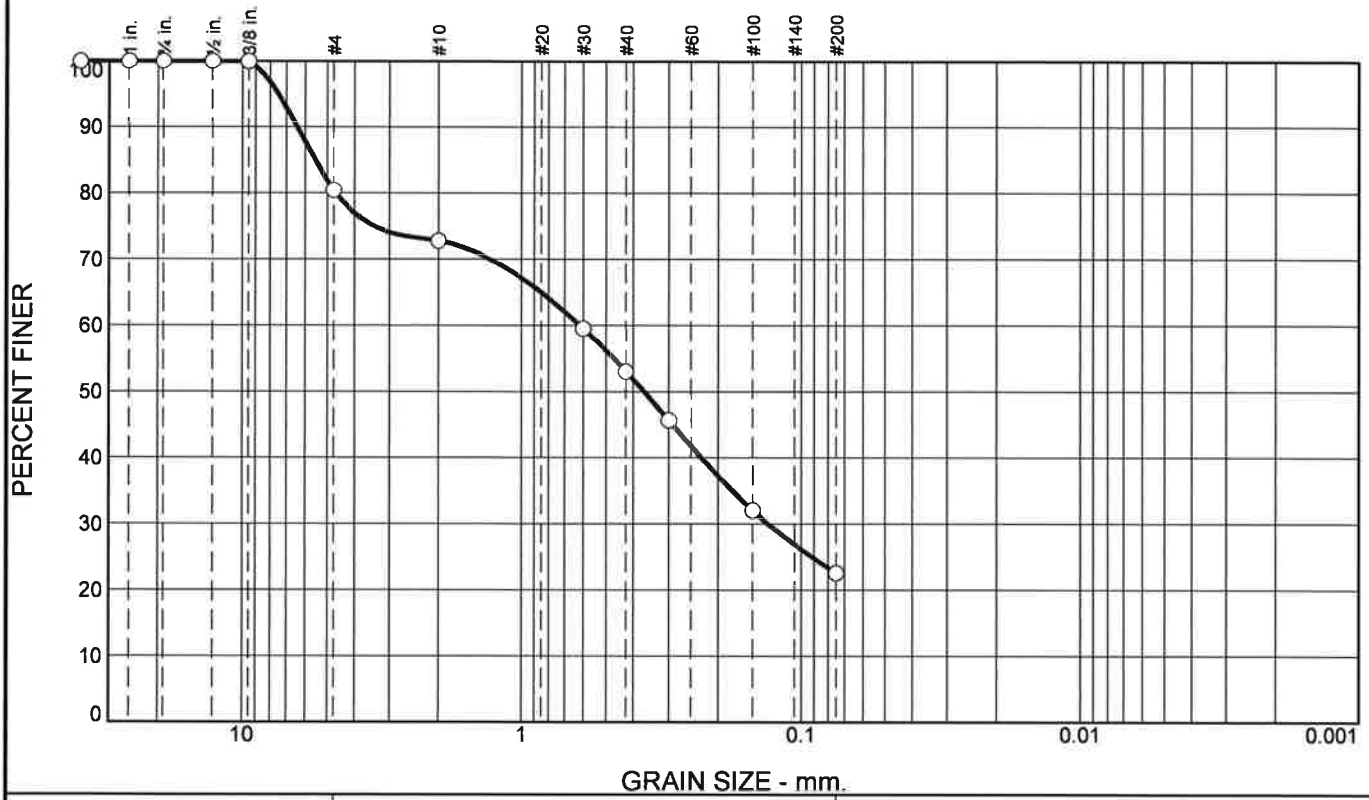
Location: Soil Boring 5
Sample Number: 04 **Depth:** 4'-5.5'
Date Sampled: 9-15-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	19.6	7.6	19.7	30.5	22.6	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	80.4		
#10	72.8		
#30	59.5		
#40	53.1		
#50	45.7		
#100	32.0		
#200	22.6		

* (no specification provided)

Material Description

SILTY SAND with gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 6.4094 D_{85}= 5.5334 D_{60}= 0.6178
D_{50}= 0.3669 D_{30}= 0.1321 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 7.8%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

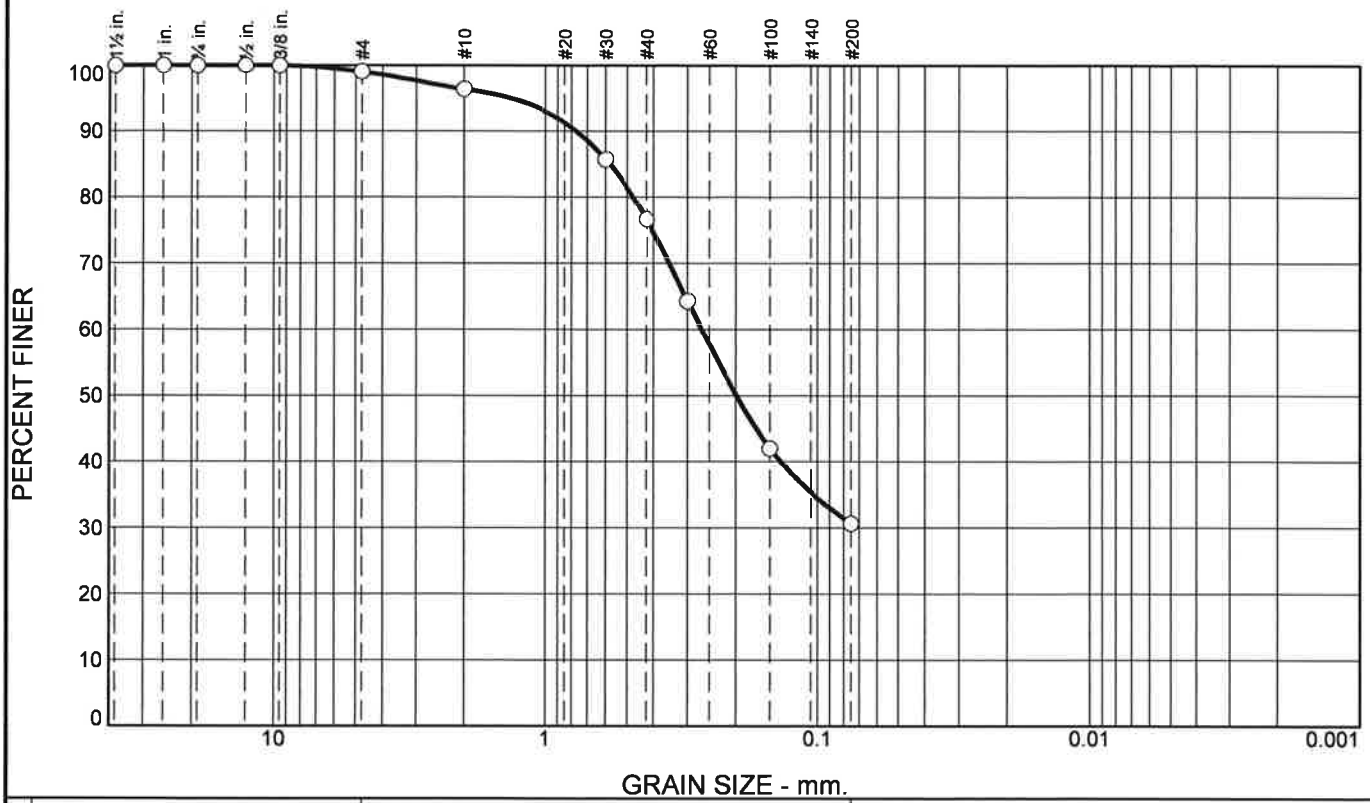
Location: Soil Boring 6
Sample Number: 05 **Depth:** 7'-8.5'
Date Sampled: 9-22-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.0	2.6	19.8	46.0	30.6	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	99.0		
#10	96.4		
#30	85.7		
#40	76.6		
#50	64.3		
#100	42.0		
#200	30.6		

* (no specification provided)

Material Description

SILTY SAND, with a little gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 0.7686 D_{85}= 0.5812 D_{60}= 0.2669
D_{50}= 0.1992 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture content: 11.3%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

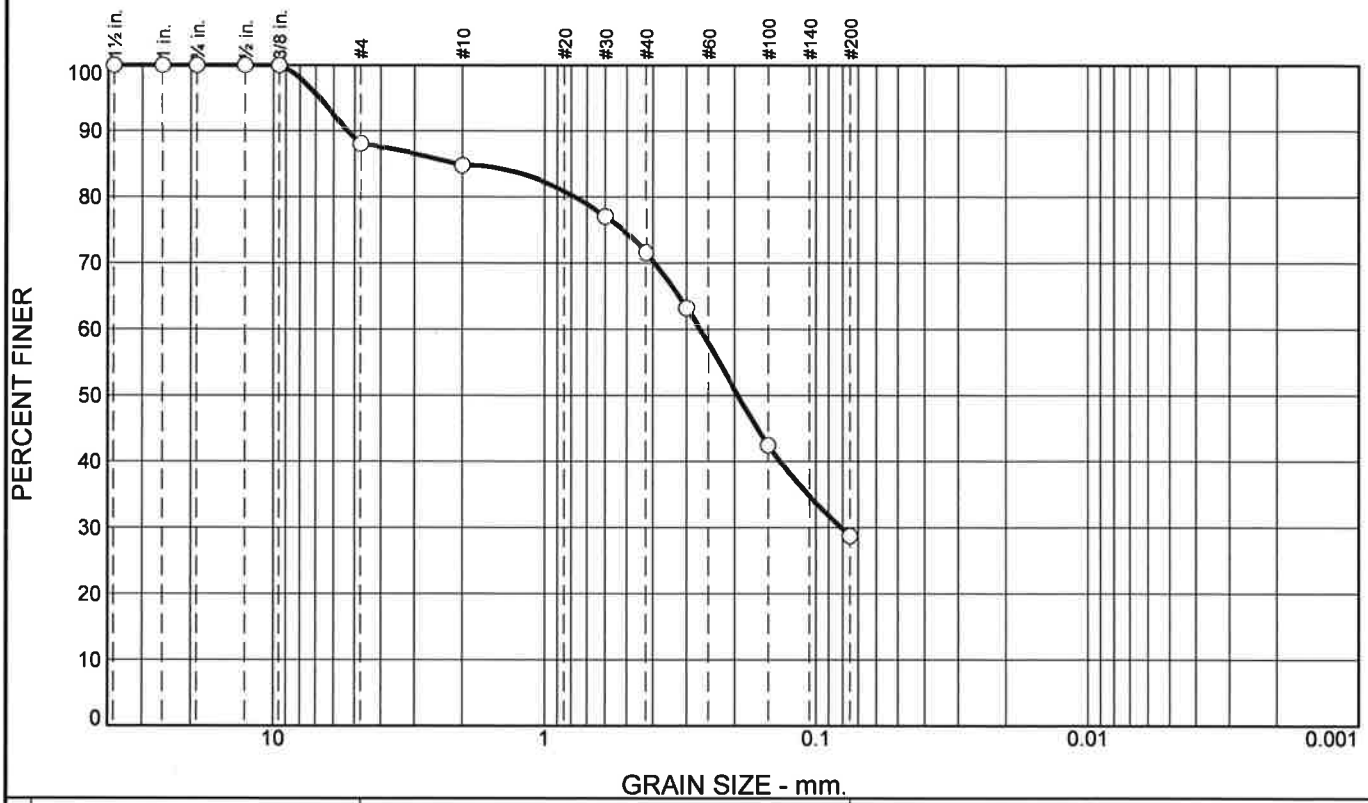
Location: Soil Boring 7
Sample Number: 03 **Depth:** 2'-3.5'
Date Sampled: 9-15-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	12.0	3.2	13.3	42.7	28.8	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	88.0		
#10	84.8		
#30	77.0		
#40	71.5		
#50	63.2		
#100	42.4		
#200	28.8		

* (no specification provided)

Material Description

SILTY SAND, with a little gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 5.3203 D_{85}= 2.0857 D_{60}= 0.2686
D_{50}= 0.1948 D_{30}= 0.0808 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 8.4%

Date Received: 10-3-17 **Date Tested:** 10-5-17

Tested By: L.Tran

Checked By: J. Starke, P.E.

Title: Sr. Geotechnical Engineer

Location: Soil Boring 12
Sample Number: 04 **Depth:** 4'-5.5'

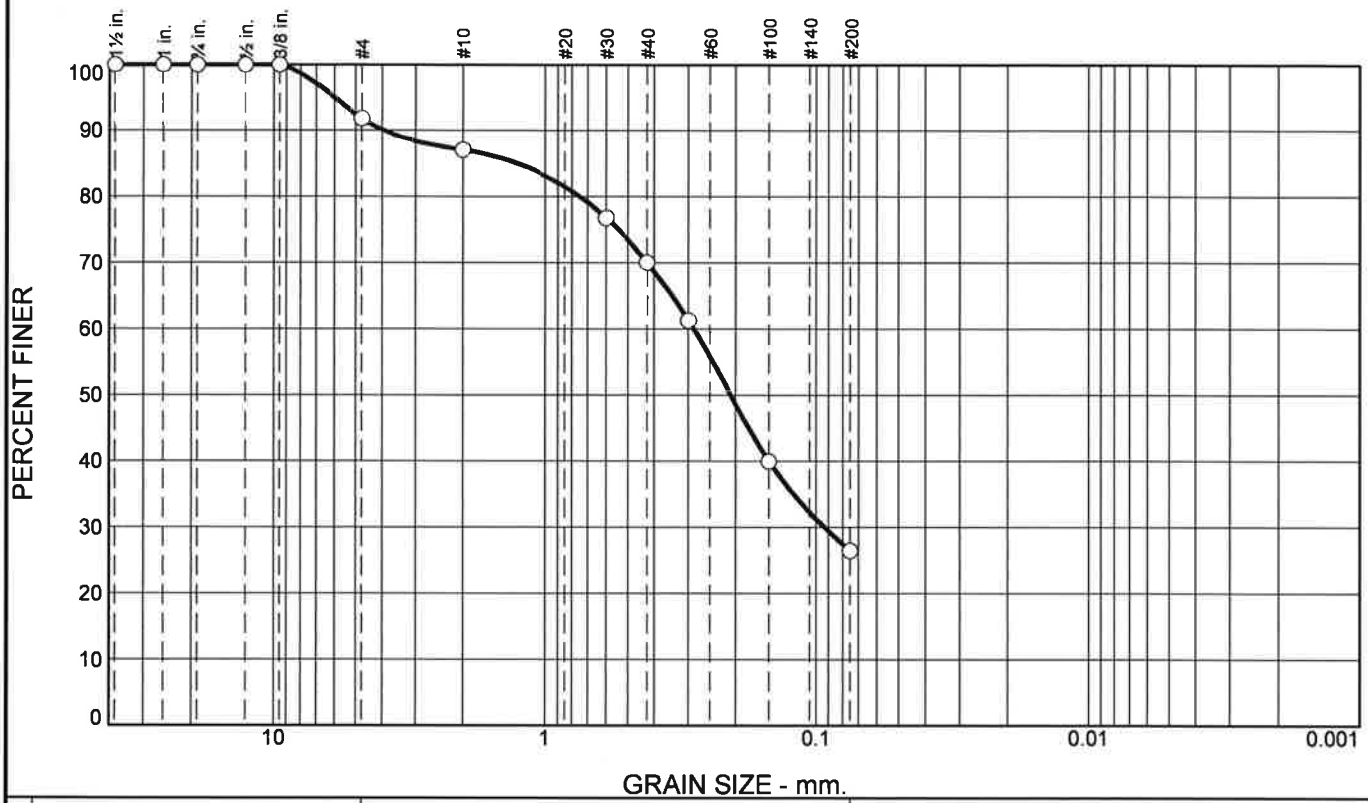
Date Sampled: 9-20-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.2	4.7	17.1	43.5	26.5	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	91.8		
#10	87.1		
#30	76.8		
#40	70.0		
#50	61.3		
#100	40.0		
#200	26.5		

* (no specification provided)

Material Description

SILTY SAND, with a little gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 3.9394 D_{85}= 1.2706 D_{60}= 0.2872
D_{50}= 0.2093 D_{30}= 0.0931 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 15.3%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

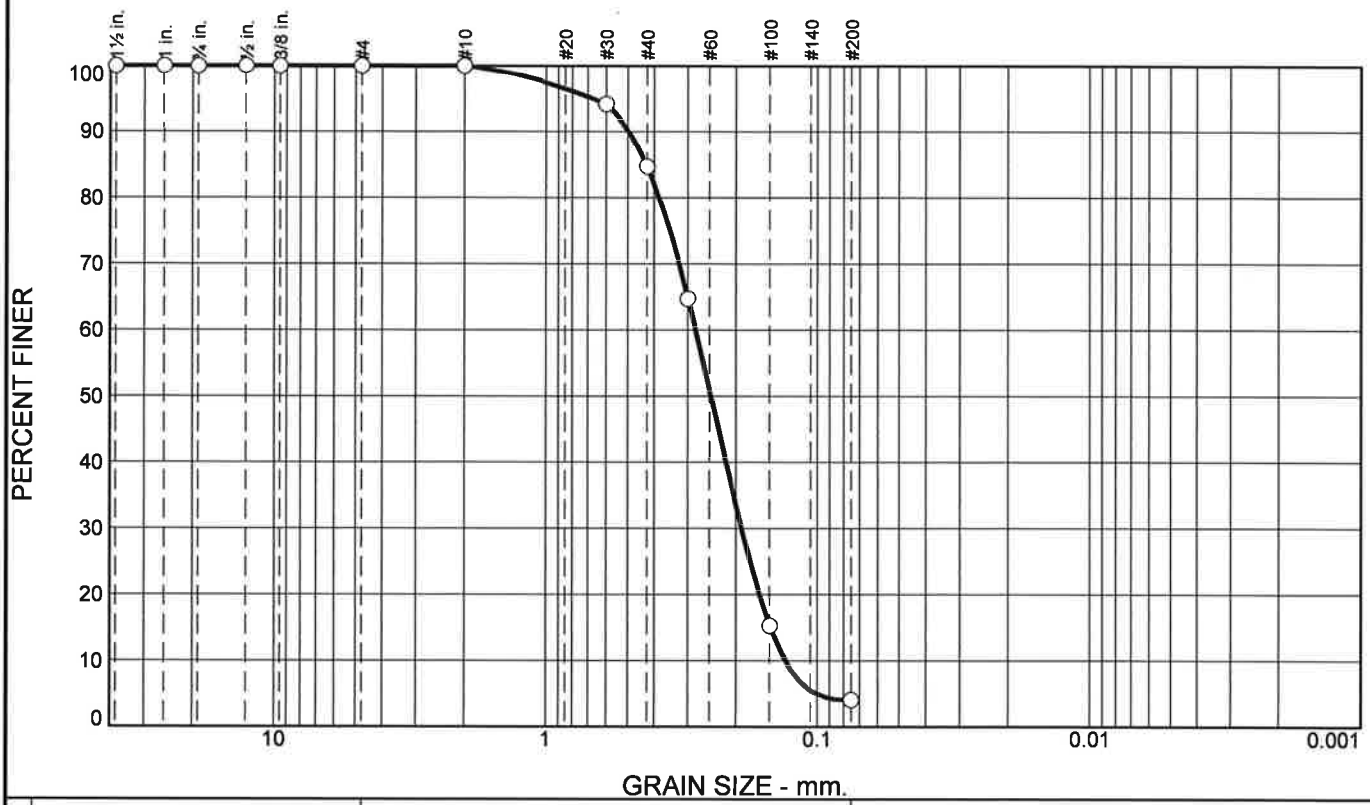
Location: Soil Boring 13
Sample Number: 04 **Depth:** 4'-5.5'
Date Sampled: 9-20-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	15.3	80.7	4.0	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#10	100.0		
#30	94.2		
#40	84.7		
#50	64.7		
#100	15.3		
#200	4.0		

* (no specification provided)

Material Description

SAND, mostly fine grained, brown (SP)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 0.4964 D_{85}= 0.4281 D_{60}= 0.2813
D_{50}= 0.2473 D_{30}= 0.1908 D_{15}= 0.1492
D_{10}= 0.1312 C_u= 2.14 C_c= 0.99

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 8.6%

Date Received: 10-3-17 **Date Tested:** 10-5-17

Tested By: L.Tran

Checked By: J. Starke, P.E.

Title: Sr. Geotechnical Engineer

Location: Soil Boring 14
Sample Number: 04 **Depth:** 4'-5.5'

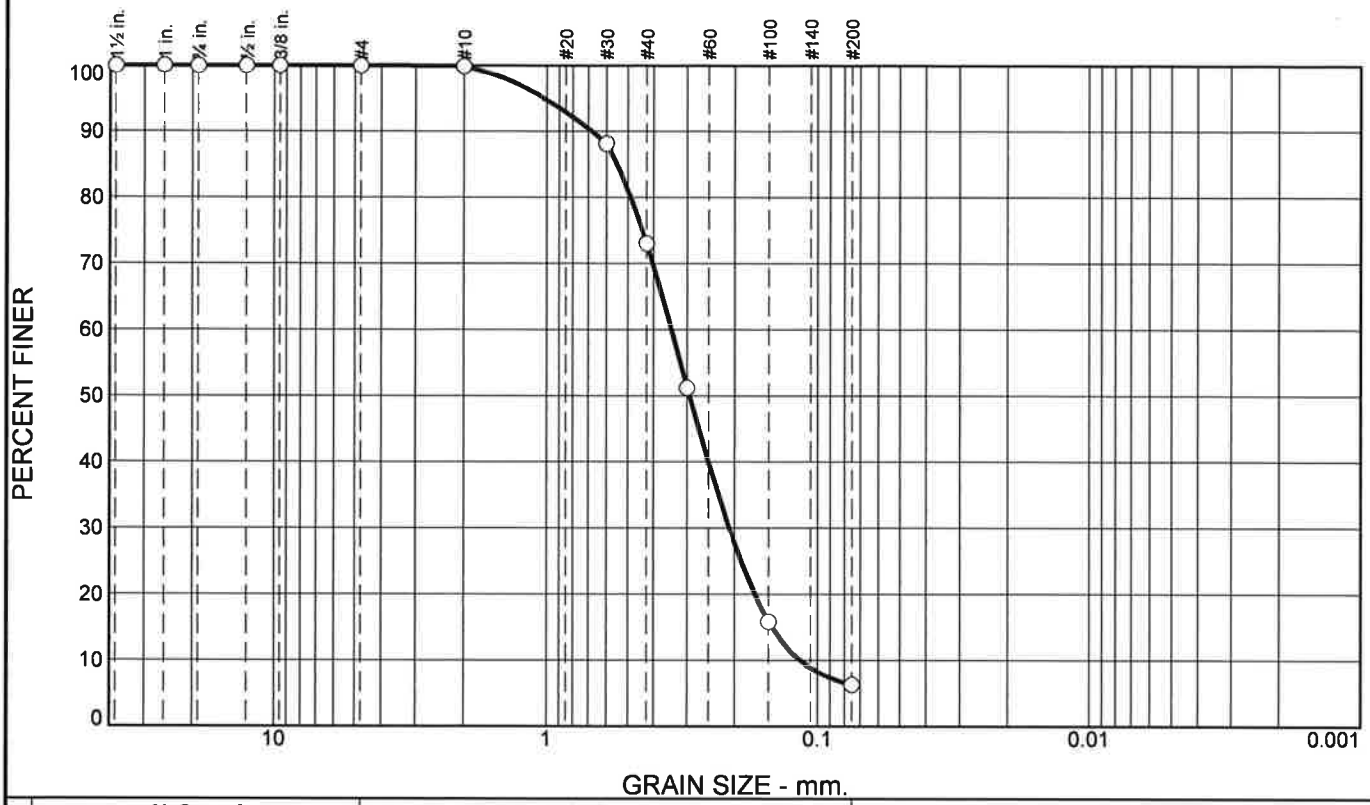
Date Sampled: 9-20-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	26.9	66.7	6.3	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.9		
#30	88.1		
#40	73.0		
#50	51.2		
#100	15.9		
#200	6.3		

* (no specification provided)

Material Description

SAND WITH SILT, mostly fine grained, brown (SP-SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP-SM AASHTO (M 145)=

Coefficients

D_{90}= 0.6804 D_{85}= 0.5494 D_{60}= 0.3436
D_{50}= 0.2945 D_{30}= 0.2094 D_{15}= 0.1454
D_{10}= 0.1153 C_u= 2.98 C_c= 1.11

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 17.9%

Date Received: 10-3-17 **Date Tested:** 10-5-17

Tested By: L.Tran

Checked By: J. Starke, P.E.

Title: Sr. Geotechnical Engineer

Location: Soil Boring 14
Sample Number: 05 **Depth:** 7'-8.5'

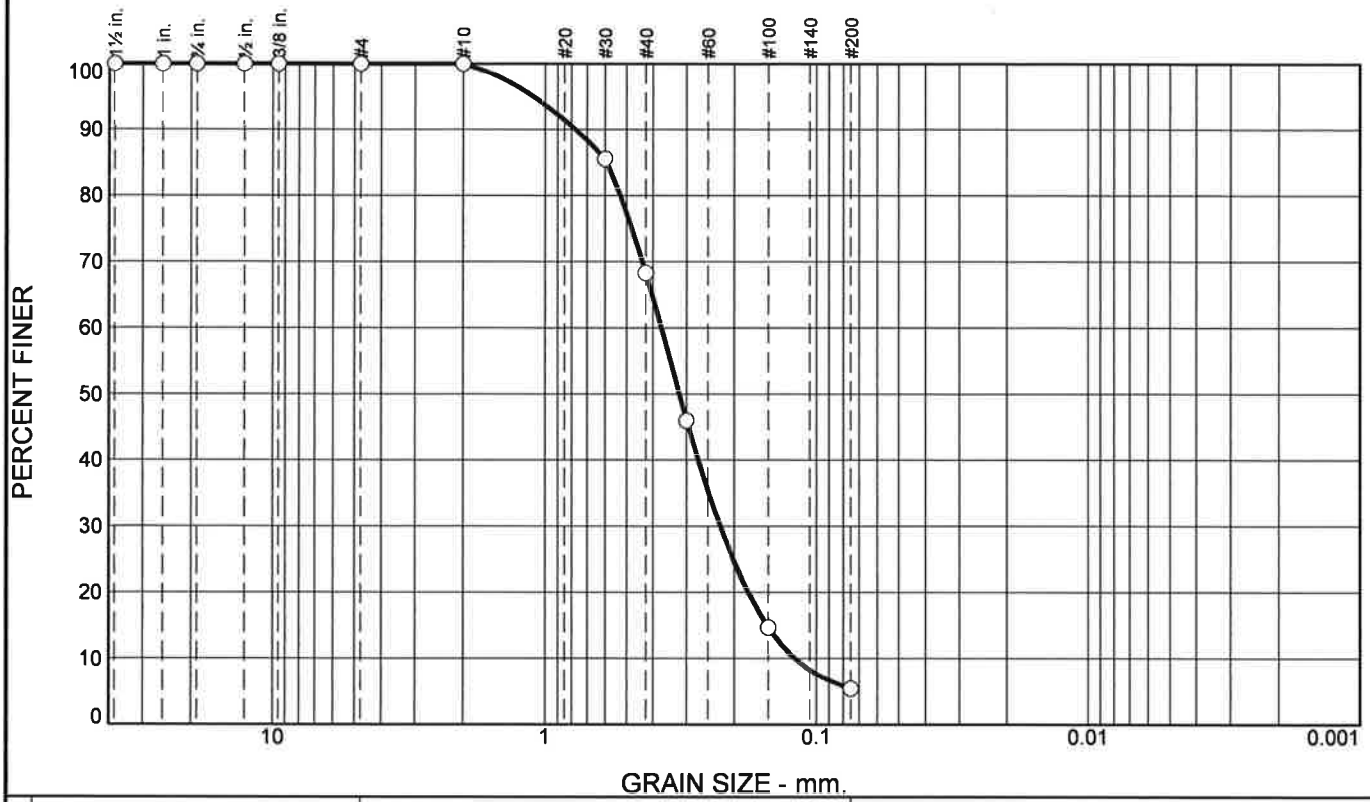
Date Sampled: 9-20-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	31.7	62.9	5.4	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#10	100.0		
#30	85.6		
#40	68.3		
#50	46.0		
#100	14.6		
#200	5.4		

* (no specification provided)

Material Description

SAND WITH SILT, mostly fine grained, brown (SP-SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP-SM AASHTO (M 145)=

Coefficients

D_{90}= 0.7728 D_{85}= 0.5914 D_{60}= 0.3727
D_{50}= 0.3197 D_{30}= 0.2251 D_{15}= 0.1522
D_{10}= 0.1204 C_u= 3.09 C_c= 1.13

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 19.6%

Date Received: 10-3-17 **Date Tested:** 10-5-17

Tested By: L.Tran

Checked By: J. Starke, P.E.

Title: Sr. Geotechnical Engineer

Location: Soil Boring 14
Sample Number: 06 **Depth:** 9.5'-11'

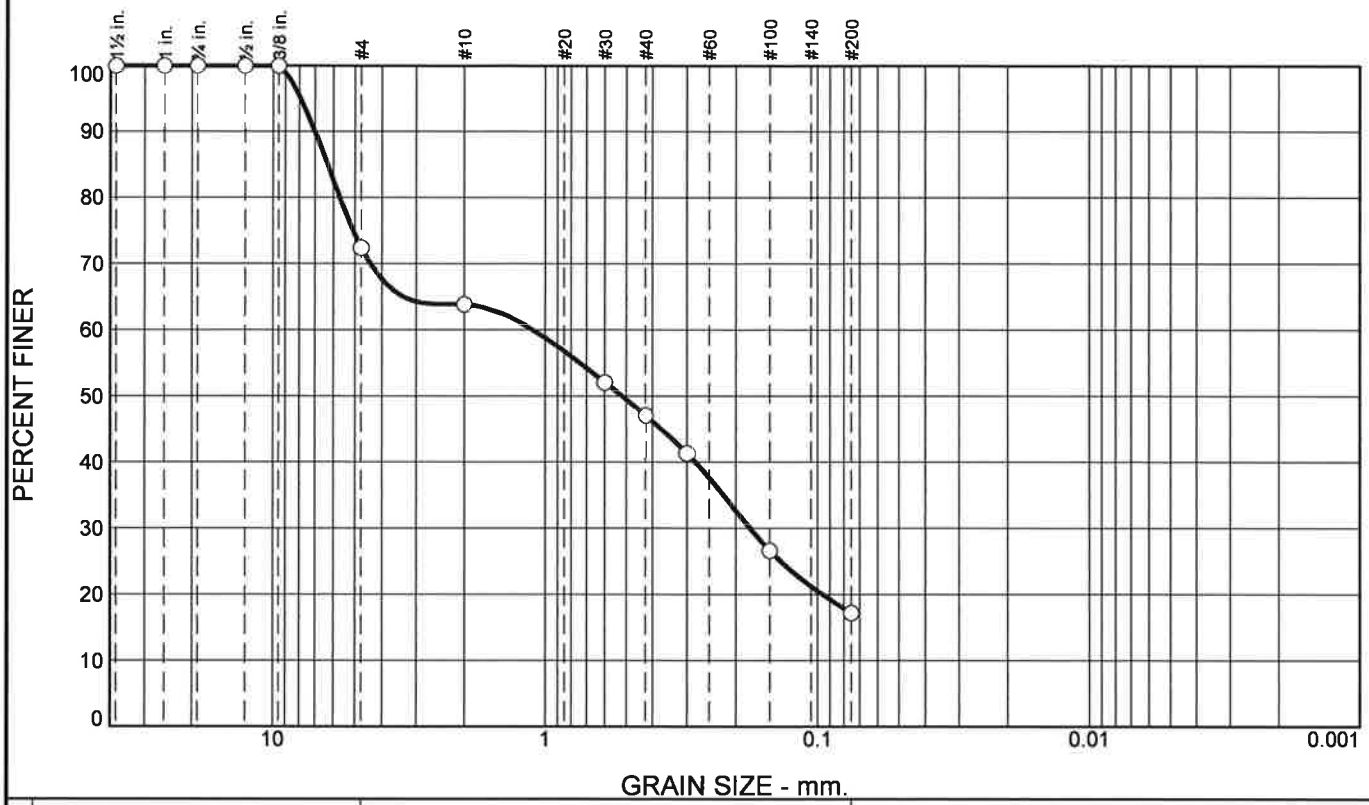
Date Sampled: 9-20-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% Gravel		% Sand			% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	27.6	8.6	16.7	29.9	17.2	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	72.4		
#10	63.8		
#30	52.0		
#40	47.1		
#50	41.3		
#100	26.6		
#200	17.2		

* (no specification provided)

Material Description

SILTY SAND with gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 7.0092 D_{85}= 6.3074 D_{60}= 1.1140
D_{50}= 0.5194 D_{30}= 0.1776 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 9.6%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

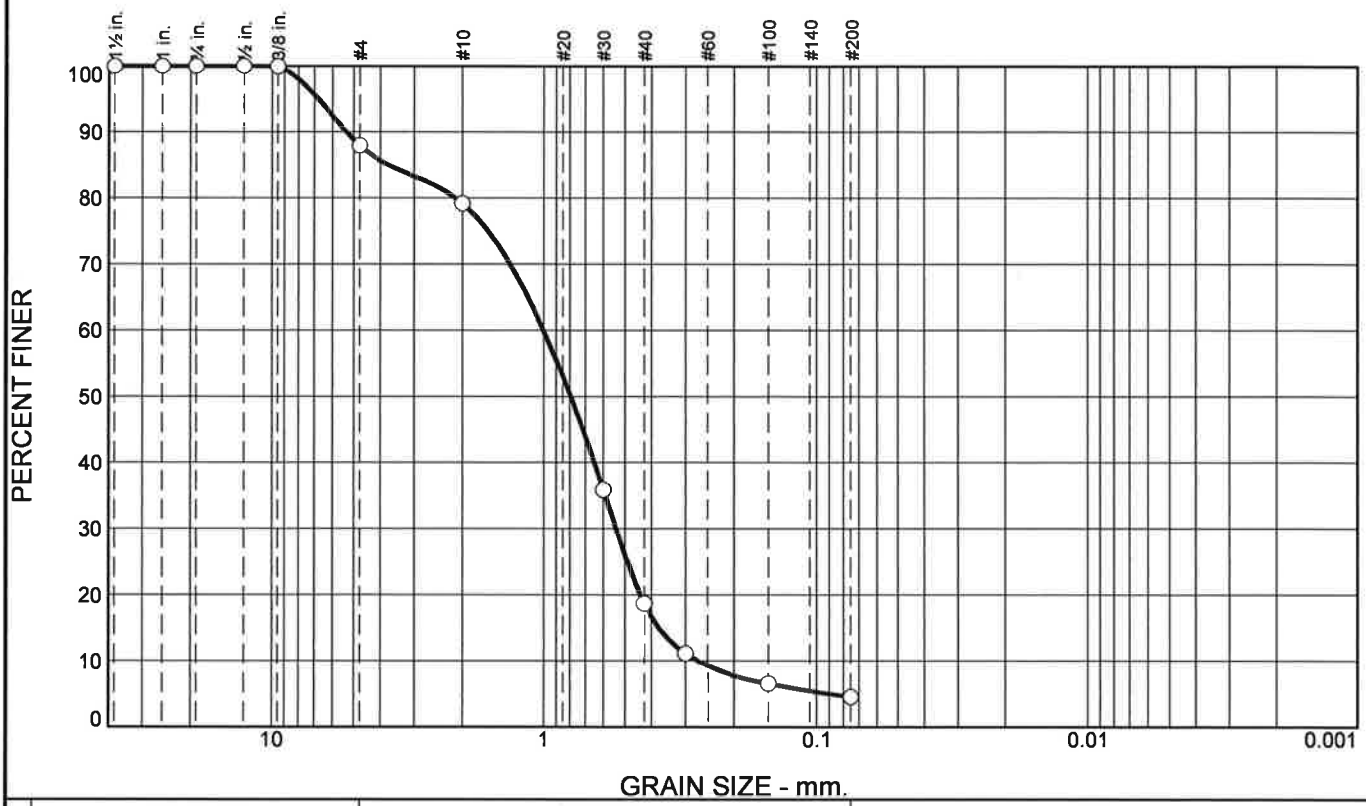
Location: Soil Boring 15
Sample Number: 07 **Depth:** 12'-13.5'
Date Sampled: 9-21-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	12.1	8.7	60.5	14.2	4.5	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	87.9		
#10	79.2		
#30	35.9		
#40	18.7		
#50	11.1		
#100	6.6		
#200	4.5		

* (no specification provided)

Material Description

SAND, with a little gravel, mostly medium grained, brown (SP)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP AASHTO (M 145)=

Coefficients

D_{90}= 5.3358 D_{85}= 3.7511 D_{60}= 1.0026
D_{50}= 0.7942 D_{30}= 0.5384 D_{15}= 0.3767
D_{10}= 0.2707 C_u= 3.70 C_c= 1.07

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 4.1%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

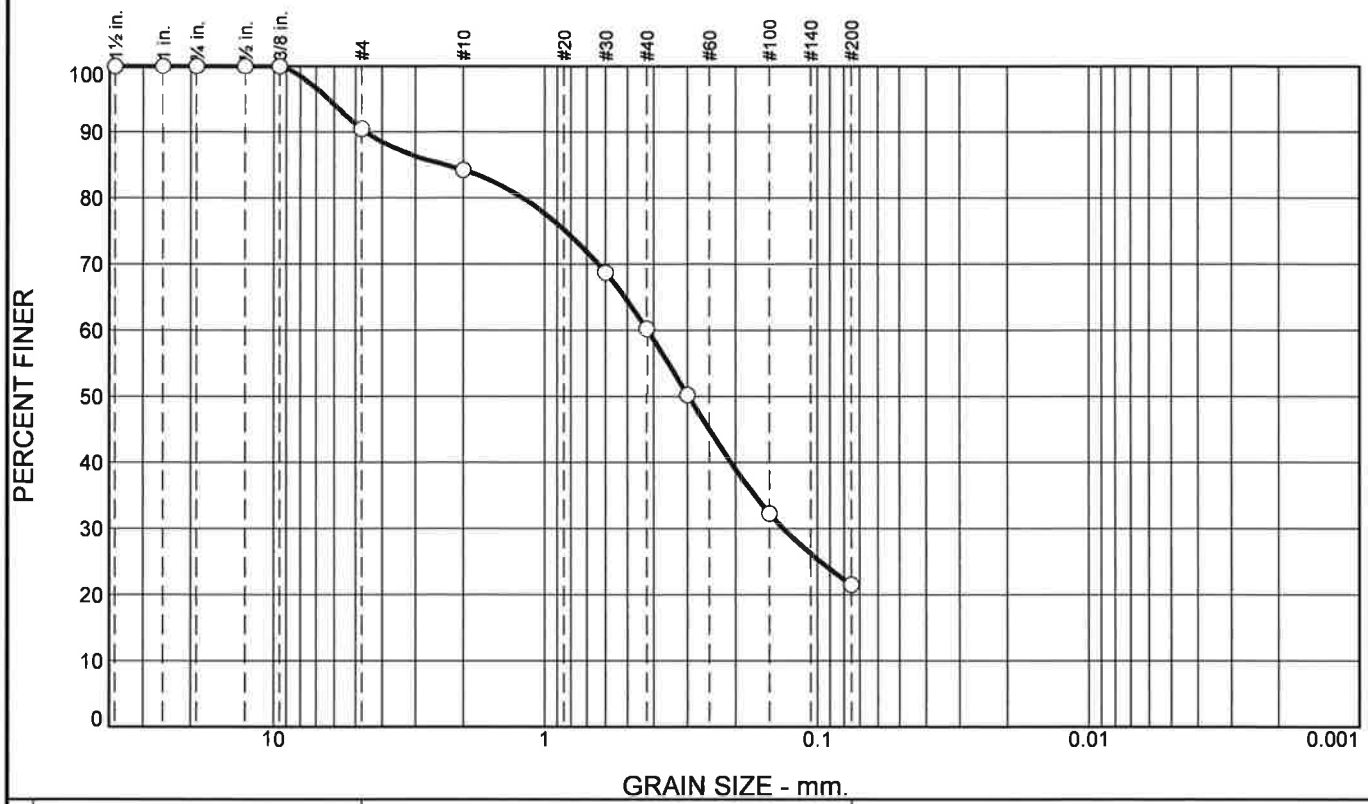
Location: Soil Boring 16
Sample Number: 05 **Depth:** 7'-8.5'
Date Sampled: 9-19-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.5	6.3	24.0	38.7	21.5	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	90.5		
#10	84.2		
#30	68.7		
#40	60.2		
#50	50.2		
#100	32.2		
#200	21.5		

* (no specification provided)

Material Description

SILTY SAND, with a little gravel, fine to medium grained, brown (SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 4.5894 D_{85}= 2.3081 D_{60}= 0.4217
D_{50}= 0.2978 D_{30}= 0.1337 D_{15}=
D_{10}= C_u= C_c=

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 9.1%

Date Received: 10-3-17 **Date Tested:** 10-5-17
Tested By: L.Tran
Checked By: J. Starke, P.E.
Title: Sr. Geotechnical Engineer

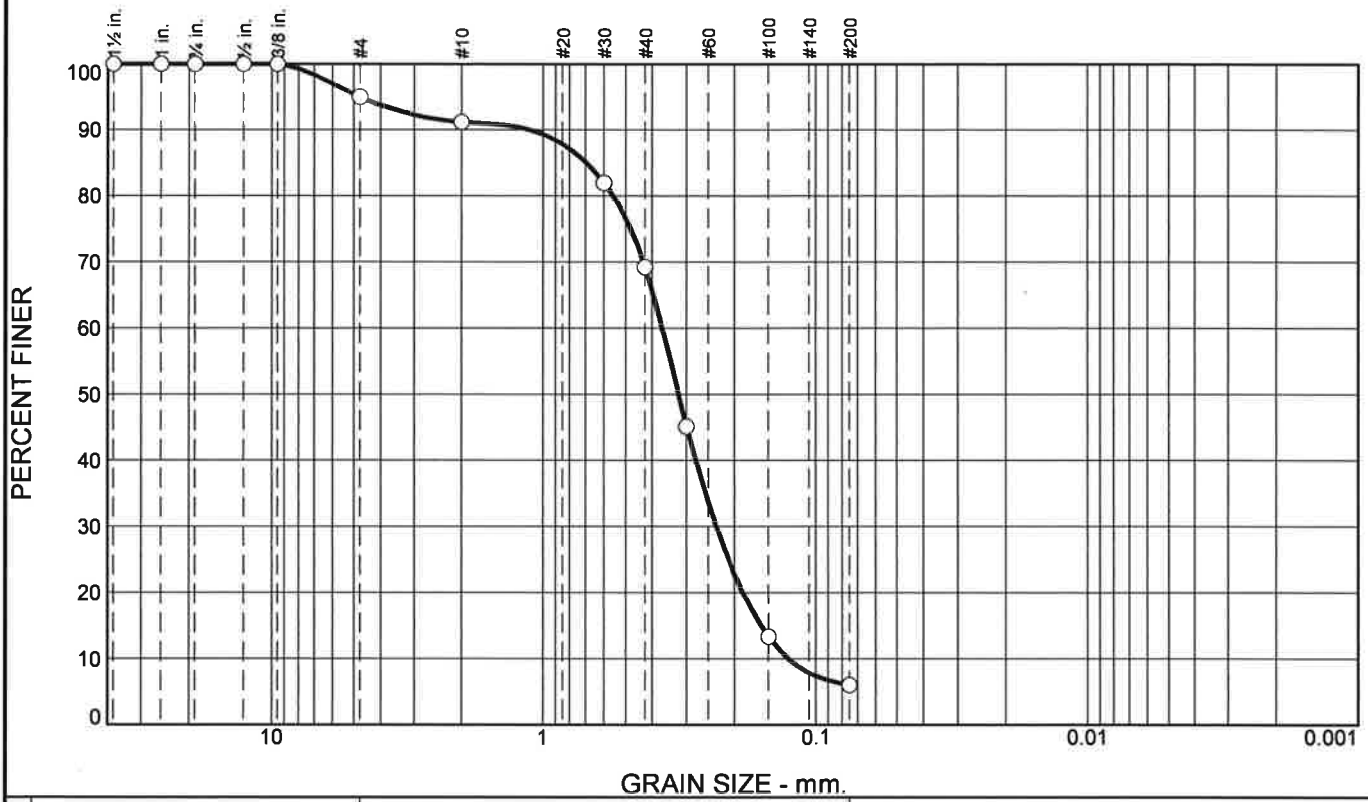
Location: Soil Boring 16
Sample Number: 06 **Depth:** 9'-10.5'
Date Sampled: 9-19-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.0	3.8	22.0	63.2	6.0	

Test Results (ASTM C136 & ASTM C117)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1-1/2"	100.0		
1"	100.0		
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	95.0		
#10	91.2		
#30	81.9		
#40	69.2		
#50	45.1		
#100	13.3		
#200	6.0		

* (no specification provided)

Material Description

SAND WITH SILT, with a little gravel, fine to medium grained, brown (SP-SM)

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SP-SM AASHTO (M 145)=

Coefficients

D_{90}= 1.1132 D_{85}= 0.6959 D_{60}= 0.3686
D_{50}= 0.3213 D_{30}= 0.2337 D_{15}= 0.1601
D_{10}= 0.1265 C_u= 2.91 C_c= 1.17

Remarks

Sample was returned to the container after completion of test.
Moisture Content: 18.0%

Date Received: 10-3-17 **Date Tested:** 10-5-17

Tested By: L.Tran

Checked By: J. Starke, P.E.

Title: Sr. Geotechnical Engineer

Location: Soil Boring 17
Sample Number: 06 **Depth:** 9'-10.5'

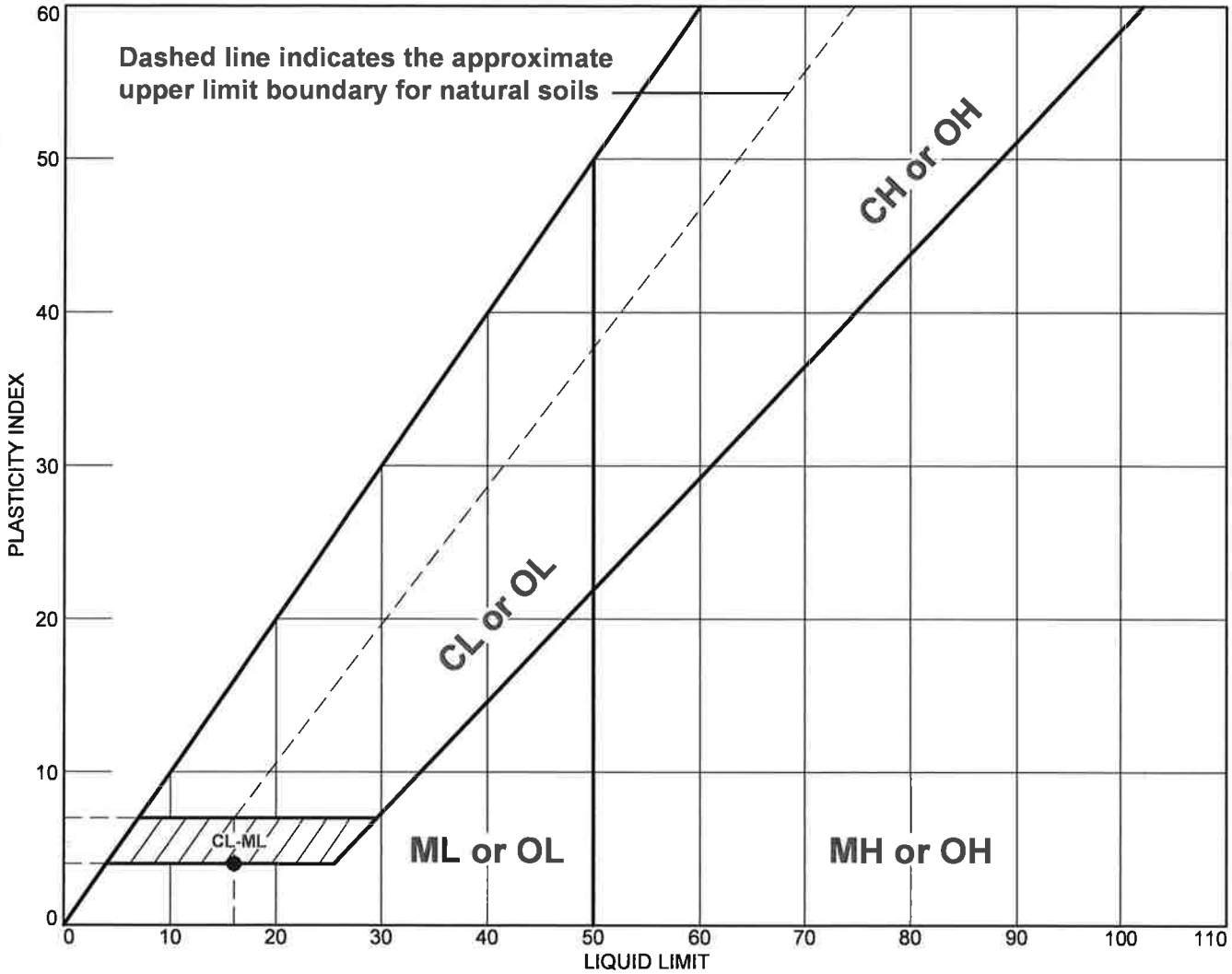
Date Sampled: 9-20-17

Element Materials Technology St. Paul, MN

Client: APPRO Development
Project: Adelman Elko New Market Property
Scott County, Minnesota
Project No: ESP026601P **Figure**

EAR-CONTROLLED DATA

LIQUID AND PLASTIC LIMITS TEST REPORT



	Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
○	SILTY CLAY, gray	9/21/2017	10/5/2017	L. Tran	16	12	4		CL-ML

Project No. ESP026601P **Client:** APPRO Development

Project: Adelman Elko New Market Property

Scott County, Minnesota

○ **Location:** Soil Boring 8 **Depth:** 14'-15.5' **Sample Number:** 08

○ Sample was returned to container after testing.

Element Materials Technology

St. Paul, MN

Checked by: J. Starke

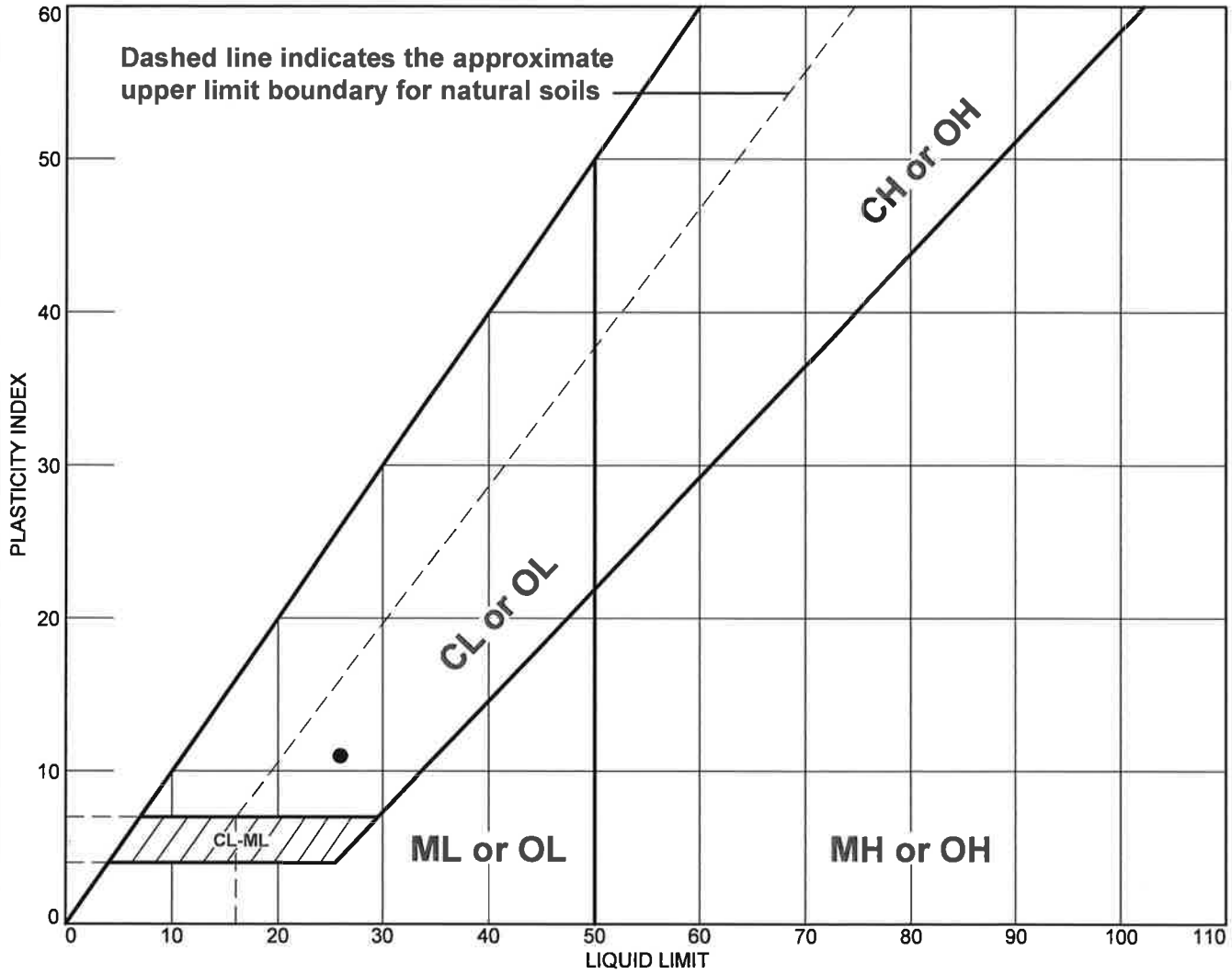
Title: Sr. Geotechnical Engineer

Figure

EAR-CONTROLLED DATA

Tested By: L. Tran **Checked By:** J. Starke, P.E.

LIQUID AND PLASTIC LIMITS TEST REPORT



	Material Description	Sampled	Tested	Technician	LL	PL	PI	%<#40	USCS
○	LEAN CLAY, brown (CL)	9/19/2017	10/5/2017	L.Tran	26	15	11		CL

Project No. ESP026601P **Client:** APPRO Development

Project: Adelman Elko New Market Property

Scott County, Minnesota

○ **Location:** Soil Boring 9 **Depth:** 7'-8.5' **Sample Number:** 05

○ Sample was returned to container after testing.

Element Materials Technology

St. Paul, MN

Checked by: J.Starke

Title: Sr. Geotechnical Engineer

Figure

EAR-CONTROLLED DATA

Tested By: L. Tran **Checked By:** J. Starke, P.E.

SYMBOLS AND TERMINOLOGY ON TEST BORING LOGS

SYMBOLS

Drilling and Sampling

Symbol	Description
HSA	3-1/4" I.D. hollow stem auger
_FA	4", 6" or 10" diameter flight auger
_HA	2", 4" or 6" hand auger
_DC	2-1/2", 4", 5" or 6" steel drive casing
_RC	Size A, B or N rotary casing
PD	Pipe drill or cleanout tube
CS	Continuous split barrel sampling
DM	Drilling mud
JW	Jetting water
SB	2" O.D. split barrel sampling
_L	2-1/2" or 3-1/2" O.D. SB liner sample
_T	2" or 3" thin walled tube sample
3TP	3" thin walled tube using pitcher sampler
_TO	2" or 3" thin walled tube suing Osterberg sampler
W	Wash sample
B	Bag sample
P	Test pit sample
_Q	BQ, NQ, or PQ wireline system
_X	AX, BX, or NX double tube barrel
N	Standard penetration test, blows per foot
CR	Core recovery, percent
WL	Water level
▼	Water level
NMR	No measurement recorded, primarily due to the presence of drilling or coring fluid

Laboratory Testing

Symbol	Description
W	Water content, % (ASTM:D2216)**
D	Dry density, pcf
LL	Liquid limit (ASTM:D4318)
PL	Plastic limit (ASTM:D4318)
	--- Inserts in Last Column (Qu or RQD) ---
Qu	Unconfined compressive strength, psf (ASTM:D2166)
Pq	Penetrometer reading, tsf (ASTM:D1558)
Ts	Torvane reading, tsf
G	Specific gravity (ASTM:D854)
SL	Shrinkage limits (ASTM:D427)
OC	Organic content – Combustion method (ASTM:D2974)
SP	Swell pressure, tsf (ASTM:D4546)
PS	Percent swell under pressure (ASTM:D4546)
FS	Free swell, % (ASTM:D4546)
SS	Shrink swell, % (ASTM:D4546)
pH	Hydrogen ion content – Meter Method (ASTM:D4972)
SC	Sulfate content, parts/million or mg/l
CC	Chloride content, parts/million, or mg/l
C*	One dimensional consolidation (ASTM:D2435)
Qc*	Triaxial compression (ASTM:D2850 and D4767)
D.S.*	Direct shear (ASTM:D3080)
K*	Coefficient of permeability, cm/sec (ASTM:D2434)
P*	Pinhole test (ASTM:D4647)
DH*	Double hydrometer (ASTM:D4221)
MA*	Particle size analysis (ASTM:D422)
R	Laboratory electrical resistivity, ohm-cm (ASTM:G57)
E*	Pressuremeter deformation modulus, tsf (ASTM:D4719)
PM*	Pressuremeter test (ASTM:D4719)
VS*	Field vane shear (ASTM:D2573)
IR*	Infiltrometer test (ASTM:D3385)
RQD	Rock quality designation, percent

* Results shown on attached data sheet or graph
** ASTM designates American Society for Testing and Materials

TERMINOLOGY

Particle Sizes

Type	Size Range
Boulders	> 12"
Cobbles	3" – 12"
Coarse gravel	3/4" – 3"
Fine gravel	#4 sieve – 3/4"
Coarse sand	#4 - #10 sieve
Medium sand	#10 - #40 sieve
Fine sand	#40 - #200 sieve
Silt	100% passing #200 sieve and > 0.005 mm
Clay	100% passing #200 sieve and < 0.005 mm

Soil Layering and Moisture

Term	Visual Observation
Lamination	Up to 1/4" thick stratum
Varved	Alternating laminations of any combination of clay, silt, fine sand, or colors
Lenses	Small pockets of different soils in a soil mass
Stratified	Alternating layers of varying materials or colors
Layer	1/4" to 12" thick stratum
Dry	Powdery, no noticeable water
Moist	Damp, below saturation
Waterbearing	Pervious soil below water
Wet	Saturated, above liquid limit

Gravel Content

Coarse-Grained Soils		Fine-Grained Soils	
% Gravel	Description	% Gravel	Description
2 – 15	A little gravel	< 5	Trace of gravel
16 – 49	With gravel	5 – 15	A little gravel
		16 – 30	With gravel
		31 – 49	Gravelly

Standard Penetration Resistance

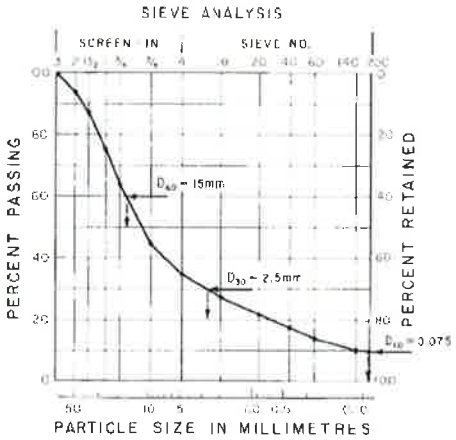
Cohesionless Soils		Cohesive Soils	
N-Value	Relative Density	N-Value	Consistency
0 – 4	Very loose	0 – 4	Very soft
5 – 10	Loose	5 – 8	Soft
11 – 30	Medium dense	9 – 15	Firm
31 – 50	Dense	16 – 30	Hard
> 50	Very dense	> 30	Very hard

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

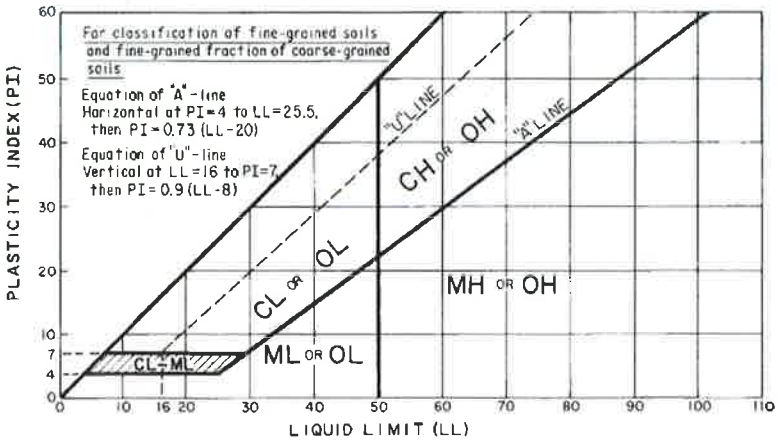
ASTM D2487 (Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
COARSE-GRAINED SOILS	Gravels (More than 50 % of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5 % fines[C])	Cu ≥ 4 and 1 ≤ Cc ≤ 3[D]	GW	Well-graded gravel[E]
			Cu < 4 and/or [Cc < 1 or Cc > 3][D]	GP	Poorly graded gravel[E]
		Gravels with Fines (More than 12 % fines[C])	Fines classify as ML or MH	GM	Silty gravel[E,F,G]
More than 50 % retained on No. 200 sieve			Fines classify as CL or CH	GC	Clayey gravel[E,F,G]
	Sands (50 % or more of coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5 % fines[H])	Cu ≥ 6 and 1 ≤ Cc ≤ 3[D]	SW	Well-graded sand[I]
			Cu < 6 and/or [Cc < 1 or Cc > 3][D]	SP	Poorly graded sand[I]
		Sands with Fines (More than 12 % fines[H])	Fines classify as ML or MH	SM	Silty sand[F,G,I]
			Fines classify as CL or CH	SC	Clayey sand[F,G,I]
FINE-GRAINED SOILS	Silts and Clays Liquid limit less than 50	inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K,L,M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K,L,M]
		organic	$\frac{\text{Liquid limit – oven dried}}{\text{Liquid limit – not dried}} < 0.75$	OL	Organic clay[K,L,M,N] / Organic silt[K,L,M,O]
50 % or more passes the No. 200 sieve	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line	CH	Fat clay[K,L,M]
			PI plots below "A" line	MH	Elastic silt[K,L,M]
		organic	$\frac{\text{Liquid limit – oven dried}}{\text{Liquid limit – not dried}} < 0.75$	OH	Organic clay[K,L,M,P] / Organic silt[K,L,M,Q]
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12 % fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
[D] $Cu = D_{60}/D_{10}$ $Cc = (D_{30})^2 / D_{10} \times D_{60}$
[E] If soil contains ≥15 % sand, add "with sand" to group name.
[F] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[G] If fines are organic, add "with organic fines" to group name.
[H] Sands with 5 to 12 % fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
[I] If soil contains ≥15 % gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to <30 % plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥30 % plus No. 200, predominantly sand, add "sand" to group name.
[M] If soil contains ≥30 % plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



$Cu = \frac{D_{60}}{D_{10}} = \frac{15}{0.075} = 200$ $Cc = \frac{(D_{30})^2}{D_{60} \times D_{10}} = \frac{(2.5)^2}{0.075 \times 15} = 5.6$



FIELD EXPLORATION PROCEDURES

Soil Sampling

Soil sampling was performed in accordance with ASTM D 1586. Using this procedure, a 2" O.D. split barrel sampler is driven into the soil by a 140 pound weight falling 30". After an initial set of 6", the number of blows required to drive the sampler an additional 12" is known as the penetration resistance, or N value. The N value is an index of the relative density of cohesionless soils and the consistency of cohesive soils. Thin wall tube samples were obtained according to ASTM D 1587 where indicated by the appropriate symbol on the boring logs. Rock core samples, if taken, were obtained by rotary drilling in accordance with ASTM D 2113. Power auger borings, if performed, were done in general accordance with ASTM D 1452.

Soil Classification

As the samples were obtained in the field, they were visually and manually classified by the crew chief in accordance with ASTM D 2488. Representative portions of the samples were then returned to the laboratory for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of the various strata, the N value, the laboratory test data, water level information and pertinent information regarding the method of maintaining and advancing the drill holes are attached. The descriptive terminology and symbols used on the boring logs are also attached.

PREREQUISITES FOR SOUND ENGINEERING PRACTICE

In order to properly evaluate the foundation soils at a building site, it is imperative for our firm to know exactly where the building will be placed, its size, and the elevation of the foundation elements. Without this information, a judgment regarding the adequacy of the preparatory foundation earthwork is not possible.

This project data is especially critical in situations when the excavation extends below the footing grade and compacted fill is required to attain building elevations. In these situations, the excavation would require lateral oversizing to provide suitable lateral distribution of the footing loads.

Offset batter boards of the building lines stakes provide the best on-site verification of the building location and size. It must be recognized that Element St. Paul does not practice in the field of surveying. Therefore, we must rely on staking by others. If Element St. Paul is required to perform the survey, we will retain a licensed surveyor and invoice our client for the amount per our current fee schedule. Provision of the building foundation plans is also important so that we may properly perform our engineering judgments.

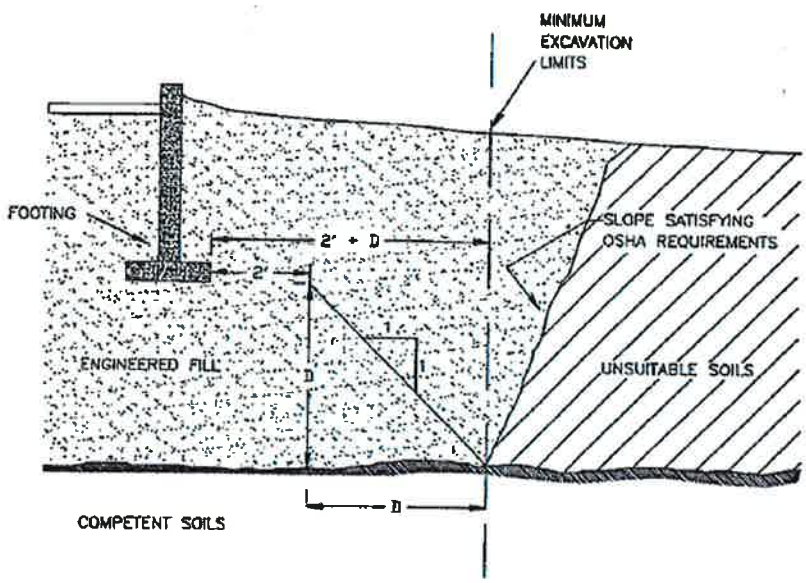
If the construction is redesigned or otherwise moved subsequent to our work, we should be informed so our firm can assess if additional engineering observation is required or suggest sound engineering alternatives. We cannot be responsible for any soil foundation system if the structure has been relocated with respect to the excavation subsequent to our observations.

GENERAL OVERSIZE REQUIREMENTS

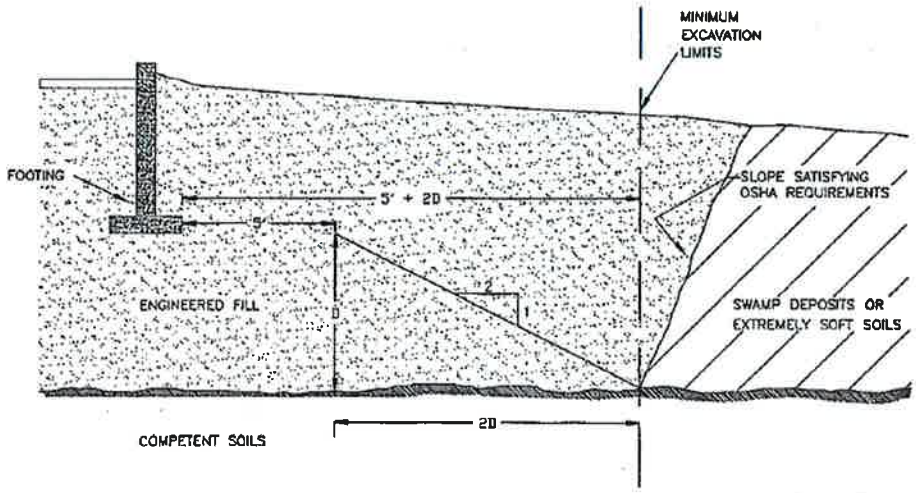
Because of the lateral distribution of foundation pressures with depth, lateral oversizing is required in an excavation where unsuitable soils extend below planned footing grade. The lateral oversize scheme provides compacted fill materials beyond the exterior footing limits where fill is required below footing elevation. The degree of lateral oversizing is dependent upon the surrounding soil's ability to resist lateral movement. Although we generally recommend the lateral oversize be at least 2' plus the depth of fill below bottom of footing elevation, each project must be evaluated separately. For example, in extremely compressible swamp or organic soils, the oversize should be increased to 5' plus twice the depth of excavation below footing grade. Due to the variations in the required oversize, an engineering judgment must be made to establish the necessary extent of the oversizing. Diagrams illustrating typical oversizing dimensions are included in this report.

EXCAVATION OVERSIZING

NORMAL EXCAVATION

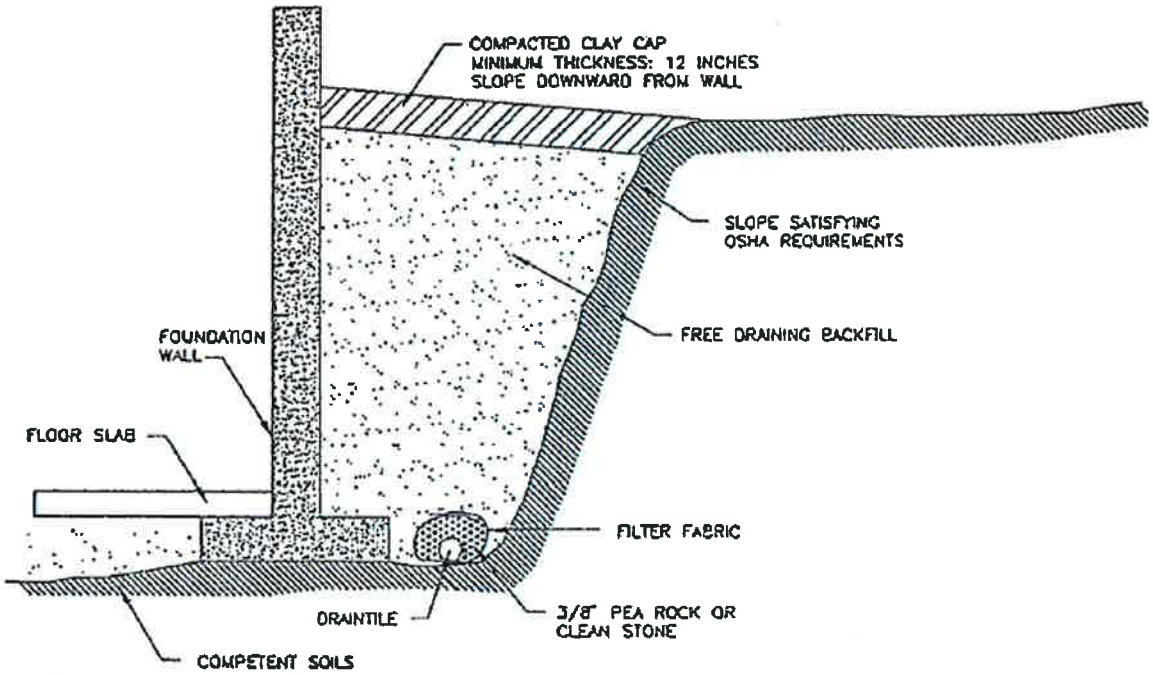


SWAMP OR EXTREMELY SOFT SOIL EXCAVATION



NOT TO SCALE

TYPICAL EXTERIOR DRAINTILE SYSTEM



NOT TO SCALE

CONSTRUCTION OBSERVATIONS AND TESTING

The recommendations made in this report have been made based on the subsurface conditions found in the borings. It is possible that there are soil and water conditions on site that were not represented by the borings. Consequently, on-site observation during construction is considered integral to the successful implementation of the recommendations. We believe that qualified field personnel need to be on site at the times outlined below to observe the site conditions and effectiveness of the construction.

We recommend that the completed excavation and prepared subgrade be observed and tested by a soils engineer/technician prior to fill placement or construction of any foundation elements. These observations would be necessary to judge if all unsuitable materials have been removed from within the planned construction area and that an appropriate degree of lateral oversize has been provided for in those areas where fill will be placed below the bottom of foundation grade.

We recommend a representative number of field density tests be taken in all engineered fill placed to aid in judging its suitability. We suggest that at least one density test be performed for at least every 2,500 square feet of engineered fill placed for every 2' of fill depth. Additional tests should be taken where confined areas are compacted. Any proposed fill material should be submitted to the laboratory for tests to check compliance with our recommendations and project specifications.

PRECAUTIONS FOR EXCAVATING AND REFILLING DURING COLD WEATHER

The winter season in this area presents specific problems for foundation construction. Soils that are allowed to freeze undergo a moisture volume expansion, resulting in loss of density. These frost-expanded soils will consolidate upon thawing, causing settlement of any structure supported on them. To prevent this settlement, frost should not be allowed to penetrate into the soils below any proposed structure.

Ideally, winter excavation should be limited to areas small enough to be refilled to grade higher than footing grade on the same day. Typically, these areas should be filled to floor grade. Trenching back down to unfrozen soils for foundation construction can then be performed just prior to footing placement. The excavated trenches should be protected from freezing by means of insulating or heating during foundation construction. Backfilling of the foundation trenches should be performed immediately after the below-grade foundation construction is finished. In addition, any interior footings or footings designed without frost protection should be extended below frost depth, unless adequate precautions are taken to prevent frost intrusion until the building can be enclosed and heated.

In many cases, final grade cannot be attained in one day's time, even though small areas are worked. In the event final grade cannot be attained in one day's time, frost can be expected to develop overnight. Leaving a layer of loose soil on top of the compacted material overnight can minimize the depth of frost penetration. However, any frost that forms in this loose layer, or snow that accumulates, should be completely removed from the fill area prior to compaction and additional soil placement. Frozen soils or soils containing frozen material or snow should never be used as fill material.

After the structure has been enclosed, all floor slab areas should be subjected to ample periods of heating to allow thawing of the soil system. Alternatively, the frozen soil can be completely removed and be replaced with an engineered fill. The floor slab areas should be checked at random and representative locations for remnant areas of frost and density tests should be performed to document fill compaction to slab placement.

Due to the potential problems associated with fill placement during cold weather, a full-time, on-site soils technician should monitor any filling operations. Full-time monitoring aids in detecting areas of frozen material, or potential problems with frozen material within the fill, so the appropriate measures can be taken. The choice of fill material is particularly important during cold weather, since clean granular fill material can be placed and compacted more efficiently than silty and clayey soils. In addition, greater magnitudes of heaving can be expected with freezing of the more frost susceptible silts and clays.

If more specific frost information or cold weather data concerning other construction materials is required, please contact us.

REQUIREMENTS FOR FHA EARTHWORK TESTING

When the Federal Housing Administration (FHA) becomes involved in the financing of a residential structure, it imposes certain requirements on the owner/developer/ constructor for observation and testing which must be performed during earthwork operations. These requirements are detailed in FHA Data Sheet 79G, "Land Development with Controlled Earthwork." Full compliance is mandatory if FHA approval is to be obtained.

The primary areas for compliance with Data Sheet 79G are as follows:

1. No construction of any type (footings or floor slabs) is permitted on old fill.

2. A soils engineer must observe the excavation to competent natural soils prior to the placement of any fill material or footing construction.

3. Soil compaction tests must be performed in the compacted fill during placement, not afterwards, at 1' to 2' vertical intervals from the bottom of the excavation to proposed final floor slab grades.

4. Proper staking must be provided in the field to allow the soils engineer to judge the suitability of the lateral excavation oversize.

5. The elevations of foundations, slabs and bottoms of excavations are to be included in the soils engineer's report. These elevations must be referenced to mean sea level elevations.

6. A soils engineer must verify the basement slab and groundwater level are separated by a minimum of four (4) feet.

Prior to our approval on an excavation, information regarding the desired building pad dimensions (or the maximum possible house size), lot set-back information and final slab and footing grades must be provided to us. This information is needed to judge if adequate oversizing is provided for the expected foundations, and to establish the necessary sequence of compaction testing within the subsequent fill.

It has been our experience that FHA will deny financing if the above requirements are not completely satisfied. Therefore, it is important the contractor/developer provide our firm with adequate information regarding the proposed construction before and during our involvement.

RISKS ASSOCIATED WITH EXCAVATION UNDER WATER

For many projects, an excavate/refill program is used to prepare building areas prior to the start of construction. As variations in soil conditions often occur in very short distances, the bottom of any excavation should be observed by an engineer to judge the competency of the natural soils for fill and footing support. In some cases, the required excavation may extend below the groundwater level. If the excavation extends below groundwater level, a temporary dewatering system is necessary to lower the water level to an elevation below the required excavation bottom. In some situations, the quantity of water is such that a temporary dewatering system cannot economically control the groundwater. In these situations, the excavations are sometimes performed below the water level using a dragline or backhoe to remove the inferior soils, and the initial lifts of fill are placed into standing water. This procedure is not recommended because of the risk involved.

Excavating and refilling below water involves risks of trapping compressible or otherwise unsuitable materials within or below the new fill system. Dislodged excavated materials can be covered by the advancing fill soils, or the excavating equipment can miss localized deeper pockets of compressible soils. For this reason, approaching the earthwork without dewatering requires that the owner accept the risk of some future building settlement. This risk results from the engineer's ability to observe the excavation bottom during the excavation and initial filling operations. In areas where the excavation terminates below the water table, observations are strictly limited to observing the soils recovered in the bucket of the backhoe or dragline, and possibly probing the excavation bottom if the depth of water is not too great. If the excavation operations are to proceed in this manner, it is necessary that the owner fully understands and accepts the risks involved.

While these risks cannot be eliminated, there are a number of procedures that can be used to reduce the risk of future settlement if the excavation proceeds without the aid of dewatering. We strongly recommend the following procedures are employed during the excavation and refilling operations:

1. A thorough soil boring program should be performed prior to any excavation. This program would establish approximate required bottom of excavation elevations and provide information regarding the classification of acceptable soils anticipated at the bottom of the excavation.

2. A backhoe or dragline operator experienced with this type of excavation procedure should perform the excavation work.

3. An experienced soil engineer should be retained to provide full-time observations during all excavation and refilling operations below the water level.

4. A suitable amount of lateral oversize should be provided in the excavation bottom. Reference should be made to the preliminary soil boring report, the job specifications, or the soil engineer's recommendations for information regarding the extent of oversize required for the particular project.

5. Any fill placed below water, and to an elevation of at least 2' above the water level, should consist of a clean, free-draining sand containing less that 40% passing the #40 sieve and less than 5% passing the #200 sieve.

6. The fill should be stockpiled at the water's edge and should be advanced into the excavation by a bulldozer imparting a strong, downward "scouring" action to advance the fill along the excavation bottom. This scouring action would tend to force remnant pieces of unsuitable material ahead of the filling process where they could be periodically removed by the excavation equipment. Excessive amounts of unsuitable material collecting in front of the fill could impede the ability of the fill to scour the excavation bottom.

7. A number of standard penetration borings should be put down through the fill after it has been brought to a level above the groundwater table. These borings are instrumental in documenting the effectiveness of the removal of the unsuitable materials as well as judging the density of the newly placed fill at depth.

EXHIBIT C:

Minnesota Wetland Conservation Act + U.S. Army Corps of Engineers Approvals

Minnesota Wetland Conservation Act
Notice of Decision

Local Government Unit (LGU)	Address
City of Elko New Market	**601 Main Street** **Elko New Market, MN 55054**

1. PROJECT INFORMATION

Applicant Name	Project Name	Date of Application	Application Number
Adelmann Farms New Market, LLC – Dave Adelmann	**Aldemann Family Property**	**10/15/18**	**ELNM3-18**
☒ **Attach site locator map.**			

Type of Decision:

☒ **Wetland Boundary or Type** ☐ No-Loss ☐ Exemption ☐ Sequencing
☐ Replacement Plan ☐ Banking Plan

Technical Evaluation Panel Findings and Recommendation (if any):

☐ Approve ☐ Approve with conditions ☐ Deny

Summary (or attach):

2. LOCAL GOVERNMENT UNIT DECISION

Date of Decision: **11/26/18**

☒ **Approved** ☐ Approved with conditions (include below) ☐ Denied

LGU Findings and Conclusions (attach additional sheets as necessary):

ISG, Inc. has submitted a Type and Boundary Application on behalf of Adelmann Farms New Market, LCC. for properties on the north and south side of CR 2 on the west side of the I-35 intersection. The report identifies 22 wetlands. The applicant has requested a type and boundary concurrence.

A TEP meeting was held on November 7, 2018 with representatives from the SWCD, BWSR, LGU and applicant present. The site visit concluded that the following changes needed to be made:

- **Expand the northeast side of wetland A**
- **Expand northwest side and straighten the south end of wetland B**
- **Connect wetland N and V**
- **Extend the southeast finger of wetland N**
- **Bump out the western side of wetland T**
- **Remove fringe wetland area along northern portion of the tributary in the northwest section of the study area**
- **Add drainage feature between wetlands s and T, this feature is not a wetland**

ISG has submitted an accurate update to these requests, which is attached. This decision does not reflect any decisions made through section 404 of the CWA.

For Replacement Plans using credits from the State Wetland Bank:

Bank Account #	Bank Service Area	County	Credits Approved for Withdrawal (sq. ft. or nearest .01 acre)

Replacement Plan Approval Conditions. In addition to any conditions specified by the LGU, the approval of a Wetland Replacement Plan is conditional upon the following:

☐ **Financial Assurance:** For project-specific replacement that is not in-advance, a financial assurance specified by the LGU must be submitted to the LGU in accordance with MN Rule 8420.0522, Subp. 9 (List amount and type in LGU Findings).

☐ **Deed Recording:** For project-specific replacement, evidence must be provided to the LGU that the BWSR "Declaration of Restrictions and Covenants" and "Consent to Replacement Wetland" forms have been filed with the county recorder's office in which the replacement wetland is located.

☐ **Credit Withdrawal:** For replacement consisting of wetland bank credits, confirmation that BWSR has withdrawn the credits from the state wetland bank as specified in the approved replacement plan.

Wetlands may not be impacted until all applicable conditions have been met!

LGU Authorized Signature:

Signing and mailing of this completed form to the appropriate recipients in accordance with 8420.0255, Subp. 5 provides notice that a decision was made by the LGU under the Wetland Conservation Act as specified above. If additional details on the decision exist, they have been provided to the landowner and are available from the LGU upon request.		
Name **Dan Donayre**	Title **Wetland Specialist**	
Signature	Date **11/26/18**	Phone Number and E-mail **507-625-4171 ext 2646** **dando@bolton-menk.com**

THIS DECISION ONLY APPLIES TO THE MINNESOTA WETLAND CONSERVATION ACT. Additional approvals or permits from local, state, and federal agencies may be required. Check with all appropriate authorities before commencing work in or near wetlands.

Applicants proceed at their own risk if work authorized by this decision is started before the time period for appeal (30 days) has expired. If this decision is reversed or revised under appeal, the applicant may be responsible for restoring or replacing all wetland impacts.

This decision is valid for three years from the date of decision unless a longer period is advised by the TEP and specified in this notice of decision.

3. APPEAL OF THIS DECISION

Pursuant to MN Rule 8420.0905, any appeal of this decision can only be commenced by mailing a petition for appeal, including applicable fee, within thirty (30) calendar days of the date of the mailing of this Notice to the following as indicated:

Check one:

☐ Appeal of an LGU staff decision. Send petition and $_____ fee (if applicable) to:	☐ Appeal of LGU governing body decision. Send petition and $500 filing fee to: Executive Director Minnesota Board of Water and Soil Resources 520 Lafayette Road North St. Paul, MN 55155

4. LIST OF ADDRESSEES

- ☒ **SWCD TEP member: Troy Kuphal**
- ☒ **BWSR TEP member: Ben Carlson**
- ☒ **LGU TEP member (if different than LGU Contact): Renee Christianson**
- ☒ **DNR TEP member: Becky Horton**
- ☐ DNR Regional Office (if different than DNR TEP member)
- ☐ WD or WMO (if applicable):
- ☒ **Applicant (notice only) and Landowner (if different)**
- ☐ Members of the public who requested notice:

- ☒ **Corps of Engineers Project Manager (notice only): TBD**
- ☐ BWSR Wetland Bank Coordinator (wetland bank plan decisions only)

5. MAILING INFORMATION

- For a list of BWSR TEP representatives: www.bwsr.state.mn.us/aboutbwsr/workareas/WCA_areas.pdf
- For a list of DNR TEP representatives: www.bwsr.state.mn.us/wetlands/wca/DNR_TEP_contacts.pdf
- Department of Natural Resources Regional Offices:

NW Region:	NE Region:	Central Region:	Southern Region:
Reg. Env. Assess. Ecol. Div. Ecol. Resources 2115 Birchmont Beach Rd. NE Bemidji, MN 56601	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1201 E. Hwy. 2 Grand Rapids, MN 55744	Reg. Env. Assess. Ecol. Div. Ecol. Resources 1200 Warner Road St. Paul, MN 55106	Reg. Env. Assess. Ecol. Div. Ecol. Resources 261 Hwy. 15 South New Ulm, MN 56073

For a map of DNR Administrative Regions, see: http://files.dnr.state.mn.us/aboutdnr/dnr_regions.pdf

- For a list of Corps of Project Managers: www.mvp.usace.army.mil/regulatory/default.asp?pageid=687 or send to:

  US Army Corps of Engineers
  St. Paul District, ATTN: OP-R
  180 Fifth St. East, Suite 700
  St. Paul, MN 55101-1678

- For Wetland Bank Plan applications, also send a copy of the application to:

  Minnesota Board of Water and Soil Resources
  Wetland Bank Coordinator
  520 Lafayette Road North
  St. Paul, MN 55155

6. ATTACHMENTS

In addition to the site locator map, list any other attachments:

- ☒ **Location Map**
- ☒ **Final Delineation Figures**
- ☐
- ☐
- ☐

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

February 8, 2019

REPLY TO ATTENTION OF
REGULATORY BRANCH

Regulatory File No. 2018-03159-JTB

Adelmann Farms New Market, LLC
c\o Dave Adelmann
8640 Harriet Avenue
Bloomington, Minnesota 55420

Dear Mr. Adelmann:

This letter is in response to correspondence submitted by ISG on your behalf, requesting Corps of Engineers (Corps) concurrence with the delineation of aquatic resources completed on the 242.5-acre parcel in New Market Township. The project site is in Sections 23 and 26, Township 113 North, Range 21 West, Scott County, Minnesota.

We have reviewed the wetland delineation report dated September 11, 2018, and determined that the limits of the aquatic resources have been accurately identified in accordance with current agency guidance including the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region. This concurrence is only valid for the review area shown on the enclosed figures labeled MVP-2018-03159-JTB Page 1 of 7 through 7 of 7. The boundaries shown on the enclosed figures accurately reflect the limits of the aquatic resources in the review area.

This concurrence may generally be relied upon for five years from the date of this letter. However, we reserve the right to review and revise our concurrence in response to changing site conditions, information that was not considered during our initial review, or off-site activities that could indirectly alter the extent of wetlands and other resources on-site. Our concurrence may be renewed at the end of this period provided you submit a written request and our staff are able to verify that the determination is still valid.

No jurisdictional determination was prepared for this project. While not required, you may request a jurisdictional determination from the Corps contact indicated below.

Please note that the discharge of dredged or fill material into waters of the United States without a Department of the Army permit could subject you to an enforcement action. Receipt of a permit from a state or local agency does not obviate the requirement for obtaining a Department of the Army permit.

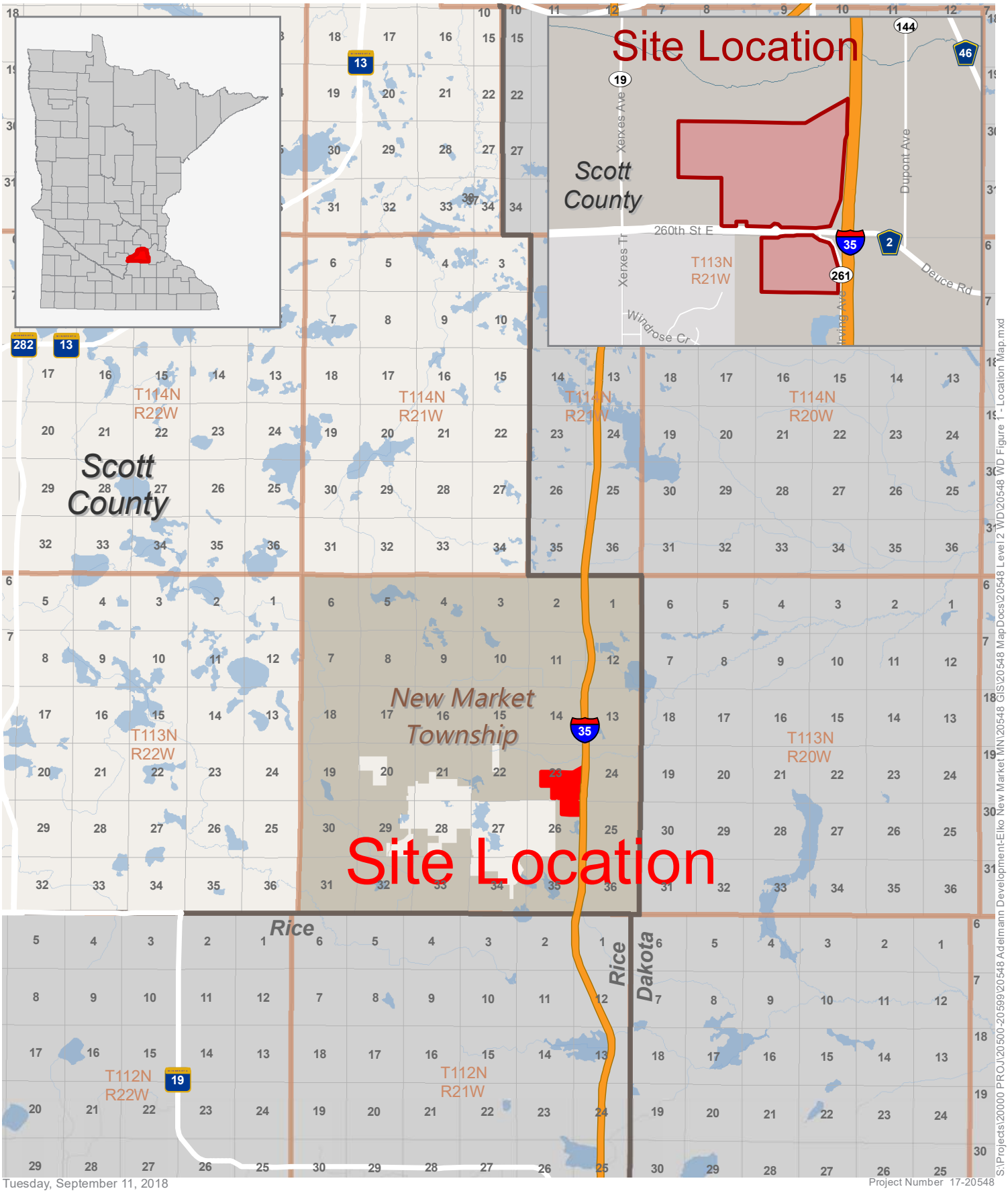
If you have any questions, please contact me in our St. Paul office at (651) 290-5446 or Justin.T.Berndt@usace.army.mil. In any correspondence or inquiries, please refer to the Regulatory file number shown above.

Sincerely,

Justin Berndt
Project Manager

Enclosure

cc:
Lucas Mueller, ISG
Travis Fristed, ISG
Dan Donayre, LGU
Ben Carlson, BWSR



Tuesday, September 11, 2018

Project Number 17-20548

0 6,000 12,000 Feet

1 in = 12,000 ft

N

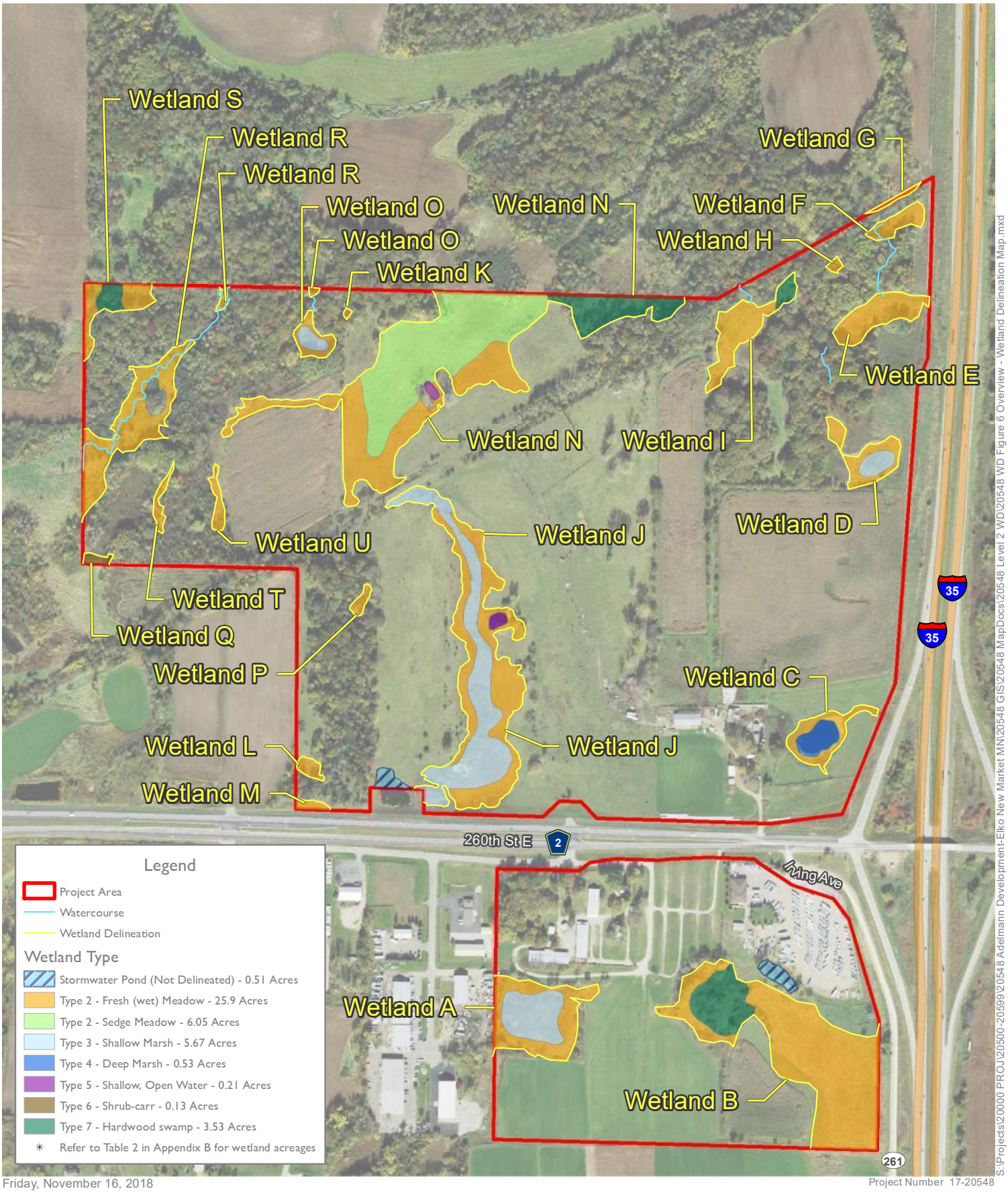
Project Location Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Municipalities (MN DOT, 6/24/2016)
Lakes (MN DNR, July, 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)

ISG



Friday, November 16, 2018

Project Number 17-20548

0 300 600 Feet

1 in = 601 ft

N

Figure 6

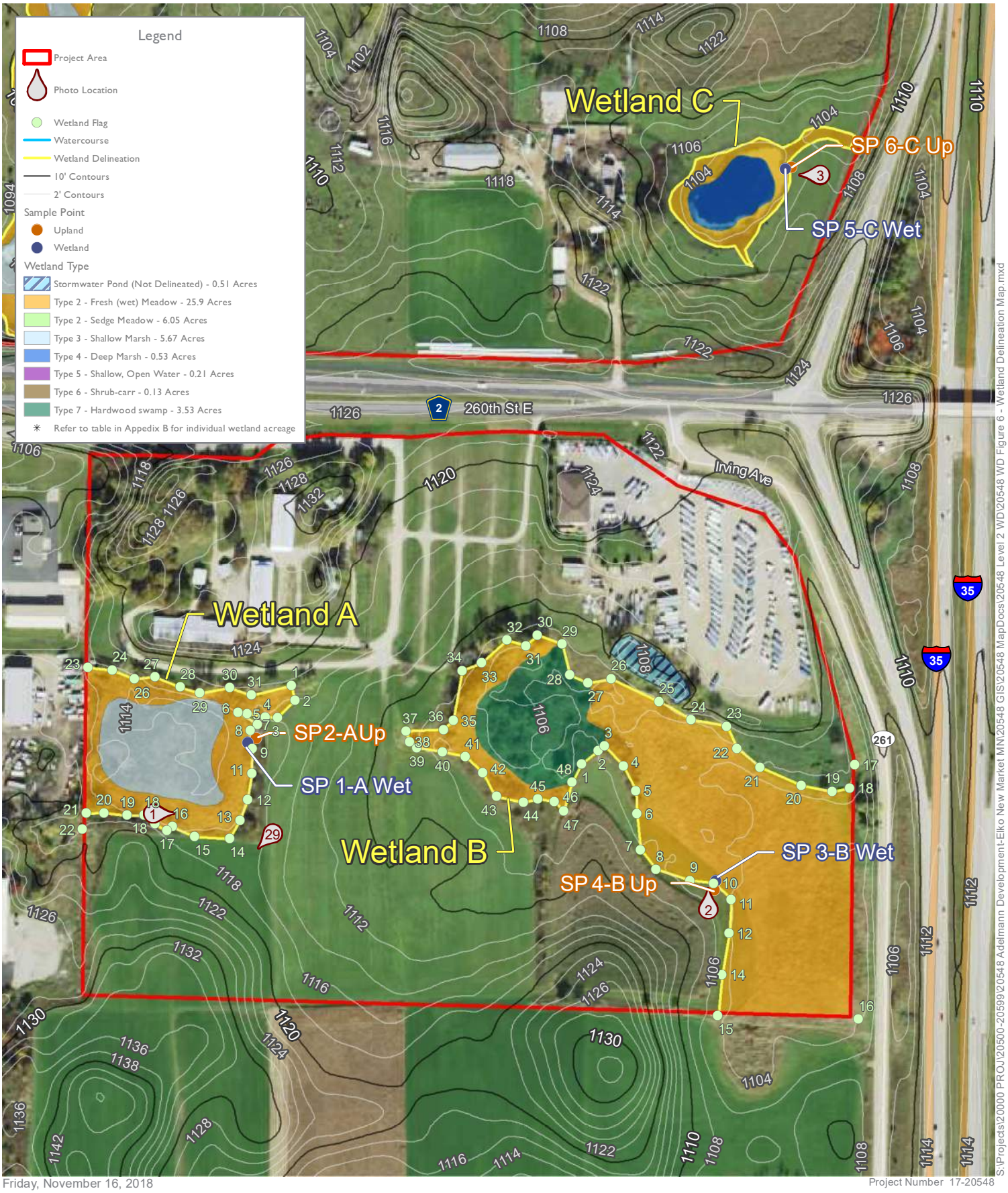
Wetland Delineation Overview Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Wetland Delineation (ISG, 2018)

ISG



Friday, November 16, 2018

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 Level 2 WD\20548 WD Figure 6 - Wetland Delineation Map.mxd

0 150 300 Feet

1 in = 300 ft

N

Figure 6a

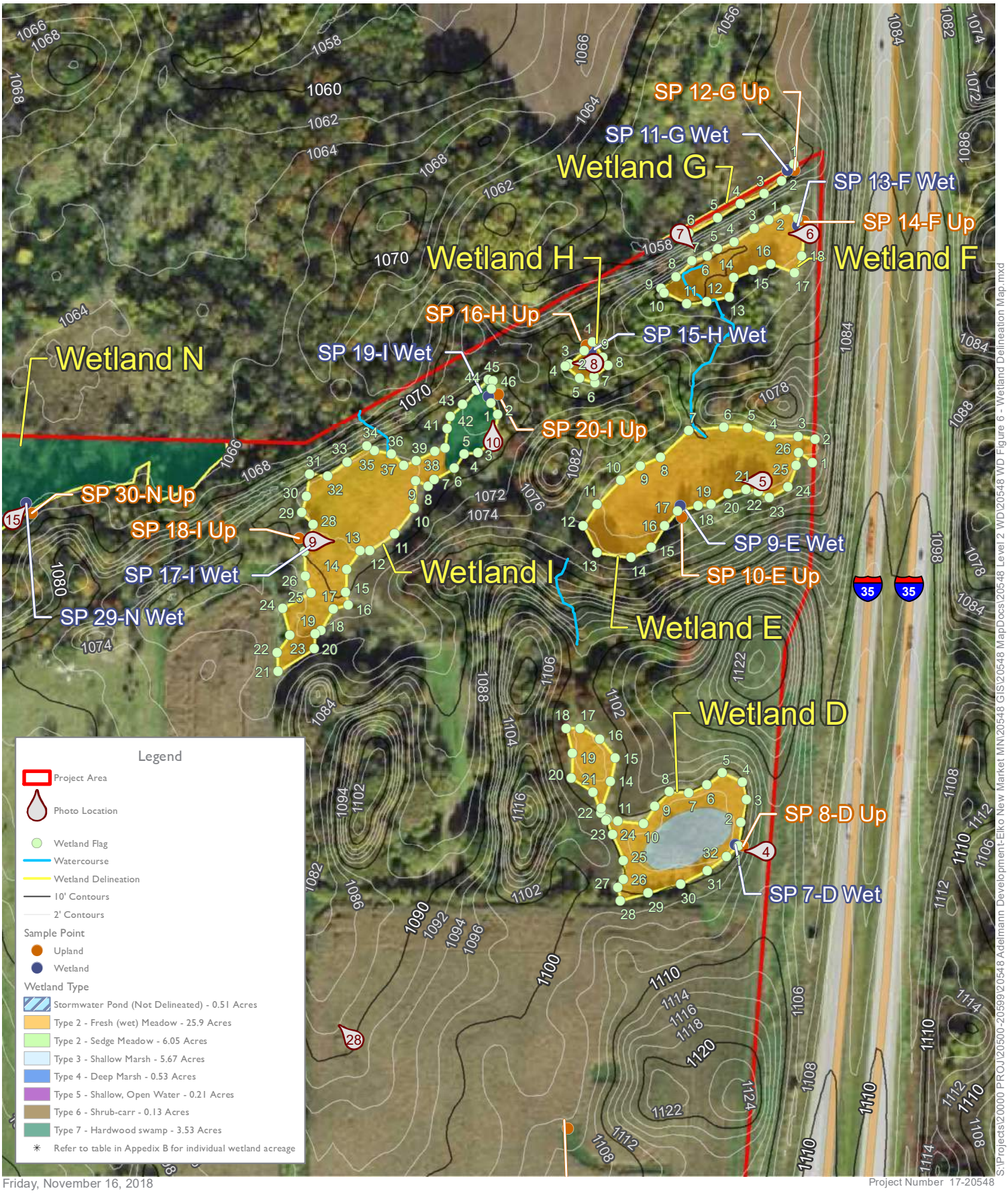
Wetland Delineation Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Contours (MnGeo LiDAR, 2011)
Wetland Delineation (ISG, 2018)

ISG



Friday, November 16, 2018

Project Number 17-20548

0 125 250 Feet

1 in = 250 ft

N

Figure 6b

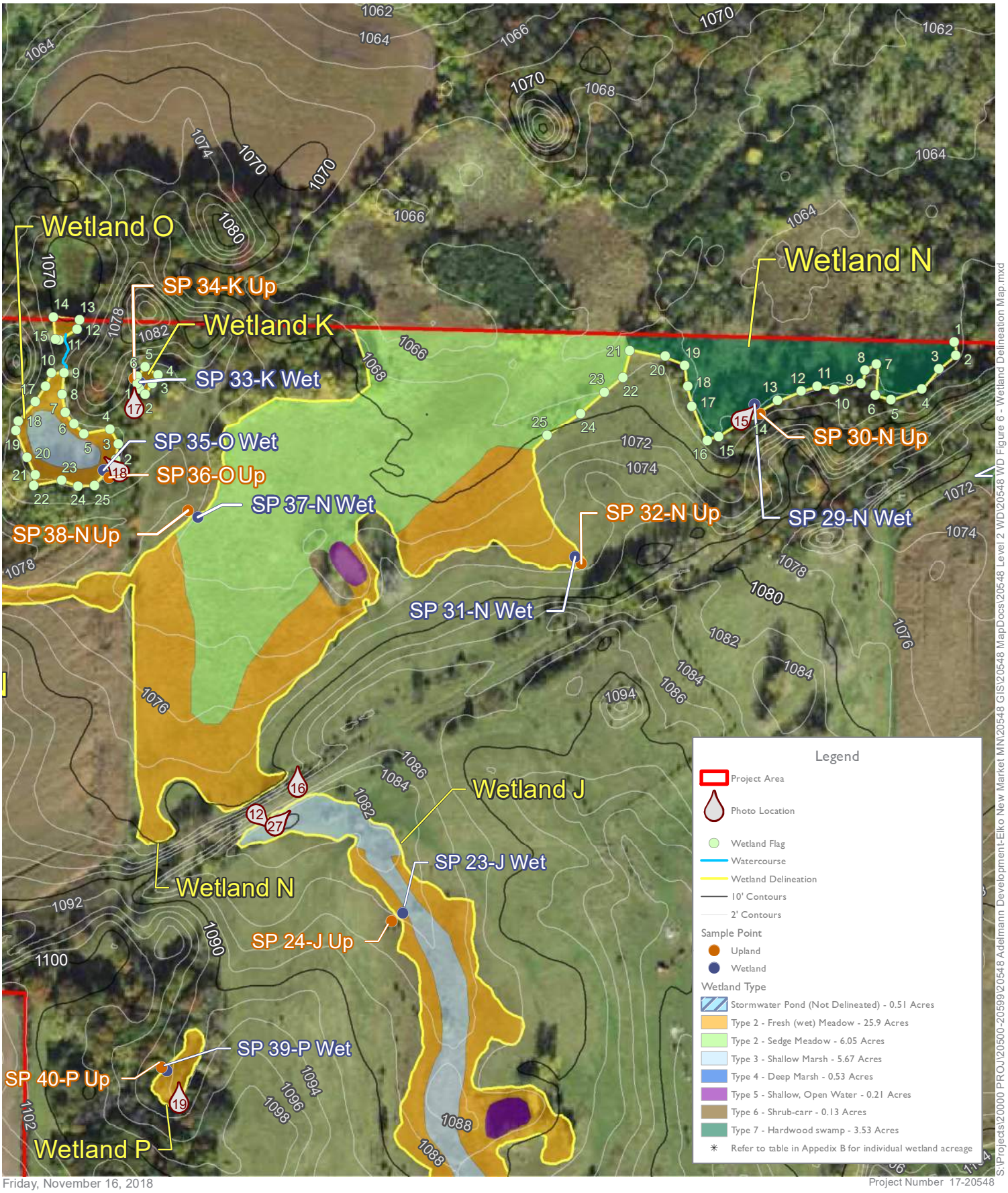
Wetland Delineation Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Contours (MnGeo LiDAR, 2011)
Wetland Delineation (ISG, 2018)

ISG



Friday, November 16, 2018

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 Level 2 WD\20548 WD Figure 6 - Wetland Delineation Map.mxd

0 125 250 Feet

1 in = 250 ft

N

Figure 6c

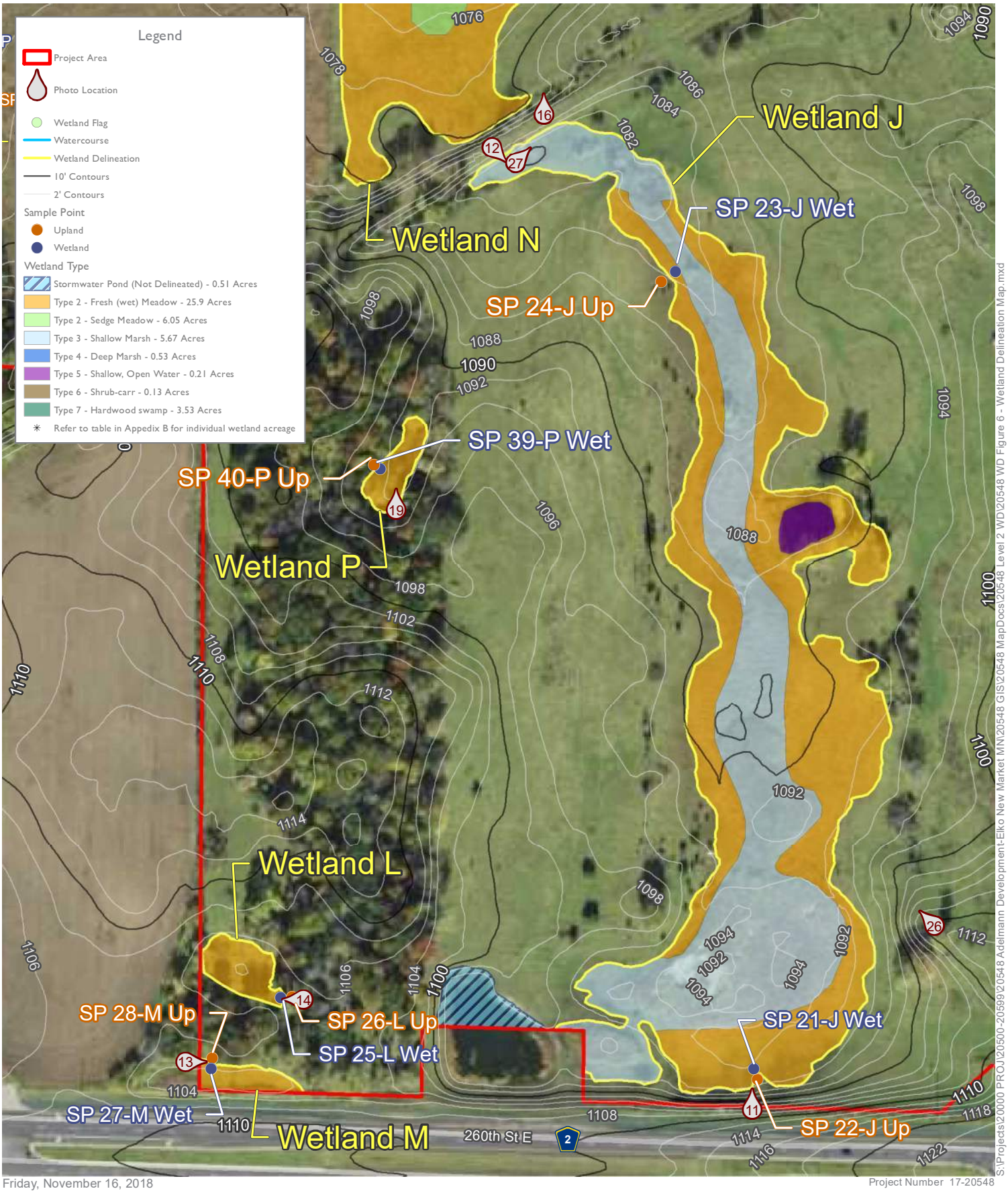
Wetland Delineation Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Contours (MnGeo LiDAR, 2011)
Wetland Delineation (ISG, 2018)

ISG



Friday, November 16, 2018

Project Number 17-20548

0 100 200 Feet

1 in = 200 ft

N

Figure 6d

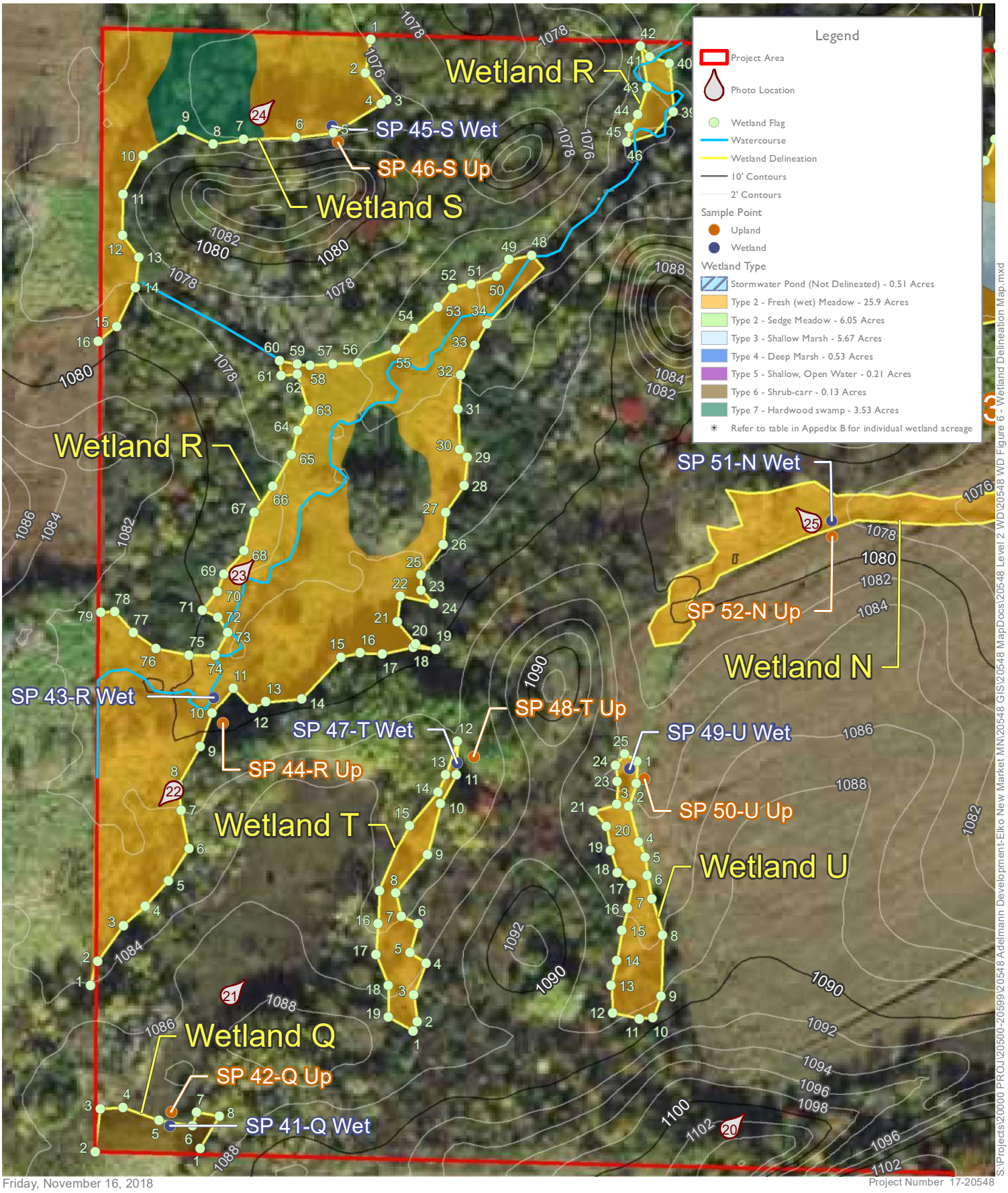
Wetland Delineation Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Contours (MnGeo LiDAR, 2011)
Wetland Delineation (ISG, 2018)

ISG



Friday, November 16, 2018

Project Number 17-20548

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 Level 2 WD\20548 WD Figure 6 - Wetland Delineation Map.mxd

0 75 150 Feet

1 in = 150 ft

N

Figure 6e

Wetland Delineation Map

Adelmann Family Property

New Market Twp, Scott County, Minnesota

Source(s):
Orthophoto (MnGeo WMS, 2017)
Contours (MnGeo LiDAR, 2011)
Wetland Delineation (ISG, 2018)

ISG

Table 2. Delineated Wetlands Summary – Post TEP (November 7, 2018)

Wetland No.	Dominant Wetland Type(s)		Dominant Plant Community	Delineated Wetland Area	Soil Classification (Hydric Rating)	Mapped NWI	DNR Protected Waters Inventory
	Circ. 39	Cowardin Classification	Eggers & Reed				
A	Type 2/3	PEM1A/PEM1C	Fresh (wet) Meadow, Shallow Marsh	Type 2=1.72 Ac. (74,779 Sq. Ft) Type 3=1.35 Ac. (58,895 Sq. Ft) Total = 3.07 Ac.	HaE2 (Hydric)/HaD (Partially Hydric)/HaC2 (Partially Hydric)	PEM1C/PEM1A/PSS1A	No
B	Type 2/7	PEM1B/PFOB	Fresh (wet) Meadow, Hardwood Wetland	Type 2=6.86 Ac. (298,809 Sq. Ft) Type 7=1.50 Ac. (65,335 Sq. Ft) Total = 8.36 Ac.	PbA (Hydric)/Bc (Hydric)/Wb (Hydric)	PEM1A/PSS1A	Yes
C	Type 2/4	PEM1A/PUBG	Fresh (wet) Meadow, Deep Marsh	Type 2=0.71 Ac. (31,045 Sq.Ft) Type 4=0.53 Ac. (22,932 Sq.Ft) Total = 1.24 Ac.	HaB(Predominantly Non-Hydric)/Wb (Hydric)	PEM1C/PEM1A	Yes
D	Type 2/3	PEM1A/PEM1C	Fresh (wet) Meadow,Shallow Marsh	Type 2=0.76 Ac. (33,054Sq.Ft) Type 3=0.33 Ac. (14,315 Sq.Ft) Total = 1.09 Ac.	HaB(Predominantly Non-Hydric)/ Wb (Hydric)/HaC2(Predominantly Non-Hydric)	PEM1C/PEM1A	No
E	Type 2	PEM1B	Fresh (wet) Meadow	1.24 Ac. (54,107 Sq.Ft)	Ga (Hydric)/LbD (Predominantly Non-Hydric)	PEM1C	No
F	Type 2	PEM1B	Fresh (wet) Meadow	0.50 Ac. (21,897 Sq.Ft)	Ga (Hydric)	PEM1C	No
G	Type 2	PEM1B	Fresh (wet) Meadow	0.10 Ac. (4,243 Sq.Ft)	Ga (Hydric)	PEM1C	Yes
H	Type 2	PEM1B	Fresh (wet) Meadow	0.08 Ac. (3,274 Sq.Ft)	Ga (Hydric)	PFO1A	No
I	Type 2/7	PEM1B/PFOB	Fresh (wet) Meadow, Hardwood Wetland	Type 2=1.21 Ac. (52,905 Sq.Ft) Type 7=0.24 Ac. (10,402 Sq. Ft.) Total = 1.45 Ac.	Ga (Hydric)/Wb (Hydric)	PEM1C/PEM1A	No
J	Type 2/3/5	PEM1B/PEMC/ PUBF	Fresh (wet) Meadow, Sedge Meadow/Shallow March, Shallow Open Water	Type 2=3.82 Ac. (166,299 Sq.Ft) Type 3=3.76 Ac. (163,980 Sq.Ft) Type 5=0.12 Ac. (5,145 Sq.Ft) Total = 7.70 Ac.	Ga (Hydric)/Wb (Hydric)/ HaC2 (Predominantly Non-Hydric)/ HaC (Predominantly Non-Hydric)/ HaB (Predominantly Non-Hydric)	PEM1A/PEM1Ad/PUBG/	No
K	Type 2	PEM1B	Fresh (wet) Meadow	0.16 Ac. (6,842 Sq.Ft)	Ga (Hydric)/ Wb (Hydric)/ HaC (Predominantly Non-Hydric)	PEM1A	No
L	Type 2	PEM1A	Fresh (wet) Meadow	0.20 Ac. (8,544 Sq.Ft)	Ga (Hydric)/ HaB (Predominantly Non-Hydric)	PUBGx	No
M	Type 2	PEM1B	Fresh (wet) Meadow	0.13 Ac. (5,663 Sq. Ft)	Ga (Hydric)	PEM1A	No
				Total = 25.32 Ac.			

Wetland No.	Dominant Wetland Type(s)		Dominant Plant Community	Delineated Wetland Area	Soil Classification (Hydric Rating)	Mapped NWI	DNR Protected Waters Inventory
	Circ. 39	Cowardin Classification	Eggers & Reed				
N	Type 2/5/7	PEM1B/PUBG/ PFOC	Sedge Meadow, Shallow Open Water, Hardwood Wetland	Type 2=10.20 Ac. (444,353 Sq.Ft) Type 5=0.09 Ac. (3,937 Sq.Ft) Type 7=1.48 Ac. (64,273 Sq.Ft) Total = 11.77 Ac.	Ga (Hydric)/PbA (Hydric)/Wb (Hydric)/ HaC (Predominantly Non-Hydric)/ HaB (Predominantly Non-Hydric)/LbD (Predominantly Non-Hydric)	PEM1A/PEM1/ PUBGx/PFO1 A	No
O	Type 2/3	PEM1B/PEM1E	Fresh (wet) Meadow,Shallow Marsh	Type 2=0.35 Ac. (15,210 Sq.Ft) Type 3=0.23 Ac. (10,207 Sq.Ft) Total = 0.58 Ac.	Wb (Hydric)/ LbD (Predominantly Non-Hydric)	PEM1C/PFO1 A	No
P	Type 2	PEM1A	Fresh (wet) Meadow	Type 2=0.16 Ac. (6,793 Sq.Ft)	Ga (Hydric)/ HaC (Predominantly Non-Hydric)/ HaC2 (Predominantly Non-Hydric)	N/A	No
Q	Type 6	PSS1C	Shrub-carr	Type 2=0.13 Ac. (5,654 Sq.Ft)	Ga (Hydric)/ HaB (Predominantly Non-Hydric)	PEM1A	No
R	Type 2	PEM1B	Fresh (wet) Meadow	Type 2=2.64 Ac. (115,009 Sq.Ft)	Ga (Hydric)/HaC (Predominantly Non-Hydric)	PEM1A/PFO1 A/PEM1Ad	No
S	Type 2/7	PEM1B/PFOB	Fresh (wet) Meadow, Hardwood Wetland	Type 2=0.74 Ac. (32,022 Sq.Ft) Type 7=0.32 Ac. (13,910 Sq.Ft) Total = 1.06 Ac.	Ga (Hydric)/HaC (Predominantly Non-Hydric)	PEM1A	No
T	Type 2	PEM1B	Fresh (wet) Meadow	Type 2=0.21 Ac. (9,217 Sq.Ft)	HaB (Predominantly Non-Hydric)	N/A	No
U	Type 2	PEM1B	Fresh (wet) Meadow	Type 2=0.26 Ac. (11,314 Sq.Ft)	Wb (Hydric)/ HaB (Predominantly Non-Hydric)	N/A	No
V	Type 2	PEM1B	Fresh (wet) Meadow	Type 2=0.33 Ac. (14,376 Sq.Ft)	Wb (Hydric)/ HaB (Predominantly Non-Hydric)	PEM1A	No

Total = 17.14 Ac.

EXHIBIT D:

Adelmann Phase I Environmental Site Assessment Report

Phase I Environmental Site Assessment

APPRO Development

Adelmann Family Property

New Market Township, MN 55020

Date: September 14, 2018

Project No.: 17-20548

ISG

ARCHITECTURE + ENGINEERING + ENVIRONMENTAL + PLANNING

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

of

Adelmann Family Property
Elko New Market, MN 55020

for

Dave Adelmann
8640 Harriet Avenue
Bloomington, MN 55420

CERTIFICATION & SIGNATURES

This Phase I Environmental Site Assessment was performed by ISG in conformance with the scope and limitations of ASTM Practice E 1527-13. I, Nick McCabe, declare to the best of my professional knowledge and belief, I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Nick McCabe
Senior Environmental Scientist

Date: September 14, 2018

EXECUTIVE SUMMARY

ISG was authorized by Dave Adelmann to conduct a Phase I Environmental Site Assessment (ESA) for the subject property located at 10946-10998 260th Street East Elko New Market, Minnesota. The purpose of this Phase I ESA was to identify any Recognized Environmental Conditions (RECs) associated with the subject property. This Phase I ESA was performed in conformance with the scope and limitations of ASTM Practice E 1527-13. Any exceptions to, or deletions from this practice are described in the introduction of this report.

According to historical aerial photographs, there have been three (3) rural residences within the project area and the remainder of the subject property appeared to be used as pasture land and/or cultivated for agriculture since prior to 1937. The homestead, which still stands today, has changed very little since 1951 other than the addition of multiple outbuildings on the property. The land use has remained relatively unchanged except for the removal of the former railroad tracks running through the north portion of the property. In some areas, what was formerly used for agricultural production is now more woodland. On the south half of the project area, a trailer dealership was built in 1998 and a flea market area was converted from an agricultural field in 1995.

It appears that the liability, or potential liability, associated with the database results on nearby properties represent an environmental risk for the subject property based on their proximity to the subject property and history of petroleum contamination at nearby sites.

Based on the review of geographic/geologic information, aerial photography, historical data, governmental records, information provided by the user, interviews conducted, and the site evaluation, this assessment has revealed the following Historical REC (HREC) associated with the subject property:

- Former LUAST at the subject property with a documented release of gasoline. This was remediated to the satisfaction of the regulatory agencies and the site was issued a regulatory site closure.

A full walk through was completed around the interior and exterior of the subject property with several environmental hazards observed (refer to Figure 5 in Appendix A). Based on the site evaluation, this assessment has revealed no RECs in connection with the property other than the following:

- Several areas of solid waste, hazardous materials, and 55 gallon drums throughout the subject property.
- Unregistered UST, ASTs, and other petroleum and hazardous liquid containers in several areas of the site.

ISG is not able to represent that the site or adjoining land contains no hazardous waste, oil, or other latent conditions beyond that detected or observed by this company during this assessment. If future development or land disturbing activities are planned, further investigation may be warranted in order to document the presence or absence of contamination at the subject property and/or whether contamination levels could be above thresholds that might require reporting to the applicable agencies or regulated handling and/or disposal.

INTRODUCTION

Purpose

The purpose of this Phase I Environmental Site Assessment is to identify, within limits, the environmental liability, or potential environmental liability, of the property under assessment. The site was evaluated for indications of recognized environmental conditions, historic recognized environmental conditions, and controlled recognized environmental conditions as defined by ASTM Practice E 1527-13:

Recognized Environmental Conditions - the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.

Historical Recognized Environmental Conditions - a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

Controlled Recognized Environmental Conditions - a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.

Recognized environmental conditions will be assessed and reported herein. Included in this report is geographic/geologic information, aerial photography, historical data and an analysis of the use and improvements to the site, findings reported for potential environmental hazards through governmental regulatory records, and interviews with people who have knowledge of the history of the property.

When an assessment is completed without adequate subsurface exploration or chemical screening of soil and groundwater beneath the site, as in this study, no statement of scientific certainty can be made regarding latent subsurface conditions which may be the result of on-site or off-site sources.

ISG is not able to represent that the site or adjoining land contains no hazardous waste, oil or other latent conditions beyond that detected or observed during this assessment. The possibility always exists for contaminants to migrate through surface water, air or groundwater. The ability to accurately address the environmental risk associated with transport in these media is beyond the scope of this investigation.

Scope of Services

The scope of this Phase I ESA as further outlined in this section is consistent with ASTM Standard E 1527-13.

The following services are provided for this project:

- Develop a property overview by collecting basic physical information about the property including: location, size, prominent features, and geologic, physiographic and environmental setting.

- Establish historical information for subject property and adjacent properties including:
  - Review user ownership history
  - Identify past and present operations and processes

  - Determine products and wastes handled at the property
  - Locate product/waste storage and disposal areas
  - Research regulatory history
  - Interview relevant/knowledgeable persons
  - Review past environmental investigations and cleanups
- Perform a physical reconnaissance of the property and inspect the property to verify and further supplement information obtained through the record reviews.
- Determine environmental liability or potential liability of the property under assessment.
- Document all research and field information, prepare maps illustrating physical and historical information, and prepare the assessment report.

Any other additional services contracted between the user and ISG, including a broader scope of assessment, more detailed conclusions, liability/risk evaluations, and extent for further investigation are beyond the scope of services.

Non-Scope Considerations

There may be environmental issues or conditions at the property that should be assessed which are outside of the scope of services. The following list includes, but is not limited to, several non-scope considerations that may need further investigation such as:

- Asbestos containing material
- Radon
- Mercury
- Lead-based paint
- Wetlands
- Regulatory compliance
- Cultural and historic resources
- Health and safety
- Ecological resources
- Endangered species
- High voltage power lines
- Site flooding
- Physical properties of the soils and bedrock for site grading or foundation considerations

Testing and/or sampling of material(s) was not completed (for example: soil, water, air, PCBs, lead, radon). There was no comprehensive investigation completed to study local geologic or hydrogeological conditions which influence the distance hazardous substances or petroleum products are likely to migrate.

Assessment Limitations

No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this practice is

intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property, and this practice recognizes reasonable limits of time and cost.

This report is based on the procedures described in the ASTM Practice E 1527-13, available literature cited in this report, conditions present at the time of our investigation, and our interpretation of the information obtained as part of this investigation. Information provided in this report is limited to the accuracy and completeness of the information obtained from others. ISG used the degree of care, diligence, and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same locality. No other warranty is made or intended. No intentional deviations from the ASTM Practice E 1527-13 were made in the completion of this Phase I ESA.

This Phase I ESA was limited by the following:

- Sanborn fire insurance maps were not available for the subject property.
- There was no on-site investigation to test and/or sample material(s) (e.g. soil, water, air, PCBs, lead, radon).
- There was no comprehensive investigation completed to study local geologic or hydrogeological conditions which influence the distance hazardous substances or petroleum products are likely to migrate.

None of these limitations appear to present data gaps as there is sufficient other data from overlapping time periods to adequately characterize the land use of the subject property. The level of inquiry and the appropriate level of environmental site assessment is guided by the type of property subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry.

User Reliance

This Phase I Environmental Site Assessment has been prepared for the exclusive use of the following:

APPRO Development
2147 Grenada Avenue
Lakeville, MN 55044

SITE DESCRIPTION

Location and Legal Description

The site is approximately 245 acres in size and is located at 10946-10998 260th Street East in New Market Township. The property is located in Sections 23 and 26, Township 113 North, Range 21 West and is legally described as parts of the southeast ¼ of section 23 and the north half of the northwest ¼ of section 26 in New Market Township, Scott County, State of Minnesota.

Current Site Land Use

The site currently consists of a rural residence, agricultural fields, wooded areas, pastures, a flea market, and a trailer dealership. The topography of the property is rolling with hills and the site elevation ranges from approximately 1,134 to 1,058 feet above sea level. Surface water appears to generally flow to the north edge of the property.

Current Vicinity Land Use

Land use directly surrounding the subject property is residential, commercial/industrial, and farmed agriculture. Bordering the subject property to the east is Interstate Highway 35, to the south are

agricultural fields, to the west are agricultural fields and industrial buildings, and to the north are wooded areas and agricultural fields.

USER PROVIDED INFORMATION

If the user of the property is aware of any specialized knowledge or experience that is material to recognized environmental conditions in connection with the property, it is the user's responsibility to communicate any information based on such specialized knowledge or experience to the environmental professional.

David Adelmann (user) indicated in a user questionnaire that he was aware that there was previously a gas station on-site, which had tank removal and cleanup. He was unaware of any other environmental cleanup liens, land use limitations, chemical releases or spills, contamination on-site, or any other possible environmental concerns in connection with the subject property. A copy of the user questionnaire is attached in Appendix E.

RECORDS REVIEW

The site records review of the property was assembled through a search of federal regulatory information, research of government records and a review of area maps. This information was obtained from Historical Information Gatherers, Inc. (HIG). A description of records searched and results are attached in Appendix D. A summary of the results is provided below.

Regulatory Records Review

HIG's radius database search identified 8 notable sites within a ½ mile radius of the subject property.

Table 1. Sites listed within the regulatory radius search

Site Name	Address	Database
Twin Cities Featherlite Trailer Sales/Countryside Auto/Maynards Auto Service/Richfield Plumbing	10881 E 260th St	ECHOR05[2], FRSMN[4], HWGS[5], LUAST[6], PCASPILLS[8], RCRANGR05[10], UAST[13], WIMN[14]
Robert Adelmann Farm	10880 E 260th St	CAFO[1], FEEDLOT[3], FRSMN[4], WIMN[14]
ShopSabre	26151 Newton Cir	HWGS[5], WIMN[14]
Dakota Blacktopping	26105 Newton Cir	HWGS[5], RCRAGR05[9], WIMN[14]
Bodywerks/ Eagle Creek Auto Repair	26106 Newton Cir	RCRAGR05[9], WIMN[14]
Niemeyers Trailer Sales	10405 E 260th St	WIMN[9]
Elko Dump		REMSITES[11], SAS[12], WIMN[14]
Ray Deutsch Farm	25421 Xerxes Ave	CAFO[1], WIMN[14]

[1]CAFO: Concentrated Animal Feeding Operations
[2]ECHOR05: Enforcement and Compliance History Information
[3]FEEDLOT: Feedlots
[4]FRSMN: Facility Registry System
[5]HWGS: Hazardous Waste Generator Sites
[6]LUAST: Registered Leaking Storage Tanks
[7]LUAST2016: Registered Leaking Storage Tanks Prior to April 2016
[8]PCASPILLS: Spills Listing
[9]RCRAGR05: Resource Conservation & Recovery Act- Generator Facilities
[10]RCRANGR05: Resource Conservation & Recovery Act- Non-Generator Facilities
[11]REMSITES: MPCA Remediation Sites
[12]SAS: State Assessment Sites
[13]UAST: Registered Storage Tanks
[14]WIMN: What's In My Neighborhood

Two (2) of the eight (8) notable sites were located within the project area. The first site was identified as Twin Cities Featherlite Trailer Sales (formerly Countryside Auto, Maynards Auto Service, and Richfield Plumbing). The current Twin Cities Featherlite Trailer Sales was listed in the Facility Registry System (FRSMN), Hazardous Waste Generator Sites (HWGS), and Spills (PCASPILLS) database. The FRSMN listing was for automobiles and other motor vehicles. The site was listed on the MPCAs website for having an Active Hazardous Waste-Minimal quantity generator license for automobile and other motor vehicle merchant wholesalers and general automotive repair. The site was also listed for a PCASPILLS which was reported on May 29, 2015 with a status of closed or completed. In addition, former records located on this site included Enforcement and Compliance History Information (ECHOR05), FRSMN, Registered Leaking Storage Tanks (LUAST), PCASPILLS, Resource Conservation & Recovery Act-Non-Generator Facilities (RCRANGR05), and Registered Storage Tanks (UAST). The ECHOR05 listing showed the site to be in compliance. The LUAST was a release of gasoline, which was reported on October 20, 1989, with a site closure date of February 16, 1990. The PCASPILLS was reported on January 1, 1996, with a status of closed or completed. The RCRANGR05 listed at the site was for the following Hazardous Wastes: ignitable and corrosive waste, mercury, and multiple spent halogenated solvents. Four (4) UASTs containing gasoline, fuel oil, used or waste oil have been reported as removed from the site on June 1, 1989.

The next site within the project area was located at the Robert Adelmann Farm. The site is listed for Concentrated Animal Feeding Operations (CAFO), Feedlots (FEEDLOT), and FRSMN. The CAFO and FEEDLOT databases reported the primary type of animal at this Active Feedlot to be beef cattle.

The next nearest site was located at ShopSabre, 0.045 miles west of the subject property with a higher elevation. The site was listed an Active HWGS for general automotive repair. Considering the site had no spills, leaks or violations reported, it seems unlikely to cause an environmental concern for the subject property.

The next nearest site was located at Dakota Blacktopping, 0.055 miles west of the subject property with a higher elevation. The site was listed as having an Active Hazardous Waste-Very small quantity generator license and a Resource Conservation & Recovery Act- Generator Facilities (RCRAGR05) database listing for ignitable and corrosive waste, mercury, and multiple spent nonhalogenated solvents. Considering the site had no spills, leaks or incidences reported, it seems unlikely to cause an environmental concern for the subject property.

The next site was located at BodyWerks/Eagle Creek Auto Repair, 0.103 miles west of the subject property with a higher elevation. The site was listed as a RCRAGR05 for lead, mercury, and multiple spent nonhalogenated solvents. Considering the site had no spills, leaks or violations reported, it seems unlikely to cause an environmental concern for the subject property.

The next site was located at Niemeyers Trailer Sales, 0.167 miles south of the subject property, with a higher elevation. The site was listed as having an Active Hazardous Waste-Very small quantity generator license for motorcycle, ATV, and all other motor vehicle dealers and general automotive repair. Considering the site had no spills, leaks or violations reported, it seems unlikely to cause an environmental concern for the subject property.

The next site was located at the Elko Dump, 0.191 miles south southwest of the subject property, with a higher elevation. The site was listed in MPCA Remediation Sites (REMSITES) and State Assessment Sites (SAS) database for being an unpermitted dump site with a status of closed. The SAS was received on January 1, 1987 and given a site closure date of April 20, 1998. Considering the distance from the subject property and the REMSITES and the SAS have been given regulatory site closures, they seem unlikely to cause an environmental concern for the subject property.

The final site was located at the Ray Deutsch Farm, 0.196 miles west northwest of the subject property with a higher elevation. The site was listed as a CAFO site with a primary animal type of dairy cattle >1,000 lbs.

Physical Setting Sources

A current USGS 7.5 minute topographic map showing the area where the property is located was reviewed for information of above or below ground utilities, information about geologic, hydrogeologic, hydrologic and general topographic physical settings. A topographic map is attached in Appendix A. Multiple structures were observed on the property, which is in concurrence with the aerial photographs. The property elevation ranged from approximately 1,058 to 1,134 feet above sea level. Surface water appears to generally flow to the north edge of the property. The subject property is located within the Vermillion River minor watershed and the Mississippi River and Lake Pepin major watershed.

The soils on the property are mapped as Blue Earth mucky silt loam, Estherville-Burnsville complex, Glencoe silty clay loam, Hayden loam, Houghton muck, Klossner muck, and Webster-Glencoe silty clay loams. Blue Earth mucky silt loam, Glencoe silty clay loam, Houghton muck, and Klossner muck are very poorly drained soils. Webster-Glencoe silty clay loams are poorly drained soils. Estherville-Burnsville complex are somewhat excessively drained soils. Hayden loam soils are well drained.

Property Land Use Review

Legal documents and historical resources were examined to determine if past land use has created an impact on the environment which may lead to a REC. Aerial photographs, topographic maps, city directories, and title records were reviewed (see Appendix C). Historical information helps to understand the past land use and identify recognized environmental conditions in connection with the property. Sanborn fire insurance maps were not available for the subject property.

Historical aerial photographs of the property and surrounding area were reviewed to identify visual changes and past uses of the property. Aerial photographs were available through HIG for the years 1937, 1940, 1951, 1957, 1964, 1970, 1980, 1991, 1997, 2000, 2002, 2008, 2013, and 2015. The project site was evident in all of the photographs. From at least 1937 through 1964 the subject property appeared to be used as pasture land and/or cultivated for agriculture, with two (2) rural residences north of and one (1) rural residence south of 260th Street East. In 1970 the aerial showed the addition of a new site south of 260th Street East. In 1991 the aerial showed the addition of new and larger structures at the site of the southern rural residence. In 2000 the aerial showed the expansion of the lot south of 260th Street East. In 2002 the aerial showed the removal of the rural residence to the northwest of 260th Street East. There was also a site north of 260th Street East and west of the rural residences that was visible in the 1970 through 2002 aerials. No major changes to the subject property were apparent from 2002 through the 2015 aerial photographs.

Historical topographic maps of the property and surrounding area from 1957, 1974, 2013, and 2016 were also reviewed to identify visual changes and past uses of the property. The subject property was evident on all maps. The topographic maps from 1957 and 1974 appeared consistent with what was shown in the historical aerial photographs and city directories. Although the 2013 and 2016 topographic maps do not show individual structures, these were assumed to be present based on current and historical photographs as well as the city directory listings.

City directories for 1982-83, 1987-88, 1992-93, 1997-98, 2002, 2007, and 2012 were reviewed for past uses of the property. Listings for Robert R. Adelmann and Traders Market at the subject property address were found in the 1987-88 through 2012 directories. Twin Cities Featherlite Trailer Sale was found in the 2002-2012 directories as well.

An environmental lien search was completed to identify environmental liens and/or activity and use limitations in connection with the subject property. According to the Scott County Recorder, the title to

the property was vested in Adelmann Farms New Market LLC. Environmental liens or other activity and use limitations were not found in connection with the subject property. A copy of the deed associated with the subject property is included in Appendix C.

Vicinity Land Use Review

The historical information gathered from historical aerial photographs, city directory listings, and topographic maps suggests the area directly surrounding the subject property has been used primarily for agricultural purposes since 1937 with many naturally vegetated areas. I-35, to the east of the subject property, was first visible in the 1964 aerial photograph. Development to the west of the subject property and south of 260th Street East was first visible in the 1991 aerial and continued to slowly increase through 2008. No major changes to the surrounding area were visible from 2008 through 2015.

Topographic maps appeared consistent with the aerial photographs, showing undeveloped areas and rural residences in 1957 and 1974. Although the 2013 and 2016 topographic maps do not show individual structures, these were assumed to be present based on current and historical photographs as well as the city directory listings.

The city directory supports what was visible in the historical aerial photographs and topographic maps, listing Neimeyer Trailer Sales, End Zone Bar & Grill and other related listings in the vicinity of the subject property.

SITE RECONNAISSANCE AND INTERVIEWS

The site reconnaissance of the subject property was assembled through observations and an interview with the site manager and a city official. The objective was to obtain information identifying recognized environmental conditions in connection with the property.

Observations

A thorough observation was conducted for evidence of environmental concerns on the subject property. The site visit was conducted on June 13, 2017 and was re-visited and assessed on April 27, 2018. Pictures from both site visits can be found in Appendix B of this report.

The table below indicates if any of the following potential recognized environmental conditions were observed during the site reconnaissance. Refer to Figure 5 in Appendix A for a map of the site with corresponding observations.

Table 2. Site Reconnaissance Observations

Interior & Exterior Investigation	Observed	Not Observed	Note/Comment
Hazardous Substances or Containers		✓	
Petroleum Products	✓		
Aboveground Storage Tank(s)	✓		
Underground Storage Tank(s) (vent/fill pipes or access ways)	✓		
Odors	✓		
Solid Waste Disposal	✓		
Pools of Liquid		✓	
Stained Soil or Pavement	✓		
Stressed Vegetation		✓	
Pits, Ponds or Lagoons	✓		

Interior & Exterior Investigation	Observed	Not Observed	Note/Comment
Wells	✓		
Septic System		✓	
Waste Water or Storm Water		✓	
Drums (5 to 55 gallon)	✓		
Unidentified Substance Containers		✓	
PCBs (electrical or hydraulic)		✓	
Drains and waste traps/sumps		✓	
Stains/Corrosion	✓		
Heating/Cooling	✓		

Exterior Observations

The project area is separated into two areas by 260th Street East. The first area is on the north side of 260th Street East. The area is a farmstead with surrounding agricultural fields, pasture, wetlands, and forest. Site observations were conducted around the entire site. The farmstead area contained one home, 12 outbuildings, and numerous piles of solid waste around the outbuildings. To the west of the western most outbuilding, a recently filled in pit was observed with solid waste protruding from the fresh soil. Continuing northwest, numerous piles of solid waste were observed along a field road throughout the pasture. The solid waste included, but was not limited to, old drums, scrap metal, porcelain toilets/sinks, concrete, old farm machinery, tires, and batteries.

A ravine near the northeast corner of the site was discovered with solid waste such as old appliances, drums, paint cans, pails of unidentified liquids, steel, and plastic. The ravine appeared to have been used as an unregistered dump for disposing of solid waste. This area has the potential to be an environmental concern considering the amount of unidentified substances.

Drums and inactive above ground gas and diesel storage tanks were observed around the exterior of numerous buildings. A majority of the containers were empty, but not every drum, tank, and pail was opened to view its contents. It is possible that some of the containers contain petroleum or hazardous products. Aside from the containers, solid waste such as tires, batteries, oil filters, scrap metal, and garbage was observed around the buildings.

One underground tank was observed near the southeast corner of the western outbuilding. It was unknown if the underground tank was still being used, or if it was empty and inactive.

The second area was located south of 260th Street East. This area consists of nine buildings, manicured lawn, parking lots, pasture, wetlands, and forested areas. The building to the east is currently a Featherlite Trailer sales dealership. Surrounding the exterior of the dealership building are one above ground 500 gallon diesel tank, numerous closed 55 gallon drums, scrap metal, and some other non-hazardous solid waste. A number of semi-trailers containing solid waste were noted south of the dealership building. No stains, odors, or stressed vegetation were observed around the waste.

The area to the west side of the Featherlite Trailer sales dealership was used as a seasonal farmers market. A majority of the buildings were empty at the time of the site review. Solid waste was identified within some forested areas. The solid waste consisted of old wagons, scrap metal, cement, and other miscellaneous solid waste.

Interior Observations

Interior observations on the north side of 260th Street East were made in the 12 exterior outbuildings, but the home was locked at the time of the site review, and access was not made. All of the exterior buildings contained some type of materials, solid waste, tools, vehicles, etc. The largest building located in the northwest corner of the farmstead contained numerous petroleum products throughout the building. Some had been spilt or tipped over and caused staining and odors. Pails, cans, and small drums were observed, some of which were not properly sealed. The outbuildings located west of the house also contained petroleum products. During the time of the site review, floor staining and odors were observed within the garage/shop areas. All of these observations appear to be environmental concerns for the subject property.

The remainder of the outbuildings contained solid waste, vehicles, hay bales, metals, wood, and other non-hazardous materials.

Interior observations south of 260th Street East were made in the Featherlite office building. The building contained office space, a showroom, bathrooms, and a utility room. No environmental concerns were observed within the building.

The buildings west of the office were locked, making interior observations unable to be completed. The interiors of the outbuildings were viewed through windows, and appeared to be empty. The buildings are used for weekend farmer's market space. An old house exists near the outbuildings, but was locked and unable to be accessed. The house was abandoned and appeared to be mostly empty from what could be observed through the windows.

General Site Setting

The subject property was located in an agricultural and commercial setting west of Highway I-35 and north/south of 260th Street East. The properties had multiple uses such as pasture for cattle, agricultural row crops, hay fields, natural grassland, wetlands, forests, and commercial/public uses closer to the public roads.

Limited observations were also made of the surrounding properties without gaining access to the properties or interior structures. No environmental concerns were observed on adjacent properties from the view of the subject property and right-of-way during the site visit. There was no evidence of any pools of liquids, spills, stains, or odors on the neighboring properties.

ISG is not able to represent that the site or adjoining land contains no hazardous waste, oil, or other latent conditions beyond that detected or observed by this company during this assessment. The possibility always exists for contaminants to migrate through surface water, air and/or groundwater. The ability to accurately address the environmental risk associated with transport in these media is beyond the scope of this investigation.

Interviews

Renne Christianson, Community Development Specialist, City of Elko New Market
Renne Christianson was interviewed on May 14, 2018 and stated that the first site, to the north of County Road 2, was used for agricultural production. The second site, to the south of County Road 2, was used for trailer sales, agricultural use, and as an occasional Flea Market. She was aware of a possible concern regarding a non-compliant septic system at the trailer sales facility and referred ISG to the Scott County Environmental Health Department for any additional information. She was unaware of any above or underground storage tanks with petroleum or any other hazardous material on the subject property. In addition, Ms. Christianson had no knowledge of environmental concerns in the surrounding area and again referred ISG to the Scott County Environmental Health Department for possible concerns regarding the industrial properties located to the west of the site (Newton Circle area).

Peter Schmitt, Environmental Services, Scott County
Peter Schmitt was interview on May 16, 2018 and stated that the first site, to the north of County Road 2, appeared to be used for agricultural purposes as a family farmstead. The second site, to the south of County Road 2, is a trailer sales lot and a Flea Market. He was aware of a petroleum tank release with a site closure date of August 7, 1990, a recommendation from Scott County Environmental Services to remove soils contaminated with Diesel Range Organics (DRO) on July 15, 2015, a notice of violation from the Scott County Community Services Division Environmental Health & Inspections Department for sewage discharge from a sewage treatment system and from a holding tank, and soil sample results from April 27, 2015 (See Appendix D). The aforementioned issues from 2015 were resolved to the county's satisfaction, including work on the septic system. He was unaware of any above or underground storage tanks with petroleum or any other hazardous material on the subject property. In addition, Mr. Schmitt had no knowledge of environmental concerns in the surrounding area.

CONCLUSION

ISG performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-13 for the Adelmann Family Farms site located in New Market Township, Minnesota. Any exceptions to, or deletions from this practice are described in the introduction of this report. The purpose of this Phase I ESA was to identify any RECs associated with the subject property.

Opinion and Additional Investigation

It appears that the liability, or potential liability, associated with the database results on nearby properties represent an environmental risk for the subject property based on their proximity to the subject property and history of petroleum contamination at nearby sites.

Based on the review of geographic/geologic information, aerial photography, historical data, governmental records, information provided by the user, interviews conducted, and the site evaluation, this assessment has revealed the following Historical REC (HREC) associated with the subject property:

- Former LUAST at the subject property with a release of gasoline. This was remediated to the satisfaction of the regulatory agencies and the site was issued a regulatory site closure.

A full walk through was completed around the interior and exterior of the subject property with several environmental hazards observed (refer to Figure 5 in Appendix A). Based on the site evaluation, this assessment has revealed no RECs in connection with the property other than the following:

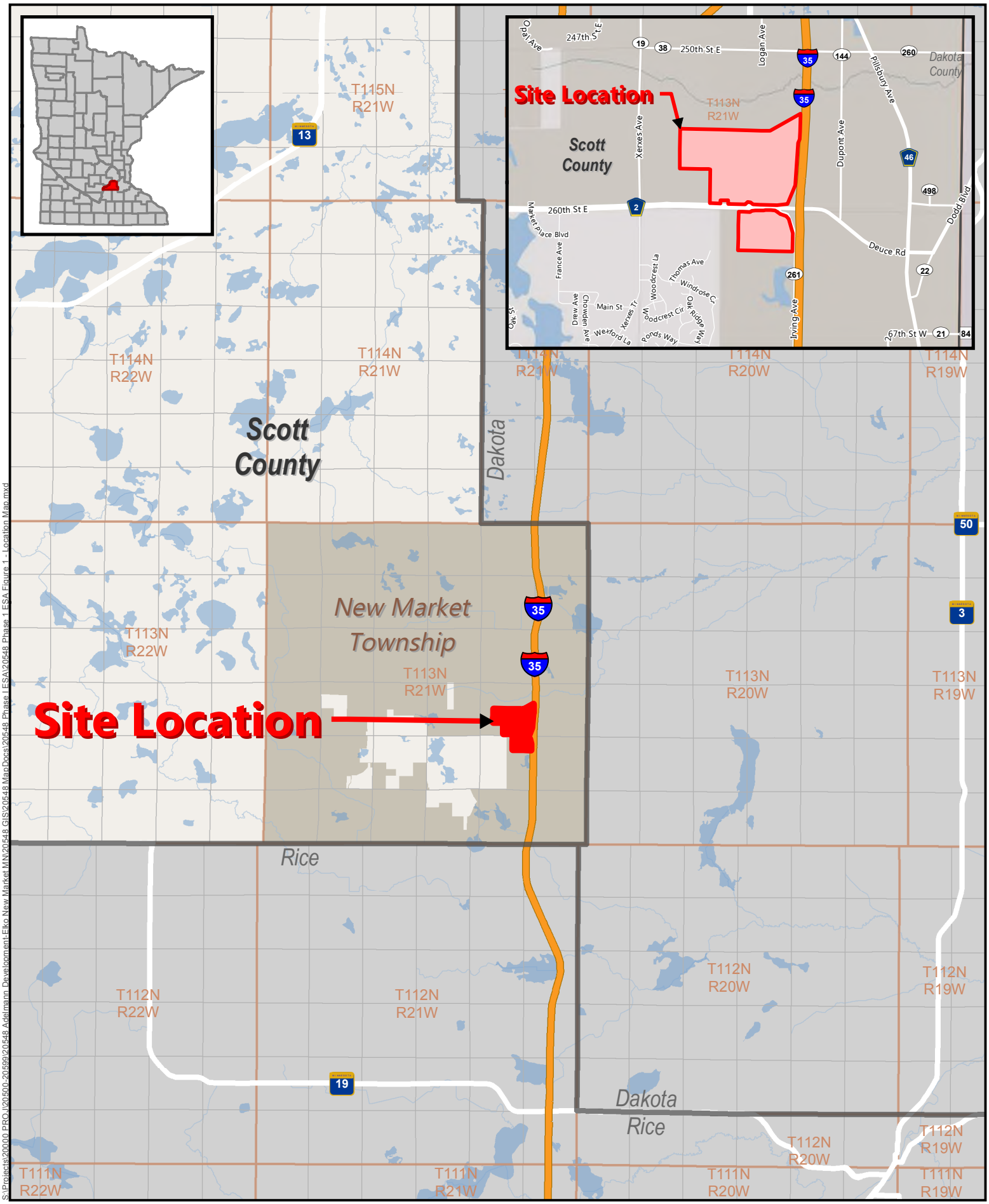
- Several areas of solid waste, hazardous materials, and 55 gallon drums throughout the subject property.
- Unregistered UST, ASTs, and other petroleum and hazardous liquid containers in several areas of the site.

ISG is not able to represent that the site or adjoining land contains no hazardous waste, oil, or other latent conditions beyond that detected or observed by this company during this assessment. If future development or land disturbing activities are planned, further investigation may be warranted in order to document the presence or absence of contamination at the subject property and/or whether contamination levels could be above thresholds that might require reporting to the applicable agencies or regulated handling and/or disposal.

REFERENCES

American Standards and Testing Material Practice 1527-13: Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

Appendix A: Maps



S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 Phase I ESA\20548 Phase 1 ESA Figure 1 - Location Map.mxd

ISG

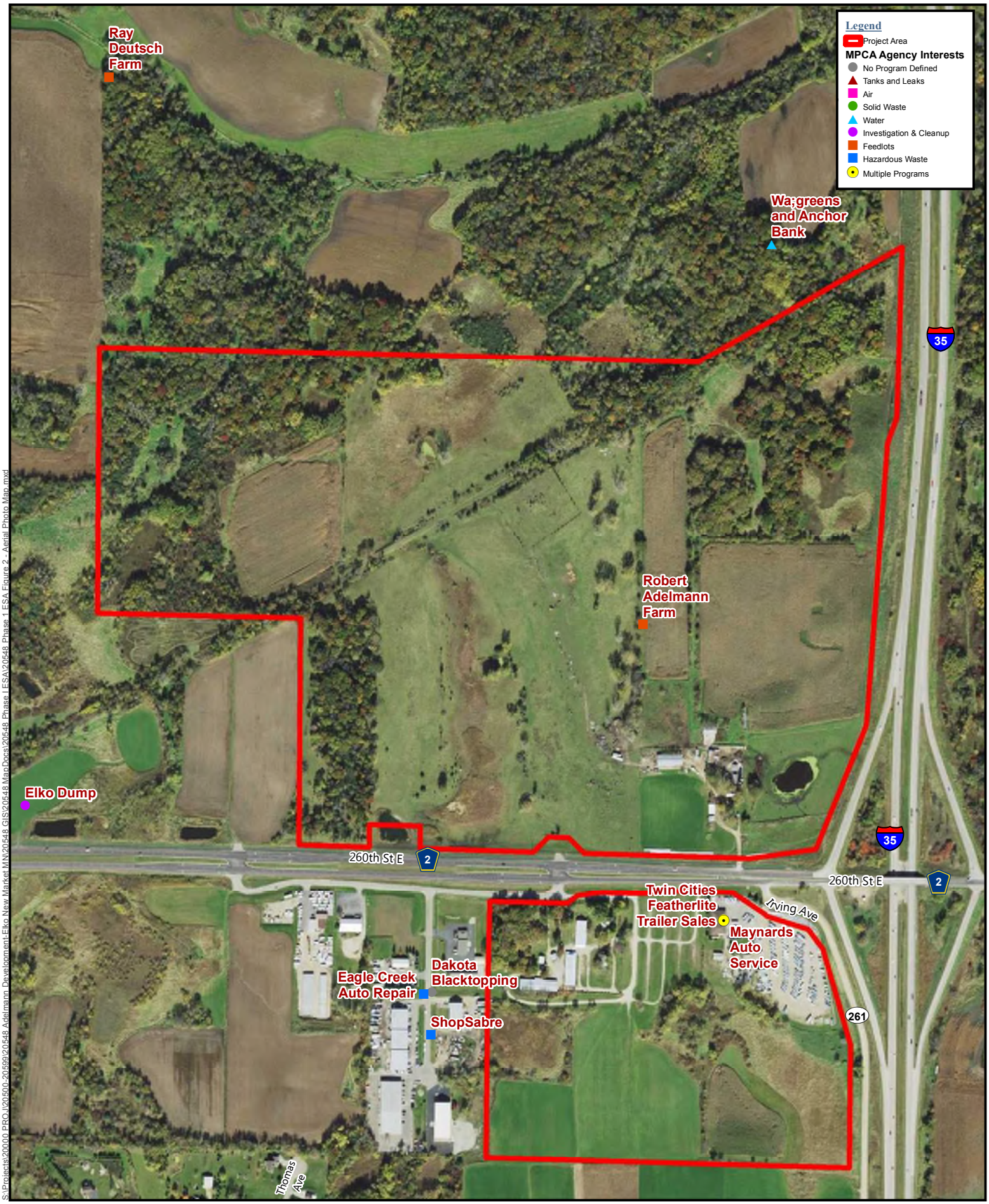
PN: 17-20548 **Source(s):**
Municipalities (MN DOT, 6/24/2016)
Lakes (MN DNR, July, 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)

N

0 3,000 6,000 12,000 Feet
1 inch = 12,000 feet

Wednesday, March 07, 2018

Figure 1
Project Location Map
Adelmann Family Properties
New Market Twp, Scott County, Minnesota



S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 Phase 1 ESA\20548 Phase 1 ESA Figure 2 - Aerial Photo Map.mxd

ISG

PN: 17-20548
Source(s): Orthophoto (USDA, NAIP, 2017))
Agency Interests (MPCA, 9/6/2016)

N

0 150 300 600 Feet
1 inch = 600 feet

Wednesday, March 07, 2018

Figure 2
Aerial Photograph Map
Addelman Family Properties
New Market Twp, Scott County, Minnesota

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 Phase 1 ESA Figure 3 - Soil Survey Map.mxd

ISG

PN: 17-20548

Source(s): Orthophoto (USDA, NAIP, 2017)
Soil Survey (USDA NRCS,2016)

N

0 137.5 275 550 Feet
1 inch = 550 feet

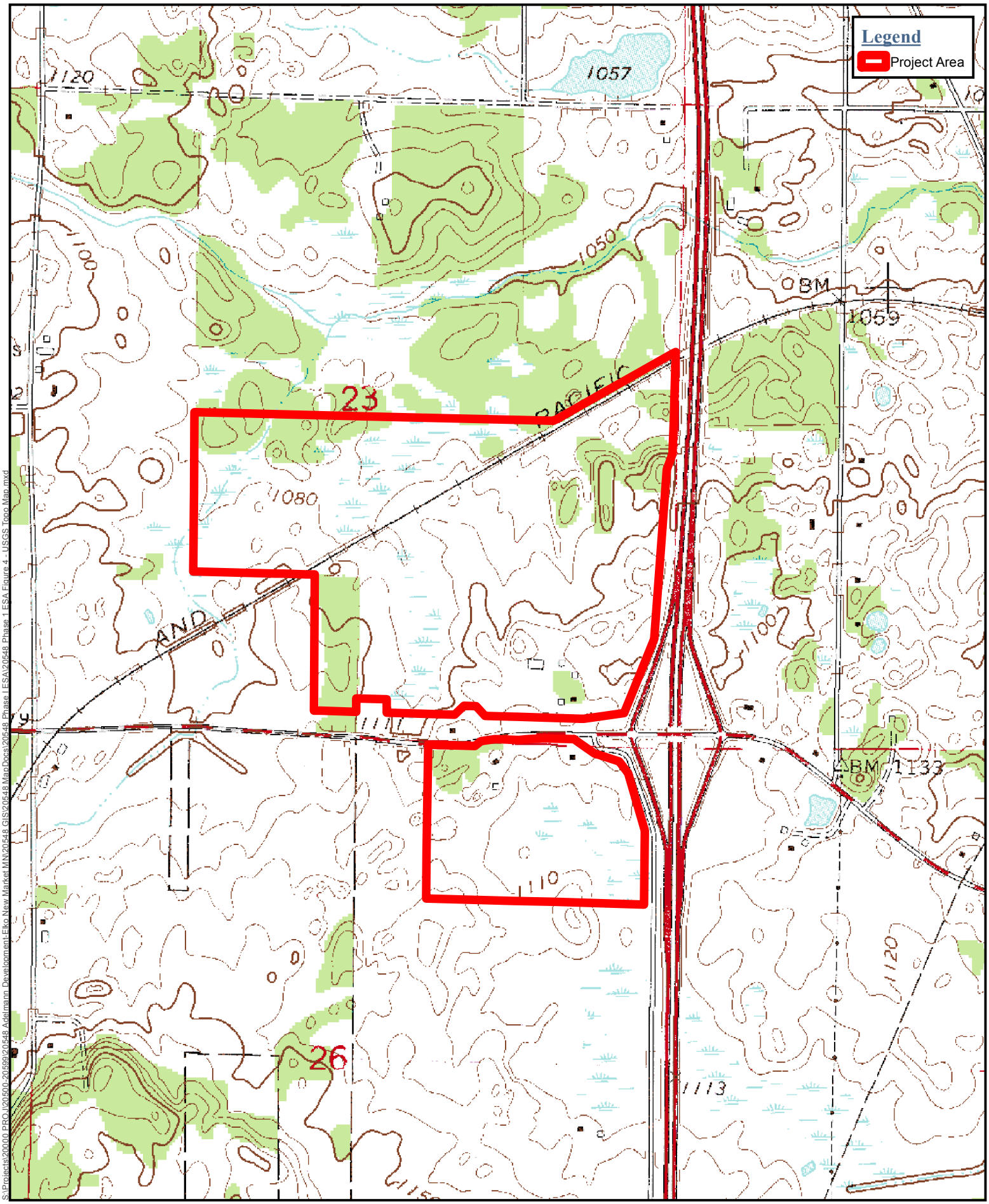
Monday, March 26, 2018

Figure 3

Scott County Soil Survey

Adelmann Family Properties

New Market Twp, Scott County, Minnesota



S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 Phase 1 ESA\20548 Phase 1 ESA Figure 4 - USGS Topo Map.mxd

ISG

PN: 17-20548
Source(s): 24k USGS Topo (MN State)

N

0 250 500 1,000 Feet
1 inch = 1,000 feet

Wednesday, March 07, 2018

Figure 4
USGS Topographic Map
Adelmann Family Properties
New Market Twp, Scott County, Minnesota

S:\Projects\20000 PROJ\20500-20599\20548 Adelmann Development-Elko New Market MN\20548 GIS\20548 MapDocs\20548 Phase 1 ESA\20548 Phase 1 ESA Figure 5 - Site Observations Map.mxd

ISG

PN: 17-20548
Source(s): Orthophoto (USDA, NAIP, 2017))

N

0 150 300 600 Feet
1 inch = 600 feet

Thursday, May 03, 2018

Figure 5
Site Observation Map
Addelman Family Properties
New Market Twp, Scott County, Minnesota

Appendix B: Photo Log

Photo 2- 2 old 55 gallon drums, that potentially contained hazardous waste.

Photo 3- old PVC piping and concrete piping, all solid waste.

Photo 4- Old grain bin tank and unidentified piece of scrap metal, solid waste.

Photo 5- Inactive combine with no signs of hazardous potential (oil leaks, gas leaks, etc.).

Photo 8-multiple old gas tanks in truck bed, potential hazard waste issues, surrounded by solid waste including scrap metal and other miscellaneous items.

Photo 9- scattered solid waste including tires and cinder blocks.

Photo 10- old 55 gallon drum surrounded by old farm equipment.

Photo 11-empty metal tank.

Photo 13-Wood pile with solid waste. Potential for items to be buried.

Photo 14- Recently filled pit with buried waste.

Photo 15- *Easy way cattle saver* in which tanks contain/contained insecticides. Possible hazardous waste due to ponding and possible leaking from tanks.

Photo 16- Machinery and miscellaneous farm equipment.

Photo 17- A 5 gallon bucket with engine oil located inside a small shed.

Photo 18- Pile of solid waste, no hazards identified.

Photo 20- Old diesel tank and 55 gallon drum with unidentifiable substances.

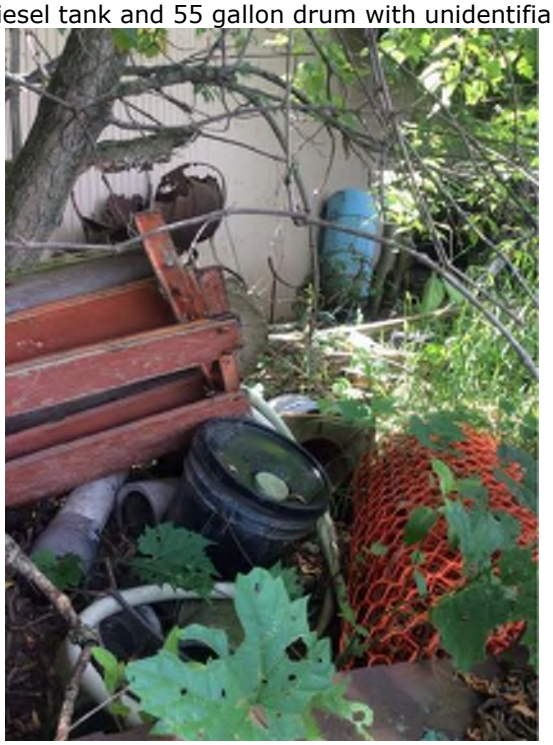


Photo 21- bucket of oil in a solid waste pile.

Photo 22-tubs containing miscellaneous items with a silvery surface on top of rain water in the tubs indicating presence of some type of contamination.

Photo 23-diesel tank, unknown if active.

Photo 24- above ground meter indicating an underground tank.

Photo 25- Area with multiple hazardous liquids. Some well contained others not secured.

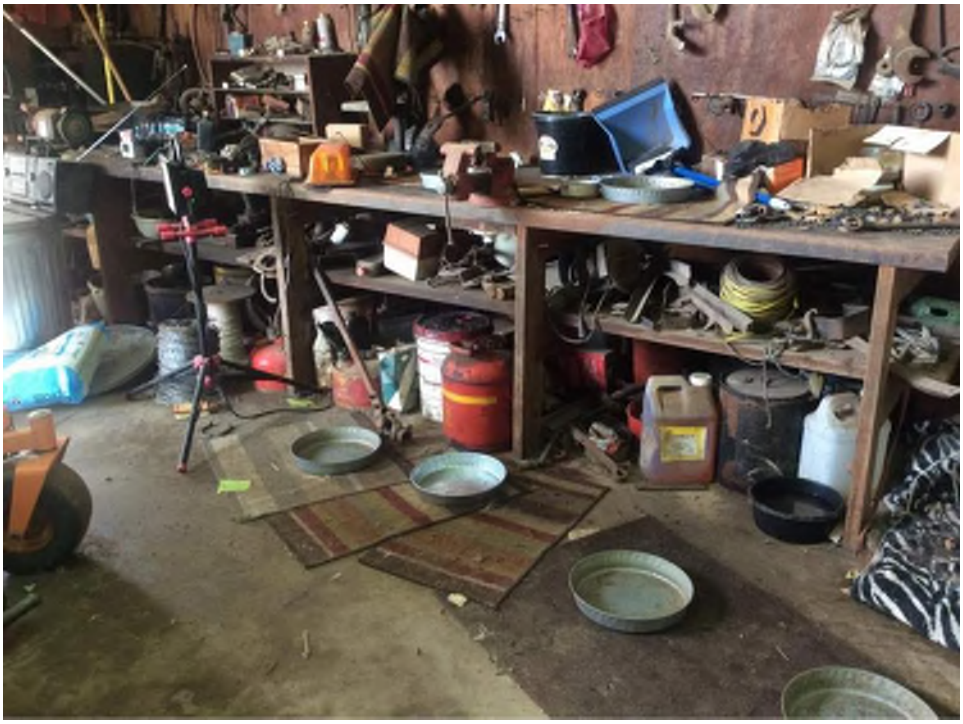


Photo 26- gas cans, oil jugs, and other types of miscellaneous possible hazardous liquids.

Photo 27- five gallon buckets containing grease for machinery lined up along the south shed.

Photo 28- photo of the floor showing multiple spills.

Photo 29- 40 gallon oil drums stored in shed, improper sealing.

Photo 32- Photo of old building in which used to be a livestock building, now used for storage.

Photo 34- one diesel (right) and one gas (left) inactive tanks.

Photo 36- Oil, gas, and grease containers in corner of garage. Spill indicators and improper storage are present on floor by 55 gallon drum of oil.

Photo 37- View of garage door with battery and solid waste sitting outside on concrete slab.

Photo 38- Image of house showing gas meter indicating the house uses gas utility.

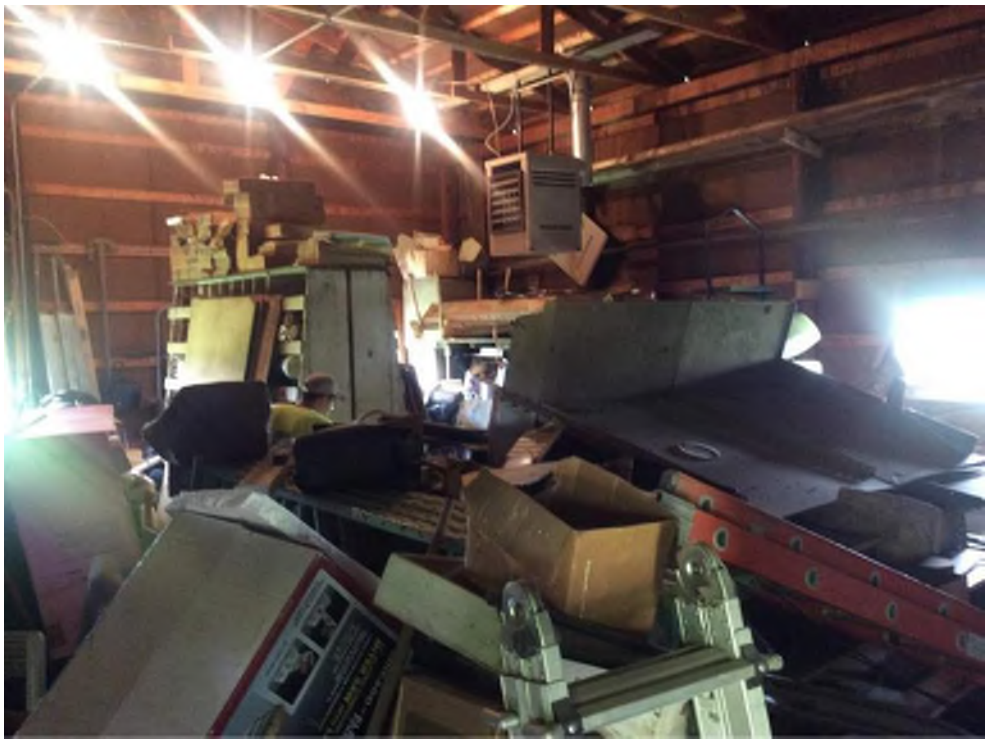


Photo 41- View of south shed and materials/solid waste.

Photo 42- facing north from the south side of the north half of the project area.

Photo 43- View of outbuildings south of 260th facing south.

Photo 44- Solid waste in forested area on west side of project area.

Photo 45- Wetland/hay field on south ag land, south of 260th.

Photo 46- Active 500 gal diesel tank adjacent to Featherlite building.

Photo 47- Semi-trailers with solid waste parked south of Featherlite parking area.

Photo 48- Old appliances on north side of property, north of 260th.

Photo 49- Solid and hazardous waste (drums, petroleum products, paints) in bottom of ravine.

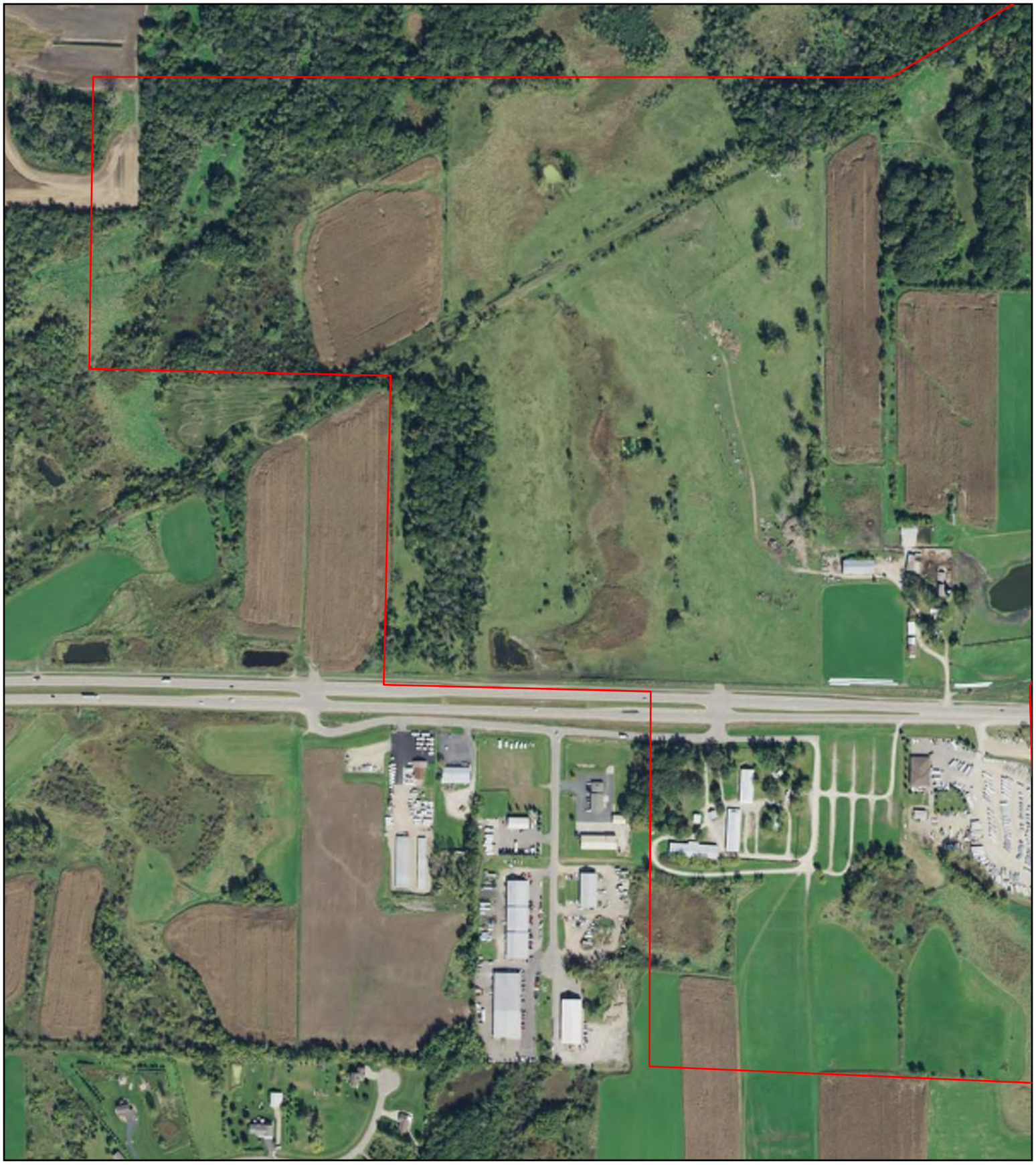
Photo 62- Freshly buried/graded area where waste pile was in June 2017 (pic 14).

Photo 65- Buried/graded area with trash sticking out facing south.

Photo 68- North side of northwest shed facing east.

Photo 70- Staining in northwest shed. Strong odors of petroleum products within building.

Appendix C: Historical Research Documentation



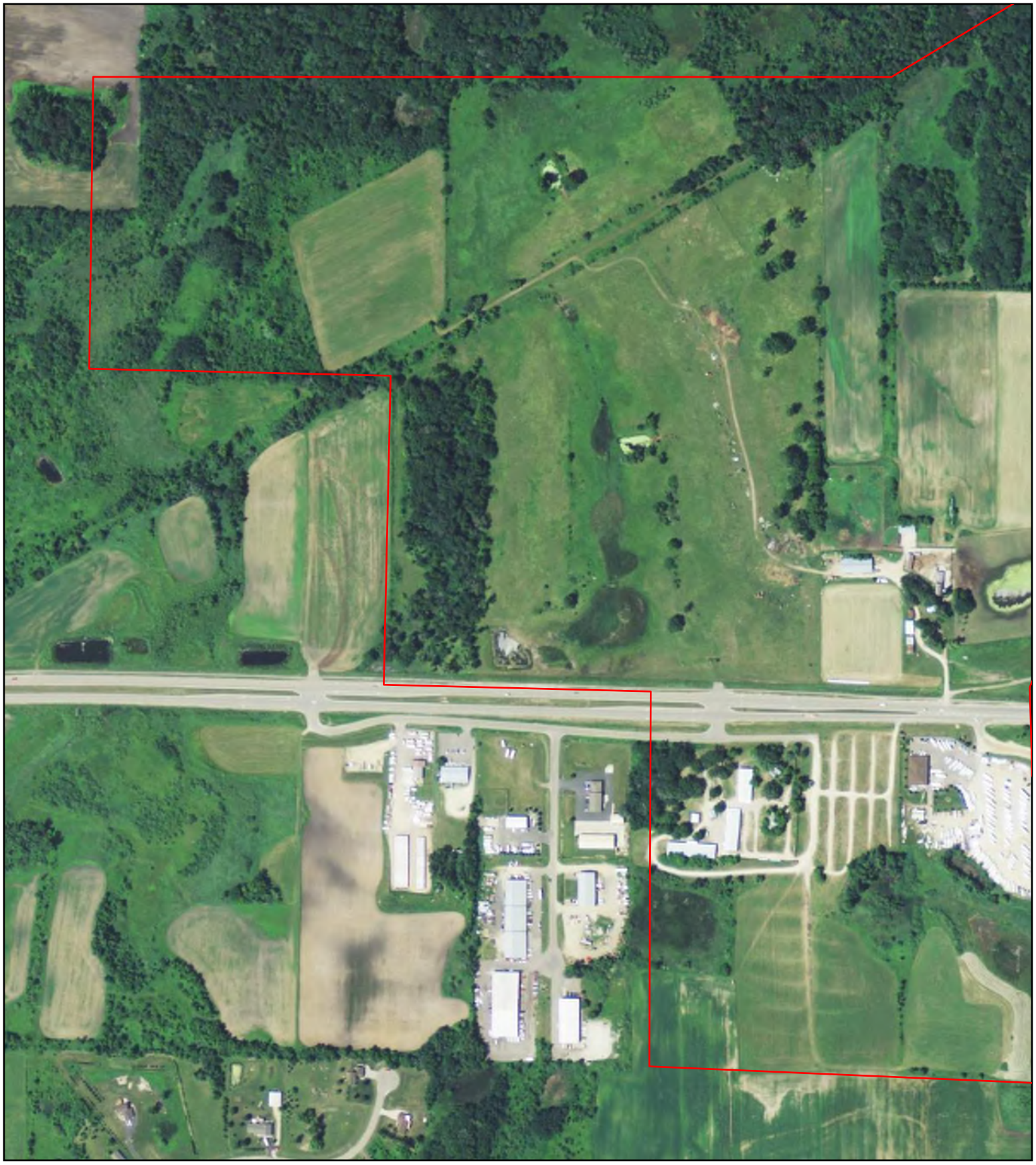
Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2015

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com



Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2013

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

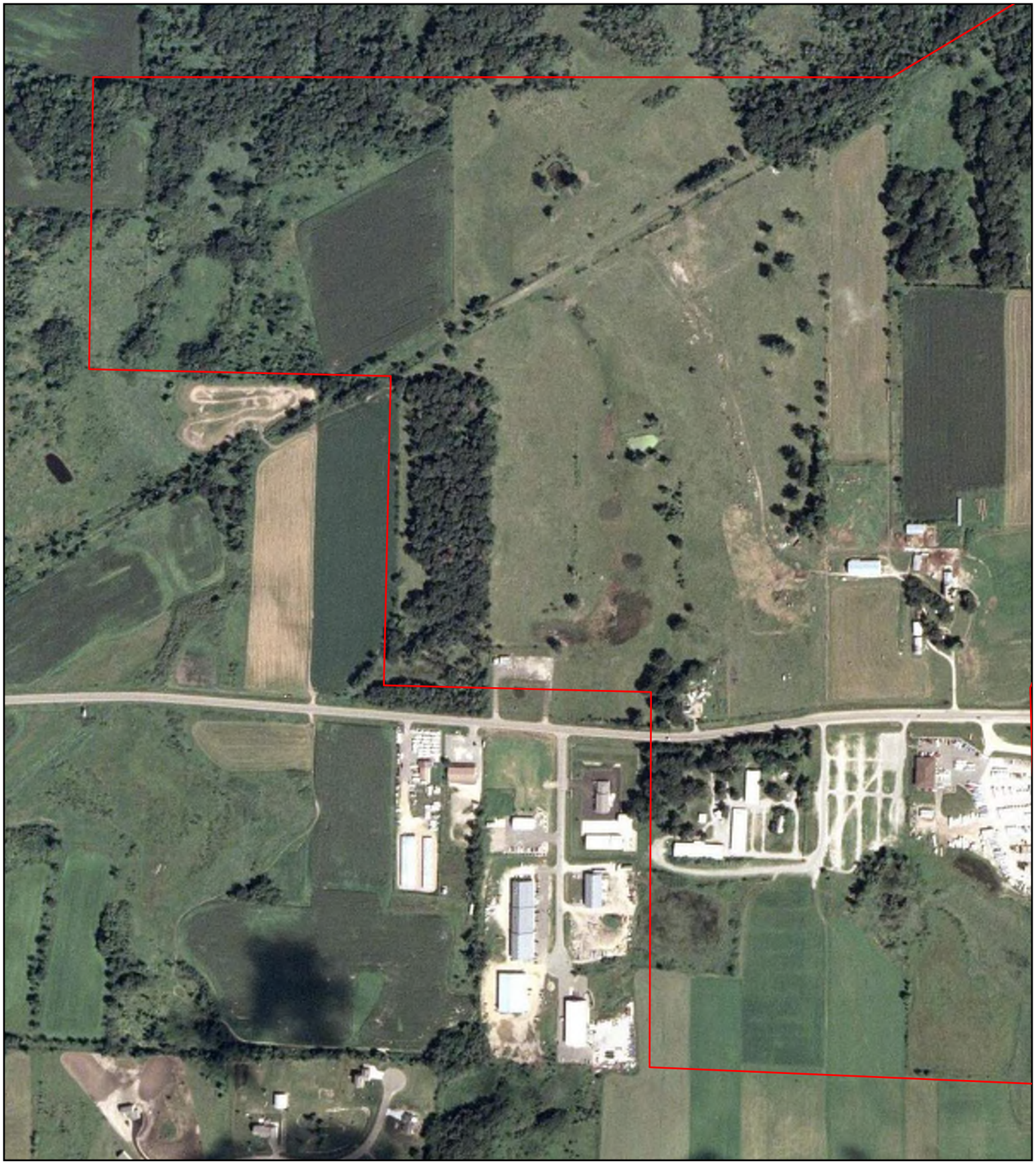
Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2008

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com



Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2002

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Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2000

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

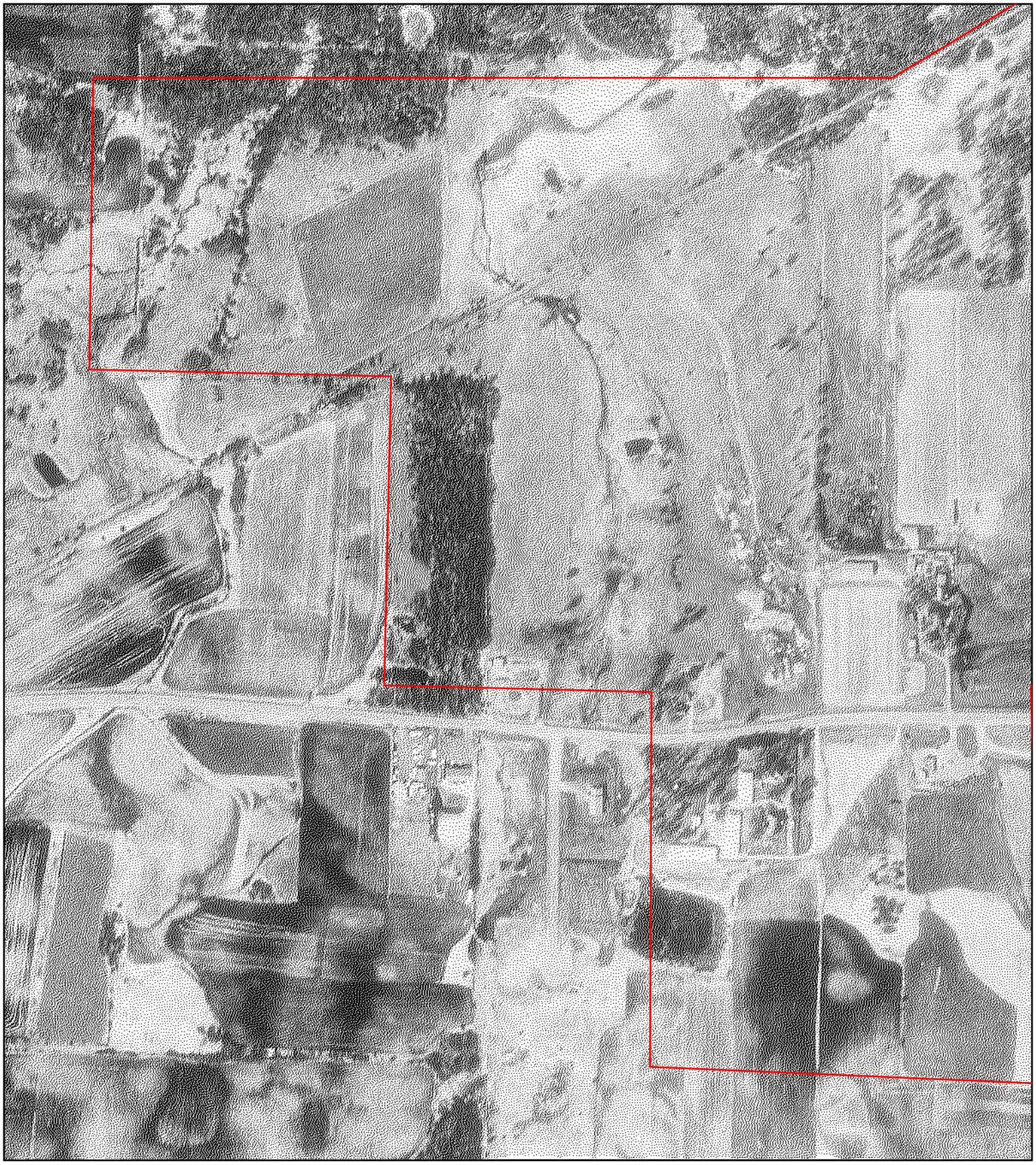
Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1997

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com



Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1991

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1980

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1970

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1964

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1957

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1951

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1940

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2015

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
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New Market Township, MN

N

2013

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New Market Township, MN

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New Market Township, MN

N

1991

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Client Project # 17-20548
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Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1980

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

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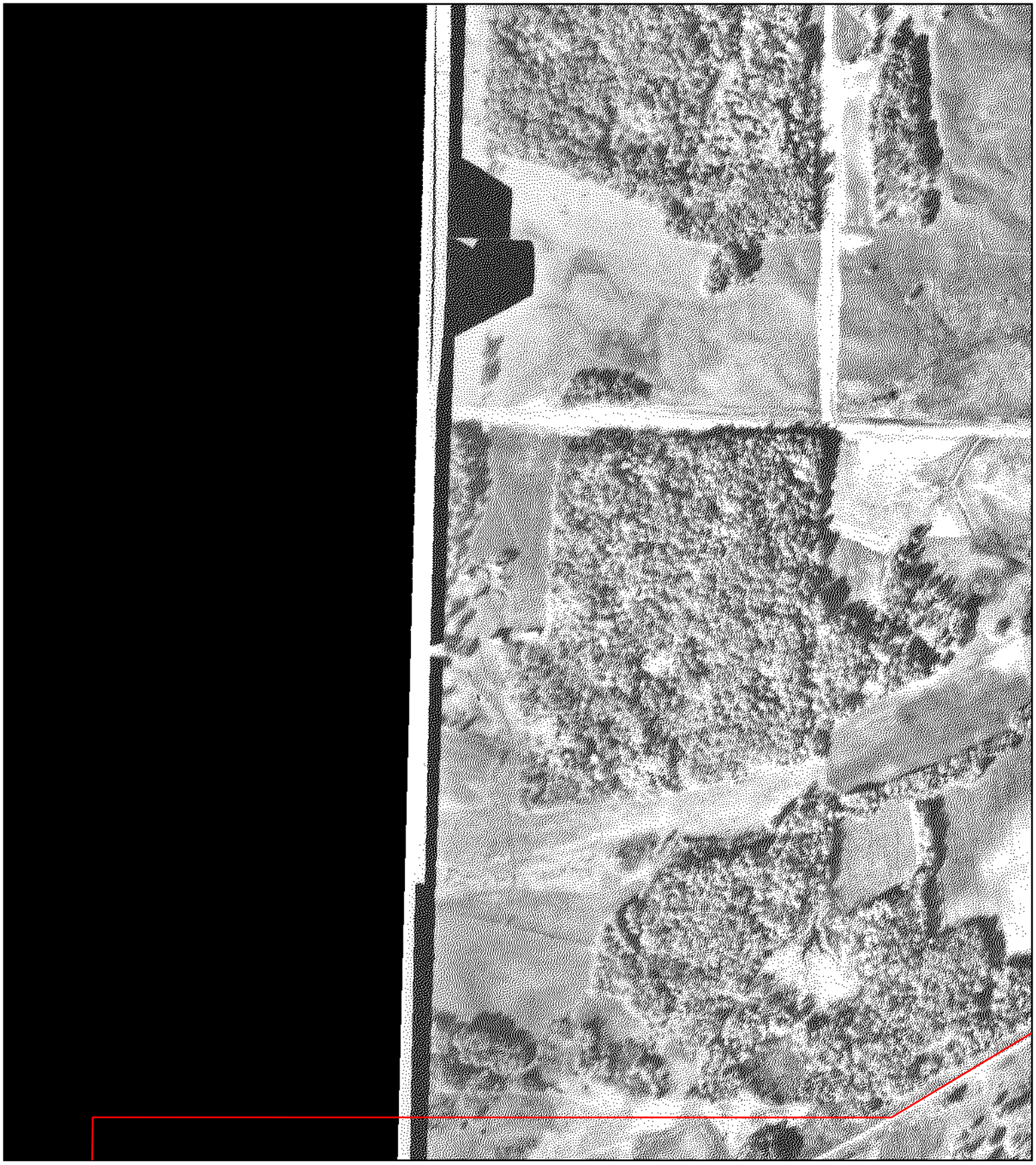
Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1970

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com



Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1964

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

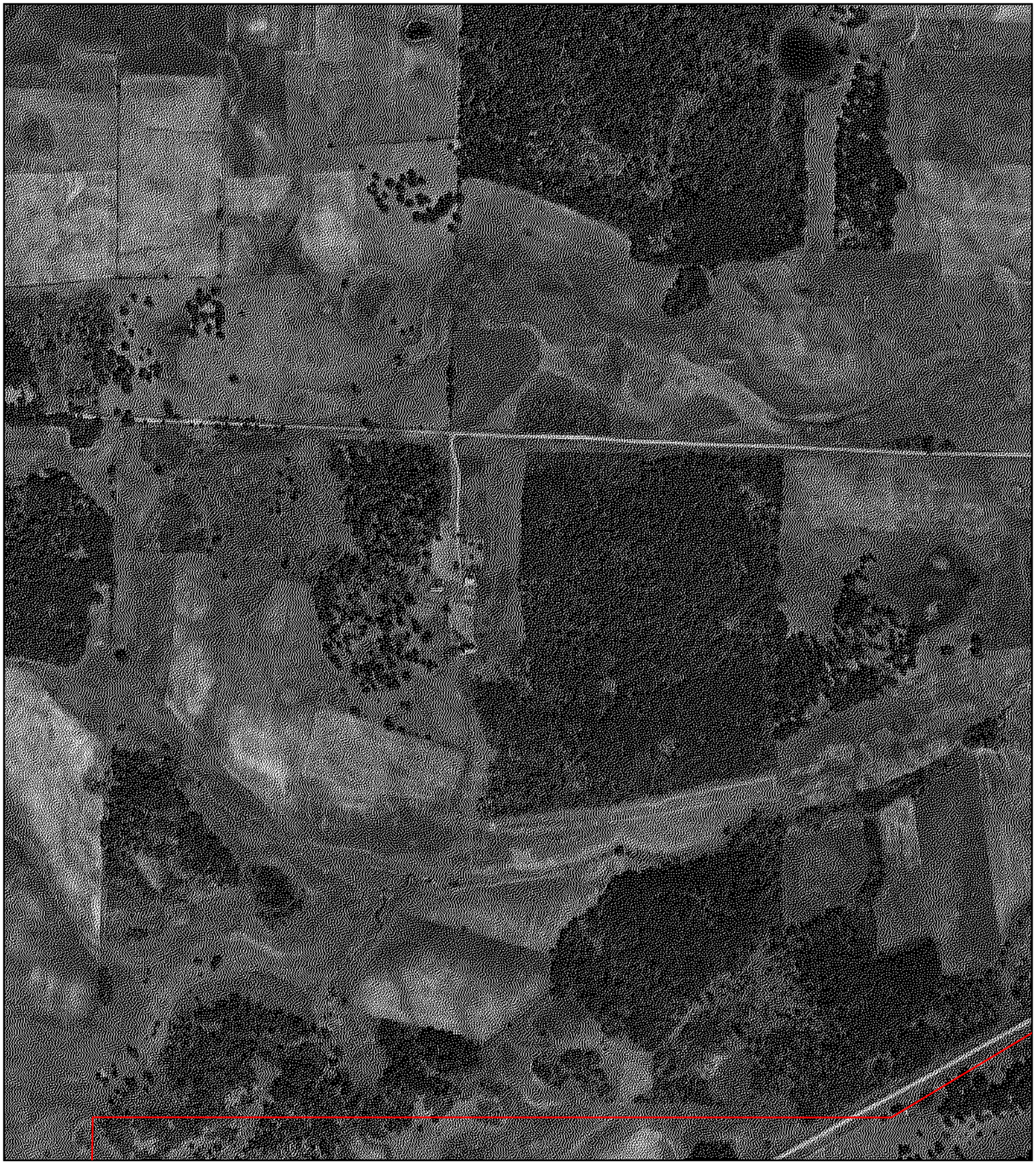
Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1957

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com



Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1951

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1940

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1937

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2015

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2013

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2008

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2002

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2000

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1997

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1991

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1980

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1970

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1964

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1957

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1951

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1940

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1937

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1937

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2015

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

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10946-10998 260th St East
New Market Township, MN

N

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Client Project # 17-20548
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Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

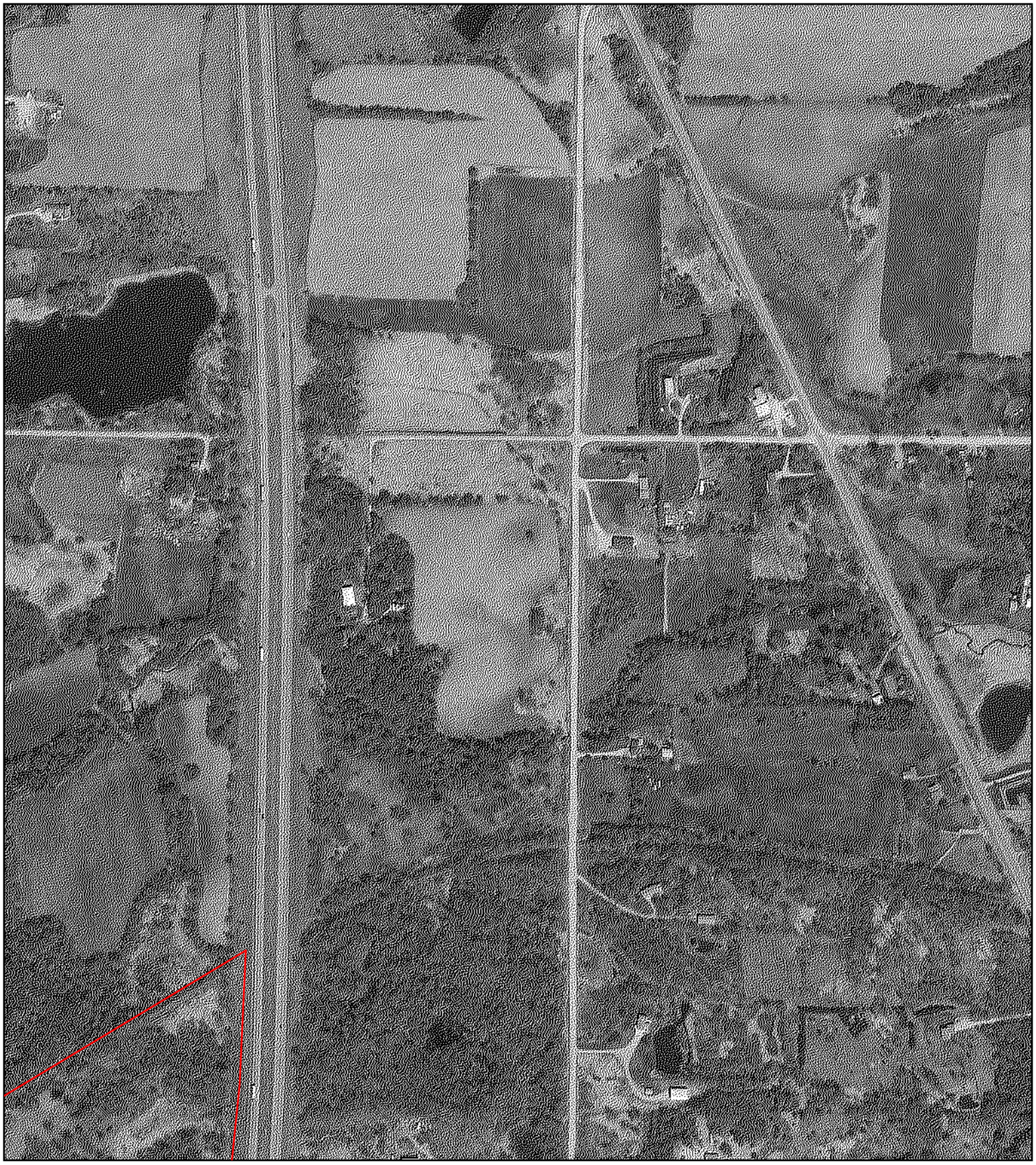
Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

2002

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com



Site boundaries shown in red are approximate

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10946-10998 260th St East
New Market Township, MN

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HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

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HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1991

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1980

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1970

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1964

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1957

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1951

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1940

HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com

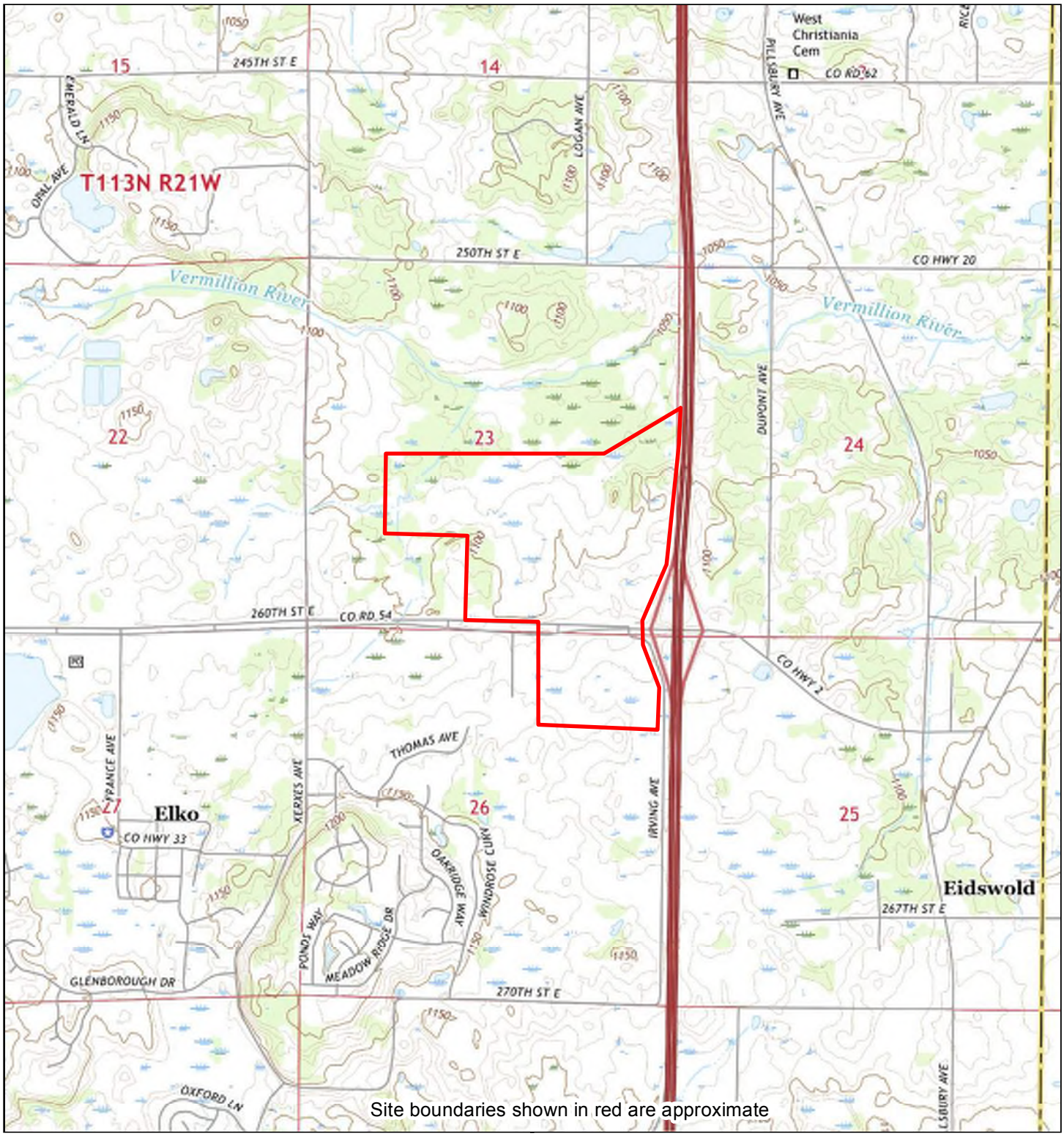
Site boundaries shown in red are approximate

Adelmann Family Farms
10946-10998 260th St East
New Market Township, MN

N

1937

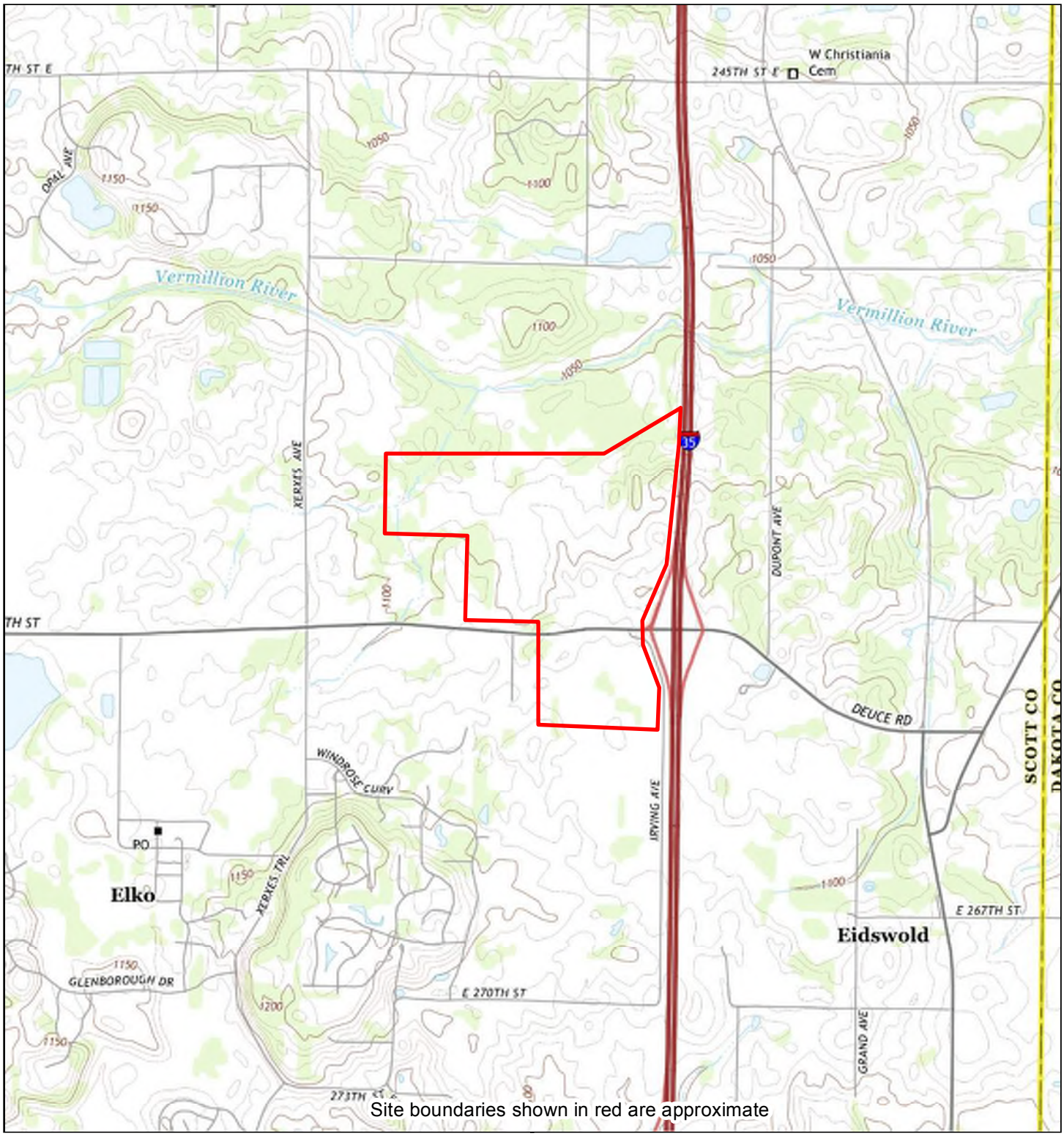
HIG Project # 2014835
Client Project # 17-20548
Approximate Scale 1: 6,000 (1"=500')
www.historicalinfo.com



Site boundaries shown in red are approximate

2016	0 Distance in Miles 1 1: 24,000 (1"=2,000') NAD 1983 UTM Zone 15N	Site information: Adelmann Family Farms 10946-10998 260th St East New Market Township, MN 55020	HIG
Unified maps show subdued modern topo features where corresponding maps of the same year were not published.	ISG project #17-20548 HIG #2014835 completed: 03/27/2018		

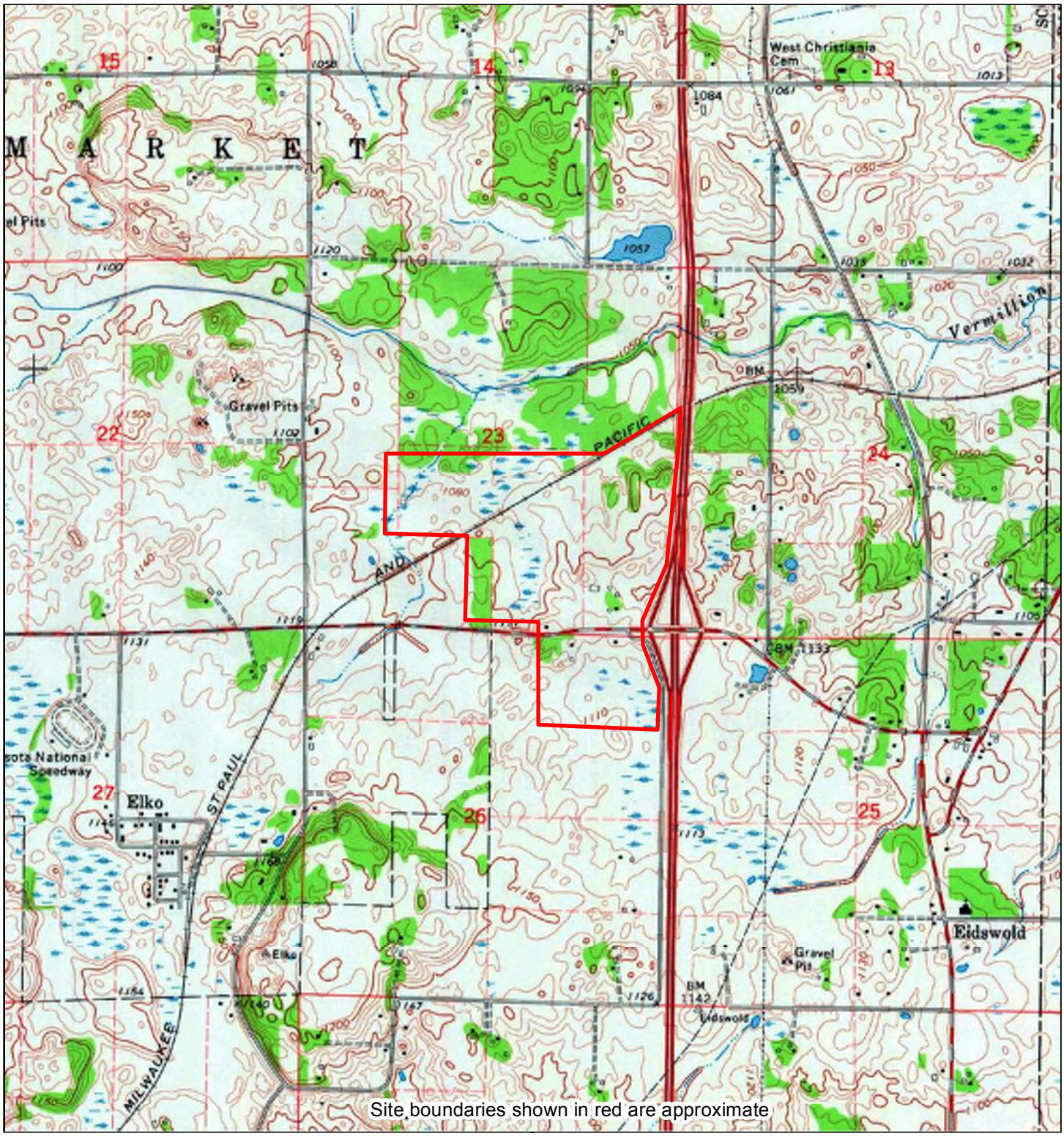
Zone	Topographic Map Name	Publisher	Map Size	Base Map	Aerial Photo Topo Updates Photo Year	Inspected	Revised
All	New Market, MN	USGS	7½' x 7½'	2016	--	--	--



Site boundaries shown in red are approximate

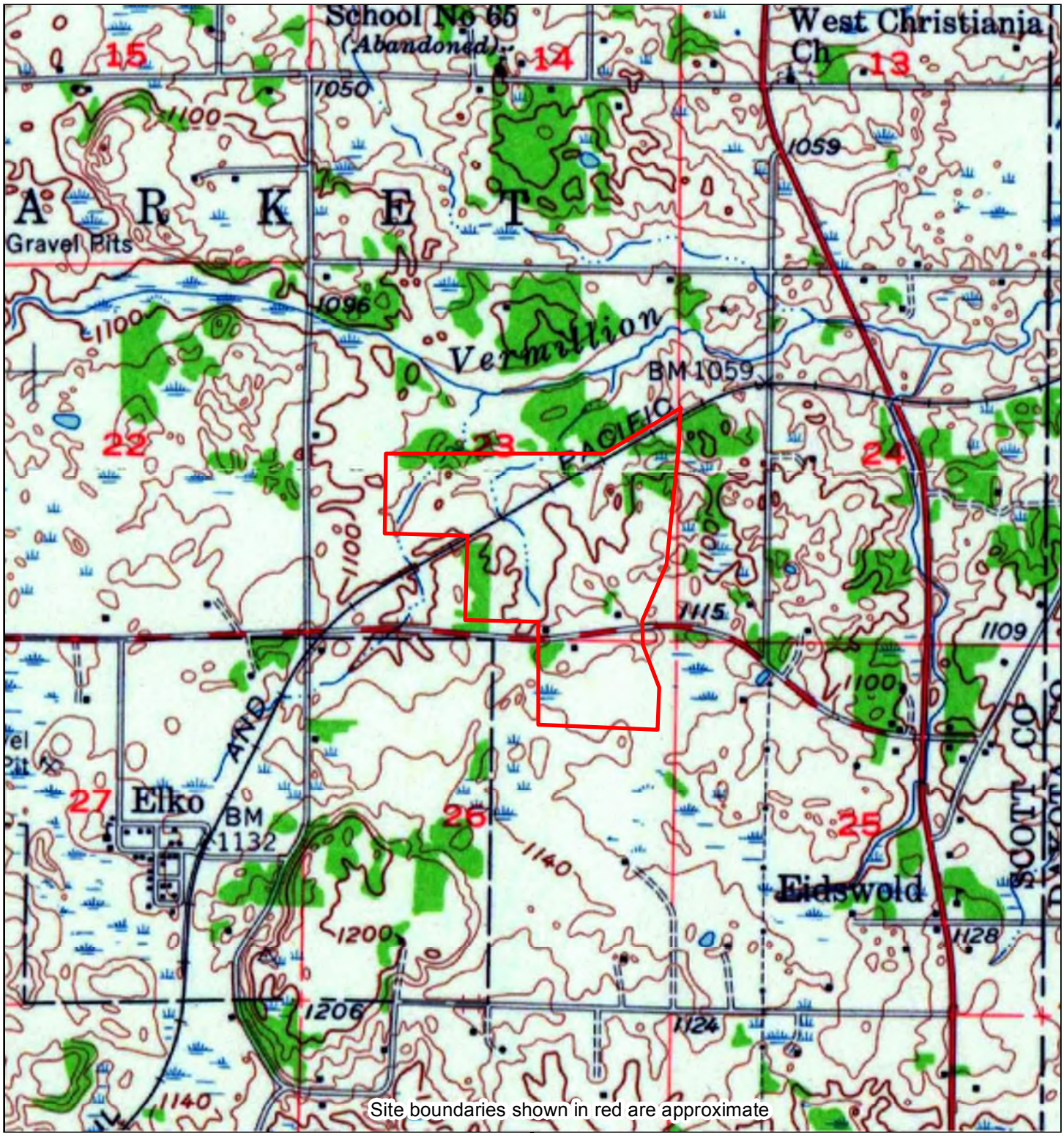
2013	0 Distance in Miles 1 1: 24,000 (1"=2,000') NAD 1983 UTM Zone 15N	Site information: Adelmann Family Farms 10946-10998 260th St East New Market Township, MN 55020
Unified maps show subdued modern topo features where corresponding maps of the same year were not published.	ISG project #17-20548 HIG #2014835 completed: 03/27/2018	

Zone	Topographic Map Name	Publisher	Map Size	Base Map	Aerial Photo Topo Updates Photo Year	Inspected	Revised
All	New Market, MN	USGS	7½' x 7½'	2013	--	--	--



1974	0 Distance in Miles 1 1: 24,000 (1"=2,000') NAD 1983 UTM Zone 15N	Site information: Adelmann Family Farms 10946-10998 260th St East New Market Township, MN 55020	HIG
Unified maps show subdued modern topo features where corresponding maps of the same year were not published.	ISG project #17-20548 HIG #2014835 completed: 03/27/2018		

Zone	Topographic Map Name	Publisher	Map Size	Base Map	Aerial Photo Topo Updates Photo Year	Inspected	Revised
All	New Market, MN	USGS	7½' x 7½'	1974	1973	--	--



1957	0 Distance in Miles 1 1: 24,000 (1"=2,000') NAD 1983 UTM Zone 15N	Site information: Adelmann Family Farms 10946-10998 260th St East New Market Township, MN 55020	HIG
Unified maps show subdued modern topo features where corresponding maps of the same year were not published.	ISG project #17-20548 HIG #2014835 completed: 03/27/2018		

Zone	Topographic Map Name	Publisher	Map Size	Base Map	Aerial Photo Topo Updates Photo Year	Inspected	Revised
All	Prior Lake, MN	USGS	15' x 15'	1957	1953	--	--

E 260TH ST

Elko New Market
CT 811.00 4766 - 10880 $A
4766 - 10881 55020

4730 Amy Lyn Schumacher ..... 94 NP
Calvin L Schumacher ...... 94 NP
5780 .... NP
5800 Jessica Scarlett McMillan ... 03 • 952.461.6466
Andrew Richard McMillan .. 03 • 952.461.6466
5846 Delores Kay McMillan (8/03) .. 73 • NP
George Edward McMillan (8/03) 73 • NP
5880 ★ A1 Landscapes .... + 952.240.0895
Jeff A Schalwig (8/92) ...... 03 • 952.461.4727
6400 Jackie Lori Devine .... 01 • 952.461.6400
Rick John Devine .... 01 • 952.461.6400
6406 .... NP
8845 Dale Francis Pexa Jr ..... 93 • 952.461.4205
Fran Elizabeth Pexa .... 93 • 952.461.2881
7500 ♣ Karen Fuller .... 05 • NP
7595 Helene Rose Friedges ..... 89 • 952.461.2437
7685 Bridget Lynn Deer (9/92) .. 92 • 952.461.2080
Thomas Harold Deer (9/92) 92 • 952.461.2080
7745 Debra Kay Fischer (11/92) ... 90 • 952.461.2272
Gregory Alan Fischer (11/92) . 90 • 952.461.2272
7770 Christopher John Fritz (3/96) . 91 • 952.461.3079
7796 Pat Louise Page (11/95) . 88 • 952.461.2532
Thomas Percy Page (11/95) . 88 • 952.461.2532
7806 7820.7837 .... NP
9476 Carol Ann Jones .... 93 • 952.461.3383
Lane A Jones Jr .... 83 • 952.461.3383
9840 Martin Mark Deutsch (10/10) 73 • NP
William Henry Deutsch (10/10) 73 • NP
10405 ★ Niemeyer Trailer Sales ... 10 952.461.2525
10491 ★ End Zone Bar & Grill 10 952.461.4441
10675 ★ Traders Market Inc 10 952.461.2400
10896 ♣ Lorraine Adelman .... 99 • 952.461.2226
♣ Robert E Adelmann .... 99 • 952.461.2226
10881 ★ Twin Cities Featherlite Trailer Sale 10 952.461.6548
31 RESIDENCE 5 BUSINESS

E 260TH ST

New Prague
CT 811.00 301 - 1951 $A
301 - 1951 56071

301 Jackie Marie Pomije ..... 88 • 952.758.6764
Roger Michael Pomije .. 88 • 952.758.6764
655 Chad Paul Anderson ..... 04 • 952.758.6844
Laura Jo Anderson .... 04 • 952.758.6844
691 Marge Ellen Malz (4/96) ..... 89 • 952.758.2741
Randy E Malz (4/96) .... 89 • 952.758.2741
895 Kent Suehker 10 952.758.6638
1080 Dave Lynn Jenkins (7/00) .... 00 • 952.758.3691
1090 Chris Mark Sampson (5/00) .. 00 • NP
Julie Kay Sampson (5/00) .. 00 • NP
1096 Delroy Joseph Sand Jr (6/05) . 05 • NP
1405 .... NP
1581 Catharina Clemencia Vossen (6/90) 90 • 952.758.5017
Gary Lee Vossen (6/90) .. 90 • 952.758.5017
1855 John Thomas Hertzog Jr (8/04) 04 • 952.758.6845
Nancy Jean Hertzog (8/04) ... 04 • 952.758.6845
1721 .... NP
1730 ◇ James Lester Nordwall (4/94) . 88 • 952.758.4105
◇ Michael Allen Nordwall (4/94) . 88 • 952.758.4105
1771 ★ Eaglecrest K9 Resort Llc .. 10 952.758.5767
◇ Teresa Lee Reese (11/93) .... 95 • NP
◇ Tracy Reese (11/93) .... 95 • NP
1890 Brian Kelly Logue (6/01) ..... 00 • 952.758.9597
Kelly Ann Logue (6/01) ...... 00 • 952.758.9597
1910 Francis Joseph Tupy .... 84 • 952.758.3591
Karen Ann Tupy .... 84 • 952.758.3591
1951 Allen Joseph Tupy .. 92 • NP
26 RESIDENCE 1 BUSINESS

E 260TH ST

Webster
CT 811.00 2116 - 4451 $A
2116 - 4451 55088

2116 Dave Alex Zweber (6/96) 96 • 952.758.5864
Sandie Lee Zweber (6/96) 96 • 952.758.5864
★ Zweber Construction & Drywall 09 952.758.4022
2140 Owen Uneal Maynard (12/02) 02 • 952.758.5055
Ruth Marilyn Maynard (12/02) . 02 • 952.758.5055
2230 Janet Joy Byslin (10/93) .... 93 • 952.758.5477
Jim Dennis Byslin (10/93) .... 93 • 952.758.5477
2460 Dean Ronald Benson ...... 95 • 952.758.2838
Teresa Rae Benson .... 95 • 952.758.2838
2590 Jarri Lynne Stocker (10/96) . 95 • NP
Sylvester Alois Stocker (10/96) 95 • NP
2591 Diane Mary Sirek 84 952.758.3844
Math Thomas Sirek Jr 84 952.758.3844
2646 Cyril Allen Simon (3/95) .. 95 • 952.758.3072
Natalie Ann Simon (3/95) .... 95 • 952.758.3072
3275 Richard Allen Hennes ...... 88 • 952.461.2289
Susan Doris Hennes ...... 88 • 952.461.2289
3565 Carol Duckett Hass (5/05) .... 04 • 952.461.0330
Scott Jon Hass (5/05) ..... 04 • 952.461.0330
3595 ★ One Hour Heating & Air Conditioning + 952.461.4328
3660 Kayland E Call .... 83 • 952.461.2557
Neil Michaels Call ..... 83 • 952.461.2557
3675 Ginny Marie Cooper .... 90 • 952.461.2258
Roger Eugene Cooper .... 90 • 952.461.2258
3725 Cary Grant Boelter (12/00) ... 00 • 952.461.4876
Diane V Boelter (12/00) ..... 00 • 952.461.4876
4291 4295 .... NP
4350 Ronda Lee King ...... + NP
Warren Willard King ..... + NP
4451 Patrick Joseph Flier (10/99) .. 96 • 952.461.4235
Sandra Lynn Flier (10/99) ... 96 • 952.461.4235
30 RESIDENCE 2 BUSINESS

W 260TH ST

Belle Plaine
CT 813.00 7475 - 11295 $C
7475 - 11295 56011

7475 Paul Herbert Franzen ... 89 • NP
Rosemary Vossen Franzen .. 69 • NP
10181 Janet Ann Larson ...... 73 • 952.873.6866
Robert Dean Larson ...... 73 • 952.873.6866
10398 Karen Kay Eliason (10/03) ... 05 • 952.873.6678
Michael Alan Eliason (10/03) . 05 • 952.873.6678
10450 .... NP
10960 Ingrid Ann Bey (11/98) .. 87 • 952.873.6952
David John Plunkett (1/98) .. 87 • 952.873.6952
11005 .... NP
11203 Jeffrey Ernest Brooks (5/02) .. 02 • 952.873.0450
11211 Lisa Jane Schatz (11/93) .. 97 • 952.873.4264
Patrick John Schatz (11/93) .. 97 • 952.873.4264
11295 Wayne D Ingram (12/05) .. 05 • 952.873.8896
Carol J Laurent (12/05) .. 05 • 952.873.6696
35 RESIDENCE

W 260TH ST

New Prague
CT 812.00 750 - 5710 $C
750 - 5710 56071

750 Greg John Pavek .... 05 • 952.758.4867
Tara Ann Pavek ...... 05 • 952.758.4867
825 Al Mark Novotny ..... 81 • 952.758.4109
George Richard Novotny ... 81 • 952.758.4708
8800 Jon Carl Hendricks (12/98) .. 89 • 952.758.2573
◇ Mary Ruth Hendricks (12/98) . 89 • 952.758.2573
-260TH ST W INTS
1215 Pam Ann Klein (3/90) ..... 90 • 952.758.4812
Rick Joseph Klein (3/90) .... 90 • 952.758.4812
1250 Anthony Tony Sirek (12/08) ... 08 • NP
1350 Michelle Ann Novotny ..... 94 NP
1376 Alfred W Novotny ...... 82 • 952.758.2150
Janet Marie Novotny .... 82 • 952.758.2150
1495 Elizabeth Marie Tisdel ..... 02 • 952.758.9479
John Allan Tisdel ..... 02 • 952.758.9479
2355 ★ Advanced Seeding & Erosion Control I 05 952.758.7741
Katie Odel Degross ...... 94 • 952.758.7001
Mike Clarence Degross .... 94 • 952.758.7001
2375 Joe Thomas Rademacher (2/01) 82 • 952.758.9736
Lori Lynn Rademacher (2/01) 82 • 952.758.9736
2380 Mark Christian Lund (12/97) .. 97 • 952.758.5864
Tara Lynn Lund (12/97) ..... 97 • 952.758.5864
2395 Barbara Ann Moudry (11/02) . 02 • 952.758.4327
Troy Ernest Skluzacek (11/02) . 02 • 952.758.4327
2501 Kevin Micheal Hartmann (6/00) 93 • 952.758.4126
Nancy Ann Hartmann (6/00) . 93 • 952.758.4126
2521 Arlene Joyce Hoffman .... 93 • 952.758.4267
Joe Ralph Hoffman ...... 93 • 952.758.4267
2626 Victoria Morgan ...... + NP
3051 Diane Marie Weckman (4/05) . 89 • 952.758.3854
Larry Harold Weckman (4/05) . 89 • 952.758.3854
3071 Joan Rae Dolezal .... 87 • NP
Mark David Dolezal ...... 87 • NP
3201 Cathy Groneveit (2/09) ..... 96 • 952.758.9177
Ryan Andrew Groneveit Jr (2/09) 96 • 952.758.9177
3206 Joan Rokusan Wagner .... 86 • 952.758.3970
Ken Anthony Wagner ..... 86 • 952.758.3970
3480 Traci Marie Kochevar .... 99 • 952.758.8875
Jeff Thomas Schoenbauer IV 99 • 952.758.8875
3891 Ed Gerard Nytes 87 952.758.2337
Shari Jean Nytes 87 952.758.2337
4450 Jamie S Schoenbauer 98 952.758.8898
Robert Scott Schoenbauer .. 98 952.758.6698
4591 Stacy Lynn Schmitz (7/07) .. 00 • 952.758.4561
Steve R Schmitz (7/07) ..... 00 • 952.758.4561
4849 Ann Marie Schmitz ...... 00 • 952.758.6573
George Robert Schmitz .... 00 • 952.758.6573
5331 Richard John Eischens ... 82 • 952.758.3241
5358 Anna Albina Eischens ..... 81 • 952.758.3592
Myron John Eischens ..... 81 • 952.758.3592
5710 Alice R Nytes (3/94) ..... 84 • 952.758.4390
Bob J Nytes (3/94) .... 84 • 952.758.4390
58 RESIDENCE 3 BUSINESS

261ST AVE

Belle Plaine
CT 9701.98 19701 - 20740 $E
19701 - 20740 56011

19701 Kristine D Lippman ...... 97 • NP
Tom Gaylon Lippman .. 97 • NP
19705 .... NP
19912 Patty S Broo ...... 96 • 952.873.4517
Paul Jeffrey Broo ..... 96 • 952.873.4517
20235 Brian Mark Schultz ... 02 • 952.873.6599
Noreen Ann Schultz ...... 02 • 952.873.6599
20280 Audra Ann Kerkow ..... 98 • 952.873.6188
Loren H Kerkow Jr .... 98 • 952.873.6188
20472 James Mathias Witt ..... 96 • 952.873.4481
Marilyn Margaret Witt ..... 96 • 952.873.4481
20740 Jeff David Bromley ...... 96 • 952.873.2206
Tara Marie Bromley ..... 96 • 952.873.2206
13 RESIDENCE

261ST AVE NE

Isanti
CT 1305.00 350 - 2445 $D
350 - 2445 55040

350 Barb Denise Haak ...... 81 • 763.444.5716
Thomas F Williams .... 81 • 763.444.5716
366 Karen Marie Lach ..... 97 • 763.444.7817
Tracy John Lach .... 97 • 763.444.7817
425 Erik B Draxten .... 82 • 763.444.5338
Jenna Marie Draxten ..... 82 • 763.444.5338
475 Alan Robert Oberg ...... 76 • 763.444.4860
Margaret L Oberg ...... 76 • 763.444.4860
575 Crystal Pearl Schultz .... 03 • 763.444.7866
639 Debra Jane Abersold (6/02) . 02 • 763.444.9099
Mark Alan Abersold (6/02) .. 02 • 763.444.9099
683 Lorriane Marie Schummer .. 88 • 763.444.5838
865 Doyle Alan Peck (6/98) ..... 80 • 763.444.9874
Karen Jane Peck (6/98) ..... 80 • 763.444.9528
883 ★ ♣ Athens Township Hall .. 09 763.444.8097
1000 Barbara A Johnson .... 96 • 763.444.8364
Leroy Anthony Johnson Jr .. 96 • 763.444.8364
1001 ◇ Tim Robert Paulino (3/09) .... 03 • 763.434.4301
◇ Robert E Paulino Jr (3/09) . 03 • 763.434.4301
1376 .... NP
1435 Amy Jo Lyzhoft (5/98) .... 96 • 763.444.5208
Kevin Kelly Lyzhoft (5/98) .... 96 • 763.444.5208
1471 ◇ Darryl Virgil Fiy (2/98) ...... 96 • 763.444.8078
◇ Sally Ann Fiy (2/98) .... 96 • 763.444.8078
1506 Bernice Ann Smith .... 82 • 763.444.5979
Thomas Kent Smith ..... 82 • 763.444.5979
1521 Heidi Ann Miller (6/99) ..... 99 • 763.444.9912
1554 Alden Johnson ..... 82 • 763.444.5300
James Eugene Johnson .... 82 • 763.444.5300
1778 Louise M Blair ..... 95 • NP
-HASTINGS ST NE INTS
1675 Tracey Arthur Bostrom (6/04) 03 • NP
1955 Kayla A Obrien (12/92) ... 95 • 763.444.8383
Nicholas Obrien (12/92) ... 95 • 763.444.8383
2051 ★ Above All Rooftops To Remodeling Inc + 763.444.7824
◇ Daniel Gerald Majwid (5/98) . 99 • 763.444.7435
◇ Tammi Sue Majwid (1/98) .. 99 • 763.444.7435
2151 Emmett Lawrence Doherty 96 • NP
Lydia Ann Doherty ..... 96 • NP
2245 .... NP
2319 ♣ Ann Ann Walker 05 763.444.9318
♣ Anthony Dewane Walker 05 763.444.9318
2351 Betty Kay Thompson (1/04) .. 04 • 763.444.5463
Dean Kevin Thompson (1/04) . 04 • 763.444.5463
2445 Lorna Clarence Eschappat 90 • 763.444.6663
42 RESIDENCE 2 BUSINESS

261ST AVE NW

Isanti
CT 1305.00 74 - 3700 $D
CT 1306.00 4101 - 4839 $C
74 - 5050 55040

74 Clarice A Spike .... 89 • 763.444.5962
Myron M Spike .... 89 • 763.444.5962
145 Curt Philip Carpenter ...... 81 • 763.444.5734
Diane M Carpenter ...... 81 • 763.444.5734
250 Nancy D Kiesk .... 83 • 763.444.6305
Richard W Kiesk .... 83 • 763.444.6305
311 Elizabeth Marie Lockwood (6/07) 98 • NP
Terry Lee Lockwood (6/07) ... 98 • NP
318 Mark Eller 98 763.444.8006
350 Craig Martin Hamilton (10/94) 94 • 763.444.8068
411 Eric Edward Fischer (4/99) 96 • 763.444.9140
Kerri Kay Fischer (4/99) . 96 • 763.444.9140
490 Jean Louise Stauffer ...... 84 • 763.444.9809
Joseph Lloyd Stauffer Jr .... 84 • 763.444.9809
1771 Cheryn Mercedes Stewart .. 67 • 763.444.6552
Daniel James Stewart ... 67 • 763.444.6552
1914 Raymond Joseph Sonte (9/06) 06 • 763.444.7133
Amber D Smith (9/06) .. 06 • 763.444.7133
2061 Kari Cherlyn Schumann (6/02) 03 • 763.444.0379
Wade Micheal Schumann (6/02) 03 • 763.444.0379
2056 Paul Brian Chergosky (6/02) .. 02 • NP
-PARTRIDGE ST NW INTS
2129 Carrie Marie Olson (6/03) .... 03 • 763.444.0036
Eric Floyd Olsen (6/03) ..... 03 • 763.444.0036
2217 Diane Sorenson . 90 • 763.444.6773
Mark William Sorenson .. 90 • 763.444.6773
2319 .... NP
2593 Ryan Vale Carpenter ..... 01 • 763.444.6142
2772 Richard Carl Frawk ... 96 • 763.754.2730
3120 Linda Sue Bottema (1/96) .. 77 • 763.444.4329
William Edward Bottema (1/96) 77 • 763.444.4329
3197 Brian Jerome Wendt ...... + 763.444.6136
Catherine Lynn Wendt .... + 763.444.6136
3283 Bruce Blake Selvig (10/93) ... 93 • 763.444.3683
Paula Yvonne Selvig (10/93) . 93 • 763.444.3683
3560 John Joseph Lang (9/96) . 95 • 763.444.9112
Paulette Lynn Lang (9/96) .. 95 • 763.444.9112
3591 Jolea E Tabaka (6/00) 90 • 763.444.0283
Michael Eugene Tabaka (6/00) 98 • 763.444.0283
3620 Lois Kliever (2/06) .... 06 • NP
3780 Lou A Bell .... 88 • 763.444.6345
Steven Lynn Bell ...... 88 • 763.444.6345
-BLACKFOOT ST NW INTS
4181 Dale Earl Karpe (4/96) .... 94 • NP
Sherry Sniegowski Karpe (4/96) 94 • NP
4195 John Howard Blumer ... 90 763.444.4701
Polly Jo Blumer 90 763.444.4701
4401 Elard Duane Blumer .... 75 • 763.444.5693
Jason David Torgerson ..... 75 • 763.444.5693
4459 Pam B Plocher 94 763.444.5312
William G Plocher 94 763.444.5312
4463 .... NP
4525 June A Moore (12/04) ..... 04 • 763.444.0469
4540 Beverly Ann Blumer ...... 06 • 763.444.5997
Ralph W Blumer .. 06 • 763.444.5997
4544 Joyce Ardell Lillemoe ... 00 763.444.7172
4585 David Ralph Swanson (12/92) . 95 • NP
Wanda Lorraine Swanson (12/92) 95 • NP
4588 .... NP
4604 ◇ Darlene Sharon Lindelof .... 05 • 763.444.6666
◇ Robert W Lindelof .... 05 • 763.444.6666
4619 Barbara Lund .... 82 • 763.444.4368
Dennis Allen Lund .... 82 • 763.444.4368
4792 Cynthia R Lambert 09 763.444.7845
Robert R Lambert 09 763.444.7845
-ROANOKE ST NW INTS
4809 Lacey Lynn Sundeen (7/04) . 83 • 763.444.6361
Ron Joseph Sundeen (7/04) .. 83 • 763.444.6361
5050 ★ Stanford Township 08 763.444.8307
65 RESIDENCE 1 BUSINESS

261ST AVE NW

Saint Francis
CT 1306.00 5790 - 7295 $C
CT 501.08 E 5796 - 5796 $D
5790 - 7295 55070

5790 Betty A Grotte (1/07) .... 96 • 763.444.5689
Donald C Grotte (1/07) ...... 96 • 763.444.5689
5796 ♣ Christopher D Baumgardt (9/04) 04 • NP
♣ Wendy J Baumgardt (9/04) . 04 • NP
5856 .... NP
5951 Joann Geri Barthold (11/00) .. 92 • 763.444.0456
Peter Joseph Barthold (11/00) 92 • 763.444.0456
★ Barthold Inc 03 763.444.7447
5962 Angela Mae Bauer (2/04) . 04 • 763.444.7086
Troy Leslie Bauer (2/04) .. 04 • 763.444.7086
6019 .... NP
6065 Donald L Ryman .... 82 • 763.444.0439
Janet Sue Ryman .... 82 • 763.444.0439
6151 .... NP
6171 Terry G Overacker Jr ...... + NP
6251 Linda Jane Harris (9/02) .... 02 • 763.444.9390
Scott Kevin Lenz (9/02) ..... 02 • 763.444.9390
6277 Theresa A Todaro (8/08) .... 08 • 763.444.6385
6346 Delton Ray Whittlef .... 82 • 763.444.5386
Joann Ann Whittlef .. 82 • 763.444.5386
6463 Joe J Lynch (6/09) ...... 09 • NP
6495 Kathryn Fay Ferguson ..... 01 • 763.444.4613
Troy Douglas Ferguson 01 • 763.444.4613
6525 ★ Affordable Container Service + 763.753.5964
6599 Kristina Kim Brutsco (2/01) .. 98 • NP
★ Manahan Stables Llc 02 763.444.6722
-CROWN CIR NW INTS
6634 Audrey Delores Grams 02 • 763.434.5707
6997 Steven Mark Roles .... 96 • 763.444.6414
-NACRE ST NW INTS
7295 Kenneth Ryan Springer 94 • 763.856.2005
Kimberly Joy Springer 94 • 763.856.2005
27 RESIDENCE 1 BUSINESS

261ST AVE NW

Zimmerman
CT 1306.00 7790 - 9416 $C
CT 301.00 9686 - 14476 $C
CT 302.00 14822 - 14835 $C
7790 - 14835 55398

-VARIOLITE ST NW INTS
7790 Gene Dale Gifford (10/93) .. 93 • 763.856.5068
Stephanie Renee Gifford (10/93) 93 • 763.856.5068
7900 Brent Marlow Aasu (5/98) ... 94 • NP
-DOLPHIN ST NW INTS
8015 Daniel Douglas Grams ..... 79 • 763.856.2640
Sheila Rae Grams ...... 79 • 763.856.5915
8296 Daryl Arthur Grams .... 97 • 763.856.1009
Tammy Jean Grams .... 97 • 763.856.1009
8375 Andy Lee .... 10 NP
Sharon Kay Lee .... 10 NP
-LLAMA ST NW INTS
8435 .... NP
8437 Barbara Jean Johnson .... 96 • 763.856.4344
Kenneth Orville Johnson ... 96 • 763.856.4344
8448 Connie Lee Bjork ... 94 • 763.856.2692
Jason Matthew Bjork .... 94 • 763.856.2692
8551 April Susan Pinyan ..... 94 • 763.856.4906
Ron Howard Pinyan .... 94 • 763.856.4906
8597 Ann Carol Connors (8/97) .. 93 • 763.856.3393
8600 Orvin Duane Golden . 01 • NP
8628 Larry Borrges (8/97) ...... 90 • NP
Robert Raymond Borrges (8/97) 90 • NP
8647 Paul Wayne Smith .... 96 • 763.856.4437
Rozan Kline Smith ...... 96 • 763.856.4437
8650 Gene Ronald Grams ...... 74 • 763.856.2852
Judith Ann Grams .... 74 • 763.856.2852
-UNICORN ST NW INTS
8670 Marvin H Stalcop .... 07 NP
Ryan K Stalcop ... 07 NP
8879 Lisa Renee Zwack (7/98) .... 93 • 763.856.4214
Scott Robert Zwack (7/98) ... 93 • 763.856.4214
8959 Dave Arthur Tilly (7/02) ..... 02 • 763.856.5168
Terrill L Tilly (7/02) ... 02 • 763.856.5168
8970 Ben Richard Bullock (1/98) 94 • 763.856.0958
Donna Marie Bullock (1/98) .. 94 • 763.856.0958
8995 Marty X Tucs (12/06) .... 07 • NP
Sally Mary Tucs (12/06) .... 07 • NP
9004 Justin J Drum (6/01) ... 01 • 763.856.5727
9064 Jason Micheal Botzek (6/03) . 03 • 763.856.3438
Kristi Botzek (6/03) ..... 03 • 763.856.3438
9170 ... NP
9200 Chris Marie Dequaine (10/02) 02 • 763.856.2366
Kenneth John Dequaine (10/02) 02 • 763.856.2366
9273 Lori Catherine Olson .... 85 • 763.856.2478
Wayne Robert Olson ...... 85 • 763.856.2478
9340 Joyce Adele Newman (6/96) . 96 • 763.856.4523
Ted Floyd Newman (6/96) ... 96 • 763.856.4523
9350 ♣ Taylor Ferguson ... + 763.856.9023
9416 Joshua M Long (6/09) .... 09 • 763.856.0197
9686 Deanna Margaret Johnson .. 66 • 763.856.4140
Leslie Ernest Johnson ..... 66 • 763.856.4140
9697 Peggy Sue Maciej 72 • 763.856.4141
Troy Robert Maciej .... 72 • 763.856.4452
9765 Karen Ann Hodge (1/99) ... 94 • 763.856.1069
Michael Scott Hodge (1/99) .. 94 • 763.856.1069
9810 Dan A Wudtke (4/96) ... 96 • 763.856.0473
Jennifer E Wudtke (4/96) . 96 • 763.856.0473
9887 Alquin Steve Marty Sr (6/06) . 06 • 763.856.6178
Beverly Jean Marty (6/06) ... 06 • 763.856.6178
9925 Dianna Marie Herrmann .. 94 • NP
9990 Patty Ann Lundgren (1/90) ... 88 • 763.856.2611
Robert Stan Lundgren (1/90) . 88 • 763.856.2611
10015 Daniel S Fletcher (11/03) .... 03 • NP
10060 Mark Patrick Moriarty ..... 92 • 763.856.3421
Tammy Verna Moriarty ..... 92 • 763.856.3421
10080 Colleen Marie Hempel ..... 84 • 763.856.2624
Keith J Hempel ..... 84 • 763.856.2624
10230 Lorine Eva Bardwell (5/94) 93 • NP
Mark Allen Bardwell (5/94) . 93 • NP
10240 Daria Marie Rodriguez (8/08) . 06 • 763.856.5857
David J A Rodriguez (8/08) .... 06 • 763.856.5857
10320 Barbara A Riggs (12/99) .... 99 • 763.856.0279
Dexter Riggs (12/99) . 99 • 763.856.0279
10332 .... NP
10430 Craig Allan Hinrichs (11/95) .. 95 • 763.856.3833
Kim Lynn Hinrichs (11/95) .... 95 • 763.856.3833
10486 10556 .... NP
10627 Barb Ann Settambrino (2/01) 01 • 763.856.6736
Gregory Raymond Settambrino (2/01) 01 • 763.856.6736
10635 Kathy Xiong Vang (12/09) ... 09 • NP
Tong Moua Vang (12/09) .... 09 • NP
10725 ♣ Mary H Ball .... 96 • 763.856.3447

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CT - Census Tract AB,Etc. - Census Tract Home Value Rating ★ - Business Listing ⊙ - Duplicate Phone Number At This Business Address ◇ - No Mail Solicitation

Paul A Stenglein . . . . 05•651.408.8994
6465 ★♣ Wendi World Enterprises L 05 . .
-GUSTAVUS CT INTS
7014 Cindy Ann Bloney 96 651.462.3224
Lee Lee Bloney 96 651.462.3224
★Ridgetop Construction Co. 01 651.462.3224
7015 Craig Stuart Fickman . . . . . 00•651.462.4583
Lisa Dorothy Fickman . . . . . 00•651.462.4583
7025 Colleen Andel . . . . + NP
7028 Lee Ann Shogren . . . . . . 96•651.462.1233
William Richard Shogren . . . 96•651.462.1233
7030 Rebecca L Espersen . . . . . 94•651.462.4539
Steven John Espersen . . . . 94•651.462.4539
7067♣ Kim Phillips 98 651.462.0029
♣ Michael Joseph Phillips . . . 98 651.462.0029
79 RESIDENCE 3 BUSINESS

259TH AVE NE

Isanti
CT 1304.00 3823 - 3930 $D
RR2 3823 - 3930 55040
-VICKERS ST NE INTS
3823 Dean A Larson 76 763.444.5081
Joan D Larson 76 763.444.5081
3896 James Koesman 00 763.444.4671
Tim J Koosman 00 763.444.4671
3930 Jack Joseph Leuenberger . . 90 763.444.9293
Marie Jean Leuenberger . . 90 763.444.9293
6 RESIDENCE

259TH AVE NW

Zimmerman
CT 301.00 10015 - 10091 $C
CT 302.00 14615 - 14796 $C
RR3 10015 - 10091 55398
10015 Cory L Schimmelman . . . . 01• NP
Rebecca Jean Schimmelman 01• NP
10030 Steve John Fiser . . . . . . 00• NP
10045 Amy Lynn Holbrook 02 763.856.5602
10050 David Ray Bardwell . . . . 94•763.856.3844
10090 Cindy L Schram . . . . 93• NP
James Arthur Schram . . . . 93• NP
10091 ★ Minak Inc . . . . + 763.856.8916
RR6 14615 - 14796 55398
14615 Tammie Marie Eichmann . . . 04• NP
Todd Anthony Eichmann . . . . 04• NP
14622 . . . . NP
14701 Douglas J Mathison . . . . 03• NP
Stacey Mathison . . . . . . 03• NP
14796 Kelly Moriarty . . . . + NP
William Moriarty . . . . + NP
14 RESIDENCE 1 BUSINESS

259TH ST

Lindstrom
CT 1105.00 14275 - 14686 $D
CT 1106.00 14381 - 14470 $B
RR1 14275 - 14686 55045
-OLINDA TRL INTS
14275 Reed V Julien . . . . 03•651.257.4335
Theresa Joan Julien . . . . . 03•651.257.4335
14278 Debbra Diane Pojanowski . . . 85•651.257.1696
Richard J Pojanowski . . . . . 85•651.257.1696
14381 Colleen Ann Hueners . . . . . 97•651.257.0609
Ethan David Hueners . . . . 97•651.257.0609
14401 Fred Strangeola . . . . 05 NP
14443 Deborah Ann Gervais . . . . . 94•651.257.3953
Glenn Patrick Gervais . . . . . 94•651.257.3953
14470 Brian D Froberg . . . . 86•651.257.2770
Debra F Froberg . . . . 86•651.257.2770
14526 Gary Norton . . . . 98• NP
Timothy Norton . . . . 98• NP
14596 Diane Lamae Schneider . . . . 80•651.257.1808
Joel Thomas Schneider . . . . 86•651.257.1808
14633 John Edward Bruso . . . . . . 91•651.257.2958
14686 ★ Hair Station 89 651.738.3484
Leonard F Sanchez . . . . . . 99•651.257.9055
Patricia Rose Sanchez . . . . 99•651.257.9055
16 RESIDENCE 1 BUSINESS

259TH ST

Wyoming
CT 1104.00 5620 - 6278 $C
RR7 5620 - 6278 55092
-FINCH CT INTS
5620 Sharon K Watson . . . . 02• NP
5640◇ Michael S Murzyn . . . . 00•651.408.1110
◇ Sharon J Murzyn . . . . 00•651.408.1110
5660 Apartment
145 M Hjulberg . . . . 91• NP
145 Marvin W Hjulberg . . . . 91• NP
5680 Judith A Weihra . . . . 92•651.462.2179
5685 Duinvan L White . . . . 91•651.462.3678
Linda Lee White . . . . 91•651.462.3678
5700 Chris Fink . . . . 04 NP
5705 Debra L Keast . . . . 04• NP
5720 Jean Jean Olds . . . . 03•651.462.3194
Ronald Wilfred Olds . . . . . 03•651.462.3194
★ RW Olds Engineering 05 651.462.3194
5725 Luverne J Weaver . . . . 02• NP
5755 Suzanne Knaup . . . . 04• NP
5760 Carrie E Pepin . . . . 92•651.462.1306
Wayne Joseph Pepin . . . . . 92•651.462.1306
5780 Jacqueline Lee Kaufman . . . 03• NP
Evelyn Ann Kaufmann . . . . . 03• NP
-FREEPORT AVE INTS
5800 Amy Jo Dickenson . . . . . . 92•651.462.8478
John Michael Dickenson . . . . 92•651.462.8478
5802♣ Cindy Pikala . . . . 93• NP
♣ Daniel J Pikala . . . . 93• NP
5805 Jennifer M Roatch . . . . 99•651.462.6642
Lory A Roatch . . . . 99•651.462.6642
5820♣ Charles W Yetter 01 651.462.8247
♣ Dona L Yetter 01 651.462.8247
5840 Sharon Lynn Knauff . . . . . . 89•651.462.2903
Thomas James Knauff . . . . 89•651.462.2903
5845 Randy Richard Johnson . . . . 94•651.462.8213
5860◇ Jason Ralph Hopkins . . . . . 01•651.462.2739
◇ Sandra Elizabeth Hopkins . . . 01•651.462.2739
5865 Beverly Ann Jensen . . . . . . 93•651.462.4029
Todd Henry Jensen . . . . 93•651.462.4029
5880◇ Kristi Marian Streff 92 651.462.8552
◇ Robert Ward Streff 92 651.462.8552
5885 Gerald Dale Wavrin . . . . . . 91•651.462.1898
Sylvia J Wavrin . . . . 91•651.462.1898
5930 Jerome L Phillips . . . . 94•651.462.4657
Ted Charles Phillips . . . . . . 94•651.482.3460
5905 Barbara J Mollet . . . . 98• NP
Bart G Mollet . . . . 98• NP
5920 Jackie L Wilson . . . . 89•651.462.1702
Steve Jack Wilson . . . . 89•651.462.1702
5925 Kelley Fay Meyers . . . . 92•651.462.4720
Kenneth Eugene Meyers . . . 92•651.462.4720
5943◇ Nancy Gertrude Savage . . . . 98•651.462.2139
◇ William Charles Savage . . . . 98•651.462.2139
5945 Deborah Lorraine Kunz . . . . 91•651.462.4503
Steve Jeffrey Kunz . . . . 91•651.462.4503
5960 Joseph Paul Kann . . . . 92•651.462.2786
Mary Jo Kann . . . . 92•651.462.2786
5984 . . . . NP
5985♣ Vin Truax . . . . 99 NP
5987 Angel Luis Soto . . . . 03• NP
Maria Esther Soto . . . . 03• NP
6001 Kim Ann Hekele . . . . 04• NP
Robert James Hekele . . . . . 04• NP
6004 Kevin Byl . . . . 01•651.462.2642
Michele L Byl . . . . 01•651.462.2642
6027 Olga A Anderson . . . . 03• NP
Sheldon H Anderson . . . . . . 03• NP
6028◇ Jodi Wardall Goodnow . . . . 99•651.408.9111
◇ Paul Steven Goodnow . . . . . 99•651.408.9111
6037 Steve Carl Ulrich . . . . 99•651.408.8111
Susan Lynn Ulrich . . . . 99•651.408.8111
6038 Jane Marie Olson . . . . 93•218.753.2127
Stephen Ralph Olson . . . . . 93•651.462.8165
6061 Chris Thomas Roche . . . . . 00•651.408.1812
Dawn Roche . . . . 00•651.408.1812
6066 Chato C Lorentsen . . . . . . 05• NP
6080 Rhiana Marie Hughes . . . . . 05•651.408.8138
Richard Aron Hughes . . . . . 05•651.408.8138
6083 Michael S Borene . . . . 04• NP
6096 . . . . NP
-GLEN OAK DR INTS
6103 Penny M Walters . . . . 97•651.408.1508
Timothy C Walters . . . . 97•651.408.1508
6113 James Thomas Dowling . . . . 99• NP
Renee Kim Dowling . . . . . . 99• NP
6116 Andrew Ray Kettelhut . . . . . 99•651.408.8712
6136 . . . . NP
6141 Charles Richard Dufour Jr . . . 00•651.462.4545
Sarah A Dufour . . . . 00•651.462.4545
6150 Bridget Suzanne Kutz . . . . . 99• NP
Frank Ernst Kutz . . . . 99• NP
6173 Laura J Bier . . . . 99•651.408.0109
6194 Sherri Eggebrecht . . . . 02• NP
Jeff D Kangas . . . . 02• NP
6197 Carrie D Reed . . . . + 651.462.4855
Craig Matthew Reed . . . . . . + 651.462.4855
-GOLDFINCH AVE INTS
6206 Debra R Borene . . . . 99• NP
Michael Sean Borene . . . . . 99• NP
6211 Julynn V Schumacher . . . . . 99•651.462.2239
Wade Michael Schumacher . 99•651.462.2239
6249 Corrine A Calhoun . . . . . . 96•651.462.1300
David W Calhoun . . . . 96•651.462.1300
★ Corrine Care For Tots 05 651.462.1300
6263 Laurie Lee Hawthorne . . . . 05• NP
Sean Michael Hawthorne . . . 05• NP
6275 . . . . NP
6278 Margaret Rogers . . . . 02•651.462.4785
Willis H Rogers . . . . 02•651.462.4785
100 RESIDENCE 2 BUSINESS

259TH ST E

Lakeville
CT 811.00 0 11965 - 11965 $A
RR1 0 11965 - 11965. 55044
11965 Gary Kenneth Fredrickson . . 88•952.461.3581
Joanne Marie Fredrickson 88•952.461.3581
2 RESIDENCE

E 259TH ST

Elko
CT 811.00 11745 - 11860 $A
RR2 11745 - 11860. 55020
-PILLSBURY AVE INTS
11745◇ Teresa Moberg . . . . + 952.461.6629
◇ Timothy Russ Moberg . . . . . + 952.461.6630
11825 Scott Donald . . . . 05 NP
11851 Jeremy Paul Storlie . . . . . . 02•952.461.3934
Jodi M Storlie . . . . 02•952.461.3934
11860 . . . . NP
6 RESIDENCE

260TH AVE NW

Zimmerman
CT 301.00 10004 - 11190 $C
RR3 10004 - 10372. 55398
10004 . . . . NP
10023 Robert Mark Bimer . . . . . . 03 NP
10079 Kathleen Barker . . . . 03 NP
Timothy Barker . . . . 03 NP
10225 Todd Daniel Johnson 03 763.856.8131
★ Todd Johnson Sourcing Inc + . .
10249♣ Craig Eggert . . . . 04 NP
10295 Brenda Felt . . . . 03• NP
10337 Correna Spitzmueller 03 763.856.6132
Jacob Spitzmueller 03 763.856.6132
10372 Colin Harding . . . . 05 NP
RR1 10870 - 11190. 55398
10870 A Ende . . . . 99• NP
Brooke Diane Ende . . . . 99• NP
10877◇ Greg Charles Bye 87 763.856.2209
◇ Julie Lynn Bye 87 763.856.2209
10948 Dana L Thompson . . . . 95•763.856.3650
Robert Alan Thompson . . . . 95•763.856.3650
11190♣ Sherry Willis . . . . 04 NP
17 RESIDENCE 1 BUSINESS

260TH ST

Lindstrom
CT 1106.00 14854 - 17242 $B
RR1 14854 - 17242. 55045
14854 ★ CSD Custom Woodworks Inc + . .
Christopher S Darbec . . . . . . 05• NP
Molly M Darbec . . . . 05• NP
14857 . . . . NP
14912 Owen Mark Kuhnley . . . . . . 80•651.257.5516
Nena Lynn Kuhnly . . . . 80•651.257.5516
14950♣ Nena Kuhnly . . . . 99• NP
♣ Owen Kuhnly . . . . 99• NP
15033 Roger Edward Neafus . . . . . 86•651.257.2516
Susan G Neafus . . . . 86•651.257.2516
15036 Jennifer Lee Bielecki . . . . . 00•651.257.9676
Todd Michael Bielecki . . . . . 00•651.257.9676
15115 Michael Joseph Schwartz . . . 02•651.213.6700
15144 Beth Anne Novack . . . . 02•651.257.8222
Kenneth William Novack Jr . . 02•651.257.8222
15237◇ Erica L Huffman . . . . 00•651.257.3791
◇ Steven Anthony Huffman Jr . 00•651.257.3791
15298 Rebecca Ann Biederman . . . 94•651.257.4304
Gregory Paul Biedermann . . . 94•651.257.4304
-PHEASANT RUN INTS
15323 Audrey Holm . . . . 95•651.257.6213
15330 Josh Wayne Langness . . . . 03•651.257.8399
Katy L Langness . . . . 03•651.257.8399
15470 Nicole A Dietrich . . . . 04• NP
Gerald Warren Leach . . . . . 04• NP
15548 Catherine Ann Michel . . . . . 01• NP
Tim John Michel . . . . 01• NP
15573 Darlene M Ganley . . . . 92•651.257.4694
James F Ganley . . . . 92•651.257.4694
15709 Allan J Schmidt . . . . 95•651.257.9004
Connie Sue Schmidt . . . . . . 95•651.257.9004
15722 Dennis R Gadbois . . . . 89•651.257.8147
Michelle M Gadbois . . . . . . 89•651.257.8147
★ St Croix Fence 91 651.257.8270
15822 Barbara Ann Fredrickson . . . 95•651.257.9286
Tom Vernon Fredrickson . . . . 95•651.257.9286
15855 . . . . NP
15895◇ Stephen P Herrick . . . . 96•651.257.3708
◇ Susan P Herrick . . . . 96•651.257.3708
16091 Carol D Houler . . . . 01• NP
Michael R Houler . . . . 01• NP
16205 Linda Kampa . . . . 96•651.257.4839
Robert John Kampa . . . . 96•651.257.4839
16359 . . . . NP
16487 James Robert Myhr . . . . . . 88•651.257.5391
Teresa Ellen Myhr . . . . 88•651.257.5391
-QUAIL RIDGE TRL INTS
16550 Larry Richard Bertrand . . . . 99•651.257.5429
Patricia Ann Bertrand . . . . . 99•651.257.5429
16667 Florence H Myhr . . . . 73•651.257.2165
John R Myhr . . . . 73•651.257.2165
16680 . . . . NP
16809 Todd G Kapsner . . . . 03• NP
Tracey L Kapsner . . . . 03• NP
16834◇ Kristi T Anderson . . . . 01•651.257.6256
◇ Thomas James Anderson . . 01•651.257.6256
16900 Doug Quernick . . . . 99•651.257.9562
16987◇ Joseph E Arnold . . . . 86•651.257.2656
◇ Terry M Arnold . . . . 86•651.257.2656
16997 Allen Norman Gieske . . . . . 93•651.257.6898
Heidi Lynn Gieske . . . . 93•651.257.6898
17002 . . . . NP
17014 Larisa V Ulyanin . . . . 03• NP
Yuriy Aleksandrovich Ulyanin 03• NP
17168 Sarah Lynn Clarin . . . . 03•651.257.3913
Wade L Clarin . . . . 03•651.257.3913
17242 . . . . NP
63 RESIDENCE 2 BUSINESS

260TH ST

Wyoming
CT 1104.00 5181 - 7571 $C
RR1 5181 - 5201. 55092
5181 ★ General Safety Equipment Corp 92 651.462.1000
★ Rosenbauer Holdings Inc . 02©651.462.1000
5190 ★♣ Century Fixtures&Millwork 00 651.462.5660
5201 ★♣ MVP Group 98 651.462.4389
RR7 5376 - 5471. 55092
5376 ★ Truex Inc 89 651.408.9515
5390 Building
★♣ Adams Custom Liners Inc 04 651.462.8100
◇ ★ Guy Clean Up . . . . 02 . .
★♣ Katy Spring . . . . + 651.462.8068
★♣ King Kong Hobbies Inc . 05 651.408.8408
★♣ Norway Electric Co 01 651.408.8593
★♣ Plastic Composites . . . . + 651.462.3338
5426 ★♣ Action Advertising&Promol 01 651.462.2300
5428 ★ Breitbachs Auto Repair Inc 93 651.462.1946
5465 ★♣ All Towing & Recovery . + 651.462.0686
★♣ Leroys Collision Center I 94 651.462.1600
5469 ★ Buck Machine Tool Inc . . . 01 651.462.0033
★ Plastic Recovery Technologies + . .
5471 ★ Gillespie Construction Inc 85 651.462.2828
RR6 6326 - 7571. 55092
-GRAFTON AVE INTS
6326 Jeffrey J Stmarin . . . . 05• NP
6327♣ Douglas John Miller 01 651.462.4315
♣ Heidi Marie Miller 01 651.462.4315
6351 . . . . NP
6403 Silvia Gonzalez . . . . + • NP
6431 Joan M Pickard . . . . 94• NP
Steven Lee Pickard . . . . 94• NP
6463 Jacqueline S Birdsall . . . . . 96• NP
6464 Dulcie Rebecca Ashworth . . . 05• NP
Paul Edward Ashworth . . . . . 05• NP
6496 Kim M Voelk . . . . 02• NP
William John Voelk . . . . 02• NP
6534 Joanne M Johnson . . . . 02•651.462.2746
6578 Tracy Raway . . . . 05• NP
-GRANADA AVE INTS
6600 . . . . NP
6603 Diane Marie Schneider . . . . 91•651.462.1354
Mark A Schneider . . . . 91•651.462.1354
6642 Debra A Rose . . . . 93•651.462.1478
Troy Anthony Rose . . . . 93•651.462.1478
6674 Julie Lynn Thalhuber . . . . . 97•651.462.4965
Mark Allen Thalhuber . . . . . 97•651.462.4965
6712 Chris Stanton Isaacson . . . . 93•651.462.2534
Lyn Ellen Isaacson . . . . 93•651.462.2534
6770 6840 . . . . NP
6896◇ Amy Suzanne Husel . . . . . . 93•651.462.2835
◇ Bruce W Husel . . . . 93•651.462.2835
-W COMFORT DR INTS
7065 Keri Jean Sevcik . . . . 95•651.462.1469
Victoria Sevcik . . . . 95•651.462.1469
7070 James R Ambrose . . . . 96• NP
Tammy Lee Ambrose . . . . . . 96• NP
7139 Edmund Olson . . . . 98• NP
Norma Olson . . . . 98• NP
7146 Cynthia L Loeffler . . . . 82• NP
Jake Loeffler . . . . 82• NP
7185♣ Edmund D Olson . . . . 79•651.462.5464
♣ Norma Irene Olson . . . . 79•651.462.5464
-GREENE AVE INTS
7261 Eric J Anton . . . . 03• NP
7280 7309 . . . . NP
7317 Joy M Peck . . . . 04• NP
Robert A Peck . . . . 04• NP
7327♣ James M Hoffman 01 651.462.2608
7337♣ Mary E Kelly 92 651.462.5356
♣ William Dalton Kelly 92 651.462.5356
7390♣ Debra J Sorensen-Boeh . . . . 03• NP
7413 . . . . NP
7451 Mary Kaliher Thoele . . . . . . 05•651.462.1045
7456 7463 . . . . NP
7471 David A Haskins . . . . 01•651.408.8918
Gail P Haskins . . . . 01•651.408.8918
7486♣ John Swanstrom . . . . 92 NP
7493 ★ Lake Sports Lettering . . . 83 651.462.1475
Gordon Jerome Pietruszewski 91•651.462.1475
Rita Mae Pietruszewski . . . . 91•651.462.1497
7529 Deborah Ann Michaud . . . . . 92•651.462.2050
Michael Joseph Michaud . . . 92•651.462.2050
7537 Sherrie Ann Kautz . . . . 04 NP
7559 George Fredrick Osgood . . . 92• NP
7571 . . . . NP
60 RESIDENCE 19 BUSINESS

260TH ST E

Farmington
CT 615.01 0 1043 - 1605 $A
RR1 0 1043 - 1605 55024
-BLAINE AVE INTS
1040◇ Glen Edward Dubbels . . . . . 76•651.463.8201
◇ Joann M Dubbels . . . . 76•651.463.8201
1279 Becky Renee Pearson . . . . 03•651.463.2161
Troy B Pearson . . . . 03•651.463.2161
1605 Paul Francis Irthum . . . . . . 70•651.463.8241
Sara P Irthum . . . . 70•651.463.8241
6 RESIDENCE

260TH ST E

Randolph
CT 814.02 4044 - 8465 $B
RR1 4044 - 8465 55065
4044 John J Hupf . . . . + • NP
4386 John Joseph Hupf . . . . 94•507.263.2705
Lynda Kay Hupf . . . . 94•507.263.2705
★ Hupf Farms 02 507.263.2705
-EMERY AVE INTS
5026 Jason Timothy Dohmen . . . . 02•507.263.7206
5075 Gerald A Liotta . . . . 99•507.263.5324
Sandra C Liotta . . . . 99•507.263.5324
7700 Dean Charles Weber . . . . . 97•507.263.5804
Kim Susan Weber . . . . 97•507.263.5804
7919 ★ Bill Tix Farm 01 507.263.2310
Donna M Tix . . . . 94• NP
Wilfred A Tix . . . . 94• NP
7954 7969 . . . . NP
7990 Allan C Hoel . . . . 96•507.263.4929
Victoria Lynn Hoel . . . . 96•507.263.4929
8126 . . . . NP
8325◇ Marlyne Myrtle Loomis . . . . 91• NP
◇ William Charles Loomis . . . . 91• NP
Duane F Schneider . . . . 01• NP
Sara J Schneider . . . . 01• NP
8465 Rick John Reinardy . . . . . . 92•507.263.0204
20 RESIDENCE 2 BUSINESS

260TH ST W

Farmington
CT 615.01 1161 - 2375 $A
RR1 1161 - 2375 55024
1161 Richard Paul Harris . . . . . . 94•651.463.8577
Toni Dale Harris . . . . 94•651.463.8577
★ Iola G Harris Family Limited Partner
\+ . .
★ Iola G Harris Fmly Lmtd Prtnr + . .
-ALVERNO AVE INTS
1094◇ Delphine Marie Odette . . . . 76• NP
◇ Virgil F Odette . . . . 76• NP
-BISCAYNE AVE W INTS
1910 Germaine Lynn Beyl . . . . . . 89•651.460.6092
Grant Irvin Beyl . . . . 89•651.460.6004
1940 Bob J Marthaler . . . . 90• NP
Candidy Kay Marthaler . . . . . 90• NP
★ Robert Marthaler 01 651.460.6702
1999 Alan F Olson . . . . 90•651.463.7065
Carolyn Louise Olson . . . . . 90•651.463.7065
2033 Allen Jeffery Swenson . . . . . 96• NP
Laura Lee Swenson . . . . . . 96• NP
2111 Paul Robert Christiansen . . . 99• NP
★ Paul Christiansen Construction 01 651.460.4165
2225 Dennis Allen Freiermuth . . . . 95•651.463.2143
Karen J Freiermuth . . . . 95•651.463.2143
2265 Leona E Tussing . . . . 98•651.463.3695
2301 Sharon Ann Kinard . . . . 93• NP
2345 Hugh Ceylon Swift Jr . . . . . . 83•651.463.8212
Sharlene Marie Swift . . . . . . 83•651.463.8212
2375◇ Darryl Lee Gistad . . . . 81•651.463.2779
◇ Janet Elizabeth Gistad . . . . 81•651.463.2779
21 RESIDENCE 4 BUSINESS

E 260TH ST

Elko
CT 811.00 4766 - 10881 $A
RR3 4766 - 7837 55020
4766 Amy Lyn Schumacher . . . . . 94 NP
Carl L Schumacher . . . . . . 94 NP
5780 ★ Roland Peterson Farm . . . 03 952.461.2871
5800 Andrew R McMillan . . . . . . 03•952.461.6468
Jessica S McMillan . . . . 03•952.461.6468
5848 ★ Automotive Fleet Maintenance 03 . .
Delores Kay McMillan . . . . . 73•952.461.3398
George Edward McMillan . . . 73•952.461.3398
5860 Jeff A Schalwig . . . . 03•952.461.4273
Nancy A Schalwig . . . . 03•952.461.4727
6400 Jackie Lori Devine . . . . 01•952.461.6400
Rick John Devine . . . . 01•952.461.6400
6406 ★ Bob Devine 03 952.461.2888
Bernice Elizabeth Devine . . . 73•952.461.2888
6645 ★ Paxa Dale Concrete Contr 92 952.461.2881
7560♣ Karen Fuller . . . . 05• NP
7595 Helene Rose Friedges . . . . . 89•952.461.2437
7665 Jill Bradburn 03 952.461.2098
7745 Debra Kay Fischer . . . . 90•952.461.2272
Gregroy Alan Fischer . . . . . . 90•952.461.2272
7770 Christopher John Fritz . . . . . 91•952.461.3379
7795 Pat Louise Page . . . . 80•952.461.2532
Thomas Percy Page . . . . . . 88•952.461.2532
7805 Linda Ann Belter . . . . 87•952.461.2081
Toney Lee Belter . . . . 87•952.461.2081
7820 ★ New Market Floral 05 952.461.3361
Lee V Wagner . . . . 75•952.461.3361
Patty Mary Wagner . . . . 75•952.461.2661
7837 . . . . NP
RR2 9476 - 10881. 55020
9476 Apartment
6 Carol Ann Jones . . . . 83•952.461.3387
6 Lane A Jones E . . . . 83•952.461.3383
9840 Martin M Deutsch . . . . 73•952.461.3345
William Henry Deutsch . . . . 73•952.461.3345
10675 Arnold G Silverness 95 952.461.3431

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★Traders Market Inc 88 952.461.2400
10880 Robert C Adelmann . . . . . 99•952.461.2226
10881 ★Fiberglass Concepts Llc . . +
★Gary T Raak & Associates Inc 04 952.461.6548
★Trailar Financial Co 00 952.461.6666
★US Fiberglass Windows Of Mn +
30 RESIDENCE 10 BUSINESS

⊕E 260TH ST

New Prague

CT 811.00 120 - 1951 $A
RR5 120 - 1951 56071
120 Mile Frank Pomije . . . . . 87•952.758.2278
★Pomije Land Co 02
301 Jackie Marie Pomije . . . . . 88•952.758.6784
Roger Michael Pomije . . . . . 88•952.758.6784
★Roger Pomije 95 952.758.6784
655 Chad P Anderson . . . . . . 04•952.758.6844
Laura Jo Anderson . . . . . . 04•952.758.6844
691 Marge E Malz . . . . 89•952.758.2741
Randy E Malz . . . . 89•952.758.2741
★Margaret Malz 01 952.758.2741
895 Mindy Pauline Stier . . . . . 05•952.758.5658
Scott Eldon Stier . . . . . . 05•952.758.5658
1086 Dave L Jenkins . . . . . . 00•952.758.3591
1090 Chris M Sampson . . . . . 00•952.758.9226
Julie Kay Sampson . . . . . 00•952.758.9226
1098 ★Hecla Inc 05 952.934.1081
1405 ★Paul Polson 94 952.448.2405
1581 Catharina C Vosser . . . . . 95•952.758.5017
Gary Lee Vossen . . . . . . 95•952.758.5017
1655 John Thomas Hertzog . . . . 04•952.758.6845
Nancy Jean Hertzog . . . . . 04•952.758.6845
1721 Luann M Parrish . . . . . . 89•952.758.8600
Mark Parrish . . . . 89•952.758.8600
1730 . . . . NP
1771 ★Eaglecrest K 9 Resort 03 952.758.5767
★Mr Pro Care Inc 97 952.758.5766
◇ Mike P Reese . . . . 95•952.758.5766
◇ Teresa Lee Reese . . . . . 95•952.758.5766
-VERGUS AVE INTS
1800 ★Bryan S Hydroseeding 05 952.758.9597
Brian Kelly Logue . . . . . . 00•952.758.9597
Kelly Logue . . . . 00•952.758.9597
19109 Francis J Tupy . . . . 84•952.758.3501
◇ Karen Ann Tupy . . . . . . 84•952.758.3501
1951 Allen Joseph Tupy . . . . . 92•952.758.2744
26 RESIDENCE 8 BUSINESS

⊕E 260TH ST

Webster

CT 811.00 2116 - 4451
RR1 2116 - 4451 55088
2116 ★Zweber Construction & Drywall 01 952.758.4022
2140 Owen Oneal Maynard . . . . 02• NP
Ruth Marilyn Maynard . . . . 02• NP
2230 ★D And M Enterprises 97
◇ Janet J Dyslin . . . . 93•952.758.5477
◇ Jim D Dyslin . . . . 93•952.758.5477
2291 Karen Jean Karssebohm . . . . 96•952.758.5222
Robert Allen Karssebohm . . . 96•952.758.5222
2466 Dean Renald Benson . . . . . 95•952.758.2038
Teresa Ree Benson . . . . . 95•952.758.2038
2590 Jami Lynne Stocker . . . . . 95•952.758.6524
Sylvester Alois Stocker . . . . 95•952.758.6524
2591 Diane Mary Srek 84 952.758.3844
Mark Thomas Srek Jr 84 952.758.3844
2646 Cyril Allen Simon . . . . . . 95•952.758.3372
Natalie Ann Simon . . . . . . 95•952.758.3372
3275 Richard Allen Hennes . . . . 88•952.461.2289
Susan Doris Hennes . . . . . 88•952.461.2289
★Lakers Disposal 88 952.461.2276
★Richard Hennes 95
3565 ★C & S Prprty Of New Prg Llc +
3595 ★H & H Environmental Solutions 05
★Heating & Plumbing Consultants Inc
00 952.758.4727
3600 Kayland F Call . . . . 95•952.461.2557
Neil Michaele Call . . . . . . 95•952.461.2557
3675◇ Ginny M Cooper . . . . 98•952.461.2258
◇ Roger Eugene Cooper . . . . 98•952.461.2258
3725 Cary Grant Boeltler . . . . . 00•952.461.4676
Diane V Boeltler . . . . . . 00•952.461.4676
4291 4295 . . . . NP
4350 Clara Ann Pexa . . . . 96•952.461.2873
Robert Raymond Pexa . . . . 93•952.461.2873
4451◇ Patrick Joseph Flier . . . . . 98•952.461.4235
◇ Sandra Lynn Flier . . . . . 98•952.461.4235
★Patrick 02 952.461.4235
28 RESIDENCE 8 BUSINESS

⊕W 260TH ST

Belle Plaine

CT 813.00 7475 - 11295 $C
RR1 7475 - 11295 56011
-CHURCH AVE INTS
7475 Paul Herbert Franzen . . . . . 69•952.873.6695
Rosemary Vossen Franzen . . 69•952.873.6695
★Franzen Electric Machine . 97 952.873.6695
10161 Janet Ann Larson . . . . . . 73•952.873.6666
Robert Dean Larson . . . . . 73•952.873.6666
10398 Karen Kay Eliason . . . . . . 05•952.873.6676
Michael Alan Eliason . . . . . 05•952.873.6676
10450 . . . . NP
10960 Ingrid A Bey . . . . 87•952.873.6952
David John Plunkett . . . . . 87•952.873.6952
11005 ★Ericksons Snowplowing . . 00 952.873.6746
11293◇ Annette Katherine Brooks . . 02•952.873.5422
◇ Jeffrey Ernest Brooks . . . 02•952.873.5422
★Timbertrails Game Farm . . + 952.873.5422
11211 Lisa J Schatz . . . . 97•952.873.4264
Patrick John Schatz . . . . . 97•952.873.4264
11295 Wayne D Ingram . . . . . . 05•952.873.6696
Carol J Laurent . . . . 05•952.873.6696
15 RESIDENCE 3 BUSINESS

⊕W 260TH ST

New Prague

CT 812.00 750 - 5710 $C
RR5 750 - 1495 56071
750 Greg John Pavek . . . . . . 05•952.758.3914
Tina A Pavek . . . . 05•952.758.3914
825 Al Mark Novotny . . . . . . 81•952.758.4109
George Richard Novotny . . . 81•952.758.4708
880◇ Jon Carl Hendricks . . . . . 89•952.758.2573
◇ Mary Ruth Hendricks . . . . 89•952.758.2573
1215 Pam Ann Klatz . . . . 90•952.758.4812
Rick Joseph Klatz . . . . . . 90•952.758.4812
★Rick Klatz 05

1250 Ross Clement Machacek . . . 96•952.758.6565
1350 Michelle Ann Novotny . . . . 96 NP
1376 Alfred W Novotny . . . . . . 87•952.758.2150
Janet Marie Novotny . . . . . 82•952.758.2150
1495 Elizabeth Marie Tisdel . . . . 02• NP
John Alan Tisdel . . . . . . 02• NP
RR3 2355 - 4849 56071
2355 ★Advanced Seeding Control Inc 05 952.758.7741
Kelley A Degross . . . . . . 04•952.758.7001
Mike Clarence Degross . . . . 04•952.758.7001
2375 Jon Thomas Racermacher . . 02•952.758.9736
Lori Lynn Radermacher . . . . 02•952.758.9736
2380 Mark Christian Lund . . . . . 97•952.758.5654
Tara Lynn Lund . . . . 97•952.758.5654
2395 Barb A Sdiazeck . . . . . . 02•952.758.4327
Troy Ernest Sdiazeck . . . . . 02•952.758.4327
2501◇ Kevin Michael Hartmann . . . 93•952.758.4126
◇ Nancy Ann Hartmann . . . . 93•952.758.4126
2521 Arlene Joyce Hoffman . . . . 93•952.758.4267
Joe Ralph Hoffman . . . . . 93•952.758.4267
2626 Chris Alan Kubes 82 952.758.3330
Jr Kubes 82 952.758.3330
★Kubes Realty Inc 03
-NAYLOR AVE INTS
3051 Diane Marie Wackman . . . . 89•952.758.3854
Larry Harold Wackman . . . . 89•952.758.3854
3071 Jean Rae Dolezal . . . . . . 87•952.758.2540
Mark David Dolezal . . . . . 87•952.758.2540
3291 Cathy Gronevelt . . . . . . 96•952.758.9177
Ryan Andrew Gronevelt . . . 96•952.758.9177
★New Life Canvas . . . . . . +
3296 Joan Rokutani Wagner . . . . 86•952.758.3970
Kari Anthony Wagner . . . . . 86•952.758.3970
3480 Jeff Thomas Schoenbauer IV 99•952.758.8875
Traci Marie Schoenbauer . . . 99•952.758.8875
3655 Carol Ann Zelenka . . . . . . 85•952.758.4202
Roy John Zelenka . . . . . . 85•952.758.4202
3891 Ed C Nytes 87 952.758.2337
Sharl Jean Nytes 87 952.758.2337
4450◇ Dave J Schoenbauer 98 952.758.6698
◇ Jamie S Schoenbauer 98 952.758.6698
-SAINT BENEDICT RD INTS
4591 Stacy Schmitz . . . . 00•952.758.4561
Steve R Schmitz . . . . 00•952.758.4561
4849 Cordie Robert Schmitz . . . . 00•952.758.6573
RR1 5331 - 5710 56071
5331◇ John S Lischens . . . . . . 82•952.758.3241
◇ Leslie S Fischens . . . . . . 82•952.758.3241
5350 Anna Albina Fischens . . . . 81•952.758.3592
Myron John Fischens . . . . . 81•952.758.3592
5710 ★Bob Nytes 01 952.758.4390
Alice R Nytes . . . . 84•952.758.4390
Bob F Nytes . . . . 84•952.758.4390
53 RESIDENCE 5 BUSINESS

⊕261ST AVE

Belle Plaine

CT 9701.98 19701 - 20740 $E
RR2 19701 - 20740 56011
19701 Kristine D Uppman 97 952.873.6943
Tom S Uppman 97 952.873.2332
★Uppman Technical Services Inc 99 952.873.2332
19705 . . . . NP
19912 Patty S Irion 96 952.873.4517
Paul J Irion 96 952.873.4517
20235 Brian Mark Schultz 02 952.873.6599
Noreen Schultz 02 952.873.6599
20263 Loren H Kerkow Jr . . . . . 98•952.873.6188
20472 James Mathias Witt . . . . . 96•952.873.4481
Marilyn Margaret Witt . . . . 96•952.873.4481
20740 Jeff David Bromley . . . . . 96•952.873.2206
Tina Marie Bromley . . . . . 96•952.873.2206
12 RESIDENCE 1 BUSINESS

⊕261ST AVE NE

Isanti

CT 1305.00 350 - 2445 $D
RR6 350 - 1376 55040
-MONROE ST NE INTS
350◇ Barb Denise Haak 81 763.444.5716
◇ Thomas E Williams 81 763.444.5716
386 Karen Marie Lach 97 763.444.7017
Tracy Jonn Lach 97 763.444.7017
425 Erik 5 Draxten 82 763.444.5338
Sara Noel Draxten 82 763.444.5338
475◇ Alan Robert Oberg 76 763.444.4860
◇ Margaret L Oberg 76 763.444.4860
575 . . . . NP
613 Gerald Reid . . . . 02 NP
639 Debra June Abersold 02 763.444.9099
Mark Alan Abersold 02 763.444.9099
663 Lorraine M Schummer . . . . 88•763.444.5830
865 Doyle A Peck 00 763.444.9874
Karen Jane Peck 00 763.444.9528
1000 ★♣ Country View Golf Drvng R + 763.444.7339
1001 ★Beaver Plumbing Co 05 763.434.4100
Vaughn Treumer Ackquist . . . 98 763.444.5716
1376 Allan E Johnson 94 763.444.8384
Barbara Johnson 94 763.444.8384
RR2 1435 - 2445 55040
1435 Amy Jo Lyzheft . . . . 96•763.444.5208
Kevin Kelly Lyzheft . . . . . 96•763.444.5208
1471 Darryl Virgil Fly . . . . . . 96•763.444.8076
Sally Ann Fly . . . . 96•763.444.8076
1500 . . . . NP
1521 Heidi Ann Miller . . . . . . 93•763.444.9912
1554 Alden Johnson 82 763.444.5300
James Eugene Johnson 82 763.444.5300
1770 Alonzo Blair . . . . 95 NP
Louise Blair . . . . 95 NP
1875 Tracey Bostrom 03 763.444.9483
1914♣ R Bonte . . . . + 763.444.7133
1955 Michael R Obrien . . . . . . 95• NP
Nicholas Obrien . . . . 95• NP
2051◇ Daniel Gerald Mujwid 99 763.444.7435
2155 . . . . NP
2245 ★All Terrain Excavating 99 763.413.2407
Kim Korpela Benolken . . . . 02•763.434.3646
Steven James Benolken . . . . 02•763.413.2407
2319♣ Ann Walker 05 763.444.9318
♣ Anthony Walker 05 763.444.9318
2351 Betty K Thompson 04 763.444.5463
Dean K Thompson 04 763.444.5463
2445 Lonn Tschappat 03 763.444.6663
41 RESIDENCE 3 BUSINESS

⊕261ST AVE NW

Isanti

CT 1305.00 74 - 3790 $D
CT 1306.00 4101 - 5050 $C
RR4 74 - 490 55040
74 Myron M Spike 89 763.444.5962
1450 Curt Phillip Carpenter . . . . 81•763.444.5734
◇ Diane M Carpenter . . . . . 81•763.444.5734
250 Richard W Klesk . . . . . . 83• NP
311 Elizabeth Marie Lockwood . . 98 763.444.0359
Terry Lee Lockwood 98 763.444.0359
318 ★Bath Care 94
Max Oler 98 763.444.8006
350 Craig Martin Hamilton . . . . 94•763.444.8068
★Hamilton Painting 93 763.444.8068
411 Eric E Fischer . . . . 96•763.444.9140
Kerri Kay Fischer . . . . . . 96•763.444.9140
490 Jean Louise Stauffer . . . . 84•763.444.9809
Joseph Lloyd Stauffer Jr . . . 84•763.444.9809
RR1 1690 - 5050 55040
1690 . . . . NP
1771 Cherlyn Mercedes Stewart . . 87•763.444.6552
Daniel J Stewart . . . . . . 87•763.444.6552
2051 Kari Schurmann 03 763.444.0379
Wade Micheal Schurmann . . . 03 763.444.0379
2056 Cathy G Newcomb . . . . . . 94 NP
Dave J Newcomb . . . . . . 94 NP
-PARTRIDGE ST NW INTS
2129 Carrie Marie Olson 03 763.444.0036
Eric Floyd Olson 03 763.444.0036
2217 Mark William Sorenson . . . 90 763.444.6773
2281 Greg Roy Ibister 96 763.444.7806
2319 Gladys Dockham . . . . . . 05 NP
2591 Ryan Carpenter 01 763.444.6142
2772 Bridget Wanchena . . . . . . 01 NP
3120 Linda Sue Bottema . . . . . 77•763.444.4329
William E Bottema . . . . . . 77•763.444.4329
3203 Bruce B Selvig . . . . 93•763.444.3683
Paula Y Selvig . . . . 93•763.444.3683
3205♣ Lonnie Tschappat . . . . . . 05 NP
3515 Darlene M Duerr . . . . . . 88•763.444.6070
Gary James Duerr . . . . . . 88•763.444.6070
3560 Apartment
N John Joseph Lang . . . . . . 95•763.444.9112
N Paulette Lynn Lang . . . . . 95•763.444.9112
3581 ★All Construction Design . . . 04 763.444.0283
Jolea L Taboka . . . . 96•763.444.0283
Michael Eugene Taboka . . . . 96•763.444.0283
3700 Lou A Bell . . . . 88•763.444.6345
Steven Lynn Bell . . . . . . 88•763.444.6345
4101 Dale Earl Karpe . . . . . . 94• NP
Sherry Smigowski Karpe . . . 94• NP
★Sherry Karpe 05 763.444.7896
4195 John Howard Blumer 90 763.444.4701
Polly Jo Blumer 90 763.444.4701
★Blumers Auto Wrecking . . . 05 763.444.5693
-ROANOKE ST NW INTS
4405 Elard Duane Blumer 75 763.444.5693
Jason David Torgerson 75 763.444.5693
4450 ★Moms Salvage & Services 04 763.444.5312
Pam D Plocher 94 763.444.5312
William G Plocher 94 763.444.5312
★Rap Properties Llc 05 763.444.8404
4463 Donna P Shockley . . . . . . 87•763.444.8208
4500♣ Joyce A Lillebue 97 763.444.7172
4525 Jane M Moore . . . . 04•763.444.0469
4540 Ralph Blumer . . . . + 763.444.6997
4544 . . . . NP
4585 David Ralph Swanson . . . . 95 NP
Wanda Lorraine Swanson . . . 95 NP
4588 . . . . NP
4604 Darlene Sharon Lindelof . . . 05 763.444.6666
Robert W Lindelof 05 763.444.6666
4619 Barbara Lund 82 763.444.4368
Dennis A Lund 82 763.444.4368
4792 Charles Lawrence Bowman . . 92•763.444.9419
Dr Ellen Louise Bowman DVM 92•763.444.9419
4839 ★Ronald Sundeen 03
Ron Joseph Sundeen 83 763.444.6361
5050 ★Stanford Township 96 763.444.5789
62 RESIDENCE 9 BUSINESS

⊕261ST AVE NW

Saint Francis

CT 1306.00 5790 - 7295 $C
RR1 5790 - 7295 55070
5790 Chris Thomas Baumgardt . . . 96•763.444.8050
Wendy Dawn Baumgardt . . . 96•763.444.8050
★Chriss Ornamental Concrete +
5869◇ Larry D King . . . . 82•763.444.5978
◇ Pat A King . . . . 82•763.444.5978
5951 Joann Geri Barthold 92 763.444.9014
Peter Joseph Barthold 92 763.444.0455
★Peter J Barthold 05 763.444.7447
5962 . . . . NP
6019 Harry Hjermstad . . . . 05 NP
6065 Donald L Ryman . . . . 82•763.444.0439
Janet S Ryman . . . . 82•763.444.0439
6151 Betty A Grotte . . . . 87•763.444.5689
Donald C Grotte . . . . 87•763.444.5689
6171 Connie Marie Stevens . . . . 94•763.444.5238
Eric David Stevens . . . . . 94•763.444.5238
6251◇ Linda Jane Harris 02 763.444.9390
◇ Scott Kevin Lenz 02 763.444.9390
6277 Chuck Chester . . . . 02•763.444.7941
Karen Marie Chester . . . . . 02•763.444.7941
★Chuck Chester And Associates 02
6340 Delton Ray Whittet 82 763.444.5366
Joann Ann Whittet 82 763.444.5366
6403 Angela Antczak . . . . 05•763.444.9087
Mark E Antczak . . . . 05•763.444.9087
6495 Kathryn F Ferguson 01 763.444.4013
Troy Douglas Ferguson 01 763.444.4013
6525 Lizbeth Martinez 02 763.444.3826
6599 Ray M Manahan . . . . 01 NP
★Manahan Stables Llc 02 763.444.6722
★Securities America 05 763.444.8401
-CROWN CIR NW INTS
6634 ★C & G Lehman Properties . . + 763.444.5787
Audrey Delores Grams . . . . 82•763.444.5787
6997◇ Steven Mark Roles 96 763.444.6414
7295 Kenneth Ryan Sprenger 94 763.856.2005
Kimberly Joy Sprenger 94 763.856.2005
30 RESIDENCE 6 BUSINESS

⊕261ST AVE NW

Zimmerman

CT 1306.00 7790 - 9418 $C
CT 301.00 9686 - 14835 $C
RR1 7790 - 11975 55398
-DOLPHIN ST NW INTS
7790 Gene Dale Gifford . . . . . 93•763.856.5068
Stephanie Gifford . . . . . . 93•763.856.5068
7900 Brent Marlow Aase . . . . . 94• NP
-LLAMA ST NW INTS
8015 Daniel Douglas Grams 79 763.856.2640
Eddie Grams 79 763.856.5915
8296 Daryl Arthur Grams 97 763.856.1009
Tammy Jean Grams 97 763.856.1009
8435 Teresa Bertha Whittlef . . . 82 763.856.4169
8437 Barbara Jean Johnson 96 763.856.4344
Kenneth D Johnson 96 763.856.4344
8446 Glenice Elaine Sommers . . . 04• NP
8551 April Susan Pinyan . . . . . 94•763.856.4906
Ron Howard Pinyan . . . . . 94•763.856.4906
8597 Ann Carol Connors . . . . . 93•763.856.3393
8600 Mark Alan Struthers . . . . . 01 NP
Teri Lynn Struthers . . . . . 01 NP
8628 Robert Raymond Hentges . . . 90•763.856.1008
8647 Carl Wayne Smith 96 763.856.4437
Sadie Smith 96 763.856.3307
8650 Gene Ronald Grams 74 763.856.2852
Judith Ann Grams 74 763.856.2852
8802 Richard P Walbridge 02 763.856.3154
8870 Marvin H Stallcop 96 763.856.2317
Ryan Stallcop 96 763.856.0127
8878 Lisa Renee Zwack . . . . . . 93•763.856.4214
Scott R Zwack . . . . 93•763.856.4214
8959 Dave Arthur Filly . . . . . . 02 NP
Terrill L Filly . . . . 02 NP
8970 Ben Dorard Bullock . . . . . 94•763.856.0958
Donna Marie Bullock . . . . . 94•763.856.0958
8995 David C Embree . . . . 96•763.856.3210
Kris Mae Embree . . . . . . 96•763.856.3274
★Timberidge Construction Service
03 763.856.3210
-ANDRIE ST NW INTS
9004 Justin Drum 01 763.856.5727
9064 Jolene M Bell . . . . 03•763.856.4364
Thomas E Bell . . . . 03•763.856.4364
9170 Lorelei L Olson . . . . 75•763.856.4164
Paul Robert Olson . . . . . . 75•763.856.4164
-JARVIS ST NW INTS
9200 Chris Marie Dequaine 02 763.856.2366
Kenneth John Dequaine 02 763.856.2366
★Edina Realty Inc 03
9270 ★Gopher Gulch Saddle Club 01
★Minuteman Press . . . . . . +
Lori Catherine Olson . . . . . 85•763.856.3240
Wayne Robert Olson . . . . . 85•763.856.3240
9340 Joyce A Newman . . . . 96•763.856.4523
Ted C Newman . . . . 96•763.856.4523
9390 . . . . NP
9416 Darwin D Sunderland . . . . + NP
Denise R Sunderland . . . . . + NP
-102ND ST NW INTS
9696 . . . . NP
9697 Peggy Sue Maciej . . . . . . 72•763.856.4452
9755 Karen Ann Hodge . . . . . . 94•763.856.1089
Michael S Hodge . . . . . . 94•763.856.1089
9810 Dan A Wudtke . . . . 96•763.856.0473
Jennifer L Wudtke . . . . . . 96•763.856.0473
9839◇ Andy Herrmann . . . . 93•763.856.4148
◇ Andrena Johanah Herrmann 93•763.856.4148
9925 Dianna Marie Herrmann . . . 94• NP
9990 Patty Ann Lundgren . . . . . 88•763.856.2611
Robert S Lundgren . . . . . . 88•763.856.2611
10015 Daniel S Fletcher . . . . . . 03• NP
10060 Mark Patrick Moriarty . . . . 92•763.856.3421
Tammy Verna Moriarty . . . . 92•763.856.3421
10080 Colleen Marie Hempel . . . . 84•763.856.2824
Keith J Hempel II . . . . . . 84•763.856.2824
10223♣ Chad S Nasby 02 763.856.5158
♣ Kristina K Nasby 02 763.856.5158
10230 Lorine Eva Bardwell . . . . . 93• NP
Mark Allen Bardwell . . . . . 93• NP
10240◇ Darla Marie Rodriguez . . . . + 763.856.5857
◇ David A Rodriguez . . . . . + 763.856.5857
10320 Barbara Riggs . . . . 93•763.856.4047
Dexter Riggs . . . . 93•763.856.3700
10332 . . . . NP
10430 Craig Allan Hinrichs . . . . . 95•763.856.3633
Kim Lynn Hinrichs . . . . . . 95•763.856.3633
10485 Danny Warren 88 763.856.3811
Joann Arlene Warren 88 763.856.3811
-110TH ST INTS
10555 Claudette Miriam Aubart . . . 96•763.856.0902
Thomas James Aubart . . . . 96•763.856.0902
10627 Barb Ann Settambrino . . . . 01•763.856.6736
Gregory Raymond Settambrino 01•763.856.6736
10635◇ Hugh Delvin Irwin . . . . . . 90•763.856.2129
◇ Monika Waltraut Irwin . . . . 90•763.856.2129
★Irwin Exteriors Inc 01 763.856.0440
10725 Apartment
1♣ Jeremy James Taft . . . . . . 96•763.856.3447
1♣ Mary H Taft . . . . 96•763.856.3447
10785 Kevin R Hiller . . . . 94•763.856.2453
Nancy Lynn Hiller . . . . . . 94•763.856.2453
★Hiller Auction Service Inc 94 763.856.2453
10815 Linda L Davis . . . . 92•763.856.2967
10820 Barb J Ballnagen . . . . . . 02•763.856.3758
Ken Floyd Ballnagen . . . . . 02•763.856.0438
★Emerald Evergreen 91 763.856.2469
10855 Carol Lynn Laberge . . . . . 97•763.856.5665
Leon Mathew Laberge . . . . 97•763.856.5665
11049 ★Double Trouble Inc 05 763.856.3372
Doris Rita Gruis . . . . 93•763.856.3372
Mickey Lee Gruis . . . . . . 93•763.856.3372
★Gruis Trucking . . . . 05•763.856.3372
★Jags Pro Truck Shop Inc . . +◇763.856.3372
11129 Karen Ilene Frederick . . . . 95•763.856.3970
Thomas David Frederick . . . 95•763.856.3970
★Self Funded Services Co . . + 763.856.8772
11190 Bruce Charles Grendahl . . . 93•763.856.3390
-112TH ST INTS
11360◇ Lyle Otto Petersen . . . . . 92•763.856.2110
◇ Rebecca Omundson Petersen 92•763.856.2110
11520 . . . . NP
11605 Kelly Ringgaard . . . . . . 92• NP
Shirley Irene Ringgaard . . . 92• NP
11610 . . . . NP
11815 James David Julik . . . . . . 91•763.856.3161
Yvonne Hope Julik . . . . . . 91•763.856.3161
11840 Eric Roger Johnson . . . . . 95•763.856.0829
Lauren M Johnson . . . . . . 95•763.856.5981
11975 Elizabeth J Hagland . . . . . 94• NP

ADDRESS

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RR 8 55092
6440 Susan K Lee . . .93 • 651-462-5710
6461 S J Schulze . . .93 • 651-482-8322
8464 Todd G Houle . .89 • 651-462-1915
Wendi L Houle . .89 • 651-482-1915
8986 Alan W Gay . . .94 • 651-462-2688
Cheryl L Gay. . . .94 • 651-462-2889
— GUSTAVUS CT INTS
7014 Cynthia A Bidney .98 • 651-462-3224
Norman L Bidney .96 651-462-3224
7015 Eickman Craig . .80 • NP
7025 Michael J Phillips .98 851-462-0028
7028 Lee A Shogren . .81 • 851-462-1233
William R Shogren 91 • 851-462-1233
7036 Rebecca L Espersen 84 • 851-462-4630
Steven J Espersen 64 • 651-462-4530
7067 . . . . NP
76 RESIDENCE

259TH AVE NE
Isanti
3800- 3999 CT1304 $E..

RR 2 55040
— VICKERS ST NE INTS
3823 Dean A Larson . .78 763-444-5081
Joan D Larson . .75 763-444-5081
3896 Tim J Koosman . .00 793-444-4671
3930 Jack J Lauenberger 90 763-444-9293
M J Lauenberger .90 763-444-9293
5 RESIDENCE

259TH ST
Wyoming
5500- 6299 CT1104 $D..

RR 7 55092
— FINCH CT INTS
5600 David L Sampel . .90 • 851-462-2158
Lonnie J Sampel .90 • 651-462-2156
5620 Douglas Aemanson + • NP ◇
5640 Sharon J Marzyn .00 • NP
5655 5660 . . . . NP
5880 Judith A Weihrauch 92 • 851-462-2178
5685 Durwin L White . .81 • 851-462-3678
Linda L White . .81 • 851-462-3679
— FLORAL CT INTS
5700 John H Sathre . .93 • 651-482-2756
5705 Robyn S Sampel .83 • 651-482-2282
Todd A Sampel . .93 • 851-482-2282
5720 Jane E Molitor . .96 • NP
5725 . . . . NP
5740 Ronald J Stace . .91 • 651-482-2428
5755 David N Durfee . .95 • NP
5760 Carrie E Pepin . .92 • 851-462-1305
Wayne J Pepin . .82 • 651-462-1306
5780 . . . . NP
5800 Amy J Dickenson .82 • 651-462-6478
John M Dickenson 82 • 651-462-6476
5801 . . . . NP
5802 Cindy Pikala . . .93 • NP
5805 Jeanene M Roetch 88 • NP
5812 Charles W Yetter .68 • 651-462-6247
Dona L Yetter . .89 • 851-462-8247
6820 . . . . NP
5840 Sharon L Knauff .88 • 651-462-2803
Thomas J Knauff .69 • 851-462-2603
5845 Bonita M Johnson 84 • 651-462-6213
Randy R Johnson .34 • 651-462-9213
5860 . . . . NP
5665 Beverly A Jensen .93 • 651-462-4023
Todd H Jensen . .93 • 651-462-4029
5880 Kristi M Streff . .92 • 651-462 ◇8552
Robert W Streff .92 • 651-462 ◇8552
5885 Gerald D Wavrin .91 • 851-462-1696
Sylvia I Wavrin . .91 • 851-482-1696
5600 Jerome D Phillips .84 • 651-462-3480
Ted C Phillips . .94 • 651-462-3460
5805 Bart G Mollet . .96 • NP
5620 Jackie L Willson .66 • NP
5925 Kelley F Meyers .92 • 651-482-4720
Kenneth E Meyers 92 • 651-482-4720
5940 Nancy G Savage .98 • 851-462 ◇2138
William C Savage .98 • 651-462 ◇2138
5945 Deborah L Kunz .91 • 651-462-4503
Steve J Kunz . . .91 • 651-462-4503
5860 . . . . NP
5664 John D Iaffaldano 00 NP
5885 Vicki Truax 69 651-462-2023
5867 Cheryl A Whynaucht 88 651-462-3028
Mark A Whynaucht 99 651-462-3028
6001 Vicki M Meyer . .99 NP
8004 Kevin J Byl . . .99 NP
Sandra F Byl . . .88 NP
6027 Kath C Anderson . + NP
Sheldon H Anderson + NP
8028 Jodi W Goodnow .94 851-408 ◇8111
Paul S Goodnow .64 851-408 ◇6111
6037 Steve C Ulrich . .99 651-408-8111
Susan L Ulrich . .99 651-408-8111
6039 . . . . NP
6061 Chris T Rocha . .00 NP
6066 Stephen L Dnell .97 NP ◇
6060 . . . . NP
8103 Penny M Walters .97 651-408-1508
Timothy C Walters 67 651-406-1506
6113 James T Dowling .99 651-738-8853
Renea K Dowling .88 651-462-7805
6118 Andrew R Kettelhut 00 NP
K A Kettelhut . .00 NP
6136 P S Boudewyns . . + NP
Rhonda A Boudewyns + NP
6141 Sarah A Dufour . .89 NP
Stevan M Dufour .99 NP
6153 Bridget S Kutz . .89 NP
Frank E Kutz . . .99 NP
6173 John K Bier . . .94 NP
Keith A Bier . . .94 NP
6194 Debra L Tate . . .00 NP ◇
Timothy B Tate . .00 NP ◇
6197 Rhonda J Stork . .88 NP
Robert J Stork . .99 NP
8208 Debra R Borene .89 NP
Micheal S Borene .99 NP
6211 C A Schumacher .94 • NP
6263 Jennifer Hagstad .00 651-406-1416
6275 Jonathan E Watkins 89 851-462-1782
Virginia E Watkins 99 651-462-1782
6276 . . . . NP
91 RESIDENCE

E 259TH ST
Elko
11700-11899 CT 811 $B..

RR 2 55020
— SKYLINE CIR INTS
11745 Richard S Hartmann 73 652-461-3546
11625 Colleen M Kocks .96 NP
Scott D Kocks . .98 NP
11655 Charles P Decker .96 NP
11850 . . . . NP
5 RESIDENCE

259TH ST E
Lakeville
11900-11999 CT 611 $B..

RR 1 55044
11985 Dale E Fredrickson 88 952-461-3581
Y J Fredrickson .88 952-461-3581
2 RESIDENCE

260TH ST
Wyoming
5000- 7699 CT1104 $D..

RR 1 55092
5161 Kevin M Kirvida .00 NP

RR 7 55092
5455 Ted Haines . . . . + NP
5485 Apartments
8 Leah A Lemmerman 00 NP

RR 6 55092
6351 Douglas J Miller .98 • 861-462-4315
Heidi M Miller . .96 • 651-462-4315
6375 6383 6389 . . . . NP
— GRAFTON AVE INTS
6403 Leslie J Clapp . .63 651-462-6258
6431 Joan M Pickard .94 NP
Steven L Pickard .84 NP
6463 J S Birdsall . . .92 • NP
8483 6486 8504 6526 . NP
6540 6553 6556 . . . . NP
6578 Julie K Henry . .00 851-462-3818
G S Zimmerman .00 651-462-3816
8588 . . . . NP
— GRANADA AVE INTS
6600 Robert J Nelson .92 • NP
6603 Diane M Schneider 00 651-462-1354
Mark A Schneider 00 651-452-1354
6842 Debra A Rose . .93 651-462-1478
Troy A Rose . . .93 851-482-1478
6674 Julie L Thelhuber .87 • NP
6712 Chris S Isaacson .98 651-462-2534
Lyn E Isaacson . .88 651-462-7534
6748 Amy Huset . . . .02 • NP ◇
Bruce Huset . . .02 NP ◇
6770 6775 6777 6640 . NP
8866 Amy Huset . . . .02 NP ◇
Bruce Huset . . .02 NP ◇
7003 James R Ambrose 96 • NP
7065 Keri J Seviola . .95 • NP
7070 Jeffrey L Cottrell . + NP ◇
Lisa N Cottrell . . + NP ◇
7148 Cynthia L Loeffler 82 • NP
7185 Edmund D Olson .76 • 651-482-5464
Norma I Olson . .79 • 651-482-5464
— PIONEER RD INTS
7306 James M Hoffman 79 • 851-462-2608
7313 Mary L Keilty . . .86 • NP
7327 7337 . . . . NP
7345 Emilie S May . . .00 • NP ◇
Marie T May . . .00 NP ◇
7393 . . . . NP
7413 Debra J Boeh . .00 651-462-1186
Stephen P Boeh .00 651-462-1198
7452 . . . . NP
7496 Apartments
186 Mary K Thoelo . .84 651-462-1045
7483 . . . . NP
7471 David A Haskins . + 651-408-8916
Gail P Haskins . . + 651-408-8918
7492 . . . . NP
7483 G J Pietruszewski .91 • 851-462-1475
R M Pietruszewski 91 • 651-462-1497
7506 . . . . NP
7529 Deborah A Michaud 80 • NP
7537 Jamie L Thompson 79 • NP
7558 7606 7612 7618 . NP
7629 ★ Rolltex Computers 612-805-9111
69 RESIDENCE 1 BUSINESS

E 260TH ST
Elko
4700-10899 CT 811 $B..

RR 1 55020
— ZACHARY AVE INTS
4766 Amy L Schumacher 84 NP
C L Schumacher .84 NP
5780 Roland J Peterson 95 852-461 ◇2871
Rosalie A Peterson 86 852-461 ◇2871
— TEXAS AVE INTS
5646 Andrew McMillen . + NP
5880 Nancy A Schalwig 87 852-461-3653
Tom Schalwig . .67 652-461-3853
6400 Jackie L Devine .84 • NP
6406 Bernice E Devine .73 • 652-461-2866
8845 Dale F Paxa . . .85 652-461-4205
Frances E Paxa . .65 852-481-4205
★ Paxa Dale Concrt 952-461-2881

RR 2 55020
7595 Helena R Friedges 89 • 852-461-2437
7665 Bridget L Deer . .62 • 952-461-2080
Thomas R Deer . .92 • 952-461-2080
7745 Gregory A Fischer 60 • 852-481-2272
7770 Kari L Bruder . . .93 • NP
Kevin L Bruder . .99 NP
7798 Patricia L Page . .88 • NP
7805 Linda A Belter . .67 952-461-2081
Toney L Belter . .87 952-461-2081
7620 Jerrod L Wagner .75 952-461-3361
Patty M Wagner .75 952-461-3361
7837 Layne S Johnson .96 • NP

RR 3 55020
— XERXES AVE INTS
8476 Carol A Jones . .83 952-461 ♦3383
Lana A Jones . .83 952-461 ♦3393

RR 2 55020
8840 Dolores S Deutsch 73 852-481-3345
Roman M Deutsch 73 952-461-3345
10405 Jeffrey J Niemeyer 98 NP
★ Niemeyer Trir Sls 952-461-2525
10481 ★ Glasses Pizza&Lnt 952-461-2632
★ Last Lap Saloon . ⊙ 952-461-2632
★ Sybrandt Glenn W ⊙ 952-461-2632
— NEWTON CIR INTS
10675 A G Silverness . .65 952-481-3431
★ Trailers Market Inc 952-481-2400
10680 Clyde T Weierke .98 952-461-3778
Dana L Weierke .86 952-461-3776
10680 Robert F Adelmann 88 952-461-2226
10881 ★ Trailer Facl Co . 952-461-6666
★ Trailer Traders . . ⊙ 852-461-6666
★ Twin CTS Fdrtl . 952-461-6546
32 RESIDENCE 9 BUSINESS

260TH ST E
Farmington
1001- 1705 CT 615 $C..

RR 1 55024
— 260TH ST W INTS
1043 Glen E Dubbels . .65 651-463-6201
1605 Paul F Irthum . .70 • 651-463 ♦ 6241
Sara B Irthum . .70 651-463 ♦ 6241
3 RESIDENCE

E 260TH ST
New Prague
100- 199 CT 812 $E..
300- 1999 CT 811 $B..

RR 6 56071
120 Carol A Vonbank .00 852-758-1640
Jeffrey M Vonbank 00 952-758-1640
— BASELINE AVE INTS
301 Jackie M Pomije .88 NP
Roger M Pomije .88 NP
655 Connie R Hendricks 91 • 952-758 ◇3735
Paul C Hendricks .91 • 952-758 ◇3765
601 Marge E Malz . .89 • 952-758-2741
Randy E Malz . .89 • 952-758-2741

RR 5 56071
— DREXEL AVE INTS
1088 . . . . NP
1090 Chris M Sampson .00 952-758-8226
Julia K Sampson .00 952-758-8226
1098 Jerry Smith 02 952-758-9339
1405 Bruce C Polson . .98 • NP
1581 Catherine C Vossen 90 952-758-5017
Gary L Vossen . .90 952-758-5017
1655 Dawn M Bousch .88 • 952-758 ♦ 3873
Ron Bousch . . . .88 • 952-758 ♦ 3873
1721 Mark A Parrish . .89 • 952-756-8600
1730 James L Nordwall 88 • 952-758-4105
Lorna R Nordwall 88 • 952-756-4105
1771 Terese L Reese . .95 952-758 ◇5787
Tracy Reese . . .95 952-758 ◇5767
1800 Kelly Logue . . . .00 • 952-758-9524
— VERGUS AVE INTS
1910 Francis J Tapy . . + NP ◇
Karen A Tapy . . + NP ◇
1951 . . . . NP
26 RESIDENCE

W 260TH ST
Belle Plaine
7400-11399 CT 813 $E..

RR 1 56011
— DELAWARE AVE INTS
7475 Paul H Franzen . .66 • NP
10191 Janet A Larson . .73 952-873-8888
Robert D Larson .73 652-873-6666
— HICKORY BLVD INTS
10880 David J Plunkett .67 • 952-673-6952
11203 Annette K Brooks 02 NP ◇
Jeffrey E Brooks .02 NP ◇
11211 Lisa J Schatz . . .97 952-873-4264
Patrick J Schatz .97 652-873-4264
8 RESIDENCE

260TH ST W
Farmington
1601- 2488 CT 615 $C..

RR 1 55024
1161 Iola G Harris . . .84 • NP
— BISCAYNE AVE W INTS
1394 Delphine M Odette 76 • 651-463 ◇8232
Virgil F Odette . .76 • 651-463 ◇6232
1409 D Martin 98 951-463-2480
— ALVERNO AVE INTS
1810 Grant I Beyl . . .89 • 851-460-6004
Grant M Beyl . . .86 • 651-460-6004
1940 Annie K Marthaler 90 • 651-460-6702
Bob Marthaler . .90 • 651-480-8702
1999 Alan F Olson . . .90 • 651-463-7065
Carolyn L Olson .90 • 651-463-7085
2033 Judy A Neitzel . .85 • NP
2075 Dean Hughes . . .95 • 651-460-4361
Kerrie J Hughes .95 • 651-460-4361
2111 Paul Christianson .00 • 851-460-4165
2225 D A Freiermuth . .85 • 651-483-2143
Karen J Freiermuth 95 • 651-460-2346
2265 Leona E Tussing .98 • NP
2301 Sharon A Kinard .83 • NP
2345 Hugh C Swift . . .83 • 651-463-6212
Sharlene M Swift .83 • 851-463-8212
2375 Darryl L Olstad . .81 • 952-463 ◇2778
Janet E Olstad . .81 • 952-463 ◇2779
22 RESIDENCE

W 260TH ST
New Prague
400- 5799 CT 812 $E..

RR 5 56071
460 ★ Cedar Lake Farm 952-758-5253
825 Al M Novotny . .81 • 952-758-4106
George R Novotny 61 • 652-756-4708
880 Jon C Hendricks .89 652-758 ♦ 2573
Mary R Hendricks .66 652-758 ♦ 2573
1215 Pamela A Klehr . .90 • 952-758-4812
Richard J Klehr . .80 • 952-758-4812
1250 Ross C MacIlravie 96 952-758-6561
1350 Michelle A Novotny 96 NP
1376 Alfred W Novotny .82 • 952-758-2150
1376 Janet M Novotny .82 • 852-758-2150
2116 ♦ ★ Zweber Cnst&Drywl 852-758-4822
2281 ♦ Robt A Kerssaboom 98 852-758-5222
♦ ★ Kreabe Entprs Inc 98 952-758-6661

RR 2 56071
2375 Joe Radermacher .02 952-758-9736
Lori Radermacher .02 952-758-9738
2380 David A Johnson .82 • 352-758-2714
2501 K Michaelhartmann + NP ◇
2521 Arlene J Hoffman .66 • 952-758-4267
Joe R Hoffman . .66 • 852-758-4287
2628 Chris A Kubes . .82 852-758-3300
Wencel J Kubes .62 952-758-3300
— NAYLOR AVE INTS
3051 Diane M Weckman 88 • 952-756-3854
Larry H Weckman .69 • 962-756-3854
3071 Jean R Dolezal . .67 652-758-2548
Mark D Dolezal . .87 952-758-2548
3201 Cathy Gronevelt . .66 • 652-758-6177
Ryan A Gronevelt .88 • 952-758-6177
3206 Jennifer L Wagner 62 652-758-3970
Sam J Wagner . .92 852-756-3970
3480 Jeff T Schoenbauer 63 952-758 ♦ 8875
T M Schoenbauer .99 952-758 ♦ 8875
3855 Carol A Zelenka . .65 • 952-758-4262
Roy J Zelenka . .65 • 952-758-4262
3661 Ed G Nytes . . . .67 852-758 ♦ 2337
Shari Nytes . . . .87 952-758 ♦ 2337
— SAINT BENEDICT RD INTS
4561 Steve Schmitz . .00 952-758-4561
4949 Gordie R Schmitz .85 • 952-756-6579

RR 1 56071
5331 Annette G Eischens 82 852-758 ◇3241
Richard J Eischens 82 952-758 ◇3241
5350 Anna A Eischens .61 952-758-3592
Myron J Eischens .61 852-756-3592
★ Eschens Hrld&Myrno 952-758-3592
5710 Alice R Nytes . .84 • 652-756-4390
Bob F Nytes . . .64 • 352-758-4390
41 RESIDENCE 4 BUSINESS

261ST AVE
Belle Plaine
19700-20799 CT 813 $E..

RR 2 56011
19701 Kristine D Uppman 87 952-873-6943
Tom G Uppman . .87 952-673-2382
18705 Mark A Olson . .96 952-873-8999
18812 Paul J Hron . . .86 852-873-4517
20263 Loran H Karkow .99 • 952-673-8160
20472 James M Witt . .86 • 952-673-4491
Marilyn M Witt . .86 • 952-873-4491
20740 Jeff D Bromley . .96 852-873-2206
Tina M Bromley .86 952-873-2206
8 RESIDENCE

261ST AVE NE
Isanti
300- 3398 CT1305 $E..

RR 6 55040
— MONROE ST NE INTS
350 Barb D Haak . . .81 763-444-5718
Thomas E Williams 81 763-444-5719
425 Doris I Draxten . .02 NP
Sara N Draxteir . .02 NP
475 Alan R Oberg . . .76 763-444 ◇4960
Dan R Oberg . . .76 763-444 ◇4960
— LARCH ST NW INTS
575 Philip J Schultz . .63 763-444-5882
Philip J Schultz . .83 783-444-6959
813 Gerald Reid 02 763-444-8262
638 Shirley M Conant .97 • NP
663 L M Schurmer . .66 • 763-444-5830
865 Doyle A Peck . . .00 763-444-9874
Karen J Peck . . .00 763-444-9528
6834 ★ Athens Twp Hall 00 763-444-6997
1800 ★ Stratton Farm . . 763-444-4282
1001 Kenneth W Norquist 67 763-444-4712
1376 Barbara Johnson .94 763-444-8364
Leroy A Johnson .64 763-444-6389

RR 2 55040
1435 Amy J Lyzhoft . .68 763-444-5208
Kevin K Lyzhoft .96 763-444-5208
1471 Darryl V Hygera .96 783-444-8078
Sally A Hygera . .96 763-444-8076
1500 Bernice A Smith .82 763-444-5978
Thomas K Smith .82 763-444-5979
1521 Heidi A Miller . .93 • 763-444-9912
H Miller-Holmstro 93 • 783-444-9912
1554 Edith J Johnson .82 765-444-5308
James E Johnson .92 763-444-5300
1770 Alonzo Blair . . .85 NP
Louise Blair . . .85 NP
1675 Amy C Bostrom . .97 763-444-9483
Tracey A Bostrom 87 763-444-9483
— 261ST AVE NW INTS
1855 Apartments
E3 Michael R OBrien .95 • NP
2051 Daniel G Mujwid .99 • 763-444 ◇7435
2151 Emmett L Doherty 96 NP
Lydia A Doherty .96 NP
3255 Lonnie C Tscheppat 80 763-444-8863
35 RESIDENCE 2 BUSINESS

261ST AVE NW
Isanti
1- 3799 CT1305 $E..
4100- 4899 CT1306 $E..

RR 4 55040
74 Myron M Spike . .69 763-444-5982
145 Curt P Carpenter .81 763-444 ◇5734
Diana M Carpenter 81 763-444 ◇5734
— UNIVERSITY AVE NE INTS
250 Nanci D Klask . .63 • 763-444-8305
Richard W Klesk .63 • 763-444-6305
— LARCH ST NW INTS
318 Mark Eller 38 793-444-8006
350 Craig M Hamilton .94 • 763-444-8056
411 Eric E Fischer . .96 763-767-1579
Karri K Fischer . .66 763-444-9140
490 Jean L Stauffer . .84 • 763-444-9809
Joseph L Stauffer 64 • 763-444-9809

RR 1 55040
1771 Cherlyn M Stewart 87 • 763-444-6552
Dan J Stewart . .87 • 763-444-6552
2051 Cheryl F Wolfitz .88 • 763-444-5621
2056 Cathy G Newcomb 94 763-444-5901
Dave Newcomb . .94 763-444-5901

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RR 1 55020
8585 Tarry Stenstrom 91 461-3306
8696 L Seurer 84 461-2160
TEXAS AVE INTS
9896 Ben Zwalser 461-2366
7718 Conrad E Wagner . . .94 461-3480
DAKOTA AVE INTS
8190 Arnold Smisek . . . .86 461•2353
8281★ Bomjen Trckng Inc . .85 461-2335
8285 B Johnson Merrima . .90 461-3354
8308 Dennis L Swenson . . .85 461-2843
8351 John Johnson . . . .Ц 461-3038
8380 Stephen Moscato . . . 461-2218
8425 Paul E Kaled 80 461-3135
8445 . . . . NP
8494 Steven A Anker . . .86 461-3555
8500 Gerald Badeaux . . .Ц 461-2483
Darrell R Breider . .93 461-3157
Jean Deighton 83 461-3158
8800 Paul R Johnson . . .94 461-3401
Doug R Oster . . . .Ц 461-3071
8898 M B Schema 95 461-2710
8758 Harvey L Lovejoy . .83 461-2838
8808 Jeffrey B Goodell . .86 461-2794
8920 Albert G Bergen . . .82 461-2537
42 RESIDENCE 6 BUSINESS

250TH ST E
Farmington
2500- 3498 CT 615 $C..H 6
HUDSONS MAP LOC 2C-164

RR 1 55024
2676 William May Jr 75 463-6541
2781 Ter Ahr . . . . . .96• 463-4805
2795 Lance Westad 78 463-2202
2855 Thomas H Stahoke . .79 463-8794
3105 Don Drewry 93 463-6578
5 RESIDENCE

250TH ST E
Lakeville
10100-11899 CT 811 $B..G 4
HUDSONS MAP LOC 2C-163

RR 2 55044
10198 Lana M Orris 87 469-4633
10380 Harry Deer 94 469-1853
10502 Kenneth Wold . . . .-• 985-5794
10800 Thomas Montgomery . .-• 468-2496
10841 Milton Elvestad . . .74 469-2759

RR 1 55044
11151 Merle F Hirdler Sr . .83 469-2457
DUPONT AVE INTS
11248 D Bohn 83 469-3794
11360★ Hare Auto Inc 88 469-4297
PILLSBURY AVE INTS
250TH ST W INTS
11491 Patrick Condra . . . .88• 469-2017
11801 . . . . NP
11678 Edwin Elvestad 84 469-2255
11770 John Piper 88 468-1307
11771 11605 . . . . NP
11828★ Elites Decorating . . .95 468-6595
11841 . . . . NP
19771 David Elvestad 98 469-5104
15 RESIDENCE 2 BUSINESS

E 250TH ST
New Prague
1900- 2699 CT 812 $E..G 3

RR 2 56071
1546 A Keinhofer 95 461-3389
Andrea L Keinhofer . .85 461-3380
Guy J Keinhofer . . .82 461○3322
VERGUS AVE INTS
2048 Tim Sonnek 88 461-2729
2381 B A Christopherson . .88 461-2514
2615 Theodore Simon 461-2830
2830 Mat Scheffler 461-2832
7 RESIDENCE

250TH ST W 55011
Belle Plaine
8100-17599 CT 813 $E..G 2
HUDSONS MAP LOC 2C-150,3C-159
8101 Alvin J Svoboda . . .Ц 873-8285
8201 John Betchwars 94 873-5626
8375 Thomas Ingles 873-8939
8400 Larry Hoffman 94 873-4282
8552 Joel Quaintance 873-5570
8801 David L Nelson 873-8850
8299 Robert Jacobson . . .Ц 985-5580
9191 Donald Anderley . . . .- 873-8921
9456 Michael Carpenter . .Ц• 873-3049
10411 Lester Otto 95 873-6102
10421 Wm J McDougald . . . . 873•6616
15100 Brian Dols 95 873-2294
Lyaa L Gerald 95 873-2284
15525 Myron Cermak 873-4537
15726 David Carter 96 873-6856
16185 Ralph Maltz . . . . .Ц 873-2527
Ralph Malz 873-6998
16298 D Meierbachtol . . .96• 873-4313
16311 Dale Meierbachtol . . .95 873-7884
16370 16405 . . . . NP
16450 R Meierbachtol 873-2370
16501 Raymond Tinge 873-8177
16505 Frank Hilgers 873-8887
16626 Fred W Schmidt 873-8412
17190 Rick Halverson . . .95 873-4242
17501 Lynn Albrecht 873-4270
27 RESIDENCE

250TH ST W
Farmington
1000- 8299 CT 615 $C..H 6
HUDSONS MAP LOC 1C-164

RR 1 55024
1208 Charles Rechtzigel . .81 463-2387
1812 Howard Zellmer 95 463-4103
R Zellmer 94 463-4064
Roy Zellmer III . . .82 463-8049
2134 Jeffrey E Smith . . .80 463-2489
2137 Jeffrey E Smith . . .92 463-4216
ALVERNO AVE INTS
CHIPPENDALE AVE W INTS
3671 Steve Gilbertson . . .93• 463-2145
★ Castle Rock Knots . .95 463-7387
3729 Jerome Scheel . . . .94• 480-8532

3787 . . . . NP
3815 Marvin Bengen . . . .72 463○8264
3831 Richd G Siebenaler . .74 463-8815
3871 Dennis Moe . . . . .85 463○7317
3950 Michael Widstrom . . .85 463-4438
3953 Donald Haan 88 463-8247

RR 2 55024
CEDAR AVE INTS
8150 Michale Mahoney 84 469-3221
8297 Henry Larson . . . . .74 469○2476
HIGHVIEW AVE INTS
8299 Norman S Jacobson . . .78 468-2820
17 RESIDENCE 1 BUSINESS

250TH ST W
Lakeville

RR 1 55044
9800-11399 CT 615 $C..H 6
HUDSONS MAP LOC 3C-163
Paul L Anderson . . . .- 468-2356
8684 . . . . NP
8685 Peter Johnson 86 469-4854
Robert M Johnson . . .74 469-2305
9034 Keith Clubb 86 469-4127
9125 Patrick Patl Ploog . .88 469-5788
9203 Michael Andreas . . .95 469-1880
9367 Michael G Khoury . . .86 469-1595
9849 Mark Antonson 95 469-4284
9650 Johnny Lemke . . . . .62• 469-2242
9685 Patrick L Riley 78 468-6163
9737 William Emond II . . .95 468-5272
9783 David Hatchler 89 469-1242
9774 Richard L Martin . . .75 468-2351
9794 Michael Kalblell . . .98•985-5150
9800 Brad Fossand . . . . .90• 468-4535
Jean Turner 90 469-4535
9805 John Delmerly . . . .88• 469-4675
8612 Steve Lavan . . . . .94• 468-2412
9840 Lennio D Malwitz . . .82 469-3031
9915 Michelle Severeon . . .95 469-1497
Michael Wolfe . . . .85• 469-1497
9956 Tom Gergen 78 469-3984
9990 . . . . NP
9995 M Miller . . . . . .94• 469-1872
DODD BLVD INTS
10270 Gary Esnem 74 469-4789
10391 Dean Monson 81 469-1835
27 RESIDENCE

W 250TH ST
New Prague
2000- 5599 CT 813 $E..G 2
HUDSONS MAP LOC 4C-159

RR 2 56071
2000 Ray F Schoenbauer 758-4520

RR 1 55071
4588 Pat Tagtow 93 492-2862
5141 Paul Hedstrom 94 492-5878
5175 Ricky Schmitz 89 492-8891
5250 Ralph Pulkrabek . . .88 492-8793
5 RESIDENCE

251ST LN NE
Isanti
3800- 4099 CT1305 $ ..

RR 2 55040
3976 Frank D Lunak 70 444-6008
1 RESIDENCE

252ND AVE NE
Isanti
3000- 3799 CT1305 $ ..

RR 2 55040
3678 L J Reichenbach . . . .- 444-4348
3686 Steve Larson 91 444-6723
3779 Alan Asmus 90 444-9847
3 RESIDENCE

W 252ND ST
New Prague
2200- 2799 CT 812 $E..G 3
HUDSONS MAP LOC 3D-148

RR 2 56071
2250 Deborah L Slechta 758-2423
2780 Edward R Barns 758-3337
2 RESIDENCE

253RD AVE NE
Isanti
1500- 1599 CT1305 $ ..
1600- 1699 CT1303 $ ..
3400- 4599 CT1305 $ ..

RR 4 55040
1539 Wayne Ebeling 87 444-4763
1545 Grant P Wagner 444-4627
1649 Robert Hanson . . . .Ц 444-5221

RR 2 55040
3401 Phillip J Masse . . .88 444-4591
3679 Dale Krueger 94 444-5325
Elaine K Krueger . . .95 444•6358
3778 Rick Zins 98 444-9013
3982 Bruce Beggs 94 444-9381
3980 Otis Beggs 73 444-4230
4075 Marion Hedin 58 444-5738
4518 Michael Leibel 95 444-8454
11 RESIDENCE

253RD AVE NW
Isanti
2500- 5399 CT1305

RR 1 55040
2985 Harold Ehne 90 444-4475
Ruth Ehne . . . . . .Ц 444-6572
3096 B Browning . . . . .※ 444-9818
Joseph Jonathan . . .Ц 444-4635
3548 C J Sharp 96 444-5452
3873 A Deschenes 79 444-9418
3720 Dale K Parson 84 444-8174
4249 Kathryn Merrifield . .Ц 444-0063
Steven Merrifield . . .88 444-9739
4480 Bruce Zimmer . . . .Ц 444-0461
4490 Mary R Arnt 91 444-8148
4493 Douglas Hedman 94 444-7150
4581 Steve Zabinski 92 444-6638

4690 Kevin Nalder 91 444-4516
4825 B Ablechlager 88 444-8190
4950 Floyd Stroman . . . .Ц 444-5204
5250 George 3 Sparrow . . .78 444-5858
5399 Robert S Johnson . . .Ц 444-3754
16 RESIDENCE

253RD AVE NW
St Francis
5800- 7199 CT 501.03 $D..A 4

RR 1 55070
5828 Jon C Fender . . . . .- 444-4798
6075 Donald Eden 83 444-5944
6445 Dorothy C Bialke . . .85 444-7830
6865 George Kramer 89 444-9032
7011 K Stoeckel 83 444-9318
7147 Gaylen Raza . . . . .- 444-0152
6 RESIDENCE

E 253RD ST
New Prague
400- 699 CT 812 $E..G 3

RR 2 56071
408 Howard Braith 86 758-5736
491 Leonard Sticha 758-4973
650 Randy D Kaish 758-4167
656 . . . . NP
4 RESIDENCE

E 255TH ST
Elko
4500- 8299 CT 811 $B..G 4
HUDSONS MAP LOC 4D-161

RR 1 55020
4551 Debra K Odette 74 461-3117
4701 Don Odette 86 461-2876
4714 Jerold Dehmer . . . .Ц 461-3628
4750 Kirk Rochefort 96 461-3602
Kirk Rochefort 86 461-3603
Kirk Rochefort 88 461-3601
4785 Gordon W Giles . . .80 461-2555
ZACHARY AVE INTS
4820 Mark S Swelland . . .Ц 461-3106
DAKOTA AVE INTS
8180 Rodney J Mielke . . .86 461-2615
8245 Dale O Wiegele . . .84 461-2974
10 RESIDENCE

255TH ST W 56011
Belle Plaine
7800- 7899 CT 813 $E..G 2
HUDSONS MAP LOC 1D-158
7880 Roger Bauer 873-6769
1 RESIDENCE

255TH ST W
Farmington
2500- 8199 CT 615 $C..H 6
HUDSONS MAP LOC 4D-164

RR 1 55024
3581 Harry F Hajdek 87 463-4652
3582 . . . . NP
3142 John Beaney 91 463-3402
3184 3188 . . . . NP
3828 Michelle Donner . . .Ц 480-2004
3755 Gertrude Sieg 81 463-2570
4004 Dale Gehring 96 463-8865

RR 2 55024
4412 John Intewold 82 463-4384
ESSEX AVE INTS
4975 Lee Scheidel 96 463-7050
Richard S Stevens . . .96 463-4809
5278 Garrick Mallery . . .75 469-6161
GAMBIER BLVD INTS
6288 Ken Schumann 94 463-2624
6585 Douglas B McLain . . .95 463-2905
6905 Jody Arman-Jones . . .81• 463-2878
Evers Jones . . . . .81• 463-2878
8987 A Storlie 78 463-7003
7095 Ralph Mohn 89 463-4205
16 RESIDENCE

W 255TH ST
New Prague
3100- 3299 CT 812 $E..G 3
HUDSONS MAP LOC 5D-159,1D-160

RR 1 56071
3140 John J Bastyr 758-2242
3268 C Grounds . . . . . .Ц 758-2525
John L Snyder . . . .95 758•2525
3 RESIDENCE

256TH AVE NW
Isanti
2800- 3199 CT1305 $ ..

RR 1 55040
2875 Walter J Schulz 98 444-5780
2898 Janet L Anderson . . .Ц 444-4695
2825 Vernon J Waldoch . . .96 444-9019
3010 Jerry Sabinash 96 444-6371
3025★ M Gk of Isanti Inc . .94 444-5647
3125 Dean E Aleckson . . .80 444-9721
3175 John Pierce 85 444-5038
6 RESIDENCE 1 BUSINESS

257TH AVE NE
New Street-1995.
Isanti
3100- 3199 CT1303 $ ..

RR 2 55040
3157 Ray Cronin 95 444-8800
1 RESIDENCE

257TH ST W
Farmington
7800- 8299 CT 615 $C..H 6
HUDSONS MAP LOC 5D-163

RR 2 55024
7919 David Larson 94 469-4562
7980 Michael Olson 92 469-5618
7984★ Mount Olivet Rtrt . . .83 469-2175
7985 Paul D Hecker 95 469-2904
John Strunk . . . . .86• 469-4589

7985 John E Strunk . . . .80• 468-5347
8000 Gary Turpening 94 469-5294
8094 Tim Prose 88 469-2493
8199 Chad Rasmussen . . . .94• 469-3653
8258 M Zachmeier Ruh . . .95 469-2362
Rob Ruh 95 469-2362
10 RESIDENCE 1 BUSINESS

257TH ST W 55044
New Street-1995.
Lakeville
9900-10499 CT 615 $C..H 6
HUDSONS MAP LOC 3D-163
9999★ Turpening Gary P . . .Ц 985-5072
9800 Gordon W Strom 93 469-5156

RR 1 55044
9898 David Schueck 94 468-1201
2 RESIDENCE 1 BUSINESS

259TH AVE NE
Isanti
3800- 3998 CT1305 $ ..

RR 2 55040
3898 Tim Koosman 88 444-4871
5835 Lee Setter 96 444-9431
7200 David C Nelson 96 444-4172
3 RESIDENCE

E 259TH ST
Elko
11700-11899 CT 911 $B..G 4
HUDSONS MAP LOC 2D-163

RR 2 55020
11745 Richard Hartmann . . .88 461-3546
11855 Charles P Decker . . .79 461-3648
11880 James Rud 93 461-3197
3 RESIDENCE

259TH ST E
Lakeville
11900-11999 CT 811 $B..G 4
HUDSONS MAP LOC 2D-163

RR 1 55044
11985 Dale E Fredrickson . . .74 461-3561
1 RESIDENCE

E 260TH ST
Elko
4700-10699 CT 811 $B..G 4
HUDSONS MAP LOC 1D-163

RR 1 55020
5780 Roland Paterson . . . .75 461○2871
5846 George McMillan 74 461-3368
5880 Caroline Schalwig . . .76 461-3514
8408 Robert Devine 87 461-2888
8645★ Pace Dale 461-2981
E 270TH ST INTS
TEXAS AVE INTS
7580 . . . . NP
7595 Elmer Friedges 89 461-2437
7665 Thomas H Deer 93 461-2080
7745 Gregroy A Fischer . . .94 461-2272
7760 7770 . . . . NP
7798 Thomas P Page . . . .96• 461-2532
7805 A R Belter . . . . .Ц 461-3572
Toney L Belter 88 461-2081
7820 Patty Wagner 87 461-3361
IDAHO AVE INTS
MAIN ST INTS
9478 Lane Jones 86 461-3383

RR 2 55020
9840 Martin Deutsch 74 461-3345
9855 Frank Degross 95 461-2507
XERXES TRL INTS
10405★ Navy RV Sales&Svc . . .86 461-2525
10491 Glenn W Sybrandt . . .85 461-2632
★ Glennas Pizza&Lst . . .88 461-2632
★ Last La Saloon . . . .⊙461-2632
★ Sybrandt Glenn W . . .91⊙461-2632
10875 A G Silverness 81 461-3431
★ Nghbrhs Interiors . . .95 461-8060
★ Tradore Market Inc . . .Ц 461-2460
10880 . . . . NP
10880 Robert F Adelmann . . .77 461-2226
21 RESIDENCE 7 BUSINESS

260TH ST E
Farmington
1000- 2499 CT 615 $C..H 6
HUDSONS MAP LOC 1D-163

RR 1 55024
1895 Paul Irthum 72 463-6241
1 RESIDENCE

E 260TH ST
New Prague
300- 1999 CT 811 $B..G 4

RR 2 56071
301 Milo Pomija 758-2276
855 Gene Denler 758-5081
Paul Hendricks 758-3735
891 Randy Malz 758-2741
LANGFORD AVE INTS
1086 George Kes 758-3385
1405 Hilbert Hogel 758-3889
1581 Gary Vessan 758-5017
1855 Dawn Bentch 758-3873
1721 . . . . NP
1730 James L Nordwall . . .95 758-4105
1771 Mike Reese 95 758-5767
VERGUS AVE INTS
1910 Francie Tupy 95 758-3501
1951 Allen Tupy 758-2744
2489 Dean Benson 758-2476
★ Wood Mere Farm Inc . .95 758-2838
14 RESIDENCE 1 BUSINESS

260TH ST W 56011
Belle Plaine
7400-11089 CT 813 $E..G 2
HUDSONS MAP LOC 3D-158,2D-159
7475 Paul H Franzen 873-6695
10980 Brian Brogie 873-8532
2 RESIDENCE

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RR 1 55024
2855 Thomas H Stahnke . . .78 463-6764
2831 . . . . NP
2935 Colin Garvey 85 463-4625
3105 J Kans 86 463-4255
6 RESIDENCE

250TH ST E 55352
Jordan
1410 Steve Neisen 82 497-6784
1 RESIDENCE

250TH ST E
Lakeville
RR 2 55044
11100-11899 CT 608.10 $C..G 5
HUDSONS MAP LOC 2C-95
10198 Elmer J Orris 66 469-4633
10380 Jim G Anthony 64 469-3602
10941 Milton Elvestad 73 469-2759
RR 1 55044
11151 Merle F Hirdler Sr . . .62 469-2457
11240 D Bohn 67 469-3794
11366 Steve Hein 69 469-4297
11651 Julie Dylan . . . . . . ¤ 469-2012
11676 Edwin Elvestad 63 469-2255
11770 John Piper 65 469-1307
11771 David Elvestad 63 469-5104
11866 Apartments
58 Kenneth Anderson . . .66 469-3087
11841 Marvin Barsness 69 469-3749
17 RESIDENCE

250TH ST W
Farmington
RR 1 55024
1000- 8299 CT 615 $C..H 6
HUDSONS MAP LOC 1C-96
1209 Charles Rechtzigel . . .80 469-2387
1612 Roy Zellmer III 61 463-8049
Russell Zellmer 62 463-4064
2134 Jeffrey E Smith 66 463-2469
2137 Jeffrey E Smith . . . . ¤ 463-4216
3729 Marvin C Erickson . . .88 463-7024
3787 . . . . NP
3815 Marvin Bengen 71 463-8264
3831 Richd G Siebenaler . . .73 463-8615
3871 Dennis Moe 84 463-7317
3852 Gerald Haan 67 463-8247
RR 2 55024
8150 Michale Mahoney 83 469-3221
8297 Henry Larson 73 469-2476
8299 Norman S Jacobson . .77 469-2820
14 RESIDENCE

250TH ST W 55044
Lakeville
8600-10399 CT 608.10 $C..G 5
HUDSONS MAP LOC 3C-95
RR 1 55044
8684 Peter C Johnson 80 469-4854
8688 Robert M Johnson . . .73 469-2365
9034 Keith Clubb 85 469-4127
8125 Patrick Ploog 67 469-5786
9067 Apartments
250 Michael G Khoury . . .65 469-1595
9849 Mark Antonssn 90 469-4284
8650 Johnny Lamke 81 469-2242
9685 Patrick L Riley 77 469-5163
8737 Glen Oginnal 86 469-2622
8763 David Hatchler 86 469-1242
8774 Richard L Martin 74 469-2351
8784 Frederick T Kroll 75 469-4237
9600 Brad Eossand . . . . .89 • 469-4535
Jean Turner 89 469-4535
9605 Apartments
D John Deimerly . . . . .86 • 469-4675
9612 Ruben C Foley 76 469-3907
9840 Lonnie D Malwitz . . .61 469-3031
9915 . . . . NP
8965 Tom Gergen 77 469-3664
9960 . . . . NP
9995 Sue Dircks 88 469-5166
10129 Orville Genzler 80 469-4533
10185 Livio Fragiacomo . . .73 469-5388
10276 Gary Estrem 73 469-4759
10391 Dean Monson 96 469-1635
NO # Paul L Anderson 79 469-2358
26 RESIDENCE

252ND AVE NE 55040
New Street-1990.
Isanti
3888 Steve Larson 90 444-6723
1 RESIDENCE

253RD AVE NW 55040
New Street-1990.
Isanti
4490 Mary R Arnz 96 444-6149
4551 S Zebinski . . . . . . ¤ 444-6636
2 RESIDENCE

255TH ST E
Elko
RR 1 55020
4600- 8299 CT 811 $B..B 4
HUDSONS MAP LOC 4D-93
4551 Randal Odelle 73 461-3117
4761 Don Odette 73 461-2676
4785 Apartments
301 Gordon W Giles 69 461-2555
8189 Apartments
255 Rodney J Mielke 85 461-2815
8245 Dale O Whipple 83 461-2374
5 RESIDENCE

255TH ST W
Farmington
RR 1 55024
2900- 7499 CT 615 $C..H 6
HUDSONS MAP LOC 4D-96
2961 Harry E Hajdak 66 469-4852
2982 Troy Corrigan 96 460-8039
3142 John Beaney 90 463-3402
3184 3188 . . . . NP

3755 Gertrude Sieg 90 463-2570
RR 2 55024
4412 John Telawohl 61 463-4364
5276 Garrick Mallery 74 463-6161
6565 Douglas B McLain . . .88 463-2905
6965 Jody Arman-Jones . . .80 463-2878
Evers Jones 80 463-2878
6987 Alan Sterlie 78 463-7003
7095 Ralph Mohn 86 463-4205
13 RESIDENCE

257TH ST W
Farmington
RR 2 55024
7980- 8199 CT 616 $C..H 6
HUDSONS MAP LOC 5D-95
7980 Michael Olson . . . . . ¤ 469-6616
7984 ★ Mt Olivet Retreat . . .82 469-2175
7985 John Strunk . . . . . .85 • 469-4569
John E Strunk . . . . .89 • 469-5347
8000 Gary Terpening 86 469-2519
8094 Tim Prose 67 469-2493
8199 John T Anderson . . .83 469-3326
6 RESIDENCE 1 BUSINESS

257TH ST W 55044
New Street-1989.
Lakeville
HUDSONS MAP LOC 3D-95
9800 Gordon W Strom 90 469-5168
RR 1 55044
9998 Roy Overstreet 69 469-1452
2 RESIDENCE

259TH ST E
Elko
RR 1 55020
11700-11888 CT 811 $B..G 4
HUDSONS MAP LOC 2D-95
11745 Richard Hartmann . . .67 461-3548
11855 Charles P Decker 78 461-3548
11860 Donald N Miller 83 461-3543
3 RESIDENCE

259TH ST E
Lakeville
RR 1 55044
11900-11999 CT 608.10 $C..G 5
HUDSONS MAP LOC 2D-95
11965 Gale E Fredrickson . . .73 461-3581
Gary Fredrickson . . . . ¤ 461-3087
2 RESIDENCE

260TH ST E
Elko
RR 1 55020
4700-10899 CT 811 $B..G 4
HUDSONS MAP LOC 1D-95
5760 Roland Peterson 74 461-2871
5846 George McMillan 73 461-3388
5880 Caroline Schalwig . . .78 461-3514
6408 Robert Devine 86 461-2888
6645 ★ Dale Pexa Concrete . . 461-2881
7566 . . . . NP
7585 Elmer Friedges 88 461-2437
7745 Benny Vancleve . . . . – 461-2031
7760 . . . . NP
7776 Kenneth Horejsi 86 461-2962
7798 Joe Wagner 83 461-2462
7885 Toney L Belter 86 461-2081
7820 Patty Wagner 86 461-3361
8476 Apartments
6 Lans A Jones 85 461-3383
9840 Roman Deutsch 73 461-3345
9855 Frank Degroes 73 461-2507
10405 ★ Niemeyer RV SI&Sv . .87 461-2525
10461 ★ Glennes Eatery&Pza . .88 461-2632
★ G W Sybrandt . . . . .90 ⊙ 461-2632
10676 Tim C Doughty 67 461-2669
A G Silverness 80 461-3431
★ Traders Market 82 461-2480
10680 . . . . NP
10880 Robert F Adelmann . . .76 461-2226
10881 ★ Maynards Auto Srvc . .89 461-3118
★ Prairie Auto Sales . . .85 ⊙ 461-3118
16 RESIDENCE 7 BUSINESS

260TH ST E
Farmington
RR 1 55024
1900- 1099 CT 608 $D..G 5
HUDSONS MAP LOC 1D-95
1409 Tom Martin . . . . . . ¤ 463-4735
1605 Paul Irrthum 71 463-8241
2033 Richard Neitzel 85 463-3906
3 RESIDENCE

260TH ST W
Farmington
RR 1 55024
1304- 2399 CT 609 $D..G 5
HUDSONS MAP LOC 1D-97
1043 Glen Dubbels 84 463-8201
1394 Virgil Odette 64 463-6232
1610 Grant Beyl 69 460-6004
7340 Bob Marthaler 90 460-6702
1999 Alan E Olson 89 463-7085
2033 . . . . NP
2076 Fred D Alexander 78 463-2285
2111 John Vandenbarnet . . . ¤ 463-4994
2225 Milton Boodhus 88 463-2153
2265 . . . . NP
2345 Hughes Swift 73 463-8212
2375 Darryld Oistad 61 463-2779
12 RESIDENCE

261ST AVE NW 55040
New Street-1991.
Isanti
3649 Gerald Rinehart . . . . – 444-5355
J R Sherwood . . . . . – 444-5355
J R Sherwood . . . . . – 444-5515
3 RESIDENCE

263RD ST E
New Street-1983.
Lakeville
RR 1 55044
11700-11799 CT 890.10 $C..G 5
HUDSONS MAP LOC 2A-109
11718 ★ Metro Auto Salvage . . .83 461-2186
1 BUSINESS

265TH ST E 55020
New Street-1982.
Elko
HUDSONS MAP LOC 3A-108
9551 Edward Zahratka 73 461-3427
9580 Sheila Wierson 66 461-2055
9571 Mark O Gibson 67 461-2033
9574 . . . . NP
9586 Dan Ehcek 89 461-3141
9606 Terry Fredrickson 78 461-2604
9665 ★ Barbers Auto Serv . . . ¤ 461-2645
★ The Repair Shop 96 461-3060
★ TJS Automotive 90 461-3323
9691 . . . . NP
9695 David Thalhuber 73 461-2092
9700 D C Fredrickson 82 461-7999
9 RESIDENCE 3 BUSINESS

265TH ST W 55024
Farmington
4500- 6899 CT 815 $C..H 6
HUDSONS MAP LOC 2A-116
RR 2 55024
5379 Earl Kilber 71 463-7461
5580 Kenneth W Bateman . .81 463-4696
Kenneth W Bateman . .88 463-4467
Susan M Poirot 87 463-4886
5845 Steve Mahan . . . . . – • 463-2042
6429 Patrick J Mahowald . .87 • 463-4456
6484 Harold Mallery 76 463-2596
6488 . . . . NP
6775 Kenneth Schoening . . .88 463-7978
6935 Howard C Stodla 79 463-2693
10 RESIDENCE

266TH ST E 55020
New Street-1988.
Elko
HUDSONS MAP LOC 5A-108
9836 . . . . NP
9851 Vickie A Smith 89 461-3266
2 RESIDENCE

267TH AVE NW 55040
Isanti
911 Raymond Robbins . . .90 444-6761
985 Marguerite Harbison . .82 444-9335
2 RESIDENCE

267TH ST E 55020
Elko
11400-11699 CT 811 $B..G 4
HUDSONS MAP LOC 5A-108
9841 Jeffrey Maxa 81 461-2028
9851 . . . . NP
RR 1 55020
11494 Harvey W Henry 86 461-2796
11520 Larry Kinder 65 461-2299
11600 Leo G Glunz 73 461-2672
5 RESIDENCE

267TH ST W
New Street-1977.
Farmington
RR 2 55024
8000- 8899 CT 616 $C..H 6
HUDSONS MAP LOC 5A-109
8011 Eugene Dietz 84 469-4382
8021 Gregory J Harper 88 469-1823
8109 Duane R Fossum 80 469-4772
8171 Robert A Glass 77 469-3746
8176 Niles Aastvold 84 469-1528
8636 ★ Celerity Mntr Hmes . . .90 469-3581
5 RESIDENCE 1 BUSINESS

267TH ST W
Lakeville
RR 1 55044
9900-10199 CT 608.10 $C..G 5
HUDSONS MAP LOC 3A-109
8805 G P Williams . . . . . .87 • 469-2489
8622 Rev Mark Ostgarden . .80 469-3329
8999 Wesley Best 469-2479
9020 David Ingemansen . . .79 469-3677
9035 Marion Mattsoo 71 469-2280
9085 Robert K Holien 84 469-5178
9166 L E Mohn 77 469-2626
9198 Walton F Spillman . . .73 469-2726
9250 V Jet 66 469-5617
Loren Michels 86 469-1930
9265 Dennis Melechn 85 469-2143
9326 Arthur Lehmann 79 469-2230
9390 Thomas Zwiers 76 469-3260
9405 Kenneth Miller 74 469-4603
8490 Gary Malott 90 469-4826
9433 Michael O Kelley . . . . ¤ • 469-1283
9631 Thomas Ostlie 81 469-3026
9724 Joe Simon 77 469-3901
9781 . . . . NP
16111 G A Larson 76 469-3700
20 RESIDENCE

270TH ST E
Elko
RR 1 55020
5100-11899 CT 811 $B..G 4
HUDSONS MAP LOC 1A-109
5100 Kee S Wagner . . . . . ¤ 461-3042
5150 Charles J Breuer 64 461-2463
5260 Jonathan A Hodapp . . – 461-3340
Mary Sue Palazzari . . . ¤ 461-3340
5306 John A Geyen 66 461-2546
5358 Lawrence C Johnson . .62 461-2671
5398 Keith A Glanzer 78 461-3385
5400 Brian Peterson 83 461-2207
5778 George W Shimota . . .73 461-2201

7436 ★ B&S Dry Wall Inc . . .94 461-3216
★ Rodney Bartolds . . . .73 ⊙ 461-3216
★ Lakeville Crane . . . .87 ⊙ 461-3216
7720 Robert J Seykora 73 461-3435
10250 Jayson Heuton 90 461-2988
Pam Heuton . . . . . . ¤ 461-2862
10254 . . . . NP
10551 Harlan Stevens 84 461-2642
10555 A G Peterson 80 461-3743
10645 Leonard Bergstrom . . .79 461-3248
10678 Ruth C Miller 87 461-2175
10927 Milton Miller 87 461-2693
11150 Roy Elvestad 73 461-2891
11325 James Miller 83 461-2898
11476 Albert V Swedin 86 461-2135
11530 Ray M Neubauer 85 461-2686
11600 Russell E Martin 73 461-3352
23 RESIDENCE 3 BUSINESS

270TH ST E 55372
New Street-1981.
Prior Lake
4400 Louis E Appel . . . . . – 440-8432
1 RESIDENCE

272ND ST W
New Street-1986.
Farmington
RR 2 55024
7800- 7899 CT 615 $C..H 6
7861 Glen Shirley 66 469-3610
1 RESIDENCE

273RD AVE NW 55040
New Street-1990.
Isanti
750 ★ Country Camping RV . .08 444-9826
★ Lee Middo . . . . . . ¤ ⊙ 444-9826
2 BUSINESS

273RD ST E
Elko
RR 1 55020
10100-10499 CT 811 $B..G 4
HUDSONS MAP LOC 5B-158
10160 Don Buerke 87 461-3225
10175 Thomas H Schaffler . .86 461-2476
10221 Tim G Lindgren 69 461-2940
10376 Alan K Payne . . . . . – 461-3507
10441 Wendell G Burch 63 461-3372
5 RESIDENCE

275TH ST E
Elko
RR 1 55020
8500- 9599 CT 811 $B..G 4
HUDSONS MAP LOC 4B-188
8565 David Lythjohan 89 461-2372
9260 Lewis W Roberts 88 461-2313
6278 Wallace C Berg 73 461-3165
Wallace C Berg 96 461-2165
9450 Keith Chellsen 88 461-3213
9580 Ellen Anfinson 73 461-3112
6 RESIDENCE

275TH ST E
Lakeville
RR 1 55044
11400-11888 CT 608.10 $C..G 5
11450 Ronald P McHale 86 461-2085
11646 William Otting 62 461-3285
William Otting 73 461-3262
3 RESIDENCE

277TH LN NW 55040
New Street-1991.
Isanti
1384 M C Bennett . . . . . ¤ 444-4162
1 RESIDENCE

278TH LN NW 55040
New Street-1990.
Isanti
1309 Apartments
278 David L Richard 90 444-4899
1 RESIDENCE

278TH ST E
Elko
RR 1 55020
8300- 8599 CT 811 $B..G 4
HUDSONS MAP LOC 3B-166
8300 George Radermacher . .64 461-3317
8351 D J Sparti 66 461-2809
2 RESIDENCE

280TH LN NW 55040
New Street-1991.
Isanti
1341 David Earley . . . . . . – 444-4921
1 RESIDENCE

280TH ST E
Elko
RR 1 55020
4700- 5799 CT 811 $B..G 4
HUDSONS MAP LOC 2B-108
5798 Marvin Erickson 76 461-2806
. . . . 55020
1 RESIDENCE

280TH ST W
New Street-1989.
Farmington
RR 2 55024
7429- 9999 CT 615 $C..H 9
HUDSONS MAP LOC 3B-116
8590 Glen Steinhoff 89 469-4796
1 RESIDENCE

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RR 1 55024
3270 Patrick N Tinsley 85 480-6288
★ Ventren Mrktng&Sls . . ¤ 469-6162
3384 Robert Hanson . . . . . . – 463-2142
3385 M Hodge 84 463-2488
3610 Larry Dimmer 72 463-3948
3661 Art Alanso 65 460-6645
3900 A G Schmidtke 83 453-3826
Dale Schmidtke 84 463-3828
4197 John V Rathar 61 463-8461
4202 Winfield R Melson . . .73 463-8234
4225 Clayton Nielsen 78 463-2619
Clayton W Nielsen 76 463-2230
23 RESIDENCE 1 BUSINESS

240TH ST W
Lakeville

RR 1 55044
8000- 9299 CT 615 #C..H 8
8001 Gerald H Troutman . . .73 489-5313
8018 M A Smith 79 466-3940
8185 Linda L Asher 74 489-3869
8215 Thomas G Bies . . . . ¤ 466-5013
8874 Michael Gasper 83 469-1774
8785 Donald C Davis 78 469-4543
8830 Russell L Meelman . . .75 489-3830
4635 John V Scholtz 73 463-4583
8885 Curt Rogers 84 469-1372
8830 B Sauther 52 469-5223
8936 Frank J Beisset Jr . . .73 466-5383
8938 . . . . NP
8985 Gregory Tachney . . . . ¤ 469-1357
9050 John Haglund 77 466-2049
9100 Thelma Larson 61 466-3859
9230 Carl C Henrikson 78 469-4379
9235 Clark W Smith 76 469-3352
17 RESIDENCE

241ST AVE NE
New Street–1977.
East Bethel

RR 1 55005
1000- 2099 CT 501.01 #D..A 6
1041 Michael D Bornus . . .84 434-5851
1112 T M Schutz 82 434-9227
1122 T L Gurak 80 434-4177
1132 David W Behm 60 434-3473
2080 George Wyatt 80 434-9367
5 RESIDENCE

241ST AVE NW
St Francis

RR 1 55070
2100- 4799 CT 501.02 4C..A 4
2148 Ernest Iaun 753-1776
2945 Richd A Torkelson . . .80 759-1093
3007 N Butler 83 753-3670
3020 S L Krzyzaniak 83 753-4568
3117 Gerald C Samuelson . .80 753-3436
3220 Walter Reimans 80 753-2665
4520 D M Pihaly 62 753-3191
Vera Thorson 62 753-3191
4539 Carl J Hoglund 82 753-1248
4554 Ronald L Domino 78 753-2781
4559 Lester H Solberg 76 753-1292
4637 Wm L Bruggeman 81 753-1299
4746 Lowell Murray 76 753-3333
13 RESIDENCE

242ND ST E 55020
New Street–1982.
Elko

3400- 5099 CT 811 #B..G 4
3825 Gary Schwieder 83 461-2237
3878 . . . . NP

RR 1 55020
5001 Richard A Mushitz . . .74 461-2215
3 RESIDENCE

243RD AVE NW
St Francis

RR 1 55070
2100- 2399 CT 501.02 #C..A 4
2215 Michael D Wyatt . . . . – 759-2308
2295 James L Michaelson . . – 753-1773
2314 S Iaun 84 753-4596
2315 Gloria Miller 85 763-2699
½ Richard Axleson . . . . ¤ 753-5491
5 RESIDENCE

243RD ST W
New Street–1980.
Lakeville

RR 1 55044
9100- 9299 CT 615 4C..H 8
9150 Steve Nusser 80 469-5102
9200 Kevin W Custer 84 463-4538
2 RESIDENCE

245TH AVE NE 55005
New Street–1981.
East Bethel
400- 599 CT 501.01 #D..A 6
1550- 1699 CT 501.02 #C..A 4
538 Franklin Judeitsch . . .85 434-6367
St Francis

RR 1 55005
1610 Leigh Wyatt 85 434-5118
2 RESIDENCE

245TH AVE NW
New Street–1985.
St Francis

RR 1 55070
7000- 7099 CT 501.02 #C..A 4
7040 Clayton Bengtson . . . . – 444-4963
1 RESIDENCE

245TH ST E
Farmington

RR 1 55024
1000- 2499 CT 616 #C..H 8
1087 Gerald Wagenknecht . .78 463-8334
1067 Fred Erickson 84 463-2872
1305 Lester Stapf 73 463-8114
1840 Dennis Stene 85 460-6394
1802 Malvin Lively 78 463-8218
2100 Mark Becker 77 460-6009
2412 Clem Becker 82 460-6542
7 RESIDENCE

245TH ST E
Lakeville

RR 2 55044
9200-11899 CT 811 #B..G 4
9205 George O Hanson . . .73 461-2531
6240 . . . . NP
8395 Lawrence A Hamre . . .73 469-2250
9404 Martin Tonsager 84 469-2841
9520 Jerry M Henry 73 469-2348
9885 Floyd Tonsager 73 460-2857
6950 Paul Tonsager . . . . . ¤ 463-1998
10448 Leonard Duban 83 469-2508
10450 Gordon A Thompson . .73 469-2698
10471 M K Thompson 78 469-2467
10475 Alice Wenzel 84 469-1320
10771 Kenneth B Demaster . .73 469-2241
10825 Sandy Hanninen 84 463-1224
11075 Arnold Johnson . . . . ¤ 469-3584
11126 Leslie R Hall 83 489-5113

RR 1 55044
11426 V J Kohlnhofer 73 469-2280
11526 Rosanne Kleikamp . . . ¤ 469-5740
11633 Gerald E Storlie . . . . – 469-2676
11850 P R Peterson . . . . . ¤ 469-5094
16 RESIDENCE

245TH ST W
Farmington

RR 1 55024
1000- 1899 CT 615 #C..H 6
5500- 8799 CT 615 #C..H 8
1391 David Dubbels 77 463-2978

. . . . 55024
1662 James Perry 78 469-4138

RR 2 55024
5590 Bruce A Brekke 84 460-6625
5886 William Darrow Jr . . .73 463-3177
6285 Jack Danner . . . . . . ¤ 469-8607
6515 Craig Henry 78 463-3988
6605 Mark Kadlec 83 469-3297
6611 Gholam A Sanai 83 469-1036
8655 M E Reinke 78 489-5162
6675 David G Moe 83 469-4590
6775 Warren King 84 463-1358
NO # David J Gruia 76 469-3970
NO # Charles L Kilma 79 463-3805
13 RESIDENCE

245TH ST W
New Street–1983.
Jordan

RR 1 55352
4600- 4899 CT 812 4E..G 3
4820 Duane Deutsch 83 492-2392
1 RESIDENCE

247TH ST E
New Street–1982.
Lakeville

RR 2 55044
9700- 9899 CT 811 4B..G 4
9750 Randal Thompson . . . ¤ 469-4693
9801 Larry Trebelhorn 82 469-4875
2 RESIDENCE

247TH ST W
Farmington

RR 2 55024
6400- 6999 CT 615 #C..H 8
6405 Michael F Grossman . .78 469-3742
6889 M Fortier 78 469-4582
6045 Ray M Kadlec 73 469-4169
3 RESIDENCE

250TH ST E 55020
New Street–1982.
Elko
3200- 8999 CT 811 4B..G 4
3251 Edward J Carvenka . . .73 461-2798

RR 1 55020
3386 Eddie R Stibba 73 481-3277
4126 James W Washotten . .81 461-2573
4880 David R White 79 461-2209
4941 Thomas E Tindel 73 481-2887
5176 Raymond L Dietz 81 461-2886
5320 Emil Pexa 73 461-2961
5720 Leonard Monson 74 461-2988
5775 Leon Zweber 73 461-2988
6016 Phillip Tenney 73 461-2235
6185 K J Stilwell 78 481-2524
6271 Robert P Pedersen . . .83 461-3260
6365 D Deichelbohrer 82 461-2362
6866 Art Seurer 83 461-2180
6896 Ben Zweber 461-2356
Thomas G Zweber 83 461-2154
7420 Alfred Wagner 83 461-2987
7718 Conrad E Wagner 83 461-3480
8308 Dennis L Swenson . . .84 461-2843
8380 Stephen Muscato 481-2218
8445 Charles Lehman 85 461-2933
8406 Steven A Anker 85 461-3555
8489 Curtis R Mott 74 481-2833
8880 Paul R Johnson 73 461-3401
8896 M K Green 83 461-2438
8756 Harvey L Lovejoy 82 481-2838
8806 Jeffrey G Goodell 85 461-2784
6620 Albert G Borgen 81 461-2537
28 RESIDENCE

250TH ST E 55024
Farmington
1000- 4499 CT 615 #C..H 8
1000 James M Flor 79 463-2628

RR 1 55024
2676 William May Jr 74 463-6541
2761 Craig Peterson 83 463-4021
2795 Lance Westad 77 463-2202
2855 Thomas H Stahnke . . .78 463-8784
2931 Herbert Freitag 83 463-7844
2835 Colin Garvey 85 463-4625
Paul J Gross 75 463-2541
6 RESIDENCE

260TH ST E 55352
Jordan
800- 1499 CT 811 4B..G 4
938 F C Bessman 492-6357
1321 Jerome Hafermann . . .76 492-6288

1410 Steve Nelson 82 492-6284
3 RESIDENCE

250TH ST E
Lakeville

RR 2 55044
10100-11799 CT 811 4B..G 4
10198 Elmer J Orris . . . . . ¤ 469-4693
10380 Jim G Anthony 84 469-3802
10941 Milton Elvestad 73 469-2759

RR 1 55044
11151 Merle F Hindler Sr . . .82 469-2457
11246 D Bohn 82 469-3794
11380 Warren K Giles 73 469-5890
★ Lakeville Excavating . . . ¤ 469-4175
11851 David Elvestad 83 468-5104
11678 Edwin Elvestad 83 469-2255
11770 John Piper 85 468-1307
8 RESIDENCE 1 BUSINESS

250TH ST W
Farmington

RR 1 55024
1200- 3999 CT 615 #C..H 8
6200- 6299 CT 615 4C..H 6
1209 Charles Rechtzigel . . .80 483-2387
1329 Mervin C Erickson . . .74 463-7024
1612 Roy Zellmer III 81 463-6046
Russell Zellmer 83 463-4064
1827 Lloyd Stevens 83 483-8225
2137 Don Errico . . . . ¤ 460-6701
3871 Clifford S Koski 73 460-6788
3815 Marvin Bengen 71 463-8264
3831 Richd G Siebenaler . . .73 463-8815
3871 Dennis Moe 94 463-7317
3852 Donald Haan 73 463-6247

RR 2 55024
8297 Henry Larson 73 463-2478
8299 Norman S Jacobson . .77 469-2620
13 RESIDENCE

250TH ST W 55044
Lakeville
8100-11499 CT 615 #C..H 6
8150 Michale Mahoney 83 469-3221

RR 1 55044
8684 Peter C Johnson 80 469-4854
8688 Robert M Johnson . . .73 489-2385
9004 Keith Clubb 85 469-4127
9387 Michael G Khoury . . .85 469-1595
9650 Johnny Lenke 81 466-2242
Johnny Lenke 81 469-3386
9685 Patrick L Riley 77 489-5183
9737★ G&J Insulating 82 466-2622
Glenn Quinnell 73 469-2622
9763 David Hetchler 84 469-1242
9774 Richard L Martin 74 469-2351
9794 Frederick T Kroll 75 469-4297
9800 Martin D Hrabe 85 469-1736
9805 Rick Lenke . . . . . . – 489-1592
9812 Ruben C Foley 78 483-3907
9840 Lonnie D Malwitz 81 469-3031
9915 Deryl R Jenson 85 469-1740
Gary Valek 77 466-9180
9955 Tom Gergen 77 469-3984
9990 . . . . NP
9995 Donald Doerfler 81 489-5166
10129 Orville Genzler 80 469-4533
10185 Livio Fragiacomo 73 489-5886
10270 Gary Estrem 73 469-4759
10391 D M Rollins 73 466-3301

. . . . 55044
NO # Paul L Anderson 79 489-2358
28 RESIDENCE 1 BUSINESS

255TH ST E
Elko

RR 7 55020
4000- 8299 CT 811 4B..G 4
4551 Randal Odette 73 481-3117
4701 Don Odetto 73 461-2876
8180 Rodney J Mielke 65 481-2615
8245 Dale G Whipple 83 461-2374
4 RESIDENCE

255TH ST W
Farmington

RR 1 55024
2900- 6999 CT 615 #C..H 8
2981 Harry F Hajduk . . . . ¤ 463-4052
3142 Bernard Bongard 65 463-6638
3184 Michael Parker 61 463-8307
3188 . . . . NP
4412 John Tutewohl 61 463-4364

RR 2 55024
5276 Garrick Mallery 74 463-6181
5805 Bardell Doeb 80 483-2976
Thelma Doeb 80 463-2676
8585 Ernest A Turner 62 469-3606
6905 Jody Arman-Jones . . .80 463-2678
Evers Jones 80 483-2876
8887 Alan Storlie 78 483-7003
12 RESIDENCE

257TH ST W
Farmington

RR 2 55024
7900- 8169 CT 615 #C..H 6
7880 Steve Halkenn 78 466-4808
7984★ Mt Olivet Retreat . . .82 469-2175
7965 Loren C Schrapel 83 489-2365
John Struck 65 489-4569
8000 Gary Tarpening . . . . ¤ 469-3526
8199 John T Anderson 83 489-3328
5 RESIDENCE 1 BUSINESS

259TH ST E
Elko

RR 1 55020
11700-11899 CT 811 4B..G 4
11745 Richard Hartman 73 481-3546
11855 Charles P Decker 78 461-3548
11680 Donald N Miller 83 481-3543
3 RESIDENCE

259TH ST E
Lakeville

RR 1 55044
11900-11999 CT 811 #B..G 4
11985 Dale E Fredrickson . . .73 461-3581
1 RESIDENCE

260TH ST E
Elko

RR 1 55020
5700-10899 CT 811 #B..G 4
5780 Roland Peterson 74 481-2871
5848 George McMillan 73 461-3398
5880 Harry M Schalwig 78 461-3514
6406 Robert Devine . . . . . ¤ 461-2888
6645★ Dale Pexa Concrete . . 461-2881
7580 M Douglas Mizener . . .82 461-2410
7595 Henry Friedges 73 461-2297
7756 Bruce Friedges 79 461-2962
Elmer Friedges 73 461-2437
★ Friedges Trucking . . .88 461-2962
7780 . . . . NP
7770 Kenneth Horejsi . . . . ¤ 461-2982
7766 Jon Wagner 83 461-2462
7620★ NW Marketing-Elko Fld . .00 461-3361
Patty Wagner . . . . . ¤ 461-3361
8665 Bruce E Carlson 73 461-2423
8610 Carl Lotze 74 461-3564
6911 Gary A Nerbat 85 461-2044
9476 Lane A Jones 83 461-3983
9840 Roman Deutsch 73 461-3345
6666 Frank Degross 73 461-2507
10486★ New Market Sales . . ¤ 461-9575
10491 Glenn W Sybrandt . . .84 461-2832
10875 A G Silvernuss 60 461-3431
★ Traders Market 82 461-2400
10880 Robert J Adelmann . . .77 461-2388
10880 Robert F Adelmann . . .76 461-2226
10881★ Prairie Auto Sales . . .85 461-3119
★ Tri-County Auto . . .83 461-8198
22 RESIDENCE 7 BUSINESS

260TH ST E
Farmington

RR 1 55024
1600- 2099 CT 615 4C..H 8
1880 Paul Irthum 71 463-6241
2033 Richard Heitzel 85 463-3905
2 RESIDENCE

260TH ST W
Farmington

RR 1 55024
1000- 2399 CT 615 #C..H 8
1043 Glen Dubbels 84 483-8201
1384 Virgil Odette 84 463-6232
1409 Gerard Simon . . . . . ¤ 460-8915
1910 James Mackey 85 463-4513
2033 . . . . NP
2075 Fred D Alexander . . .78 463-2285
2225 Milton Bandhos . . . . ¤ 463-2153
2265 . . . . NP
2345 Hughes Swift 73 463-8212
2375 Darryld Distad 81 463-2779
10 RESIDENCE

263RD ST E
New Street–1983.
Lakeville

RR 1 55044
11700-11799 CT 811 4B..G 4
11716★ Metro Auto Salvage . .83 461-2186
1 BUSINESS

265TH ST E 55020
New Street–1982.
Elko
9500- 9799 CT 811 4B..G 4
9551 Edward Zahratka 73 481-3427
9560 Sheila Wierson . . . . . ¤ 461-2055
9571 Daniel L Frasson 84 481-2684
9574 Scott A Clark 84 461-2076
9586 . . . . NP
9606 Terry Fredrickson 78 481-2604
9661 Randy Froehlich 85 481-2840
9695 David Thalhuber 73 461-2092
9700 D C Fredrickson 82 481-2989
8 RESIDENCE

265TH ST W 55024
Farmington
4400- 6999 CT 616 4C..H 8
4460 Kenneth W Bateman . .81 463-4896
Susan M Poirot 81 463-4866

RR 2 55024
5379 Earl Kilber 71 463-7461
5560 Kenneth W Bateman . . ¤ 463-4462
6429 Richard Almquist 83 463-7723
6484 E Mallery 78 463-7864
Harold Mallery 78 463-2598
6889 Eddie Alwine 83 463-4985
6935 Howard C Storlie 73 463-2893
9 RESIDENCE

267TH ST E 55020
Elko
6400-11699 CT 811 4B..G 4
9841 Jeffrey Mass 81 461-2028

RR 1 55020
11494 Harvey W Henry . . . . ¤ 461-2789
11520 Larry Kinder 65 481-2299
11600 Leo G Glunz 73 481-2672
4 RESIDENCE

267TH ST W
New Street–1977.
Farmington

RR 2 55024
8000- 8899 CT 615 4C..H 6
@ HUDSONS MAP LOC 1A-1E
8011 Eugene Dietz 84 469-4382
8021 Gregory J Harper . . . – 466-1923
8108 Duane R Fossum 80 469-4772
8171 Robert A Gloss 77 469-3748
8178 Niles Aastvold 84 469-1528
8806 Benny N Svien 83 468-3636
8822 Paul G Magnus 61 466-2296
7 RESIDENCE

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¤ — New Listing To The Directory — — New Listing To The Street ★ — Business Listing CT — Census Tract 83,84,85,Etc. — Year First Listed 1983,84,85,Etc #AA8,Etc — Census Tract Wealth Rating CL18 — Map Location

.... 55005
710 William W Fish 78 434-7460
721 Gregory E Yeager 79 434-3051
727 Kent P Swanson 77 434-3923
760 Jack D Bednarski ......* 434-9096
780 Richard L Walstrom 77 434-3249
781 D B Taylor 78 434-7479
1509 Arnold E Ede 78 434-6363
1510 Lucian L Oliver 72 434-5633
1532 S Hokanson 80 434-9429
1552 Roy R Laine 72 434-5612
2349 G L Wilamson 76 434-9483
16 Residence

230TH ST E 55024
Farmington
020620
1440 Richard Bohm 79 463-3990
1731 Mark Majerus 463-7084
1911 Otto Harstad 463-8226
1971 Raymond Harstad 463-3248
4 Residence

230TH ST W
Farmington
R R 1 55024
1000- 1399 TZ 616 $C..H 6
020630
1055★Automatd Hlth Care 463-4030
Richard D Hauslen 77 463-2329
1385 Steven Empey 76 463-3544
2 Residence 1 Business

233RD AVE NE 55005
Bethel
1200- 2199 TZ 50101 $D..A 6
020640
1250 Ervin Herbst 78 434-3712
1310 Robert Sylvester 434-5158
★Sylvesters Garage ....* 434-6708
1315 Otis D Smith 72 434-5886
2124 Glen A Thies 80 434-6757
4 Residence 1 Business

234TH LN NE 55005
New Street-1981.
Bethel
1400- 1599 TZ 50101 $D..A 8
020650
1435 Thomas J Ueltschi ......* 434-5435
1533★El Rahbein&Son Inc ....* 434-7170
1 Residence 1 Business

235TH ST W
Farmington
R R 2 55024
4800- 6899 TZ 615 $C..N 5
020660
4628 R L Smith ....* 463-8045
4990 Gary Smith 71 463-8214
5525 Larry G Jensen 77 463-2604
5575 Larry Gergen 78 463-4156
5711 Gregory B Lindwall ....* 463-4399
5795 Larry D Bell 78 463-3821
5853 Stephen A Erickson 75 463-2568
5905 Paul M Ekness 76 463-4450
5965 Eugene K Ekness 78 463-3851
6145 James D Wangen 78 463-2182
6215 Dolores A Hehir 78 463-3140
Dolores A Hehlr 78 463-2379
6220 Harvey C Hansen 80 463-8069
6865 Brian L Miller ....* 463-3181
Tom Powers 71 463-8032
No # Richard J Lee 77 463-4427
16 Residence

235TH ST W 55044
Lakeville
8500-10499 TZ 815 $C..H 8
020670
8530 Julius A Devos 77 469-5395
8600 Ronald R Sirek 73 469-5330
8640 Donald Pahl 469-4748
8680 William R Sbcha 74 469-4845
8722 Richard M Johnson 74 469-4806
8735 William Curry 71 469-2910
Mrs William Curry 71 469-2910
8760 Donald Sjoquist 74 469-4558
8800 Gerald Swedin 71 469-4884
8840 Michael J Ryan ....- 469-3673
8920 Charles Rogalsky 78 469-2659
8960 Dennis R Edmundson 79 469-4579
9000 Glenn E Wedin 469-4280
9020 Scott Patterson 79 469-3870
8960 Wayne Shaff 77 469-3875
9130 Douglas J Houser 77 469-2201
9180 James G Pepera 80 469-2475
9220 Dave L Cook 78 469-4782
9235 Henry C Anderson 469-2429
9320 Peter W Jensen 80 469-4288
10132 Marjorie Hulbert ......- 469-3917
10210 Donald W Storlie 71 469-2643
10255 S Finley ....- 469-4395
10265 Richard Hermann 77 469-5297
10280 Bruce J Jasper 78 469-3265
10355 Larry Goerger 78 469-4818
10416 Robert V Johnson 73 469-5252
10420 Annar Karlsen 73 469-5111
10445 John Barr ....* 469-3900
★Countryside Kennls ....* 469-3900
No # Al Gerdesmeier 469-3778
No # Robert Nielsen 80 469-5208
31 Residence 1 Business

236TH AVE NW 55005
New Street-1976.
Bethel
5700- 5799 TZ 50102 $C..A 4
020680
5712 Leroy T Smith 78 753-3382
1 Residence

237TH AVE NE 55005
Bethel
100- 2199 TZ 50101 $D..A 8
020690
120 Earl Beauchamp ....* 434-9427
125 Chuck J Watson 78 434-9798
127 Lawrence Watson 434-5102
128 Davis B Lange ....* 434-9615
154 Omar Nettleberg 434-5669
204 Floyd Kennen 80 434-6671
218 Michael Franchino 79 434-4754
230 ....NP
231 Mike Watson 80 434-5286
253 Roger D Jones 80 434-3956
323 Dwight Jones 434-6260
1045 Richard C Lindberg 71 434-5148
1203 Guy Cooper 434-5116
1230 Robert C Peterson 74 434-5118
1247 Donald Donat 78 434-6468
1252 William Cooper 434-5116
1253 Vern W Schwartz 72 434-6847
1282 Douglas E Johnson 76 434-3104
1263 Ron Miller 79 434-7713
1812 C Heckenlaible 434-5668
2114 Daniel J Watson 75 434-3297
21 Residence

237TH AVE NW 55005
New Street-1976.
Bethel
000- 1799 TZ 50102 $C..A 4
020700
376 Stan Swedeen 434-5841
440 Raymond H Buck 78 434-5178
452 ....NP
506 Wayne D Buck 434-6737
524 John J Lind ....* 434-9121
611 Karl Damann 80 434-6347
632 H L Beach 76 434-9270
633 Glen C Welsh 78 434-7145
656 Robert E Hirsch 434-6496
901 James L Isle 78 753-2201
1116 L R Lindberg ....* 753-4707
1229 Wallace Wallin 79 753-1785
1421 Evelyn Lapham 79 753-2692
1524 Curtis Stone 78 753-2623
1721 Warren V Windt 78 753-1780
15 Residence

238TH AVE NW 55005
New Street-1978.
Bethel
5100- 5299 TZ 50102 $C..A 4
020710
5202 Larry R Hammill 78 753-2254
5234 Kort A Vanderveen 79 753-3387
5261 John Sellers 78 753-3550
3 Residence

240TH AVE NW 55005
New Street-1980.
Bethel
5400- 5499 TZ 50102 $C..A 4
020720
5441 Edwin C Brummund 80 753-1666
1 Residence

240TH ST E
New Street-1981.
020730
No # Richard E Dubbels .....- 463-2677
1 Residence

240TH ST W 55024
Farmington
1400- 4299 TZ 616 $C..H 6
020740
1481 Orren Lucht 79 463-4546

R R 1 55024
1946 Thomas Palach 463-8330
2002 Alfred Heintz 71 463-7001
2079 James R Ozmun 80 463-3623
2086 Dave Lund 80 463-2512
E E Wachter 75 463-4384
2278 Roger G Randall 74 463-7549
3196 Mrs Howard Pflaum 76 463-8352
James Pflaum 76 463-8352
3270 Robert A Michael ......- 463-7545
3384 Bernard Songard 77 463-8838
3447 Mrs B C McGovern .....* 463-7559
3810 Larry Dimmen 463-3948
3861 Garry Toavs 80 463-2845
4225 Clayton Nielsen 78 463-2919
Clayton W Nielsen 76 463-2230
No # Adolph Ruud 463-7021
No # A B Schmidtke 463-3928
18 Residence

240TH ST W 55044
Lakeville
8000- 9299 TZ 815 $C..H 6
020750
8001 Gerald H Troutman 469-5313
8018 M A Smith 79 469-3940
8165 David L Asher 74 469-3669
8215 Michael R Malone 73 469-3210
8674 Timothy J Mahowald 77 469-4814
8795 Donald C Davis 78 469-4543
8830 Russell L Mealman 75 469-3630
8835 John V Schultz 73 469-4583
8885 Gary Pedersen 77 469-4317
8835 Frank J Beissel Jr 73 469-5363
8938 ....NP
8985 James K Slinger 469-4146
9050 John Haglund 77 469-2048
9100 Thelma Larson ....* 469-3859
9230 Carl C Henrikson 78 469-4379
9235 Clark W Smith 76 469-3352
16 Residence

241ST AVE NE 55005
New Street-1977.
Bethel
1000- 2099 TZ 50101 $D..A 6
020760
1041 Ronald Kleinkopf ....* 434-9361
1112 Anthony J Johnson 80 434-5352
1122 T L Guzek 80 434-4177
1132 David W Behm 80 434-3473
2060 George Wyatt 80 434-9367
5 Residence

241ST AVE NW 55005
Bethel
4500- 4799 TZ 50102 $C..A 4
020770
4520 ....NP
4654 Ronald L Domino 79 753-2761
4559 Lester H Solberg 753-1292
4637 Wm L Bruggeman ......- 753-1299
4745 Lowell Murney 79 753-3333
5 Residence

241ST LN NW 55005
Bethel
2100- 2199 TZ 50102 $C..A 4
020780
2148 Ernest Isum 753-1776
1 Residence

243RD AVE NE 55005
New Street-1978.
Bethel
1500- 1599 TZ 50101 $D..A 8
020780
1509 Leigh Wyatt 78 434-5116
1 Residence

243RD AVE NW 55005
Bethel
2100- 2399 TZ 50102 $C..A 4
020800
2127 Michael D Wyatt 753-2308
2314 Michael Isum 80 753-3313
2315 James L Michaelson 753-1773
3 Residence

243RD ST W 55044
New Street-1980.
Lakeville
9100- 9299 TZ 816 $C..H 6
020810
9150 Steve Nusser 80 469-5102
9200 V Kay Custer ....- 469-4539
2 Residence

245TH AVE NE 55005
New Street-1981.
Bethel
400- 499 TZ 50101 $D..A 8
020820
432 Thomas L Ripka ....* 434-6299
1 Residence

245TH ST 55420
New Street-1981.
Lakeville
11526 Raymond Green ....* 469-3843
1 Residence

245TH ST E
Farmington
R R 1 55024
1000- 2199 TZ 615 $C..H 6
020830
1087 Gerald Wagenknecht 463-8334
1097 ....NP
1982 Melvin Lively 463-8216
2100 Mark Becker 77 463-2787
4 Residence

246TH ST W
Farmington
R R 1 55024
1000- 1899 TZ 616 $C..H 6
6000- 6899 TZ 815 $C..H 8
020840
1097 David S Mead ....- 463-7023
1391 David Dubbels 463-2976

.... 55024
1662 James Perry 78 463-4135
1840 Steven Pfeiffer 77 463-2856

R R 2 55024
6515 Craig Henry 78 469-3888
6605 Earl Culver 469-2537
6611 Clayton J Moravetz 78 469-3233
6855 Mons Reinke 469-5162
6675 David G Moe 78 469-4590
No # David J Bruia 469-3970
No # Charles L Klima 79 463-3805
11 Residence

247TH ST W
Farmington
R R 2 55024
6500- 6899 TZ 616 $C..N 5
020860
6405 Michael F Grossman 78 469-3742
6889 M Fortier 469-4582
2 Residence

250TH ST E 55024
Farmington
1000- 2999 TZ 616 $C..H 6
020870
1000 James M Flor 79 463-2828
1827 Wayne Stevens 78 463-6225

R R 1 55024
2676 William May Jr 74 463-8541
2795 Lance Westad 77 463-2202
2855 Thomas H Stahnke 78 463-6764
2931 Paul A Standahl 79 463-2178
2935 Paul J Gnos 75 463-2541
7 Residence

250TH ST W
Farmington
R R 1 55024
1200- 3899 TZ 616 $C..H 6
6200- 6299 TZ 816 $C..H 8
020880
1209 Charles Rechtzigel 80 463-2387
1612 Roy Zellmer III ....- 463-6046
3787 Patrick McElmury 80 463-3907
Kent Richardson 78 463-4108
David Sellner ....* 469-4704
3815 Marvin Bengen 71 463-8264
3871★Dr R B Stark ....* 463-7607

R R 2 55024
6267 Henry Larson 73 469-2476
6299 Norman S Jacobson 77 469-2820
8 Residence 1 Business

250TH ST W 55044
Lakeville
8800-10399 TZ 616 $C..H 8
020890
8694 Peter C Johnson 80 469-4854
Robert M Johnson 469-2385
9367 Robert T Leddusaw 469-2068
9650 Johnny Lemke ....- 469-2242
9685 Patrick L Riley 77 469-5163
9737 Glenn Ouinnell 73 469-2622
8763 Warren Grossman 77 469-4819
8774 Richard L Martin 74 469-2351
9794 Frederick T Kroll 75 469-4237
9800 Harlan Ruzek 73 469-5261
9805 Joe Simon 79 469-3851
9812 Ruben C Foley 78 469-3907
9840 Lonnie D Malwitz .....- 469-3031
9815 Gary Valek 77 469-3180
9955 Tom Gergen 77 469-3984
9990 ....NP
9995 Donald Doerfler ....* 469-5166
10129 Orville Genzler 80 469-4533
10185 Livio Fragiacomo 73 469-5388
10270 Gary Estrem 73 469-4759
10391 D M Rollins 73 469-3301
No # Paul L Anderson 79 469-2358
No # Verner Aronson 469-2557
No # Edwin Elvestad 469-2255
No # Jim Fahrenholz 80 469-4028
25 Residence

255TH ST W
Farmington
R R 1 55024
2900- 6999 TZ 616 $C..H 8
020900
2981 Richard T Traynor 78 463-3561
3142 Rev Robert Crane .....* 463-8638
3184 Fred Doehling 463-8466
Michael Parker ....* 463-8307
3168 ....NP

R R 2 55024
4412 John Tutewohl ....- 463-4364
5276 Garrick Mallery 74 463-8181
5805 Berdell Doub 80 463-2978
Thelma Doub 80 463-2978
6905 J Arman-Jones 80 463-2876
Evers Jones 80 463-2876
6987 Alan Storlie 78 463-7003
No # Merlin Moller 78 463-2414
13 Residence

257TH ST
Farmington
R R 2 55024
7900- 8199 TZ 915 $C..H 8
020910
7980 Steve Helkenn 78 463-4866
7984★Mt Olive Retrt Ctr .....* 469-2175
8199 Lawr J Adelmann 78 469-2291
2 Residence 1 Business

260TH ST 55020
New Street-1980.
Elko
1- END TZ 811 $B..G 4
020920
No # Gerald Robiecky 80 461-2459
1 Residence

260TH ST E
Farmington
R R 1 55024
1000- 1699 TZ 815 $C..H 6
020930
1605 Paul Inthum 71 463-8241
1 Residence

260TH ST W
Farmington
R R 1 55024
1400- 2399 TZ 615 $C..H 8
020940
1409 W F Weiland 79 463-2335
1910 Oak Mackey 73 463-3441
Robert J Mackey 77 463-3054
2033 Eldon Topp 78 463-7445
2075 Fred D Alexander 76 463-2285
2225 Donald Reinen 78 463-2002
2265 Richard Tussing 77 463-3895
2375 Darryld Oistad ....* 463-2779
8 Residence

263RD ST W 55024
New Street-1975.
Farmington
3200- 3499 TZ 815 $C..H 6
020950
3286 Fred J Bratsch 78 463-7459
3406 Richard Raimnitz 76 463-4340
3473 Howard Hemish 78 463-7393
3 Residence

265TH ST W
Farmington
R R 2 55024
4400- 6999 TZ 615 $C..H 6
020960
4460 Kenneth W Bateman ....- 463-4866
Susan M Poirot ....* 463-4866
4576 David Hagen 80 463-3462
5379 Earl Kilber 71 463-7481
5580 ....NP
6429 James I Nielsen 80 463-3814
6484 E Mallery 78 463-7964
Harold Mallery 78 463-2598
6935 Howard C Storlie 79 463-2893
9 Residence

267TH ST
New Street-1977.
Farmington
R R 2 55024
8100- 8899 TZ 815 $C..H 6
020970
8109 Duane R Fossum 80 469-4772
8171 Robert A Glass 77 469-3746
8805 Brent Matson ....* 469-3239
8822 Paul G Magnus ....- 469-2296
4 Residence

267TH ST W 55005
Lakeville
8900-10199 TZ 815 $C..H 6
020980
8999 Wesley Best 469-2478
9020 David Ingemansen 79 469-3877
9035 Clayton Mattson 71 469-2280
9085 ....NP
9168 L E Mohn 77 469-2626
9198 Walton F Spilman 469-2726
9250 Kenneth D Lange 75 469-3166

Historical Information Gatherers

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* — New Listing in the Directory — — New Listing to that Street ★ — Business Listing TZ — Trading Zone 73.74.75.ETC — Year First Listed 1973.74.75.etc $A&B.ETC — Census Tract Wealth Rating CL10 — Map Location

ENVIRONMENTAL LIEN/AUL SEARCH

Prepared for: Historical Information Gatherers, Inc.
HIG Project No. 2017322

Prepared by: JSR Vetting Services, LLC

Subject: **ADELMANN FAMILY LIMITED PARTNERSHIP**
10881 260TH ST. E.
SCOTT, MINNESOTA

Public records on the subject property identified above revealed the following information effective to August 17, 2018:

Description of subject property:

Land/Description: Parcel of Land
Parcel No. 089260030

DEED INFORMATION

DEED 1/PARCEL NO. 089260030

Grantee(s): (Buyer) **Adelmann Family Limited Partnership, a limited partnership**

Grantor(s): (Seller) **Robert F. Adelmann and Lorraine M. Adelmann, husband and wife**

Conveys: Parcel of Land

Date Executed: December 30, 1994
Date Recorded: December 30, 1994
Instrument Number: 347467

NOTE: Copy attached as "Exhibit A".

EXAMINER'S NOTE

In accordance with your request to research one parcel back to December 30, 1994, public records of Scott County, Minnesota were searched from December 30, 1994 to August 17, 2018 and no other deeds vesting title in parcel number 089260030 of the subject property were found of record during said period.

ENVIRONMENTAL LIENS

In accordance with your request to research one parcel back to December 30, 1994, public records of Scott County, Minnesota were searched from December 30, 1994 to August 17, 2018 and no environmental liens on the parcel number 089260030 of the subject property were found of record during said period.

AUL'S

In accordance with your request to research one parcel back to December 30, 1994, public records of Scott County, Minnesota were searched from December 30, 1994 to August 17, 2018 and no activity or use limitations on the parcel number 089260030 of the subject property were found of record during said period.

LEGAL DESCRIPTION

Legal description included on "Exhibit A".

Subject: **ADELMANN FARMS (NEW MARKET), LLC**
10680 & 10880 260TH ST. E.
CALHOUN, IOWA

Public records on the subject property identified above revealed the following information effective to August 17, 2018:

Description of subject property:

Land/Description: Parcel of Land
Parcel No. 089230040, 089230081, & 089230090

DEED INFORMATION

DEED 1/PARCEL NO. 089230040, 089230081, & 089230090

Grantee(s): (Buyer) **Adelmanns Farms (New Market), LLC, a limited liability company organized under the laws of the State of Minnesota, … an undivided twenty-seven and twenty-nine one hundredths percentage interest (27.29%)**

Grantor(s): (Seller) **Lorraine M. Adelmann, Bernadette Chrismer, and David Adelmann as Trustee of the Robert F. Adelmann Family Trust created under the Robert F. Adelmann Revocable Trust dated September 27, 2001**

Conveys: Parcel of Land

Date Executed: November 9, 2012
Date Recorded: December 27, 2012
Instrument Number: 924521

NOTE: Copy attached as "Exhibit B".

DEED 2/PARCEL NO. 089230040, 089230081, & 089230090

Grantee(s): (Buyer)	**Adelmanns Farms (New Market), LLC, a limited liability company organized under the laws of the State of Minnesota, … an undivided fourteen and sixty-two one hundredths percentage interest (14.62%)**
Grantor(s): (Seller)	**The Adelmann Family New Market Limited Partnership, a limited partnership under the laws of Minnesota**
Conveys:	Parcel of Land

Date Executed: November 9, 2012
Date Recorded: December 27, 2012
Instrument Number: 924518

NOTE: Copy attached as "Exhibit C".

DEED 3/PARCEL NO. 089230040, 089230081, & 089230090

Grantee(s): (Buyer)	**Adelmanns Farms (New Market), LLC, a limited liability company organized under the laws of the State of Minnesota, … an undivided fifty-eight and nine one hundredths percentage interest (58.09%)**
Grantor(s): (Seller)	**Lorraine M. Adelmann, as Trustee (s) of the Lorraine M. Adelmann Revocable Trust dated September 27, 2001**
Conveys:	Parcel of Land

Date Executed: November 9, 2012
Date Recorded: December 27, 2012
Instrument Number: 924517

NOTE: Copy attached as "Exhibit D".

EXAMINER'S NOTE

In accordance with your request to research three parcels back to December 27, 2012, public records of Scott County, Minnesota were searched from December 27, 2012 to August 17, 2018 and no other deeds vesting title in parcel numbers 089230040, 089230081, and 089230090 of the subject properties were found of record during said period.

ENVIRONMENTAL LIENS

In accordance with your request to research three parcels back to December 27, 2012, public records of Scott County, Minnesota were searched from December 27, 2012 to August 17, 2018 and no environmental liens on the parcel numbers 089230040, 089230081, and 089230090 of the subject properties were found of record during said period.

AUL'S

In accordance with your request to research three parcels back to December 27, 2012, public records of Scott County, Minnesota were searched from December 27, 2012 to August 17, 2018 and no activity or use limitations on the parcel numbers 089230040, 089230081, and 089230090 of the subject properties were found of record during said period.

LEGAL DESCRIPTION

Legal description included on "Exhibit B", "Exhibit C", and "Exhibit D".

Subject: **EMPIRE II, LLC**
10675 260TH ST. E.
SCOTT, MINNESOTA

Public records on the subject property identified above revealed the following information effective to August 17, 2018:

Description of subject property:

Land/Description: Parcel of Land
Parcel No. 089260050 & 089260071

DEED INFORMATION

DEED 1/PARCEL NO. 089260050 & 089260071

Grantee(s): (Buyer) **Empire II, LLC, a Limited Liability Company under the laws of Minnesota**

Grantor(s): (Seller) **Traders Promotions Inc., a Corporation under the laws of Minnesota**

Conveys: Parcel of Land

Date Executed: January 12, 2015
Date Recorded: January 27, 2015
Instrument Number: A972751

NOTE: Copy attached as "Exhibit E".

EXAMINER'S NOTE

In accordance with your request to research two parcels back to January 27, 2015, public records of Scott County, Minnesota were searched from January 27, 2015 to August 17, 2018 and no other deeds vesting title in parcel numbers 089260050 and 089260071 of the subject properties were found of record during said period.

ENVIRONMENTAL LIENS

In accordance with your request to research two parcels back to January 27, 2015, public records of Scott County, Minnesota were searched from January 27, 2015 to August 17, 2018 and no environmental liens on the parcel numbers 089260050 and 089260071 of the subject properties were found of record during said period.

AUL'S

In accordance with your request to research two parcels back to January 27, 2015, public records of Scott County, Minnesota were searched from January 27, 2015 to August 17, 2018 and no activity or use limitations on the parcel numbers 089260050 and 089260071 of the subject properties were found of record during said period.

LEGAL DESCRIPTION

Legal description included on "Exhibit E".

DISCLAIMER

This report was prepared by JSR Vetting Services, LLC for Historical Information Gatherers, Inc. (HIG). JSR Vetting Services, LLC is a licensed and registered legal entity in the State of Louisiana. JSR Vetting Services, LLC follows all Federal and State regulations governing the research conducted. JSR Vetting Services, LLC reports contain public record information and the accuracy of this information cannot be guaranteed. Therefore, HIG's liability and the liability of JSR Vetting Services, LLC for this report extends only to the fee charged for this report.

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EXHIBIT A

3

QUIT CLAIM DEED
Individual(s) to Individual(s)

No delinquent taxes and transfer entered; Certificate of Real Estate Value ( ) filed ( ) not required
Certificate of Real Estate Value No. W-L-30, 19 94

County Auditor
by Deputy

OFFICE OF THE COUNTY RECORDER
SCOTT COUNTY, MN.
Certified Filed and or Recorded on
DEC 30 1994 3:30 P.M.
Doc. 347467
Acting County Recorder
by Deputy

19.50

X WELL CERTIFICATE RECEIVED
WELL CERTIFICATE NOT REQUIRED

(reserved for recording data)

DEED TAX DUE HEREON: $ 1.65

Date: December 30, 1994

FOR VALUABLE CONSIDERATION, Robert F. Adelmann and Lorraine M. Adelmann, husband and wife, Grantors, hereby convey and quitclaim to the Adelmann Family Limited Partnership, a limited partnership, Grantee, the real property described on Exhibit A attached hereto.

Together with all hereditaments and appurtenance belonging thereto, subject to easements, restrictions, reservations of record, if any.

The total consideration for this transfer of property is $500.00 or less.

Affix Deed Stamp Here

COUNTY DEED TAX STAMP DEC 30 '94 $01.65 PB.10020 STATE OF Minnesota

CONSERVATION FEE PAID

Robert F. Adelmann
Robert F. Adelmann

Lorraine M. Adelmann
Lorraine M. Adelmann

STATE OF MINNESOTA)
) ss.
COUNTY OF DAKOTA)

The foregoing was acknowledged before me this 30th day of December, 1994, by Robert F. Adelmann and Lorraine M. Adelmann, husband and wife, Grantors.

NOTARIAL STAMP OR SEAL (OR OTHER TITLE OR RANK)

REID J. HANSEN
NOTARY PUBLIC—MINNESOTA
DAKOTA COUNTY
My Comm. Expires Sept. 28, 1995

Reid J. Hansen
Notary Public

Tax Statements for the real property described in this instrument should be sent to:

Robert F. Adelmann
Lorraine M. Adelmann
22553 Denmark Avenue West
Farmington, Minnesota 55024

THIS INSTRUMENT WAS DRAFTED BY:
Reid J. Hansen
MCMENOMY, HANSEN & MCCANN, P.A.
14450 South Robert Trail
Rosemount, MN 55068
(612) 423-1155

EXHIBIT B

STATE OF MINNESOTA)
)ss.
COUNTY OF DAKOTA)

The foregoing was acknowledged before me this 9th day of November, 2012. by Lorraine M. Adelmann. Bernadette Chrismer. and David Adelmann as Trustee(s) of the Robert F. Adelmann Family Trust created under the Robert F. Adelmann Revocable Trust dated September 27. 2001, Grantor(s).

NOTARIAL STAMP OR SEAL (OR OTHER TITLE OR RANK)

REID J HANSEN
NOTARY PUBLIC
MINNESOTA
My Commission Expires Jan. 31, 2015

Notary Public

Tax Statements for the real Property described in this Instrument should be sent to:

Adelmann Farms (New Market). LLC
e/o Riehfield Plumbing
8640 Harriet Avenue So.
Bloomington. MN 55420

THIS INSTRUMENT WAS DRAFTED BY:
Reid J. Hansen
Hansen, McCann & O'Connor, P.A.
14450 South Robert Trail
Rosemount, MN 55068
(651) 423-1155

Exhibit A

Legal Description

The East Half of the Southeast Quarter (E1/2 of SE1/4) of Section Twenty-three (23), Township One Hundred Thirteen (113), Range Twenty-one (21), except the Highway Right of Way, and except that part lying Southerly of County State Aid Road No.2 and Westerly of State Highway 35; (Tax Parcel No. 08-923-004-0)

AND

All that part of the East Half of the Northeast Quarter (E1/2 of NE1/4) of said Section Twenty-three (23), Township One Hundred Thirteen (113), Range Twenty-one (21), lying South of the South line of the Right of Way of the Chicago , Milwaukee, St. Paul and Pacific R.R. Company , except Highway Right of Way, all of the aforedescribed land lying and being in Scott County, Minnesota; (Tax Parcel No. 08-923-004-0)

AND

The East 345.69 feet of the Southeast Quarter of the Southwest Quarter (SE1/4 of SW1/4), Section Twenty-Three (23), Township One Hundred Thirteen (113), Range Twenty-One (21), as measured perpendicular to the East line thereof and lying North of Scott County State Aid Road No. 2, Scott County, Minnesota (Tax Parcel No. 08-923-008-1)

AND

The West Half of the Southeast Quarter (W1/2 of SE1/4) and the Northeast Quarter of the Southwest Quarter (NE1/4 of SW1/4), all in Section Twenty-three (23), Township One Hundred Thirteen (113), Range Twenty-one (21), except railroad right-of-way thereon, and excepting therefrom the following described tract:

> That part of the West 250 feet of the South 300 feet of the Southwest Quarter of the Southeast Quarter (SW1/4 of SE1/4) of Section Twenty-three (23), Township One Hundred Thirteen (113) North, Range Twenty-one (21) West;

(Tax Parcel No. 08-923-009-0)

AND

All that part of the abandoned right-of-way of the Chicago, Milwaukee, St. Paul and Pacific Railroad, the centerline of the railroad track as shown in Scott County Documents # 181948, 181949 and 181950 lying across the tracts described on Exhibit A-(a) attached hereto.

Exhibit A-(a)

The Southeast Quarter of the Northeast Quarter (SE1/4 of NE1/4), the Northeast Quarter of the Southeast Quarter (NE1/4 of SE1/4), the Northwest Quarter of the Southeast Quarter (NW1/4 of SE1/4), and the Northeast Quarter of the Southwest Quarter (NE1/4 of SW1/4), all in Section Twenty-three (23), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The Southwest Quarter of the Northwest Quarter (SW1/4 of NW1/4) of Section Twenty-four (24), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The Southeast Quarter of the Northwest Quarter (SE1/4 of NW1/4) and all that portion of the Southwest Quarter of the Northeast Quarter (SW1/4 of NE1/4) lying West of the centerline of State Aid Highway 46, all in Section Twenty-four (24), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The East Half of the Northeast Quarter (E1/2 of NE1/4) of Section Twenty-seven (27), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W) Scott County, Minnesota.

(Tax Parcel Nos. 08-924-033-0 and 23-927-016-1)

Exhibit B

Exceptions

1. Easements, reservations, and restrictions of record, if any.

EXHIBIT C

There are no delinquent taxes and transfer entered
Date: 12/27/12 County Auditor
Cindy Ellis
KMO

Doc. No. A 924518

OFFICE OF THE COUNTY RECORDER
SCOTT COUNTY, MINNESOTA

Certified Filed and/or Recorded on

12-27-2012 at 03:00 Recpt: 337881

James L. Hentges, County Recorder 01

Fee: $ 46.00

WARRANTY DEED

DEED TAX DUE HEREON: $ 1.65

Date: NOVEMBER 9, 2012

FOR VALUABLE CONSIDERATION, The Adelmann Family New Market Limited Partnership, a limited partnership under the laws of Minnesota, Grantor, hereby conveys and warrants to Adelmann Farms (New Market), LLC, a limited liability company organized under the laws of the state of Minnesota, Grantee, an undivided fourteen and sixty-two one hundreths percentage interest (14.62%) in real property in Scott County, Minnesota, described as follows:

See Exhibit A attached hereto.

___ WELL CERTIFICATE RECEIVED
X WELL CHECK CERTIFICATE NOT REQUIRED

Together with all hereditaments and appurtenance belonging thereto, subject to the following exceptions:

See Exhibit B attached hereto.

I am familiar with the property described in this instrument and I certify that the status and number of wells on the described real property have not changed since the last previously filed well disclosure certificate.

The consideration for this transfer is less than $500.00. By this deed Grantor intends to convey its entire interest in the property to Grantee.

1.65
+.37 881
12/27/12
KMO

The Adelmann Family New Market
Limited Partnership

By Bernadette M. Adelmann
Its: General Partner

By David Adelmann
Its: General Partner

Affix Deed Stamp Here

STATE OF MINNESOTA)
) ss.
COUNTY OF DAKOTA)

The foregoing was acknowledged before me this 9th day of November, 2012 by David Adelmann and Bernadette Chrismer, the General Partners of The Adelmann Family New Market Limited Partnership, a a limited partnership under the laws of Minnesota, on behalf of the limited partnership.

NOTARIAL STAMP OR SEAL (OR OTHER TITLE OR RANK)

REID J HANSEN
NOTARY PUBLIC
MINNESOTA
My Commission Expires Jan. 31, 2015

Notary Public

Tax Statements for the real Property described in this Instrument should be sent to:

Adelmann Farms (New Market), LLC
c/o Richfield Plumbing
8640 Harriet Ave So.
Bloomington, MN 55420

THIS INSTRUMENT WAS DRAFTED BY:
Reid J. Hansen
Hansen, McCann & O'Connor, P.A.
14450 South Robert Trail
Rosemount, MN 55068
(651) 423-1155

Exhibit A

Legal Description

The East Half of the Southeast Quarter (E1/2 of SE1/4) of Section Twenty-three (23), Township One Hundred Thirteen (113), Range Twenty-one (21), except the Highway Right of Way, and except that part lying Southerly of County State Aid Road No.2 and Westerly of State Highway 35; (Tax Parcel No. 08-923-004-0)

AND

All that part of the East Half of the Northeast Quarter (E1/2 of NE1/4) of said Section Twenty-three (23), Township One Hundred Thirteen (113), Range Twenty-one (21), lying South of the South line of the Right of Way of the Chicago , Milwaukee, St. Paul and Pacific R.R. Company , except Highway Right of Way, all of the aforedescribed land lying and being in Scott County, Minnesota; (Tax Parcel No. 08-923-004-0)

AND

The East 345.69 feet of the Southeast Quarter of the Southwest Quarter (SE1/4 of SW1/4), Section Twenty-Three (23), Township One Hundred Thirteen (113), Range Twenty-One (21), as measured perpendicular to the East line thereof and lying North of Scott County State Aid Road No. 2, Scott County, Minnesota (Tax Parcel No. 08-923-008-1)

AND

The West Half of the Southeast Quarter (W1/2 of SE1/4) and the Northeast Quarter of the Southwest Quarter (NE1/4 of SW1/4), all in Section Twenty-three (23), Township One Hundred Thirteen (113), Range Twenty-one (21), except railroad right-of-way thereon, and excepting therefrom the following described tract:

> That part of the West 250 feet of the South 300 feet of the Southwest Quarter of the Southeast Quarter (SW1/4 of SE1/4) of Section Twenty-three (23), Township One Hundred Thirteen (113) North, Range Twenty-one (21) West;

(Tax Parcel No. 08-923-009-0)

AND

All that part of the abandoned right-of-way of the Chicago, Milwaukee, St. Paul and Pacific Railroad, the centerline of the railroad track as shown in Scott County Documents # 181948, 181949 and 181950 lying across the tracts described on Exhibit A-(a) attached hereto.

Exhibit A-(a)

The Southeast Quarter of the Northeast Quarter (SE1/4 of NE1/4), the Northeast Quarter of the Southeast Quarter (NE1/4 of SE1/4), the Northwest Quarter of the Southeast Quarter (NW1/4 of SE1/4), and the Northeast Quarter of the Southwest Quarter (NE1/4 of SW1/4), all in Section Twenty-three (23), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The Southwest Quarter of the Northwest Quarter (SW1/4 of NW1/4) of Section Twenty-four (24), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The Southeast Quarter of the Northwest Quarter (SE1/4 of NW1/4) and all that portion of the Southwest Quarter of the Northeast Quarter (SW1/4 of NE1/4) lying West of the centerline of State Aid Highway 46, all in Section Twenty-four (24), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The East Half of the Northeast Quarter (E1/2 of NE1/4) of Section Twenty-seven (27), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W) Scott County, Minnesota.

(Tax Parcel Nos. 08-924-033-0 and 23-927-016-1)

Exhibit B

Exceptions

1. Easements, reservations, and restrictions of record, if any.

EXHIBIT D

There are no delinquent taxes and transfer entered
Date: 12/27/12
County Auditor
Deputy

Doc. No. A 924517

OFFICE OF THE COUNTY RECORDER
SCOTT COUNTY, MINNESOTA

Certified Filed and/or Recorded on

12-27-2012 at 03:00 Recpt: 337881

James L. Hentges, County Recorder 01

Fee: $ 46.00

TRUSTEES DEED
By Individual(s) as Trustee(s)

DEED TAX DUE HEREON: $ 1.65

Date: NOVEMBER 9, 2012

FOR VALUABLE CONSIDERATION, Lorraine M. Adelmann, as Trustee(s) of the Lorraine M. Adelmann Revocable Trust dated September 27, 2001, Grantor(s), hereby convey(s) and warrant(s) to Adelmann Farms (New Market), LLC, a limited liability company organized under the laws of the State of Minnesota, Grantee(s), an undivided fifty-eight and nine one hundreths percentage interest (58.09%) in property in Scott County, Minnesota described as follows:

See Exhibit A attached hereto.

___ WELL CERTIFICATE RECEIVED
X WELL CERTIFICATE NOT REQUIRED

Together with all hereditaments and appurtenance belonging thereto, subject to the following exceptions:

See Exhibit B attached hereto.

I am familiar with the property described in this instrument and I certify that the status and number of wells on the described real property have not changed since the last previously filed well disclosure certificate.

The consideration for this transfer is less than $500.00. By this deed Grantor intends to convey its entire interest in the property to Grantee.

165
4-37881
12/27/12

Trustee(s)

Lorraine M. Adelmann
Lorraine M. Adelmann

Affix Deed Stamp Here

STATE OF MINNESOTA)
)ss.
COUNTY OF DAKOTA)

The foregoing was acknowledged before me this 9th day of November, 2012, by Lorraine M. Adelmann, as Trustee(s) of the Lorraine M. Adelmann Revocable Trust dated September 27, 2001, Grantor(s).

NOTARIAL STAMP OR SEAL (OR OTHER TITLE OR RANK)

REID J HANSEN
NOTARY PUBLIC
MINNESOTA
My Commission Expires Jan. 31, 2015

Notary Public

Tax Statements for the real Property described in this Instrument should be sent to:

Adelmann Farms (New Market), LLC
e/o Richfield Plumbing
8640 Harriet Avenue So.
Bloomington, MN 55420

THIS INSTRUMENT WAS DRAFTED BY:
Reid J. Hansen
Hansen, McCann & O'Connor, P.A.
14450 South Robert Trail
Rosemount, MN 55068
(651) 423-1155

Exhibit A

Legal Description

The East Half of the Southeast Quarter (E1/2 of SE1/4) of Section Twenty-three (23), Township One Hundred Thirteen (113), Range Twenty-one (21), except the Highway Right of Way, and except that part lying Southerly of County State Aid Road No.2 and Westerly of State Highway 35; (Tax Parcel No. 08-923-004-0)

AND

All that part of thc East Half of thc Northeast Quarter (E1/2 of NE1/4) of said Section Twenty-three (23), Township One Hundred Thirteen (113), Range Twenty-one (21), lying South of the South line of the Right of Way of the Chicago , Milwaukee, St. Paul and Pacific R.R. Company , except Highway Right of Way, all of the aforedescribed land lying and being in Scott County, Minnesota; (Tax Parcel No. 08-923-004-0)

AND

The East 345.69 feet of the Southeast Quarter of the Southwest Quarter (SE1/4 of SW1/4), Section Twenty-Three (23), Township One Hundred Thirteen (113), Range Twenty-One (21), as measured perpendicular to the East line thereof and lying North of Scott County State Aid Road No. 2, Scott County, Minnesota (Tax Parcel No. 08-923-008-1)

AND

The West Half of the Southeast Quarter (W1/2 of SE1/4) and the Northeast Quarter of the Southwest Quarter (NE1/4 of SW1/4), all in Section Twenty-three (23), Township Onc Hundred Thirteen (113), Range Twenty-one (21), except railroad right-of-way thereon, and excepting therefrom the following described tract:

> That part of the West 250 fcet of the South 300 feet of the Southwest Quartcr of the Southeast Quarter (SW1/4 of SE1/4) of Section Twenty-three (23), Township One Hundred Thirteen (113) North, Range Twenty-one (21) West;

(Tax Parcel No. 08-923-009-0)

AND

All that part of the abandoned right-of-way of the Chicago, Milwaukee, St. Paul and Pacific Railroad, the centerline of the railroad track as shown in Scott County Documents # 181948, 181949 and 181950 lying across the tracts described on Exhibit A-(a) attached hereto.

Exhibit A-(a)

The Southeast Quarter of the Northeast Quarter (SE1/4 of NE1/4), the Northeast Quarter of the Southeast Quarter (NE1/4 of SE1/4), the Northwest Quarter of the Southeast Quarter (NW1/4 of SE1/4), and the Northeast Quarter of the Southwest Quarter (NE1/4 of SW1/4), all in Section Twenty-three (23), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The Southwest Quarter of the Northwest Quarter (SW1/4 of NW1/4) of Section Twenty-four (24), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The Southeast Quarter of the Northwest Quarter (SE1/4 of NW1/4) and all that portion of the Southwest Quarter of the Northeast Quarter (SW1/4 of NE1/4) lying West of the centerline of State Aid Highway 46, all in Section Twenty-four (24), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W), Scott County, Minnesota.

The East Half of the Northeast Quarter (E1/2 of NE1/4) of Section Twenty-seven (27), Township One Hundred Thirteen North (113N), Range Twenty-one West (21W) Scott County, Minnesota.

(Tax Parcel Nos. 08-924-033-0 and 23-927-016-1)

1. Easements, reservations, and restrictions of record, if any.

EXHIBIT E

(Top 3 inches reserved for recording data)

WARRANTY DEED
Business Entity to Business Entity

Minnesota Uniform Conveyancing Blanks
Form 10.1.9 (2013)

eCRV Number: 306211

DEED TAX DUE $ 3,300.00

DATE: January 12, 2015

FOR VALUABLE CONSIDERATION, **Traders Promotions Inc.**, a Corporation under the laws of Minnesota, ("Grantor"), hereby conveys and warrants to **Empire II, LLC** a Limited Liability Company under the laws of Minnesota ("Grantee"), real property in **Scott** County, Minnesota, legally described as follows:

See Attached Exhibit "A"

Check here if all or part of the described real property is Registered (Torrens) ☐

Together with all hereditaments and appurtenances belonging thereto, subject to the following exceptions:

Subject to covenants, conditions, restrictions, reservations, and easements of record, if any.

Check applicable box:

☐ The Seller certifies that the Seller does not know of any wells on the described real property.

☒ A well disclosure certificate accompanies this document or has been electronically filed (If electronically filed, insert WDC Number:

☐ I am familiar with the property described in this instrument and I certify that the status and number of wells on the described Real property have not changed since the last previously filed well disclosure certificate.

Title Recording Services, Inc.
79 Western Ave N
St. Paul, MN 55102
SCOTT A

692706
14120096
DCA BASIC
WD

State of Minnesota, County of Dakota

This instrument was acknowledged before me on January 12, 2015, by **William K. Rosenbloom** as **Vice President of Traders Promotions Inc.**

KAREN K. JOHNSON
NOTARY PUBLIC - MINNESOTA
My Commission Expires Jan. 31, 2020

Signature of notarial officer

Title (and Rank)_____

My commission expires:_____

This instrument was drafted by:
DCA Title
7373 147th Street West, Ste 161
Apple Valley MN 55124
14-120096 RC

Tax Statements for the real property described in this instrument should be sent to:
Empire II, LLC
19492 Biscayne Ave.
Farmington, MN 55024

Appendix D: Regulatory Records Documentation

E RecSearch Report

Satellite view

Target Property:

Adelmann Family Farms
10946-10998 260th St East
New Market Township, Scott County, Minnesota 55020

Prepared For:

Historical Information Gatherers

Order #: 105804
Job #: 230377
Project #: 2014835
Date: 03/27/2018

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Zip Report . . . . . See Attachment

Disclaimer

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Target Property Summary

Target Property Information

Adelmann Family Farms
10946-10998 260th St East
New Market Township, Minnesota 55020

Coordinates
Area centroid (-93.304829, 44.5759703)
1,103 feet above sea level

USGS Quadrangle
New Market, MN

Geographic Coverage Information

County/Parish: Scott (MN) , Dakota (MN)
ZipCode(s):
Elko New Market MN: 55020
Lakeville MN: 55044

Radon
* Target property is located in Radon Zone 1.
Zone 1 areas have a predicted average indoor radon screening level greater than 4 pCi/L (picocuries per liter).

Database Summary

FEDERAL LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
EMERGENCY RESPONSE NOTIFICATION SYSTEM	ERNSMN	0	0	TP/AP
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	EC	0	0	TP/AP
LAND USE CONTROL INFORMATION SYSTEM	LUCIS	0	0	TP/AP
RCRA SITES WITH CONTROLS	RCRASC	0	0	TP/AP
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR	RCRAGR05	2	0	0.1250
RESOURCE CONSERVATION & RECOVERY ACT - NON-GENERATOR	RCRANGR05	1	0	0.1250
FEMA OWNED STORAGE TANKS	FEMAUST	0	0	0.2500
BROWNFIELDS MANAGEMENT SYSTEM	BF	0	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	DNPL	0	0	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	NLRRCRAT	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - NON-CORRACTS TREATMENT, STORAGE & DISPOSAL FACILITIES	RCRAT	0	0	0.5000
SUPERFUND ENTERPRISE MANAGEMENT SYSTEM	SEMS	0	0	0.5000
SUPERFUND ENTERPRISE MANAGEMENT SYSTEM ARCHIVED SITE INVENTORY	SEMSARCH	0	0	0.5000
NATIONAL PRIORITIES LIST	NPL	0	0	1.0000
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	NLRRCRAC	0	0	1.0000
PROPOSED NATIONAL PRIORITIES LIST	PNPL	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	RCRAC	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - SUBJECT TO CORRECTIVE ACTION FACILITIES	RCRASUBC	0	0	1.0000

SUB-TOTAL		3	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIR FACILITY SUBSYSTEM	AIRSAFS	0	0	TP/AP
BIENNIAL REPORTING SYSTEM	BRS	0	0	TP/AP
CERCLIS LIENS	SFLIENS	0	0	TP/AP
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	TP/AP
EPA DOCKET DATA	DOCKETS	0	0	TP/AP
ENFORCEMENT AND COMPLIANCE HISTORY INFORMATION	ECHOR05	1	0	TP/AP

Database Summary

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
FACILITY REGISTRY SYSTEM	FRSMN	4	0	TP/AP
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	HMIRSR05	0	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM (FORMERLY DOCKETS)	ICIS	0	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	ICISNPDES	0	0	TP/AP
MATERIAL LICENSING TRACKING SYSTEM	MLTS	0	0	TP/AP
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	NPDESR05	0	0	TP/AP
PCB ACTIVITY DATABASE SYSTEM	PADS	0	0	TP/AP
PERMIT COMPLIANCE SYSTEM	PCSR05	0	0	TP/AP
SEMS LIEN ON PROPERTY	SEMSLIENS	0	0	TP/AP
SECTION SEVEN TRACKING SYSTEM	SSTS	0	0	TP/AP
TOXIC SUBSTANCE CONTROL ACT INVENTORY	TSCA	0	0	TP/AP
TOXICS RELEASE INVENTORY	TRI	0	0	TP/AP
ALTERNATIVE FUELING STATIONS	ALTFUELS	0	0	0.2500
HISTORICAL GAS STATIONS	HISTPST	0	0	0.2500
INTEGRATED COMPLIANCE INFORMATION SYSTEM DRYCLEANERS	ICISCLEANERS	0	0	0.2500
MINE SAFETY AND HEALTH ADMINISTRATION MASTER INDEX FILE	MSHA	0	0	0.2500
MINERAL RESOURCE DATA SYSTEM	MRDS	0	0	0.2500
OPEN DUMP INVENTORY	ODI	0	0	0.5000
SURFACE MINING CONTROL AND RECLAMATION ACT SITES	SMCRA	0	0	0.5000
URANIUM MILL TAILINGS RADIATION CONTROL ACT SITES	USUMTRCA	0	0	0.5000
DEPARTMENT OF DEFENSE SITES	DOD	0	0	1.0000
FORMER MILITARY NIKE MISSILE SITES	NMS	0	0	1.0000
FORMERLY USED DEFENSE SITES	FUDS	0	0	1.0000
FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM	FUSRAP	0	0	1.0000
RECORD OF DECISION SYSTEM	RODS	0	0	1.0000

SUB-TOTAL		5	0	

Database Summary

STATE (MN) LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
SITES WITH INSTITUTIONAL CONTROLS	IC	0	0	TP/AP
HAZARDOUS WASTE GENERATOR SITES	HWGS	3	0	0.1250
WATER DISCHARGE PERMITS	WDP	0	0	0.1250
REGISTERED STORAGE TANKS	UAST	4	0	0.2500
CERCLIS SITES	CERCLIS	0	0	0.5000
CLOSED LANDFILLS	CLF	0	0	0.5000
HAZARDOUS WASTE TREATMENT STORAGE DISPOSAL SITES	HWSTSD	0	0	0.5000
OPEN SOLID WASTE FACILITIES	SWF	0	0	0.5000
PERMITTED BY RULE LANDFILLS	PBRLF	0	0	0.5000
PETROLEUM BROWNFIELDS PROGRAM SITES	PBF	0	0	0.5000
POTENTIAL VOLUNTARY INVESTIGATION AND CLEANUP PROGRAM SITES	PVICP	0	0	0.5000
REGISTERED LEAKING STORAGE TANKS	LUAST	3	0	0.5000
REGISTERED LEAKING STORAGE TANKS PRIOR TO APRIL 2016	LUAST2016	3	0	0.5000
SITE RESPONSE SECTION DATABASE	SRS	0	0	0.5000
UNPERMITTED DUMP SITES	UNPERMDUMPS	0	0	0.5000
VOLUNTARY INVESTIGATION AND CLEANUP PROGRAM SITES	VICP	0	0	0.5000
HAZARDOUS WASTE CLEANUP SITES	HWCS	0	0	1.0000
MPCA REMEDIATION SITES	REMSITES	1	0	1.0000
STATE ASSESSMENT SITES	SAS	1	0	1.0000
SUPERFUND SITE INFORMATION LISTING	SF	0	0	1.0000

SUB-TOTAL		15	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	TP/AP
PERMITTED AIR FACILITIES	AIRS	0	0	TP/AP
SOLID WASTE UTILIZATION PROJECTS	SWUP	0	0	TP/AP
SPILLS LISTING	PCASPILLS	2	0	TP/AP
TIER TWO FACILITY LISTING	TIERII	0	0	TP/AP
FEEDLOTS	FEEDLOT	1	0	0.1250
BULK STORAGE PERMITS	BULKSTORAGE	1	0	0.2500
REGISTERED DRYCLEANING FACILITIES	CLEANERS	0	0	0.2500

Database Summary

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
AGRICULTURAL CONTINGENCY SITES	CONTINGENCIES	0	0	0.5000
AGRICULTURAL SPILLS LISTING	AGSPILLS	0	0	0.5000
CONCENTRATED ANIMAL FEEDING OPERATIONS	CAFO	2	0	0.5000
RECYCLING MARKETS DIRECTORY	RECYCLERS	0	0	0.5000
WHAT'S IN MY NEIGHBORHOOD DATABASE	WIMN	13	0	0.5000
CONTAMINATED SOIL TREATMENT FACILITIES	CSTF	0	0	1.0000

SUB-TOTAL		19	0	

Database Summary

TRIBAL LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	USTR05	0	0	0.2500
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	LUSTR05	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	ODINDIAN	0	0	0.5000
SUB-TOTAL		0	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
INDIAN RESERVATIONS	INDIANRES	0	0	1.0000
SUB-TOTAL		0	0	

TOTAL		42	0	

Database Radius Summary

FEDERAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
AIRSAFS	0.0200	0	NS	NS	NS	NS	NS	0
BRS	0.0200	0	NS	NS	NS	NS	NS	0
CDL	0.0200	0	NS	NS	NS	NS	NS	0
DOCKETS	0.0200	0	NS	NS	NS	NS	NS	0
EC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
ECHOR05	0.0200	1	NS	NS	NS	NS	NS	1
ERNSMN	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
FRSMN	0.0200	4	NS	NS	NS	NS	NS	4
HMIRSR05	0.0200	0	NS	NS	NS	NS	NS	0
ICIS	0.0200	0	NS	NS	NS	NS	NS	0
ICISNPDES	0.0200	0	NS	NS	NS	NS	NS	0
LUCIS	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
MLTS	0.0200	0	NS	NS	NS	NS	NS	0
NPDESR05	0.0200	0	NS	NS	NS	NS	NS	0
PADS	0.0200	0	NS	NS	NS	NS	NS	0
PCSR05	0.0200	0	NS	NS	NS	NS	NS	0
RCRASC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
SEMSLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SFLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SSTS	0.0200	0	NS	NS	NS	NS	NS	0
TRI	0.0200	0	NS	NS	NS	NS	NS	0
TSCA	0.0200	0	NS	NS	NS	NS	NS	0
RCRAGR05	**0.1250**	**0**	**2**	**NS**	**NS**	**NS**	**NS**	**2**
RCRANGR05	**0.1250**	**1**	**0**	**NS**	**NS**	**NS**	**NS**	**1**
ALTFUELS	0.2500	0	0	0	NS	NS	NS	0
FEMAUST	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
HISTPST	0.2500	0	0	0	NS	NS	NS	0
ICISCLEANERS	0.2500	0	0	0	NS	NS	NS	0
MRDS	0.2500	0	0	0	NS	NS	NS	0
MSHA	0.2500	0	0	0	NS	NS	NS	0
BF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
DNPL	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
NLRRCRAT	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
ODI	0.5000	0	0	0	0	NS	NS	0
RCRAT	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**

Database Radius Summary

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
SEMS	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
SEMSARCH	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
SMCRA	0.5000	0	0	0	0	NS	NS	0
USUMTRCA	0.5000	0	0	0	0	NS	NS	0
DOD	1.0000	0	0	0	0	0	NS	0
FUDS	1.0000	0	0	0	0	0	NS	0
FUSRAP	1.0000	0	0	0	0	0	NS	0
NLRRCRAC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
NMS	1.0000	0	0	0	0	0	NS	0
NPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
PNPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RCRAC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RCRASUBC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RODS	1.0000	0	0	0	0	0	NS	0
SUB-TOTAL		6	2	0	0	0	0	8

Database Radius Summary

STATE (MN) LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
AIRS	0.0200	0	NS	NS	NS	NS	NS	0
CDL	0.0200	0	NS	NS	NS	NS	NS	0
IC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
PCASPILLS	0.0200	2	NS	NS	NS	NS	NS	2
SWUP	0.0200	0	NS	NS	NS	NS	NS	0
TIERII	0.0200	0	NS	NS	NS	NS	NS	0
FEEDLOT	0.1250	1	0	NS	NS	NS	NS	1
HWGS	**0.1250**	**1**	**2**	**NS**	**NS**	**NS**	**NS**	**3**
WDP	**0.1250**	**0**	**0**	**NS**	**NS**	**NS**	**NS**	**0**
BULKSTORAGE	0.2500	0	0	1	NS	NS	NS	1
CLEANERS	0.2500	0	0	0	NS	NS	NS	0
UAST	**0.2500**	**1**	**0**	**3**	**NS**	**NS**	**NS**	**4**
AGSPILLS	0.5000	0	0	0	0	NS	NS	0
CAFO	0.5000	1	0	1	0	NS	NS	2
CERCLIS	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
CLF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
CONTINGENCIES	0.5000	0	0	0	0	NS	NS	0
HWSTSD	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
LUAST	**0.5000**	**1**	**0**	**1**	**1**	**NS**	**NS**	**3**
LUAST2016	**0.5000**	**1**	**0**	**2**	**0**	**NS**	**NS**	**3**
PBF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
PBRLF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
PVICP	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
RECYCLERS	0.5000	0	0	0	0	NS	NS	0
SRS	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
SWF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
UNPERMDUMPS	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
VICP	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
WIMN	0.5000	3	3	6	1	NS	NS	13
CSTF	1.0000	0	0	0	0	0	NS	0
HWCS	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
REMSITES	**1.0000**	**0**	**0**	**1**	**0**	**0**	**NS**	**1**
SAS	**1.0000**	**0**	**0**	**1**	**0**	**0**	**NS**	**1**
SF	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**

Database Radius Summary

SUB-TOTAL		11	5	16	2	0	0	34

Database Radius Summary

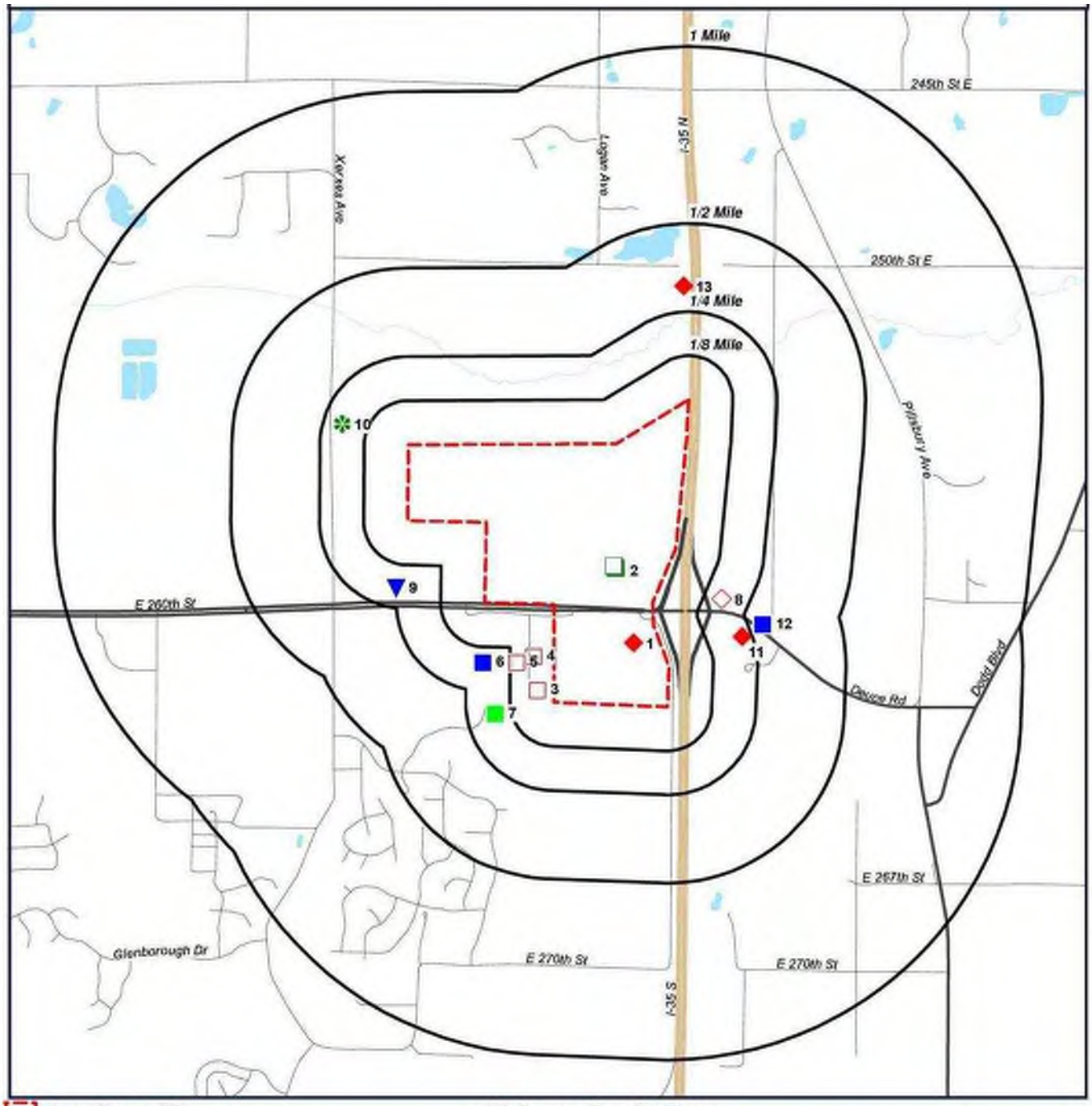
TRIBAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
USTR05	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
LUSTR05	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
ODINDIAN	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
INDIANRES	1.0000	0	0	0	0	0	NS	0
SUB-TOTAL		0	0	0	0	0	0	0
TOTAL		17	7	16	2	0	0	42

NOTES:
NS = NOT SEARCHED
TP/AP = TARGET PROPERTY/ADJACENT PROPERTY

Radius Map 1



Target Property (TP)
LUAST2016
FRSMN
HWGS
RCRAGR05
WIMN
BULKSTORAGE
UAST
SAS
CAFO
LUAST

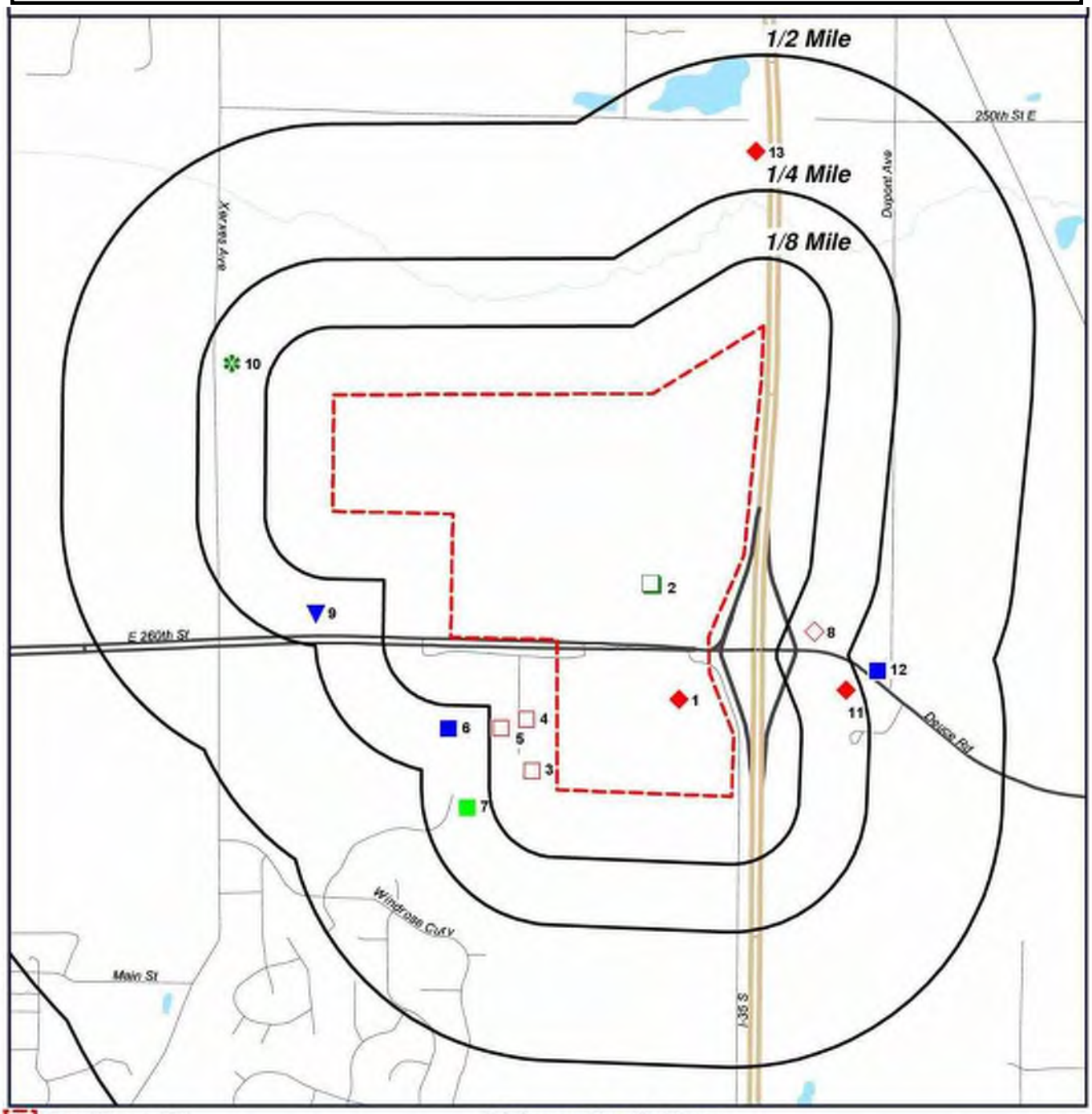
Adelmann Family Farms
10946-10998 260th St East
New Market Township, Minnesota
55020

N
W E
S

0' 1150' 2300' 3450'
SCALE: 1" = 2300'

Click here to access Satellite view

Radius Map 2



Adelmann Family Farms
10946-10998 260th St East
New Market Township, Minnesota
55020

Click here to access Satellite view

Ortho Map

Target Property (TP)
LUAST2016
FRSMN
HWGS
RCRAGR05
WIMN
BULKSTORAGE
UAST
SAS
CAFO
LUAST

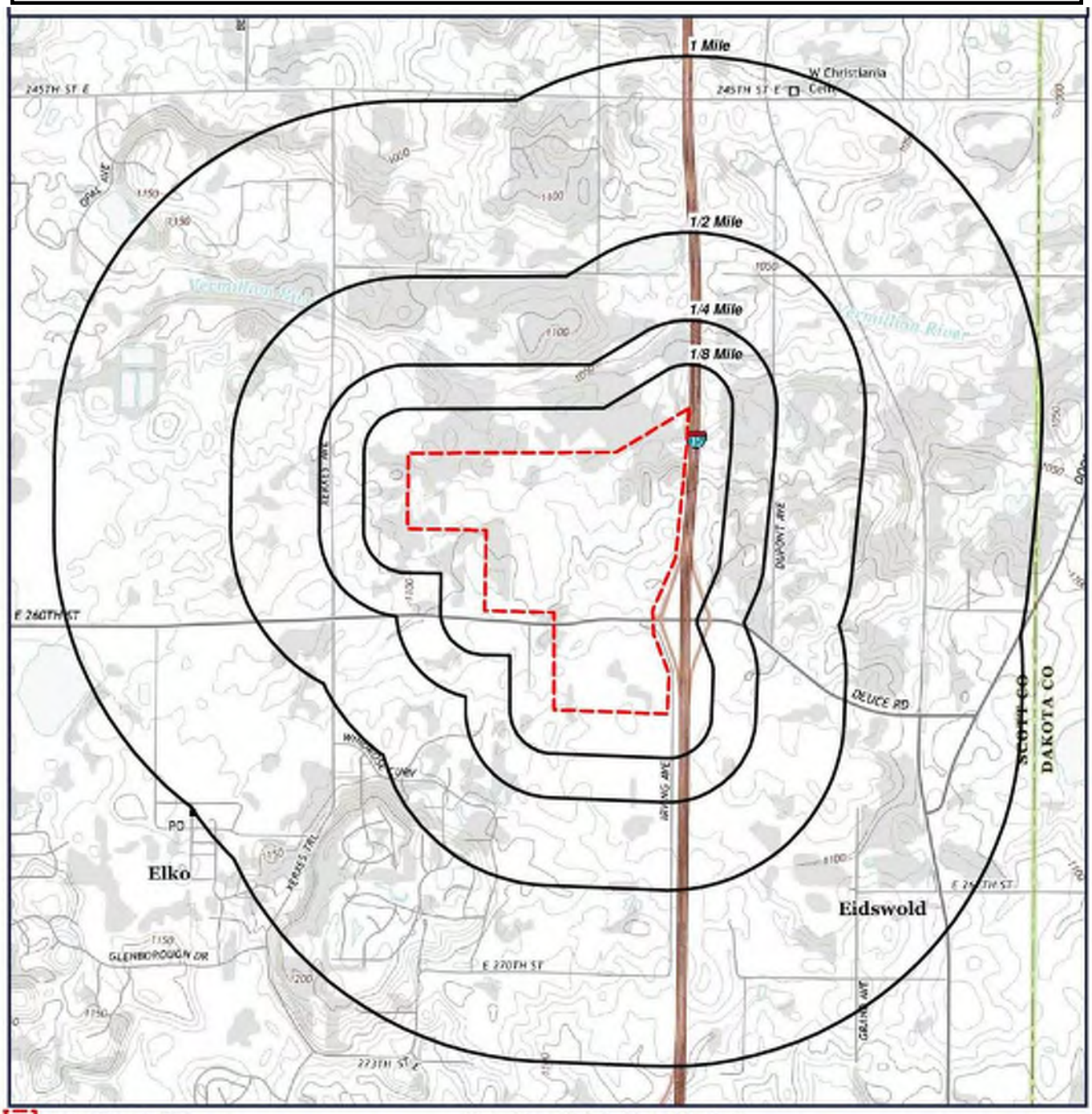
Quadrangle(s): New Market
Adelmann Family Farms
10946-10998 260th St East
New Market Township, Minnesota
55020

N
W E
S

0' 750' 1500' 2250'
SCALE: 1" = 1500'

Click here to access Satellite view

Topographic Map



Target Property (TP)

Quadrangle(s): New Market
Source: USGS, 08/30/2013
Adelmann Family Farms
10946-10998 260th St East
New Market Township, Minnesota
55020

N
W E
S

0' 1150' 2300' 3450'
SCALE: 1" = 2300'

Click here to access Satellite view

Located Sites Summary

*NOTE: Standard environmental records are displayed in **bold**.*

Map ID#	Database Name	Site ID#	Relative Elevation	Distance From Site	Site Name	Address	PAGE #
1	ECHOR05	110003902055	Higher (1,112 ft.)	TP	COUNTRYSIDE AUTO	10881 E 260TH ST, ELKO, MN 55020	20
1	FRSMN	110003902055	Higher (1,112 ft.)	TP	COUNTRYSIDE AUTO	10881 E 260TH ST, ELKO, MN 55020	21
1	FRSMN	110067849252	Higher (1,112 ft.)	TP	MAYNARDS AUTO SERVICE	10881 E 260TH ST, NEW MARKET TOWNSHIP, MN 55020	22
1	FRSMN	110068153697	Higher (1,112 ft.)	TP	TWIN CITIES FEATHERLITE TRAILER SALES	10881 E 260TH ST, NEW MARKET TOWNSHIP, MN 55020	23
1	***HWGS***	***23406HWGS***	***Higher (1,112 ft.)***	***TP***	***TWIN CITIES FEATHERLITE TRAILER SALES***	***10881 260 ST E, ELKO, MN 55020***	***24***
1	***LUAST***	***117511LUAST***	***Higher (1,112 ft.)***	***TP***	***MAYNARDS AUTO SERVICE***	***10881 E 260TH ST, ELKO NEW MARKET, MN 55020***	***25***
1	***LUAST2016***	***1796LUAST***	***Higher (1,112 ft.)***	***TP***	***MAYNARDS AUTO SERVICE***	***10881 E 260TH ST, ELKO (NEW MARKET), MN 55020***	***27***
1	PCASPILLS	12377	Higher (1,112 ft.)	TP	RICHFIELD PLUMBING	10881 260TH ST, ELKO, MN	28
1	PCASPILLS	93174_150494	Higher (1,112 ft.)	TP	TWIN CITY FEATHERLITE TRAILERS	10881 EAST 260TH ST, ELKO, MN	29
1	***RCRANGR05***	***MNR000021360***	***Higher (1,112 ft.)***	***TP***	***COUNTRYSIDE AUTO - ELKO***	***10881 E 260TH ST, ELKO, MN 55020***	***30***
1	***UAST***	***117511UAST***	***Higher (1,112 ft.)***	***TP***	***MAYNARDS AUTO SERVICE***	***10881 E 260TH ST, ELKO NEW MARKET, MN 55020***	***32***
1	WIMN	117511	Higher (1,112 ft.)	TP	MAYNARDS AUTO SERVICE	10881 E 260TH ST, ELKO NEW MARKET, MN 55020	34
1	WIMN	23406	Higher (1,112 ft.)	TP	TWIN CITIES FEATHERLITE TRAILER SALES	10881 260 ST E, ELKO, MN 55020	35
2	CAFO	54242-AREA00000001	Higher (1,117 ft.)	TP	ROBERT ADELMANN FARM	10880 E 260TH ST, ELKO NEW MARKET, MN 55020	36
2	FEEDLOT	54242FEED	Higher (1,117 ft.)	TP	ROBERT ADELMANN FARM	10880 E 260TH ST, ELKO NEW MARKET, MN 55020	38
2	FRSMN	110068955367	Higher (1,117 ft.)	TP	ROBERT ADELMANN FARM	10880 E 260TH ST, NEW MARKET TOWNSHIP, MN 55020	39
2	WIMN	54242	Higher (1,117 ft.)	TP	ROBERT ADELMANN FARM	10880 E 260TH ST, ELKO NEW MARKET, MN 55020	40
3	***HWGS***	***134728HWGS***	***Higher (1,124 ft.)***	***0.045 mi. W (238 ft.)***	***SHOPSABRE***	***26151 NEWTON CIR, ELKO NEW MARKET, MN 55020***	***41***
3	WIMN	134728	Higher (1,124 ft.)	0.045 mi. W (238 ft.)	SHOPSABRE	26151 NEWTON CIR, ELKO NEW MARKET, MN 55020	42
4	***HWGS***	***21458HWGS***	***Higher (1,118 ft.)***	***0.055 mi. W (290 ft.)***	***DAKOTA BLACKTOPPING***	***26105 NEWTON CIR, ELKO NEW MARKET, MN 55020***	***43***
4	***RCRAGR05***	***MNR000060673***	***Higher (1,118 ft.)***	***0.055 mi. W (290 ft.)***	***DAKOTA BLACKTOPPING***	***26105 NEWTON CIR, ELKO, MN 55020***	***44***
4	WIMN	21458	Higher (1,118 ft.)	0.055 mi. W (290 ft.)	DAKOTA BLACKTOPPING	26105 NEWTON CIR, ELKO NEW MARKET, MN 55020	46
5	***RCRAGR05***	***MNR000021915***	***Higher (1,118 ft.)***	***0.103 mi. W (544 ft.)***	***BODYWERKS***	***26106 NEWTON CIR, ELKO, MN 55020***	***47***
5	WIMN	30474	Higher (1,118 ft.)	0.103 mi. W (544 ft.)	EAGLE CREEK AUTO REPAIR	26106 NEWTON CIR, ELKO NEW MARKET, MN 55020	49

Located Sites Summary

*NOTE: Standard environmental records are displayed in **bold**.*

Map ID#	Database Name	Site ID#	Relative Elevation	Distance From Site	Site Name	Address	PAGE #
6	WIMN	30860	Higher (1,121 ft.)	0.167 mi. S (882 ft.)	NIEMEYERS TRAILER SALES	10405 260TH ST E, ELKO NEW MARKET, MN 55020	50
7	BULKSTORAGE	20025818	Higher (1,131 ft.)	0.167 mi. W (882 ft.)	LANGER HARVEY H	26257 THOMAS AVE, ELKO, MN 55020	51
8	***UAST***	***117770UAST***	***Higher (1,120 ft.)***	***0.177 mi. ESE (935 ft.)***	***ANDERSON ZWEERS***	***11110 DEUCE RD, ELKO NEW MARKET, MN 55020***	***52***
8	WIMN	117770	Higher (1,120 ft.)	0.177 mi. ESE (935 ft.)	ANDERSON ZWEERS	11110 DEUCE RD, ELKO NEW MARKET, MN 55020	53
9	***REMSITES***	***196168***	***Higher (1,106 ft.)***	***0.191 mi. SSW (1008 ft.)***	***ELKO DUMP***	***SEE LOCATION DESCRIPTION, ELKO NEW MARKET, MN 55020***	***54***
9	***SAS***	***196168SAS***	***Higher (1,106 ft.)***	***0.191 mi. SSW (1008 ft.)***	***ELKO DUMP***	***SEE LOCATION DESCRIPTION, ELKO NEW MARKET, MN 55020***	***56***
9	WIMN	196168	Higher (1,106 ft.)	0.191 mi. SSW (1008 ft.)	ELKO DUMP	SEE LOCATION DESCRIPTION, ELKO NEW MARKET, MN 55020	57
10	CAFO	60794-AREA00000001	Higher (1,109 ft.)	0.196 mi. WNW (1035 ft.)	RAY DEUTSCH FARM	25421 XERXES AVE, ELKO NEW MARKET, MN 55020	58
10	WIMN	60794	Higher (1,109 ft.)	0.196 mi. WNW (1035 ft.)	RAY DEUTSCH FARM	25421 XERXES AVE, ELKO NEW MARKET, MN 55020	60
11	***LUAST***	***47272LUAST***	***Higher (1,121 ft.)***	***0.222 mi. ENE (1172 ft.)***	***PARKS AUTO***	***11111 DEUCE RD STE 5, ELKO NEW MARKET, MN 55020***	***61***
11	***LUAST2016***	***15935LUAST***	***Higher (1,121 ft.)***	***0.222 mi. ENE (1172 ft.)***	***G & T TRUCKING***	***11111 DEUCE RD STE 5, ELKO, MN 55020***	***63***
11	***LUAST2016***	***16832LUAST***	***Higher (1,121 ft.)***	***0.222 mi. ENE (1172 ft.)***	***G AND T TRUCKING CO***	***11111 DEUCE RD STE 5, ELKO, MN 55020***	***64***
11	***UAST***	***150458UAST***	***Higher (1,121 ft.)***	***0.222 mi. ENE (1172 ft.)***	***TELCOM CONSTRUCTION INC***	***11111 DEUCE RD, ELKO NEW MARKET, MN 55020***	***65***
11	***UAST***	***47272UAST***	***Higher (1,121 ft.)***	***0.222 mi. ENE (1172 ft.)***	***PARKS AUTO***	***11111 DEUCE RD STE 5, ELKO NEW MARKET, MN 55020***	***66***
11	WIMN	150458	Higher (1,121 ft.)	0.222 mi. ENE (1172 ft.)	TELCOM CONSTRUCTION INC	11111 DEUCE RD, ELKO NEW MARKET, MN 55020	71
11	WIMN	47272	Higher (1,121 ft.)	0.222 mi. ENE (1172 ft.)	PARKS AUTO	11111 DEUCE RD STE 5, ELKO NEW MARKET, MN 55020	72
12	WIMN	129145	Higher (1,129 ft.)	0.292 mi. ENE (1542 ft.)	LAFAVRE RACING TEAM INC	11236 DEUCE RD, ELKO NEW MARKET, MN 55020	73
13	***LUAST***	***105900LUAST***	***Lower (1,061 ft.)***	***0.321 mi. N (1695 ft.)***	***MN DEPT OF TRANSPORTATION***	***I35 N OF ELKO, ELKO NEW MARKET, MN 55054***	***74***

Elevation Summary

Elevations are collected from the USGS 3D Elevation Program 1/3 arc-second (approximately 10 meters) layer hosted at the NGTOC. .

Target Property Elevation: 1103 ft.

*NOTE: Standard environmental records are displayed in **bold**.*

EQUAL/HIGHER ELEVATION

Map ID#	Database Name	Elevation	Site Name	Address	Page #
1	ECHOR05	1,112 ft.	COUNTRYSIDE AUTO	10881 E 260TH ST, ELKO, MN 55020	20
1	FRSMN	1,112 ft.	COUNTRYSIDE AUTO	10881 E 260TH ST, ELKO, MN 55020	21
1	FRSMN	1,112 ft.	MAYNARDS AUTO SERVICE	10881 E 260TH ST, NEW MARKET TOWNSHIP, MN 55020	22
1	FRSMN	1,112 ft.	TWIN CITIES FEATHERLITE TRAILER SALES	10881 E 260TH ST, NEW MARKET TOWNSHIP, MN 55020	23
1	***HWGS***	***1,112 ft.***	***TWIN CITIES FEATHERLITE TRAILER SALES***	***10881 260 ST E, ELKO, MN 55020***	***24***
1	***LUAST***	***1,112 ft.***	***MAYNARDS AUTO SERVICE***	***10881 E 260TH ST, ELKO NEW MARKET, MN 55020***	***25***
1	***LUAST2016***	***1,112 ft.***	***MAYNARDS AUTO SERVICE***	***10881 E 260TH ST, ELKO (NEW MARKET), MN 55020***	***27***
1	PCASPILLS	1,112 ft.	RICHFIELD PLUMBING	10881 260TH ST, ELKO, MN	28
1	PCASPILLS	1,112 ft.	TWIN CITY FEATHERLITE TRAILERS	10881 EAST 260TH ST, ELKO, MN	29
1	***RCRANGR05***	***1,112 ft.***	***COUNTRYSIDE AUTO - ELKO***	***10881 E 260TH ST, ELKO, MN 55020***	***30***
1	***UAST***	***1,112 ft.***	***MAYNARDS AUTO SERVICE***	***10881 E 260TH ST, ELKO NEW MARKET, MN 55020***	***32***
1	WIMN	1,112 ft.	MAYNARDS AUTO SERVICE	10881 E 260TH ST, ELKO NEW MARKET, MN 55020	34
1	WIMN	1,112 ft.	TWIN CITIES FEATHERLITE TRAILER SALES	10881 260 ST E, ELKO, MN 55020	35
2	CAFO	1,117 ft.	ROBERT ADELMANN FARM	10880 E 260TH ST, ELKO NEW MARKET, MN 55020	36
2	FEEDLOT	1,117 ft.	ROBERT ADELMANN FARM	10880 E 260TH ST, ELKO NEW MARKET, MN 55020	38
2	FRSMN	1,117 ft.	ROBERT ADELMANN FARM	10880 E 260TH ST, NEW MARKET TOWNSHIP, MN 55020	39
2	WIMN	1,117 ft.	ROBERT ADELMANN FARM	10880 E 260TH ST, ELKO NEW MARKET, MN 55020	40
3	***HWGS***	***1,124 ft.***	***SHOPSABRE***	***26151 NEWTON CIR, ELKO NEW MARKET, MN 55020***	***41***
3	WIMN	1,124 ft.	SHOPSABRE	26151 NEWTON CIR, ELKO NEW MARKET, MN 55020	42
4	***HWGS***	***1,118 ft.***	***DAKOTA BLACKTOPPING***	***26105 NEWTON CIR, ELKO NEW MARKET, MN 55020***	***43***
4	***RCRAGR05***	***1,118 ft.***	***DAKOTA BLACKTOPPING***	***26105 NEWTON CIR, ELKO, MN 55020***	***44***
4	WIMN	1,118 ft.	DAKOTA BLACKTOPPING	26105 NEWTON CIR, ELKO NEW MARKET, MN 55020	46
5	***RCRAGR05***	***1,118 ft.***	***BODYWERKS***	***26106 NEWTON CIR, ELKO, MN 55020***	***47***
5	WIMN	1,118 ft.	EAGLE CREEK AUTO REPAIR	26106 NEWTON CIR, ELKO NEW MARKET, MN 55020	49
6	WIMN	1,121 ft.	NIEMEYERS TRAILER SALES	10405 260TH ST E, ELKO NEW MARKET, MN 55020	50

Elevation Summary

Map ID#	Database Name	Elevation	Site Name	Address	Page #
7	BULKSTORAGE	1,131 ft.	LANGER HARVEY H	26257 THOMAS AVE, ELKO, MN 55020	51
8	***UAST***	***1,120 ft.***	***ANDERSON ZWEERS***	***11110 DEUCE RD, ELKO NEW MARKET, MN 55020***	***52***
8	WIMN	1,120 ft.	ANDERSON ZWEERS	11110 DEUCE RD, ELKO NEW MARKET, MN 55020	53
9	***REMSITES***	***1,106 ft.***	***ELKO DUMP***	***SEE LOCATION DESCRIPTION, ELKO NEW MARKET, MN 55020***	***54***
9	***SAS***	***1,106 ft.***	***ELKO DUMP***	***SEE LOCATION DESCRIPTION, ELKO NEW MARKET, MN 55020***	***56***
9	WIMN	1,106 ft.	ELKO DUMP	SEE LOCATION DESCRIPTION, ELKO NEW MARKET, MN 55020	57
10	CAFO	1,109 ft.	RAY DEUTSCH FARM	25421 XERXES AVE, ELKO NEW MARKET, MN 55020	58
10	WIMN	1,109 ft.	RAY DEUTSCH FARM	25421 XERXES AVE, ELKO NEW MARKET, MN 55020	60
11	***LUAST***	***1,121 ft.***	***PARKS AUTO***	***11111 DEUCE RD STE 5, ELKO NEW MARKET, MN 55020***	***61***
11	***LUAST2016***	***1,121 ft.***	***G & T TRUCKING***	***11111 DEUCE RD STE 5, ELKO, MN 55020***	***63***
11	***LUAST2016***	***1,121 ft.***	***G AND T TRUCKING CO***	***11111 DEUCE RD STE 5, ELKO, MN 55020***	***64***
11	***UAST***	***1,121 ft.***	***TELCOM CONSTRUCTION INC***	***11111 DEUCE RD, ELKO NEW MARKET, MN 55020***	***65***
11	***UAST***	***1,121 ft.***	***PARKS AUTO***	***11111 DEUCE RD STE 5, ELKO NEW MARKET, MN 55020***	***66***
11	WIMN	1,121 ft.	TELCOM CONSTRUCTION INC	11111 DEUCE RD, ELKO NEW MARKET, MN 55020	71
11	WIMN	1,121 ft.	PARKS AUTO	11111 DEUCE RD STE 5, ELKO NEW MARKET, MN 55020	72
12	WIMN	1,129 ft.	LAFAVRE RACING TEAM INC	11236 DEUCE RD, ELKO NEW MARKET, MN 55020	73

LOWER ELEVATION

Map ID#	Database Name	Elevation	Site Name	Address	Page #
13	***LUAST***	***1,061 ft.***	***MN DEPT OF TRANSPORTATION***	***I35 N OF ELKO, ELKO NEW MARKET, MN 55054***	***74***

Enforcement and Compliance History Information (ECHOR05)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **110003902055**
REGISTRY ID: **110003902055**
NAME: **COUNTRYSIDE AUTO**
ADDRESS: **10881 E 260TH ST**
ELKO, MN 55020
COUNTY: **SCOTT**
FACILITY LINK: *Facility Detail Report*

Back to Report Summary

Facility Registry System (FRSMN)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

REGISTRY ID: **110003902055**

NAME: **COUNTRYSIDE AUTO**

LOCATION ADDRESS: **10881 E 260TH ST**
ELKO, MN 55020-9443

COUNTY: **SCOTT**

EPA REGION: **05**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

COUNTRYSIDE AUTO

PROGRAM/S LISTED FOR THIS FACILITY

RCRAINFO - RESOURCE CONSERVATION AND RECOVERY ACT INFORMATION SYSTEM

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

NO SIC DATA REPORTED

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

NO NAICS DATA REPORTED

Back to Report Summary

Facility Registry System (FRSMN)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

REGISTRY ID: **110067849252**

NAME: **MAYNARDS AUTO SERVICE**

LOCATION ADDRESS: **10881 E 260TH ST**
NEW MARKET TOWNSHIP, MN 55020

COUNTY: **SCOTT**

EPA REGION: **05**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

MAYNARDS AUTO SERVICE

PROGRAM/S LISTED FOR THIS FACILITY

MN-TEMPO - MN-TEMPO

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

NO SIC DATA REPORTED

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

NO NAICS DATA REPORTED

Back to Report Summary

Facility Registry System (FRSMN)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

REGISTRY ID: **110068153697**

NAME: **TWIN CITIES FEATHERLITE TRAILER SALES**

LOCATION ADDRESS: **10881 E 260TH ST**
NEW MARKET TOWNSHIP, MN 55020-9443

COUNTY: **SCOTT**

EPA REGION: **05**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

COUNTRYSIDE AUTO - ELKO

PROGRAM/S LISTED FOR THIS FACILITY

MN-TEMPO - MN-TEMPO

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

5012 - AUTOMOBILES AND OTHER MOTOR VEHICLES

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

423110 - AUTOMOBILE AND OTHER MOTOR VEHICLE MERCHANT WHOLESALERS

Back to Report Summary

Hazardous Waste Generator Sites (HWGS)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **23406HWGS**
SITE ID: **23406**
SITE NAME: **TWIN CITIES FEATHERLITE TRAILER SALES**
ADDRESS: **10881 260 ST E**
ELKO, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=23406**

FACILITY DETAILS

ID: **MNR000021360**
TYPE: **HAZARDOUS WASTE**
WATERSHED: **MISSISSIPPI RIVER - LAKE PEPIN**
ACTIVE?: **YES**
INDUSTRY CLASSIFICATION: **AUTOMOBILE AND OTHER MOTOR VEHICLE MERCHANT WHOLESALERS ; MOTORCYCLE, ATV, AND ALL OTHER MOTOR VEHICLE DEALERS ; GENERAL AUTOMOTIVE REPAIR**
INSTITUTIONAL CONTROLS: **NO**

Back to Report Summary

Registered Leaking Storage Tanks (LUAST)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

GEOSEARCH ID: **117511LUAST**
AGENCY INTEREST(AI) ID: **117511**
ITEM ID: **117511-AREA0000000001**
AGENCY INTEREST(AI) NAME: **MAYNARDS AUTO SERVICE**
ADDRESS: **10881 E 260TH ST**
ELKO NEW MARKET, MN 55020
COUNTY: **SCOTT**
LOCATION DESCRIPTION: **NOT REPORTED**
SITE URL: *LINK*

FACILITY DETAILS

TYPE OF REMEDIATION SITE: **LEAK SITE**
SITE ID: **LS0001796**
SITE NAME: **MAYNARDS AUTO SERVICE**
ACREAGE FOR THIS PROJECT: **NOT REPORTED**
MPCA HYDROGEOLOGIST OR HYDROLOGIST ASSIGNED TO THE SITE: **NOT REPORTED**
MPCA PROJECT MANAGER ASSIGNED TO THE SITE: **JANET BERRYHILL (NO LONGER AT MPCA)**
HAS THIS SITE EVER BEEN LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST)?: **NOT REPORTED**
HAS THIS SITE EVER BEEN LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST)?:
NOT REPORTED
FOR BROWNFIELDS, IS THIS A PETROLEUM BROWNFIELD?: **NOT REPORTED**
FOR BROWNFIELDS, IS THIS A NON-PETROLEUM BROWNFIELD AKA VOLUNTARY INVESTIGATION AND CLEANUP (VIC) SITE?:
NOT REPORTED
WAS THIS LISTED ON EPA'S CERCLIS/SEMS LIST?: **NOT REPORTED**
WAS THIS AN UNPERMITTED DUMP?: **NOT REPORTED**
TO OUR KNOWLEDGE, ARE THERE INSTITUTIONAL CONTROLS AT THIS SITE?: **NOT REPORTED**
SCORE FOR THIS SITE, USING THE US EPA'S HAZARD RANKING SYSTEM (HRS): **NOT REPORTED**
YEAR FOR THE HRS SCORE: **NOT REPORTED**
UNIQUE ID FOR AN INVESTIGATION PROJECT THAT INVOLVED THIS SITE: **SIW19890001**
DESCRIPTION FOR THE KIND OF INVESTIGATION PROJECT: **LEAK SITE INVESTIGATION**
RELEASE DISCOVERED: **NOT REPORTED**
RELEASE REPORTED: **10/20/1989**
DATE THE APPLICATION / NOTIFICATION RECEIVED: **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELISTED FROM THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELETED FROM NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
SITE CLOSURE DATE: **8/7/1990**
FUND FINANCE APPROVED: **NOT REPORTED**
FUND FINANCE CLOSED: **NOT REPORTED**
ASSESSMENT COMPLETED: **NOT REPORTED**
INVESTIGATION COMPLETED: **NOT REPORTED**
NO FURTHER ACTION DECISION: **NOT REPORTED**
REMEDY IMPLEMENTED: **NOT REPORTED**

REMEDY SELECTED: **NOT REPORTED**

STATUS OF THE SITE: **CLOSED**

Back to Report Summary

Registered Leaking Storage Tanks Prior to April 2016 (LUAST2016)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

SITE INFORMATION

GEOSEARCH ID: **1796LUAST**
LEAK ID: **1796**
NAME: **MAYNARDS AUTO SERVICE**
ADDRESS: **10881 E 260TH ST**
ELKO (NEW MARKET), MN 55020
RELEASE DISCOVERED: **NOT REPORTED**
RELEASE REPORT: **10/20/1989 00:00:00**
CONDITIONAL CLOSURE DATE: **NOT REPORTED**
COMPLETE SITE CLOSURE DATE: **08/07/1990 00:00:00**
COMTAMINATED SOILS REMAINING: **NO**
OFFSITE COMTAMINATION: **UNKNOWN**
PRODUCT RELEASED: **GASOLINE, TYPE UNKNOWN**

GROUND WATER

DRINKING WATER CONTAMINATION: **NOT REPORTED**
FREE PRODUCT OBSERVED: **NOT REPORTED**
FREE PRODUCT THICKNESS: **NOT REPORTED**
GROUNDWATER CONTAMINATION: **NO**

CLEANUP ACTIONS

- NO CLEANUP ACTIONS REPORTED

INTEREST TYPE:	LAST UPDATE:
LEAK SITE	**11/10/2014 08:17:05**
DELETED LEAK SITE	**11/09/2006 14:39:33**

Back to Report Summary

Spills Listing (PCASPILLS)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **12377**
INCIDENT ID: **12377**
SOURCE NAME: **RICHFIELD PLUMBING**
ADDRESS: **10881 260TH ST**
ELKO, MN
COUNTY: **SCOTT**

FACILITY DETAIL(S)

MPCA PROGRAM INVOLVED WITH THIS INCIDENT: **EMERGENCY MANAGEMENT**
INCIDENT TYPE(S): **SPILL OR RELEASE**
INCIDENT DATE: **1/1/1996**
INCIDENT STATUS: **CLOSED OR COMPLETED**
CLOSURE TYPE: **NOT REPORTED**
DUTY OFFICER NUMBER: **NOT REPORTED**
LEAD INVESTIGATOR: **JOHN MOEGER**
AGENCY INTEREST ID: **NOT REPORTED**
SOURCE ENTITY NAME: **RICHFIELD PLUMBING**
SOURCE ENTITY ADDRESS: **NOT REPORTED**
SOURCE ENTITY CITY: **NOT REPORTED**
SOURCE ENTITY STATE: **NOT REPORTED**
SOURCE ENTITY ZIP CODE: **NOT REPORTED**

Back to Report Summary

Spills Listing (PCASPILLS)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **93174_150494**
INCIDENT ID: **93174**
SOURCE NAME: **TWIN CITY FEATHERLITE TRAILERS**
ADDRESS: **10881 EAST 260TH ST**
ELKO, MN
COUNTY: **SCOTT**

FACILITY DETAIL(S)

MPCA PROGRAM INVOLVED WITH THIS INCIDENT: **EMERGENCY MANAGEMENT**
INCIDENT TYPE(S): **SPILL OR RELEASE**
INCIDENT DATE: **5/29/2015**
INCIDENT STATUS: **CLOSED OR COMPLETED**
CLOSURE TYPE: **RESPONSE/ACTION COMPLETED**
DUTY OFFICER NUMBER: **150494**
LEAD INVESTIGATOR: **JIM STOCKINGER**
AGENCY INTEREST ID: **NOT REPORTED**
SOURCE ENTITY NAME: **TWIN CITY FEATHERLITE TRAILERS**
SOURCE ENTITY ADDRESS: **10881 EAST 260TH ST**
SOURCE ENTITY CITY: **ELKO**
SOURCE ENTITY STATE: **MN**
SOURCE ENTITY ZIP CODE: **NOT REPORTED**

Back to Report Summary

Resource Conservation & Recovery Act - Non-Generator (RCRANGR05)

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

EPA ID#: **MNR000021360**
NAME: **COUNTRYSIDE AUTO - ELKO**
ADDRESS: **10881 E 260TH ST**
ELKO, MN 55020-9443
CONTACT NAME: **DAN ELLINGSON**
CONTACT ADDRESS: **10881 E 260TH ST**
ELKO MN 55020-9443
CONTACT PHONE: **952-461-3688**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **04/29/1996**

OWNER TYPE: **PRIVATE**
OWNER NAME: **COUNTRYSIDE AUTO**
OPERATOR TYPE: **NOT REPORTED**
OPERATOR NAME: **NOT REPORTED**

CERTIFICATION **- NO CERTIFICATION REPORTED -**
INDUSTRY CLASSIFICATION (NAICS) **- NO NAICS INFORMATION REPORTED -**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NON-GENERATOR** LAST UPDATED DATE: **06/20/2007**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS **- NO EVALUATIONS REPORTED -**
VIOLATIONS **- NO VIOLATIONS REPORTED -**
ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

D000
D001 **IGNITABLE WASTE**
D002 **CORROSIVE WASTE**
D009 **MERCURY**

F002 **THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE,TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE,CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

X001

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT

NO CORRECTIVE ACTION EVENT(S) REPORTED

Back to Report Summary

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

Note: Data is current as of February 09th, 2018

GEOSEARCH ID: **117511UAST**

AGENCY INTEREST(AI) ID: **117511**

AGENCY INTEREST(AI) NAME: **MAYNARDS AUTO SERVICE**

ADDRESS: **10881 E 260TH ST**
ELKO NEW MARKET, MN 55020

OWNER: **ROBERT F ADELMANN**

OWNER ADDRESS: **NOT REPORTED**
NOT REPORTED, NOT REPORTED NOT REPORTED

FACILITY DETAILS

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **117511-EQUI0000000001**

ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **117511-EQUI0000000001-1**

TANK SITE ID: **TS0012883**

COMPARTMENT NUMBER WITHIN THE TANK: **1**

CAPACITY OF THIS COMPARTMENT IN GALLONS: **500**

SUBSTANCE IN THE TANK: **FUEL OIL**

TANK WALL TYPE: **SINGLE**

TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**

TANK INSTALL DATE: **1/1/1968**

STATUS CHANGE DATE: **6/1/1989**

TANK STATUS: **REMOVED**

TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **117511-EQUI0000000002**

ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **117511-EQUI0000000002-1**

TANK SITE ID: **TS0012883**

COMPARTMENT NUMBER WITHIN THE TANK: **1**

CAPACITY OF THIS COMPARTMENT IN GALLONS: **8000**

SUBSTANCE IN THE TANK: **GASOLINE**

TANK WALL TYPE: **SINGLE**

TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**

TANK INSTALL DATE: **1/1/1968**

STATUS CHANGE DATE: **6/1/1989**

TANK STATUS: **REMOVED**

TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **117511-EQUI0000000003**

ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **117511-EQUI0000000003-1**

TANK SITE ID: **TS0012883**

COMPARTMENT NUMBER WITHIN THE TANK: **1**

CAPACITY OF THIS COMPARTMENT IN GALLONS: **6000**

SUBSTANCE IN THE TANK: **GASOLINE**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**
TANK INSTALL DATE: **1/1/1968**
STATUS CHANGE DATE: **6/1/1989**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **117511-EQUI0000000004**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **117511-EQUI0000000004-1**
TANK SITE ID: **TS0012883**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **500**
SUBSTANCE IN THE TANK: **USED OR WASTE OIL**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**
TANK INSTALL DATE: **1/1/1968**
STATUS CHANGE DATE: **6/1/1989**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

Back to Report Summary

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **117511**

SITE ID: **117511**

SITE NAME: **MAYNARDS AUTO SERVICE**

ADDRESS: **10881 E 260TH ST**
ELKO NEW MARKET, MN 55020 SCOTT

SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=117511**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **MULTIPLE ACTIVITIES**

COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **PETROLEUM REMEDIATION, LEAK SITE; UNDERGROUND TANKS**

MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **MULTIPLE IDS**

COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **LS0001796; TS0012883**

COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **SR; TL**

NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **MULTIPLE PROGRAMS**

COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **INVESTIGATION AND CLEANUP; TANKS**

PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **NOT REPORTED**

INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

Back to Report Summary

MAP ID# 1

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,112 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **23406**

SITE ID: **23406**

SITE NAME: **TWIN CITIES FEATHERLITE TRAILER SALES**

ADDRESS: **10881 260 ST E**
ELKO, MN 55020 SCOTT

SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=23406**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **HAZARDOUS WASTE, MINIMAL QUANTITY GENERATOR**

COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **HAZARDOUS WASTE, MINIMAL QUANTITY GENERATOR**

MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **MNR000021360**

COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **MNR000021360**

COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HW**

NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**

COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**

PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **AUTOMOBILE AND OTHER MOTOR VEHICLE MERCHANT WHOLESALERS ; MOTORCYCLE, ATV, AND ALL OTHER MOTOR VEHICLE DEALERS ; GENERAL AUTOMOTIVE REPAIR**

INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

Back to Report Summary

Concentrated Animal Feeding Operations (CAFO)

MAP ID# 2

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,117 ft. (Higher than TP)

FACILITY INFORMATION

GEOSEARCH ID: **54242-AREA00000001**
AGENCY INTEREST ID: **54242**
FEEDLOT NAME: **ROBERT ADELMANN FARM**
ADDRESS: **10880 E 260TH ST**
ELKO NEW MARKET, MN 55020
COUNTY: **SCOTT**

OWNER NAME: **ROBERT ADELMANN FARM**
OWNER MAILING ADDRESS: **22553 DENMARK AVE**
CITY NOT REPORTED, STATE NOT REPORTED
OWNER PHONE: **NOT REPORTED**

FACILITY DETAILS

FEEDLOT PERMIT NUMBER: **NOT REPORTED**
PERMIT STATUS: **NOT REPORTED**
START DATE FOR THE MOST RECENT PERMIT: **NOT REPORTED**
END DATE FOR THE MOST RECENT PERMIT: **NOT REPORTED**
CONTACT PERSON: **ROBERT ADELMANN**
CONTACT ADDRESS: **22553 DENMARK AVE**
FARMINGTON, MN 550241686
CONTACT PHONE: **651-463-2499**
A 'Y' OR 'N' VALUE TO IDENTIFY WHETHER THIS FACILITY IS CONSIDERED A CONCENTRATED ANIMAL FEEDING OPERATION (CAFO): **NOT REPORTED**
ARE THERE CONFINEMENT BUILDINGS?: **Y**
IS THERE A PASTURE?: **Y**
A 'Y' OR 'N' VALUE TO INDICATE WHETHER THE FACILITY CONTAINS A LIQUID MANURE STORAGE AREA?: **N**
IS THERE A MANURE STOCKPILE?: **N**
SURFACE WATER TYPES THAT ARE WITHIN 1,000 FEET OF THE FACILITY: **UNKW**
IS IT WITHIN SHORELAND?: **N**
DISTANCE FROM ANIMAL HOLDING AREA TO A WELL (IN FEET): **500**
DISTANCE FROM MANURE STORAGE AREA TO A WELL (IN FEET): **500**
NUMBER OF TOTAL ANIMALS UNITS ON THE PREMISE/FEEDLOT: **NOT REPORTED**
TOTAL ANIMAL COUNT (SUM OF ALL OF THE ANIMAL COUNT FIELDS): **NOT REPORTED**
THE PRIMARY TYPE OF ANIMAL AT THIS FEEDLOT: **BEEF CATTLE - COW & CALF PAIR**

SUBJECT ITEM CATEGORY CODE: **AREA**
SUBJECT ITEM ID: **1**
A LIST OF PROGRAMS WITH ACTIVITIES AT THE FEEDLOT: **FE**
THE ACTIVITY ID FOR THE MOST RECENT REGISTRATION: **REG20060001**
THE MPCA REGISTRATION NUMBER: **139-63150**
REGISTRATION START DATE: **6/30/2006 0:00**
REGISTRATION END DATE: **6/30/2010 0:00**

Back to Report Summary

Feedlots (FEEDLOT)

MAP ID# 2

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,117 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **54242FEED**
SITE ID: **54242**
SITE NAME: **ROBERT ADELMANN FARM**
ADDRESS: **10880 E 260TH ST**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=54242**

FACILITY DETAILS

ID: **139-63150**
TYPE: **FEEDLOTS**
WATERSHED: **MISSISSIPPI RIVER - LAKE PEPIN**
ACTIVE?: **YES**
INDUSTRY CLASSIFICATION: **NOT REPORTED**
INSTITUTIONAL CONTROLS: **NO**

Back to Report Summary

Facility Registry System (FRSMN)

MAP ID# 2

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,117 ft. (Higher than TP)

FACILITY INFORMATION

REGISTRY ID: **110068955367**

NAME: **ROBERT ADELMANN FARM**

LOCATION ADDRESS: **10880 E 260TH ST**
NEW MARKET TOWNSHIP, MN 55020

COUNTY: **SCOTT**

EPA REGION: **05**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

ROBERT ADELMANN FARM

PROGRAM/S LISTED FOR THIS FACILITY

MN-TEMPO - MN-TEMPO

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

NO SIC DATA REPORTED

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

NO NAICS DATA REPORTED

Back to Report Summary

What's In My Neighborhood Database (WIMN)

MAP ID# 2

Distance from Property: 0 mi. (0 ft.) X
Elevation: 1,117 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **54242**
SITE ID: **54242**
SITE NAME: **ROBERT ADELMANN FARM**
ADDRESS: **10880 E 260TH ST**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=54242**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **FEEDLOTS**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **FEEDLOTS**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **139-63150**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **139-63150**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **FE**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **FEEDLOTS**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **FEEDLOTS**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **NOT REPORTED**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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Hazardous Waste Generator Sites (HWGS)

MAP ID# 3

Distance from Property: 0.045 mi. (238 ft.) W
Elevation: 1,124 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **134728HWGS**
SITE ID: **134728**
SITE NAME: **SHOPSABRE**
ADDRESS: **26151 NEWTON CIR**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=134728**

FACILITY DETAILS

ID: **MNS000153072**
TYPE: **HAZARDOUS WASTE**
WATERSHED: **MISSISSIPPI RIVER - LAKE PEPIN**
ACTIVE?: **YES**
INDUSTRY CLASSIFICATION: **GENERAL AUTOMOTIVE REPAIR**
INSTITUTIONAL CONTROLS: **NO**

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What's In My Neighborhood Database (WIMN)

MAP ID# 3

Distance from Property: 0.045 mi. (238 ft.) W
Elevation: 1,124 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **134728**
SITE ID: **134728**
SITE NAME: **SHOPSABRE**
ADDRESS: **26151 NEWTON CIR**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=134728**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **HAZARDOUS WASTE, VERY SMALL QUANTITY GENERATOR**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **HAZARDOUS WASTE, VERY SMALL QUANTITY GENERATOR**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **MNS000153072**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **MNS000153072**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HW**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **GENERAL AUTOMOTIVE REPAIR**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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Hazardous Waste Generator Sites (HWGS)

MAP ID# 4

Distance from Property: 0.055 mi. (290 ft.) W
Elevation: 1,118 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **21458HWGS**
SITE ID: **21458**
SITE NAME: **DAKOTA BLACKTOPPING**
ADDRESS: **26105 NEWTON CIR**
ELKO NEW MARKET, MN 55020-9435 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=21458**

FACILITY DETAILS

ID: **MNR000060673**
TYPE: **HAZARDOUS WASTE**
WATERSHED: **MISSISSIPPI RIVER - LAKE PEPIN**
ACTIVE?: **YES**
INDUSTRY CLASSIFICATION: **NOT REPORTED**
INSTITUTIONAL CONTROLS: **NO**

Back to Report Summary

Resource Conservation & Recovery Act - Generator (RCRAGR05)

MAP ID# 4

Distance from Property: 0.055 mi. (290 ft.) W
Elevation: 1,118 ft. (Higher than TP)

FACILITY INFORMATION

EPA ID#: **MNR000060673**
NAME: **DAKOTA BLACKTOPPING**
ADDRESS: **26105 NEWTON CIR**
ELKO, MN 55020-9435
CONTACT NAME: **NOT REPORTED**
CONTACT ADDRESS: **26105 NEWTON CIR**
ELKO MN 55020-9435
CONTACT PHONE: **NOT REPORTED**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **08/07/1998**

OWNER TYPE: **PRIVATE**
OWNER NAME: **DAKOTA BLACKTOPPING**
OPERATOR TYPE: **NOT REPORTED**
OPERATOR NAME: **NOT REPORTED**

CERTIFICATION **- NO CERTIFICATION REPORTED -**

INDUSTRY CLASSIFICATION (NAICS) **- NO NAICS INFORMATION REPORTED -**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **06/20/2007**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS **- NO EVALUATIONS REPORTED -**

VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

D000

D001 **IGNITABLE WASTE**

D002 **CORROSIVE WASTE**

D009 **MERCURY**

F005 **THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

X001

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT

NO CORRECTIVE ACTION EVENT(S) REPORTED

Back to Report Summary

MAP ID# 4

Distance from Property: 0.055 mi. (290 ft.) W
Elevation: 1,118 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **21458**
SITE ID: **21458**
SITE NAME: **DAKOTA BLACKTOPPING**
ADDRESS: **26105 NEWTON CIR**
ELKO NEW MARKET, MN 55020-9435 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=21458**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **HAZARDOUS WASTE, VERY SMALL QUANTITY GENERATOR**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **HAZARDOUS WASTE, VERY SMALL QUANTITY GENERATOR**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **MNR000060673**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **MNR000060673**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HW**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **NOT REPORTED**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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Resource Conservation & Recovery Act - Generator (RCRAGR05)

MAP ID# 5

Distance from Property: 0.103 mi. (544 ft.) W
Elevation: 1,118 ft. (Higher than TP)

FACILITY INFORMATION

EPA ID#: **MNR000021915**
NAME: **BODYWERKS**
ADDRESS: **26106 NEWTON CIR**
ELKO, MN 55020-9469
CONTACT NAME: **JAMES WEINTZE**
CONTACT ADDRESS: **26106 NEWTON CIR**
ELKO MN 55020-9469
CONTACT PHONE: **952-461-5070**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **05/13/1996**

OWNER TYPE: **PRIVATE**
OWNER NAME: **BODYWERKS**
OPERATOR TYPE: **NOT REPORTED**
OPERATOR NAME: **NOT REPORTED**

CERTIFICATION **- NO CERTIFICATION REPORTED -**

INDUSTRY CLASSIFICATION (NAICS) **- NO NAICS INFORMATION REPORTED -**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **06/20/2007**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS **- NO EVALUATIONS REPORTED -**

VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

D000

D008 **LEAD**

D009 **MERCURY**

F005 **THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT

NO CORRECTIVE ACTION EVENT(S) REPORTED

Back to Report Summary

MAP ID# 5

Distance from Property: 0.103 mi. (544 ft.) W
Elevation: 1,118 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **30474**
SITE ID: **30474**
SITE NAME: **EAGLE CREEK AUTO REPAIR**
ADDRESS: **26106 NEWTON CIR**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=30474**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **HAZARDOUS WASTE**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **HAZARDOUS WASTE**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **MNR000021915**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **MNR000021915**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HW**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **GENERAL AUTOMOTIVE REPAIR ; AUTOMOTIVE BODY, PAINT, AND INTERIOR REPAIR AND MAINTENANCE**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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MAP ID# 6

Distance from Property: 0.167 mi. (882 ft.) S
Elevation: 1,121 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **30860**
SITE ID: **30860**
SITE NAME: **NIEMEYERS TRAILER SALES**
ADDRESS: **10405 260TH ST E**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=30860**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **HAZARDOUS WASTE, VERY SMALL QUANTITY GENERATOR**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **HAZARDOUS WASTE, VERY SMALL QUANTITY GENERATOR**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **MND985708098**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **MND985708098**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HW**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **MOTORCYCLE, ATV, AND ALL OTHER MOTOR VEHICLE DEALERS ; GENERAL AUTOMOTIVE REPAIR**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

Back to Report Summary

Bulk Storage Permits (BULKSTORAGE)

MAP ID# 7

Distance from Property: 0.167 mi. (882 ft.) W
Elevation: 1,131 ft. (Higher than TP)

PERMIT INFORMATION

PERMIT #: **20025818**
NAME: **LANGER HARVEY H**
ADDRESS: **26257 THOMAS AVE**
ELKO, MN 55020
PERMIT TYPE: **FERTILIZER LICENSE**
PERMIT STATUS: **OUT OF BUSINESS**

Back to Report Summary

Registered Storage Tanks (UAST)

MAP ID# 8

Distance from Property: 0.177 mi. (935 ft.) ESE
Elevation: 1,120 ft. (Higher than TP)

FACILITY INFORMATION

Note: Data is current as of February 09th, 2018

GEOSEARCH ID: **117770UAST**

AGENCY INTEREST(AI) ID: **117770**

AGENCY INTEREST(AI) NAME: **ANDERSON ZWEERS**

ADDRESS: **11110 DEUCE RD**
ELKO NEW MARKET, MN 55020

OWNER: **ANDERSON ZWEERS**

OWNER ADDRESS: **NOT REPORTED**
NOT REPORTED, NOT REPORTED NOT REPORTED

FACILITY DETAILS

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **117770-EQUI0000000001**

ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **117770-EQUI0000000001-1**

TANK SITE ID: **TS0012096**

COMPARTMENT NUMBER WITHIN THE TANK: **1**

CAPACITY OF THIS COMPARTMENT IN GALLONS: **8000**

SUBSTANCE IN THE TANK: **FUEL OIL**

TANK WALL TYPE: **SINGLE**

TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**

TANK INSTALL DATE: **12/31/1899**

STATUS CHANGE DATE: **12/31/1899**

TANK STATUS: **REMOVED**

TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **117770-EQUI0000000002**

ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **117770-EQUI0000000002-1**

TANK SITE ID: **TS0012096**

COMPARTMENT NUMBER WITHIN THE TANK: **1**

CAPACITY OF THIS COMPARTMENT IN GALLONS: **8000**

SUBSTANCE IN THE TANK: **FUEL OIL**

TANK WALL TYPE: **SINGLE**

TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**

TANK INSTALL DATE: **12/31/1899**

STATUS CHANGE DATE: **12/31/1899**

TANK STATUS: **REMOVED**

TANKS CONTRACTOR: **NOT REPORTED**

Back to Report Summary

What's In My Neighborhood Database (WIMN)

MAP ID# 8

Distance from Property: 0.177 mi. (935 ft.) ESE
Elevation: 1,120 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **117770**
SITE ID: **117770**
SITE NAME: **ANDERSON ZWEERS**
ADDRESS: **11110 DEUCE RD**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=117770**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **UNDERGROUND TANKS**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **UNDERGROUND TANKS**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **TS0012096**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **TS0012096**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **TL**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **TANKS**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **TANKS**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **NOT REPORTED**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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MPCA Remediation Sites (REMSITES)

MAP ID# 9

Distance from Property: 0.191 mi. (1,008 ft.) SSW
Elevation: 1,106 ft. (Higher than TP)

FACILITY INFORMATION

GEOSEARCH ID: **196168**
AGENCY INTEREST(AI) ID: **196168**
ITEM ID: **196168-AREA0000000001**
AGENCY INTEREST(AI) NAME: **ELKO DUMP**
ADDRESS: **SEE LOCATION DESCRIPTION**
ELKO NEW MARKET, MN 55020
COUNTY: **SCOTT**
LOCATION DESCRIPTION: **APPROXIMATELY .8 MILES W ON HWY #2 FROM THE HWY #2 & I-35 INTERSECTION**
APPROX. .8 MILE WEST ON HWY. 2 FROM HWY. 2 AND I-35 INTERSECTION. SOUTH FROM RR CROSSING.
SITE URL: *LINK*

FACILITY DETAILS

TYPE OF REMEDIATION SITE: **SITE ASSESSMENT SITE**
SITE ID: **SA0008744**
SITE NAME: **ELKO DUMP**
ACREAGE FOR THIS PROJECT: **NOT REPORTED**
MPCA HYDROGEOLOGIST OR HYDROLOGIST ASSIGNED TO THE SITE: **NOT REPORTED**
MPCA PROJECT MANAGER ASSIGNED TO THE SITE: **NOT REPORTED**
HAS THIS SITE EVER BEEN LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST)?: **NOT REPORTED**
HAS THIS SITE EVER BEEN LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST)?:
NOT REPORTED
FOR BROWNFIELDS, IS THIS A PETROLEUM BROWNFIELD?: **NOT REPORTED**
FOR BROWNFIELDS, IS THIS A NON-PETROLEUM BROWNFIELD AKA VOLUNTARY INVESTIGATION AND CLEANUP (VIC) SITE?:
NOT REPORTED
WAS THIS LISTED ON EPA'S CERCLIS/SEMS LIST?: **NOT REPORTED**
WAS THIS AN UNPERMITTED DUMP?: **YES**
TO OUR KNOWLEDGE, ARE THERE INSTITUTIONAL CONTROLS AT THIS SITE?: **NOT REPORTED**
SCORE FOR THIS SITE, USING THE US EPA'S HAZARD RANKING SYSTEM (HRS): **NOT REPORTED**
YEAR FOR THE HRS SCORE: **NOT REPORTED**
UNIQUE ID FOR AN INVESTIGATION PROJECT THAT INVOLVED THIS SITE: **SIW19980001**
DESCRIPTION FOR THE KIND OF INVESTIGATION PROJECT: **SITE ASSESSMENT INVESTIGATION**
RELEASE DISCOVERED: **NOT REPORTED**
RELEASE REPORTED: **NOT REPORTED**
DATE THE APPLICATION / NOTIFICATION RECEIVED: **1/1/1987**
DATE THIS SITE WAS LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELISTED FROM THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELETED FROM NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
SITE CLOSURE DATE: **4/20/1998**
FUND FINANCE APPROVED: **NOT REPORTED**
FUND FINANCE CLOSED: **NOT REPORTED**
ASSESSMENT COMPLETED: **NOT REPORTED**
INVESTIGATION COMPLETED: **NOT REPORTED**
NO FURTHER ACTION DECISION: **NOT REPORTED**

REMEDY IMPLEMENTED: **NOT REPORTED**
REMEDY SELECTED: **NOT REPORTED**
STATUS OF THE SITE: **CLOSED**

Back to Report Summary

State Assessment Sites (SAS)

MAP ID# 9

Distance from Property: 0.191 mi. (1,008 ft.) SSW
Elevation: 1,106 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **196168SAS**
SITE ID: **196168**
SITE NAME: **ELKO DUMP**
ADDRESS: **SEE LOCATION DESCRIPTION**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=196168**

FACILITY DETAILS

ID: **SA0008744**
TYPE: **SITE ASSESSMENT**
WATERSHED: **MISSISSIPPI RIVER - LAKE PEPIN**
ACTIVE?: **NO**
INDUSTRY CLASSIFICATION: **NOT REPORTED**
INSTITUTIONAL CONTROLS: **NO**

Back to Report Summary

MAP ID# 9

Distance from Property: 0.191 mi. (1,008 ft.) SSW
Elevation: 1,106 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **196168**
SITE ID: **196168**
SITE NAME: **ELKO DUMP**
ADDRESS: **SEE LOCATION DESCRIPTION**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=196168**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **SITE ASSESSMENT**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **SITE ASSESSMENT**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **SA0008744**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **SA0008744**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **SR**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **INVESTIGATION AND CLEANUP**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **INVESTIGATION AND CLEANUP**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **NOT REPORTED**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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Concentrated Animal Feeding Operations (CAFO)

MAP ID# 10

Distance from Property: 0.196 mi. (1,035 ft.) WNW
Elevation: 1,109 ft. (Higher than TP)

FACILITY INFORMATION

GEOSEARCH ID: **60794-AREA00000001**
AGENCY INTEREST ID: **60794**
FEEDLOT NAME: **RAY DEUTSCH FARM**
ADDRESS: **25421 XERXES AVE**
ELKO NEW MARKET, MN 55020
COUNTY: **SCOTT**

OWNER NAME: **RAY DEUTSCH FARM**
OWNER MAILING ADDRESS: **25421 XERXES AVE**
CITY NOT REPORTED, STATE NOT REPORTED
OWNER PHONE: **NOT REPORTED**

FACILITY DETAILS

FEEDLOT PERMIT NUMBER: **NOT REPORTED**
PERMIT STATUS: **NOT REPORTED**
START DATE FOR THE MOST RECENT PERMIT: **NOT REPORTED**
END DATE FOR THE MOST RECENT PERMIT: **NOT REPORTED**
CONTACT PERSON: **RAY DEUTSCH**
CONTACT ADDRESS: **25421 XERXES AVE**
ELKO NEW MARKET, MN 55020
CONTACT PHONE: **952-461-2506**
A 'Y' OR 'N' VALUE TO IDENTIFY WHETHER THIS FACILITY IS CONSIDERED A CONCENTRATED ANIMAL FEEDING OPERATION (CAFO): **NOT REPORTED**
ARE THERE CONFINEMENT BUILDINGS?: **Y**
IS THERE A PASTURE?: **Y**
A 'Y' OR 'N' VALUE TO INDICATE WHETHER THE FACILITY CONTAINS A LIQUID MANURE STORAGE AREA?: **N**
IS THERE A MANURE STOCKPILE?: **Y**
SURFACE WATER TYPES THAT ARE WITHIN 1,000 FEET OF THE FACILITY: **UNKW**
IS IT WITHIN SHORELAND?: **N**
DISTANCE FROM ANIMAL HOLDING AREA TO A WELL (IN FEET): **400**
DISTANCE FROM MANURE STORAGE AREA TO A WELL (IN FEET): **500**
NUMBER OF TOTAL ANIMALS UNITS ON THE PREMISE/FEEDLOT: **119**
TOTAL ANIMAL COUNT (SUM OF ALL OF THE ANIMAL COUNT FIELDS): **85**
THE PRIMARY TYPE OF ANIMAL AT THIS FEEDLOT: **DAIRY CATTLE >1000 LB**

SUBJECT ITEM CATEGORY CODE: **AREA**
SUBJECT ITEM ID: **1**
A LIST OF PROGRAMS WITH ACTIVITIES AT THE FEEDLOT: **FE**
THE ACTIVITY ID FOR THE MOST RECENT REGISTRATION: **REG20140001**
THE MPCA REGISTRATION NUMBER: **139-60884**
REGISTRATION START DATE: **6/30/2014 0:00**
REGISTRATION END DATE: **6/30/2018 0:00**

Concentrated Animal Feeding Operations (CAFO)

Back to Report Summary

What's In My Neighborhood Database (WIMN)

MAP ID# 10

Distance from Property: 0.196 mi. (1,035 ft.) WNW
Elevation: 1,109 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **60794**
SITE ID: **60794**
SITE NAME: **RAY DEUTSCH FARM**
ADDRESS: **25421 XERXES AVE**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=60794**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **FEEDLOTS**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **FEEDLOTS**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **139-60884**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **139-60884**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **FE**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **FEEDLOTS**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **FEEDLOTS**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **NOT REPORTED**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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Registered Leaking Storage Tanks (LUAST)

MAP ID# 11

Distance from Property: 0.222 mi. (1,172 ft.) ENE
Elevation: 1,121 ft. (Higher than TP)

FACILITY INFORMATION

GEOSEARCH ID: **47272LUAST**
AGENCY INTEREST(AI) ID: **47272**
ITEM ID: **47272-AREA0000000001**
AGENCY INTEREST(AI) NAME: **PARKS AUTO**
ADDRESS: **11111 DEUCE RD STE 5**
ELKO NEW MARKET, MN 55020
COUNTY: **SCOTT**
LOCATION DESCRIPTION: **SITE CENTER**
SITE URL: *LINK*

FACILITY DETAILS

TYPE OF REMEDIATION SITE: **LEAK SITE**
SITE ID: **LS0015935**
SITE NAME: **G & T TRUCKING**
ACREAGE FOR THIS PROJECT: **NOT REPORTED**
MPCA HYDROGEOLOGIST OR HYDROLOGIST ASSIGNED TO THE SITE: **NOT REPORTED**
MPCA PROJECT MANAGER ASSIGNED TO THE SITE: **JESSICA EBERTZ (FORMER)**
HAS THIS SITE EVER BEEN LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST)?: **NOT REPORTED**
HAS THIS SITE EVER BEEN LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST)?:
NOT REPORTED
FOR BROWNFIELDS, IS THIS A PETROLEUM BROWNFIELD?: **NOT REPORTED**
FOR BROWNFIELDS, IS THIS A NON-PETROLEUM BROWNFIELD AKA VOLUNTARY INVESTIGATION AND CLEANUP (VIC) SITE?:
NOT REPORTED
WAS THIS LISTED ON EPA'S CERCLIS/SEMS LIST?: **NOT REPORTED**
WAS THIS AN UNPERMITTED DUMP?: **NOT REPORTED**
TO OUR KNOWLEDGE, ARE THERE INSTITUTIONAL CONTROLS AT THIS SITE?: **NOT REPORTED**
SCORE FOR THIS SITE, USING THE US EPA'S HAZARD RANKING SYSTEM (HRS): **NOT REPORTED**
YEAR FOR THE HRS SCORE: **NOT REPORTED**
UNIQUE ID FOR AN INVESTIGATION PROJECT THAT INVOLVED THIS SITE: **SIW20040001**
DESCRIPTION FOR THE KIND OF INVESTIGATION PROJECT: **LEAK SITE INVESTIGATION**
RELEASE DISCOVERED: **11/19/2004**
RELEASE REPORTED: **11/22/2004**
DATE THE APPLICATION / NOTIFICATION RECEIVED: **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELISTED FROM THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELETED FROM NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
SITE CLOSURE DATE: **6/27/2005**
FUND FINANCE APPROVED: **NOT REPORTED**
FUND FINANCE CLOSED: **NOT REPORTED**
ASSESSMENT COMPLETED: **NOT REPORTED**
INVESTIGATION COMPLETED: **NOT REPORTED**
NO FURTHER ACTION DECISION: **NOT REPORTED**
REMEDY IMPLEMENTED: **NOT REPORTED**

REMEDY SELECTED: **NOT REPORTED**
STATUS OF THE SITE: **CLOSED**

TYPE OF REMEDIATION SITE: **LEAK SITE**
SITE ID: **LS0016832**
SITE NAME: **G AND T TRUCKING CO**
ACREAGE FOR THIS PROJECT: **NOT REPORTED**
MPCA HYDROGEOLOGIST OR HYDROLOGIST ASSIGNED TO THE SITE: **JIM PENNINO (FORMER)**
MPCA PROJECT MANAGER ASSIGNED TO THE SITE: **KATHERINE LEWISON (FORMER)**
HAS THIS SITE EVER BEEN LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST)?: **NOT REPORTED**
HAS THIS SITE EVER BEEN LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST)?:
NOT REPORTED
FOR BROWNFIELDS, IS THIS A PETROLEUM BROWNFIELD?: **NOT REPORTED**
FOR BROWNFIELDS, IS THIS A NON-PETROLEUM BROWNFIELD AKA VOLUNTARY INVESTIGATION AND CLEANUP (VIC) SITE?:
NOT REPORTED
WAS THIS LISTED ON EPA'S CERCLIS/SEMS LIST?: **NOT REPORTED**
WAS THIS AN UNPERMITTED DUMP?: **NOT REPORTED**
TO OUR KNOWLEDGE, ARE THERE INSTITUTIONAL CONTROLS AT THIS SITE?: **NOT REPORTED**
SCORE FOR THIS SITE, USING THE US EPA'S HAZARD RANKING SYSTEM (HRS): **NOT REPORTED**
YEAR FOR THE HRS SCORE: **NOT REPORTED**
UNIQUE ID FOR AN INVESTIGATION PROJECT THAT INVOLVED THIS SITE: **SIW20070001**
DESCRIPTION FOR THE KIND OF INVESTIGATION PROJECT: **LEAK SITE INVESTIGATION**
RELEASE DISCOVERED: **5/17/2007**
RELEASE REPORTED: **5/17/2007**
DATE THE APPLICATION / NOTIFICATION RECEIVED: **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELISTED FROM THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELETED FROM NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
SITE CLOSURE DATE: **12/22/2009**
FUND FINANCE APPROVED: **NOT REPORTED**
FUND FINANCE CLOSED: **NOT REPORTED**
ASSESSMENT COMPLETED: **NOT REPORTED**
INVESTIGATION COMPLETED: **NOT REPORTED**
NO FURTHER ACTION DECISION: **NOT REPORTED**
REMEDY IMPLEMENTED: **NOT REPORTED**
REMEDY SELECTED: **NOT REPORTED**
STATUS OF THE SITE: **CLOSED**

Back to Report Summary

Registered Leaking Storage Tanks Prior to April 2016 (LUAST2016)

MAP ID# 11

Distance from Property: 0.222 mi. (1,172 ft.) ENE
Elevation: 1,121 ft. (Higher than TP)

SITE INFORMATION

GEOSEARCH ID: **15935LUAST**
LEAK ID: **15935**
NAME: **G & T TRUCKING**
ADDRESS: **11111 DEUCE RD STE 5**
ELKO, MN 55020
RELEASE DISCOVERED: **11/19/2004 00:00:00**
RELEASE REPORT: **11/22/2004 00:00:00**
CONDITIONAL CLOSURE DATE: **NOT REPORTED**
COMPLETE SITE CLOSURE DATE: **06/27/2005 00:00:00**
COMTAMINATED SOILS REMAINING: **YES**
OFFSITE COMTAMINATION: **NO**
PRODUCT RELEASED: **USED OIL**

GROUND WATER

DRINKING WATER CONTAMINATION: **NO**
FREE PRODUCT OBSERVED: **NOT REPORTED**
FREE PRODUCT THICKNESS: **NOT REPORTED**
GROUNDWATER CONTAMINATION: **YES**

CLEANUP ACTIONS

- NO CLEANUP ACTIONS REPORTED

INTEREST TYPE:	LAST UPDATE:
LEAK SITE	**11/10/2014 08:17:05**
DELETED LEAK SITE	**03/24/2006 13:06:30**

Back to Report Summary

Registered Leaking Storage Tanks Prior to April 2016 (LUAST2016)

MAP ID# 11

Distance from Property: 0.222 mi. (1,172 ft.) ENE
Elevation: 1,121 ft. (Higher than TP)

SITE INFORMATION

GEOSEARCH ID: **16832LUAST**
LEAK ID: **16832**
NAME: **G AND T TRUCKING CO**
ADDRESS: **11111 DEUCE RD STE 5**
ELKO, MN 55020
RELEASE DISCOVERED: **05/17/2007 00:00:00**
RELEASE REPORT: **05/17/2007 00:00:00**
CONDITIONAL CLOSURE DATE: **NOT REPORTED**
COMPLETE SITE CLOSURE DATE: **12/22/2009 00:00:00**
COMTAMINATED SOILS REMAINING: **UNKNOWN**
OFFSITE COMTAMINATION: **UNKNOWN**
PRODUCT RELEASED: **DIESEL**

GROUND WATER

DRINKING WATER CONTAMINATION: **NOT REPORTED**
FREE PRODUCT OBSERVED: **NOT REPORTED**
FREE PRODUCT THICKNESS: **NOT REPORTED**
GROUNDWATER CONTAMINATION: **YES**

CLEANUP ACTIONS

- NO CLEANUP ACTIONS REPORTED

INTEREST TYPE:
LEAK SITE

LAST UPDATE:
01/21/2015 08:13:17

Back to Report Summary

Registered Storage Tanks (UAST)

MAP ID# 11

Distance from Property: 0.222 mi. (1,172 ft.) ENE
Elevation: 1,121 ft. (Higher than TP)

FACILITY INFORMATION

Note: Data is current as of February 09th, 2018

GEOSEARCH ID: **150458UAST**

AGENCY INTEREST(AI) ID: **150458**

AGENCY INTEREST(AI) NAME: **TELCOM CONSTRUCTION INC**

ADDRESS: **11111 DEUCE RD**
ELKO NEW MARKET, MN 55020

OWNER: **TELCOM CONSTRUCTION, INC.**

OWNER ADDRESS: **2218 200TH STREET EAST**
CLEARWATER, MN 55320

FACILITY DETAILS

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **150458-EQUI0000000001**

ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **150458-EQUI0000000001-1**

TANK SITE ID: **TS0126357**

COMPARTMENT NUMBER WITHIN THE TANK: **1**

CAPACITY OF THIS COMPARTMENT IN GALLONS: **2000**

SUBSTANCE IN THE TANK: **DIESEL FUEL**

TANK WALL TYPE: **DOUBLE**

TANK MATERIAL: **CARBON STEEL**

TANK INSTALL DATE: **5/14/2012**

STATUS CHANGE DATE: **5/14/2012**

TANK STATUS: **ACTIVE**

TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **150458-EQUI0000000002**

ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **150458-EQUI0000000002-1**

TANK SITE ID: **TS0126357**

COMPARTMENT NUMBER WITHIN THE TANK: **1**

CAPACITY OF THIS COMPARTMENT IN GALLONS: **2000**

SUBSTANCE IN THE TANK: **DIESEL FUEL**

TANK WALL TYPE: **DOUBLE**

TANK MATERIAL: **CARBON STEEL**

TANK INSTALL DATE: **5/14/2012**

STATUS CHANGE DATE: **5/14/2012**

TANK STATUS: **ACTIVE**

TANKS CONTRACTOR: **NOT REPORTED**

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MAP ID# 11

Distance from Property: 0.222 mi. (1,172 ft.) ENE
Elevation: 1,121 ft. (Higher than TP)

FACILITY INFORMATION

Note: Data is current as of February 09th, 2018

GEOSEARCH ID: **47272UAST**
AGENCY INTEREST(AI) ID: **47272**
AGENCY INTEREST(AI) NAME: **PARKS AUTO**
ADDRESS: **11111 DEUCE RD STE 5**
ELKO NEW MARKET, MN 55020
OWNER: **PARKS AUTO**
OWNER ADDRESS: **11111 DEUCE RD**
ELKO NEW MARKET, MN 55020-8001

FACILITY DETAILS

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000001**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000001-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **10000**
SUBSTANCE IN THE TANK: **GASOLINE**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**
TANK INSTALL DATE: **12/31/1899**
STATUS CHANGE DATE: **6/1/2007**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000002**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000002-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **8000**
SUBSTANCE IN THE TANK: **GASOLINE**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**
TANK INSTALL DATE: **12/31/1899**
STATUS CHANGE DATE: **6/1/2007**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000003**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000003-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **1000**

SUBSTANCE IN THE TANK: **FUEL OIL**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**
TANK INSTALL DATE: **12/31/1899**
STATUS CHANGE DATE: **12/31/1899**
TANK STATUS: **ACTIVE**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000004**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000004-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **20000**
SUBSTANCE IN THE TANK: **DIESEL**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**
TANK INSTALL DATE: **12/31/1899**
STATUS CHANGE DATE: **12/31/1899**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000005**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000005-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **4000**
SUBSTANCE IN THE TANK: **FUEL OIL**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **BARE/PAINT/ASPH COAT STEEL**
TANK INSTALL DATE: **12/31/1899**
STATUS CHANGE DATE: **12/31/1899**
TANK STATUS: **ACTIVE**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000006**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000006-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **400**
SUBSTANCE IN THE TANK: **USED OIL**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **CARBON STEEL**
TANK INSTALL DATE: **1/1/1990**
STATUS CHANGE DATE: **1/1/1990**
TANK STATUS: **ACTIVE**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000007**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000007-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **400**
SUBSTANCE IN THE TANK: **USED OIL**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **CARBON STEEL**
TANK INSTALL DATE: **1/1/1994**
STATUS CHANGE DATE: **1/1/1994**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000008**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000008-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **220**
SUBSTANCE IN THE TANK: **ANTIFREEZE**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **CARBON STEEL**
TANK INSTALL DATE: **1/1/1992**
STATUS CHANGE DATE: **1/1/1992**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000009**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000009-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **220**
SUBSTANCE IN THE TANK: **ANTIFREEZE**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **CARBON STEEL**
TANK INSTALL DATE: **1/1/1992**
STATUS CHANGE DATE: **1/1/1992**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000010**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000010-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **550**
SUBSTANCE IN THE TANK: **MOTOR OIL**

TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **CARBON STEEL**
TANK INSTALL DATE: **1/1/1985**
STATUS CHANGE DATE: **1/1/1985**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000011**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000011-1**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **1**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **550**
SUBSTANCE IN THE TANK: **MOTOR OIL**
TANK WALL TYPE: **SINGLE**
TANK MATERIAL: **CARBON STEEL**
TANK INSTALL DATE: **1/1/1985**
STATUS CHANGE DATE: **1/1/1985**
TANK STATUS: **REMOVED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000012**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000012**
TANK SITE ID: **TS4389**
COMPARTMENT NUMBER WITHIN THE TANK: **NOT REPORTED**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **NOT REPORTED**
SUBSTANCE IN THE TANK: **NOT REPORTED**
TANK WALL TYPE: **NOT REPORTED**
TANK MATERIAL: **NOT REPORTED**
TANK INSTALL DATE: **NOT REPORTED**
STATUS CHANGE DATE: **NOT REPORTED**
TANK STATUS: **NOT REPORTED**
TANKS CONTRACTOR: **NOT REPORTED**

ITEM ID(ID for an individual tank. One individual tank can have zero to many compartments.): **47272-EQUI0000000012**
ITEM COMPARTMENT(Represents a specific compartment of a specific tank.): **47272-EQUI0000000012-**
TANK SITE ID: **TS0004389**
COMPARTMENT NUMBER WITHIN THE TANK: **NOT REPORTED**
CAPACITY OF THIS COMPARTMENT IN GALLONS: **NOT REPORTED**
SUBSTANCE IN THE TANK: **NOT REPORTED**
TANK WALL TYPE: **NOT REPORTED**
TANK MATERIAL: **NOT REPORTED**
TANK INSTALL DATE: **NOT REPORTED**
STATUS CHANGE DATE: **NOT REPORTED**
TANK STATUS: **NOT REPORTED**
TANKS CONTRACTOR: **NOT REPORTED**

Registered Storage Tanks (UAST)

Back to Report Summary

What's In My Neighborhood Database (WIMN)

MAP ID# 11

Distance from Property: 0.222 mi. (1,172 ft.) ENE
Elevation: 1,121 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **150458**
SITE ID: **150458**
SITE NAME: **TELCOM CONSTRUCTION INC**
ADDRESS: **11111 DEUCE RD**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=150458**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **ABOVEGROUND TANKS**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **ABOVEGROUND TANKS**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **TS0126357**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **TS0126357**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **TL**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **TANKS**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **TANKS**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **NOT REPORTED**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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MAP ID# 11

Distance from Property: 0.222 mi. (1,172 ft.) ENE
Elevation: 1,121 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **47272**
SITE ID: **47272**
SITE NAME: **PARKS AUTO**
ADDRESS: **11111 DEUCE RD STE 5**
ELKO NEW MARKET, MN 55020 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=47272**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **MULTIPLE ACTIVITIES**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **ABOVEGROUND TANKS; HAZARDOUS WASTE, VERY SMALL QUANTITY GENERATOR; PETROLEUM REMEDIATION, LEAK SITE; UNDERGROUND TANKS**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **MULTIPLE IDS**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **LS0015935; LS0016832; MND064770266; TS0004389**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HW; SR; TL**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **MULTIPLE PROGRAMS**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE; INVESTIGATION AND CLEANUP; TANKS**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **GENERAL AUTOMOTIVE REPAIR ; OTHER AUTOMOTIVE MECHANICAL AND ELECTRICAL REPAIR AND MAINTENANCE**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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What's In My Neighborhood Database (WIMN)

MAP ID# 12

Distance from Property: 0.292 mi. (1,542 ft.) ENE
Elevation: 1,129 ft. (Higher than TP)

FACILITY INFORMATION

UNIQUE ID: **129145**
SITE ID: **129145**
SITE NAME: **LAFAVRE RACING TEAM INC**
ADDRESS: **11236 DEUCE RD**
ELKO NEW MARKET, MN 55020-9587 SCOTT
SITE URL: **https://cf.pca.state.mn.us/wimn/siteInfo.cfm?siteid=129145**

FACILITY DETAILS

MPCA ACTIVITY OF INTEREST AT THE SITE: **HAZARDOUS WASTE**
COMMA-DELIMITED LIST OF MPCA ACTIVITIES OF INTEREST AT THE SITE: **HAZARDOUS WASTE**
MPCA ID ASSOCIATED WITH AN ACTIVITY AT THE SITE: **MND985763937**
COMMA-DELIMITED LIST OF MPCA IDS ASSOCIATED WITH ACTIVITIES AT THE SITE: **MND985763937**
COMMA-DELIMITED LIST OF CODES FOR PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HW**
NAME OF THE MPCA PROGRAM ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
COMMA-DELIMITED LIST OF NAMES OF MPCA PROGRAMS ASSOCIATED WITH ACTIVITIES AT THE SITE: **HAZARDOUS WASTE**
PRIMARY INDUSTRIAL CLASSIFICATION ASSOCIATED WITH THE SITE: **NOT REPORTED**
INDICATES THE PRESENCE OF INSTITUTIONAL CONTROLS AT THE SITE: **NO**

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Registered Leaking Storage Tanks (LUAST)

MAP ID# 13

Distance from Property: 0.321 mi. (1,695 ft.) N
Elevation: 1,061 ft. (Lower than TP)

FACILITY INFORMATION

GEOSEARCH ID: **105900LUAST**
AGENCY INTEREST(AI) ID: **105900**
ITEM ID: **105900-AREA0000000001**
AGENCY INTEREST(AI) NAME: **MN DEPT OF TRANSPORTATION**
ADDRESS: **I35 N OF ELKO**
ELKO NEW MARKET, MN 55054
COUNTY: **SCOTT**
LOCATION DESCRIPTION: **NOT REPORTED**
SITE URL: *LINK*

FACILITY DETAILS

TYPE OF REMEDIATION SITE: **LEAK SITE**
SITE ID: **LS0004929**
SITE NAME: **MN DEPARTMENT OF TRANSPORTATION**
ACREAGE FOR THIS PROJECT: **NOT REPORTED**
MPCA HYDROGEOLOGIST OR HYDROLOGIST ASSIGNED TO THE SITE: **NOT REPORTED**
MPCA PROJECT MANAGER ASSIGNED TO THE SITE: **MARK KOPLITZ (FORMER)**
HAS THIS SITE EVER BEEN LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST)?: **NOT REPORTED**
HAS THIS SITE EVER BEEN LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST)?:
NOT REPORTED
FOR BROWNFIELDS, IS THIS A PETROLEUM BROWNFIELD?: **NOT REPORTED**
FOR BROWNFIELDS, IS THIS A NON-PETROLEUM BROWNFIELD AKA VOLUNTARY INVESTIGATION AND CLEANUP (VIC) SITE?:
NOT REPORTED
WAS THIS LISTED ON EPA'S CERCLIS/SEMS LIST?: **NOT REPORTED**
WAS THIS AN UNPERMITTED DUMP?: **NOT REPORTED**
TO OUR KNOWLEDGE, ARE THERE INSTITUTIONAL CONTROLS AT THIS SITE?: **NOT REPORTED**
SCORE FOR THIS SITE, USING THE US EPA'S HAZARD RANKING SYSTEM (HRS): **NOT REPORTED**
YEAR FOR THE HRS SCORE: **NOT REPORTED**
UNIQUE ID FOR AN INVESTIGATION PROJECT THAT INVOLVED THIS SITE: **SIW19910001**
DESCRIPTION FOR THE KIND OF INVESTIGATION PROJECT: **LEAK SITE INVESTIGATION**
RELEASE DISCOVERED: **12/23/1991**
RELEASE REPORTED: **12/24/1991**
DATE THE APPLICATION / NOTIFICATION RECEIVED: **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELISTED FROM THE PERMANENT LIST OF PRIORITIES (THE STATE SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS LISTED ON THE NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
DATE THIS SITE WAS DELETED FROM NATIONAL PRIORITIES LIST (THE FEDERAL SUPERFUND LIST): **NOT REPORTED**
SITE CLOSURE DATE: **5/21/1992**
FUND FINANCE APPROVED: **NOT REPORTED**
FUND FINANCE CLOSED: **NOT REPORTED**
ASSESSMENT COMPLETED: **NOT REPORTED**
INVESTIGATION COMPLETED: **NOT REPORTED**
NO FURTHER ACTION DECISION: **NOT REPORTED**
REMEDY IMPLEMENTED: **NOT REPORTED**

REMEDY SELECTED: **NOT REPORTED**

STATUS OF THE SITE: **CLOSED**

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Unlocated Sites Summary

This list contains sites that could not be mapped due to limited or incomplete address information.

No Records Found

AIRSAFS Aerometric Information Retrieval System / Air Facility Subsystem

VERSION DATE: 10/20/14

The United States Environmental Protection Agency (EPA) modified the Aerometric Information Retrieval System (AIRS) to a database that exclusively tracks the compliance of stationary sources of air pollution with EPA regulations: the Air Facility Subsystem (AFS). Since this change in 2001, the management of the AIRS/AFS database was assigned to EPA's Office of Enforcement and Compliance Assurance.

BRS Biennial Reporting System

VERSION DATE: 12/31/11

The United States Environmental Protection Agency (EPA), in cooperation with the States, biennially collects information regarding the generation, management, and final disposition of hazardous wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. The Biennial Report captures detailed data on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage and disposal facilities. Currently, the EPA states that data collected between 1991 and 1997 was originally a part of the defunct Biennial Reporting System and is now incorporated into the RCRAInfo data system.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 07/01/16

The U.S. Department of Justice ("the Department") provides this information as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments. The Department does not establish, implement, enforce, or certify compliance with clean-up or remediation standards for contaminated sites; the public should contact a state or local health department or environmental protection agency for that information.

DOCKETS EPA Docket Data

VERSION DATE: 12/22/05

The United States Environmental Protection Agency Docket data lists Civil Case Defendants, filing dates as far back as 1971, laws broken including section, violations that occurred, pollutants involved, penalties assessed and superfund awards by facility and location. Please refer to ICIS database as source of current data.

EC Federal Engineering Institutional Control Sites

VERSION DATE: 08/03/15

This database includes site locations where Engineering and/or Institutional Controls have been identified as part

of a selected remedy for the site as defined by United States Environmental Protection Agency official remedy decision documents. A site listing does not indicate that the institutional and engineering controls are currently in place nor will be in place once the remedy is complete; it only indicates that the decision to include either of them in the remedy is documented as of the completed date of the document. Institutional controls are actions, such as legal controls, that help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use. Engineering controls include caps, barriers, or other device engineering to prevent access, exposure, or continued migration of contamination.

ECHOR05 Enforcement and Compliance History Information

VERSION DATE: 08/26/17

The EPA's Enforcement and Compliance History Online (ECHO) database, provides compliance and enforcement information for facilities nationwide. This database includes facilities regulated as Clean Air Act stationary sources, Clean Water Act direct dischargers, Resource Conservation and Recovery Act hazardous waste handlers, Safe Drinking Water Act public water systems along with other data, such as Toxics Release Inventory releases.

ERNSMN Emergency Response Notification System

VERSION DATE: 10/15/17

This National Response Center database contains data on reported releases of oil, chemical, radiological, biological, and/or etiological discharges into the environment anywhere in the United States and its territories. The data comes from spill reports made to the U.S. Environmental Protection Agency, U.S. Coast Guard, the National Response Center and/or the U.S. Department of Transportation.

FRSMN Facility Registry System

VERSION DATE: 09/06/17

The United States Environmental Protection Agency's Office of Environmental Information (OEI) developed the Facility Registry System (FRS) as the centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. The Facility Registry System replaced the Facility Index System or FINDS database.

HMIRSR05 Hazardous Materials Incident Reporting System

VERSION DATE: 08/30/17

The HMIRS database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation located in EPA Region 5. Region 5 includes the following states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

ICIS Integrated Compliance Information System (formerly DOCKETS)

VERSION DATE: 09/23/17

ICIS is a case activity tracking and management system for civil, judicial, and administrative federal Environmental Protection Agency enforcement cases. ICIS contains information on federal administrative and federal judicial cases under the following environmental statutes: the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Emergency Planning and Community Right-to-Know Act - Section 313, the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Safe Drinking Water Act, and the Marine Protection, Research, and Sanctuaries Act.

ICISNPDES Integrated Compliance Information System National Pollutant Discharge Elimination System

VERSION DATE: 07/09/17

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

LUCIS Land Use Control Information System

VERSION DATE: 09/01/06

The LUCIS database is maintained by the U.S. Department of the Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

MLTS Material Licensing Tracking System

VERSION DATE: 06/29/17

MLTS is a list of approximately 8,100 sites which have or use radioactive materials subject to the United States Nuclear Regulatory Commission (NRC) licensing requirements.

NPDESR05 National Pollutant Discharge Elimination System

VERSION DATE: 04/01/07

Authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The NPDES database was collected from December 2002 until April 2007. Refer to the PCS and/or ICIS-NPDES database as source of current data. This database includes permitted facilities located in EPA Region 5. This region includes the following states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

PADS PCB Activity Database System

VERSION DATE: 07/18/17

PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

PCSR05 Permit Compliance System

VERSION DATE: 08/01/12

The Permit Compliance System is used in tracking enforcement status and permit compliance of facilities controlled by the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act and is maintained by the United States Environmental Protection Agency's Office of Compliance. PCS is designed to support the NPDES program at the state, regional, and national levels. This database includes permitted facilities located in EPA Region 5. This region includes the following states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. PCS has been modernized, and no longer exists. National Pollutant Discharge Elimination System (ICIS-NPDES) data can now be found in Integrated Compliance Information System (ICIS).

RCRASC RCRA Sites with Controls

VERSION DATE: 11/21/17

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities with institutional controls in place.

SEMSLIENS SEMS Lien on Property

VERSION DATE: 12/11/17

The U.S. Environmental Protections Agency's (EPA) Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation (OSRTI), has implemented The Superfund Enterprise Management System (SEMS), formerly known as CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) to track and report on clean-up and enforcement activities taking place at Superfund sites. SEMS represents a joint development and ongoing collaboration between Superfund's Remedial, Removal, Federal Facilities, Enforcement and Emergency Response programs. This is a listing of SEMS sites with a lien on the property.

SFLIENS CERCLIS Liens

VERSION DATE: 06/08/12

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which United States Environmental Protection Agency has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties. This database contains those CERCLIS sites where the Lien on Property action is complete.

SSTS Section Seven Tracking System

VERSION DATE: 02/01/17

The United States Environmental Protection Agency tracks information on pesticide establishments through the Section Seven Tracking System (SSTS). SSTS records the registration of new establishments and records pesticide production at each establishment. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires that production of pesticides or devices be conducted in a registered pesticide-producing or device-producing establishment. ("Production" includes formulation, packaging, repackaging, and relabeling.)

TRI Toxics Release Inventory

VERSION DATE: 12/31/16

The Toxics Release Inventory, provided by the United States Environmental Protection Agency, includes data on toxic chemical releases and waste management activities from certain industries as well as federal and tribal facilities. This inventory contains information about the types and amounts of toxic chemicals that are released each year to the air, water, and land as well as information on the quantities of toxic chemicals sent to other facilities for further waste management.

TSCA Toxic Substance Control Act Inventory

VERSION DATE: 12/31/12

The Toxic Substances Control Act (TSCA) was enacted in 1976 to ensure that chemicals manufactured, imported, processed, or distributed in commerce, or used or disposed of in the United States do not pose any unreasonable risks to human health or the environment. TSCA section 8(b) provides the United States Environmental Protection Agency authority to "compile, keep current, and publish a list of each chemical substance that is manufactured or processed in the United States." This TSCA Chemical Substance Inventory contains non-confidential information on the production amount of toxic chemicals from each manufacturer and importer site.

RCRAGR05 Resource Conservation & Recovery Act - Generator

VERSION DATE: 10/17/17

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities currently generating hazardous waste. EPA Region 5 includes the following states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

RCRANGR05 Resource Conservation & Recovery Act - Non-Generator

VERSION DATE: 10/17/17

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities classified as non-generators. Non-Generators do not presently generate hazardous waste. EPA Region 5 includes the following states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

ALTFUELS Alternative Fueling Stations

VERSION DATE: 01/22/18

Nationwide list of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE).

FEMAUST FEMA Owned Storage Tanks

VERSION DATE: 12/01/16

This is a listing of FEMA owned underground and aboveground storage tank sites. For security reasons, address information is not released to the public according to the U.S. Department of Homeland Security.

HISTPST Historical Gas Stations

VERSION DATE: NR

This historic directory of service stations is provided by the Cities Service Company. The directory includes Cities Service filling stations that were located throughout the United States in 1930.

ICISCLEANERS Integrated Compliance Information System Drycleaners

VERSION DATE: 09/23/17

This is a listing of drycleaner facilities from the Integrated Compliance Information System (ICIS). The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.

MRDS Mineral Resource Data System

VERSION DATE: 03/15/16

MRDS (Mineral Resource Data System) is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references. This database contains the records previously provided in the Mineral Resource Data System (MRDS) of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) originated in the U.S. Bureau of Mines, which is now part of USGS.

MSHA Mine Safety and Health Administration Master Index File

VERSION DATE: 09/01/17

The Mine dataset lists all Coal and Metal/Non-Metal mines under MSHA's jurisdiction since 1/1/1970. It includes such information as the current status of each mine (Active, Abandoned, NonProducing, etc.), the current owner and operating company, commodity codes and physical attributes of the mine. Mine ID is the unique key for this data. This information is provided by the United States Department of Labor - Mine Safety and Health Administration (MSHA).

BF Brownfields Management System

VERSION DATE: 11/21/17

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. The United States Environmental Protection Agency maintains this database to track activities in the various brown field grant programs including grantee assessment, site cleanup and site redevelopment. This database included tribal brownfield sites.

DNPL Delisted National Priorities List

VERSION DATE: 12/11/17

This database includes sites from the United States Environmental Protection Agency's Final National Priorities List (NPL) where remedies have proven to be satisfactory or sites where the original analyses were inaccurate, and the site is no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.

NLRRCRAT No Longer Regulated RCRA Non-CORRACTS TSD Facilities

VERSION DATE: 10/17/17

This database includes RCRA Non-Corrective Action TSD facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly treated, stored or disposed of hazardous waste.

ODI Open Dump Inventory

VERSION DATE: 06/01/85

The open dump inventory was published by the United States Environmental Protection Agency. An “open dump” is defined as a facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944) and which is not a facility for disposal of hazardous waste. This inventory has not been updated since June 1985.

RCRAT Resource Conservation & Recovery Act - Non-CORRACTS Treatment, Storage & Disposal Facilities

VERSION DATE: 10/17/17

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities recognized as hazardous waste treatment, storage, and disposal sites (TSD).

SEMS Superfund Enterprise Management System

VERSION DATE: 12/11/17

The U.S. Environmental Protections Agency's (EPA) Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation (OSRTI), has implemented The Superfund Enterprise Management System (SEMS), formerly known as CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) to track and report on clean-up and enforcement activities taking place at Superfund sites. SEMS represents a joint development and ongoing collaboration between Superfund's Remedial, Removal, Federal Facilities, Enforcement and Emergency Response programs.

SEMSARCH Superfund Enterprise Management System Archived Site Inventory

VERSION DATE: 12/11/17

The Superfund Enterprise Management System Archive listing (SEMS-ARCHIVE) has replaced the CERCLIS NFRAP reporting system in 2015. This listing reflect sites that have been assessed and no further remediation is planned and is of no further interest under the Superfund program.

SMCRA Surface Mining Control and Reclamation Act Sites

VERSION DATE: 08/25/17

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

USUMTRCA Uranium Mill Tailings Radiation Control Act Sites

VERSION DATE: 03/04/17

The Legacy Management Office of the Department of Energy (DOE) manages radioactive and chemical waste, environmental contamination, and hazardous material at over 100 sites across the U.S. The L.M. Office manages this database of sites registered under the Uranium Mill Tailings Control Act (UMTRCA).

DOD Department of Defense Sites

VERSION DATE: 12/01/14

This information originates from the National Atlas of the United States Federal Lands data, which includes lands owned or administered by the Federal government. Army DOD, Army Corps of Engineers DOD, Air Force DOD, Navy DOD and Marine DOD areas of 640 acres or more are included.

FUDS Formerly Used Defense Sites

VERSION DATE: 06/01/15

The Formerly Used Defense Sites (FUDS) inventory includes properties previously owned by or leased to the United States and under Secretary of Defense Jurisdiction, as well as Munitions Response Areas (MRAs). The remediation of these properties is the responsibility of the Department of Defense. This data is provided by the U.S. Army Corps of Engineers (USACE), the boundaries/polygon data are based on preliminary findings and not all properties currently have polygon data available. DISCLAIMER: This data represents the results of data collection/processing for a specific USACE activity and is in no way to be considered comprehensive or to be used in any legal or official capacity as presented on this site. While the USACE has made a reasonable effort to insure the accuracy of the maps and associated data, it should be explicitly noted that USACE makes no warranty, representation or guaranty, either expressed or implied, as to the content, sequence, accuracy, timeliness or completeness of any of the data provided herein. For additional information on Formerly Used Defense Sites please contact the USACE Public Affairs Office at (202) 528-4285.

FUSRAP Formerly Utilized Sites Remedial Action Program

VERSION DATE: 03/04/17

The U.S. DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from the Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations. The DOE Office of Legacy Management (LM) established long-term surveillance and maintenance (LTS&M) requirements for remediated FUSRAP sites. DOE evaluates the final site conditions of a remediated site on the basis of risk for different future uses. DOE then confirms that LTS&M requirements will maintain protectiveness.

NLRRCRAC No Longer Regulated RCRA Corrective Action Facilities

VERSION DATE: 10/17/17

This database includes RCRA Corrective Action facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements.

NMS Former Military Nike Missile Sites

VERSION DATE: 12/01/84

This information was taken from report DRXTH-AS-IA-83A016 (Historical Overview of the Nike Missile System, 12/1984) which was performed by Environmental Science and Engineering, Inc. for the U.S. Army Toxic and Hazardous Materials Agency Assessment Division. The Nike system was deployed between 1954 and the mid-1970's. Among the substances used or stored on Nike sites were liquid missile fuel (JP-4); starter fluids (UDKH, aniline, and furfuryl alcohol); oxidizer (IRFNA); hydrocarbons (motor oil, hydraulic fluid, diesel fuel, gasoline, heating oil); solvents (carbon tetrachloride, trichloroethylene, trichloroethane, stoddard solvent); and battery electrolyte. The quantities of material a disposed of and procedures for disposal are not documented in published reports. Virtually all information concerning the potential for contamination at Nike sites is confined to personnel who were assigned to Nike sites.
During deactivation most hardware was shipped to depot-level supply points. There were reportedly instances where excess materials were disposed of on or near the site itself at closure. There was reportedly no routine site decontamination.

NPL National Priorities List

VERSION DATE: 12/11/17

This database includes United States Environmental Protection Agency (EPA) National Priorities List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

PNPL Proposed National Priorities List

VERSION DATE: 12/11/17

This database contains sites proposed to be included on the National Priorities List (NPL) in the Federal Register. The United States Environmental Protection Agency investigates these sites to determine if they may present long-term threats to public health or the environment.

RCRAC Resource Conservation & Recovery Act - Corrective Action Facilities

VERSION DATE: 10/17/17

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities with corrective action activity.

RCRASUBC Resource Conservation & Recovery Act - Subject to Corrective Action Facilities

VERSION DATE: 10/17/17

The Resource Conservation and Recovery Act (RCRA) gives EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. The 1986 amendments to RCRA enabled EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. This listing refers to facilities subject to corrective actions.

RODS Record of Decision System

VERSION DATE: 12/11/17

These decision documents maintained by the United States Environmental Protection Agency describe the chosen remedy for NPL (Superfund) site remediation. They also include site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, and scope and role of response action.

Environmental Records Definitions - STATE (MN)

AIRS Permitted Air Facilities

VERSION DATE: 01/28/18

This database contains facilities with air permits issued by the by the Minnesota Pollution Control Agency. These permits identify the units at each facility that generate air pollutants and, where applicable, the limits on those emissions. In some cases a permit may also authorize construction or modification of a facility.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 01/28/18

This listing of clandestine methamphetamine laboratories is provided by the Minnesota Department of Health. Each meth lab, spill or dump is a potential hazardous waste site, requiring assessment and remediation by experienced and qualified personnel. Former meth lab sites are being cleaned (or remediated) in many Minnesota communities. In these communities, the cleanups are being guided by city and county ordinances, local housing laws, and Minnesota Statute 145A, the Public Health Nuisance Statute.

IC Sites with Institutional Controls

VERSION DATE: 11/26/17

Institutional controls are defined by Minnesota Statute, Section 115B.02, subdivision 9a, as legally enforceable restrictions, conditions, or controls on the use of real property, ground water, or surface water located at or adjacent to a facility where response actions are taken that are reasonably required to assure that the response actions are protective of public health or welfare or the environment. Institutional controls include restrictions, conditions, or controls enforceable by contract, easement, restrictive covenant, statute, ordinance, or rule, including official controls such as zoning, building codes, and official maps. An affidavit required under section 115B.16, subdivision 2, or similar notice of a release recorded with real property records is also an institutional control.

PCASPILLS Spills Listing

VERSION DATE: 11/17/17

The Minnesota Pollution Control Agency's Emergency Response Team maintains this listing of reported petroleum product, hazardous substance, and/or other spills.

SWUP Solid Waste Utilization Projects

VERSION DATE: 02/26/18

According to the Minnesota Pollution Control Agency, a solid waste utilization project uses certain wastes in a new way to recycle the material instead of putting it into a landfill. An example is using tires to create furniture. The beneficial use of waste products saves landfill capacity for materials that do not have alternative uses. By using solid waste, individuals and organizations can reduce disposal costs, or even generate profit through the sale of materials that have a beneficial use.

TIERII Tier Two Facility Listing

VERSION DATE: 04/19/17

The Minnesota Department of Public Safety's Emergency Planning and Community Right-to-Know Act Program (EPCRA) maintains this listing of Tier Two facilities which store hazardous chemicals on-site. These facilities subject to EPCRA reporting submit Tier II forms which provide information such as the Material Safety Data Sheet (MSDS) chemical or common name, emergency contact information, approximate amount of chemical stored, along with the location of the chemical at the facility.

FEEDLOT Feedlots

VERSION DATE: 01/28/18

Feedlots may be small farms or large-scale commercial livestock operations. They are places where animals are confined for feeding, breeding or holding. The Minnesota Pollution Control Agency (MPCA) and its county partners place requirements on how manure is managed at feedlots, so that it does not contaminate nearby surface water and groundwater.

HWGS Hazardous Waste Generator Sites

VERSION DATE: 11/30/17

The Minnesota Pollution Control Agency (MPCA) provides this list of active and inactive Hazardous Waste Generator Sites, including large quantity and small to minimal quantity generators. A large quantity generator (LQG) is a facility that generates at least 1,000 kilograms (2,200 pounds) of hazardous waste or 1 kilogram (2.2 pounds) of acutely hazardous waste per calendar month. An MPCA permit is not required for a large quantity generator, but the facility must have a current hazardous waste license. A small to minimal quantity generator is a facility that generates less than 1,000 kilograms (2,200 pounds) of hazardous waste or 1 kilogram (2.2 pounds) of acutely hazardous waste per calendar month. These facilities have less stringent rules than large quantity generators. This group includes Small Quantity Generators (SQGs), which produce 100 - 1000 kg of hazardous waste per month; Very Small Quantity Generators (VSQGs), which produce less than 100 kg of hazardous waste per month; and Conditionally Exempt Generators, which produce less than 100 kg or 10 gallons of hazardous waste per year. Like large quantity generators, SQGs and VSQGs must have current hazardous waste licenses.

WDP Water Discharge Permits

VERSION DATE: 01/18/18

This Minnesota Pollution Control Agency (MPCA) database includes the following types of water permits: Construction Stormwater Permits, Construction Stormwater Site Subdivisions, Industrial Stormwater Permits, MS4 Projects, and Wastewater Dischargers. A construction stormwater permit is designed to limit pollution during and after construction by controlling the erosion associated with construction activities. A construction stormwater site subdivision is a site where a construction project with an existing stormwater permit has been sub-divided into smaller parcels. Industrial stormwater permits are designed to limit the amount of harmful contaminants that reach surface water and groundwater, by requiring good practices for storing and handling

materials. A Municipal Separate Storm Sewer System (MS4) is a system of conveyances - such as gutters, ditches, city streets and storm drains - which is used as a path for stormwater. Regulated MS4s cover large areas, and are owned or operated by a public entity such as a city, county, township, watershed district or university. A wastewater discharger is a facility that generates or treats wastewater for discharge onto land or into water.

BULKSTORAGE Bulk Storage Permits

VERSION DATE: 01/25/18

The Minnesota Department of Agriculture's Licensing Information System (LIS) lists individuals or companies who hold licenses, certificates and/or permits required by state law and regulated by the Department. This database only contains those LIS licenses related to anhydrous ammonia storage facilities and bulk pesticide/ fertilizer storage facilities. Please note the data is real time and therefore constantly changing.

CLEANERS Registered Drycleaning Facilities

VERSION DATE: 02/27/17

The Minnesota Pollution Control Agency maintains this listing of registered dry cleaning facilities.

UAST Registered Storage Tanks

VERSION DATE: 02/09/18

The Registered Storage Tanks Database provides information on aboveground and underground storage tanks registered with the Minnesota Pollution Control Agency. Owners of USTs and ASTs with a capacity of 500 gallons or more which contain petroleum or hazardous substances must notify the MPCA of the existence of these tanks. Tanks not subject to notification include farm and residential motor fuel tanks less than 1,100 gallons; heating oil tanks less than 1,100 gallons; flow-through process tanks; septic tanks; and agricultural chemical tanks. Some of the data included reflects storage tanks reported in the old "TALES" database. New data reported here is from the MPCA's new "TEMPO" database.

AGSPILLS Agricultural Spills Listing

VERSION DATE: 01/18/18

This list of reported spill incidents is provided by the Minnesota Department of Agriculture (MDA). The MDA is the lead agency for response to, and cleanup of, agricultural chemical contamination (pesticides and fertilizers) in Minnesota. The MDA has grouped these spills into three categories: Old Emergencies, Small Spills and Investigations, and Investigations Boundaries. Old Emergencies represent emergencies which were closed prior to March 1, 2004. These files and the locations plotted have not been reviewed for accuracy and completeness. Smalls Spills and Investigations represent the location of small spills and investigations, which were closed after March 1, 2004. Investigation Boundaries represent the approximate extent of large spills and other types of facility investigations. Facility Investigations are further subdivided into the following program areas: Awaiting Prioritization Investigation files of known or potential agricultural chemical contamination that are waiting to be prioritized; Prioritized Investigation files of known or potential agricultural chemical contamination that have been

prioritized and are awaiting activation; Comprehensive Facility Investigation/MERLA Investigation files of known or potential agricultural chemical contamination that have been activated in MDA's Comprehensive Facility Investigation Program or are active Superfund sites under MDA's oversite; AgVIC Investigation files of known or potential agricultural chemical contamination that have enrolled in the MDA's Agricultural Voluntary Investigation and Cleanup (AgVIC) Program; and Agricultural Chemical Emergency Response Investigation files that were reported as emergency spills of agricultural chemicals and are large enough in size to be represented by a polygon.

CAFO Concentrated Animal Feeding Operations

VERSION DATE: 01/18/18

A Concentrated Animal Feeding Operation (CAFO) is any feeding operation with a capacity of 1,000 or more animal units according to federal animal unit calculations. The Minnesota Pollution Control Agency can also define a facility with less than 1,000 animal units as a CAFO on a case-by-case basis, depending on site conditions, and if manure or process wastewater is directly discharged to waters of the state. Facilities that are CAFOs must comply with both federal regulations and state rules. Two or more feedlots under common ownership are considered a single facility if they adjoin each other or use the same manure storage or disposal system.

CERCLIS CERCLIS Sites

VERSION DATE: 01/17/18

CERCLIS sites are places that are listed in the federal Comprehensive Environmental Response, Compensation and Liability Information System. This means that they are or were suspected of being contaminated. The CERCLIS database contains information on preliminary assessments, site inspections, and cleanup activities for these sites. After CERCLIS sites are investigated, they may be elevated to state or federal Superfund lists, or it may be determined that no action is necessary. This database is provided by the Minnesota Pollution Control Agency.

CLF Closed Landfills

VERSION DATE: 11/25/17

This database includes closed solid waste facilities and sites that have been entered into the PCA's Closed Landfill Program (CLP). The CLP is a voluntary program established by the legislature in 1994 to properly close, monitor, and maintain Minnesota's closed municipal sanitary landfills. Any MPCA-permitted mixed-municipal solid waste landfill that stopped accepting mixed municipal solid waste (MMSW) by April 9, 1994, and demolition debris before May 1, 1995, can qualify for application to this program.

CONTINGENCIES Agricultural Contingency Sites

VERSION DATE: 01/18/18

The Minnesota Department of Agriculture (MDA) Incident Response Unit (IRU) is the state lead agency for the investigation and remediation of incidents involving agricultural chemicals (pesticides and fertilizer). This MDA

IRU database includes sites with a soil or ground water contingency, deed restriction, local ordinance, restrictive covenant or deed affidavit in place. The accuracy of these sites can be variable. In most cases, the site boundaries should be considered as only representing the vicinity of the soil or ground water contingency area or plume.

HWSTSD Hazardous Waste Treatment Storage Disposal Sites

VERSION DATE: 11/30/17

A hazardous waste Treatment Storage and /or Disposal facility (TSD) is any business designed to treat, store and / or dispose of hazardous waste.These facilities typically collect hazardous wastes for other businesses and treat it or dispose of it properly. TSD facilities must have valid operating permits issued by the Minnesota Pollution Control Agency (MPCA). This means that they are required to develop detailed plans to train and protect their workers and the environment. This database contains active and inactive TSD facilities.

LUAST Registered Leaking Storage Tanks

VERSION DATE: 03/09/18

The Minnesota Pollution Control Agency maintains this listing of leaking aboveground and underground storage tanks. Tank owners are required to immediately report a leak or spill of more than five gallons of petroleum, or any amount of a hazardous substance, from any tank or piping. All leaks and spills from USTs and ASTs and associated piping must be cleaned up to protect the environment and public health. In April of 2016, the MPCA Remediation Programs began utilizing a new data management system and completed this transition in 2018. Please note that select data may be incomplete for sites migrated from the prior data management system, refer to LUAST2016 as an additional leaking storage tank data source.

LUAST2016 Registered Leaking Storage Tanks Prior to April 2016

VERSION DATE: 04/01/16

The Minnesota Pollution Control Agency maintains this listing of leaking aboveground and underground storage tanks registered with the MPCA through April of 2016. Tank owners are required to immediately report a leak or spill of more than five gallons of petroleum, or any amount of a hazardous substance, from any tank or piping. All leaks and spills from USTs and ASTs and associated piping must be cleaned up to protect the environment and public health. In April of 2016, the MPCA Remediation Programs began utilizing a new data management system and completed this transition in 2018. Please refer to LUAST database as source of current data.

PBF Petroleum Brownfields Program Sites

VERSION DATE: 01/01/18

This listing of Petroleum Brownfield sites, including those with Development Response Action Plans dated between 2008 and 2012, is provided by the Minnesota Pollution Control Agency (MPCA). The Petroleum Brownfields Program (formerly VPIC) provides the technical assistance and liability assurance needed to facilitate and expedite the development, transfer, investigation and/or cleanup of property that is contaminated with petroleum. Even after cleanup or MPCA file closure most properties will have contamination remaining.

State law requires that persons properly manage contaminated soil and water they uncover or disturb - even if they are not the party responsible for the contamination. Property owners, purchasers or developers of property where contaminated soil or water might be encountered may include provisions - called "response actions" - in development plans describing how petroleum contaminated soil and water will be managed if encountered. For some properties, special construction might be needed to prevent the further spreading of the contamination and/or to prevent petroleum vapors from entering buildings or utility access shafts.

PBRLF Permitted By Rule Landfills

VERSION DATE: 01/01/18

According to the Minnesota Pollution Control Agency, a landfill that is permitted by rule is not required to obtain an individual solid waste permit if it meets certain eligibility criteria. However, it must comply with waste management rules and regulations. Landfills may be permitted by rule if they have a small capacity and/or operate for a short period of time.

PVICP Potential Voluntary Investigation and Cleanup Program Sites

VERSION DATE: 04/22/16

This listing of Potential Voluntary Investigation and Cleanup Program sites is provided by the Minnesota Pollution Control Agency. These potential sites have not yet entered into the VIC Program until an application has been received at the MPCA.

RECYCLERS Recycling Markets Directory

VERSION DATE: 07/21/17

The Recycling Markets Directory is provided by the Minnesota Pollution Control Agency. The markets in this database accept large (commercial) quantities of materials.

SRS Site Response Section Database

VERSION DATE: 04/22/16

The Minnesota Pollution Control Agency (MPCA) is involved in remediation activities through various programs. Remediation is the process of cleaning up pollution in the soil, water or air. The pollution can result from an accidental spill or from activities that occur over a long time. This MPCA database includes remediation sites from the Superfund, Voluntary Investigation and Cleanup, Brownfields, Resource Conservation and Recovery Act, Tanks, Landfills, and Emergency Response Programs.

SWF Open Solid Waste Facilities

VERSION DATE: 11/25/17

Open landfills are regulated by Minnesota Rules 7001 and 7035. They actively accept, under the terms and conditions of a Minnesota Pollution Control Agency permit, certain types of wastes for disposal. They are part of

a larger and integrated collection of open solid waste management facilities that process, transfer and receive waste for disposal in Minnesota. Open landfills fall into several categories, which include: demolition, industrial, mixed municipal and municipal waste combustor ash.

UNPERMDUMPS Unpermitted Dump Sites

VERSION DATE: 12/27/17

Unpermitted dump sites are landfills that never held a valid permit from the Minnesota Pollution Control Agency (MPCA). Generally, these dumps existed prior to the permitting program established with the creation of the MPCA in 1967. These dumps are not restricted to any type of waste, but were often old farm or municipal disposal sites that accepted household waste. State assessment staff have investigated many of these dump sites.

VICP Voluntary Investigation and Cleanup Program Sites

VERSION DATE: 02/26/18

The Voluntary Investigation and Cleanup (VIC) Program site listing is provided by the Minnesota Pollution Control Agency. This program encourages timely property transactions by reducing potential health or environmental risks from contamination and promoting the redevelopment of these properties.

WIMN What's In My Neighborhood Database

VERSION DATE: 11/25/17

This online application offers you a way to access a wide variety of environmental information about your community. You can search for: A.) Potentially contaminated sites: Since the early 1980s when major federal and state cleanup programs were created, the MPCA has been aggressively searching for and helping to clean up contaminated properties, from very small to large. This website contains a searchable inventory of those properties, as well as sites that have already been cleaned up and those currently being investigated or cleaned up. B.) Environmental permits and registrations: This Web application also contains a searchable inventory of businesses that have applied for and received different types of environmental permits and registrations from the MPCA.

CSTF Contaminated Soil Treatment Facilities

VERSION DATE: 01/29/18

Contaminated soil treatment facilities are places that the Minnesota Pollution Control Agency (MPCA) has approved or permitted to take petroleum-contaminated soils from leak sites and provide treatment through a number of different processes. The processes include thermal treatment (usually by roasting soils at high temperatures), composting, or thin-spreading soils and allowing natural microorganisms to biodegrade the petroleum.

HWCS Hazardous Waste Cleanup Sites

VERSION DATE: 11/25/17

Soil and or groundwater cleanup under RCRA Corrective Action is conducted by the Site Remediation Division of the Minnesota Pollution Control Agency. The Hazardous Waste Treatment, Storage, or Disposal Facilities enter the RCRA corrective action program through the permitting process. Interim Status Facilities enter the RCRA Correction Action Program through a negotiated process initiated by the MPCA (these facilities at one time applied for a RCRA treatment, storage and or disposal permit, but did not complete the permitting process). Hazardous Waste Generators usually enter the RCRA remediation program through evidence of suspected releases to soil and or ground water from improper management of hazardous wastes or hazardous constituents uncovered during hazardous waste inspections conducted by state, county or city inspectors.

REMSITES MPCA Remediation Sites

VERSION DATE: 03/09/18

This list of Remediation Sites is provided by the Minnesota Pollution Control Agency. In April of 2016, the MPCA Remediation Programs began utilizing a new data management system and completed this transition in 2018. The environmental site types included in this database are Brownfield, Integrated Remediation, Leaking Storage Tank, RCRA Remediation, Superfund, Superfund sub-area, and Site Assessment Sites. Please note that select data may be incomplete for sites migrated from the prior data management system.

SAS State Assessment Sites

VERSION DATE: 01/08/18

State Assessment sites are places that Minnesota Pollution Control Agency (MPCA) Site Assessment staff have investigated because of suspected contamination. The sites investigated include abandoned industrial properties, small commercial businesses and publicly-owned land. (Note that petroleum-contaminated sites are investigated by MPCA Tanks and Leaks staff.) These sites may be referred to the Site Assessment program by the Voluntary Investigation and Cleanup (VIC) program, the Petroleum Remediation program, Minnesota Duty Officer reports or citizen complaints. Site Assessment staff do an initial assessment, and then determine if further action is needed. If a site poses a threat to human health or the environment, it is referred to CERCLIS, Superfund, RCRA Cleanup or VIC.

SF Superfund Site Information Listing

VERSION DATE: 01/01/18

The Minnesota Pollution Control Agency's Superfund Program identifies, investigates and determines appropriate cleanup plans for abandoned or uncontrolled hazardous waste sites where a release or potential release of a hazardous substance poses a risk to human health or the environment. Superfund does not deal with Resource Conservation and Recovery Act (RCRA) sites or petroleum storage tank releases.

USTR05 Underground Storage Tanks On Tribal Lands

VERSION DATE: 10/16/17

This database, provided by the United States Environmental Protection Agency (EPA), contains underground storage tanks on Tribal lands located in EPA Region 5. Region 5 includes the following states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

LUSTR05 Leaking Underground Storage Tanks On Tribal Lands

VERSION DATE: 10/16/17

This database, provided by the United States Environmental Protection Agency (EPA), contains leaking underground storage tanks on Tribal lands located in EPA Region 5. Region 5 includes the following states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

ODINDIAN Open Dump Inventory on Tribal Lands

VERSION DATE: 11/08/06

This Indian Health Service database contains information about facilities and sites on tribal lands where solid waste is disposed of, which are not sanitary landfills or hazardous waste disposal facilities, and which meet the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944).

INDIANRES Indian Reservations

VERSION DATE: 01/01/00

The Department of Interior and Bureau of Indian Affairs maintains this database that includes American Indian Reservations, off-reservation trust lands, public domain allotments, Alaska Native Regional Corporations and Recognized State Reservations.

Appendix E: User Provided Information

User Questionnaire

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001, the user must provide the following information (if available) to I+S Group, Inc. (ISG). Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete. This information is needed to provide you with the completed Phase I Environmental Site Assessment and will be attached to your report. **The Phase I Environmental Site Assessment Report cannot be distributed until we have received this document.**

1) Environmental cleanup liens that are filed or recorded against the site
Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local laws?

NO

2) Activity and land use limitations that are in place on the site or that have been filed or recorded in a registry
Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local laws? **It is the user's responsibility to provide a land title record, any restrictions of record on the title, list of known institutional or engineering controls, or evidence of clean title, unless otherwise specified in the proposal.**

NO

3) Specialized knowledge or experience of the user
As the user of this Phase I Environmental Assessment, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

NO

4) Relationship of the purchase price to the fair market value of the property if it were not contaminated
Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

?

5) Commonly known or reasonably ascertainable information about the property
Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

a.) Do you know the past uses of the property?

FARM + GAS STATION

b.) Do you know of specific chemicals that are present or once were present at the property?

NO

c.) Do you know of spills or other chemical releases that have taken place at the property?

NO

d.) Do you know of any environmental cleanups that have taken place at the property?

GAS STATION TANK REMOVAL + CLEAN UP

e.) Do you know of any aboveground and/or underground storage tanks on the property? Please provide registrations, if applicable.

NO

6) The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation

As the user of this Phase I, based on your knowledge and experience related to the property, are there any obvious indicators indicating the presence or likely presence of contamination on the property?

NO

7) Specific Project Questions:

a) Why is the Phase I Environmental Assessment required?

- ☐ To qualify for a Landowner Liability Protections to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
- ☐ Requirement for Small Business Administration (SBA) financing
- ☐ Other, please explain:

b) What is the **type of property** and the type of property **transaction** (i.e. sale, purchase, exchange, etc)?

FUTURE SALE

c) Has a title search for environmental liens been completed within the past 60 days? If so, please provide proof of a clean title. NO

d) Please provide the complete and correct **physical address for the property** (including **legal description and parcel identification number)** and a boundary survey, map, or plat showing the **location and boundary** of the property.

e) Identify all parties (**name and address**) who will rely on the Phase I Report.

f) What is the name and phone number of the site contact/manager?

g) What are the names and contact information for the current and previous land owners?

DAVID ADELMANN - 612-919-1379 DAVE@RICHFIELDPLUMBING.COM

h) Do you have any additional knowledge or experience with the property that may be pertinent to ISG?

NO

i) If applicable, please provide copies of the following documents:

- Prior environmental assessments, cleanups, or other environmental documentation concerning the property, such as: storage tanks, hazardous waste generators license, site closure letters, geotechnical evaluations, or other environmental permits/records
- Material safety data sheet and/or hazardous waste generator notices or reports
- Correspondence from any government agency relating to past or existing environmental issues
- Information concerning any pending, threatened, or past litigation or administrative proceedings relevant to hazardous substances or petroleum products
- Disclosure of wells, sumps, tanks, pots, drainage systems-existence and location
- Description of current site operations, including layout drawings or sketches
- Recorded land title records

I have reviewed the above list and provided copies of all known documents and information that exists in association with this property.

David A. Adelmann	DAVID ADELMANN	6/21/18
Signature	**Print Name**	**Date**

Minnesota Pollution Control Agency
520 Lafayette Road, Saint Paul, Minnesota 55155
Telephone (612) 296-6300

Celebrate MINNESOTA 1990

..ugust 7, 1990

Mr. Bob Adelman
805 West 77 1/2 Street
Richfield, Minnesota 55423

Dear Mr. Adelman:

RE: Petroleum Tank Release Site Closure
Site: Maynard's Service Station, New Market
Site ID#: LEAK00001796

10881 260th St E

Thank you for your actions to protect Minnesota's environment. The Minnesota Pollution Control Agency (MPCA) staff has determined that the cleanup performed in response to the petroleum tank release at Maynard's Service Station has adequately addressed the petroleum contamination, and therefore the file regarding this release will be closed.

On October 10, 1989, a petroleum tank release was reported to the MPCA. Since then you have taken the following corrective actions in response to the release:

1. Four underground tanks were removed.

2. Most of the petroleum contaminated soil was removed. The native soil type is sandy clay. There were two excavations at the site:

   - Soil samples taken from the bottom of the gasoline tank excavation had readings ranging from 7 to 55 parts per million (ppm) as measured by HNu. A sample taken from the bottom of the excavation for lab analysis contained 0.34 ppm total petroleum hydrocarbons. Soil was excavated to a depth of 22 feet. A small amount of ground water seeped in the excavation at 22 feet. An oil sheen was not observed on the water that seeped into the excavation.

   - A soil sample taken from the bottom of the fuel oil tank excavation had a reading of 1 ppm on the HNu, and a lab analysis result of 9.4 ppm total hydrocarbons as fuel oil. Soil was excavated to a depth of 9 feet. No ground water was encountered in the excavation.

3. A total of 300 cubic yards of contaminated soil was excavated and treated at Midwest Asphalt Corporation in Eden Prairie.

4. A potential receptor survey was completed for the site. The results indicate the possible receptors have not been impacted by the release.

5. The Maynard's Service Station well, located 150 feet from the tanks, was sampled for volatile organic hydrocarbons. No contaminates were detected in the sample.

Because MPCA staff believes these actions have adequately addressed the petroleum tank release, we will not require any more investigative or cleanup work at this time. However, the MPCA reserves the right to reopen this file and require additional work if it becomes necessary. This letter does not release any party from liability for this contamination.

Because you performed the requested work, the state may reimburse you for a major portion of your costs. The Petroleum Tank Release Cleanup Act establishes a fund which in certain circumstances provides partial reimbursement for petroleum tank release cleanup costs. This fund is administered by the Petroleum Tank Release Compensation Board (Petro Board). More specific eligibility rules are available from the Petro Board (612/297-4017).

Thank you for your cooperation with the MPCA in responding to this petroleum tank release. If you have any questions regarding this correspondence, please call me at 612/643-3427.

Sincerely,

Janet Berryhill
Pollution Control Specialist
Tanks and Spills Section
Hazardous Waste Division

JB:jr

cc: Jan Seykora, City Clerk, New Market
Al Frechette, Scott County Solid Waste Officer, Shakopee
Bill Breitzman, Terracon Environmental, Inc., White Bear Lake

BRAUN INTERTEC
The Science You Build On.

Braun Intertec Corporation
11001 Hampshire Avenue S
Minneapolis, MN 55438

Phone: 952.995.2000
Fax: 952.995.2020
Web: braunintertec.com

May 21, 2015 Project B1503251

Mr. Mark Maneval
Twin Cities Featherlite
10881 East 260th Street
Elko, MN 55020

Re: Soil Sampling Report
Twin Cities Featherlite
10881 East 260th Street
Elko, Minnesota

Dear Mr. Maneval:

On behalf of Twin Cities Featherlite, Braun Intertec Corporation collected soil samples at the Twin Cities Featherlite Site located in Ramsey, Minnesota (Site). A site location map and site sketch is attached as Figure 1 and Figure 2 respectively. We understand that Scott County requested that soil samples be collected from the southwestern portion of the Site. The objective of the sampling was to evaluate the soil for potential impacts.

Environmental Screening

On April 27, 2015, eight soil samples were collected across the southwestern portion of the Site at depths between 12 inches and 18 inches (labeled SS-1 through SS-8) below ground surface (bgs). SS-1 through SS-4 were collected along the northern slope south of the facility's wash holding tank. SS-5 was collected near several empty oil drums. SS-6 was collected near the storage area of empty chemical wash drums. SS-7 was collected in an area where oil staining was previously observed and SS-8 was collected in the vicinity of observed oil staining in the grass. A sample location map with sample locations is attached as Figure 3. During sampling activities, a field technician who was a licensed asbestos inspector, monitored and screened soil for unusual staining, odors, and other apparent signs of contamination. The soil samples were screened for the presence of organic vapors using a photoionization detector (PID). The PID was equipped with a 10.6-electron-volt lamp and calibrated to an isobutylene standard. The PID was used to perform a headspace method of field-analyses, as recommended by the Minnesota Pollution Control Agency (MPCA) in Petroleum Remediation Program Guidance Document 4-04 (September 2008).

Staining was observed in the areas of SS-5 in the upper 3 inches of the soil and in the area of SS-8 located in the grass. An elevated PID reading of 11.1 parts per million (ppm) was recorded from soil sample SS-8(14"). No other elevated PID readings or indications of contamination were observed.

Soil Sampling and Analytical Testing

A total of eight soil samples were collected by hand using a shovel to excavate to depths between 12 and 18 inches bgs. The soil samples were chemically analyzed for the presence and concentrations of the following parameters:

- Volatile organic compounds (VOCs) using Environmental Protection Agency (EPA) Method 8260
- Gasoline range organics (GRO) using the Wisconsin Department of Natural Resources (WDNR) Method
- Diesel range organics (DRO) using WDRN Method
- Eight Resource Conservation and Recovery Act (RCRA) metals using EPA methods 6010 and 7471
- pH using EPA method SM4500H+B

Analytical testing results are summarized in Table 1, and the laboratory analytical report and chain-of-custody form are attached. For comparison purposes, the table also includes MPCA Residential and Industrial Soil Reference Values (SRVs) and Soil Leaching Values (SLVs). The SRVs and SLVs are allowable risk-based contaminant concentrations established by the MPCA to guide Site investigation and cleanup actions.

The results of the laboratory analysis indicated:

- No VOCs or GRO was detected at or above the laboratory mandatory reporting limits (MRLs).
- DRO was detected in five of the eight soil samples at concentrations between 13.5 milligrams per kilograms (mg/kg) in Soil Sample SS-2 (14”) and 2,050 mg/kg in Soil Sample SS-5 (14”). There currently are no MPCA established SRVs or SLVs for DRO.
- Several RCRA metals were detected in each sample at concentrations exceeded the laboratory MRLs; however, no concentrations exceeded the Residential or Industrial SRVs or SLVs.
- Soil pH was determined to be neutral with pH levels between 6.6 and 7.0 in five samples; however, pH levels were moderately acidic in soil samples SS-5 (14”) and SS-7 (14”) with levels of 5.7 and 5.9.

Based on the results of the soil sampling, impacted soil is present at the Site. According to Minnesota Stature 115.061, the property owners or responsible parties associated with this release may have the duty to notify the MPCA via the Minnesota Department of Public Safety, Division of Emergency Management (DEM) Duty officer. The MPCA may require that a Limited Site Investigation be completed to evaluate the extent and magnitude of the petroleum impacts detected.

[redacted]

If there are any questions regarding this letter, please call Jake Friederichs at 952.995.2474 or Tim Lenway at 952.995.2488.

Sincerely,

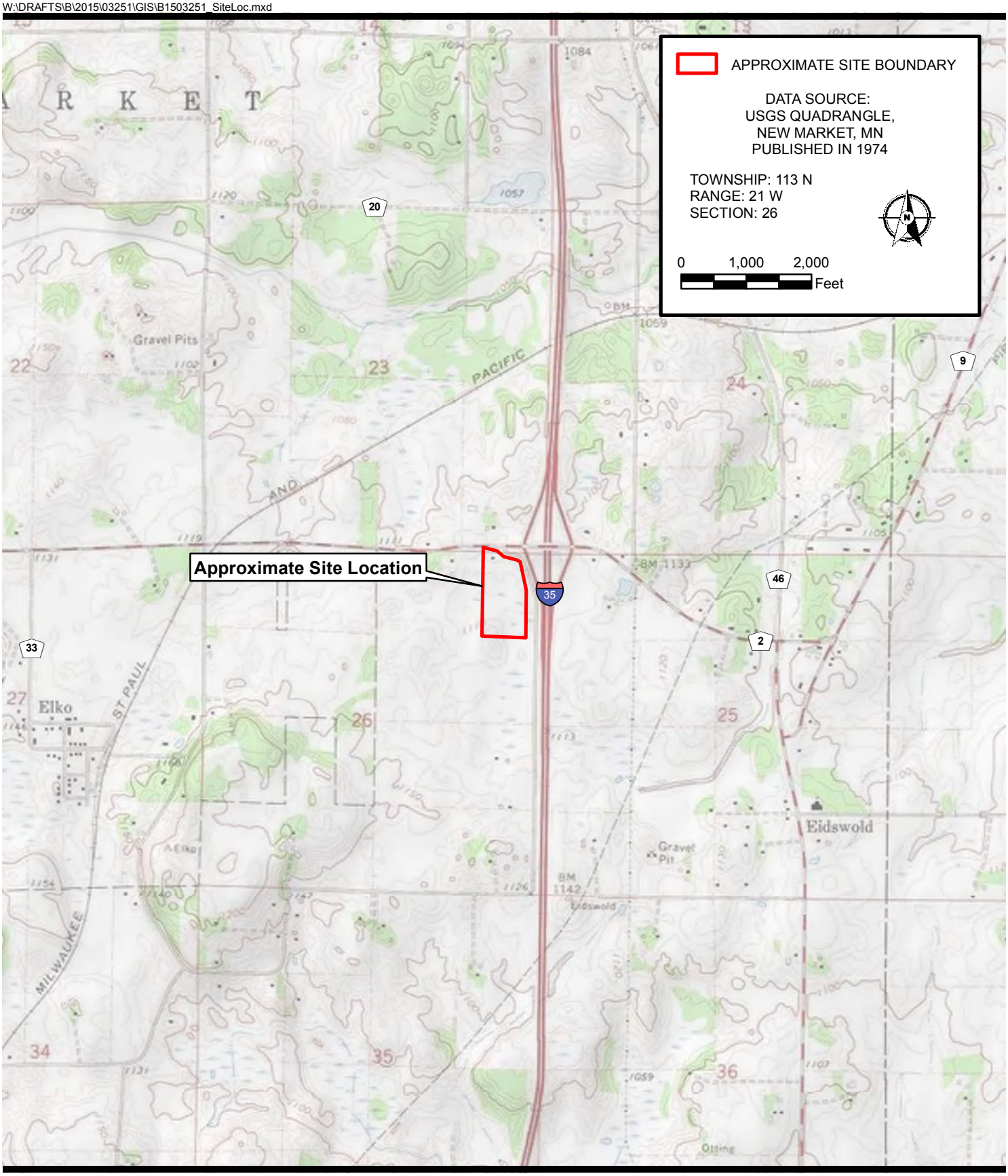
BRAUN INTERTEC CORPORATION

for: Jacob D. Friederichs
Staff Scientist

for: Timothy S. Lenway, MPH
Principal – Senior Scientist

Attachments:
Figure 1: Site Location Map
Figure 2: Site Sketch
Figure 3: Soil Sample Location Map
Table 1: Summary of Soil Analytical Results
Analytical Laboratory Report

W:\DRAFTS\B\2015\03251\GIS\B1503251_SiteLoc.mxd



Sheet: 1 of 1

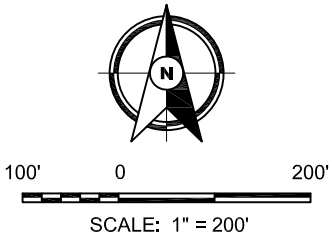
Fig. 1

Project No:	B1503251
Drawing No.	B1503251_SiteLoc
Scale:	1 in = 2,000 ft
Drawn By:	FER
Date Drawn:	5/15/15
Checked By:	JDF
Last Modified:	5/15/15

SITE LOCATION MAP
SOIL SAMPLING REPORT
TWIN CITIES FEATHERLITE
10881 EAST 260TH STREET
ELKO, MINNESOTA

BRAUN INTERTEC
11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

F:\2015\B1503251.dwg,Site Sketch,5/19/2015 3:43:30 PM



Project No:	B1503251
Drawing No:	B1503251
Scale:	1" = 200'
Drawn By:	REJ
Date Drawn:	5/19/15
Checked By:	JF
Last Modified:	5/19/15

Sheet: of

Fig: 2

SITE SKETCH
SOIL SAMPLING REPORT
TWIN CITIES FEATHERLITE
10881 EAST 260TH STREET
ELKO, MINNESOTA

BRAUN INTERTEC
The Science You Build On.
11001 Hampshire Avenue S
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

F:\2015\B1503251.dwg,Sample Loc Map,5/19/2015 3:43:14 PM

SOIL SAMPLE LOCATION

N

20' 0 40'

SCALE: 1" = 40'

Sheet: of	
Fig:	3
Project No:	B1503251
Drawing No:	B1503251
Scale:	1" = 40'
Drawn By:	REJ
Date Drawn:	5/19/15
Checked By:	JF
Last Modified:	5/19/15

SOIL SAMPLE LOCATION MAP
SOIL SAMPLING REPORT
TWIN CITIES FEATHERLITE
10881 EAST 260TH STREET
ELKO, MINNESOTA

BRAUN INTERTEC
The Science You Build On.
11001 Hampshire Avenue S
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Table 1
Summary of Soil Analytical Results
Twin Cities Featherlite
Elko, Minnesota
Project B1503251

Compound/Parameter	CAS No.	Sample Identifier								Residential Soil Reference Value (mg/kg)	Industrial Soil Reference Value (mg/kg)	Tier 1 Soil Leaching Value (mg/kg)
		SS-1 (14")	**SS-2 (14")**	**SS-3 (14")**	**SS-4 (14")**	**SS-5 (14")**	**SS-6 (14")**	**SS-7 (14")**	**SS-8 (14")**			
		4/27/15	**4/27/15**	**4/27/15**	**4/27/15**	**4/27/15**	**4/27/15**	**4/27/15**	**4/27/15**			
		10304096001	**10304096002**	**10304096003**	**10304096004**	**10304096005**	**10304096006**	**10304096007**	**10304096008**			
Volatile Organic Compounds (mg/kg)												
All reported VOCs	NE	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE	NE
Total Petroleum Hydrocarbons (mg/kg)												
Gasoline Range Organics	NA	<12.0	<12.1	<12.1	<11.7	<10.9	<12.2	<12.4	<11.6	NE	NE	NE
WDRO C10-C28	NA	**34.6** [2]	**13.5** [2]	<9.2	<9.7	**2,050**	<9.2	**29.0**	**170** [2]	NE	NE	NE
Metals (mg/kg)												
Arsenic	7440-38-2	**4.9**	**4.5**	**3.8**	**3.5**	**3.2**	**4.4**	**4.0**	**4.5**	9	20	5.8
Barium	7440-39-3	**80.9**	**72.3**	**83.3**	**73.1**	**47.8**	**82.5**	**112**	**79.9**	1,100	18,000	1,700
Cadmium	7440-43-9	**1.2**	**0.61**	**0.23**	<0.16	**0.60**	<0.18	**0.44**	**0.31**	25	200	8.8
Chromium	7440-47-3	**16.1**	**14.2**	**15.9**	**11.8**	**11.4**	**14.5**	**13.3**	**13.9**	87 [c]	650 [c]	36 [c]
Lead	7439-92-1	**6.9**	**7.3**	**6.9**	**7.0**	**3.8**	**5.2**	**7.4**	**6.2**	300	700	2,700
Mercury	7439-97-6	**0.024**	<0.024	<0.024	<0.020	<0.021	**0.026**	<0.023	**0.025**	0.5	1.5	3.3
Selenium	7782-49-2	<1.1	<1.0	<0.86	<1.1	<0.87	<1.2	<1.1	<0.99	160	1,300	2.6
Silver	7440-22-4	<0.53	<0.50	<0.43	<0.53	<0.43	<0.60	<0.56	<0.50	160	1,300	7.9
Other Parameters												
pH at 25 Degrees C (Std. Units)	NA	**7.0**	**6.6**	**6.7**	**6.6**	**5.7**	**7.0**	**5.9**	**7.0**	NE	NE	NE

Notes:

[2] [T6] High boiling point hydrocarbons are present in the sample.

mg/kg = Milligrams per kilogram.

< = Less than the reporting limit

---- = Not analyzed or calculated for this parameter

NE = Not Established

ND = Not Detected Above the Reporting Limit

SRV - Soil Reference Value Established by the Minnesota Pollution Control Agency; 1999, revised 2009

SLV - Soil Leaching Value Established by the Minnesota Pollution Control Agency; 1999, revised 2005

[c] = Criteria for hexavalent chromium.

BRAUN INTERTEC

Appendix F: Property Tax Information

Property Card	Parcel ID Number	089230090

Taxpayer Information

Taxpayer Name

ADELMANN FARMS NEW MARKET LLC

Mailing Address

8640 HARRIET AVE S

BLOOMINGTON, MN 55420

Property Address

Address

10680 260TH ST E

City

ELKO, MN 55020

Parcel Information

Uses	200 Agricultural	Calculated Acres	112.41
		Deeded Acres	114.19
		Plat	
		Lot	
		Block	
Legal Description	Section 23 Township 113 Range 021		
Legal Description2	S1/4 OF W1/2 SE1/4 & NE1/4 SW1/4 & N3/4 OF W1/2 SE1/4 EX 1.54A HWY EX PARCEL 2 OF SC ROW PLAT #28.		

Building Information

Building Style	1 1/2 STRY	AGLA (Sq Ft)	1,116	Bedrooms	0
Year Built	1900	Garage Size (Sq Ft)	360	Bathrooms	0.00
Model Desc	RES	Basement Size (Sq Ft)	504	Basement Finish (Sq Ft)	0

Miscellaneous Information

School District	Taxing District Code	Homestead Status	Green Acres	Ag Preserve
ISD 0194 LAKEVILLE	1001	N	Y	N

Assessor Information

Estimated Market Value		2016 Values (Payable 2017)		Last Sale
Land		$1,189,200.00	Date of Sale	01/01/1900
Improvement		$0.00	Sale Value	$0.00
Total		$1,189,200.00		

Disclaimer: This information is to be used for reference purposes only. Scott County does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation. The preceding disclaimer is provided pursuant to Minnesota Statutes 466.03, Subd. 21 (2000), and the user of this service acknowledges that the County shall not be liable for any damages, and expressly waives all claims, and agrees to defend, indemnify, and hold harmless the County from any and all claims brought by User, its employees or agents, or third parties which arise out of the user's access or use of data provided.

Property Card	Parcel ID Number	089230040

Taxpayer Information

Taxpayer Name
ADELMANN FARMS NEW MARKET LLC
Mailing Address
8640 HARRIET AVE S BLOOMINGTON, MN 55420

Property Address

Address
10880 260TH ST E
City
ELKO, MN 55020

Parcel Information

Uses	200 Agricultural	Calculated Acres	70.62
		Deeded Acres	72.11
		Plat	
		Lot	
		Block	
Legal Description	Section 23 Township 113 Range 021		
Legal Description2	E1/2 OF NE1/4 S OF RR & E1/2 SE1/4 EX HWY ROW & EX S OF CO RD 2 EX PARCEL 3 OF SC ROW PLAT #28		

Building Information

Building Style	1 1/2 STRY	AGLA (Sq Ft)	1,588	Bedrooms	0
Year Built	1900	Garage Size (Sq Ft)	0	Bathrooms	0.00
Model Desc	SF RES	Basement Size (Sq Ft)	896	Basement Finish (Sq Ft)	0

Miscellaneous Information

School District	Taxing District Code	Homestead Status	Green Acres	Ag Preserve
ISD 0194 LAKEVILLE	1001	N	Y	N

Assessor Information

Estimated Market Value		2016 Values (Payable 2017)	Last Sale	
Land		$785,900.00	Date of Sale	06/11/2010
Improvement		$132,300.00	Sale Value	$1,140,000.00
Total		$918,200.00		

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Property Card	Parcel ID Number 089230081

Taxpayer Information

Taxpayer Name

ADELMANN FARMS NEW MARKET LLC

Mailing Address

8640 HARRIET AVE S

BLOOMINGTON, MN 55420

Property Address

Address

City

Parcel Information

Uses	200 Agricultural	Calculated Acres	8.86
		Deeded Acres	8.83
		Plat	
		Lot	
		Block	
Legal Description	Section 23 Township 113 Range 021		
Legal Description2	E 345.69' SE1/4 SW1/4 NORTH OF CO RD 2 EX PARCEL 3 OF SC ROW PLAT #27.		

Building Information

Building Style		AGLA (Sq Ft)	0	Bedrooms	0
Year Built	0	Garage Size (Sq Ft)	0	Bathrooms	0.00
Model Desc		Basement Size (Sq Ft)	0	Basement Finish (Sq Ft)	0

Miscellaneous Information

School District	Taxing District Code	Homestead Status	Green Acres	Ag Preserve
ISD 0194 LAKEVILLE	1001	N	Y	N

Assessor Information

Estimated Market Value		2016 Values (Payable 2017)		Last Sale
Land		$93,600.00	Date of Sale	01/01/1900
Improvement		$0.00	Sale Value	$0.00
Total		$93,600.00		

Disclaimer: This information is to be used for reference purposes only. Scott County does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation. The preceding disclaimer is provided pursuant to Minnesota Statutes 466.03, Subd. 21 (2000), and the user of this service acknowledges that the County shall not be liable for any damages, and expressly waives all claims, and agrees to defend, indemnify, and hold harmless the County from any and all claims brought by User, its employees or agents, or third parties which arise out of the user's access or use of data provided.

Property Card	Parcel ID Number	089260071

Taxpayer Information

Taxpayer Name
EMPIRE II LLC
Mailing Address
19492 BISCAYNE AVE FARMINGTON, MN 55024

Property Address

Address
10675 260TH ST E
City
ELKO, MN 55020

Parcel Information

Uses	300 Commercial	Calculated Acres	21.27
		Deeded Acres	22.00
		Plat	
		Lot	
		Block	
Legal Description	Section 26 Township 113 Range 021		
Legal Description2	NW1/4 NE1/4 EX W 18A		

Building Information

Building Style	1 1/2 STRY	AGLA (Sq Ft)	1,134	Bedrooms	0
Year Built	1900	Garage Size (Sq Ft)	0	Bathrooms	0.00
Model Desc	SF RES	Basement Size (Sq Ft)	756	Basement Finish (Sq Ft)	0

Miscellaneous Information

School District	Taxing District Code	Homestead Status	Green Acres	Ag Preserve
ISD 0194 LAKEVILLE	1001	N	N	N

Assessor Information

Estimated Market Value		2016 Values (Payable 2017)		Last Sale
Land		$388,600.00	Date of Sale	01/12/2015
Improvement		$243,600.00	Sale Value	$1,000,000.00
Total		$632,200.00		

Disclaimer: This information is to be used for reference purposes only. Scott County does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation. The preceding disclaimer is provided pursuant to Minnesota Statutes 466.03, Subd. 21 (2000), and the user of this service acknowledges that the County shall not be liable for any damages, and expressly waives all claims, and agrees to defend, indemnify, and hold harmless the County from any and all claims brought by User, its employees or agents, or third parties which arise out of the user's access or use of data provided.

Property Card	Parcel ID Number 089260050

Taxpayer Information

Taxpayer Name
EMPIRE II LLC

Mailing Address
19492 BISCAYNE AVE
FARMINGTON, MN 55024

Property Address

Address

City

Parcel Information

Uses	300 Commercial	Calculated Acres	9.97
		Deeded Acres	10.00
		Plat	
		Lot	
		Block	
Legal Description	Section 26 Township 113 Range 021		
Legal Description2	W1/4 NE1/4 NE1/4		

Building Information

Building Style		AGLA (Sq Ft)	0	Bedrooms	0
Year Built	0	Garage Size (Sq Ft)	0	Bathrooms	0.00
Model Desc		Basement Size (Sq Ft)	0	Basement Finish (Sq Ft)	0

Miscellaneous Information

School District	Taxing District Code	Homestead Status	Green Acres	Ag Preserve
ISD 0194 LAKEVILLE	1001	N	N	N

Assessor Information

Estimated Market Value		2016 Values (Payable 2017)		Last Sale
Land		$172,500.00	Date of Sale	01/01/1900
Improvement		$0.00	Sale Value	$0.00
Total		$172,500.00		

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Property Card	Parcel ID Number	089260030

Taxpayer Information

Taxpayer Name
ADELMANN FAMILY PARTNERSHIP
Mailing Address
8640 HARRIET AVE S # 100 MINNEAPOLIS, MN 55420

Property Address

Address
10881 260TH ST E
City
ELKO, MN 55020

Parcel Information

Uses	200 Agricultural	Calculated Acres	19.67
		Deeded Acres	19.02
		Plat	
		Lot	
		Block	
Legal Description	Section 26 Township 113 Range 021		
Legal Description2	NE1/4 NE1/4 EX 9.84A EX W1/4 NE1/4 NE1/4 & EX 1.14 A		

Building Information

Building Style	N/A	AGLA (Sq Ft)	0	Bedrooms	0
Year Built	1997	Garage Size (Sq Ft)	0	Bathrooms	2.00
Model Desc	IND/WRHSE	Basement Size (Sq Ft)	0	Basement Finish (Sq Ft)	0

Miscellaneous Information

School District	Taxing District Code	Homestead Status	Green Acres	Ag Preserve
ISD 0194 LAKEVILLE	1001	N	N	N

Assessor Information

Estimated Market Value		2016 Values (Payable 2017)		Last Sale
Land		$575,400.00	Date of Sale	01/01/1900
Improvement		$357,900.00	Sale Value	$0.00
Total		$933,300.00		

Disclaimer: This information is to be used for reference purposes only. Scott County does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation. The preceding disclaimer is provided pursuant to Minnesota Statutes 466.03, Subd. 21 (2000), and the user of this service acknowledges that the County shall not be liable for any damages, and expressly waives all claims, and agrees to defend, indemnify, and hold harmless the County from any and all claims brought by User, its employees or agents, or third parties which arise out of the user's access or use of data provided.

ISG

Mankato, MN
Minneapolis/St. Paul, MN
Des Moines, IA
Storm Lake, IA
Waterloo, IA
Green Bay, WI
La Crosse, WI
Sioux Falls, SD

www.is-grp.com

EXHIBIT E:

Minnesota Department of Natural Resources NHIS Letter + Correspondence

From:	Bump, Samantha (DNR)
To:	Travis Fristed
Subject:	RE: NHIS Request- Adelmann Properties
Date:	Thursday, October 18, 2018 1:00:10 PM
Attachments:	image001.png 20548 NHIS Response_081417.pdf 20548 NHIS Request_083118.pdf

---

Hi Travis,

I have reviewed the NHIS regarding the above project. There are no new records in the vicinity of the project. As such, the Natural Heritage letter dated August 14, 2017 is valid until October 18, 2019.

Thank you for consulting us on this matter. If you have any further questions, please feel free to contact me.

Have a great day,

Samantha Bump
NHIS Review Specialist | Ecological & Water Resources
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155
Phone: 651-259-5091
Email: Samantha.Bump@state.mn.us
mndnr.gov

DEPARTMENT OF NATURAL RESOURCES

From: Travis Fristed <Travis.Fristed@is-grp.com>
Sent: Friday, August 31, 2018 10:11 AM
To: MN_NHIS, Review (DNR) <Review.NHIS@state.mn.us>
Subject: RE: NHIS Request- Adelmann Properties

Hello,

Please see attached NHIS request for renewal of expired ERDB# 20180074. The purpose of this request is for the preparation of an AUAR.

Thanks,

Travis Fristed PWS
Associate Principal, Practice Group Leader

7900 International Drive, Suite 550
Minneapolis, MN 55425
P: 952.426.0699
C: 952.500.1180
travis.fristed@is-grp.com

Architecture | Engineering | Environmental | Planning

From: Travis Fristed
Sent: Monday, June 12, 2017 1:02 PM
To: 'Review.NHIS@state.mn.us' <Review.NHIS@state.mn.us>
Subject: NHIS Request- Adelmann Properties

Hello Lisa,

Attached is an NHIS request form for the Adelmann Properties in Scott County. This request for planning purposes of conceptual mixed use development scenarios on the parcels. We understand that an updated NHIS request will be submitted when the project is defined and the appropriate environmental review (anticipated EAW or AUAR) is known in the future.

Thanks

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

August 14, 2017
Correspondence # ERDB 20180074

Mr. Travis Fristed
I+S Group
7900 International Drive, Suite 300
Minneapolis, MN 55425

RE: Natural Heritage Review of the proposed Adelmann Family Property,
T113N R21W Sections 23 & 26; Scott County

Dear Mr. Fristed,

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 at http://www.dnr.state.mn.us/rsg/index.html 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:

- A portion of the property is within a Central Region Regionally Significant Ecological Area (RSEA) that is ranked *High*. 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 MN Geospatial Commons at https://gisdata.mn.gov/. Additional information, including pdf versions of the RSEA maps, is available at http://www.dnr.state.mn.us/rsea/index.html.

- 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 you have not done so already, please contact your DNR Regional Environmental Assessment Ecologist to determine whether there are other natural resource concerns associated with the proposed project (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,

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

EXHIBIT F:

State Historic Preservation Office Correspondence

From: MN_MNIT_Data Request SHPO
To: Travis Fristed
Subject: RE: SHO Data Review Request- Adelmann Properties, Elko New Market
Date: Wednesday, October 17, 2018 12:21:57 PM
Attachments: image001.png
ScottHistoric.xls

Hello Travis,

Attached is the historic site report you requested. There are no archaeologic sites in our database for the given area.

Jim

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

SHPO Data Requests
Minnesota State Historic Preservation Office
50 Sherburne Avenue, Suite 203
Saint Paul, MN 55155
(651) 201-3295
datarequestshpo@state.mn.us

Notice: This email message simply reports the results of the cultural resources database search you requested. The database search is only for previously known archaeological sites and historic properties. **IN NO CASE DOES THIS DATABASE SEARCH OR EMAIL MESSAGE CONSTITUTE A PROJECT REVIEW UNDER STATE OR FEDERAL PRESERVATION LAWS –** please see our website at https://mn.gov/admin/shpo/protection/ for further information regarding our Environmental Review Process.

Because the majority of archaeological sites in the state and many historic/architectural properties have not been recorded, important sites or properties may exist within the search area and may be affected by development projects within that area. Additional research, including field surveys, may be necessary to adequately assess the area's potential to contain historic properties or archaeological sites.

Properties that are listed in the National Register of Historic Places (NRHP) or have been determined eligible for listing in the NRHP are indicated on the reports you have received, if any. The following codes may be on those reports:

NR – National Register listed. The properties may be individually listed or may be within the boundaries of a National Register District.

CEF – Considered Eligible Findings are made when a federal agency has recommended that a property is eligible for listing in the National Register and MN SHPO has accepted the recommendation for the purposes of the Environmental Review Process. These properties need to be further assessed before they are officially listed in the National Register.

SEF – Staff eligible Findings are those properties the MN SHPO staff considers eligible for listing in the National Register, in circumstances other than the Environmental Review Process.

DOE – Determination of Eligibility is made by the National Park Service and are those properties that are eligible for listing in the National Register, but have not been officially listed.

CNEF – Considered Not Eligible Findings are made during the course of the Environmental Review Process. For the purposes of the review a property is considered not eligible for listing in the National Register. These properties may need to be reassessed for eligibility under additional or alternate contexts.

Properties without NR, CEF, SEF, DOE, or CNEF designations in the reports may not have been evaluated and therefore no assumption to their eligibility can be made. Integrity and contexts change over time, therefore any eligibility determination made ten (10) or more years from the date of the current survey are considered out of date and the property will need to be reassessed.

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, Environmental Review Specialist @ 651-201-3285 or by email at kelly.graggjohnson@state.mn.us.

The Minnesota SHPO Archaeology and Historic/Architectural Survey Manuals can be found at https://mn.gov/admin/shpo/identification-evaluation/.

MN SHPO research hours are **8:30 AM – 4:00 PM Tuesday-Friday**. Please call ahead at 651-201-3295 to ensure staff is available to assist you, if necessary. Thank you.

Notice: This email message simply reports the results of the cultural resources database search you requested. The database search is only for previously known archaeological sites and historic properties. **IN NO CASE DOES THIS DATABASE SEARCH OR EMAIL MESSAGE CONSTITUTE A PROJECT REVIEW UNDER STATE OR FEDERAL PRESERVATION LAWS –** please see our website at https://mn.gov/admin/shpo/protection/ for further information regarding our Environmental Review Process.

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NR – National Register listed. The properties may be individually listed or may be within the boundaries of a National Register District.

CEF – Considered Eligible Findings are made when a federal agency has recommended that a property is eligible for listing in the National Register and MN SHPO has accepted the recommendation for the purposes of the Environmental Review Process. These properties need to be further assessed before they are officially listed in the National Register.

SEF – Staff eligible Findings are those properties the MN SHPO staff considers eligible for listing in the National Register, in circumstances other than the Environmental Review Process.

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CNEF – Considered Not Eligible Findings are made during the course of the Environmental Review Process. For the purposes of the review a property is considered not eligible for listing in the National Register. These properties may need to be reassessed for eligibility under additional or alternate contexts.

Properties without NR, CEF, SEF, DOE, or CNEF designations in the reports may not have been evaluated and therefore no assumption to their eligibility can be made. Integrity and contexts change over time, therefore any eligibility determination made ten (10) or more years from the date of the current survey are considered out of date and the property will need to be reassessed.

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, Environmental Review Specialist @ 651-201-3285 or by email at kelly.graggjohnson@state.mn.us.

The Minnesota SHPO Archaeology and Historic/Architectural Survey Manuals can be found at https://mn.gov/admin/shpo/identification-evaluation/.

MN SHPO research hours are **8:30 AM – 4:00 PM Tuesday-Friday**. Please call ahead at 651-201-3295 to ensure staff is available to assist you, if necessary. Thank you.

From: Travis Fristed <Travis.Fristed@is-grp.com>
Sent: Monday, October 15, 2018 4:07 PM
To: MN_MNIT_Data Request SHPO <DataRequestSHPO@state.mn.us>
Subject: SHO Data Review Request- Adelmann Properties, Elko New Market

To Whom it May Concern,

ISG is conducting an environmental review for the Adelmann Family Property in Elko New Market Township, Scott County, Minnesota. Figures 1 and 2 are attached for project location reference. Could you please provide any SHPO records of known historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site? Including: 1) historic designations, 2) known artifact areas, and 3) architectural features.

Thank you for your assistance.

Travis Fristed PWS
Associate Principal, Practice Group Leader

7900 International Drive, Suite 550
Minneapolis, MN 55425
P: 952.426.0699
C: 952.500.1180
travis.fristed@is-grp.com

Architecture | Engineering | Environmental | Planning

COUNTY	CITYTWP	PROPNAME	ADDRESS	TOWNSHIP	RANGE	SECTION	QUARTERS	USGS	REPORTNUM	NRHP	CEF	DOE	INVENTNUM
Scott													
	New Market Twp.												
		Mendota-Big Sioux River Rd.: Dodd Rd. Section		113	21	24	SE-SE-SE	New Market					SC-NMT-007
		Mendota-Big Sioux River Rd.: Dodd Rd. Section		113	21	25	W-NE, NE-NW SE	New Market					SC-NMT-007

EXHIBIT G:

Traffic Study

TRAFFIC IMPACT STUDY

ADELMANN DEVELOPMENT
ELKO NEW MARKET, MINNESOTA

May 2, 2018

Project No. 17-20548

ISG

Signature Sheet

I HEREBY CERTIFY THAT THESE CALCULATIONS WERE 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.

William A. Kratt, PE
Project Engineer
License # 51210

I+S Group, Inc.
201 Main Street, Suite 1020
La Crosse, WI 54601

Adelmann Development
Elko New Market, Minnesota

Engineer's Project Number: 17-20548

Dated this 2 day of May, 2018.

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Executive Summary

Studied Intersection Description and Location

This Traffic Impact Study (TIS) studied current, projected, and future traffic conditions at six locations in the City of Elko New Market, Scott County, Minnesota. These locations included:

- Intersection 1 – The intersection of County State Aid Highway (CSAH) 2, also known as 260th Street E, and Xerxes Avenue.
- Intersection 2 – The intersection of CSAH 2 and Newton Circle's west access point.
- Intersection 3 – The intersection of CSAH 2 and Newton Circle's east access point.
- Intersection 4 – The intersection of CSAH 2 and Irving Avenue.
- Intersection 5 – The intersection of CSAH 2 and the southbound ramp of Interstate Highway 35 (I-35).
- Intersection 6 – The intersection of CSAH 2 and the northbound ramp of I-35.

This study focuses on the traffic impacts of a 160-acre residential, commercial, and industrial development north and south of CSAH 2 between Xerxes Avenue and I-35. The land, located on the outskirts of Elko New Market, is largely undeveloped. The properties are currently privately owned by Adelmann Farms New Market LLC, zoned by Scott County as Urban Business Reserve (UBR). At the time of this writing, an annex agreement between the City of Elko New Market and Scott County is currently in place but has yet to be executed.

To accommodate pedestrians and cyclists, an existing asphalt paved City trail runs along the north side of CSAH 2 from Intersection 1 to Intersection 5. Highway crossings are not provided. As the area develops, sidewalks will be constructed providing pedestrian access to the future businesses. There are no established transit routes or bus stops in the area.

Currently, Intersections 2 and 3 operate as 3-legged intersections, but they have been constructed, with radii and turn lanes on CSAH 2, to accommodate a side street to the north. When area development commences in 2019, users can expect to use Intersection 3 to access the proposed development, and this will be the only access available until property can be acquired to construct the side road north of Intersection 2. As the area continues to develop in the next 20 years, the development's road network will expand, reaching west to connect with Xerxes Avenue at two locations. Property has yet to be acquired to accommodate this expansion. An overview of the proposed development is provided in **Appendix A: Proposed Development Overview**.

Findings

Level of Service

The analysis shows that the proposed development impacts the studied intersections from a level of service (LOS) standpoint.

Existing (2018)

Overall
Currently, Intersections 1-6 are operating at an overall LOS A in all periods, with the exception of LOS B during the AM peak for Intersection 6.
CSAH 2
Along CSAH 2 at every intersection for both AM and PM, Eastbound (EB) and Westbound (WB) approaches operate at a LOS A.

Minor Streets
All minor street approaches operate at LOS A-D for both AM and PM peak periods, with the exception of the Intersection 6 NB approach (LOS F) during the AM peak.

Baseline (2031) – Without Development

There has been a historic increase in traffic growth within this corridor. The following summaries assume this trend will continue for the next 20 years.

Overall
Intersections 1-6 are expected to operate at an overall LOS A in all periods, with the exception of Intersection 6 during the AM peak (LOS F).
CSAH 2
EB and WB approaches operate at a LOS A-B during peak hours at all intersections.
Minor Streets
The minor street approaches operate at varying levels of service ranging from LOS A to LOS E at Intersections 1-4. At Intersections 5 and 6, the minor street approaches operate at LOS E-F.

Phase 1 (2031) – With Development

Overall
In the full build-out scenario, Intersections 1-6 see a general decrease in level of service, compared to the Baseline (2031) scenario, largely due to the failing of side street turning movements.
CSAH 2
Along CSAH 2 at most intersections for both AM and PM, EB and WB approaches operate at a LOS A. In the Phase 1 (2031) scenario, the exception is that the EB approach of Intersection 6 operates at LOS C during the AM peak.
Minor Streets
Most minor street approaches operate at LOS F. The exceptions include the NB approach of Intersection 2 in the PM peak and the NB approaches of Intersection 4 of both studied peak periods.

Baseline (2038) – Without Development

Overall
Intersections 1-4 are expected to operate at an overall LOS A in all periods. The LOS at Intersections 5 and 6 range from A-D.
CSAH 2
Along CSAH 2 at most intersections for both AM and PM, EB and WB approaches operate at a LOS A. In the Baseline (2038) scenario, the exception is that the EB approach of Intersection 6 operates at LOS C during the AM peak.
Minor Streets
The minor street approaches operate at varying levels of service ranging from LOS A to LOS F at the studied intersections. In particular, the interchange off-ramps perform the poorest.

Phase 2 (2038) – With Development

Phase 2 modeling was completed assuming that improvements for Phase 1 are implemented as recommended.
Overall
In the full build-out scenario, Intersections 1-6 see a general decrease in level of service, compared to the Baseline (2038) scenario, largely due to the failing of side street turning movements.
CSAH 2
Along CSAH 2 at Intersections 1-6, EB and WB approaches operate at LOS A-E, with the exception of the EB approach at Intersection 5 during the PM peak.

Minor Streets

At Intersections 1-3, the minor street approaches operate at LOS C-F, largely due to failing turning movements. At Intersections 5 and 6, the interchange off-ramps operate at LOS C during the AM peak and LOS B during the PM peak.

Connectivity

Study of the greater area road network shows that Elko New Market residents and visitors have few options to access I-35. Without CSAH 2's access to I-35, drivers must travel either north to Lakeville (5 miles) or south to Little Chicago (7 miles) in order to access I-35. Therefore drivers may accept long queues and low level of service before seeking alternate, more desirable routes. At the project level, Intersections 2 and 3 are connected by Newton Circle in addition to CSAH 2. While users exiting the south side of the proposed development looking to travel west may prefer Intersection 3 (because it's closer than Intersection 2), Intersection 2 is easily accessible in the proposed development plan, reducing congestion at Intersection 3.

Recommendations

By 2031, improvements to the interstate overpass bridge and Intersections 5 and 6 will be needed regardless of proposed development construction. Interim and long term options for I-35 interchange improvements have been detailed in the "CH 2 / I-35 Interchange Area Management Plan" (IAMP) developed in 2010.

To accommodate Phase 1 development, improvements to the studied intersections are needed. As the project moves into Phase 2, additional improvements will be needed. As businesses move into to the development, traffic impact studies should be conducted as needed in order to track interim improvement needs. Additionally, the study area should be re-evaluated if growth projections change.

Based on the modeled Phase 1 (2031) conditions described in this report, to accommodate both major and minor street traffic, improvements are recommended at Intersections 1-6 and some road links. The following are minimum recommendations:

- Implement roundabouts or traffic signal control at Intersections 1, 3, 5, and 6.
- Two travel lanes should be maintained both eastbound and westbound through the studied area.
- Close access to Intersection 4 and route to new access road to the west.
- At the I-35 overpass, widen the bridge to accommodate 4 travel lanes.
- Proposed business driveways should be placed in locations as to avoid impacts to future intersection turn lanes.

Based on the modeled Phase 2 (2038) conditions described in this report, to accommodate both major and minor street traffic, additional improvements are recommended at Intersections 1-6 and some road links. The following are minimum recommendations, assuming improvements to accommodate Phase 1 development are implemented as recommended:

- Implement roundabouts or traffic signal control at Intersection 2.
- Add turn lanes at Intersections 3 and 5.
- Proposed business driveways should be placed in locations as to avoid impacts to future intersection turn lanes.

Conclusions

Currently, the studied intersections are operating at LOS A-B. The area has seen in increase in traffic, and local and regional authorities expect that trend to continue. By 2031, improvements to the interstate overpass bridge and Intersections 5 and 6 will be needed regardless of proposed development construction. The proposed development is expected to impact the studied intersections in the future, and most minor street approaches are expected to operate at LOS F if the traffic control is to remain the same.

Improvements needed as a result of the proposed development, including the installation of traffic signals, may be needed to accommodate Phase 1 development. Additional improvements, including additional the installation of additional traffic signals, may be needed to accommodate Phase 2 development. As businesses move into the development, traffic studies should be conducted as needed to determine interim improvement needs. The types of business that move into the development, and the development rate, will largely determine when changes in intersection control are needed. Once traffic impact studies conclude that traffic signals are warranted in the near future, further study will be required to design the new traffic signals.

Once the recommended improvements are implemented, the area should be monitored as regular drivers adjust to the new traffic patterns. The study area corridors should be reevaluated on a regular basis as the area develops or as growth projections change.

Introduction

Purpose of Report

The purpose of this report is to document the methodologies, findings, recommendations, and conclusions of the subject study, including the basis for all assumptions, traffic parameters utilized, and conclusions. This report presents data in a logical format including tables and figures in order to accurately and clearly convey the data and its meaning.

Study Objectives

The objectives of this study include the following:

1. Identify the impacts to the transportation system and immediate area as a result of the proposed development.
2. Recommend necessary improvements to the adjacent transportation system to maintain a safe, efficient system.
3. Protect the safety and functionality of the transportation system while providing sufficient access for the proposed development.

Area Conditions

City Data, Land Use, and Zoning

This report studies the impacts of a proposed development near the City of Elko New Market in Scott County. An overview for the development in provided as **Appendix A: Proposed Development**, and a location map is provided as **Appendix B: Location Map**. More details regarding site traffic and trip generation are provided in a later section of this report.

The City of Elko New Market has an estimated population of 4,625 (year 2016), and the population has steadily grown since 2010. City and regional authorities expect the area's population to grow approximately 2.1% each year into the future. Community planning documents indicate that development will likely continue along the City's outer limits as Elko New Market continues to attract new businesses and residents. Land use in the study area vicinity includes commercial (south), light industrial (south), agricultural (west and east), and rural residences (west, north, and east). While the land uses vary, many of the properties are zoned Urban Reserve, Urban Expansion Reserve, and Urban Business Reserve. Those properties that are not reserved for further development are zoned Rural Residential or Rural Industrial. The City of Elko New Market's existing zoning map is provided as **Appendix C: Existing Land Use Map**. The City of Elko New Market Land Use Plan Map is provided as **Appendix D: Future Land Use Map** for reference.

Intersections 1 (CSAH 2 and Xerxes Avenue), 2 (CSAH 2 and Newton Circle), 3 (CSAH 2 and Newton Circle), 4 (CSAH 2 and Irving Avenue), 5 (CSAH 2 and SB I-35), 6 (CSAH 2 and NB I-35), the subject of this study, are located along CSAH 2 northeast of Elko New Market. The figure in **Appendix E: Intersection Diagram** identifies these six intersections on the development overview.

Area Roadway System

Through and adjacent to the study area:

- CSAH 2 (260th Street E) is an east-west Minor Arterial Collector.
- CSAH 2 (Deuce Rd) is an east-west Minor Arterial Reliever.
- I-35 is a north-south Principal Arterial.

CSAH 2 is a four lane divided (depressed grass center median) highway with a posted speed limit of 55 MPH that currently serves as a north border for the City of Elko New Market. Intersections 1, 2, and 3 are stop controlled on the side streets, and both left and right turn lanes are provided on CSAH 2. At Intersection 4, Irving Avenue is stop controlled and no turn lanes are provided on CSAH 2. The median is painted through this intersection and while the pavement markings indicate that Intersection 4 has right-in, right-out type access, traffic count data show vehicles treating the intersection as fully accessible. Intersection 5 is stop controlled on the ramp and a channelized right turn lane is provided to aid drivers turning onto CSAH 2. Intersection 6 is stop controlled on the ramp, and no turn lanes are provided.

At Intersections 1-4, the side streets are 2-lane undivided local roads. Xerxes Avenue serves as the primary access from CSAH 2 to existing residential neighborhoods. Newton Circle and Irving Avenue both serve as primary accesses from CSAH 2 to existing commercial and industrial properties. Between Intersections 3 and 4, there are two driveways. The first driveway is a full access driveway on the south side of the road. The second is a right-in, right-out on the south side of the road. There are no other driveways located in the study area.

The study area is lies on a section of CSAH 2 that serves commuters traveling between their Elko New Market residences and their places of work to the North. Because of CSAH 2's classification and connection to I-35, there is some truck traffic on CSAH 2. According to the traffic count data collected for this study, approximately 2% of the vehicles traveling the corridor during peak time periods are classified as trucks.

An asphalt pedestrian path is provided along CSAH 2 on the north side of the road. Currently, there are no bicycle accommodations provided along CSAH 2; however, cyclists are permitted on this roadway. There are no established transit routes or bus stops in the area.

Existing Traffic Volumes and Conditions

Existing traffic counts were collected for Intersections 1-6. A summary of the dates/times these counts were performed is provided below:

- AM peak hour counts were performed on Wednesday, January 10, 2017, from 7:00 AM to 11:00 AM.
- PM peak hour counts were performed the same day, Tuesday, January 9, 2017, from 3:00 PM to 6:00 PM.

Summary diagrams of the traffic counts are provided in **Appendix F: Existing Traffic Counts**. The Synchro (v9.2) Studio Suite was utilized to analyze the traffic conditions within the study area, which included modeling the six subject intersections along CSAH 2. The Synchro Analysis worksheets for the existing conditions are provided in **Appendix G: Synchro Reports – Existing (2018)**.

Tables 1-6 show the existing LOS and delay for Intersections 1-6 for both of the peak hour periods.

CSAH 2 has shown to have an AADT of 11,200 vehicles per day (vpd) through the study area (draft 2017 AADT) according to MnDOT traffic data as presented in **Exhibit 1** below.

Exhibit 1: Area Traffic

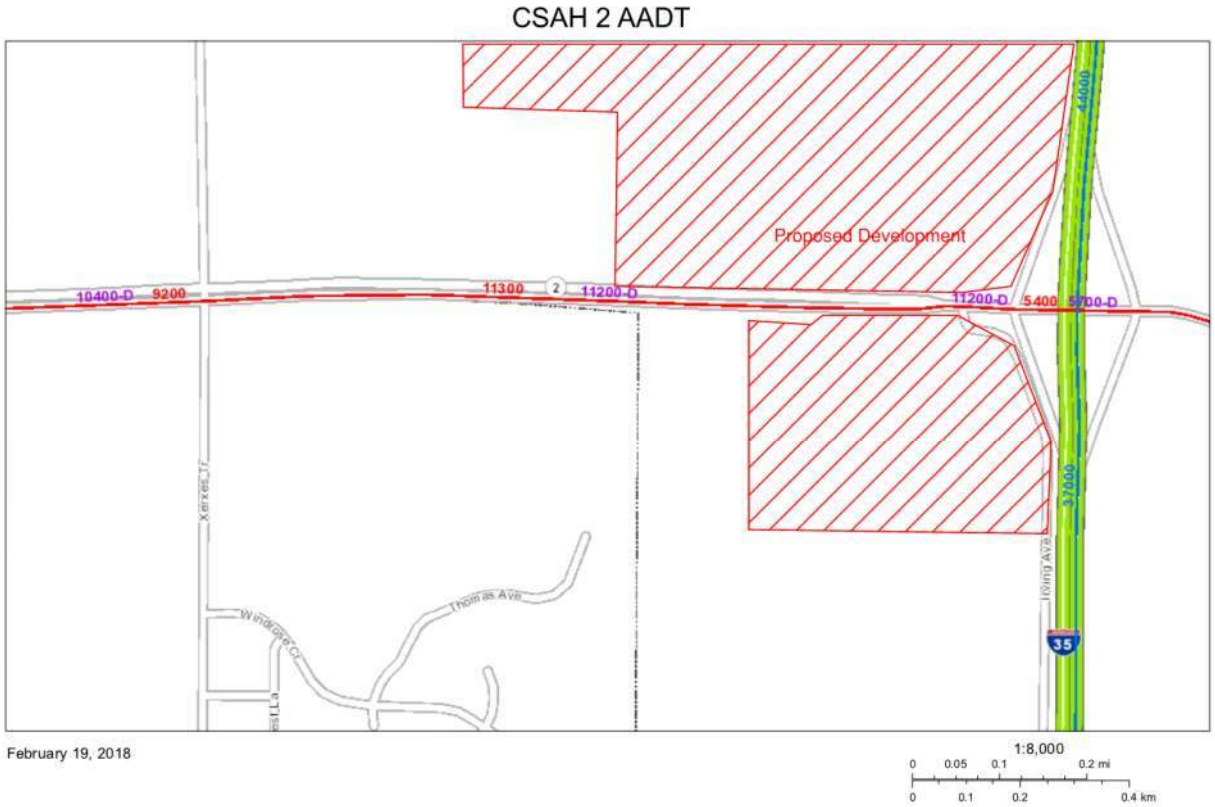


Table 1: Existing LOS – Intersection 1

INTERSECTION 1	AM PEAK												
	2018 EXISTING												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		5	566	4	19	140	0	25	2	210	0	2	3
Queue (ft)		0	0	0	26	0	0	37		88	19		
Mvmt Delay (sec)		7.6	0.0	0.0	9.0	0.0	0.0	16.1		13.3			
Mvmt LOS		A	A	A	A	A	A	C		B			
Delay (sec)	3.6	0.1			1.1			13.6			13.1		
LOS	A	A			A			B			B		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 1	PM PEAK												
	2018 EXISTING												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		2	315	20	185	709	3	16	1	59	1	0	0
Queue (ft)		8	0	0	66	0	0	30		0	38		
Mvmt Delay (sec)		9.3	0.0	0.0	8.6	0.0	0.0	22.2		9.6			
Mvmt LOS		A	A	A	A	A	A	C		A			
Delay (sec)	2.0	0.1			1.8			12.4			27.1		
LOS	A	A			A			B			D		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 2: Existing LOS – Intersection 2

INTERSECTION 2	AM PEAK												
	2018 EXISTING												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			867	8	0	173		2		0			
Queue (ft)			0	0	0	0		11					
Mvmt Delay (sec)					0.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	**0.0**	0.0			0.0			20.9					
LOS	**A**	A			A			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 2	PM PEAK												
	2018 EXISTING												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			338	14	1	830		11		2			
Queue (ft)			0	0	0	0		32					
Mvmt Delay (sec)					8.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	**0.2**	0.0			0.0			13.8					
LOS	**A**	A			A			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 3: Existing LOS – Intersection 3

INTERSECTION 3	AM PEAK												
	2018 EXISTING												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			853	0	10	170		0		6			
Queue (ft)			4	0	26	0		23					
Mvmt Delay (sec)					10.2	0.0							
Mvmt LOS					B	A							
Delay (sec)	0.2	0.0			0.6			12.0					
LOS	A	A			A			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 3	PM PEAK												
	2018 EXISTING												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			340	0	9	840		0		17			
Queue (ft)			0	0	18	0		28					
Mvmt Delay (sec)					8.1	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.2	0.0			0.1			9.5					
LOS	A	A			A			A					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 4: Existing LOS – Intersection 4

INTERSECTION 4	AM PEAK												
	2018 EXISTING												
CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			947	2	2	196		1		9			
Queue (ft)			-		6			29					
Mvmt Delay (sec)					10.6	0							
Mvmt LOS					B	A							
Delay (sec)	**0.2**	0.0			0.1			19.8					
LOS	**A**	A			A			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 4	PM PEAK												
	2018 EXISTING												
CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			360	3	11	879		4		5			
Queue (ft)			0		17			25					
Mvmt Delay (sec)					8.1	0.1							
Mvmt LOS					A	A							
Delay (sec)	**0.2**	0.0			0.2			13.8					
LOS	**A**	A			A			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 5: Existing LOS – Intersection 5

INTERSECTION 5	AM PEAK												
	2018 EXISTING												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			831	54	53	87					36	1	100
Queue (ft)			0	7	65						55		-
Mvmt Delay (sec)					10.4	0							
Mvmt LOS					B	A							
Delay (sec)	1.5	0.0			3.9						28.3		
LOS	A	A			A						D		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 5	PM PEAK												
	2018 EXISTING												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			286	39	67	251					112	0	571
Queue (ft)			0		57						74		169
Mvmt Delay (sec)					8.1	0							
Mvmt LOS					A	A							
Delay (sec)	3.7	0.0			1.7						19.8		
LOS	A	A			A						C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 6: Existing LOS – Intersection 6

INTERSECTION 6	AM PEAK												
	2018 EXISTING												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		662	227			98	114	15	0	48			
Queue (ft)		257				16		87					
Mvmt Delay (sec)		11.2	0										
Mvmt LOS		B	A										
Delay (sec)	12.9	8.3			0.0			122.0					
LOS	B	A			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 6	PM PEAK												
	2018 EXISTING												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		224	179			263	56	49	2	38			
Queue (ft)		74				4		54					
Mvmt Delay (sec)		8.7	0										
Mvmt LOS		A	A										
Delay (sec)	4.9	4.9			0.0			22.2					
LOS	A	A			A			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

See the Conclusions section for discussion on level of service and delay.

Anticipated Future Development

The 2030 Elko New Market Comprehensive Plan was adopted in 2010. The Comprehensive Plan outlines the City's goals for guiding:

- area growth and land use,
- housing development,
- transportation network improvements,
- natural resource management,
- park and trail system development,
- water facility expansion,
- sanitary sewer improvements,
- stormwater management, and
- intergovernmental cooperation.

The proposed development area is currently outside of the City of Elko New Market limit. However, the area has been identified within the Comprehensive Plan, and Scott County has reserved the land for future urban development. Areas to the east and west of the proposed development have also been reserved for proposed development. In the City's Water, Sanitary Sewer, and Stormwater Management plans, the City plans to extend water and sanitary sewer service to these development areas. The City has completed the sanitary sewer service extension but has yet to complete the water service extension. Parks and trails will be incorporated as a part of area development, and roads will need to be constructed in order to accommodate area connectivity. The Transportation Plan recognizes the growth potential of both Elko New Market and the surrounding area. As a result of this growth, I-35 north of CSAH 2 and sections along CSAH 2 are anticipated to be congested (Volume to Capacity Ratio > 1.00). To manage this congestion, the Plan discusses the need for improvements to the CSAH 2 / I-35 interchange.

The "CH 2 / I-35 Interchange Area Management Plan" (IAMP) completed in 2010 was developed to address this need for improvements to the subject interchange. While the guide does not identify specific improvements, the IAMP discusses the benefits and cost of a number of improvement types. The plan identifies a long-range vision and includes an implementation plan. After considering the multiple options discussed in the IAMP, Scott County has elected to proceed with a preliminary layout for a diverging diamond design. A preliminary layout was approved in 2016. The interchange project is not planned for construction within the next eight years, and funding has not been identified.

This preliminary layout shows that Intersection 4, Irving Ave's access to CSAH would close if the plan moves forward. Because the timing of the interchange reconstruction is uncertain and funding has not yet been identified, this report assumes access, access control, and the geometry of Intersections 1-6 will remain unchanged into 2038

Projected Traffic

Traffic was projected for 13-year (2031) Baseline and 20-year (2038) Baseline conditions for the weekday AM and PM peak hours. The method for determining these traffic projections included trip generation, internal capture, pass-by, and distribution analyses based on estimates from the ITE Trip Generation Manual 9th Edition and the ITE Trip Generation Handbook 2nd Edition.

Site Traffic

Trip Generation

The new development will generate both employee and customer trips. For this study, a trip is defined as a one-way movement between an origin and a destination. The expected numbers of trips the proposed development will generate was estimated using the ITE Trip Generation Manual 9th Edition and conceptual plans of the proposed development. The summarized results are provided in **Table 7**.

Table 7: Unadjusted Generated Traffic by Land Use

Phase	ITE Code	Use	AM	PM
1	110	General Light Industrial (A)	49	51
2	110	General Light Industrial (B)	30	31
2	110	General Light Industrial (B)	30	31
2	110	General Light Industrial (C)	65	69
2	110	General Light Industrial (D)	125	132
2	110	General Light Industrial (E)	147	155
1	140	Manufacturing	29	29
2	151	Mini-Warehouse	6	10
2	230	Residential Condominium/Townhouse	6	7
1	310	Hotel	72	81
1	715	Single Tenant Office Building (A)	63	61
2	720	Medical-Dental Office Building	74	111
1	810	Tractor Supply Store	0	28
1	890	Furniture Store	5	14
1	820	Shopping Center (A)	145	554
2	820	Shopping Center (B)	100	366
1	826	Specialty Retail Center	8	27
1	834	Automobile Parts Sales	22	63
1	841	Automobile Sales	188	257
2	842	Recreational Vehicle Sales	0	79
1	850	Supermarket	76	212
1	890	Furniture Store	5	14
1	932	High Turnover (Sit-Down) Restaurant (A)	119	108
1	932	High Turnover (Sit-Down) Restaurant (B)	43	39
2	932	High Turnover (Sit-Down) Restaurant (C)	43	39
1	934	Fast-Food Restaurants with Drive-Through Windows	818	588
1	937	Coffee/Donut Shop with Drive-Through Window	362	154
1	945	Gasoline/Service Station with Convenience Market (A)	163	216
1	945	Gasoline/Service Station with Convenience Market (B)	163	216

In **Table 8**, the detailed land uses were combined into categories – Industrial, Residential, Office/Business, Commercial-Products, and Commercial-Services – and the weighted averages of the entering and exiting percentages were calculated. These values were then applied in the next step: calculating an internal capture ratio.

Table 8: Unadjusted Generated Traffic Summary – Entering and Exiting

	AM					PM				
Phase 1: 2018-2031	#	Enter		Exit		#	Enter		Exit	
100 Industrial	78	86%	**67**	14%	**11**	80	14%	**11**	86%	**69**
200/300 Residential and Lodging	72	19%	**14**	81%	**58**	81	64%	**52**	36%	**29**
700 Office/Business	63	75%	**47**	25%	**16**	61	25%	**15**	75%	**46**
800 Commercial - Products	449	60%	**269**	40%	**180**	1169	45%	**526**	55%	**643**
900 Commercial - Services	1668	50%	**834**	50%	**834**	1322	50%	**661**	50%	**661**
			1231		**1099**			**1265**		**1448**

	AM					PM				
Phase 2: 2031-2038	#	Enter		Exit		#	Enter		Exit	
100 Industrial	403	86%	**347**	14%	**56**	428	14%	**60**	86%	**368**
200/300 Residential and Lodging	6	19%	**1**	81%	**5**	7	64%	**4**	36%	**3**
700 Office/Business	75	75%	**56**	25%	**19**	111	25%	**28**	75%	**83**
800 Commercial - Products	100	60%	**60**	40%	**40**	445	45%	**200**	55%	**245**
900 Commercial - Services	44	50%	**22**	50%	**22**	40	50%	**20**	50%	**20**
			486		**142**			**312**		**719**

Internal Capture

Because the proposed development will contain multiple land uses, an internal capture analysis was performed. The internal capture rate is the percentage reduction that can be applied to the trip generation estimates for individual land uses to account for trips internally absorbed. The ITE Trip Generation Handbook, 3rd Edition provides the method, and the internal capture rates for the AM and PM peak periods can be found in **Exhibit 2** and **Exhibit 3** respectively.

Exhibit 2: AM Internal Capture

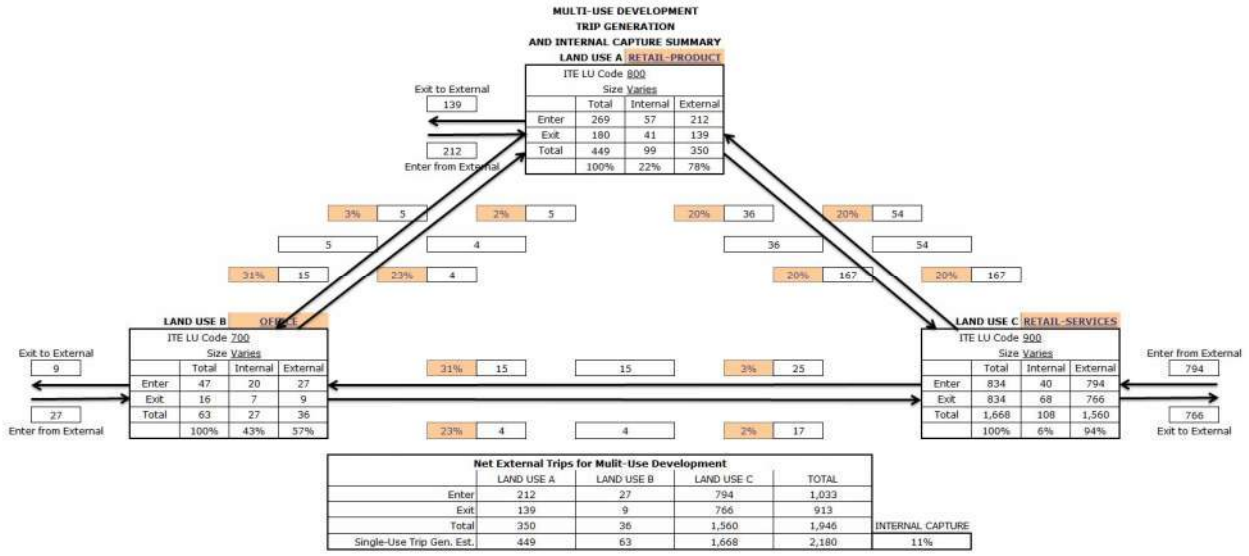
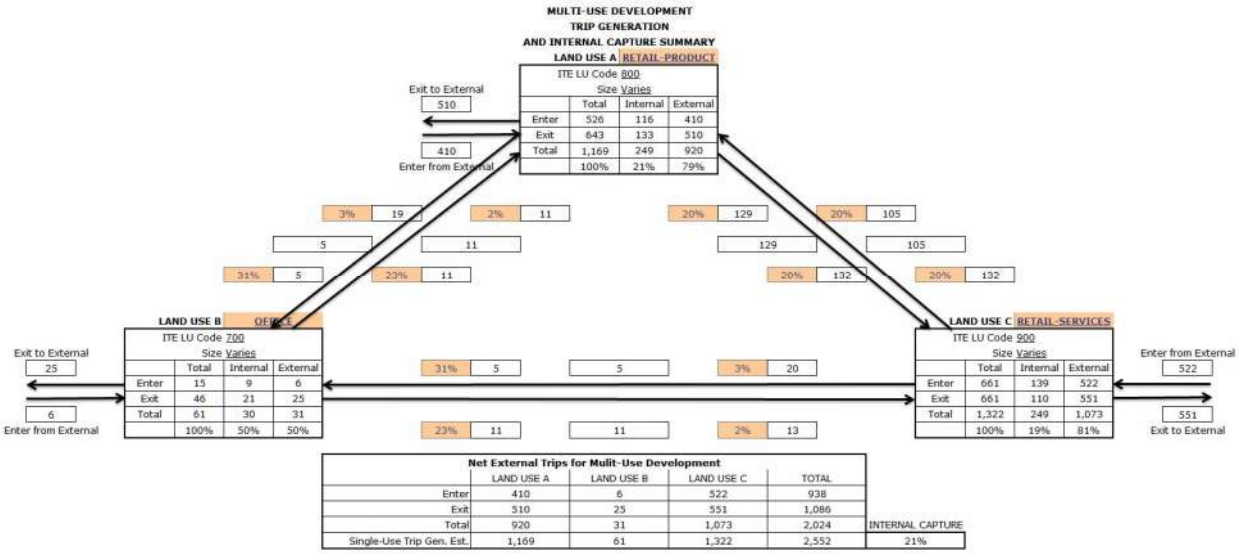


Exhibit 3: PM Internal Capture



Net External Trips for Mulit-Use Development	LAND USE A	LAND USE B	LAND USE C	TOTAL	
Enter	410	6	522	938	
Exit	510	25	551	1,086	
Total	920	31	1,073	2,024	INTERNAL CAPTURE
Single-Use Trip Gen. Est.	1,169	61	1,322	2,552	21%

The internal capture analysis was performed on the Office/Business, Commercial-Products, and Commercial-Services categories. Because the Residential trip generation is low and the ITE Trip Generation Handbook does not include internal capture rates for industrial sites, internal capture involving the proposed development's residential and industrial land uses is expected to be negligible. The internal capture ratios were applied to the values in **Table 8** in order to create **Table 9**. The values shown in **Table 9** were then applied to the 13-Year (2031) Baseline and 20-Year (2038) Baseline conditions traffic volumes to create the 13-Year (2031) Phase 1 and 20-Year (2038) Phase 2 conditions traffic volumes.

Table 9: Externally Generated Trips – Entering and Exiting

Adjusting for Internal Capture	2031			
	AM		PM	
	Enter	Exit	Enter	Exit
100 Industrial	67	11	11	69
200/300 Residential and Lodging	14	58	52	29
700 Office/Business	27	9	6	25
800 Commercial - Products	212	139	410	510
900 Commercial - Services	794	766	522	551
Total External Trips	**1114**	**983**	**1001**	**1184**
Internal Capture Ratio	*10%*	*11%*	*21%*	*18%*

Adjusting for Internal Capture	2038			
	AM		PM	
	Enter	Exit	Enter	Exit
100 Industrial	414	67	71	437
200/300 Residential and Lodging	15	63	56	32
700 Office/Business	83	28	34	108
800 Commercial - Products	272	179	610	755
900 Commercial - Services	816	788	542	571
Total External Trips	**1600**	**1125**	**1313**	**1903**

Pass-By Trip Analysis

Pass-by trips are made as intermediate stop on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or road. Therefore they are trips that may not add new traffic to the adjacent street system because they attract motorists already on the street. However, it is important to note that although pass-by trips do not add new traffic, they do affect traffic distribution and turning movements at entrances. They must be accounted for when distributing traffic. Because the proposed development is expected to divert traffic from I-35, provide goods and services to local residents, and provide jobs closer to home, the percentage of pass-by trips is expected to be dependent on the individual land uses within the proposed development. **Table 9** and the pass-by rates in the ITE Trip Generation Handbook were used to create **Table 10**. **Table 10** shows how many non-pass-by trips are added to the CSAH 2 road network as a result of the proposed development.

Table 10: Pass-By Trip Analysis

Adjusting for Pass-By	2031			
	AM		PM	
	Enter	Exit	Enter	Exit
100 Industrial	67	11	11	69
200/300 Residential and Lodging	14	58	52	29
700 Office/Business	27	9	6	25
800 Commercial - Products	212	139	324	404
900 Commercial - Services	400	386	250	264
Total Non-Pass-By Trips	**720**	**603**	**643**	**791**
Pass-By Trips	394	380	358	393
Average (Entering/Exiting)	*387*		*376*	
Total Pass-By Trips	774		751	
% of External Trips	36.9%		34.4%	

Adjusting for Pass-By	2038			
	AM		PM	
	Enter	Exit	Enter	Exit
100 Industrial	414	67	71	437
200/300 Residential and Lodging	15	63	56	32
700 Office/Business	83	28	34	108
800 Commercial - Products	272	179	483	597
900 Commercial - Services	400	386	259	273
Total Non-Pass-By Trips	**1184**	**723**	**903**	**1447**
Pass-By Trips	416	402	410	456
Average (Entering/Exiting)	*409*		*433*	
Total Pass-By Trips	818		866	
% of External Trips	30.0%		26.9%	

Trip Distribution and Assignment

Synchro Traffic Impact Analysis was used to distribute trips between the various inbound and outbound routes drivers are expected to take. It is assumed that drivers will generally choose the shortest distance when selecting a route and driveway. Eight origins, two driveways, and 16 routes were identified for Phase 1. An additionally driveway was identified for Phase 2, creating 24 possible routes. Trips were assigned to these routes, and routes were weighted based on the existing roadway network traffic distribution and the roadway functional classifications.

A diagram of the Synchro model, including labeled nodes are provided in **Appendix H: Trip Distribution**. Trips assigned using the Traffic Impact Analysis tool are assigned to the intersections within Synchro and can be seen in the analysis reports as "Future Vol". These trips are included in the LOS analysis.

Other Traffic

Roadway Historical Growth Rate

A historical annual growth of 2.1% was used to project the February 2018 traffic volumes to 2038. This value was back-calculated using the historical traffic counts along CSAH 2 in the study area using the following equation:

$$F = C(1+i)^n$$

$$where: C = the\ current\ AADT$$

$$F = the\ future\ AADT$$

$$i = percent\ growth\ in\ decimal\ form$$

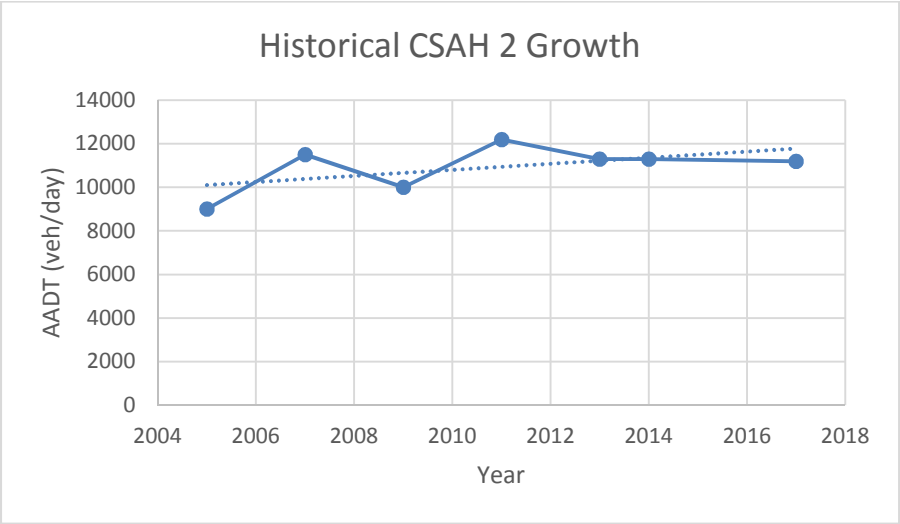
$$n = number\ of\ years\ between\ C\ and\ F$$

The results are shown in **Table 11** and **Exhibit 4**. In the past 10-15 years, growth has been inconsistent, but it should be noted that the traffic growth on CSAH 2 closely matches the projected future population growth. Additionally, the estimate was compared against multiple other resources, including other area traffic studies and the IAMP, and was determined to be reasonable. Therefore, this study assumes that the traffic within the study area will continue its current 2.1% average annual growth into the future.

Table 11: Historical CSAH 2 Growth

Historical CSAH 2 Growth		
Year	**AADT**	**Annualized Growth**
2017	11200	-0.3%
2014	11300	0.0%
2013	11300	-3.8%
2011	12200	10.5%
2009	10000	-6.7%
2007	11500	13.0%
2005	9000	-
Average Growth		2.1%

Exhibit 4: Historical Area Traffic Growth



Expected Traffic Growth

For this traffic impact study, traffic projections were simply taken to be 2.1% annual growth. The Baseline 2031 and Baseline 2038 condition traffic volumes were projected to be the existing traffic volumes with an increase of 2.1% per year for 13 and 20 years, respectively. It is anticipated that business will move into the proposed development gradually over the next 20 years. The Phase 1 and Phase 2 traffic volumes were determined to be the computed Baseline 2031 and Baseline 2038 conditions in addition to the trips provided in **Table 9**. No growth factor was applied to the trips generated by the development.

Trip Distribution and Assignment

Phase 1 involves development on both the North and South sides of CSAH 2. Both halves of the development are expected to utilize Intersection 3 to access CSAH 2. Phase 2 development will occur on the north side of CSAH 2, west of the Phase 1 area. Once the project transitions into Phase 2, it is expected that Intersection 2 will be available to access CSAH 2. Both distribution diagrams are provided in **Appendix H: Trip Distribution**.

Modal Split

The traffic counters were instructed to note pedestrian and bicycle movements at the time of data collection. No pedestrians or cyclists were observed during the study times. Introducing the development may generate pedestrian and bicycle traffic. The proposed development plan shows sidewalks throughout the development. No bicycle accommodations are shown. If into the future, cyclists use the roadways more frequently, bicycle accommodations should be considered.

Total Future Traffic

The trip generation, trip distribution, and traffic assignment analysis and calculations result in peak hour volumes for each study period.

Appendix I: Baseline (2031) Traffic Counts – Diagram shows the 13-year (2031) Baseline peak volumes, and **Appendix J: Phase 1 (2031) Traffic Counts – Diagram** shows the 13-year (2031) Phase 1 peak volumes. Refer to **Appendices M and N** for the complete Synchro analysis worksheets.

Appendix K: Baseline (2038) Traffic Counts – Diagram shows the 20-year (2038) Baseline peak volumes, and **Appendix L: Phase 2 (2038) Traffic Counts – Diagram** shows the 20-year (2038) Phase 2 peak volumes. Refer to **Appendices P and R** for the complete Synchro analysis worksheets. Additionally, **Appendix Q: Synchro Reports – Baseline (2038) with Improvements from Phase 1** is provided which details the "Baseline (2038)" volumes with the geometrics implemented as recommended for Phase 1.

Site Access, Circulation, and Parking

The proposed development will be constructed north of CSAH 2, between Xerxes Avenue and I-35. At full build, the development will three major access points, a road intersecting with Xerxes Avenue and two roads intersecting CSAH 2. An overview of the development and road locations are shown within **Appendix A: Proposed Development**. The roads will be classified as Collectors with 40' roadway widths. The CSAH 2 access points have been paved-in within the CSAH 2 right-of-way. **Exhibits 5-8** show the proposed typical sections and aerials of the CSAH 2 access points. Business driveways will access this internal road network. Off street parking will be provided as businesses move into the development. Site plans for these business will be developed and submitted to the City of Elko New Market for review and approval.

Exhibit 5: Typical Section – North-South Roads Accessing CSAH 2

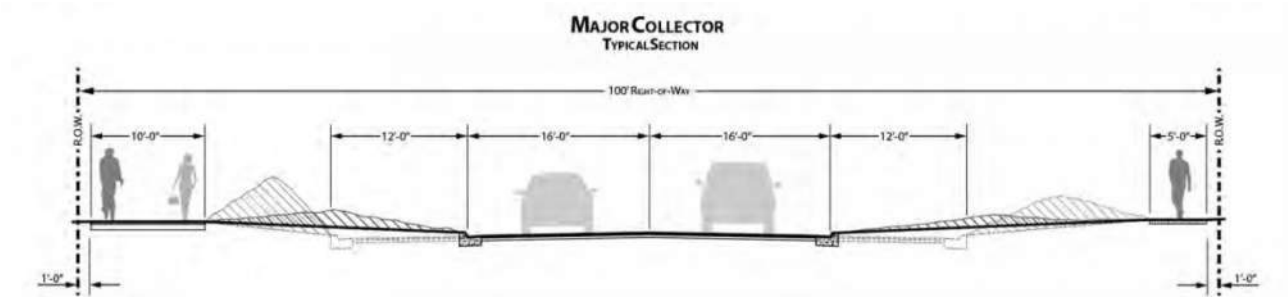


Exhibit 6: Typical Section – East-West Road Accessing Xerxes Avenue

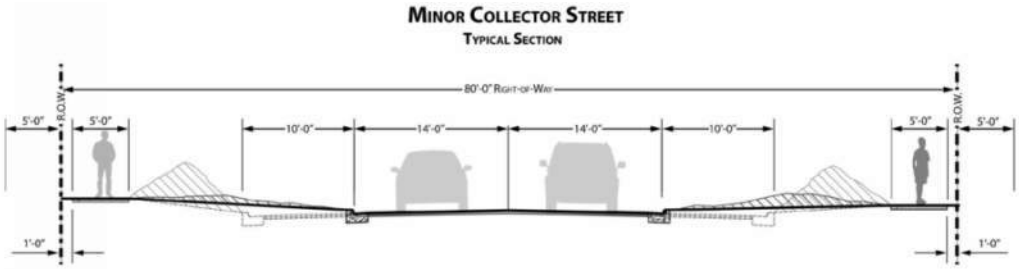


Exhibit 7: Intersection 2 - CSAH 2 and Future Access Road (W)

Exhibit 8: Intersection 3 - CSAH 2 and Future Access Road (E)

Capacity and Level of Service at Studied Intersections

The peak hour volumes for each study period were analyzed within Synchro for capacity and LOS at the study roadways and intersections. The Synchro analysis worksheets are provided within the Appendices.

Tables 12-17 show the 13-year (2031) Baseline LOS and delay and **Tables 18-23** show the 13-year (2031) Phase 1 LOS and delay.

Tables 24-29 show the 20-year (2038) Baseline LOS and delay. These tables do not include Phase 1 traffic or recommendations. **Tables 30-35** show the 20-year LOS and delay at the studied intersections as if Phase 1 was implemented. **Tables 36-41** show the 20-year (2038) Phase 2 LOS and delay.

Notes:

*: the delay is greater than 300 seconds.

**: the volume exceeds capacity, and LOS F is assigned to both the overcapacity movement and the respective approach. HCM 2010 LOS and delay values shown in Synchro reports for overcapacity movements and approaches may not reflect conditions.

13-Year (2031) Baseline Condition

Table 12: Baseline 2031 LOS – Intersection 1

INTERSECTION 1	AM PEAK												
	2031 BASELINE												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		6	742	4	26	183	0	33	3	275	3	2	3
Queue (ft)													
Mvmt Delay (sec)		7.7	0.0	0.0	9.7	0.0	0.0	20.5		17.8			
Mvmt LOS		A	A	A	A	A	A	C		C			
Delay (sec)	**4.8**	0.1			1.2			18.1			16.5		
LOS	**A**	A			A			C			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 1	PM PEAK												
	2031 BASELINE												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		2	413	27	242								
Queue (ft)													
Mvmt Delay (sec)		10.2	0.0	0.0	9.2	0.0	0.0	33.0		10.1			
Mvmt LOS		B	A	A	A	A	A	D		B			
Delay (sec)	**2.2**	0.0			1.9			15.0			41.4		
LOS	**A**	A			A			C			E		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 13: Baseline 2031 LOS – Intersection 2

INTERSECTION 2	AM PEAK												
	2031 BASELINE												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1136	10	0	227		2		0			
Queue (ft)													
Mvmt Delay (sec)					0.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.0	0.0			0.0			28.7					
LOS	A	A			A			D					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 2	PM PEAK												
	2031 BASELINE												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			443	18	1	1088		14		3			
Queue (ft)													
Mvmt Delay (sec)					8.3	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.2	0.0			0.0			15.9					
LOS	A	A			A			A					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 14: Baseline 2031 LOS – Intersection 3

INTERSECTION 3	AM PEAK												
	2031 BASELINE												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1118	0	14	224		0		8			
Queue (ft)													
Mvmt Delay (sec)					11.7	0.0							
Mvmt LOS					B	A							
Delay (sec)	0.2	0.0			0.7			13.6					
LOS	A	A			A			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 3	PM PEAK												
	2031 BASELINE												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			446	0	12	1100		0		22			
Queue (ft)													
Mvmt Delay (sec)					8.4	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.2	0.0			0.1			9.9					
LOS	A	A			A			A					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 15: Baseline 2031 LOS – Intersection 4

INTERSECTION 4	AM PEAK												
	2031 BASELINE												
CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1240	2	2	257		1		12			
Queue (ft)													
Mvmt Delay (sec)					12.4	0.0							
Mvmt LOS					B	A							
Delay (sec)	**0.3**	0.0			0.1			28.6					
LOS	**A**	A			A			D					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 4	PM PEAK												
	2031 BASELINE												
CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			472	4	14	1152		6		6			
Queue (ft)			0										
Mvmt Delay (sec)					8.5	0.2							
Mvmt LOS					A	A							
Delay (sec)	**0.3**	0.0			0.3			18.1					
LOS	**A**	A			A			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 16: Baseline 2031 LOS – Intersection 5

INTERSECTION 5	AM PEAK												
	2031 BASELINE												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1088	70	69	114					47	1	130
Queue (ft)			0										
Mvmt Delay (sec)					12.3	0.0							
Mvmt LOS					B	A							
Delay (sec)	2.8	0.0			4.6						63		
LOS	A	A			A						F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 5	PM PEAK												
	2031 BASELINE												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			375	51	88	328					146	0	747
Queue (ft)			0										
Mvmt Delay (sec)					8.4	0.0							
Mvmt LOS					A	A							
Delay (sec)	6.1	0.0			1.8						36.2		
LOS	A	A			A						E		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 17: Baseline 2031 LOS – Intersection 6

INTERSECTION 6	AM PEAK												
	2031 BASELINE												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		867	297			128	148	20	0	62			
Queue (ft)													
Mvmt Delay (sec)		17.2	0.0										
Mvmt LOS		C	A										
Delay (sec)	**	12.8			0.0			**					
LOS	F	B			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 6	PM PEAK												
	2031 BASELINE												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		294	234			345	72	64	2	49			
Queue (ft)													
Mvmt Delay (sec)		9.6	0.0										
Mvmt LOS		A	A										
Delay (sec)	8.9	5.3			0.0			57.5					
LOS	A	A			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

13-Year (2031) Phase 1 Condition

Table 18: Phase 1 LOS – Intersection 1

INTERSECTION 1	AM PEAK												
	2031 PHASE 1												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		6	1032	4	26	421	0	33	3	384	40	2	3
Queue (ft)													
Mvmt Delay (sec)		8.3	0.0	0.0	12.7	0.0	0.0	39.5		59			
Mvmt LOS		A	A	A	B	A	A	E		F			
Delay (sec)	12.3	0.0			2.6			57.3			**		
LOS	B	A			A			F			F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 1	PM PEAK												
	2031 PHASE 1												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		2	663	27	363	1251	44	20	1	171	33	0	0
Queue (ft)													
Mvmt Delay (sec)		12.1	0.0	0.0	12.3	0.0	0.0	**		12.9			
Mvmt LOS		B	A	A	B	A	A	F		B			
Delay (sec)	*	0.0			2.7			**			**		
LOS	F	A			A			F			F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 19: Phase 1 LOS – Intersection 2

INTERSECTION 2	AM PEAK												
	2031 PHASE 1												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1572	10	0	585		2		0			
Queue (ft)													
Mvmt Delay (sec)					0.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.1	0.0			0.0			54.5					
LOS	A	A			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 2	PM PEAK												
	2031 PHASE 1												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			819	18	1	1572		14		3			
Queue (ft)													
Mvmt Delay (sec)					9.7	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.2	0.0			0.0			25.1					
LOS	A	A			A			D					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 20: Phase 1 LOS – Intersection 3

INTERSECTION 3	AM PEAK												
	2031 PHASE 1												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1118	261	188	224		215	0	152	96	0	143
Queue (ft)													
Mvmt Delay (sec)					15.6	0.0							
Mvmt LOS					C	A							
Delay (sec)	*	0.9			5.5			**			**		
LOS	F	A			A			F			F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 3	PM PEAK												
	2031 PHASE 1												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			446	225	162	1100		291	0	216	128	0	193
Queue (ft)													
Mvmt Delay (sec)					9.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	*	2.5			1.1			**			**		
LOS	F	A			A			F			F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 21: Phase 1 LOS – Intersection 4

INTERSECTION 4	AM PEAK												
	2031 PHASE 1												
CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1480	2	2	548		1		12			
Queue (ft)			0										
Mvmt Delay (sec)					14.4	0.1							
Mvmt LOS					B	A							
Delay (sec)	0.3	0.0			0.2			42.3					
LOS	A	A			A			E					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 4	PM PEAK												
	2031 PHASE 1												
CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			794	4	14	1403		6		6			
Queue (ft)			0										
Mvmt Delay (sec)					9.7	0.6							
Mvmt LOS					A	A							
Delay (sec)	0.6	0.0			0.7			33.1					
LOS	A	A			A			D					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 22: Phase 1 LOS – Intersection 5

INTERSECTION 5	AM PEAK												
	2031 PHASE 1												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1238	160	69	296					47	1	239
Queue (ft)			0										
Mvmt Delay (sec)					13.7	0.0							
Mvmt LOS					B	A							
Delay (sec)	5.3	0.0			2.6						182		
LOS	A	A			A						F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 5	PM PEAK												
	2031 PHASE 1												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			576	172	88	485					146	0	841
Queue (ft)			0										
Mvmt Delay (sec)					9.1	0.0							
Mvmt LOS					A	A							
Delay (sec)	*	0.0			1.4						**		
LOS	F	A			A						F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 23: Phase 1 LOS – Intersection 6

INTERSECTION 6	AM PEAK												
	2031 PHASE 1												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		957	357			201	148	129	0	62			
Queue (ft)													
Mvmt Delay (sec)		30.3	0.0										
Mvmt LOS		D	A										
Delay (sec)	17.0	22.1			0.0			**					
LOS	C	C			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 6	PM PEAK												
	2031 PHASE 1												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		415	314			408	72	158	2	49			
Queue (ft)													
Mvmt Delay (sec)		11.0	0.0										
Mvmt LOS		B	A										
Delay (sec)	*	6.3			0.0			**					
LOS	F	A			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

20-Year (2038) Baseline Condition

Table 24: Baseline 2038 LOS – Intersection 1

INTERSECTION 1	AM PEAK												
	2038 BASELINE												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		9	860	8	30	213	0	38	3	319	6	4	6
Queue (ft)		17	5	0	41	0	0	46		117	25		
Mvmt Delay (sec)		7.7			10.3			25.4		24.8			
Mvmt LOS		A			B			D		C			
Delay (sec)	6.5	0.1			1.3			24.9			23.5		
LOS	A	A			A			C			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 1	PM PEAK												
	2038 BASELINE												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		4	478	31	281	1078	5	24	2	90	2	0	0
Queue (ft)		15	0	14	94	0	0	36		49	14		
Mvmt Delay (sec)		11.1			9.8			49.6		10.6			
Mvmt LOS		B			A			E		B			
Delay (sec)	2.6	0.1			2.0			19.3			59.7		
LOS	A	A			A			C			F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 25: Baseline 2038 LOS – Intersection 2

INTERSECTION 2	AM PEAK												
	2038 BASELINE												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1319	13	0	264		4		0			
Queue (ft)			0	0	0	0		15					
Mvmt Delay (sec)					0.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.1	0.0			0.0			37.6					
LOS	A	A			A			E					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 2	PM PEAK												
	2038 BASELINE												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			513	22	2	1261		18		3			
Queue (ft)			0	13	12	0		36					
Mvmt Delay (sec)					8.5	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.2	0.0			0.0			18.4					
LOS	A	A			A			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 26: Baseline 2038 LOS – Intersection 3

INTERSECTION 3	AM PEAK												
	2038 BASELINE												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1297	0	15	258		0		10			
Queue (ft)			566	0	33	0		28					
Mvmt Delay (sec)					13.1	0.0							
Mvmt LOS					B	A							
Delay (sec)	0.2	0.0			0.7			15.2					
LOS	A	A			A			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 3	PM PEAK												
	2038 BASELINE												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			517	0	15	1277		0		27			
Queue (ft)			0	0	23	0		33					
Mvmt Delay (sec)					8.6	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.2	0.0			0.1			10.2					
LOS	A	A			A			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 27: Baseline 2038 LOS – Intersection 4

INTERSECTION 4	AM PEAK												
	2038 BASELINE												
CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1439	4	4	298		2		14			
Queue (ft)			683		26			68					
Mvmt Delay (sec)					14.1	0.1							
Mvmt LOS					B	A							
Delay (sec)	**0.4**	0.0			0.3			40.9					
LOS	**A**	A			A			E					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 4	PM PEAK												
	2038 BASELINE												
CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			547	5	18	1336		6		9			
Queue (ft)			0		38			31					
Mvmt Delay (sec)					8.7	0.4							
Mvmt LOS					A	A							
Delay (sec)	**0.5**	0.0			0.5			20.7					
LOS	**A**	A			A			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 28: Baseline 2038 LOS – Intersection 5

INTERSECTION 5	AM PEAK												
	2038 BASELINE												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1263	81	81	132					55	2	152
Queue (ft)			373	7	142						254		113
Mvmt Delay (sec)					14.2								
Mvmt LOS					B								
Delay (sec)	6.4	0.0			5.4						160		
LOS	A	A			A						F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 5	PM PEAK												
	2038 BASELINE												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			435	60	102	381					170	0	868
Queue (ft)			0		100						614		1290
Mvmt Delay (sec)					8.6								
Mvmt LOS					A								
Delay (sec)	12.5	0.0			1.8						79.2		
LOS	B	A			A						F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 29: Baseline 2038 LOS – Intersection 6

INTERSECTION 6	AM PEAK												
	2038 BASELINE												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		1006	345			149	173	24	0	72			
Queue (ft)		862				21		643					
Mvmt Delay (sec)		33.4	0										
Mvmt LOS		D	A										
Delay (sec)	19.6	24.8			0.0			11.5					
LOS	C	C			A			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 6	PM PEAK												
	2038 BASELINE												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		341	271			400	85	74	4	58			
Queue (ft)		177				10		117					
Mvmt Delay (sec)		10.4											
Mvmt LOS		B											
Delay (sec)	26.0	5.8			0.0			209					
LOS	D	A			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

20-Year (2038) with Phase 1 Recommendations

Table 30: 2038 with Phase 1 Recommendations LOS – Intersection 1

INTERSECTION 1	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		9	1150	8	120	451	30	38	3	428	43	4	6
Queue (ft)		30	322	14	112	98	20	41		228	61		9
Mvmt Delay (sec)		15.2	31.4	15.7	23.3	15.4	13.4	69.3		36.1			
Mvmt LOS		B	C	B	C	B	B	E		D			
Delay (sec)	29.9	31.2			16.9			39.0			69.6		
LOS	C	C			B			D			E		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 1	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		4	728	31	402	1401	45	24	2	184	34	0	0
Queue (ft)		19	242	29	260	281	22	41		81	41		0
Mvmt Delay (sec)		20.8	26.2	19.9	24.0	20.9	10.9	20.8		25.4			
Mvmt LOS		C	C	B	C	C	B	C		C			
Delay (sec)	22.8	25.9			21.4			24.8			22.0		
LOS	C	C			C			C			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 31: 2038 with Phase 1 Recommendations LOS – Intersection 2

INTERSECTION 2	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1755	13	0	622		4		0			
Queue (ft)			0	0	0	0		10					
Mvmt Delay (sec)					0.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.1	0.0			0.0			74.8					
LOS	A	A			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 2	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			889	22	2	1745		18		3			
Queue (ft)			0	0	0	0		35					
Mvmt Delay (sec)					0.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.2	0.0			0.0			30.0					
LOS	A	A			A			D					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 32: 2038 with Phase 1 Recommendations LOS – Intersection 3

INTERSECTION 3	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		175	1297	261	189	258	117	215	0	154	96	0	143
Queue (ft)		222	494	195	422	316	53	18	45		56	99	
Mvmt Delay (sec)		12.6	40.5	18.6	50.0	15.9	16.0	35.8	0.0	34.4	25.6	0.0	34.2
Mvmt LOS		B	D	B	D	B	B	D	A	C	C	A	C
Delay (sec)	32.8	34.3			27.4			35.2			30.7		
LOS	C	C			C			D			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 3	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		151	517	225	165	1277	101	291	0	221	128	0	193
Queue (ft)		169	180	95	164	372	42	16	53		68	144	
Mvmt Delay (sec)		42.4	20	20	15.4	39.7	16.9	42.0	0.0	37.3	25.3	0.0	39.1
Mvmt LOS		D	B	C	B	D	B	D	A	D	C	A	D
Delay (sec)	32.8	23.7			35.6			40.0			33.6		
LOS	C	C			D			D			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Recommendations for Phase 1 improvements include closing Intersection 4. Table for Intersection 4 is omitted.

Table 33: 2038 with Phase 1 Recommendations LOS – Intersection 5

INTERSECTION 5	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1413	171	81	314					55	2	261
Queue (ft)			314	341	111	145					69		57
Mvmt Delay (sec)					20.3	0.1							
Mvmt LOS					C	A							
Delay (sec)	24	28.7			4.2						29.6		
LOS	C	C			A						C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 5	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			636	181	102	538					170	0	962
Queue (ft)			334		224	573					581		1196
Mvmt Delay (sec)					29.9	48.3							
Mvmt LOS					C	D							
Delay (sec)	65.5	92.8			45.3						10.3		
LOS	E	F			D						B		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 34: 2038 with Phase 1 Recommendations LOS – Intersection 6

INTERSECTION 6	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		1096	405			222	173	133	0	72			
Queue (ft)		312	167			200		132		44			
Mvmt Delay (sec)		27.9	23.8										
Mvmt LOS		C	C										
Delay (sec)	29.5	26.8			43.1			22.5					
LOS	C	C			D			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 6	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		462	351			463	85	168	4	58			
Queue (ft)		157	92			264		138		46			
Mvmt Delay (sec)		24.4	30.1										
Mvmt LOS		C	C										
Delay (sec)	27.9	26.9			35.3			13.6					
LOS	C	C			D			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

20-Year (2038) Phase 2 Condition

Table 35: Phase 2 LOS – Intersection 1

INTERSECTION 1	AM PEAK												
	2038 PHASE 2												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		9	1337	8	137	499	36	38	3	498	66	4	6
Queue (ft)		20	332	17	106	112	27	389		342	77		10
Mvmt Delay (sec)		11.5	31	12	27.3	12	10.1	57.3		108.6			
Mvmt LOS		B	C	B	C	B	B	E		F			
Delay (sec)	43.5	30.5			14.8			104.7			95.1		
LOS	D	C			B			F			F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 1	PM PEAK												
	2038 PHASE 2												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		4	830	31	501	1666	78	24	2	222	46	0	0
Queue (ft)		10	219	29	272	237	27	47		124	61		0
Mvmt Delay (sec)		20.8	29.5	19.5	39.3	23.4	8.5	21.7		29.9			
Mvmt LOS		C	C	B	D	C	A	C		C			
Delay (sec)	27.3	29.1			26.4			29.1			23.5		
LOS	C	C			C			C			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 36: Phase 2 LOS – Intersection 2

INTERSECTION 2	AM PEAK												
	2038 PHASE 2												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		36	1999	13	0	638	58	4	0	0	14	0	55
Queue (ft)		69	0	0	0	369	0	20			732		
Mvmt Delay (sec)		9.3	0.0	0.0	0.0	0.0	0.0						
Mvmt LOS		A	A	A	A	A	A						
Delay (sec)	0.8	0.2			0.0			135.1			18.0		
LOS	A	A			A			F			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 2	PM PEAK												
	2038 PHASE 2												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		132	909	22	2	1769	241	18	0	3	147	0	373
Queue (ft)		161	0	0	0	0	26	62			650		
Mvmt Delay (sec)		25.3	0.0	0.0	10.1	0.0	0.0						
Mvmt LOS		D	A	A	B	A	A						
Delay (sec)	*	3.1			0.0			**			**		
LOS	F	A			A			F			F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 37: Phase 2 LOS – Intersection 3

INTERSECTION 3	AM PEAK												
	2038 PHASE 2												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		429	1311	251	183	282	285	151	0	111	171	0	257
Queue (ft)		209	396	85	398	339	83	18	45		56	106	
Mvmt Delay (sec)		17.1	39	17.9	47.8	23	29.2	40.2	0	32.2	29.7	0	54.1
Mvmt LOS		B	D	B	D	C	C	D	A	C	C	A	D
Delay (sec)	33.5	31.4			31.5			36.8			44.4		
LOS	C	C			C			D			D		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 3	PM PEAK												
	2038 PHASE 2												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		184	664	212	156	1365	123	352	0	262	205	0	309
Queue (ft)		216	308	71	397	539	392	17	40		61	143	
Mvmt Delay (sec)		91.3	29.9	27.9	25.0	63.3	28.7	93.3	0	66.2	50.1	0	199.6
Mvmt LOS		F	C	C	C	E	C	F	A	E	D	A	F
Delay (sec)	67.5	40.2			57.1			81.7			140.0		
LOS	E	D			E			F			F		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Recommendations for Phase 1 improvements include closing Intersection 4. Table for Intersection 4 is omitted.

Table 38: Phase 2 LOS – Intersection 5

INTERSECTION 5	AM PEAK												
	2038 PHASE 2												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1442	188	81	430					55	2	331
Queue (ft)			319	336	92	172					75		123
Mvmt Delay (sec)					20.8	0.1							
Mvmt LOS					C	A							
Delay (sec)	23.8	29.9			3.4						29.5		
LOS	C	C			A						C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 5	PM PEAK												
	2038 PHASE 2												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			802	280	102	601					170	0	1000
Queue (ft)			316	310	253	796					585		1267
Mvmt Delay (sec)					124.7	34.5							
Mvmt LOS					F	C							
Delay (sec)	86.4	123			47.6						16.2		
LOS	F	F			D						B		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 39: Phase 2 LOS – Intersection 6

INTERSECTION 6	AM PEAK												
	2038 PHASE 2												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		1113	417			268	173	203	0	72			
Queue (ft)		244	310			191	231	178		89			
Mvmt Delay (sec)		28.6	23.2										
Mvmt LOS		C	C										
Delay (sec)	30.6	27.1			45.8			25.5					
LOS	C	C			D			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 6	PM PEAK												
	2038 PHASE 2												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		561	418			488	85	206	4	58			
Queue (ft)		288	281			260	275	209		87			
Mvmt Delay (sec)		15.9	6.1										
Mvmt LOS		B	A										
Delay (sec)	19.0	11.7			33.1			15.4					
LOS	B	B			C			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Level of Service and Delay Comparison

The following tables provide a side-by-side comparison in the change in delay and level of service for the studied intersections' approaches.

In the existing condition, Intersections 1-6 operate at an overall LOS A-B. Background traffic is expected to increase into the future, causing LOS F conditions at Intersections 5 and 6. Introducing the proposed development's trips, multiple turn movements on the minor approaches are expected to operate at LOS F, causing the overall level of service at the intersections to decrease. While the proposed development traffic causes delays and queue lengths to increase, the increases are gradual (over 20 years), and improvements are not immediately needed.

Table 40: LOS and Delay Comparison – Intersection 1

	INTERSECTION 1	AM PEAK												
	CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	3.6	0.1			1.1			13.6			13.1		
	LOS	A	A			A			B			B		
2031 Baseline	Delay (sec)	4.8	0.1			1.2			18.1			16.5		
	LOS	A	A			A			C			C		
2031 Phase 1	Delay (sec)	12.3	0.0			2.6			57.3			**		
	LOS	B	A			A			F			F		
2038 Baseline	Delay (sec)	6.5	0.1			1.3			24.9			23.5		
	LOS	A	A			A			C			C		
2038 Phase 2	Delay (sec)	43.5	30.5			14.8			104.7			95.1		
	LOS	D	C			B			F			F		

	INTERSECTION 1	PM PEAK												
	CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	2.0	0.1			1.8			12.4			27.1		
	LOS	A	A			A			B			D		
2031 Baseline	Delay (sec)	2.2	0.0			1.9			15.0			41.4		
	LOS	A	A			A			C			E		
2031 Phase 1	Delay (sec)	*	0.0			2.7			**			**		
	LOS	F	A			A			F			F		
2038 Baseline	Delay (sec)	2.6	0.1			2.0			19.3			59.7		
	LOS	A	A			A			C			F		
2038 Phase 2	Delay (sec)	27.3	29.1			26.4			29.1			23.5		
	LOS	C	C			C			C			C		

Table 41: LOS and Delay Comparison – Intersection 2

	INTERSECTION 2	AM PEAK												
	CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	0.0	0.0			0.0			20.9					
	LOS	A	A			A			C					
2031 Baseline	Delay (sec)	0.0	0.0			0.0			28.7					
	LOS	A	A			A			D					
2031 Phase 1	Delay (sec)	0.1	0.0			0.0			54.5					
	LOS	A	A			A			F					
2038 Baseline	Delay (sec)	0.1	0.0			0.0			37.6					
	LOS	A	A			A			E					
2038 Phase 2	Delay (sec)	0.8	0.2			0.0			135.1			18.0		
	LOS	A	A			A			F			C		

	INTERSECTION 2	PM PEAK												
	CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	0.2	0.0			0.0			13.8					
	LOS	A	A			A			B					
2031 Baseline	Delay (sec)	0.2	0.0			0.0			15.9					
	LOS	A	A			A			A					
2031 Phase 1	Delay (sec)	0.2	0.0			0.0			25.1					
	LOS	A	A			A			D					
2038 Baseline	Delay (sec)	0.2	0.0			0.0			18.4					
	LOS	A	A			A			C					
2038 Phase 2	Delay (sec)	*	3.1			0.0			**			**		
	LOS	F	A			A			F			F		

Table 42: LOS and Delay Comparison – Intersection 3

	CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	0.2		0.0			0.6			12.0				
	LOS	A		A			A			B				
2031 Baseline	Delay (sec)	0.2		0.0			0.7			13.6				
	LOS	A		A			A			B				
2031 Phase 1	Delay (sec)	*		0.9			5.5			**				
	LOS	F		A			A			F				
2038 Baseline	Delay (sec)	0.2		0.0			0.7			15.2				
	LOS	A		A			A			C				
2038 Phase 2	Delay (sec)	33.5		31.4			31.5			36.8			44.4	
	LOS	C		C			C			D			D	

	INTERSECTION 3	PM PEAK												
	CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	0.2		0.0			0.1			9.5				
	LOS	A		A			A			A				
2031 Baseline	Delay (sec)	0.2		0.0			0.1			9.9				
	LOS	A		A			A			A				
2031 Phase 1	Delay (sec)	*		2.5			1.1			**				
	LOS	F		A			A			F				
2038 Baseline	Delay (sec)	0.2		0.0			0.1			10.2				
	LOS	A		A			A			B				
2038 Phase 2	Delay (sec)	67.5		40.2			57.1			81.7			140.0	
	LOS	E		D			E			F			F	

Table 43: LOS and Delay Comparison – Intersection 4

	INTERSECTION 4	AM PEAK												
	CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	0.2		0.0			0.1			19.8				
	LOS	A		A			A			C				
2031 Baseline	Delay (sec)	0.3		0.0			0.1			28.6				
	LOS	A		A			A			D				
2031 Phase 1	Delay (sec)	0.0		0.0			0.2			42.3				
	LOS	A		A			A			E				
2038 Baseline	Delay (sec)	0.4		0.0			0.3			40.9				
	LOS	A		A			A			E				
2038 Phase 2	Delay (sec)													
	LOS													

	INTERSECTION 4	PM PEAK												
	CSAH 2 & Irving Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	0.2		0.0			0.2			13.8				
	LOS	A		A			A			B				
2031 Baseline	Delay (sec)	0.3		0.0			0.3			18.1				
	LOS	A		A			A			C				
2031 Phase 1	Delay (sec)	0.6		0.0			0.7			33.1				
	LOS	A		A			A			D				
2038 Baseline	Delay (sec)	0.5		0.0			0.5			20.7				
	LOS	A		A			A			C				
2038 Phase 2	Delay (sec)													
	LOS													

Table 44: LOS and Delay Comparison – Intersection 5

	INTERSECTION 5	AM PEAK												
	CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	1.5	0.0			3.9						28.3		
	LOS	A	A			A						D		
2031 Baseline	Delay (sec)	0.0	0.0			4.6						0.0		
	LOS	A	A			A						F		
2031 Phase 1	Delay (sec)	0.0	0.0			2.6						181.6		
	LOS	A	A			A						F		
2038 Baseline	Delay (sec)	6.4	0.0			5.4						159.9		
	LOS	A	A			A						F		
2038 Phase 2	Delay (sec)	23.8	29.9			3.4						29.5		
	LOS	C	C			A						C		

	INTERSECTION 5	PM PEAK												
	CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	3.7	0.0			1.7						19.8		
	LOS	A	A			A						C		
2031 Baseline	Delay (sec)	0.0	0.0			1.8						36.2		
	LOS	A	A			A						E		
2031 Phase 1	Delay (sec)	0.0	0.0			1.4						**		
	LOS	A	A			A						F		
2038 Baseline	Delay (sec)	12.5	0.0			1.8						79.2		
	LOS	B	A			A						F		
2038 Phase 2	Delay (sec)	86.4	122.7			47.6						16.2		
	LOS	F	F			D						B		

Table 45: LOS and Delay Comparison – Intersection 6

	INTERSECTION 6	AM PEAK												
	CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	12.9	8.3			0.0			122.0					
	LOS	B	A			A			F					
2031 Baseline	Delay (sec)	12.8	12.8			0.0			**					
	LOS	B	B			A			F					
2031 Phase 1	Delay (sec)	22.1	22.1			0.0			**					
	LOS	C	C			A			F					
2038 Baseline	Delay (sec)	19.6	24.8			0.0			11.5					
	LOS	C	C			A			B					
2038 Phase 2	Delay (sec)	30.6	27.1			45.8			25.5					
	LOS	C	C			D			C					

	INTERSECTION 6	PM PEAK												
	CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
			L	T	R	L	T	R	L	T	R	L	T	R
Existing	Delay (sec)	4.9	4.9			0.0			22.2					
	LOS	A	A			A			C					
2031 Baseline	Delay (sec)	8.9	5.3			0.0			57.5					
	LOS	A	A			A			F					
2031 Phase 1	Delay (sec)	*	6.3			0.0			**					
	LOS	F	A			A			F					
2038 Baseline	Delay (sec)	26.0	5.8			0.0			209.3					
	LOS	D	A			A			F					
2038 Phase 2	Delay (sec)	19.0	11.7			33.1			15.4					
	LOS	B	B			C			B					

Crash Analysis

Crash data for the study area was gathered using the Minnesota Crash Mapping Tool (MnCMAT). A diagram of crashes reported between 2011 and 2015 is provided as **Exhibit 9**. 26 crashes occurred between 2006 and 2015. **Table 46** and **Table 47** summarizes these crashes. There are no apparent patterns in the crash data warranting safety improvements to the existing roadway.

Exhibit 9: Crash Locations

Table 46: Recorded Crashes and Severity Summary

Crash Severity	Number of Crashes
K – Fatal Injury	1
A – Incapacitating Injury	0
B – Non-Incapacitating Injury	7
C – Possible Injury	17
Property Damage	28

Table 47: KAB Crash Details

Severity Type	Date	Time	Junction	Road Condition	Weather	Diagram	Notes
B	8/26/2006	11:20 PM	Xerxes Ave	Dry	Clear (Dark)	Sideswipe Passing	Wrong Way
B	8/9/2010	1:15 PM	Xerxes Ave	Dry	Clear	Head On	Failed to Yield to ROW, Distraction
K	1/17/11	7:49 AM	Xerxes Ave	Ice/Packed Snow	Cloudy	Right Angle	Fatal; Failed to Yield to ROW, Avoid Unit/Object in Road
B	3/3/11	7:29 PM	I-35	Dry	Clear	Right Angle	Failed to Yield to ROW; Vision Obscured
B	11/13/11	8:54 AM	Xerxes Ave	Wet	Rain	Sideswipe Passing	Both driving East
B	4/18/12	3:57 PM	Non-Junction	Dry	Clear	Other; 1 Vehicle	Motorcycle; Under the Influence
B	6/10/13	4:39 PM	I-35	Dry	Clear	Right Angle	Failed to Yield to ROW
B	12/5/14	3:39 PM	I-35	Dry	Cloudy	Rear End	Both driving South

Improvements to Accommodate Development Traffic

Based on the modeled Phase 1 (2031) conditions described in this report, to accommodate both major and minor street traffic, improvements are recommended at Intersections 1-6. At the studied intersections the following are minimum recommendations:

- At Intersection 1,
    - Signalize intersection with permitted-protected EB and WB left turns and permitted NB and SB left turns;
    - Pave SB leg to accommodate a left-thru shared lane and a right turn lane; and
- At Intersection 2,
    - None.
- At Intersection 3,
    - Signalize intersection with permitted-protected EB and WB left turns; and
    - Include NB and 150' SB left turn lanes (permitted-protected phasing) in the proposed development's intersection reconfiguration plans.
- At Intersection 4,
    - Close access and route traffic to new access road to the west; and
    - Restripe CSAH 2 for two travel lanes in both EB and WB directions.
- At Intersection 5,
    - Signalize intersection with split phasing;
    - Add a 200' WB left turn lane;
    - Maintain one dedicated EB thru lane and one shared EB thru/right lane.
- At the I-35 overpass, widen the bridge to accommodate four travel lanes.
- At Intersection 6,
    - Signalize intersection with split phasing;
    - Add two dedicated 300' EB left turn lanes;
    - Add one dedicated 200' WB right turn lane;
    - Add a 150' NB right turn lane.

As the project moves into Phase 2, additional improvements are needed to accommodate both major and minor street traffic. At the studied intersections the following are minimum recommendations:

- At Intersection 1,
    - Ensure that traffic signal timing is current and update if necessary; and
    - Lengthen existing 200' NB right turn lane to 300'.
- At Intersection 2,
    - Signalize intersection with permitted-protected EB and WB left turns and permitted NB and SB left turns;
    - Add a 150' NB left turn lane; and
    - Add a 150' SB right turn lane.
- At Intersection 3,

    - Ensure that traffic signal timing is current and update if necessary; and
    - Add a second NB left turn lane.
- At Intersection 4,
    - Closed per Phase 1 recommendations.
- At Intersection 5,
    - Ensure that traffic signal timing is current and update if necessary; and
    - Add a second 250' SB right turn lane;
    - Add a 300' EB right turn lane in order to maintain two EB thru lanes onto the I-35 overpass.
- At Intersection 6,
    - Ensure that traffic signal timing is current and update if necessary.

All turn lane tapers should be designed to appropriate lengths. Additionally, the above signal timing recommendations and described turn lane layouts are suggestions among many acceptable options. As the area develops, further study will be needed into order to appropriately design traffic signal timings for the area's unique traffic patterns. Although the intersections seem to be planned for traffic signals, roundabouts were considered at Intersections 1-6. Into the future, turning movement volumes are expected to be low compared to CSAH 2's thru movements. Additionally, the intersections are closely spaced. Due to the high thru movement volumes and the close proximity of the intersections, roundabouts were not studied further.

Interim Improvements

Because businesses are expected to move into the development gradually, improvements to the subject intersection are not needed when the development is available for construction operations in 2019. Assuming linear development growth, Phase 1 development will be complete by 2031. If development occurs according to conceptual plans, the recommended improvements to accommodate Phase 1 traffic as described in this report should be implemented prior to 2031. As businesses move into to the development, traffic impact studies should be conducted as needed in order to track interim improvement needs. Additionally, the study area should be re-evaluated if growth projections change.

Driveway Locations

Thoughtful placement of driveways is needed moving forward, and proposed business driveways should be placed in locations as to avoid impacts to future intersection turn lanes and tapers. No driveways should be allowed on CSAH 2. Two-way left turn lanes could also be considered to prevent future congestion along the development's access roadway links.

I-35 Interchange Improvements

Improvements will be needed to Intersection 5, Intersection 6, and the I-35 overpass regardless of proposed development construction. Interim and long term options for I-35 interchange improvements have been detailed in the "CH 2 / I-35 Interchange Area Management Plan" (IAMP) developed in 2010. If Scott County moves forward with the diverging diamond interchange plan, the recommended traffic signals and Intersections 1-4 should be actuated-coordinated, designed to complement the interchange signals. In the meantime, a LOS F condition was observed during traffic data collection for this report.

Modeling the Improvements

Modeling shows that the above recommendations improve the level of service at Intersections 1-6. **Tables 48-52** summarize the studied intersections' Phase 1 (2031) conditions with the recommended improvements. **Tables 53-57** summarize the studied intersections' Phase 2 (2038) conditions with the recommended improvements. Note that this report recommends closing Intersection 4 as a part of Phase 1. Therefore, the Intersection 4 table is purposely

omitted. The Synchro analysis worksheets are provided in **Appendix O: Synchro Reports – Phase 1 (2031) Recommendations** and **Appendix S: Synchro Reports – Phase 2 (2038) Recommendations**.

This study anticipates other area development to match the recent rate of traffic growth, and these recommendations apply to the traffic conditions used in this study. However, re-analyzing the studied intersections is recommended during the design of major nearby developments, highway improvement projects, or interchange improvement projects.

Table 48: Phase 1 Recommendations – Intersection 1

INTERSECTION 1	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		9	1150	8	120	451	30	38	3	428	43	4	6
Queue (ft)		30	322	14	112	98	20	41		228	61		9
Mvmt Delay (sec)		15.2	31.4	15.7	23.3	15.4	13.4	69.3		36.1			
Mvmt LOS		B	C	B	C	B	B	E		D			
Delay (sec)	29.9	31.2			16.9			39.0			69.6		
LOS	C	C			B			D			E		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 1	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		4	728	31	402	1401	45	24	2	184	34	0	0
Queue (ft)		19	242	29	260	281	22	41		81	41		0
Mvmt Delay (sec)		20.8	26.2	19.9	24.0	20.9	10.9	20.8		25.4			
Mvmt LOS		C	C	B	C	C	B	C		C			
Delay (sec)	22.8	25.9			21.4			24.8			22.0		
LOS	C	C			C			C			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 49: Phase 1 Recommendations – Intersection 2

INTERSECTION 2	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1755	13	0	622		4		0			
Queue (ft)			0	0	0	0		10					
Mvmt Delay (sec)					0.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.1	0.0			0.0			74.8					
LOS	A	A			A			F					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 2	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			889	22	2	1745		18		3			
Queue (ft)			0	0	0	0		35					
Mvmt Delay (sec)					0.0	0.0							
Mvmt LOS					A	A							
Delay (sec)	0.2	0.0			0.0			30.0					
LOS	A	A			A			D					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 50: Phase 1 Recommendations – Intersection 3

INTERSECTION 3	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		175	1297	261	189	258	117	215	0	154	96	0	143
Queue (ft)		222	494	195	422	316	53	18	45		56	99	
Mvmt Delay (sec)		12.6	40.5	18.6	50.0	15.9	16.0	35.8	0.0	34.4	25.6	0.0	34.2
Mvmt LOS		B	D	B	D	B	B	D	A	C	C	A	C
Delay (sec)	32.8	34.3			27.4			35.2			30.7		
LOS	C	C			C			D			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 3	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		151	517	225	165	1277	101	291	0	221	128	0	193
Queue (ft)		169	180	95	164	372	42	16	53		68	144	
Mvmt Delay (sec)		42.4	20	20	15.4	39.7	16.9	42.0	0.0	37.3	25.3	0.0	39.1
Mvmt LOS		D	B	C	B	D	B	D	A	D	C	A	D
Delay (sec)	32.8	23.7			35.6			40.0			33.6		
LOS	C	C			D			D			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 51: Phase 1 Recommendations – Intersection 5

INTERSECTION 5	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1413	171	81	314					55	2	261
Queue (ft)			314	341	111	145					69		57
Mvmt Delay (sec)					20.3	0.1							
Mvmt LOS					C	A							
Delay (sec)	24	28.7			4.2						29.6		
LOS	C	C			A						C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 5	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			636	181	102	538					170	0	962
Queue (ft)			334		224	573					581		1196
Mvmt Delay (sec)					29.9	48.3							
Mvmt LOS					C	D							
Delay (sec)	65.5	92.8			45.3						10.3		
LOS	E	F			D						B		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 52: Phase 1 Recommendations – Intersection 6

INTERSECTION 6	AM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		1096	405			222	173	133	0	72			
Queue (ft)		312	167			200		132		44			
Mvmt Delay (sec)		27.9	23.8										
Mvmt LOS		C	C										
Delay (sec)	**29.5**	26.8			43.1			22.5					
LOS	**C**	C			D			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 6	PM PEAK												
	2038 WITH PHASE 1 IMPROVEMENTS												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		462	351			463	85	168	4	58			
Queue (ft)		157	92			264		138		46			
Mvmt Delay (sec)		24.4	30.1										
Mvmt LOS		C	C										
Delay (sec)	**27.9**	26.9			35.3			13.6					
LOS	**C**	C			D			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 53: Phase 2 Recommendations – Intersection 1

INTERSECTION 1	AM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		9	1337	8	138	500	36	38	3	498	66	4	6
Queue (ft)		26	421	18	148	130	34	191		310	80		15
Mvmt Delay (sec)		13.6	39	14.2	33.2	0	0.3	20.4		75.5			
Mvmt LOS		B	D	B	C	A	A	C		F			
Delay (sec)	**37.1**	39.1			7.1			71.3			23.6		
LOS	**D**	D			A			E			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 1	PM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & Xerxes Ave	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		4	830	31	501	1666	78	24	2	222	46	0	0
Queue (ft)		18	292	41	299	160	27	41		120	78		0
Mvmt Delay (sec)		22.4	34	22.1	27.5	13	5.4	23.5		31.1			
Mvmt LOS		C	C	C	C	B	A	C		C			
Delay (sec)	**21.6**	33.4			16.0			30.3			25.4		
LOS	**C**	C			B			C			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 54: Phase 2 Recommendations – Intersection 2

INTERSECTION 2	AM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		179	1856	13	0	587	120	4	0	0	72	0	108
Queue (ft)		173	337	6	0	111	45	13	0		71		52
Mvmt Delay (sec)					17	0							
Mvmt LOS					C	A							
Delay (sec)	**22.3**	30.0			0.1			23.7			21.9		
LOS	**C**	C			A			C			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 2	PM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & Newton Circle W	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		132	909	22	2	1922	88	18	0	3	147	0	220
Queue (ft)		546	1569	2	9	243	35	34	9		135		164
Mvmt Delay (sec)		22.0	6.3	4.6	0.9	0.6	0	36.5	27.7				
Mvmt LOS		C	A	A	A	A	A	D	C				
Delay (sec)	**7.2**	8.2			0.5			35.5			39.5		
LOS	**A**	A			A			D			D		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 55: Phase 2 Recommendations – Intersection 3

INTERSECTION 3	AM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		251	1369	286	205	378	168	172	0	125	101	0	151
Queue (ft)		452	565	398	276	142	58	48	43		55	110	
Mvmt Delay (sec)		10.7	17	3.5	49.3	17	17.5	26.6		34.9	26.9	0	37.2
Mvmt LOS		B	B	A	D	B	B	C		C	C	A	D
Delay (sec)	20	14.3			26.2			30.1			33.1		
LOS	C	B			C			C			C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 3	PM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & Newton Circle E	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		184	664	212	156	1365	123	352	0	262	205	0	309
Queue (ft)		182	191	67	284	429	164	50	54		56	157	
Mvmt Delay (sec)		45.3	3.7	3.6	12.8	42.6	16.1	51.8		55.2	56.3	0	84.5
Mvmt LOS		D	A	A	B	D	B	D		E	E	A	F
Delay (sec)	37.6	10.9			37.8			53.3			73.3		
LOS	D	B			D			D			E		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 56: Phase 2 Recommendations – Intersection 5

INTERSECTION 5	AM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			1443	189	81	431					55	2	331
Queue (ft)			346	100	125	179					79		131
Mvmt Delay (sec)					19.2	0							
Mvmt LOS					B	A							
Delay (sec)	17.8	22.1			3.1						27.8		
LOS	B	C			A						C		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 5	PM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & SB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)			802	280	102	601					170	0	1000
Queue (ft)			270	68	129	283					127		259
Mvmt Delay (sec)					22.2	38							
Mvmt LOS					C	D							
Delay (sec)	30.3	28.9			35.5						17.2		
LOS	C	C			D						B		

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Table 57: Phase 2 Recommendations – Intersection 6

INTERSECTION 6	AM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		1114	417			269	173	203	0	72			
Queue (ft)		292	112			184	229	178		89			
Mvmt Delay (sec)		29.6	23.3										
Mvmt LOS		C	C										
Delay (sec)	31.2	27.9			46.4			25.3					
LOS	C	C			D			C					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

INTERSECTION 6	PM PEAK												
	2038 PHASE 2 WITH IMPROVEMENTS												
CSAH 2 & NB I-35 Ramp	Overall	Eastbound			Westbound			Northbound			Southbound		
		L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh)		561	418			488	85	206	4	58			
Queue (ft)		179	153			399	416	175		78			
Mvmt Delay (sec)		24.8	30.3										
Mvmt LOS		C	C										
Delay (sec)	28.4	27.1			36.3			15.8					
LOS	C	C			D			B					

Source: Data collected by ISG January 2018. Data was analyzed using the 2010 Highway Capacity Manual and SimTraffic.

Conclusions

Summary of Roadway Link Analysis

The analysis shows that the existing roadway link network is sufficient for the existing traffic. In the design year between Intersections 1 and 4, the existing roadway link network is sufficient for the grown background traffic and the new traffic anticipated to be generated from the proposed development. Between Intersections 4 and 6, the existing roadway link network is not sufficient for both the grown background traffic and the new traffic anticipated to be generated from the proposed development. Between intersections 4 and 5, the roadway should be restriped and the I-35 overpass between intersections 5 and 6 should be widened to accommodate the increase in AADT. As area traffic grows and redistributes, the studied area should be reviewed periodically for alternate routes to achieve the City's goals for development as outlined in applicable comprehensive plans.

Summary of Intersection Analysis

Intersections 1-6 are expected to operate with an overall acceptable LOS (LOS A-D) and delay at opening and into the future based on current growth projections. However, several failing left turn movements create overall poor levels of service at studied intersections. Closing Intersection 4, changing the intersection control to traffic signal at the other studied intersections, and implementing the other recommended improvements would improve conditions at all intersections. The performance of the interchange ramp intersections will be dependent on interchange improvements that may occur between 2018 and 2038. While traffic signals would manage traffic appropriately in the interim, options discussed in other interchange management plans may serve as better long term solutions.

Summary of Needed Improvements

Based on the modeled Phase 1 (2031) and Phase 2 (2038) conditions described in this report, to accommodate both major and minor street traffic, improvements are recommended at Intersections 1-6 and some road links. The following are minimum recommendations:

- Implement roundabouts or traffic signal control at Intersections 1-3, 5, and 6.
- Two travel lanes should be maintained both eastbound and westbound through the studied area.
- Close access to Intersection 4 and route to new access road to the west.
- At the I-35 overpass, widen the bridge to accommodate four travel lanes.
- Proposed business driveways should be placed in locations as to avoid impacts to future intersection turn lanes.

Improvements will be needed to Intersection 5, Intersection 6 and the I-35 overpass in the future regardless of proposed development construction. Interim and long term options for I-35 interchange improvements have been detailed in a separate report. Because businesses are expected to move into the development gradually over the next 20 years, the development is broken into Phases 1 and 2. Based on current concepts, Phase 1 development is expected to last through 2031. Recommended improvements to the studied intersections should be applied by this time. Additional improvements to the studied intersection will be needed for Phase 2 development; however, as businesses move into to the development, traffic impact studies should be conducted as needed in order to track interim improvement needs. Additionally, the study area should be re-evaluated if growth projections change.

Appendices

Appendix A: Proposed Development Overview

OVERALL SITE PLAN

0 300 600 900
SCALE IN FEET

N

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ADELMANN PROPERTY

Elko New Market, MN
April 5, 2018
ISG Project No. 17-20548

ISG

CAD FILE NAME 20548 CONCEPT 1 PHASE 2

NORTHERN SITE PLAN

0 200 400 600
SCALE IN FEET

N

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ADELMANN PROPERTY

Elko New Market, MN
April 5, 2018
ISG Project No. 17-20548

ISG

CAD FILE NAME 20548 CONCEPT 1 PHASE 2

SOUTHERN SITE PLAN

0 100 200 400
SCALE IN FEET

N

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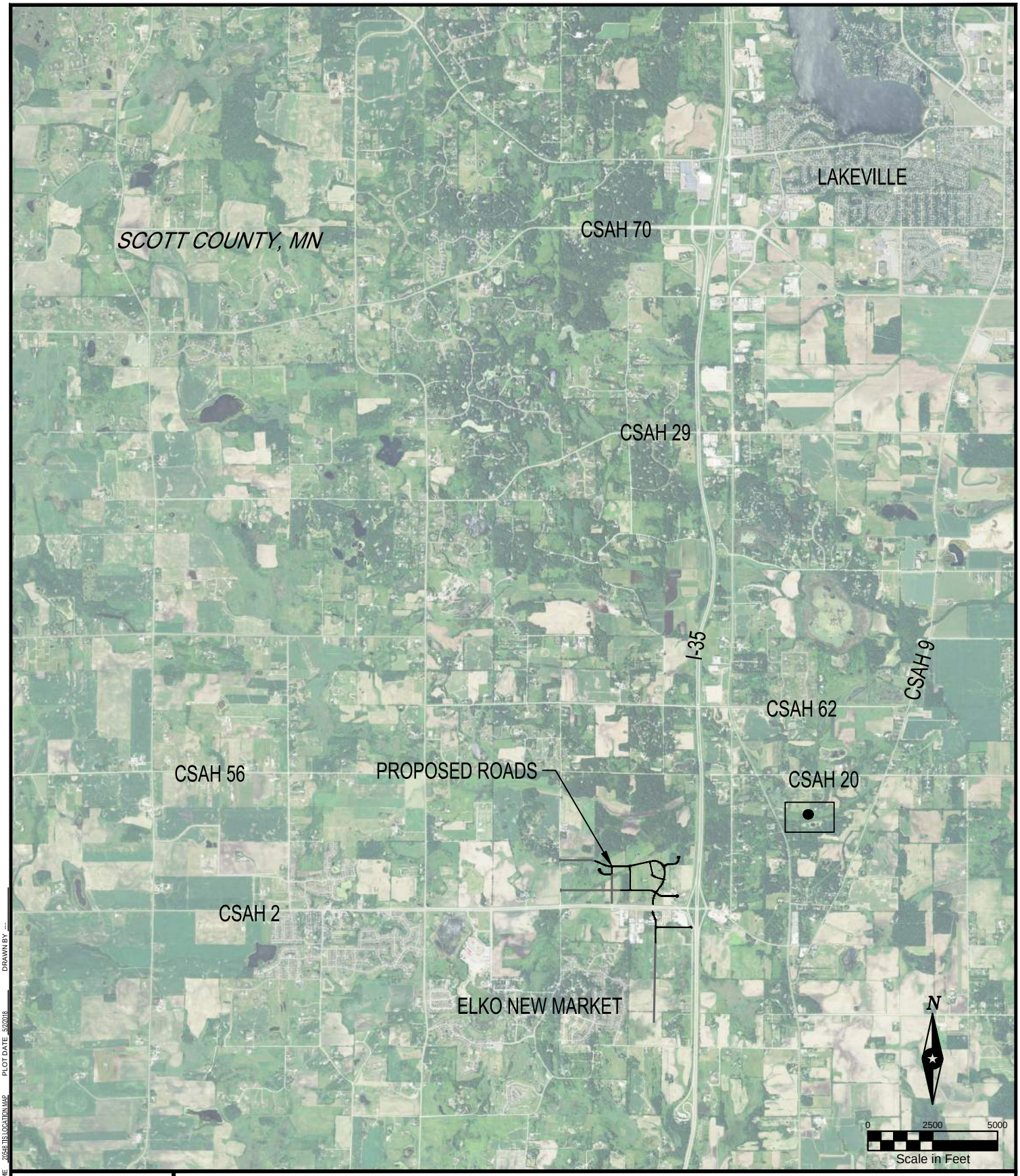
ADELMANN PROPERTY

Elko New Market, MN
April 5, 2018
ISG Project No. 17-20548

ISG

CAD FILE NAME 20548 CONCEPT 1 PHASE 2

Appendix B: Location Map



LOCATION MAP

ISG

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PROJECT

APPRO

ADELMANN DEVELOPMENT

ELKO NEW MARKET MINNESOTA

SHEET B

PROJECT NO. 20456 CAD FILE NAME 20548 TIS LOCATION MAP PLOT DATE 5/2/2018 DRAWN BY ---

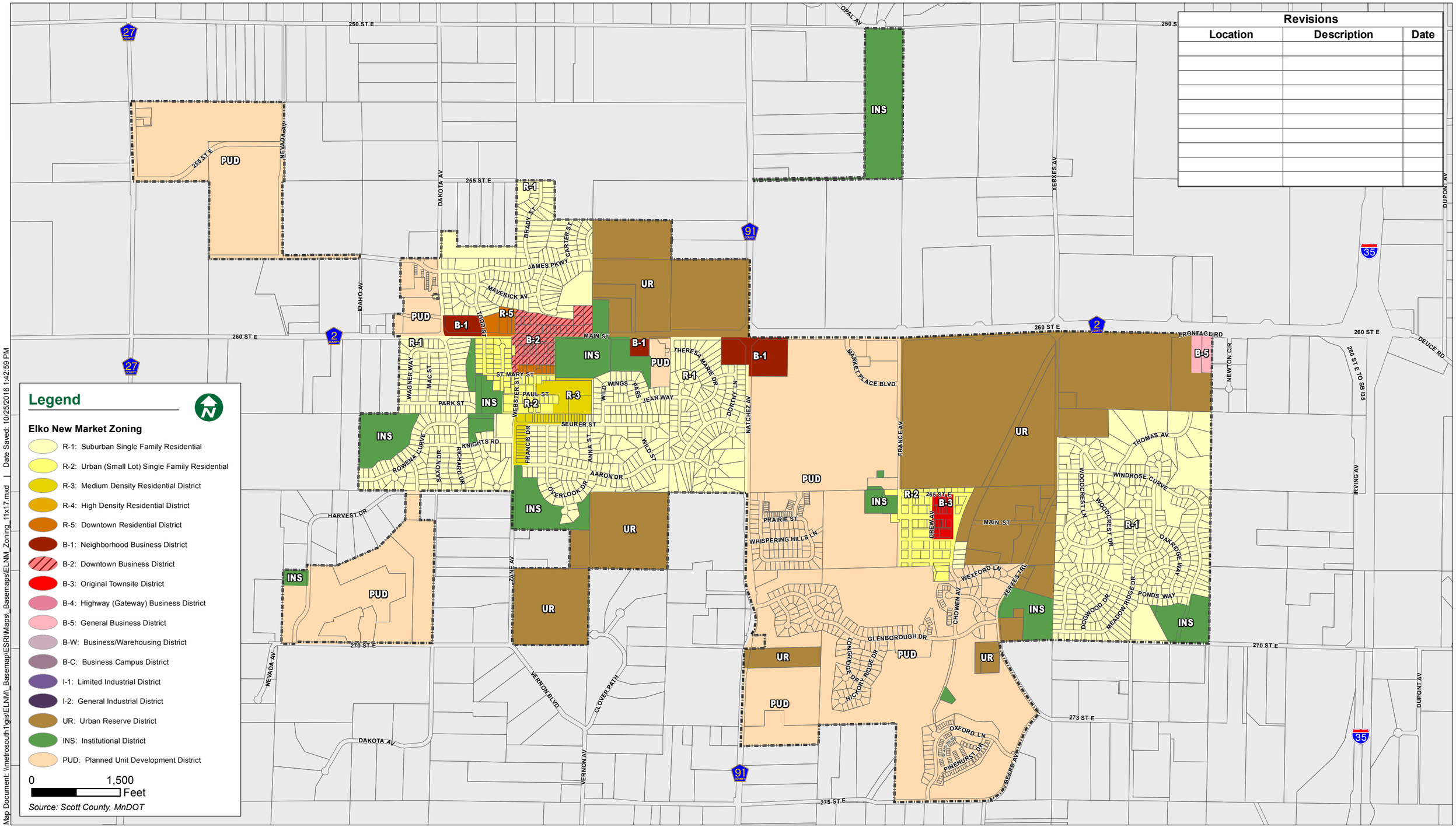
Appendix C: Existing Land Use Map

CITY OF ELKO NEW MARKET

Zoning Map

October 2016

BOLTON & MENK
Real People. Real Solutions.



Revisions		
Location	Description	Date

Legend

Elko New Market Zoning

- R-1: Suburban Single Family Residential
- R-2: Urban (Small Lot) Single Family Residential
- R-3: Medium Density Residential District
- R-4: High Density Residential District
- R-5: Downtown Residential District
- B-1: Neighborhood Business District
- B-2: Downtown Business District
- B-3: Original Townsite District
- B-4: Highway (Gateway) Business District
- B-5: General Business District
- B-W: Business/Warehousing District
- B-C: Business Campus District
- I-1: Limited Industrial District
- I-2: General Industrial District
- UR: Urban Reserve District
- INS: Institutional District
- PUD: Planned Unit Development District

0 1,500 Feet

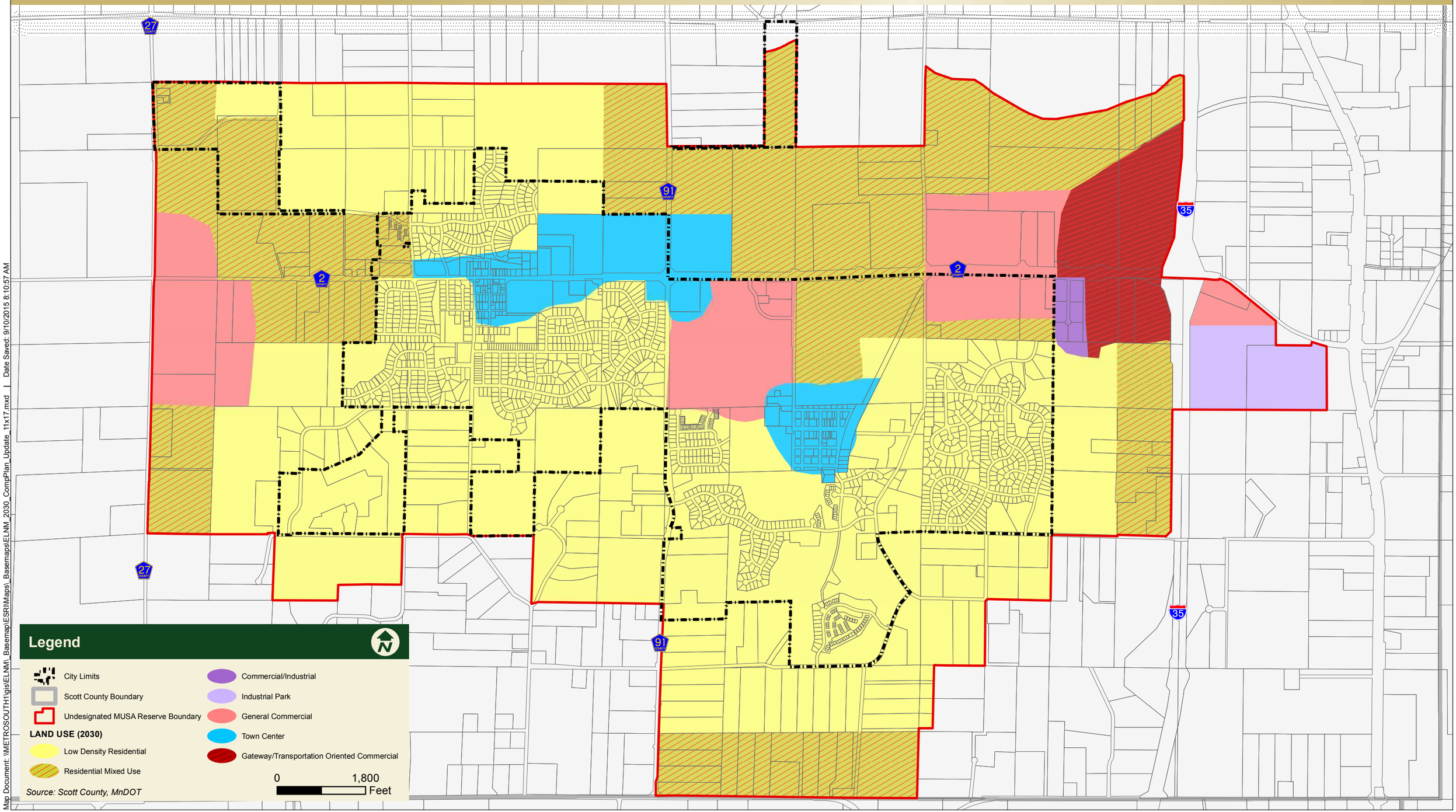
Source: Scott County, MnDOT

Map Document: \\metrosouth1\gis\ELNM_Basemap\ESRI\Maps_Basemaps\ELNM_Zoning_11x17.mxd | Date Saved: 10/25/2016 1:42:59 PM

Appendix D: Future Land Use Map

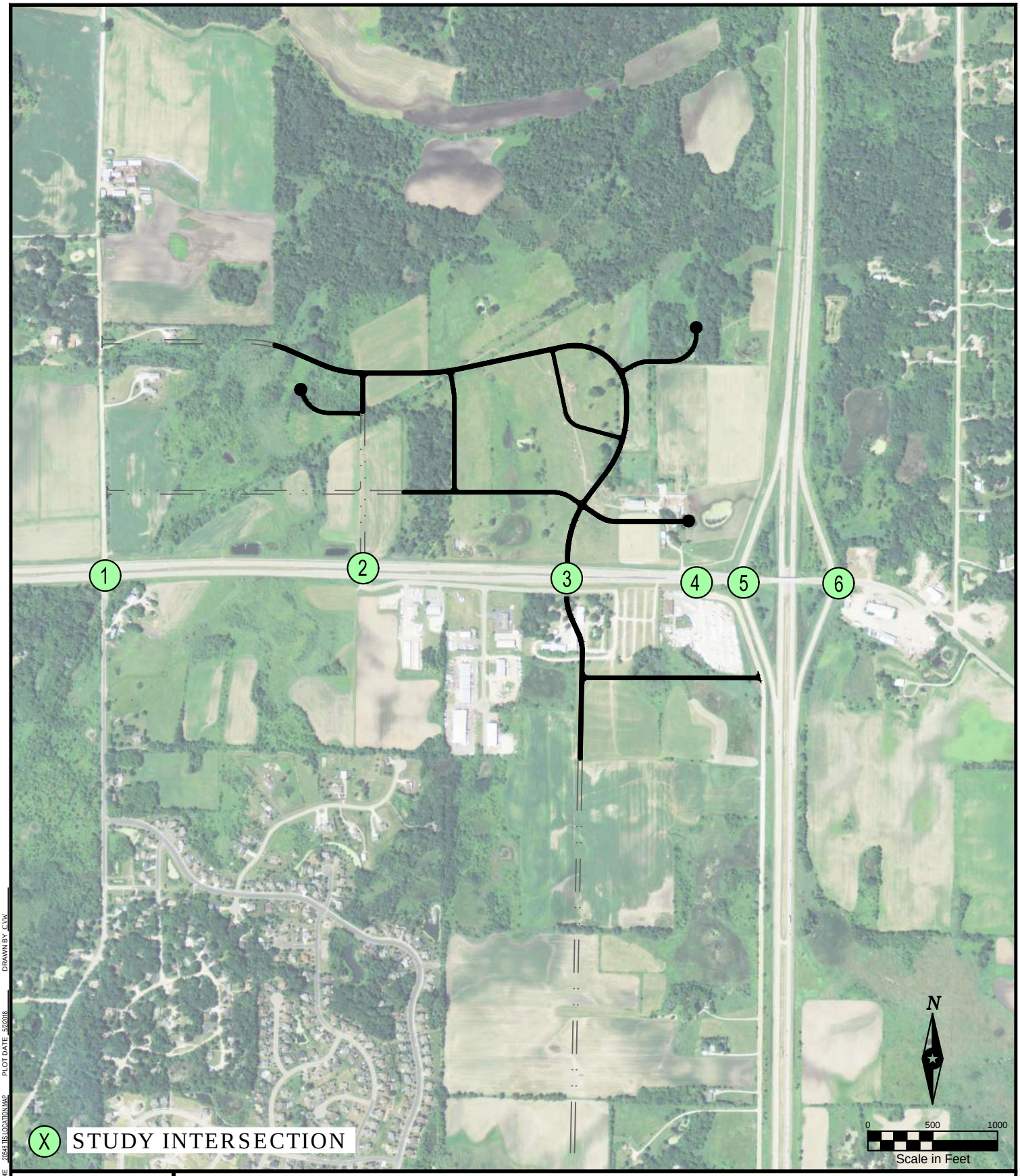
2030 Land Use Plan

August 2015



Map Document: \\METROSOUTH1\gis\ELNM_Basemap\ESRIMaps_Basemaps\ELNM_2030_CompPlan_Update_11x17.mxd | Date Saved: 9/10/2015 8:10:57 AM

Appendix E: Intersection Diagram



INTERSECTION DIAGRAM

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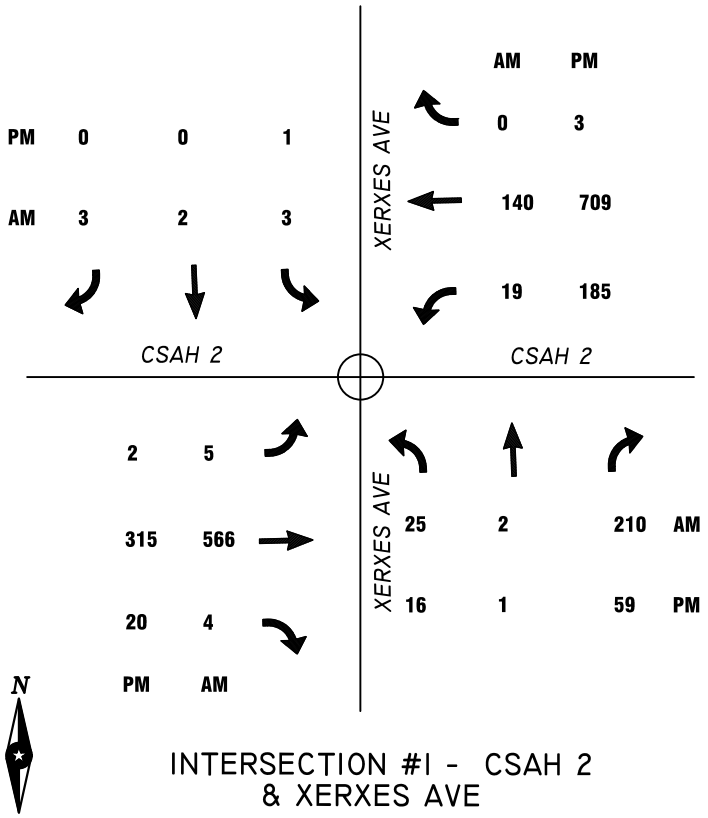
ADELMANN DEVELOPMENT

ELKO NEW MARKET MINNESOTA

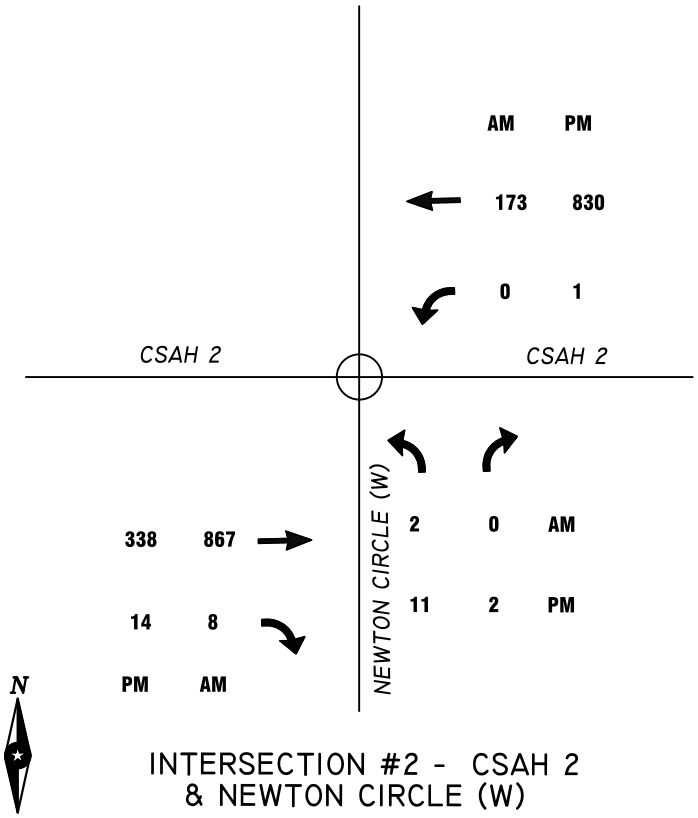
SHEET E

PROJECT NO. 20456 CAD FILE NAME 20548-TIS-LOCATION-MAP PLOT DATE 5/2/2018 DRAWN BY CVW

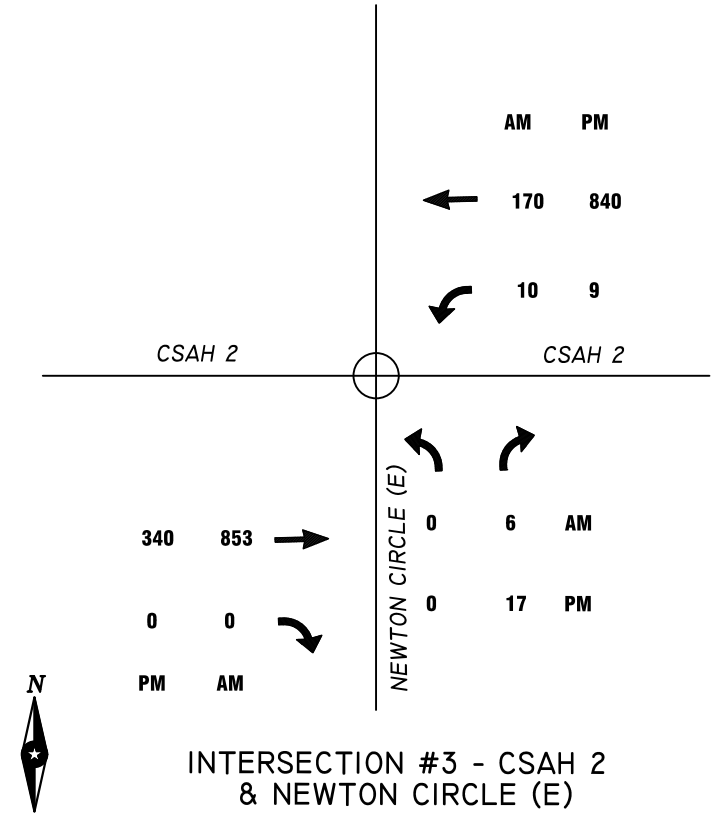
Appendix F: Existing Traffic Counts



INTERSECTION #1 - CSAH 2
& XERXES AVE

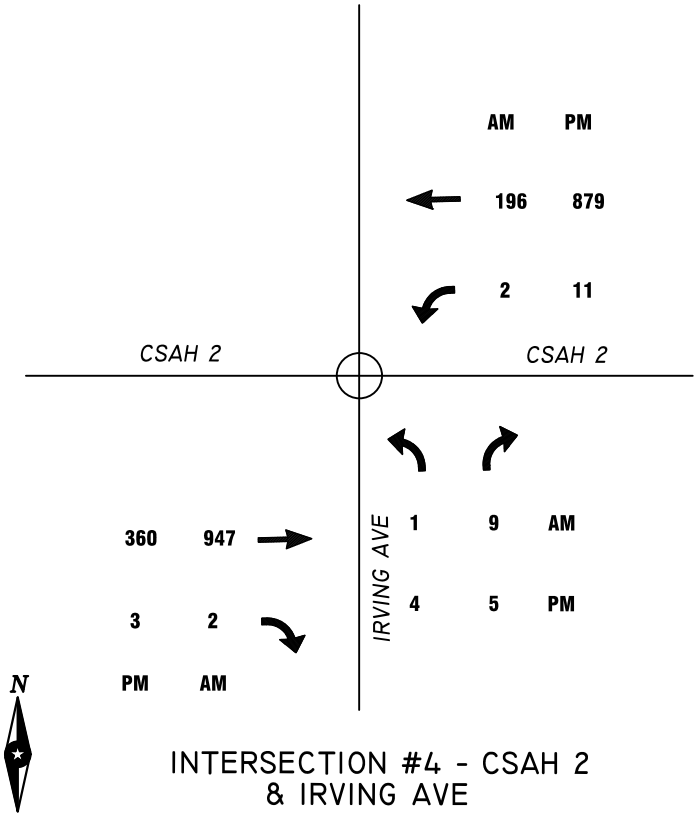


INTERSECTION #2 - CSAH 2
& NEWTON CIRCLE (W)

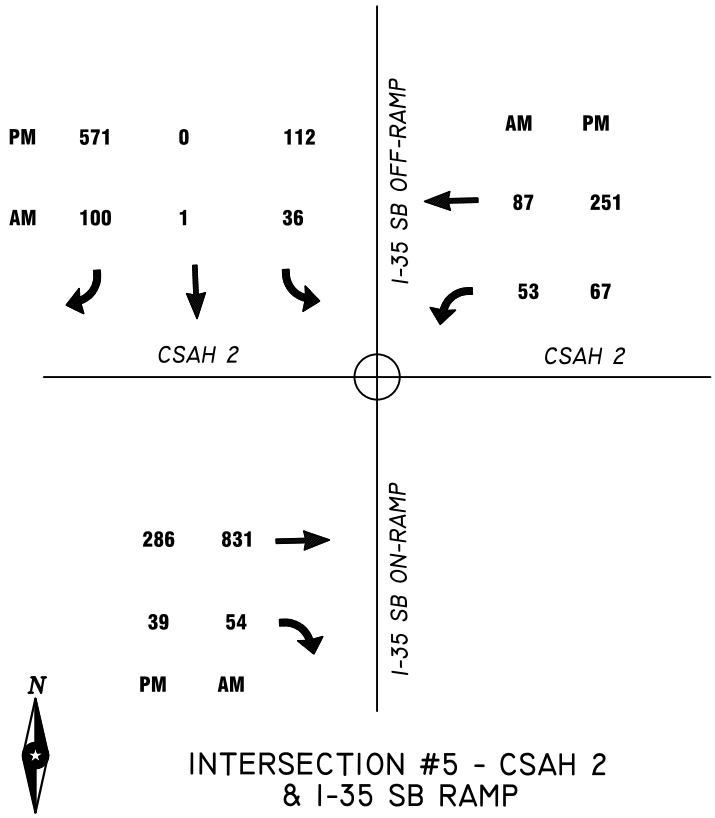


INTERSECTION #3 - CSAH 2
& NEWTON CIRCLE (E)

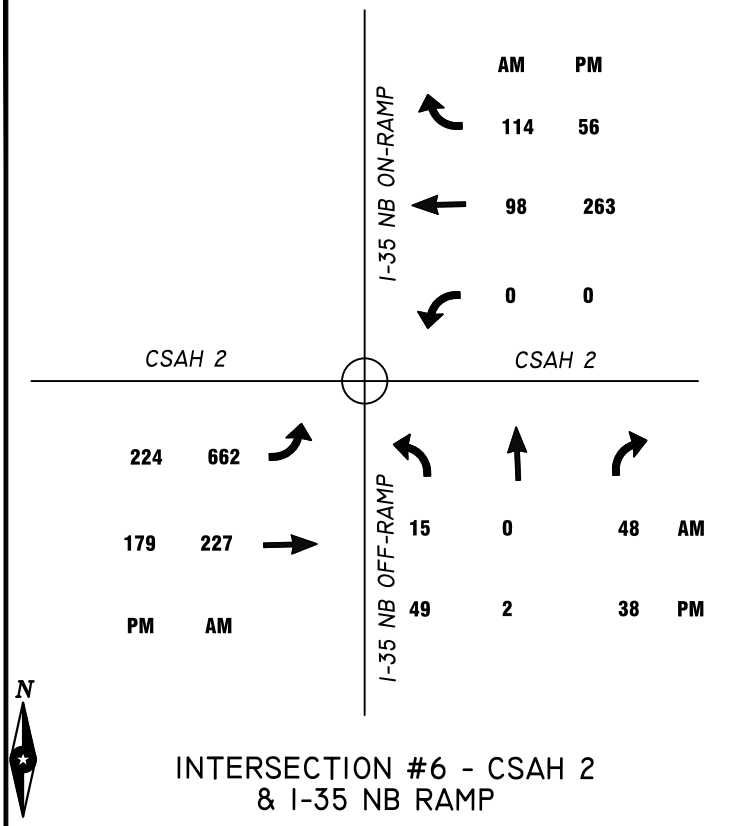
EXISTING (2018) 1-4



INTERSECTION #4 - CSAH 2
& IRVING AVE



INTERSECTION #5 - CSAH 2
& I-35 SB RAMP



INTERSECTION #6 - CSAH 2
& I-35 NB RAMP

EXISTING (2018) 5 AND 6

Appendix G: Synchro Reports – Existing (2018)

Intersection: 1: Xerxes Ave & CSAH 2

Movement	WB	NB	NB	SB
Directions Served	L	LT	R	LTR
Maximum Queue (ft)	31	36	105	21
Average Queue (ft)	6	15	49	5
95th Queue (ft)	26	37	88	19
Link Distance (ft)		1864		700
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300		200	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	16
Average Queue (ft)	1
95th Queue (ft)	11
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	WB	NB
Directions Served	T	L	LTR
Maximum Queue (ft)	3	29	24
Average Queue (ft)	0	7	6
95th Queue (ft)	4	26	23
Link Distance (ft)	1519		12
Upstream Blk Time (%)			1
Queuing Penalty (veh)			0
Storage Bay Dist (ft)		300	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: CSAH 2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	5	28
Average Queue (ft)	0	9
95th Queue (ft)	6	29
Link Distance (ft)	267	450
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	WB	SB
Directions Served	R	LT	LT
Maximum Queue (ft)	7	68	55
Average Queue (ft)	1	30	23
95th Queue (ft)	7	65	55
Link Distance (ft)	267	710	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	306	27	97
Average Queue (ft)	124	3	38
95th Queue (ft)	257	16	87
Link Distance (ft)	710	3512	744
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Newton Cir & Frontage Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	12
95th Queue (ft)	36
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Driveway & Frontage Rd

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	8
95th Queue (ft)	29
Link Distance (ft)	572
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Xerxes Ave & Future Entrance 2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 10: Xerxes Ave & Future Entrance 3

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	566	4	19	140	0	25	2	210	3	2	3
Future Vol, veh/h	5	566	4	19	140	0	25	2	210	3	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	651	5	22	161	0	29	2	241	3	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	161	0	0	651	0	0	787	867	325	543	867	80
Stage 1	-	-	-	-	-	-	662	662	-	205	205	-
Stage 2	-	-	-	-	-	-	125	205	-	338	662	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1416	-	-	931	-	-	282	289	671	423	289	964
Stage 1	-	-	-	-	-	-	417	457	-	778	731	-
Stage 2	-	-	-	-	-	-	866	731	-	650	457	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1416	-	-	931	-	-	274	281	671	264	281	964
Mov Cap-2 Maneuver	-	-	-	-	-	-	353	369	-	333	359	-
Stage 1	-	-	-	-	-	-	415	455	-	775	714	-
Stage 2	-	-	-	-	-	-	840	714	-	412	455	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	13.6	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	354	671	1416	-	-	931	-	-	452
HCM Lane V/C Ratio	0.088	0.36	0.004	-	-	0.023	-	-	0.02
HCM Control Delay (s)	16.1	13.3	7.6	-	-	9	-	-	13.1
HCM Lane LOS	C	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	1.6	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	867	8	0	173	0	2	0	0	0	0	0
Future Vol, veh/h	0	867	8	0	173	0	2	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	997	9	0	199	0	2	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	997	0	0	1096	1196	498	697	1196	99
Stage 1	-	-	-	-	-	-	997	997	-	199	199	-
Stage 2	-	-	-	-	-	-	99	199	-	498	997	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1371	-	-	690	-	-	168	185	518	328	185	937
Stage 1	-	-	-	-	-	-	262	320	-	784	735	-
Stage 2	-	-	-	-	-	-	896	735	-	523	320	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1371	-	-	690	-	-	168	185	518	328	185	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	229	268	-	424	268	-
Stage 1	-	-	-	-	-	-	262	320	-	784	735	-
Stage 2	-	-	-	-	-	-	896	735	-	523	320	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	20.9	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	229	1371	-	-	690	-	-	-
HCM Lane V/C Ratio	0.01	-	-	-	-	-	-	-
HCM Control Delay (s)	20.9	0	-	-	0	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	853	0	10	170	0	0	0	6	0	0	0
Future Vol, veh/h	0	853	0	10	170	0	0	0	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	980	0	11	195	0	0	0	7	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	195	0	0	980	0	0	1101	1198	490	708	1198	98
Stage 1	-	-	-	-	-	-	980	980	-	218	218	-
Stage 2	-	-	-	-	-	-	121	218	-	490	980	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1375	-	-	700	-	-	166	184	524	322	184	939
Stage 1	-	-	-	-	-	-	268	326	-	764	721	-
Stage 2	-	-	-	-	-	-	870	721	-	529	326	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1375	-	-	700	-	-	164	181	524	314	181	939
Mov Cap-2 Maneuver	-	-	-	-	-	-	232	269	-	412	263	-
Stage 1	-	-	-	-	-	-	268	326	-	764	710	-
Stage 2	-	-	-	-	-	-	856	710	-	522	326	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	12	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	524	1375	-	-	700	-	-	-
HCM Lane V/C Ratio	0.013	-	-	-	0.016	-	-	-
HCM Control Delay (s)	12	0	-	-	10.2	-	-	0
HCM Lane LOS	B	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	947	2	2	196	1	9
Future Vol, veh/h	947	2	2	196	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1076	2	2	223	1	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1078	0	1193	1077
Stage 1	-	-	-	-	1077	-
Stage 2	-	-	-	-	116	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	645	-	193	265
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	897	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	645	-	192	265
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	893	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	19.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	255	-	-	645	-
HCM Lane V/C Ratio	0.045	-	-	0.004	-
HCM Control Delay (s)	19.8	-	-	10.6	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↰						↰	↱
Traffic Vol, veh/h	0	831	54	53	87	0	0	0	0	36	1	100
Future Vol, veh/h	0	831	54	53	87	0	0	0	0	36	1	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	300	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	944	61	60	99	0	0	0	0	41	1	114

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	944	0	0	1163	1163	-
Stage 1	-	-	-	-	-	-	219	219	-
Stage 2	-	-	-	-	-	-	944	944	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	727	-	0	215	195	0
Stage 1	0	-	-	-	-	0	817	722	0
Stage 2	0	-	-	-	-	0	378	341	0
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	727	-	-	196	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	196	0	-
Stage 1	-	-	-	-	-	-	746	0	-
Stage 2	-	-	-	-	-	-	378	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.9	28.3
HCM LOS			D

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	727	-	196	-
HCM Lane V/C Ratio	-	-	0.083	-	0.215	-
HCM Control Delay (s)	-	-	10.4	0	28.3	0
HCM Lane LOS	-	-	B	A	D	A
HCM 95th %tile Q(veh)	-	-	0.3	-	0.8	-

Intersection	
Int Delay, s/veh	12.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	662	227	0	0	98	114	15	0	48	0	0	0
Future Vol, veh/h	662	227	0	0	98	114	15	0	48	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	752	258	0	0	111	130	17	0	55	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	241	0	-	-	-	0	1939	2004	258
Stage 1	-	-	-	-	-	-	1763	1763	-
Stage 2	-	-	-	-	-	-	176	241	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1326	-	0	0	-	-	72	60	781
Stage 1	-	-	0	0	-	-	151	137	-
Stage 2	-	-	0	0	-	-	855	706	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1326	-	-	-	-	-	24	0	781
Mov Cap-2 Maneuver	-	-	-	-	-	-	24	0	-
Stage 1	-	-	-	-	-	-	51	0	-
Stage 2	-	-	-	-	-	-	855	0	-

Approach	EB	WB	NB
HCM Control Delay, s	8.3	0	121.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	92	1326	-	-	-
HCM Lane V/C Ratio	0.778	0.567	-	-	-
HCM Control Delay (s)	121.5	11.2	0	-	-
HCM Lane LOS	F	B	A	-	-
HCM 95th %tile Q(veh)	4.1	3.7	-	-	-

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	WB	NB	NB
Directions Served	L	L	LT	R
Maximum Queue (ft)	10	74	28	46
Average Queue (ft)	1	32	10	19
95th Queue (ft)	8	66	30	38
Link Distance (ft)			1864	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	300	300		200
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	29
Average Queue (ft)	12
95th Queue (ft)	32
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	28	24
Average Queue (ft)	3	9
95th Queue (ft)	18	28
Link Distance (ft)		12
Upstream Blk Time (%)		1
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: CSAH 2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	30	28
Average Queue (ft)	3	6
95th Queue (ft)	17	25
Link Distance (ft)	267	450
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	WB	SB	SB
Directions Served	LT	LT	R
Maximum Queue (ft)	67	86	192
Average Queue (ft)	19	41	76
95th Queue (ft)	57	74	169
Link Distance (ft)	710		1051
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		300	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	72	3	59
Average Queue (ft)	41	0	32
95th Queue (ft)	74	4	54
Link Distance (ft)	710	3512	744
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	315	20	185	709	3	16	1	59	1	0	0
Future Vol, veh/h	2	315	20	185	709	3	16	1	59	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	342	22	201	771	3	17	1	64	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	771	0	0	342	0	0	1135	1520	171	1349	1520	385
Stage 1	-	-	-	-	-	-	347	347	-	1173	1173	-
Stage 2	-	-	-	-	-	-	788	1173	-	176	347	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	840	-	-	1214	-	-	157	118	843	109	118	613
Stage 1	-	-	-	-	-	-	642	633	-	204	264	-
Stage 2	-	-	-	-	-	-	350	264	-	809	633	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	840	-	-	1214	-	-	137	98	843	87	98	613
Mov Cap-2 Maneuver	-	-	-	-	-	-	232	179	-	164	171	-
Stage 1	-	-	-	-	-	-	640	631	-	204	220	-
Stage 2	-	-	-	-	-	-	292	220	-	744	631	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.8	12.4	27.1
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	228	843	840	-	-	1214	-	-	164
HCM Lane V/C Ratio	0.081	0.076	0.003	-	-	0.166	-	-	0.007
HCM Control Delay (s)	22.2	9.6	9.3	-	-	8.6	-	-	27.1
HCM Lane LOS	C	A	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.3	0.2	0	-	-	0.6	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	338	14	1	830	0	11	0	2	0	0	0
Future Vol, veh/h	0	338	14	1	830	0	11	0	2	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	367	15	1	902	0	12	0	2	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	902	0	0	367	0	0	820	1271	184	1088	1271	451
Stage 1	-	-	-	-	-	-	367	367	-	904	904	-
Stage 2	-	-	-	-	-	-	453	904	-	184	367	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	749	-	-	1188	-	-	267	167	827	170	167	556
Stage 1	-	-	-	-	-	-	625	621	-	298	354	-
Stage 2	-	-	-	-	-	-	556	354	-	800	621	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	749	-	-	1188	-	-	267	167	827	169	167	556
Mov Cap-2 Maneuver	-	-	-	-	-	-	390	273	-	252	273	-
Stage 1	-	-	-	-	-	-	625	621	-	298	354	-
Stage 2	-	-	-	-	-	-	556	354	-	798	621	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	425	749	-	-	1188	-	-	-
HCM Lane V/C Ratio	0.033	-	-	-	0.001	-	-	-
HCM Control Delay (s)	13.8	0	-	-	8	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	340	0	9	840	0	0	0	17	0	0	0
Future Vol, veh/h	0	340	0	9	840	0	0	0	17	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	370	0	10	913	0	0	0	18	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	913	0	0	370	0	0	846	1303	185	1118	1303	457
Stage 1	-	-	-	-	-	-	370	370	-	933	933	-
Stage 2	-	-	-	-	-	-	476	933	-	185	370	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	742	-	-	1185	-	-	256	159	826	162	159	551
Stage 1	-	-	-	-	-	-	622	619	-	286	343	-
Stage 2	-	-	-	-	-	-	539	343	-	799	619	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	742	-	-	1185	-	-	254	158	826	157	158	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	377	263	-	241	263	-
Stage 1	-	-	-	-	-	-	622	619	-	286	340	-
Stage 2	-	-	-	-	-	-	534	340	-	781	619	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	9.5	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	826	742	-	-	1185	-	-	-
HCM Lane V/C Ratio	0.022	-	-	-	0.008	-	-	-
HCM Control Delay (s)	9.5	0	-	-	8.1	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	360	3	11	879	4	5
Future Vol, veh/h	360	3	11	879	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	391	3	12	955	4	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	395	0	895	393
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	502	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1162	-	295	655
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1162	-	289	655
Mov Cap-2 Maneuver	-	-	-	-	289	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	561	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	419	-	-	1162	-
HCM Lane V/C Ratio	0.023	-	-	0.01	-
HCM Control Delay (s)	13.8	-	-	8.1	0.1
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↰						↰	↱
Traffic Vol, veh/h	0	286	39	67	251	0	0	0	0	112	0	571
Future Vol, veh/h	0	286	39	67	251	0	0	0	0	112	0	571
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	300	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	311	42	73	273	0	0	0	0	122	0	621

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	311	0	0	729	729	-
Stage 1	-	-	-	-	-	-	418	418	-
Stage 2	-	-	-	-	-	-	311	311	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	1249	-	0	390	350	0
Stage 1	0	-	-	-	-	0	664	591	0
Stage 2	0	-	-	-	-	0	743	658	0
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1249	-	-	363	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	363	0	-
Stage 1	-	-	-	-	-	-	618	0	-
Stage 2	-	-	-	-	-	-	743	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.7	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1249	-	363	-
HCM Lane V/C Ratio	-	-	0.058	-	0.335	-
HCM Control Delay (s)	-	-	8.1	0	19.8	0
HCM Lane LOS	-	-	A	A	C	A
HCM 95th %tile Q(veh)	-	-	0.2	-	1.4	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	224	179	0	0	263	56	49	2	38	0	0	0
Future Vol, veh/h	224	179	0	0	263	56	49	2	38	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	246	197	0	0	289	62	54	2	42	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	351	0	-	-	-	0	1009	1040	197
Stage 1	-	-	-	-	-	-	689	689	-
Stage 2	-	-	-	-	-	-	320	351	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1208	-	0	0	-	-	266	230	844
Stage 1	-	-	0	0	-	-	498	446	-
Stage 2	-	-	0	0	-	-	736	632	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1208	-	-	-	-	-	205	0	844
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	0	-
Stage 1	-	-	-	-	-	-	384	0	-
Stage 2	-	-	-	-	-	-	736	0	-

Approach	EB	WB	NB
HCM Control Delay, s	4.9	0	22.2
HCM LOS			C

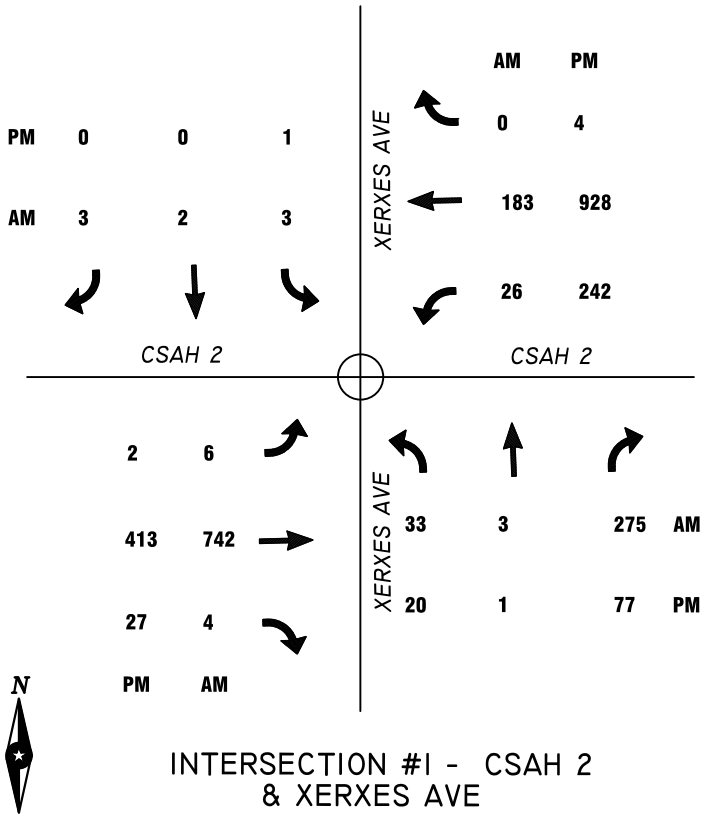
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	306	1208	-	-	-
HCM Lane V/C Ratio	0.32	0.204	-	-	-
HCM Control Delay (s)	22.2	8.7	0	-	-
HCM Lane LOS	C	A	A	-	-
HCM 95th %tile Q(veh)	1.3	0.8	-	-	-

Appendix H: Trip Distribution

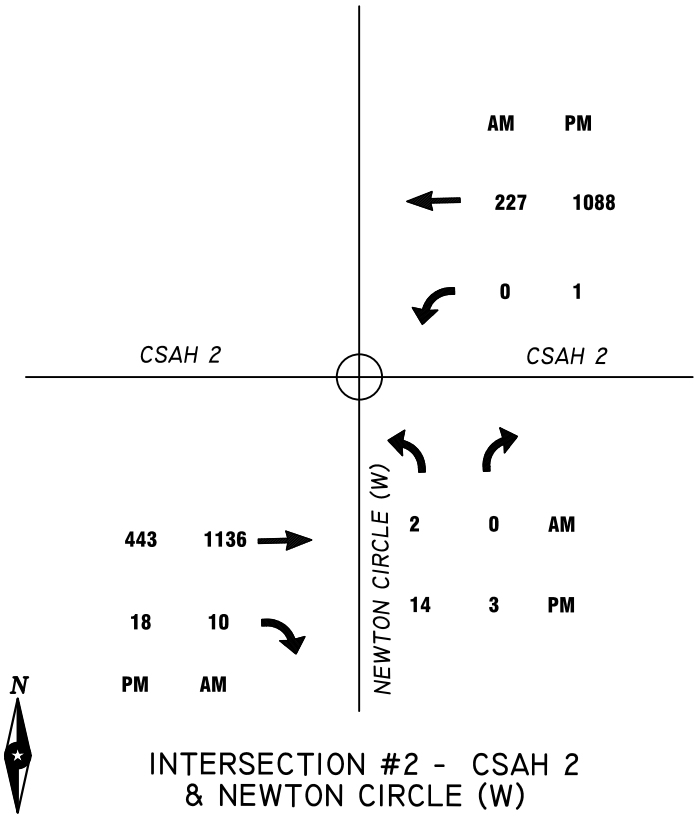
YEAR 13 (2031)
5%
40%
60%
60%
40%
15%
40%
15%
10%
15%
Google earth

YEAR 20 (2038)
5%
15%
40%
60%
25%
35%
35%
40%
10%
40%
15%
15%
Google earth

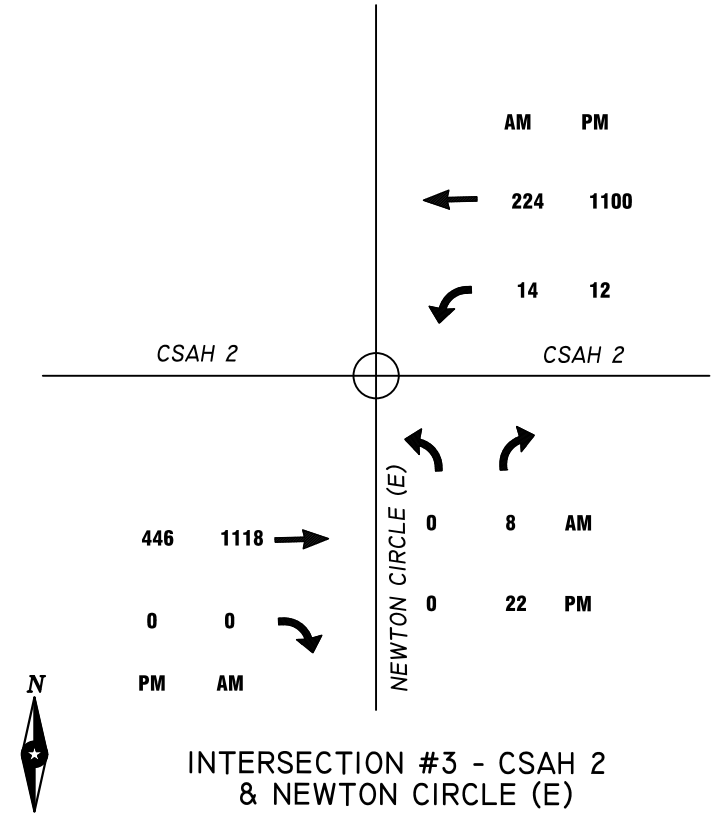
Appendix I: Baseline (2031) Traffic Counts – Diagram



INTERSECTION #1 - CSAH 2
& XERXES AVE

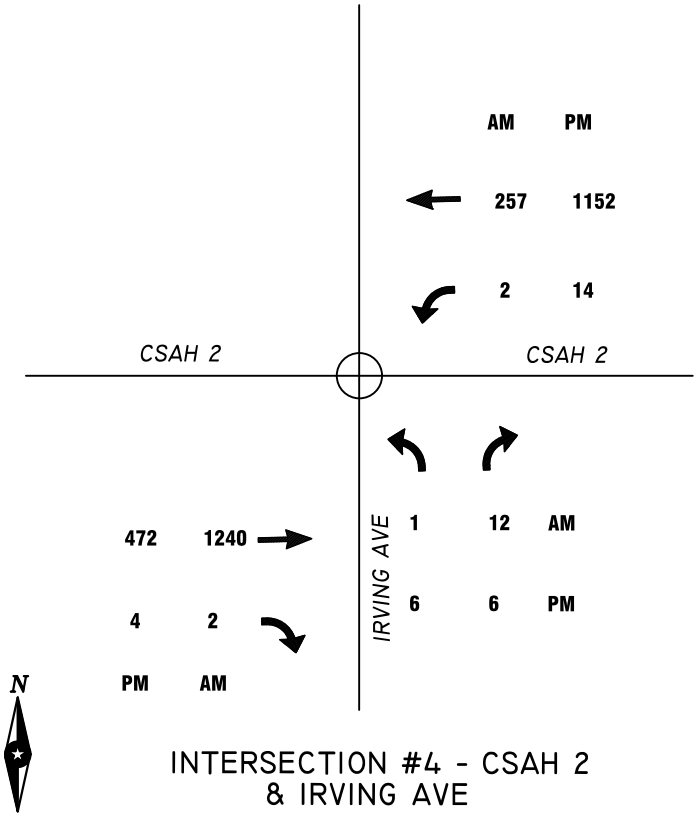


INTERSECTION #2 - CSAH 2
& NEWTON CIRCLE (W)



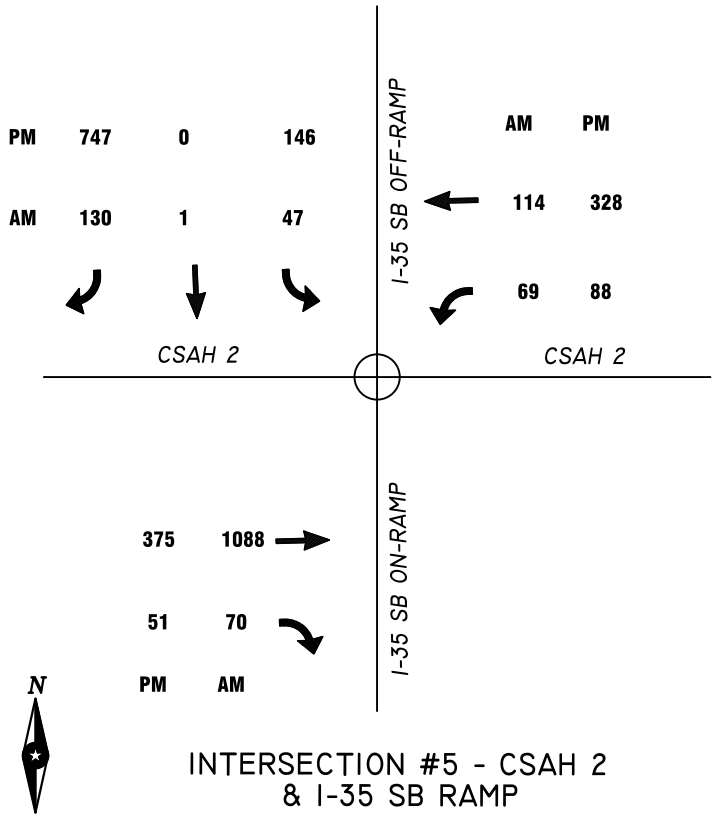
INTERSECTION #3 - CSAH 2
& NEWTON CIRCLE (E)

BASELINE (2031) 1-4

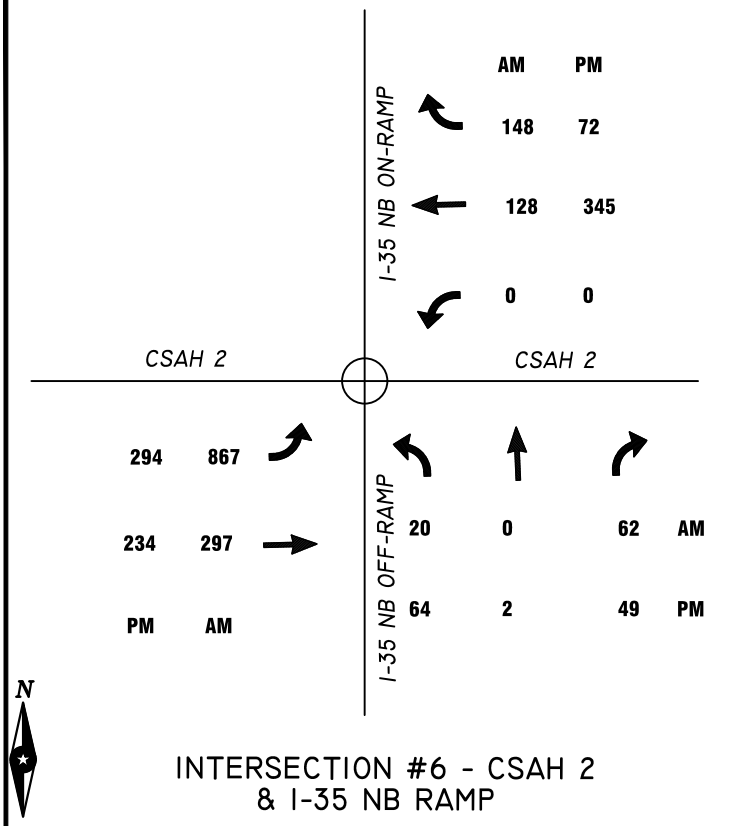


INTERSECTION #4 - CSAH 2
& IRVING AVE

ADELMANN DEVELOPMENT
ELKO NEW MARKET, MINNESOTA
5/2/18
ISG Project No. 20456



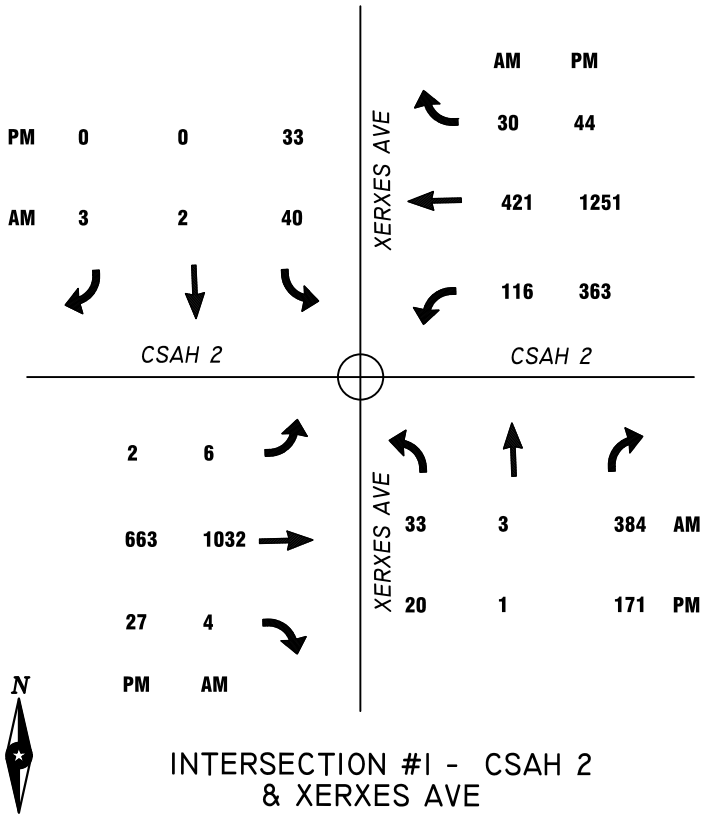
INTERSECTION #5 - CSAH 2
& I-35 SB RAMP



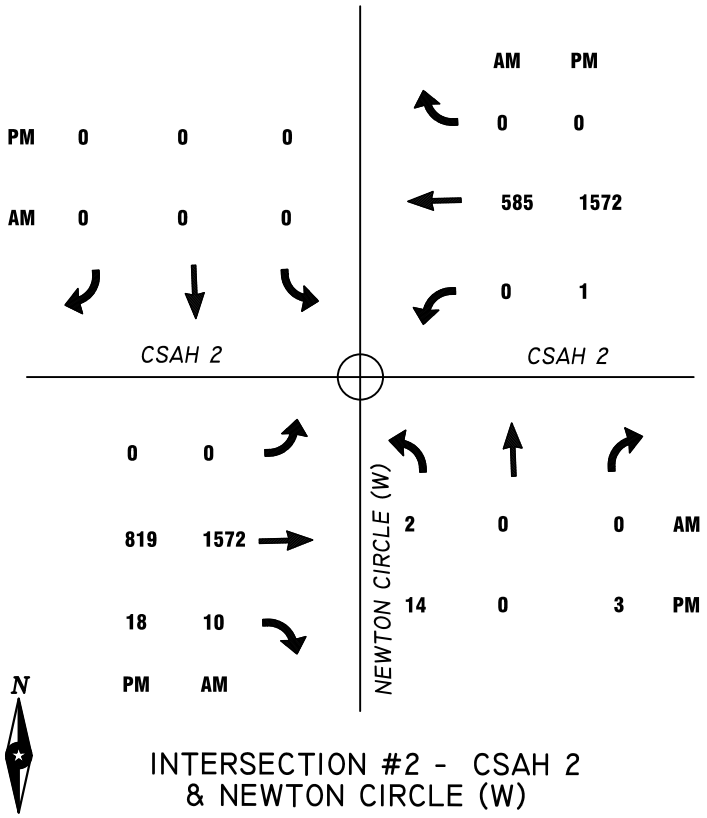
INTERSECTION #6 - CSAH 2
& I-35 NB RAMP

BASELINE (2031) 5 AND 6

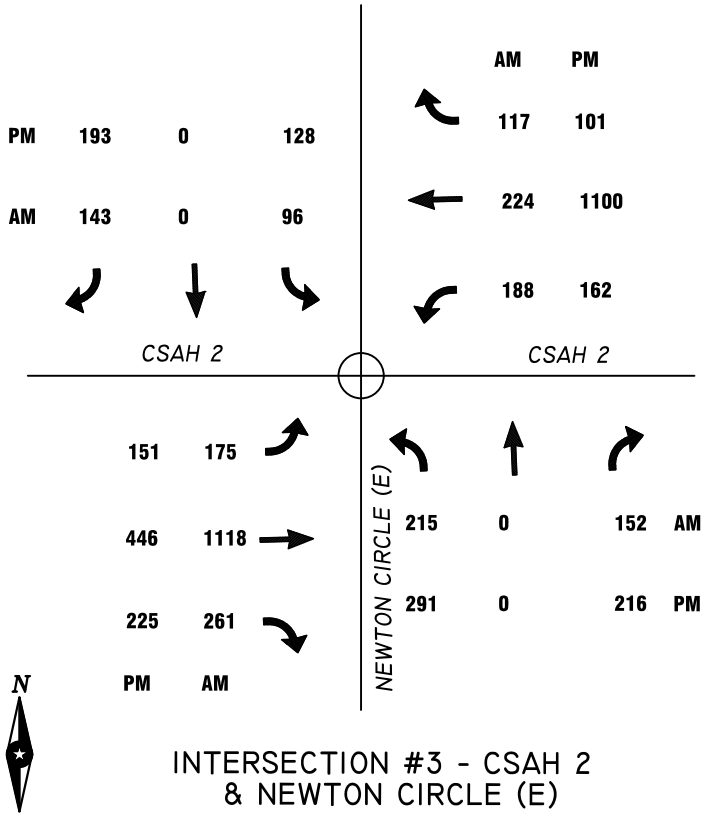
Appendix J: Phase 1 (2031) Traffic Counts – Diagram



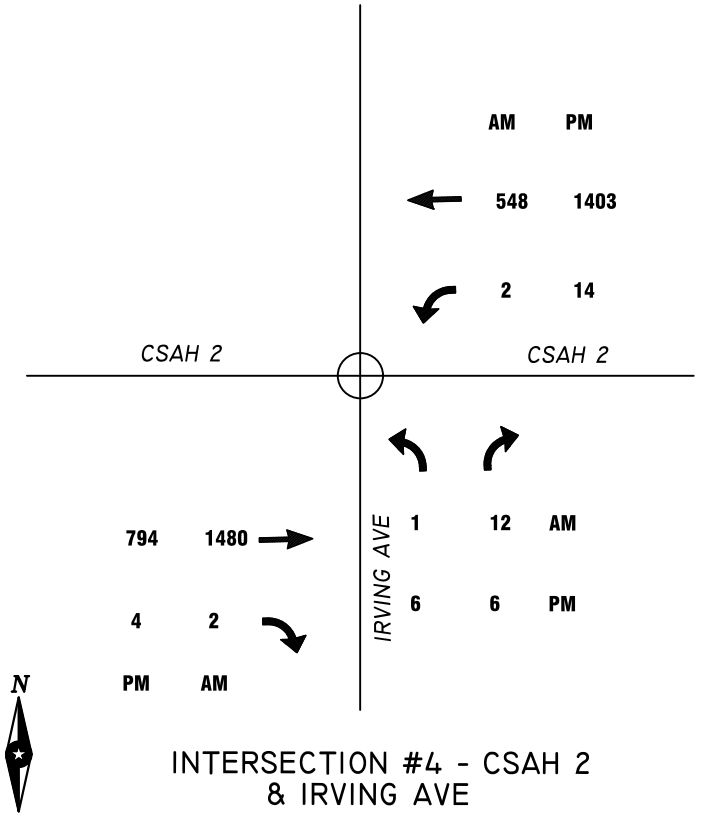
INTERSECTION #1 - CSAH 2
& XERXES AVE



INTERSECTION #2 - CSAH 2
& NEWTON CIRCLE (W)



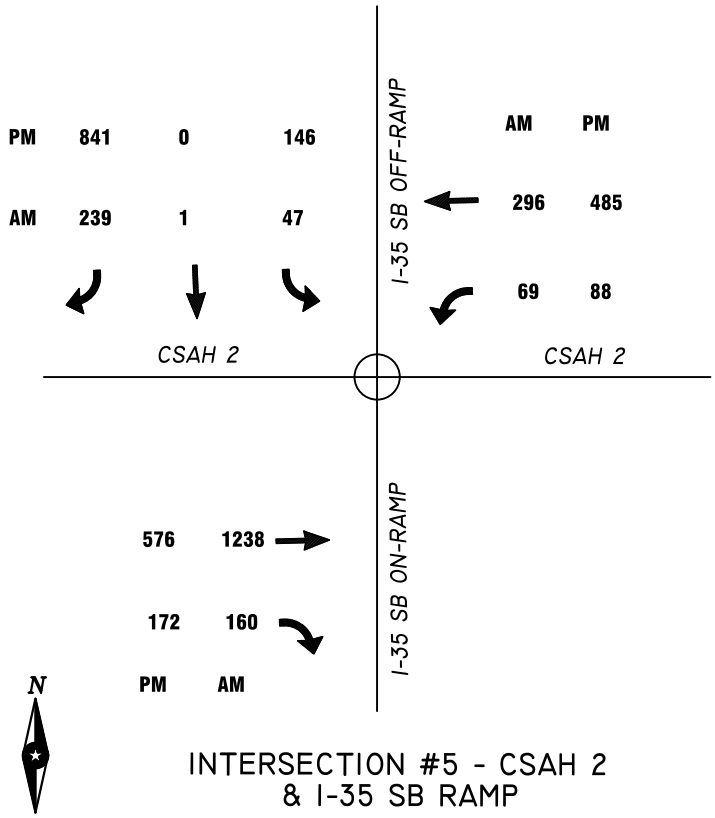
INTERSECTION #3 - CSAH 2
& NEWTON CIRCLE (E)



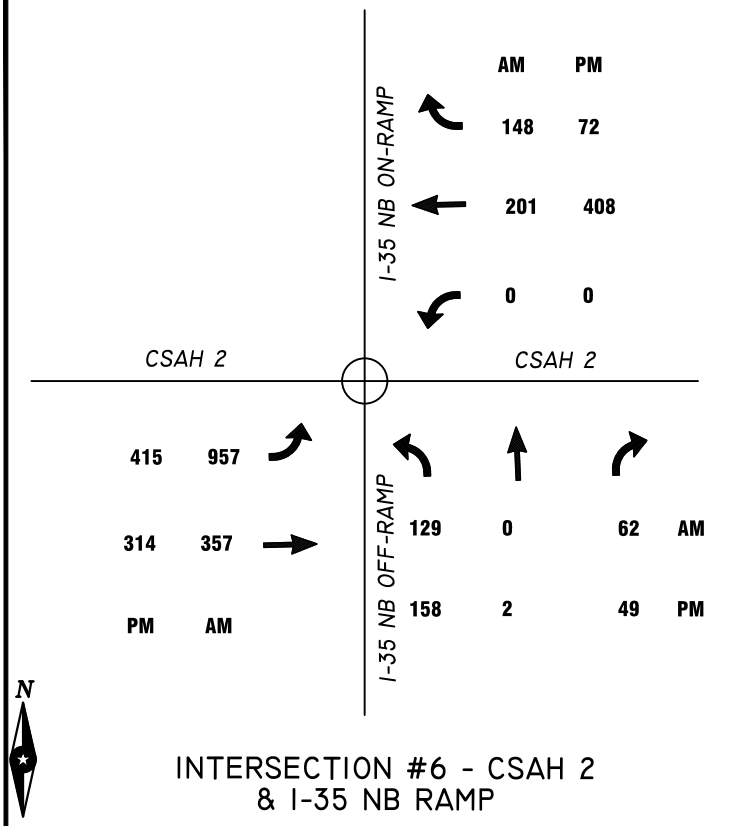
INTERSECTION #4 - CSAH 2
& IRVING AVE

PHASE 1 (2031) 1-4

ADELMANN DEVELOPMENT
ELKO NEW MARKET, MINNESOTA
5/2/18
ISG Project No. 20456



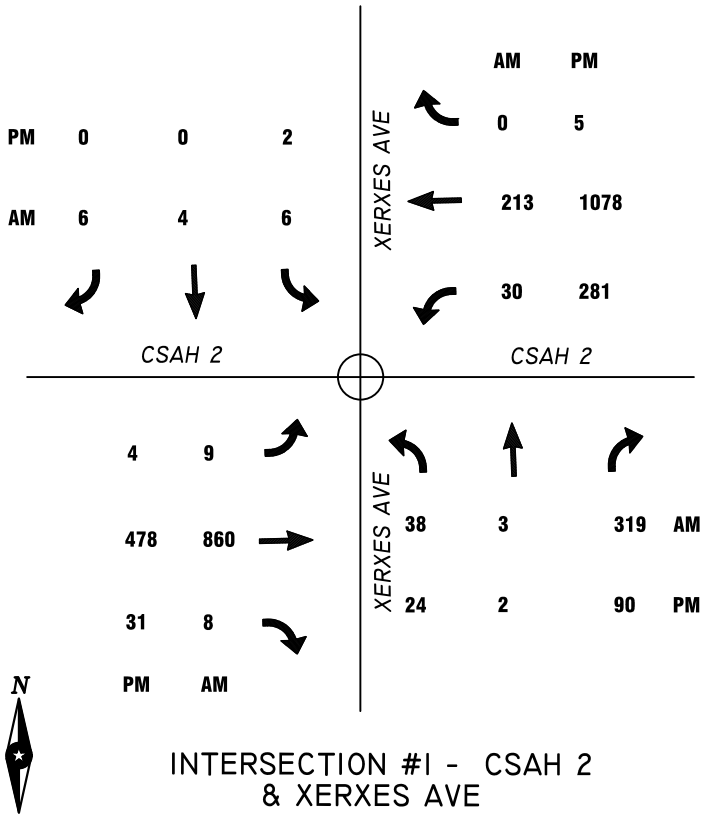
INTERSECTION #5 - CSAH 2
& I-35 SB RAMP



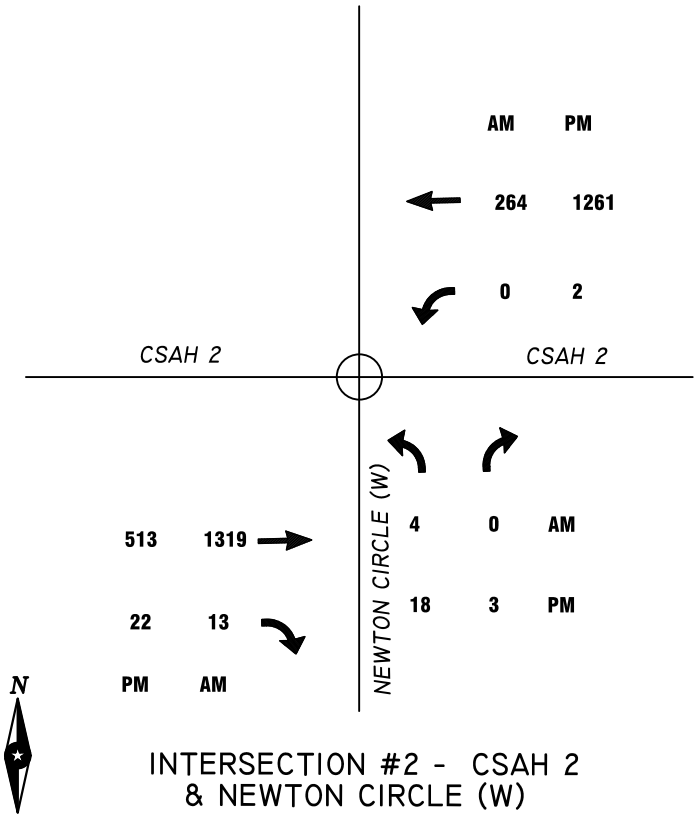
INTERSECTION #6 - CSAH 2
& I-35 NB RAMP

PHASE 1 (2031) 5 AND 6

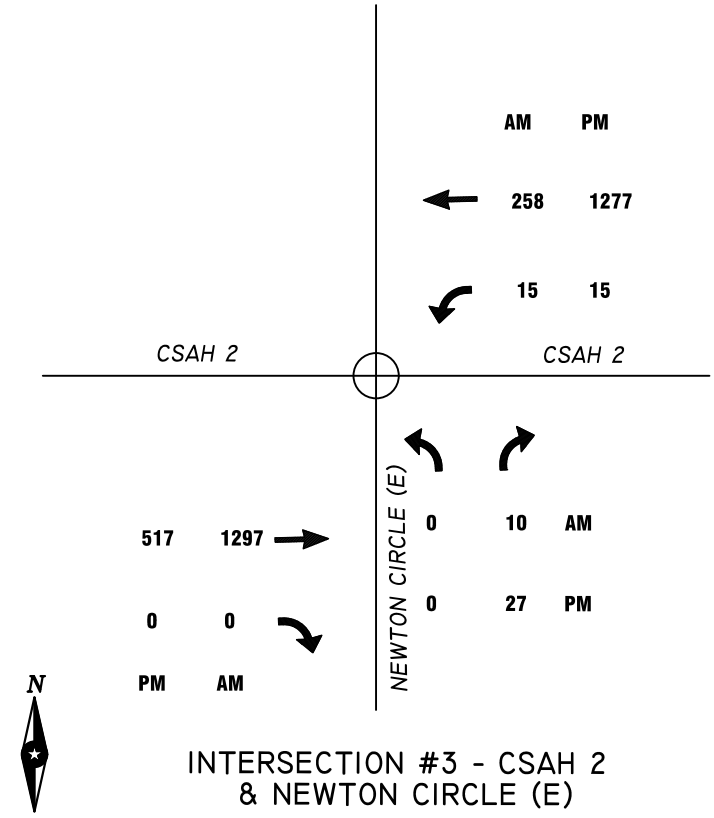
Appendix K: Baseline (2038) Traffic Counts – Diagram



INTERSECTION #1 - CSAH 2
& XERXES AVE

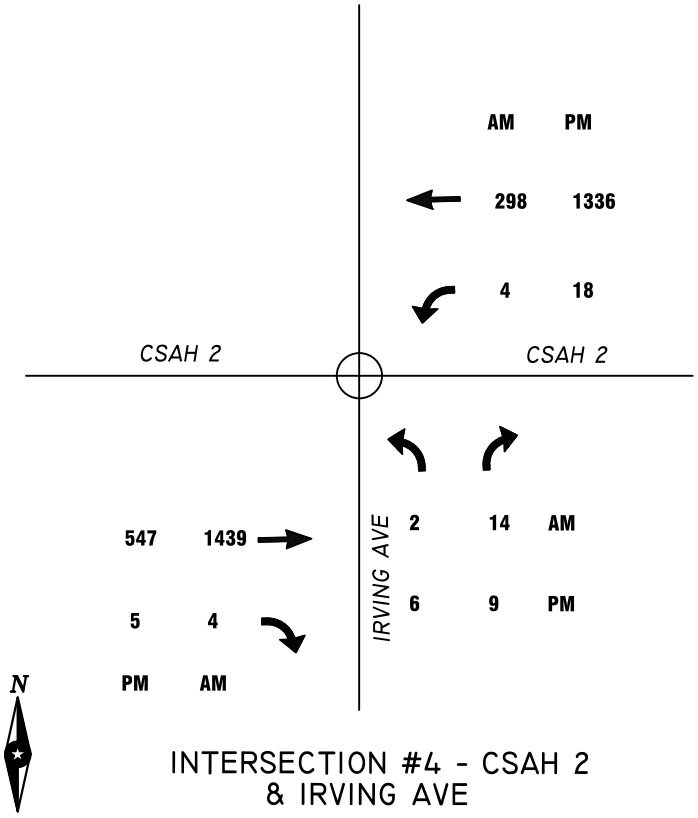


INTERSECTION #2 - CSAH 2
& NEWTON CIRCLE (W)

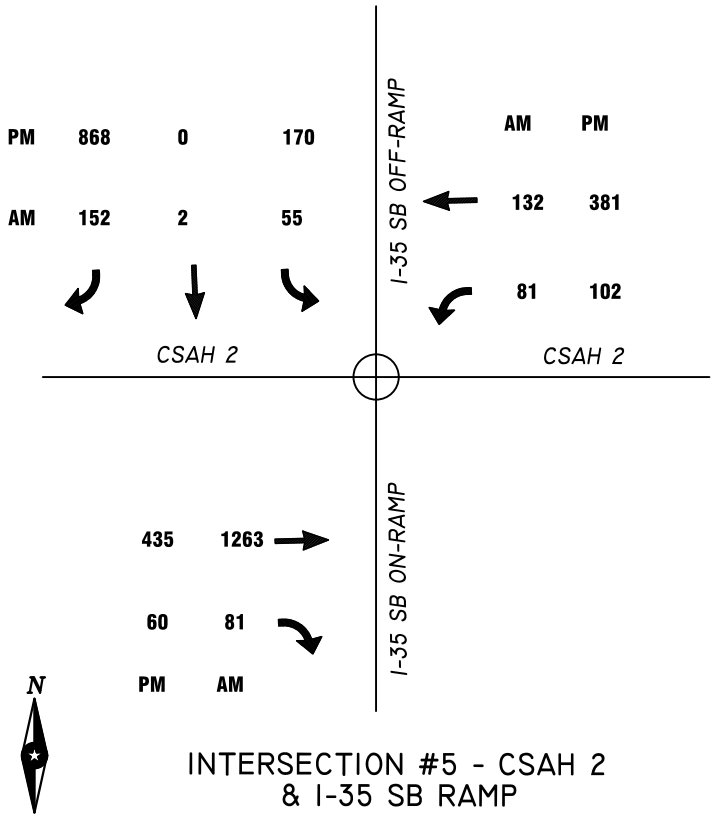


INTERSECTION #3 - CSAH 2
& NEWTON CIRCLE (E)

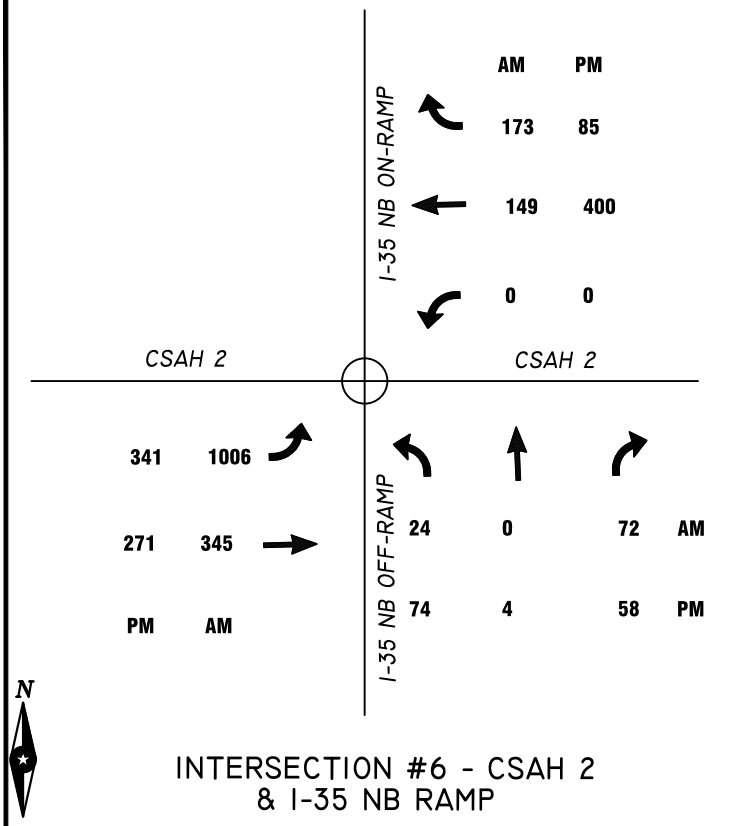
BASELINE (2038) 1-4



INTERSECTION #4 - CSAH 2
& IRVING AVE



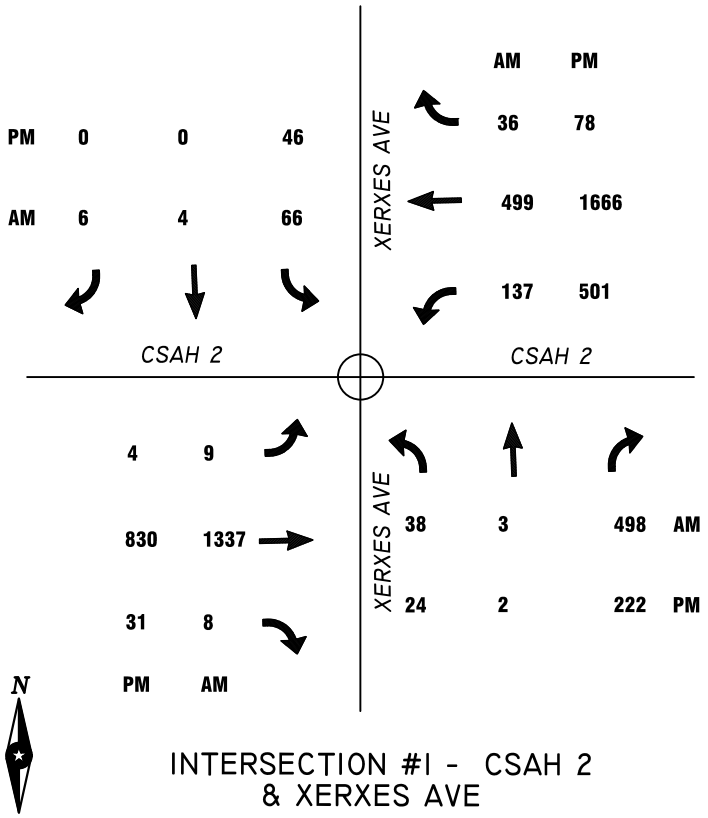
INTERSECTION #5 - CSAH 2
& I-35 SB RAMP



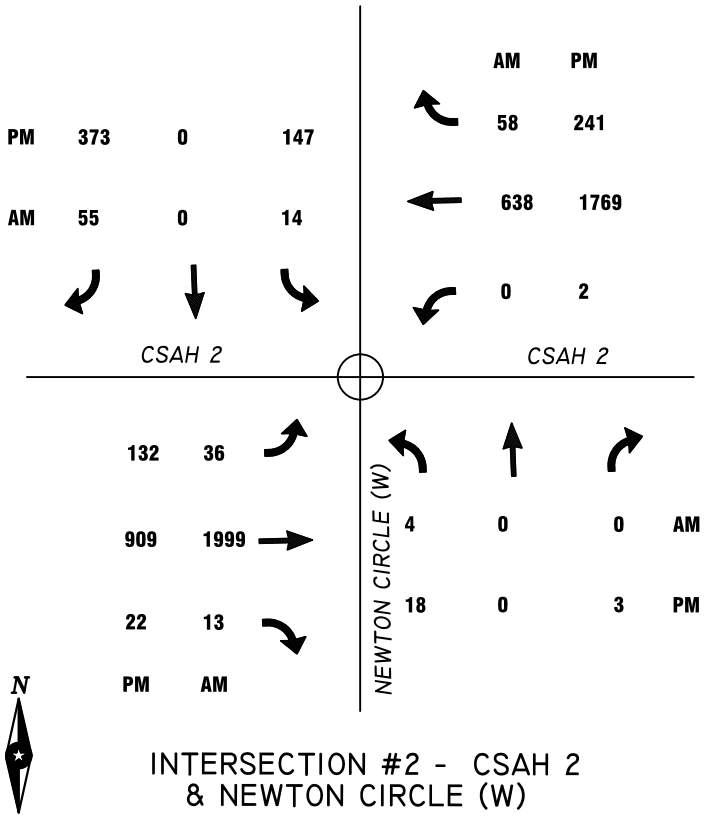
INTERSECTION #6 - CSAH 2
& I-35 NB RAMP

BASELINE (2038) 5 AND 6

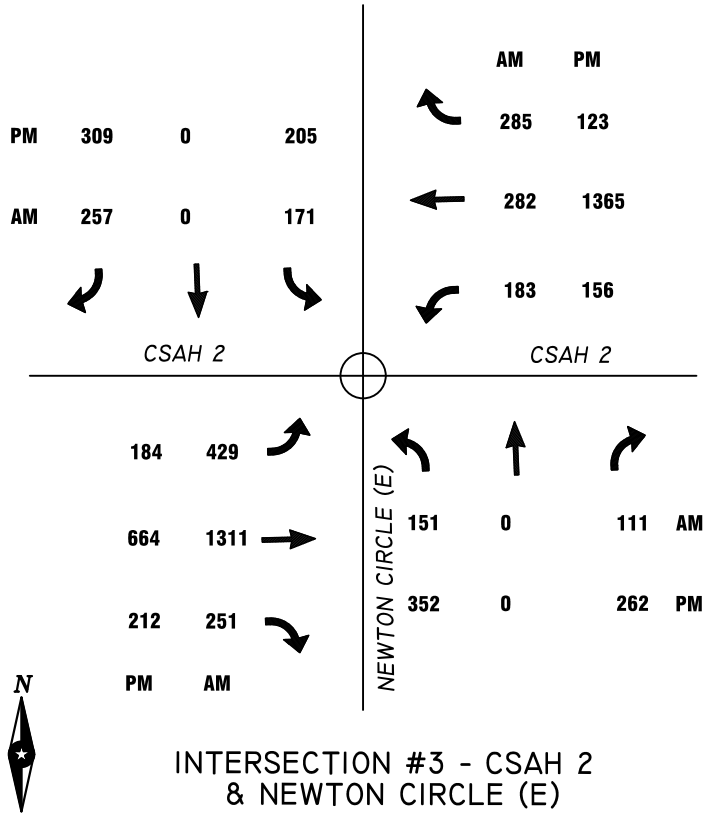
Appendix L: Phase 2 (2038) Traffic Counts – Diagram



INTERSECTION #1 - CSAH 2
& XERXES AVE

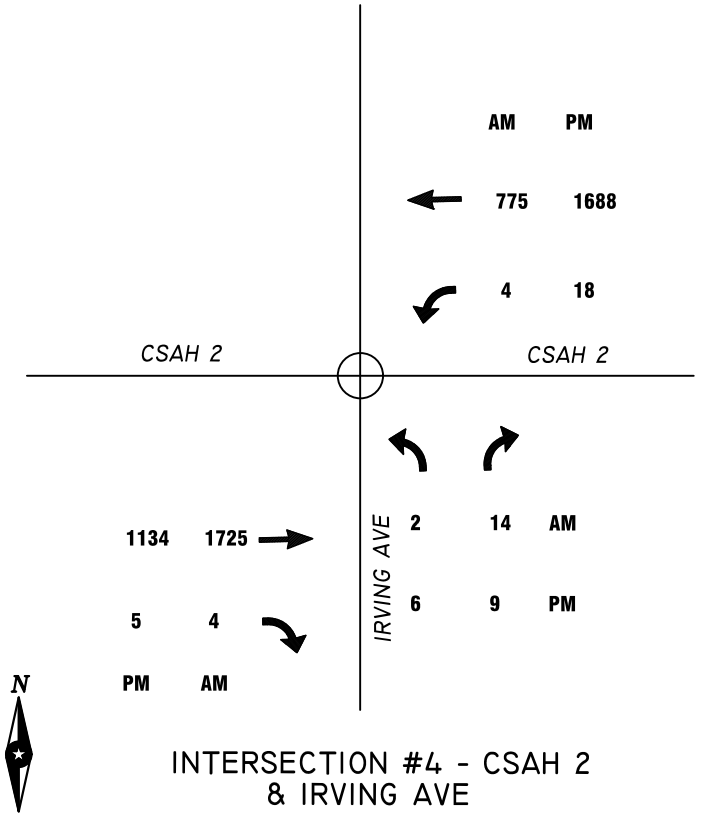


INTERSECTION #2 - CSAH 2
& NEWTON CIRCLE (W)

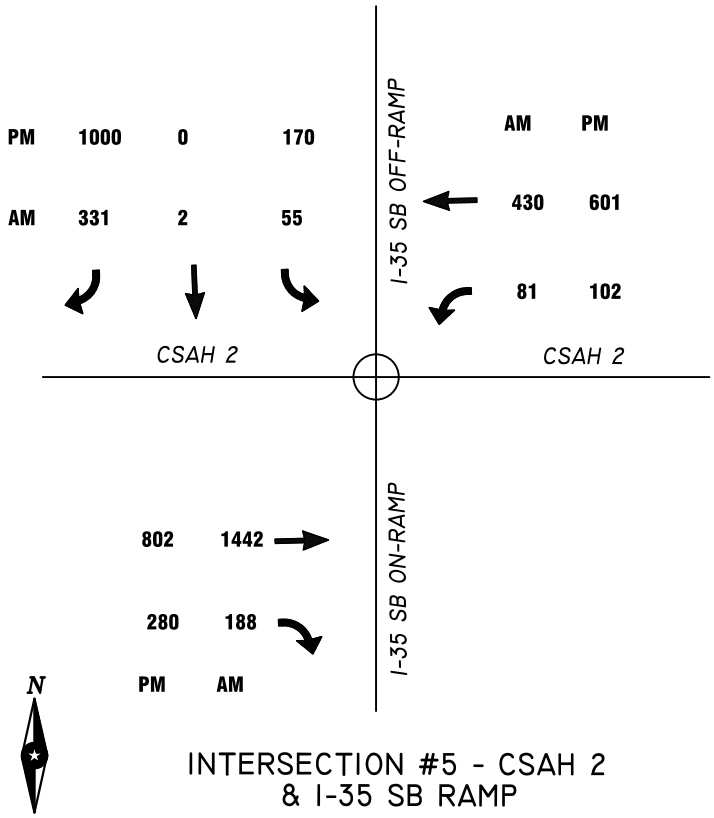


INTERSECTION #3 - CSAH 2
& NEWTON CIRCLE (E)

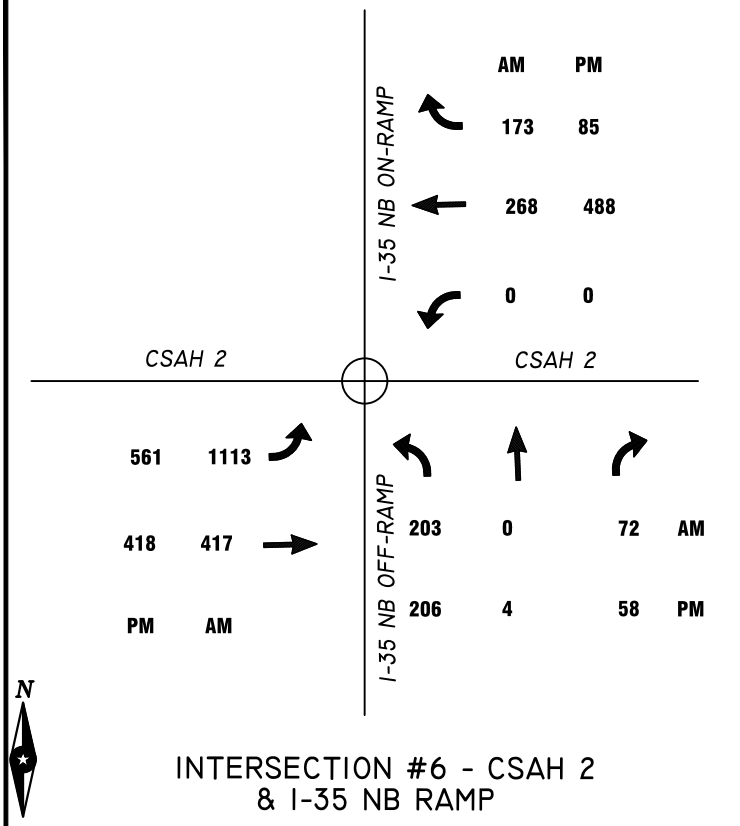
PHASE 2 (2038) 1-4



INTERSECTION #4 - CSAH 2
& IRVING AVE



INTERSECTION #5 - CSAH 2
& I-35 SB RAMP



INTERSECTION #6 - CSAH 2
& I-35 NB RAMP

PHASE 2 (2038) 5 AND 6

Appendix M: Synchro Reports – Baseline (2031)

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	WB	NB	NB	SB
Directions Served	L	L	LT	R	LTR
Maximum Queue (ft)	5	28	57	99	21
Average Queue (ft)	0	11	23	54	5
95th Queue (ft)	6	32	49	90	21
Link Distance (ft)			1864		700
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	300	300		200	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	10
Average Queue (ft)	2
95th Queue (ft)	13
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	WB	NB
Directions Served	T	L	LTR
Maximum Queue (ft)	3	33	24
Average Queue (ft)	0	9	8
95th Queue (ft)	5	33	26
Link Distance (ft)	1519		12
Upstream Blk Time (%)			1
Queuing Penalty (veh)			0
Storage Bay Dist (ft)		300	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: CSAH 2

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	18	21	28
Average Queue (ft)	3	5	10
95th Queue (ft)	22	33	31
Link Distance (ft)	428	267	450
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	WB	SB	SB
Directions Served	T	LT	LT	R
Maximum Queue (ft)	119	133	109	26
Average Queue (ft)	33	55	63	3
95th Queue (ft)	156	132	145	21
Link Distance (ft)	267	710		1051
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (ft)			300	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	650	24	406
Average Queue (ft)	430	6	197
95th Queue (ft)	770	24	465
Link Distance (ft)	710	3512	744
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	4		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	742	4	26	183	0	33	3	275	3	2	3
Future Vol, veh/h	6	742	4	26	183	0	33	3	275	3	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	834	4	29	206	0	37	3	309	3	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	206	0	0	834	0	0	1009	1111	417	696	1111	103
Stage 1	-	-	-	-	-	-	847	847	-	264	264	-
Stage 2	-	-	-	-	-	-	162	264	-	432	847	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1363	-	-	795	-	-	194	208	585	328	208	932
Stage 1	-	-	-	-	-	-	323	376	-	718	689	-
Stage 2	-	-	-	-	-	-	824	689	-	572	376	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1363	-	-	795	-	-	186	199	585	149	199	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	270	297	-	206	283	-
Stage 1	-	-	-	-	-	-	321	374	-	714	664	-
Stage 2	-	-	-	-	-	-	788	664	-	266	374	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.2	18.1	16.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	272	585	1363	-	-	795	-	-	322
HCM Lane V/C Ratio	0.149	0.528	0.005	-	-	0.037	-	-	0.028
HCM Control Delay (s)	20.5	17.8	7.7	-	-	9.7	-	-	16.5
HCM Lane LOS	C	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	3.1	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1136	10	0	227	0	2	0	0	0	0	0
Future Vol, veh/h	0	1136	10	0	227	0	2	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1276	11	0	255	0	2	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	255	0	0	1276	0	0	1404	1531	638	893	1531	128
Stage 1	-	-	-	-	-	-	1276	1276	-	255	255	-
Stage 2	-	-	-	-	-	-	128	255	-	638	1276	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1307	-	-	540	-	-	99	116	419	236	116	898
Stage 1	-	-	-	-	-	-	176	236	-	727	695	-
Stage 2	-	-	-	-	-	-	862	695	-	431	236	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1307	-	-	540	-	-	99	116	419	236	116	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	197	-	343	197	-
Stage 1	-	-	-	-	-	-	176	236	-	727	695	-
Stage 2	-	-	-	-	-	-	862	695	-	431	236	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	28.7	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	154	1307	-	-	540	-	-	-
HCM Lane V/C Ratio	0.015	-	-	-	-	-	-	-
HCM Control Delay (s)	28.7	0	-	-	0	-	-	0
HCM Lane LOS	D	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1118	0	14	224	0	0	0	8	0	0	0
Future Vol, veh/h	0	1118	0	14	224	0	0	0	8	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1256	0	16	252	0	0	0	9	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	252	0	0	1256	0	0	1413	1539	628	911	1539	126
Stage 1	-	-	-	-	-	-	1256	1256	-	283	283	-
Stage 2	-	-	-	-	-	-	157	283	-	628	1256	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1310	-	-	550	-	-	98	115	426	229	115	901
Stage 1	-	-	-	-	-	-	181	241	-	700	676	-
Stage 2	-	-	-	-	-	-	829	676	-	437	241	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1310	-	-	550	-	-	96	112	426	219	112	901
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	197	-	326	188	-
Stage 1	-	-	-	-	-	-	181	241	-	700	656	-
Stage 2	-	-	-	-	-	-	805	656	-	428	241	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	13.6	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	426	1310	-	-	550	-	-	-
HCM Lane V/C Ratio	0.021	-	-	-	0.029	-	-	-
HCM Control Delay (s)	13.6	0	-	-	11.7	-	-	0
HCM Lane LOS	B	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1240	2	2	257	1	12
Future Vol, veh/h	1240	2	2	257	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1393	2	2	289	1	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1396	0	1543	1394
Stage 1	-	-	-	-	1394	-
Stage 2	-	-	-	-	149	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	488	-	116	173
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	864	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	488	-	115	173
Mov Cap-2 Maneuver	-	-	-	-	115	-
Stage 1	-	-	-	-	229	-
Stage 2	-	-	-	-	860	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	28.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	167	-	-	488	-
HCM Lane V/C Ratio	0.087	-	-	0.005	-
HCM Control Delay (s)	28.6	-	-	12.4	0
HCM Lane LOS	D	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↰						↰	↱
Traffic Vol, veh/h	0	1088	70	69	114	0	0	0	0	47	1	130
Future Vol, veh/h	0	1088	70	69	114	0	0	0	0	47	1	130
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	300	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1222	79	78	128	0	0	0	0	53	1	146

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1222	0	0	1505	1505	-
Stage 1	-	-	-	-	-	-	283	283	-
Stage 2	-	-	-	-	-	-	1222	1222	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	570	-	0	133	121	0
Stage 1	0	-	-	-	-	0	765	677	0
Stage 2	0	-	-	-	-	0	278	252	0
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	570	-	-	113	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	0	-
Stage 1	-	-	-	-	-	-	653	0	-
Stage 2	-	-	-	-	-	-	278	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.6	63
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	570	-	113	-
HCM Lane V/C Ratio	-	-	0.136	-	0.477	-
HCM Control Delay (s)	-	-	12.3	0	63	0
HCM Lane LOS	-	-	B	A	F	A
HCM 95th %tile Q(veh)	-	-	0.5	-	2.1	-

Intersection	
Int Delay, s/veh	639.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	867	297	0	0	128	148	20	0	62	0	0	0
Future Vol, veh/h	867	297	0	0	128	148	20	0	62	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	974	334	0	0	144	166	22	0	70	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	310	0	-	-	-	0	2509	2592	334
Stage 1	-	-	-	-	-	-	2282	2282	-
Stage 2	-	-	-	-	-	-	227	310	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1250	-	0	0	-	-	31	25	708
Stage 1	-	-	0	0	-	-	82	75	-
Stage 2	-	-	0	0	-	-	811	659	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1250	-	-	-	-	-	~ 1	0	708
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 1	0	-
Stage 1	-	-	-	-	-	-	~ 4	0	-
Stage 2	-	-	-	-	-	-	811	0	-

Approach	EB	WB	NB
HCM Control Delay, s	12.8	0	$ 11685.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	4	1250	-	-	-
HCM Lane V/C Ratio	23.034	0.779	-	-	-
HCM Control Delay (s)	$ 11685.5	17.2	0	-	-
HCM Lane LOS	F	C	A	-	-
HCM 95th %tile Q(veh)	13.6	8.5	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	WB	NB	NB
Directions Served	L	R	L	LT	R
Maximum Queue (ft)	14	7	72	39	48
Average Queue (ft)	1	1	41	16	23
95th Queue (ft)	12	9	76	42	46
Link Distance (ft)				1864	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	300	300	300		200
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	29
Average Queue (ft)	12
95th Queue (ft)	32
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	24	24
Average Queue (ft)	4	12
95th Queue (ft)	20	32
Link Distance (ft)		12
Upstream Blk Time (%)		1
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: CSAH 2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	49	23
Average Queue (ft)	8	8
95th Queue (ft)	39	29
Link Distance (ft)	267	450
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	WB	SB	SB
Directions Served	LT	LT	R
Maximum Queue (ft)	86	94	261
Average Queue (ft)	34	52	147
95th Queue (ft)	80	89	278
Link Distance (ft)	710		1051
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		300	
Storage Blk Time (%)			2
Queuing Penalty (veh)			2

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	127	14	111
Average Queue (ft)	71	1	52
95th Queue (ft)	126	10	109
Link Distance (ft)	710	3512	744
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	413	27	242	928	4	20	1	77	1	0	0
Future Vol, veh/h	2	413	27	242	928	4	20	1	77	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	444	29	260	998	4	22	1	83	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	998	0	0	444	0	0	1467	1966	222	1745	1966	499
Stage 1	-	-	-	-	-	-	448	448	-	1518	1518	-
Stage 2	-	-	-	-	-	-	1019	1518	-	227	448	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	689	-	-	1112	-	-	89	62	782	55	62	517
Stage 1	-	-	-	-	-	-	560	571	-	125	180	-
Stage 2	-	-	-	-	-	-	254	180	-	755	571	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	689	-	-	1112	-	-	73	47	782	40	47	517
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	112	-	100	105	-
Stage 1	-	-	-	-	-	-	558	569	-	125	138	-
Stage 2	-	-	-	-	-	-	195	138	-	672	569	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.9	15	41.4
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	151	782	689	-	-	1112	-	-	100
HCM Lane V/C Ratio	0.15	0.106	0.003	-	-	0.234	-	-	0.011
HCM Control Delay (s)	33	10.1	10.2	-	-	9.2	-	-	41.4
HCM Lane LOS	D	B	B	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.5	0.4	0	-	-	0.9	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	443	18	1	1088	0	14	0	3	0	0	0
Future Vol, veh/h	0	443	18	1	1088	0	14	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	471	19	1	1157	0	15	0	3	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1157	0	0	471	0	0	1052	1631	236	1396	1631	579
Stage 1	-	-	-	-	-	-	471	471	-	1160	1160	-
Stage 2	-	-	-	-	-	-	581	1160	-	236	471	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	600	-	-	1087	-	-	181	101	766	101	101	458
Stage 1	-	-	-	-	-	-	542	558	-	208	268	-
Stage 2	-	-	-	-	-	-	467	268	-	746	558	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	600	-	-	1087	-	-	181	101	766	101	101	458
Mov Cap-2 Maneuver	-	-	-	-	-	-	311	204	-	176	204	-
Stage 1	-	-	-	-	-	-	542	558	-	208	268	-
Stage 2	-	-	-	-	-	-	467	268	-	743	558	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	15.9	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	347	600	-	-	1087	-	-	-
HCM Lane V/C Ratio	0.052	-	-	-	0.001	-	-	-
HCM Control Delay (s)	15.9	0	-	-	8.3	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	446	0	12	1100	0	0	0	22	0	0	0
Future Vol, veh/h	0	446	0	12	1100	0	0	0	22	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	480	0	13	1183	0	0	0	24	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1183	0	0	480	0	0	1097	1689	240	1449	1689	591
Stage 1	-	-	-	-	-	-	480	480	-	1209	1209	-
Stage 2	-	-	-	-	-	-	617	1209	-	240	480	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	586	-	-	1079	-	-	168	93	761	92	93	450
Stage 1	-	-	-	-	-	-	536	553	-	194	254	-
Stage 2	-	-	-	-	-	-	444	254	-	742	553	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	586	-	-	1079	-	-	166	92	761	88	92	450
Mov Cap-2 Maneuver	-	-	-	-	-	-	295	192	-	163	191	-
Stage 1	-	-	-	-	-	-	536	553	-	194	251	-
Stage 2	-	-	-	-	-	-	439	251	-	719	553	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	9.9	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	761	586	-	-	1079	-	-	-
HCM Lane V/C Ratio	0.031	-	-	-	0.012	-	-	-
HCM Control Delay (s)	9.9	0	-	-	8.4	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	472	4	14	1152	6	6
Future Vol, veh/h	472	4	14	1152	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	508	4	15	1239	6	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	512	0	1159	510
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	649	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1051	-	202	562
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	483	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1051	-	193	562
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	461	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	18.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	287	-	-	1051	-
HCM Lane V/C Ratio	0.045	-	-	0.014	-
HCM Control Delay (s)	18.1	-	-	8.5	0.2
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↰						↰	↱
Traffic Vol, veh/h	0	375	51	88	328	0	0	0	0	146	0	747
Future Vol, veh/h	0	375	51	88	328	0	0	0	0	146	0	747
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	300	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	399	54	94	349	0	0	0	0	155	0	795

Major/Minor	Major1			Major2				Minor2		
Conflicting Flow All	-	0	0	399	0	0		935	935	-
Stage 1	-	-	-	-	-	-		536	536	-
Stage 2	-	-	-	-	-	-		399	399	-
Critical Hdwy	-	-	-	4.12	-	-		6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-		5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-		5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-		3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	1160	-	0		295	265	0
Stage 1	0	-	-	-	-	0		587	523	0
Stage 2	0	-	-	-	-	0		678	602	0
Platoon blocked, %		-	-		-					
Mov Cap-1 Maneuver	-	-	-	1160	-	-		265	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-		265	0	-
Stage 1	-	-	-	-	-	-		528	0	-
Stage 2	-	-	-	-	-	-		678	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.8	36.2
HCM LOS			E

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1160	-	265	-
HCM Lane V/C Ratio	-	-	0.081	-	0.586	-
HCM Control Delay (s)	-	-	8.4	0	36.2	0
HCM Lane LOS	-	-	A	A	E	A
HCM 95th %tile Q(veh)	-	-	0.3	-	3.4	-

Intersection	
Int Delay, s/veh	8.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	294	234	0	0	345	72	64	2	49	0	0	0
Future Vol, veh/h	294	234	0	0	345	72	64	2	49	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	320	254	0	0	375	78	70	2	53	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	453	0	-	-	-	0	1307	1346	254
Stage 1	-	-	-	-	-	-	893	893	-
Stage 2	-	-	-	-	-	-	414	453	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1108	-	0	0	-	-	176	151	785
Stage 1	-	-	0	0	-	-	400	360	-
Stage 2	-	-	0	0	-	-	667	570	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1108	-	-	-	-	-	117	0	785
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	0	-
Stage 1	-	-	-	-	-	-	266	0	-
Stage 2	-	-	-	-	-	-	667	0	-

Approach	EB	WB	NB
HCM Control Delay, s	5.3	0	57.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	185	1108	-	-	-
HCM Lane V/C Ratio	0.676	0.288	-	-	-
HCM Control Delay (s)	57.5	9.6	0	-	-
HCM Lane LOS	F	A	A	-	-
HCM 95th %tile Q(veh)	4.1	1.2	-	-	-

Appendix N: Synchro Reports – Phase 1 (2031)

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	T	L	LT	R	LTR
Maximum Queue (ft)	7	3	44	122	238	50
Average Queue (ft)	1	0	19	60	151	23
95th Queue (ft)	7	5	45	254	288	48
Link Distance (ft)		2640		1864		700
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	300		300		200	
Storage Blk Time (%)					14	
Queuing Penalty (veh)					5	

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	8
Average Queue (ft)	2
95th Queue (ft)	10
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	WB	WB	WB	WB	B26	NB	SB	B27
Directions Served	L	R	L	T	T	R	T	LTR	LTR	T
Maximum Queue (ft)	47	25	317	182	80	6	30	25	123	619
Average Queue (ft)	24	8	224	43	8	1	3	15	118	567
95th Queue (ft)	49	26	415	264	109	6	41	24	123	732
Link Distance (ft)				480	480		428	12	52	604
Upstream Blk Time (%)				2	0			98	100	74
Queuing Penalty (veh)				7	0			362	0	0
Storage Bay Dist (ft)	300	300	300			300				
Storage Blk Time (%)			20	0						
Queuing Penalty (veh)			23	0						

Intersection: 4: CSAH 2

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	101	12	26
Average Queue (ft)	18	2	10
95th Queue (ft)	108	19	29
Link Distance (ft)	428	267	450
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	WB	SB	SB
Directions Served	T	R	LT	LT	R
Maximum Queue (ft)	156	11	190	147	68
Average Queue (ft)	55	1	81	81	21
95th Queue (ft)	214	10	195	169	68
Link Distance (ft)	267	267	710		1051
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	4				
Storage Bay Dist (ft)				300	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	705	25	748
Average Queue (ft)	543	7	680
95th Queue (ft)	809	25	880
Link Distance (ft)	710	3512	744
Upstream Blk Time (%)	1		59
Queuing Penalty (veh)	9		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Int Delay, s/veh	12.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	742	4	26	183	0	33	3	275	3	2	3
Future Vol, veh/h	6	1032	4	116	421	30	33	3	384	40	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	1160	4	130	473	34	37	3	431	45	2	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	473	0	0	1160	0	0	1671	1907	580	1329	1907	237
Stage 1	-	-	-	-	-	-	1173	1173	-	734	734	-
Stage 2	-	-	-	-	-	-	498	734	-	595	1173	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1085	-	-	598	-	-	63	68	458	113	68	764
Stage 1	-	-	-	-	-	-	204	264	-	378	424	-
Stage 2	-	-	-	-	-	-	523	424	-	458	264	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1085	-	-	598	-	-	51	53	458	~ 5	53	764
Mov Cap-2 Maneuver	-	-	-	-	-	-	143	156	-	~ -136	105	-
Stage 1	-	-	-	-	-	-	203	262	-	376	332	-
Stage 2	-	-	-	-	-	-	405	332	-	~ 26	262	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.6	57.3	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	144	458	1085	-	-	598	-	-	+
HCM Lane V/C Ratio	0.281	0.942	0.006	-	-	0.218	-	-	-
HCM Control Delay (s)	39.5	59	8.3	-	-	12.7	-	-	-
HCM Lane LOS	E	F	A	-	-	B	-	-	-
HCM 95th %tile Q(veh)	1.1	11.2	0	-	-	0.8	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1136	10	0	227	0	2	0	0	0	0	0
Future Vol, veh/h	0	1572	10	0	585	0	2	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1766	11	0	657	0	2	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	657	0	0	1766	0	0	2095	2423	883	1540	2423	329
Stage 1	-	-	-	-	-	-	1766	1766	-	657	657	-
Stage 2	-	-	-	-	-	-	329	657	-	883	1766	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	926	-	-	349	-	-	30	32	289	79	32	667
Stage 1	-	-	-	-	-	-	87	135	-	420	460	-
Stage 2	-	-	-	-	-	-	658	460	-	307	135	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	926	-	-	349	-	-	30	32	289	79	32	667
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	105	-	197	105	-
Stage 1	-	-	-	-	-	-	87	135	-	420	460	-
Stage 2	-	-	-	-	-	-	658	460	-	307	135	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	54.5	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	75	926	-	-	349	-	-	-
HCM Lane V/C Ratio	0.03	-	-	-	-	-	-	-
HCM Control Delay (s)	54.5	0	-	-	0	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	420.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1118	0	14	224	0	0	0	8	0	0	0
Future Vol, veh/h	175	1118	261	188	224	117	215	0	152	96	0	143
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	197	1256	293	211	252	131	242	0	171	108	0	161

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	252	0	0	1256	0	0	2197	2323	628	1695	2323	126
Stage 1	-	-	-	-	-	-	1649	1649	-	674	674	-
Stage 2	-	-	-	-	-	-	548	674	-	1021	1649	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1310	-	-	550	-	-	~ 25	37	426	~ 60	37	901
Stage 1	-	-	-	-	-	-	~ 103	155	-	410	452	-
Stage 2	-	-	-	-	-	-	488	452	-	253	155	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1310	-	-	550	-	-	~ 13	19	426	~ 23	19	901
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 34	54	-	~ -121	~ -126	-
Stage 1	-	-	-	-	-	-	~ 88	132	-	348	279	-
Stage 2	-	-	-	-	-	-	247	279	-	129	132	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	5.5	$ 3068	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	55	1310	-	-	550	-	-	+
HCM Lane V/C Ratio	7.497	0.15	-	-	0.384	-	-	-
HCM Control Delay (s)	$ 3068	8.2	-	-	15.6	-	-	-
HCM Lane LOS	F	A	-	-	C	-	-	-
HCM 95th %tile Q(veh)	47.9	0.5	-	-	1.8	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1240	2	2	257	1	12
Future Vol, veh/h	1480	2	2	548	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1663	2	2	616	1	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1665	0	1976	1664
Stage 1	-	-	-	-	1664	-
Stage 2	-	-	-	-	312	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	384	-	61	119
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	384	-	61	119
Mov Cap-2 Maneuver	-	-	-	-	61	-
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	710	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	42.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	111	-	-	384	-
HCM Lane V/C Ratio	0.132	-	-	0.006	-
HCM Control Delay (s)	42.3	-	-	14.4	0.1
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↰						↰	↱
Traffic Vol, veh/h	0	1088	70	69	114	0	0	0	0	47	1	130
Future Vol, veh/h	0	1238	160	69	296	0	0	0	0	47	1	239
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	300	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1391	180	78	333	0	0	0	0	53	1	269

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1391	0	0	1879	1879	-
Stage 1	-	-	-	-	-	-	488	488	-
Stage 2	-	-	-	-	-	-	1391	1391	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	492	-	0	78	71	0
Stage 1	0	-	-	-	-	0	617	550	0
Stage 2	0	-	-	-	-	0	231	209	0
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	492	-	-	63	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	63	0	-
Stage 1	-	-	-	-	-	-	497	0	-
Stage 2	-	-	-	-	-	-	231	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	2.6	181.6
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	492	-	63	-
HCM Lane V/C Ratio	-	-	0.158	-	0.856	-
HCM Control Delay (s)	-	-	13.7	0	181.6	0
HCM Lane LOS	-	-	B	A	F	A
HCM 95th %tile Q(veh)	-	-	0.6	-	4	-

Intersection	
Int Delay, s/veh	17

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	867	297	0	0	128	148	20	0	62	0	0	0
Future Vol, veh/h	957	357	0	0	201	148	129	0	62	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1075	401	0	0	226	166	145	0	70	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	392	0	-	-	-	0	2861	2944	401
Stage 1	-	-	-	-	-	-	2552	2552	-
Stage 2	-	-	-	-	-	-	309	392	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1167	-	0	0	-	-	~ 19	15	649
Stage 1	-	-	0	0	-	-	~ 60	54	-
Stage 2	-	-	0	0	-	-	745	606	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1167	-	-	-	-	-	0	0	649
Mov Cap-2 Maneuver	-	-	-	-	-	-	0	0	-
Stage 1	-	-	-	-	-	-	0	0	-
Stage 2	-	-	-	-	-	-	745	0	-

Approach	EB	WB	NB
HCM Control Delay, s	22.1	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	649	1167	-	-	-
HCM Lane V/C Ratio	0.331	0.921	-	-	-
HCM Control Delay (s)	13.3	30.3	0	-	-
HCM Lane LOS	B	D	A	-	-
HCM 95th %tile Q(veh)	1.4	15.2	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	R	L	LT	R	LTR
Maximum Queue (ft)	12	11	89	71	89	146
Average Queue (ft)	1	1	53	28	43	61
95th Queue (ft)	9	7	86	69	77	151
Link Distance (ft)				1864		700
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	300	300	300		200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	4	36
Average Queue (ft)	0	12
95th Queue (ft)	4	35
Link Distance (ft)		650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	WB	WB	WB	NB	SB	B27
Directions Served	L	R	L	T	R	LTR	LTR	T
Maximum Queue (ft)	89	20	62	6	14	40	132	627
Average Queue (ft)	45	4	36	0	1	24	121	612
95th Queue (ft)	78	18	63	5	8	36	131	656
Link Distance (ft)				480		12	52	604
Upstream Blk Time (%)						85	100	94
Queuing Penalty (veh)						430	0	0
Storage Bay Dist (ft)	300	300	300		300			
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: CSAH 2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	39	28
Average Queue (ft)	4	10
95th Queue (ft)	24	31
Link Distance (ft)	267	450
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	WB	SB	SB
Directions Served	R	LT	LT	R
Maximum Queue (ft)	4	96	450	1098
Average Queue (ft)	0	32	439	1070
95th Queue (ft)	4	78	549	1131
Link Distance (ft)	267	710		1051
Upstream Blk Time (%)				91
Queuing Penalty (veh)				0
Storage Bay Dist (ft)			300	
Storage Blk Time (%)				95
Queuing Penalty (veh)				138

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	149	4	363
Average Queue (ft)	61	1	171
95th Queue (ft)	114	7	367
Link Distance (ft)	710	3512	744
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Int Delay, s/veh	9.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	413	27	242	928	4	20	1	77	1	0	0
Future Vol, veh/h	2	663	27	363	1251	44	20	1	171	33	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	713	29	390	1345	47	22	1	184	35	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1345	0	0	713	0	0	2170	2843	356	2487	2843	673
Stage 1	-	-	-	-	-	-	717	717	-	2126	2126	-
Stage 2	-	-	-	-	-	-	1453	2126	-	361	717	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	508	-	-	883	-	-	26	17	640	~ 15	17	398
Stage 1	-	-	-	-	-	-	387	432	-	51	89	-
Stage 2	-	-	-	-	-	-	137	89	-	630	432	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	508	-	-	883	-	-	~ 17	9	640	~ 7	9	398
Mov Cap-2 Maneuver	-	-	-	-	-	-	61	41	-	~ 28	24	-
Stage 1	-	-	-	-	-	-	385	430	-	51	50	-
Stage 2	-	-	-	-	-	-	76	50	-	446	430	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	2.7	22.2	$ 471.1
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	60	640	508	-	-	883	-	-	28
HCM Lane V/C Ratio	0.376	0.287	0.004	-	-	0.442	-	-	1.267
HCM Control Delay (s)	97.5	12.9	12.1	-	-	12.3	-	-	$ 471.1
HCM Lane LOS	F	B	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	1.4	1.2	0	-	-	2.3	-	-	4.1

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	443	18	1	1088	0	14	0	3	0	0	0
Future Vol, veh/h	0	819	18	1	1572	0	14	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	871	19	1	1672	0	15	0	3	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1672	0	0	871	0	0	1709	2545	436	2110	2545	836
Stage 1	-	-	-	-	-	-	871	871	-	1674	1674	-
Stage 2	-	-	-	-	-	-	838	1674	-	436	871	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	380	-	-	770	-	-	59	27	568	29	27	310
Stage 1	-	-	-	-	-	-	312	367	-	99	151	-
Stage 2	-	-	-	-	-	-	327	151	-	569	367	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	380	-	-	770	-	-	59	27	568	29	27	310
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	108	-	83	108	-
Stage 1	-	-	-	-	-	-	312	367	-	99	151	-
Stage 2	-	-	-	-	-	-	327	151	-	566	367	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	25.1	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	197	380	-	-	770	-	-	-
HCM Lane V/C Ratio	0.092	-	-	-	0.001	-	-	-
HCM Control Delay (s)	25.1	0	-	-	9.7	-	-	0
HCM Lane LOS	D	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	147.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	446	0	12	1100	0	0	0	22	0	0	0
Future Vol, veh/h	151	446	225	162	1100	101	291	0	216	128	0	193
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	162	480	242	174	1183	109	313	0	232	138	0	208

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1183	0	0	480	0	0	1744	2335	240	2096	2335	591
Stage 1	-	-	-	-	-	-	804	804	-	1531	1531	-
Stage 2	-	-	-	-	-	-	940	1531	-	565	804	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	586	-	-	1079	-	-	~ 55	36	761	~ 30	36	450
Stage 1	-	-	-	-	-	-	343	394	-	~ 122	177	-
Stage 2	-	-	-	-	-	-	~ 283	177	-	477	394	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	586	-	-	1079	-	-	~ 21	22	761	~ 14	22	450
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ -47	~ -18	-	~ 41	68	-
Stage 1	-	-	-	-	-	-	~ 248	285	-	~ 88	148	-
Stage 2	-	-	-	-	-	-	~ 128	148	-	240	285	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.5	1.1		$ 1372.8
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	+	586	-	-	1079	-	-	90
HCM Lane V/C Ratio	-	0.277	-	-	0.161	-	-	3.835
HCM Control Delay (s)	-	13.5	-	-	9	-		$ 1372.8
HCM Lane LOS	-	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	-	1.1	-	-	0.6	-	-	35.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	472	4	14	1152	6	6
Future Vol, veh/h	794	4	14	1403	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	854	4	15	1509	6	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	858	0	1640	856
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	784	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	781	-	100	357
Stage 1	-	-	-	-	415	-
Stage 2	-	-	-	-	411	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	781	-	88	357
Mov Cap-2 Maneuver	-	-	-	-	88	-
Stage 1	-	-	-	-	415	-
Stage 2	-	-	-	-	362	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	33.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	141	-	-	781	-
HCM Lane V/C Ratio	0.092	-	-	0.019	-
HCM Control Delay (s)	33.1	-	-	9.7	0.6
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	14.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	375	51	88	328	0	0	0	0	146	0	747
Future Vol, veh/h	0	576	172	88	485	0	0	0	0	146	0	841
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	300	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	613	183	94	516	0	0	0	0	155	0	895

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	613	0	0	1316	1316	-
Stage 1	-	-	-	-	-	-	703	703	-
Stage 2	-	-	-	-	-	-	613	613	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	966	-	0	174	158	0
Stage 1	0	-	-	-	-	0	491	440	0
Stage 2	0	-	-	-	-	0	541	483	0
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	966	-	-	~ 150	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 150	0	-
Stage 1	-	-	-	-	-	-	424	0	-
Stage 2	-	-	-	-	-	-	541	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.4	143
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	966	-	150	-
HCM Lane V/C Ratio	-	-	0.097	-	1.035	-
HCM Control Delay (s)	-	-	9.1	0	143	0
HCM Lane LOS	-	-	A	A	F	A
HCM 95th %tile Q(veh)	-	-	0.3	-	8	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	213.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	294	234	0	0	345	72	64	2	49	0	0	0
Future Vol, veh/h	415	314	0	0	408	72	158	2	49	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	451	341	0	0	443	78	172	2	53	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	522	0	-	-	-	0	1726	1765	341
Stage 1	-	-	-	-	-	-	1243	1243	-
Stage 2	-	-	-	-	-	-	483	522	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1044	-	0	0	-	-	~ 98	84	701
Stage 1	-	-	0	0	-	-	272	246	-
Stage 2	-	-	0	0	-	-	620	531	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1044	-	-	-	-	-	~ 46	0	701
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 46	0	-
Stage 1	-	-	-	-	-	-	~ 127	0	-
Stage 2	-	-	-	-	-	-	620	0	-

Approach	EB	WB	NB
HCM Control Delay, s	6.3	0	$ 1426.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	59	1044	-	-	-
HCM Lane V/C Ratio	3.85	0.432	-	-	-
HCM Control Delay (s)	$ 1426.4	11	0	-	-
HCM Lane LOS	F	B	A	-	-
HCM 95th %tile Q(veh)	24.5	2.2	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Appendix O: Synchro Reports – Phase 1 (2031) Recommendations

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LT	R
Maximum Queue (ft)	25	271	273	9	91	72	85	19	49	217	45	6
Average Queue (ft)	4	174	168	1	50	41	52	5	16	126	15	1
95th Queue (ft)	20	261	264	7	89	76	89	18	46	215	46	6
Link Distance (ft)		2632	2632			1905	1905		1864		701	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			300	300			300		200		150
Storage Blk Time (%)		0	0							2		
Queuing Penalty (veh)		0	0							1		

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	WB	NB
Directions Served	T	LTR
Maximum Queue (ft)	268	11
Average Queue (ft)	27	1
95th Queue (ft)	366	9
Link Distance (ft)	1513	650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	199	405	374	161	313	82	94	59	12	49	49	93
Average Queue (ft)	99	305	286	65	207	47	60	33	12	28	34	47
95th Queue (ft)	244	448	414	155	397	80	101	58	16	43	52	85
Link Distance (ft)		1513	1513			474	474			13		53
Upstream Blk Time (%)									11	35	5	5
Queuing Penalty (veh)									0	130	0	0
Storage Bay Dist (ft)	300			300	300			300	150		150	
Storage Blk Time (%)		16	10		14				11	35	5	5
Queuing Penalty (veh)		29	26		16				16	76	7	5

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	B27
Directions Served	T
Maximum Queue (ft)	4
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	604
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: CSAH 2

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	LT	T	LR
Maximum Queue (ft)	199	203	47	17	33
Average Queue (ft)	51	41	7	2	9
95th Queue (ft)	212	199	49	23	32
Link Distance (ft)	429	429	268	268	451
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	2	1			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	289	290	72	120	66	74
Average Queue (ft)	229	207	43	33	26	24
95th Queue (ft)	329	309	75	109	63	71
Link Distance (ft)	268	268		711		1042
Upstream Blk Time (%)	10	5				
Queuing Penalty (veh)	75	40				
Storage Bay Dist (ft)			200		300	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	TR	LT	R
Maximum Queue (ft)	199	189	99	114	148	130	50
Average Queue (ft)	114	119	47	75	91	56	21
95th Queue (ft)	187	192	94	121	152	114	48
Link Distance (ft)		711	711	3503	3503	741	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	350						150
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Intersection: 7: Newton Cir & Frontage Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	13
95th Queue (ft)	37
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	742	4	26	183	0	33	3	275	3	2	3
Future Volume (veh/h)	6	1032	4	116	421	30	33	3	384	40	2	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	7	1160	4	130	473	34	37	3	431	45	2	3
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	423	1348	603	249	1545	691	92	4	593	94	2	593
Arrive On Green	0.01	0.38	0.38	0.06	0.44	0.44	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	0	11	1583	0	6	1583
Grp Volume(v), veh/h	7	1160	4	130	473	34	40	0	431	47	0	3
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	11	0	1583	6	0	1583
Q Serve(g_s), s	0.2	22.6	0.1	3.2	6.5	0.9	0.0	0.0	17.5	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.2	22.6	0.1	3.2	6.5	0.9	28.1	0.0	17.5	28.1	0.0	0.1
Prop In Lane	1.00		1.00	1.00		1.00	0.92		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	423	1348	603	249	1545	691	96	0	593	96	0	593
V/C Ratio(X)	0.02	0.86	0.01	0.52	0.31	0.05	0.41	0.00	0.73	0.49	0.00	0.01
Avail Cap(c_a), veh/h	525	1439	644	288	1545	691	96	0	593	96	0	593
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.0	21.4	14.4	16.7	13.7	12.2	34.7	0.0	20.2	36.2	0.0	14.7
Incr Delay (d2), s/veh	0.0	5.3	0.0	1.7	0.1	0.0	12.6	0.0	7.6	16.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	11.9	0.1	1.6	3.2	0.4	1.2	0.0	8.9	1.4	0.0	0.0
LnGrp Delay(d),s/veh	14.1	26.7	14.4	18.4	13.9	12.2	47.3	0.0	27.8	52.9	0.0	14.7
LnGrp LOS	B	C	B	B	B	B	D		C	D		B
Approach Vol, veh/h		1171			637			471			50	
Approach Delay, s/veh		26.5			14.7			29.4			50.6	
Approach LOS		C			B			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		32.6	9.3	33.1		32.6	5.2	37.2
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		24.5	6.5	30.5		24.5	5.0	32.0
Max Q Clear Time (g_c+I1), s		30.1	5.2	24.6		30.1	2.2	8.5
Green Ext Time (p_c), s		0.0	0.0	3.9		0.0	0.0	11.3

Intersection Summary	
HCM 2010 Ctrl Delay	24.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1118	0	14	224	0	0	0	8	0	0	0
Future Volume (veh/h)	175	1118	261	188	224	117	215	0	152	96	0	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	197	1256	293	211	252	131	242	0	171	108	0	161
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	567	1298	581	246	1249	559	410	0	393	399	0	386
Arrive On Green	0.10	0.37	0.37	0.08	0.35	0.35	0.07	0.00	0.25	0.06	0.00	0.24
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	0	1583	1774	0	1583
Grp Volume(v), veh/h	197	1256	293	211	252	131	242	0	171	108	0	161
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1583	1774	0	1583
Q Serve(g_s), s	5.2	26.1	10.8	5.7	3.7	4.4	5.1	0.0	6.8	3.4	0.0	6.4
Cycle Q Clear(g_c), s	5.2	26.1	10.8	5.7	3.7	4.4	5.1	0.0	6.8	3.4	0.0	6.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	567	1298	581	246	1249	559	410	0	393	399	0	386
V/C Ratio(X)	0.35	0.97	0.50	0.86	0.20	0.23	0.59	0.00	0.44	0.27	0.00	0.42
Avail Cap(c_a), veh/h	604	1298	581	246	1249	559	410	0	393	404	0	386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.0	23.3	18.5	18.3	16.9	17.1	23.2	0.0	23.8	19.4	0.0	23.9
Incr Delay (d2), s/veh	0.4	17.8	0.7	24.5	0.1	0.2	2.2	0.0	3.5	0.4	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	15.9	4.8	4.4	1.8	1.9	2.4	0.0	3.4	1.7	0.0	3.2
LnGrp Delay(d),s/veh	13.3	41.1	19.2	42.8	17.0	17.3	25.4	0.0	27.3	19.8	0.0	27.1
LnGrp LOS	B	D	B	D	B	B	C		C	B		C
Approach Vol, veh/h		1746			594			413			269	
Approach Delay, s/veh		34.3			26.2			26.2			24.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	23.1	10.6	32.0	9.6	22.8	11.6	31.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.4	6.1	27.5	5.1	18.3	8.7	24.9
Max Q Clear Time (g_c+I1), s	5.4	8.8	7.7	28.1	7.1	8.4	7.2	6.4
Green Ext Time (p_c), s	0.0	1.4	0.0	0.0	0.0	1.4	0.1	10.6

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1088	70	69	114	0	0	0	0	47	1	130
Future Volume (veh/h)	0	1238	160	69	296	0	0	0	0	47	1	239
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	1391	180	78	333	0				53	1	0
Adj No. of Lanes	0	2	0	1	1	0				0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1540	198	217	1121	0				437	8	397
Arrive On Green	0.00	0.49	0.49	0.11	1.00	0.00				0.25	0.25	0.00
Sat Flow, veh/h	0	3249	405	1774	1863	0				1743	33	1583
Grp Volume(v), veh/h	0	775	796	78	333	0				54	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1791	1774	1863	0				1776	0	1583
Q Serve(g_s), s	0.0	29.9	30.7	1.5	0.0	0.0				1.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.9	30.7	1.5	0.0	0.0				1.8	0.0	0.0
Prop In Lane	0.00		0.23	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	864	874	217	1121	0				445	0	397
V/C Ratio(X)	0.00	0.90	0.91	0.36	0.30	0.00				0.12	0.00	0.00
Avail Cap(c_a), veh/h	0	887	898	242	1172	0				445	0	397
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.73	0.73	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.5	17.7	15.3	0.0	0.0				21.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	11.7	13.0	0.7	0.1	0.0				0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.2	18.2	0.8	0.0	0.0				0.9	0.0	0.0
LnGrp Delay(d),s/veh	0.0	29.2	30.7	16.0	0.1	0.0				22.3	0.0	0.0
LnGrp LOS		C	C	B	A					C		
Approach Vol, veh/h		1571			411						54	
Approach Delay, s/veh		29.9			3.1						22.3	
Approach LOS		C			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			8.5	41.1		23.3		49.6
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			5.1	37.6		18.8		47.2
Max Q Clear Time (g_c+I1), s			3.5	32.7		3.8		2.0
Green Ext Time (p_c), s			0.0	3.9		0.1		17.4

Intersection Summary	
HCM 2010 Ctrl Delay	24.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	867	297	0	0	128	148	20	0	62	0	0	0
Future Volume (veh/h)	957	357	0	0	201	148	129	0	62	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	1075	401	0	0	226	166	145	0	70			
Adj No. of Lanes	2	1	0	0	2	0	0	1	1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1288	963	0	0	343	241	644	0	575			
Arrive On Green	0.09	0.17	0.00	0.00	0.17	0.17	0.36	0.00	0.36			
Sat Flow, veh/h	3442	1863	0	0	2080	1398	1774	0	1583			
Grp Volume(v), veh/h	1075	401	0	0	200	192	145	0	70			
Grp Sat Flow(s),veh/h/ln	1721	1863	0	0	1770	1616	1774	0	1583			
Q Serve(g_s), s	17.1	14.4	0.0	0.0	7.9	8.4	4.3	0.0	2.2			
Cycle Q Clear(g_c), s	17.1	14.4	0.0	0.0	7.9	8.4	4.3	0.0	2.2			
Prop In Lane	1.00		0.00	0.00		0.87	1.00		1.00			
Lane Grp Cap(c), veh/h	1288	963	0	0	305	279	644	0	575			
V/C Ratio(X)	0.83	0.42	0.00	0.00	0.66	0.69	0.23	0.00	0.12			
Avail Cap(c_a), veh/h	1451	1180	0	0	427	390	644	0	575			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.30	0.30	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.9	21.0	0.0	0.0	29.0	29.1	16.6	0.0	15.9			
Incr Delay (d2), s/veh	1.2	0.1	0.0	0.0	2.4	3.0	0.8	0.0	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.2	7.5	0.0	0.0	4.0	4.0	2.2	0.0	1.0			
LnGrp Delay(d),s/veh	21.1	21.1	0.0	0.0	31.4	32.2	17.4	0.0	16.3			
LnGrp LOS	C	C			C	C	B		B			
Approach Vol, veh/h		1476			392			215				
Approach Delay, s/veh		21.1			31.8			17.0				
Approach LOS		C			C			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		31.7		43.3			25.8	17.4
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		18.5		47.5			24.9	18.1
Max Q Clear Time (g_c+I1), s		6.3		16.4			19.1	10.4
Green Ext Time (p_c), s		0.7		4.4			2.3	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.7
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1136	10	0	227	0	2	0	0	0	0	0
Future Vol, veh/h	0	1572	10	0	585	0	2	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1766	11	0	657	0	2	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	657	0	0	1766	0	0	2095	2423	883	1540	2423	329
Stage 1	-	-	-	-	-	-	1766	1766	-	657	657	-
Stage 2	-	-	-	-	-	-	329	657	-	883	1766	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	926	-	-	349	-	-	30	32	289	79	32	667
Stage 1	-	-	-	-	-	-	87	135	-	420	460	-
Stage 2	-	-	-	-	-	-	658	460	-	307	135	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	926	-	-	349	-	-	30	32	289	79	32	667
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	105	-	197	105	-
Stage 1	-	-	-	-	-	-	87	135	-	420	460	-
Stage 2	-	-	-	-	-	-	658	460	-	307	135	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	54.5	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	75	926	-	-	349	-	-	-
HCM Lane V/C Ratio	0.03	-	-	-	-	-	-	-
HCM Control Delay (s)	54.5	0	-	-	0	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1240	2	2	257	1	12
Future Vol, veh/h	1480	2	2	548	1	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1663	2	2	616	1	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1665	0	1976	833
Stage 1	-	-	-	-	1664	-
Stage 2	-	-	-	-	312	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	382	-	54	312
Stage 1	-	-	-	-	139	-
Stage 2	-	-	-	-	715	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	382	-	54	312
Mov Cap-2 Maneuver	-	-	-	-	54	-
Stage 1	-	-	-	-	139	-
Stage 2	-	-	-	-	709	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	21.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	228	-	-	382	-
HCM Lane V/C Ratio	0.064	-	-	0.006	-
HCM Control Delay (s)	21.9	-	-	14.5	0.1
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LT
Maximum Queue (ft)	15	201	195	31	207	225	250	30	38	97	45
Average Queue (ft)	2	138	128	10	140	147	166	11	14	49	15
95th Queue (ft)	13	197	202	29	206	216	241	31	39	90	45
Link Distance (ft)		2632	2632			1905	1905		1864		701
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	300			300	300			300		200	
Storage Blk Time (%)						0	0				
Queuing Penalty (veh)						0	0				

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	3	28
Average Queue (ft)	0	13
95th Queue (ft)	5	33
Link Distance (ft)		650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B26	B26	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	173	157	153	84	181	362	365	181	29	25	14	56
Average Queue (ft)	108	104	108	50	107	260	268	48	5	5	12	32
95th Queue (ft)	183	163	160	81	286	449	451	201	51	46	15	53
Link Distance (ft)		1513	1513			474	474		429	429		13
Upstream Blk Time (%)						3	3				18	38
Queuing Penalty (veh)						19	22				0	190
Storage Bay Dist (ft)	300			300	300			300			150	
Storage Blk Time (%)						11	11				18	38
Queuing Penalty (veh)						17	11				38	110

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	SB	SB	B27
Directions Served	L	TR	T
Maximum Queue (ft)	52	128	59
Average Queue (ft)	39	79	9
95th Queue (ft)	67	132	48
Link Distance (ft)		53	604
Upstream Blk Time (%)	8	14	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)	150		
Storage Blk Time (%)	8	14	
Queuing Penalty (veh)	15	18	

Intersection: 4: CSAH 2

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	LT	T	LR
Maximum Queue (ft)	12	29	93	68	41
Average Queue (ft)	1	5	20	8	12
95th Queue (ft)	16	36	86	70	41
Link Distance (ft)	429	429	268	268	451
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	243	268	159	269	149	456
Average Queue (ft)	135	173	56	153	58	238
95th Queue (ft)	238	281	133	254	186	481
Link Distance (ft)	268	268		711		1042
Upstream Blk Time (%)	0	2				
Queuing Penalty (veh)	1	7				
Storage Bay Dist (ft)			200		300	
Storage Blk Time (%)				2		5
Queuing Penalty (veh)				2		8

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	TR	LT	R
Maximum Queue (ft)	99	110	98	161	176	126	36
Average Queue (ft)	58	71	44	105	112	66	14
95th Queue (ft)	99	112	96	160	174	121	37
Link Distance (ft)		711	711	3503	3503	741	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	350						150
Storage Blk Time (%)						0	
Queuing Penalty (veh)						0	

Intersection: 7: Newton Cir & Frontage Rd

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	10	38
Average Queue (ft)	1	22
95th Queue (ft)	11	47
Link Distance (ft)	566	650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	413	27	242	928	4	20	1	77	1	0	0
Future Volume (veh/h)	2	663	27	363	1251	44	20	1	171	33	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	2	713	29	390	1345	47	22	1	184	35	0	0
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	1027	459	491	1647	737	582	24	557	506	0	557
Arrive On Green	0.00	0.29	0.29	0.18	0.47	0.47	0.35	0.35	0.35	0.35	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1386	69	1583	1165	0	1583
Grp Volume(v), veh/h	2	713	29	390	1345	47	23	0	184	35	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1455	0	1583	1165	0	1583
Q Serve(g_s), s	0.1	13.4	1.0	10.7	24.6	1.2	0.0	0.0	6.4	1.5	0.0	0.0
Cycle Q Clear(g_c), s	0.1	13.4	1.0	10.7	24.6	1.2	0.6	0.0	6.4	2.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.96		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	154	1027	459	491	1647	737	606	0	557	506	0	557
V/C Ratio(X)	0.01	0.69	0.06	0.79	0.82	0.06	0.04	0.00	0.33	0.07	0.00	0.00
Avail Cap(c_a), veh/h	267	1085	486	637	1770	792	606	0	557	506	0	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.7	23.7	19.3	15.2	17.3	11.0	16.0	0.0	17.8	16.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	0.1	5.3	2.9	0.0	0.1	0.0	1.6	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.8	0.4	5.9	12.6	0.5	0.3	0.0	3.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	19.7	25.5	19.3	20.4	20.2	11.1	16.1	0.0	19.4	16.9	0.0	0.0
LnGrp LOS	B	C	B	C	C	B	B		B	B		
Approach Vol, veh/h		744			1782			207			35	
Approach Delay, s/veh		25.2			20.0			19.0			16.9	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		30.9	17.8	26.3		30.9	4.7	39.4
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		19.0	19.5	23.0		19.0	5.0	37.5
Max Q Clear Time (g_c+I1), s		8.4	12.7	15.4		4.1	2.1	26.6
Green Ext Time (p_c), s		0.6	0.7	6.1		0.8	0.0	8.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	446	0	12	1100	0	0	0	22	0	0	0
Future Volume (veh/h)	151	446	225	162	1100	101	291	0	216	128	0	193
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	164	485	245	176	1196	110	316	0	235	139	0	210
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	1170	523	417	1251	559	412	0	413	387	0	401
Arrive On Green	0.07	0.33	0.33	0.09	0.35	0.35	0.09	0.00	0.26	0.08	0.00	0.25
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	0	1583	1774	0	1583
Grp Volume(v), veh/h	164	485	245	176	1196	110	316	0	235	139	0	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1583	1774	0	1583
Q Serve(g_s), s	4.6	8.0	9.2	4.8	24.8	3.6	6.5	0.0	9.7	4.3	0.0	8.6
Cycle Q Clear(g_c), s	4.6	8.0	9.2	4.8	24.8	3.6	6.5	0.0	9.7	4.3	0.0	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	224	1170	523	417	1251	559	412	0	413	387	0	401
V/C Ratio(X)	0.73	0.41	0.47	0.42	0.96	0.20	0.77	0.00	0.57	0.36	0.00	0.52
Avail Cap(c_a), veh/h	224	1170	523	478	1251	559	412	0	413	396	0	401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.1	19.5	19.9	14.6	23.7	16.9	24.0	0.0	24.0	18.8	0.0	24.1
Incr Delay (d2), s/veh	11.6	0.2	0.7	0.7	16.1	0.2	8.4	0.0	5.6	0.6	0.0	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.9	4.1	2.4	14.8	1.6	4.3	0.0	4.8	2.1	0.0	4.3
LnGrp Delay(d),s/veh	30.7	19.7	20.5	15.2	39.8	17.0	32.4	0.0	29.6	19.3	0.0	28.9
LnGrp LOS	C	B	C	B	D	B	C		C	B		C
Approach Vol, veh/h		894			1482			551			349	
Approach Delay, s/veh		22.0			35.2			31.2			25.1	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	24.1	11.2	29.3	11.0	23.5	9.5	31.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.3	19.2	9.3	22.2	6.5	19.0	5.0	26.5
Max Q Clear Time (g_c+I1), s	6.3	11.7	6.8	11.2	8.5	10.6	6.6	26.8
Green Ext Time (p_c), s	0.0	1.6	0.1	7.8	0.0	1.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	29.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	375	51	88	328	0	0	0	0	146	0	747
Future Volume (veh/h)	0	576	172	88	485	0	0	0	0	146	0	841
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	613	183	94	516	0				155	0	0
Adj No. of Lanes	0	2	0	1	1	0				0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	653	195	210	670	0				904	0	806
Arrive On Green	0.00	0.24	0.24	0.02	0.12	0.00				0.51	0.00	0.00
Sat Flow, veh/h	0	2783	802	1774	1863	0				1774	0	1583
Grp Volume(v), veh/h	0	403	393	94	516	0				155	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1721	1774	1863	0				1774	0	1583
Q Serve(g_s), s	0.0	16.8	16.8	2.8	20.2	0.0				3.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	16.8	16.8	2.8	20.2	0.0				3.5	0.0	0.0
Prop In Lane	0.00		0.47	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	429	418	210	670	0				904	0	806
V/C Ratio(X)	0.00	0.94	0.94	0.45	0.77	0.00				0.17	0.00	0.00
Avail Cap(c_a), veh/h	0	429	418	229	690	0				904	0	806
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.68	0.68	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	27.9	27.9	21.4	30.0	0.0				9.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	28.5	29.5	1.0	3.6	0.0				0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.6	11.4	1.4	11.1	0.0				1.8	0.0	0.0
LnGrp Delay(d),s/veh	0.0	56.3	57.4	22.4	33.6	0.0				10.3	0.0	0.0
LnGrp LOS		E	E	C	C					B		
Approach Vol, veh/h		796			610						155	
Approach Delay, s/veh		56.8			31.9						10.3	
Approach LOS		E			C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			8.8	22.7		42.7		31.5
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			5.1	18.2		38.2		27.8
Max Q Clear Time (g_c+I1), s			4.8	18.8		5.5		22.2
Green Ext Time (p_c), s			0.0	0.0		0.9		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	42.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	234	0	0	345	72	64	2	49	0	0	0
Future Volume (veh/h)	415	314	0	0	408	72	158	2	49	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	451	341	0	0	443	78	172	2	53			
Adj No. of Lanes	2	1	0	0	2	0	0	1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	767	745	0	0	625	109	842	10	760			
Arrive On Green	0.04	0.13	0.00	0.00	0.21	0.21	0.48	0.48	0.48			
Sat Flow, veh/h	3442	1863	0	0	3105	527	1755	20	1583			
Grp Volume(v), veh/h	451	341	0	0	259	262	174	0	53			
Grp Sat Flow(s),veh/h/ln	1721	1863	0	0	1770	1770	1775	0	1583			
Q Serve(g_s), s	7.2	12.7	0.0	0.0	10.2	10.3	4.2	0.0	1.4			
Cycle Q Clear(g_c), s	7.2	12.7	0.0	0.0	10.2	10.3	4.2	0.0	1.4			
Prop In Lane	1.00		0.00	0.00		0.30	0.99		1.00			
Lane Grp Cap(c), veh/h	767	745	0	0	367	367	852	0	760			
V/C Ratio(X)	0.59	0.46	0.00	0.00	0.71	0.71	0.20	0.00	0.07			
Avail Cap(c_a), veh/h	976	1031	0	0	531	531	852	0	760			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.27	0.27	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.7	25.0	0.0	0.0	27.6	27.6	11.2	0.0	10.5			
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	2.5	2.6	0.5	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.4	6.6	0.0	0.0	5.2	5.3	2.2	0.0	0.6			
LnGrp Delay(d),s/veh	20.8	25.1	0.0	0.0	30.1	30.2	11.8	0.0	10.7			
LnGrp LOS	C	C			C	C	B		B			
Approach Vol, veh/h		792			521			227				
Approach Delay, s/veh		22.7			30.2			11.5				
Approach LOS		C			C			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		40.5		34.5			14.4	20.1
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		24.5		41.5			14.5	22.5
Max Q Clear Time (g_c+I1), s		6.2		14.7			9.2	12.3
Green Ext Time (p_c), s		1.0		4.7			0.8	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	23.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	443	18	1	1088	0	14	0	3	0	0	0
Future Vol, veh/h	0	819	18	1	1572	0	14	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	871	19	1	1672	0	15	0	3	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1672	0	0	871	0	0	1709	2545	436	2110	2545	836
Stage 1	-	-	-	-	-	-	871	871	-	1674	1674	-
Stage 2	-	-	-	-	-	-	838	1674	-	436	871	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	380	-	-	770	-	-	59	27	568	29	27	310
Stage 1	-	-	-	-	-	-	312	367	-	99	151	-
Stage 2	-	-	-	-	-	-	327	151	-	569	367	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	380	-	-	770	-	-	59	27	568	29	27	310
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	108	-	83	108	-
Stage 1	-	-	-	-	-	-	312	367	-	99	151	-
Stage 2	-	-	-	-	-	-	327	151	-	566	367	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	25.1	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	197	380	-	-	770	-	-	-
HCM Lane V/C Ratio	0.092	-	-	-	0.001	-	-	-
HCM Control Delay (s)	25.1	0	-	-	9.7	-	-	0
HCM Lane LOS	D	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	472	4	14	1152	6	6
Future Vol, veh/h	794	4	14	1403	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	854	4	15	1509	6	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	858	0	1640	429
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	784	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	779	-	91	574
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	410	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	779	-	80	574
Mov Cap-2 Maneuver	-	-	-	-	80	-
Stage 1	-	-	-	-	377	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	33.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	140	-	-	779	-
HCM Lane V/C Ratio	0.092	-	-	0.019	-
HCM Control Delay (s)	33.3	-	-	9.7	0.6
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Appendix P: Synchro Reports – Baseline (2038)

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	T	L	LT	R	LTR
Maximum Queue (ft)	19	3	39	46	126	25
Average Queue (ft)	3	0	15	20	67	8
95th Queue (ft)	17	5	41	46	117	25
Link Distance (ft)		2640		1864		700
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	300		300		200	
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	NB
Directions Served	LTR
Maximum Queue (ft)	16
Average Queue (ft)	3
95th Queue (ft)	15
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	WB	NB
Directions Served	T	T	L	LTR
Maximum Queue (ft)	452	431	33	24
Average Queue (ft)	159	145	10	9
95th Queue (ft)	566	535	33	28
Link Distance (ft)	1519	1519		12
Upstream Blk Time (%)				2
Queuing Penalty (veh)				0
Storage Bay Dist (ft)			300	
Storage Blk Time (%)	17	6		
Queuing Penalty (veh)	0	0		

Intersection: 4: CSAH 2

Movement	EB	B26	B26	WB	NB
Directions Served	TR	T		LT	LR
Maximum Queue (ft)	516	491	438	28	53
Average Queue (ft)	296	221	171	5	20
95th Queue (ft)	683	611	572	26	68
Link Distance (ft)	428	480	480	267	450
Upstream Blk Time (%)	26	15	6		
Queuing Penalty (veh)	344	98	36		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	WB	SB	SB
Directions Served	T	R	LT	LT	R
Maximum Queue (ft)	281	7	156	214	82
Average Queue (ft)	191	1	66	128	18
95th Queue (ft)	373	7	142	254	113
Link Distance (ft)	267	267	710		1051
Upstream Blk Time (%)	5				
Queuing Penalty (veh)	35				
Storage Bay Dist (ft)				300	
Storage Blk Time (%)				4	0
Queuing Penalty (veh)				6	0

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	719	21	552
Average Queue (ft)	648	6	309
95th Queue (ft)	862	21	643
Link Distance (ft)	710	3512	744
Upstream Blk Time (%)	4		1
Queuing Penalty (veh)	47		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	860	8	30	213	0	38	3	319	6	4	6
Future Vol, veh/h	9	860	8	30	213	0	38	3	319	6	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	966	9	34	239	0	43	3	358	7	4	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	239	0	0	966	0	0	1176	1294	483	812	1294	120
Stage 1	-	-	-	-	-	-	987	987	-	307	307	-
Stage 2	-	-	-	-	-	-	189	307	-	505	987	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1325	-	-	709	-	-	147	161	530	271	161	909
Stage 1	-	-	-	-	-	-	265	324	-	678	660	-
Stage 2	-	-	-	-	-	-	795	660	-	518	324	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1325	-	-	709	-	-	138	152	530	83	152	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	220	252	-	116	235	-
Stage 1	-	-	-	-	-	-	263	322	-	673	628	-
Stage 2	-	-	-	-	-	-	746	628	-	165	322	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.3	24.9	23.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	222	530	1325	-	-	709	-	-	212
HCM Lane V/C Ratio	0.208	0.676	0.008	-	-	0.048	-	-	0.085
HCM Control Delay (s)	25.4	24.8	7.7	-	-	10.3	-	-	23.5
HCM Lane LOS	D	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.8	5.1	0	-	-	0.1	-	-	0.3

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1319	13	0	264	0	4	0	0	0	0	0
Future Vol, veh/h	0	1319	13	0	264	0	4	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1482	15	0	297	0	4	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	297	0	0	1482	0	0	1630	1779	741	1038	1779	148
Stage 1	-	-	-	-	-	-	1482	1482	-	297	297	-
Stage 2	-	-	-	-	-	-	148	297	-	741	1482	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1261	-	-	450	-	-	67	81	359	185	81	872
Stage 1	-	-	-	-	-	-	131	187	-	687	666	-
Stage 2	-	-	-	-	-	-	840	666	-	374	187	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1261	-	-	450	-	-	67	81	359	185	81	872
Mov Cap-2 Maneuver	-	-	-	-	-	-	115	156	-	294	156	-
Stage 1	-	-	-	-	-	-	131	187	-	687	666	-
Stage 2	-	-	-	-	-	-	840	666	-	374	187	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	37.6	0
HCM LOS			E	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	115	1261	-	-	450	-	-	-
HCM Lane V/C Ratio	0.039	-	-	-	-	-	-	-
HCM Control Delay (s)	37.6	0	-	-	0	-	-	0
HCM Lane LOS	E	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1297	0	15	258	0	0	0	10	0	0	0
Future Vol, veh/h	0	1297	0	15	258	0	0	0	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1457	0	17	290	0	0	0	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	290	0	0	1457	0	0	1636	1781	729	1053	1781	145
Stage 1	-	-	-	-	-	-	1457	1457	-	324	324	-
Stage 2	-	-	-	-	-	-	179	324	-	729	1457	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1269	-	-	460	-	-	67	81	365	181	81	876
Stage 1	-	-	-	-	-	-	136	193	-	662	648	-
Stage 2	-	-	-	-	-	-	805	648	-	380	193	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1269	-	-	460	-	-	65	78	365	170	78	876
Mov Cap-2 Maneuver	-	-	-	-	-	-	118	158	-	276	147	-
Stage 1	-	-	-	-	-	-	136	193	-	662	624	-
Stage 2	-	-	-	-	-	-	775	624	-	368	193	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.7	15.2	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	365	1269	-	-	460	-	-	-
HCM Lane V/C Ratio	0.031	-	-	-	0.037	-	-	-
HCM Control Delay (s)	15.2	0	-	-	13.1	-	-	0
HCM Lane LOS	C	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1439	4	4	298	2	14
Future Vol, veh/h	1439	4	4	298	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1617	4	4	335	2	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1621	0	1795	1619
Stage 1	-	-	-	-	1619	-
Stage 2	-	-	-	-	176	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	400	-	80	127
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	400	-	79	127
Mov Cap-2 Maneuver	-	-	-	-	79	-
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	40.9
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	118	-	-	400	-
HCM Lane V/C Ratio	0.152	-	-	0.011	-
HCM Control Delay (s)	40.9	-	-	14.1	0.1
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↰						↰	↱
Traffic Vol, veh/h	0	1263	81	81	132	0	0	0	0	55	2	152
Future Vol, veh/h	0	1263	81	81	132	0	0	0	0	55	2	152
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	300	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1419	91	91	148	0	0	0	0	62	2	171

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	1419	0	0	1749	1749	-
Stage 1	-	-	-	-	-	-	330	330	-
Stage 2	-	-	-	-	-	-	1419	1419	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	480	-	0	94	86	0
Stage 1	0	-	-	-	-	0	728	646	0
Stage 2	0	-	-	-	-	0	223	203	0
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	480	-	-	75	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	0	-
Stage 1	-	-	-	-	-	-	577	0	-
Stage 2	-	-	-	-	-	-	223	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.4	159.9
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	480	-	75	-
HCM Lane V/C Ratio	-	-	0.19	-	0.854	-
HCM Control Delay (s)	-	-	14.2	0	159.9	0
HCM Lane LOS	-	-	B	A	F	A
HCM 95th %tile Q(veh)	-	-	0.7	-	4.3	-

Intersection	
Int Delay, s/veh	19.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1006	345	0	0	149	173	24	0	72	0	0	0
Future Vol, veh/h	1006	345	0	0	149	173	24	0	72	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1130	388	0	0	167	194	27	0	81	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	362	0	-	-	-	0	2913	3010	388
Stage 1	-	-	-	-	-	-	2648	2648	-
Stage 2	-	-	-	-	-	-	265	362	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1197	-	0	0	-	-	~ 17	13	660
Stage 1	-	-	0	0	-	-	53	48	-
Stage 2	-	-	0	0	-	-	779	625	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1197	-	-	-	-	-	0	0	660
Mov Cap-2 Maneuver	-	-	-	-	-	-	0	0	-
Stage 1	-	-	-	-	-	-	0	0	-
Stage 2	-	-	-	-	-	-	779	0	-

Approach	EB	WB	NB
HCM Control Delay, s	24.8	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	660	1197	-	-	-
HCM Lane V/C Ratio	0.163	0.944	-	-	-
HCM Control Delay (s)	11.5	33.4	0	-	-
HCM Lane LOS	B	D	A	-	-
HCM 95th %tile Q(veh)	0.6	16.8	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	WB	NB	NB	SB
Directions Served	L	R	L	LT	R	LTR
Maximum Queue (ft)	19	17	93	35	52	14
Average Queue (ft)	2	2	54	13	27	3
95th Queue (ft)	15	14	94	36	49	14
Link Distance (ft)				1864		700
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	300	300	300		200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	EB	WB	NB
Directions Served	R	L	LTR
Maximum Queue (ft)	9	14	28
Average Queue (ft)	1	1	14
95th Queue (ft)	13	12	36
Link Distance (ft)			650
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300	300	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	29	28
Average Queue (ft)	5	13
95th Queue (ft)	23	33
Link Distance (ft)		12
Upstream Blk Time (%)		2
Queuing Penalty (veh)		0
Storage Bay Dist (ft)	300	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: CSAH 2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	46	27
Average Queue (ft)	9	9
95th Queue (ft)	38	31
Link Distance (ft)	267	450
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	WB	SB	SB
Directions Served	LT	LT	R
Maximum Queue (ft)	97	450	1054
Average Queue (ft)	47	308	747
95th Queue (ft)	100	614	1290
Link Distance (ft)	710		1051
Upstream Blk Time (%)			21
Queuing Penalty (veh)			0
Storage Bay Dist (ft)		300	
Storage Blk Time (%)			65
Queuing Penalty (veh)			111

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	192	14	130
Average Queue (ft)	97	1	58
95th Queue (ft)	177	10	117
Link Distance (ft)	710	3512	744
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	478	31	281	1078	5	24	2	90	2	0	0
Future Vol, veh/h	4	478	31	281	1078	5	24	2	90	2	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	200	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	514	33	302	1159	5	26	2	97	2	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1159	0	0	514	0	0	1707	2286	257	2030	2286	580
Stage 1	-	-	-	-	-	-	523	523	-	1763	1763	-
Stage 2	-	-	-	-	-	-	1184	1763	-	267	523	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	599	-	-	1048	-	-	59	39	742	34	39	458
Stage 1	-	-	-	-	-	-	505	529	-	87	136	-
Stage 2	-	-	-	-	-	-	201	136	-	715	529	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	599	-	-	1048	-	-	46	28	742	22	28	458
Mov Cap-2 Maneuver	-	-	-	-	-	-	112	78	-	68	72	-
Stage 1	-	-	-	-	-	-	502	525	-	86	97	-
Stage 2	-	-	-	-	-	-	143	97	-	615	525	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	2	19.3	59.7
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	108	742	599	-	-	1048	-	-	68
HCM Lane V/C Ratio	0.259	0.13	0.007	-	-	0.288	-	-	0.032
HCM Control Delay (s)	49.6	10.6	11.1	-	-	9.8	-	-	59.7
HCM Lane LOS	E	B	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1	0.4	0	-	-	1.2	-	-	0.1

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	513	22	2	1261	0	18	0	3	0	0	0
Future Vol, veh/h	0	513	22	2	1261	0	18	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	546	23	2	1341	0	19	0	3	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1341	0	0	546	0	0	1221	1892	273	1619	1892	671
Stage 1	-	-	-	-	-	-	546	546	-	1346	1346	-
Stage 2	-	-	-	-	-	-	675	1346	-	273	546	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	510	-	-	1019	-	-	136	69	725	69	69	399
Stage 1	-	-	-	-	-	-	490	516	-	159	218	-
Stage 2	-	-	-	-	-	-	410	218	-	710	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	510	-	-	1019	-	-	136	69	725	69	69	399
Mov Cap-2 Maneuver	-	-	-	-	-	-	265	165	-	135	165	-
Stage 1	-	-	-	-	-	-	490	516	-	159	218	-
Stage 2	-	-	-	-	-	-	409	218	-	707	516	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.4	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	291	510	-	-	1019	-	-	-
HCM Lane V/C Ratio	0.077	-	-	-	0.002	-	-	-
HCM Control Delay (s)	18.4	0	-	-	8.5	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	517	0	15	1277	0	0	0	27	0	0	0
Future Vol, veh/h	0	517	0	15	1277	0	0	0	27	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	556	0	16	1373	0	0	0	29	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1373	0	0	556	0	0	1275	1961	278	1683	1961	687
Stage 1	-	-	-	-	-	-	556	556	-	1405	1405	-
Stage 2	-	-	-	-	-	-	719	1405	-	278	556	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	496	-	-	1011	-	-	124	63	719	61	63	389
Stage 1	-	-	-	-	-	-	483	511	-	147	204	-
Stage 2	-	-	-	-	-	-	386	204	-	705	511	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	496	-	-	1011	-	-	123	62	719	58	62	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	249	153	-	124	153	-
Stage 1	-	-	-	-	-	-	483	511	-	147	201	-
Stage 2	-	-	-	-	-	-	380	201	-	677	511	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	10.2	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	719	496	-	-	1011	-	-	-
HCM Lane V/C Ratio	0.04	-	-	-	0.016	-	-	-
HCM Control Delay (s)	10.2	0	-	-	8.6	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	547	5	18	1336	6	9
Future Vol, veh/h	547	5	18	1336	6	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	588	5	19	1437	6	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	594	0	1348	591
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	757	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	980	-	154	506
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	425	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	980	-	139	506
Mov Cap-2 Maneuver	-	-	-	-	139	-
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	384	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	246	-	-	980	-
HCM Lane V/C Ratio	0.066	-	-	0.02	-
HCM Control Delay (s)	20.7	-	-	8.7	0.4
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	12.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↰						↰	↱
Traffic Vol, veh/h	0	435	60	102	381	0	0	0	0	170	0	868
Future Vol, veh/h	0	435	60	102	381	0	0	0	0	170	0	868
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	Free
Storage Length	-	-	0	-	-	-	-	-	-	300	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	463	64	109	405	0	0	0	0	181	0	923

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	-	0	0	463	0	0	1085	1085	-
Stage 1	-	-	-	-	-	-	622	622	-
Stage 2	-	-	-	-	-	-	463	463	-
Critical Hdwy	-	-	-	4.12	-	-	6.42	6.52	-
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	-	-	-	2.218	-	-	3.518	4.018	-
Pot Cap-1 Maneuver	0	-	-	1098	-	0	240	217	0
Stage 1	0	-	-	-	-	0	535	479	0
Stage 2	0	-	-	-	-	0	634	564	0
Platoon blocked, %		-	-		-				
Mov Cap-1 Maneuver	-	-	-	1098	-	-	209	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	209	0	-
Stage 1	-	-	-	-	-	-	467	0	-
Stage 2	-	-	-	-	-	-	634	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1.8	79.2
HCM LOS			F

Minor Lane/Major Mvmt	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	1098	-	209	-
HCM Lane V/C Ratio	-	-	0.099	-	0.865	-
HCM Control Delay (s)	-	-	8.6	0	79.2	0
HCM Lane LOS	-	-	A	A	F	A
HCM 95th %tile Q(veh)	-	-	0.3	-	6.7	-

Intersection	
Int Delay, s/veh	26

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	341	271	0	0	400	85	74	4	58	0	0	0
Future Vol, veh/h	341	271	0	0	400	85	74	4	58	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	371	295	0	0	435	92	80	4	63	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	527	0	-	-	-	0	1517	1563	295
Stage 1	-	-	-	-	-	-	1036	1036	-
Stage 2	-	-	-	-	-	-	481	527	-
Critical Hdwy	4.12	-	-	-	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1040	-	0	0	-	-	131	112	744
Stage 1	-	-	0	0	-	-	342	309	-
Stage 2	-	-	0	0	-	-	622	528	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1040	-	-	-	-	-	~ 75	0	744
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 75	0	-
Stage 1	-	-	-	-	-	-	196	0	-
Stage 2	-	-	-	-	-	-	622	0	-

Approach	EB	WB	NB
HCM Control Delay, s	5.8	0	209.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	124	1040	-	-	-
HCM Lane V/C Ratio	1.192	0.356	-	-	-
HCM Control Delay (s)	209.3	10.4	0	-	-
HCM Lane LOS	F	B	A	-	-
HCM 95th %tile Q(veh)	9.1	1.6	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Appendix Q: Synchro Reports – Baseline (2038) with Improvements from Phase 1

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LT	R
Maximum Queue (ft)	37	328	294	14	109	79	96	23	45	221	64	11
Average Queue (ft)	7	219	208	3	60	38	57	6	15	147	27	1
95th Queue (ft)	30	322	299	14	112	79	98	20	41	228	61	9
Link Distance (ft)		2632	2632			1905	1905		1864		701	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			300	300			300		200		150
Storage Blk Time (%)		2	1							2		
Queuing Penalty (veh)		0	0							1		

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	WB	NB
Directions Served	T	LTR
Maximum Queue (ft)	268	12
Average Queue (ft)	27	1
95th Queue (ft)	366	10
Link Distance (ft)	1513	650
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	245	469	469	157	350	296	178	50	18	51	51	103
Average Queue (ft)	97	341	324	73	222	99	74	31	12	29	35	50
95th Queue (ft)	222	494	494	195	422	316	174	53	18	45	56	99
Link Distance (ft)		1513	1513			474	474			13		53
Upstream Blk Time (%)						1	0		18	42	7	5
Queuing Penalty (veh)						4	0		0	155	0	0
Storage Bay Dist (ft)	300			300	300			300	150		150	
Storage Blk Time (%)	0	21	14		24				18	42	7	5
Queuing Penalty (veh)	0	36	38		31				27	91	10	5

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	B27
Directions Served	T
Maximum Queue (ft)	14
Average Queue (ft)	1
95th Queue (ft)	11
Link Distance (ft)	604
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: CSAH 2

Movement	EB	EB	B26	B26	WB	NB
Directions Served	T	TR	T	T	LT	LR
Maximum Queue (ft)	481	448	35	28	14	37
Average Queue (ft)	209	182	5	3	2	15
95th Queue (ft)	468	452	35	32	19	41
Link Distance (ft)	429	429	474	474	268	451
Upstream Blk Time (%)	2	1				
Queuing Penalty (veh)	15	6				
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	300	296	111	153	66	70
Average Queue (ft)	276	251	57	40	31	17
95th Queue (ft)	314	341	111	145	69	57
Link Distance (ft)	268	268		711		1042
Upstream Blk Time (%)	25	16				
Queuing Penalty (veh)	213	133				
Storage Bay Dist (ft)			200		300	
Storage Blk Time (%)				0		
Queuing Penalty (veh)				0		

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	TR	LT	R
Maximum Queue (ft)	272	303	172	164	203	124	46
Average Queue (ft)	151	158	61	93	120	71	20
95th Queue (ft)	281	312	160	167	200	132	44
Link Distance (ft)		711	711	3503	3503	741	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	350						150
Storage Blk Time (%)	0	1				0	
Queuing Penalty (veh)	0	7				0	

Intersection: 7: Newton Cir & Frontage Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	13
95th Queue (ft)	37
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	860	8	30	213	0	38	3	319	6	4	6
Future Volume (veh/h)	9	1150	8	120	451	30	38	3	428	43	4	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	10	1292	9	135	507	34	43	3	481	48	4	7
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	421	1453	650	220	1629	729	77	3	598	77	3	598
Arrive On Green	0.01	0.41	0.41	0.06	0.46	0.46	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	0	8	1583	0	9	1583
Grp Volume(v), veh/h	10	1292	9	135	507	34	46	0	481	52	0	7
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	8	0	1583	9	0	1583
Q Serve(g_s), s	0.3	30.5	0.3	3.7	8.1	1.1	0.0	0.0	24.5	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.3	30.5	0.3	3.7	8.1	1.1	34.0	0.0	24.5	34.0	0.0	0.2
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	421	1453	650	220	1629	729	80	0	598	80	0	598
V/C Ratio(X)	0.02	0.89	0.01	0.61	0.31	0.05	0.57	0.00	0.81	0.65	0.00	0.01
Avail Cap(c_a), veh/h	497	1514	677	258	1629	729	80	0	598	80	0	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	24.6	15.7	20.1	15.3	13.4	42.9	0.0	25.1	42.8	0.0	17.5
Incr Delay (d2), s/veh	0.0	6.8	0.0	3.2	0.1	0.0	26.4	0.0	11.0	33.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	16.3	0.1	2.0	4.0	0.5	1.7	0.0	12.5	2.0	0.0	0.1
LnGrp Delay(d),s/veh	15.2	31.4	15.7	23.3	15.4	13.4	69.3	0.0	36.1	76.6	0.0	17.6
LnGrp LOS	B	C	B	C	B	B	E		D	E		B
Approach Vol, veh/h		1311			676			527			59	
Approach Delay, s/veh		31.2			16.9			39.0			69.6	
Approach LOS		C			B			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		38.5	10.1	41.4		38.5	5.6	45.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		30.5	7.5	38.5		30.5	5.0	41.0
Max Q Clear Time (g_c+I1), s		36.0	5.7	32.5		36.0	2.3	10.1
Green Ext Time (p_c), s		0.0	0.0	4.4		0.0	0.0	14.6

Intersection Summary	
HCM 2010 Ctrl Delay	29.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1297	0	15	258	0	0	0	10	0	0	0
Future Volume (veh/h)	175	1297	261	189	258	117	215	0	154	96	0	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	197	1457	293	212	290	131	242	0	173	108	0	161
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	593	1512	676	241	1525	682	356	0	363	344	0	356
Arrive On Green	0.08	0.43	0.43	0.09	0.43	0.43	0.06	0.00	0.23	0.06	0.00	0.23
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	0	1583	1774	0	1583
Grp Volume(v), veh/h	197	1457	293	212	290	131	242	0	173	108	0	161
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1583	1774	0	1583
Q Serve(g_s), s	5.5	36.1	11.7	6.1	4.6	4.6	5.5	0.0	8.5	4.2	0.0	7.9
Cycle Q Clear(g_c), s	5.5	36.1	11.7	6.1	4.6	4.6	5.5	0.0	8.5	4.2	0.0	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	593	1512	676	241	1525	682	356	0	363	344	0	356
V/C Ratio(X)	0.33	0.96	0.43	0.88	0.19	0.19	0.68	0.00	0.48	0.31	0.00	0.45
Avail Cap(c_a), veh/h	595	1514	677	241	1525	682	356	0	363	344	0	356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.3	25.1	18.1	21.0	15.9	15.9	30.6	0.0	30.0	25.1	0.0	30.1
Incr Delay (d2), s/veh	0.3	15.4	0.4	28.9	0.1	0.1	5.2	0.0	4.4	0.5	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	20.8	5.2	7.1	2.2	2.0	3.6	0.0	4.1	2.1	0.0	3.8
LnGrp Delay(d),s/veh	12.6	40.5	18.6	50.0	15.9	16.0	35.8	0.0	34.4	25.6	0.0	34.2
LnGrp LOS	B	D	B	D	B	B	D		C	C		C
Approach Vol, veh/h		1947			633			415			269	
Approach Delay, s/veh		34.3			27.4			35.2			30.7	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	25.2	12.3	42.9	10.0	24.8	12.0	43.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	20.6	7.8	38.5	5.5	20.2	7.6	38.7
Max Q Clear Time (g_c+I1), s	6.2	10.5	8.1	38.1	7.5	9.9	7.5	6.6
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.0	1.4	0.0	17.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1263	81	81	132	0	0	0	0	55	2	152
Future Volume (veh/h)	0	1413	171	81	314	0	0	0	0	55	2	261
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	1588	192	91	353	0				62	2	0
Adj No. of Lanes	0	2	0	1	1	0				0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1764	210	194	1218	0				373	12	343
Arrive On Green	0.00	0.55	0.55	0.10	1.00	0.00				0.22	0.22	0.00
Sat Flow, veh/h	0	3279	380	1774	1863	0				1721	56	1583
Grp Volume(v), veh/h	0	872	908	91	353	0				64	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1796	1774	1863	0				1777	0	1583
Q Serve(g_s), s	0.0	39.0	41.0	1.8	0.0	0.0				2.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	39.0	41.0	1.8	0.0	0.0				2.6	0.0	0.0
Prop In Lane	0.00		0.21	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	980	995	194	1218	0				385	0	343
V/C Ratio(X)	0.00	0.89	0.91	0.47	0.29	0.00				0.17	0.00	0.00
Avail Cap(c_a), veh/h	0	1013	1028	214	1273	0				385	0	343
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.65	0.65	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.7	18.1	19.2	0.0	0.0				28.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	9.7	11.9	1.1	0.1	0.0				0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	21.5	23.4	1.3	0.0	0.0				1.4	0.0	0.0
LnGrp Delay(d),s/veh	0.0	27.4	30.0	20.3	0.1	0.0				29.6	0.0	0.0
LnGrp LOS		C	C	C	A					C		
Approach Vol, veh/h		1780			444						64	
Approach Delay, s/veh		28.7			4.2						29.6	
Approach LOS		C			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			9.0	54.3		24.0		63.3
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			5.5	51.5		19.5		61.5
Max Q Clear Time (g_c+I1), s			3.8	43.0		4.6		2.0
Green Ext Time (p_c), s			0.0	6.8		0.2		24.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1006	345	0	0	149	173	24	0	72	0	0	0
Future Volume (veh/h)	1096	405	0	0	222	173	133	0	72	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	1231	455	0	0	249	194	149	0	81			
Adj No. of Lanes	2	1	0	0	2	0	0	1	1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1425	1056	0	0	335	252	591	0	527			
Arrive On Green	0.11	0.19	0.00	0.00	0.17	0.17	0.33	0.00	0.33			
Sat Flow, veh/h	3442	1863	0	0	2023	1447	1774	0	1583			
Grp Volume(v), veh/h	1231	455	0	0	228	215	149	0	81			
Grp Sat Flow(s),veh/h/ln	1721	1863	0	0	1770	1607	1774	0	1583			
Q Serve(g_s), s	25.1	19.4	0.0	0.0	11.0	11.5	5.5	0.0	3.2			
Cycle Q Clear(g_c), s	25.1	19.4	0.0	0.0	11.0	11.5	5.5	0.0	3.2			
Prop In Lane	1.00		0.00	0.00		0.90	1.00		1.00			
Lane Grp Cap(c), veh/h	1425	1056	0	0	308	279	591	0	527			
V/C Ratio(X)	0.86	0.43	0.00	0.00	0.74	0.77	0.25	0.00	0.15			
Avail Cap(c_a), veh/h	1678	1252	0	0	364	330	591	0	527			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.31	0.31	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	23.7	0.0	0.0	35.2	35.5	21.8	0.0	21.1			
Incr Delay (d2), s/veh	1.4	0.1	0.0	0.0	6.5	9.1	1.0	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	15.3	10.1	0.0	0.0	5.9	5.8	2.9	0.0	1.5			
LnGrp Delay(d),s/veh	27.9	23.8	0.0	0.0	41.8	44.5	22.9	0.0	21.7			
LnGrp LOS	C	C			D	D	C		C			
Approach Vol, veh/h		1686			443			230				
Approach Delay, s/veh		26.8			43.1			22.5				
Approach LOS		C			D			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		34.5		55.5			35.4	20.1
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		20.5		60.5			37.5	18.5
Max Q Clear Time (g_c+I1), s		7.5		21.4			27.1	13.5
Green Ext Time (p_c), s		0.8		5.3			3.7	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1319	13	0	264	0	4	0	0	0	0	0
Future Vol, veh/h	0	1755	13	0	622	0	4	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1972	15	0	699	0	4	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	699	0	0	1972	0	0	2321	2671	986	1685	2671	349
Stage 1	-	-	-	-	-	-	1972	1972	-	699	699	-
Stage 2	-	-	-	-	-	-	349	699	-	986	1972	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	893	-	-	290	-	-	20	22	247	61	22	647
Stage 1	-	-	-	-	-	-	64	107	-	397	440	-
Stage 2	-	-	-	-	-	-	640	440	-	266	107	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	893	-	-	290	-	-	20	22	247	61	22	647
Mov Cap-2 Maneuver	-	-	-	-	-	-	56	85	-	172	85	-
Stage 1	-	-	-	-	-	-	64	107	-	397	440	-
Stage 2	-	-	-	-	-	-	640	440	-	266	107	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	74.8	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	56	893	-	-	290	-	-	-
HCM Lane V/C Ratio	0.08	-	-	-	-	-	-	-
HCM Control Delay (s)	74.8	0	-	-	0	-	-	0
HCM Lane LOS	F	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1439	4	4	298	2	14
Future Vol, veh/h	1679	4	4	589	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1887	4	4	662	2	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1891	0	2229	946
Stage 1	-	-	-	-	1889	-
Stage 2	-	-	-	-	340	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	312	-	36	262
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	692	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	312	-	35	262
Mov Cap-2 Maneuver	-	-	-	-	35	-
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	678	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	33.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	145	-	-	312	-
HCM Lane V/C Ratio	0.124	-	-	0.014	-
HCM Control Delay (s)	33.3	-	-	16.7	0.2
HCM Lane LOS	D	-	-	C	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LT
Maximum Queue (ft)	24	228	238	31	243	263	288	20	48	82	41
Average Queue (ft)	4	147	142	10	165	151	175	7	13	44	15
95th Queue (ft)	19	236	242	29	260	249	281	22	41	81	41
Link Distance (ft)		2632	2632			1905	1905		1864		701
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	300			300	300			300		200	
Storage Blk Time (%)			0		0	0	1				
Queuing Penalty (veh)			0		0	1	0				

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	WB	NB
Directions Served	T	LTR
Maximum Queue (ft)	268	37
Average Queue (ft)	27	12
95th Queue (ft)	366	35
Link Distance (ft)	1513	650
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	162	164	178	91	171	342	350	44	16	57	53	131
Average Queue (ft)	100	91	98	48	89	252	263	22	13	32	41	95
95th Queue (ft)	169	165	180	95	164	355	372	42	16	53	68	144
Link Distance (ft)		1513	1513			474	474			13		53
Upstream Blk Time (%)							0		24	41	8	21
Queuing Penalty (veh)							1		0	210	0	0
Storage Bay Dist (ft)	300			300	300			300	150		150	
Storage Blk Time (%)						3	5		24	41	8	21
Queuing Penalty (veh)						5	5		53	120	16	27

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	B27
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	14
95th Queue (ft)	56
Link Distance (ft)	604
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: CSAH 2

Movement	EB	EB	WB	WB	NB
Directions Served	T	TR	LT	T	LR
Maximum Queue (ft)	201	184	140	30	28
Average Queue (ft)	53	74	30	3	11
95th Queue (ft)	219	237	118	32	35
Link Distance (ft)	429	429	268	268	451
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	288	295	224	598	449	961
Average Queue (ft)	203	231	98	320	248	676
95th Queue (ft)	320	334	224	573	581	1196
Link Distance (ft)	268	268		711		1042
Upstream Blk Time (%)	7	20		0		14
Queuing Penalty (veh)	32	87		0		0
Storage Bay Dist (ft)			200		300	
Storage Blk Time (%)				19		34
Queuing Penalty (veh)				20		58

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	TR	LT	R
Maximum Queue (ft)	134	172	97	245	251	143	49
Average Queue (ft)	66	87	40	156	165	78	17
95th Queue (ft)	122	157	92	255	264	138	46
Link Distance (ft)		711	711	3503	3503	741	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	350						150
Storage Blk Time (%)						1	
Queuing Penalty (veh)						1	

Intersection: 7: Newton Cir & Frontage Rd

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	16	38
Average Queue (ft)	2	24
95th Queue (ft)	13	47
Link Distance (ft)	566	650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	478	31	281	1078	5	24	2	90	2	0	0
Future Volume (veh/h)	4	728	31	402	1401	45	24	2	184	34	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	4	783	33	432	1506	48	26	2	198	37	0	0
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	1211	542	503	1830	819	522	37	519	453	0	519
Arrive On Green	0.01	0.34	0.34	0.18	0.52	0.52	0.33	0.33	0.33	0.33	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1357	114	1583	1139	0	1583
Grp Volume(v), veh/h	4	783	33	432	1506	48	28	0	198	37	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1471	0	1583	1139	0	1583
Q Serve(g_s), s	0.1	16.8	1.3	13.2	32.2	1.4	0.0	0.0	8.6	2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	16.8	1.3	13.2	32.2	1.4	1.0	0.0	8.6	3.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	142	1211	542	503	1830	819	559	0	519	453	0	519
V/C Ratio(X)	0.03	0.65	0.06	0.86	0.82	0.06	0.05	0.00	0.38	0.08	0.00	0.00
Avail Cap(c_a), veh/h	231	1211	542	714	2021	904	559	0	519	453	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.7	25.0	19.9	16.6	18.3	10.8	20.7	0.0	23.3	21.7	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.2	0.0	7.4	2.7	0.0	0.2	0.0	2.1	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	8.4	0.6	7.4	16.2	0.6	0.5	0.0	4.1	0.7	0.0	0.0
LnGrp Delay(d),s/veh	20.8	26.2	19.9	24.0	20.9	10.9	20.8	0.0	25.4	22.0	0.0	0.0
LnGrp LOS	C	C	B	C	C	B	C		C	C		
Approach Vol, veh/h		820			1986			226			37	
Approach Delay, s/veh		25.9			21.4			24.8			22.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		34.0	20.7	35.3		34.0	5.0	51.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		20.1	26.9	29.5		20.1	5.0	51.4
Max Q Clear Time (g_c+I1), s		10.6	15.2	18.8		5.0	2.1	34.2
Green Ext Time (p_c), s		0.7	1.0	8.7		0.9	0.0	12.3

Intersection Summary	
HCM 2010 Ctrl Delay	22.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	517	0	15	1277	0	0	0	27	0	0	0
Future Volume (veh/h)	151	517	225	165	1277	101	291	0	221	128	0	193
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	164	562	245	179	1388	110	316	0	240	139	0	210
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	1391	622	411	1454	651	385	0	389	348	0	349
Arrive On Green	0.06	0.39	0.39	0.08	0.41	0.41	0.11	0.00	0.25	0.08	0.00	0.22
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	0	1583	1774	0	1583
Grp Volume(v), veh/h	164	562	245	179	1388	110	316	0	240	139	0	210
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1583	1774	0	1583
Q Serve(g_s), s	5.0	10.3	10.0	5.3	34.2	4.0	9.5	0.0	12.1	5.4	0.0	10.7
Cycle Q Clear(g_c), s	5.0	10.3	10.0	5.3	34.2	4.0	9.5	0.0	12.1	5.4	0.0	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	1391	622	411	1454	651	385	0	389	348	0	349
V/C Ratio(X)	0.81	0.40	0.39	0.44	0.95	0.17	0.82	0.00	0.62	0.40	0.00	0.60
Avail Cap(c_a), veh/h	203	1391	622	454	1475	660	385	0	389	386	0	349
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	19.7	19.6	14.6	25.7	16.8	28.8	0.0	30.2	24.5	0.0	31.6
Incr Delay (d2), s/veh	20.9	0.2	0.4	0.7	14.0	0.1	13.2	0.0	7.1	0.7	0.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	5.0	4.4	2.6	19.4	1.7	4.6	0.0	6.0	2.7	0.0	5.4
LnGrp Delay(d),s/veh	42.4	19.9	20.0	15.4	39.7	16.9	42.0	0.0	37.3	25.3	0.0	39.1
LnGrp LOS	D	B	C	B	D	B	D		D	C		D
Approach Vol, veh/h		971			1677			556			349	
Approach Delay, s/veh		23.7			35.6			40.0			33.6	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.7	26.6	11.8	39.9	14.0	24.3	10.2	41.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.1	19.7	9.5	33.7	9.5	19.3	5.7	37.5
Max Q Clear Time (g_c+I1), s	7.4	14.1	7.3	12.3	11.5	12.7	7.0	36.2
Green Ext Time (p_c), s	0.1	1.3	0.1	14.2	0.0	1.5	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	435	60	102	381	0	0	0	0	170	0	868
Future Volume (veh/h)	0	636	181	102	538	0	0	0	0	170	0	962
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	677	193	109	572	0				181	0	0
Adj No. of Lanes	0	2	0	1	1	0				0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	644	183	181	640	0				988	0	881
Arrive On Green	0.00	0.24	0.24	0.02	0.11	0.00				0.56	0.00	0.00
Sat Flow, veh/h	0	2814	775	1774	1863	0				1774	0	1583
Grp Volume(v), veh/h	0	440	430	109	572	0				181	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1726	1774	1863	0				1774	0	1583
Q Serve(g_s), s	0.0	21.3	21.3	4.0	27.3	0.0				4.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	21.3	21.3	4.0	27.3	0.0				4.5	0.0	0.0
Prop In Lane	0.00		0.45	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	419	408	181	640	0				988	0	881
V/C Ratio(X)	0.00	1.05	1.05	0.60	0.89	0.00				0.18	0.00	0.00
Avail Cap(c_a), veh/h	0	419	408	181	640	0				988	0	881
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.61	0.61	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	34.3	34.4	26.5	38.3	0.0				9.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	58.1	58.9	3.4	10.0	0.0				0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	17.1	16.8	2.1	15.9	0.0				2.3	0.0	0.0
LnGrp Delay(d),s/veh	0.0	92.4	93.2	29.9	48.3	0.0				10.3	0.0	0.0
LnGrp LOS		F	F	C	D					B		
Approach Vol, veh/h		870			681						181	
Approach Delay, s/veh		92.8			45.3						10.3	
Approach LOS		F			D						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			9.6	25.8		54.6		35.4
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			5.1	21.3		50.1		30.9
Max Q Clear Time (g_c+I1), s			6.0	23.3		6.5		29.3
Green Ext Time (p_c), s			0.0	0.0		1.1		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	65.5
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	271	0	0	400	85	74	4	58	0	0	0
Future Volume (veh/h)	462	351	0	0	463	85	168	4	58	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	502	382	0	0	503	92	183	4	63			
Adj No. of Lanes	2	1	0	0	2	0	0	1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	749	775	0	0	679	124	841	18	766			
Arrive On Green	0.05	0.14	0.00	0.00	0.23	0.23	0.48	0.48	0.48			
Sat Flow, veh/h	3442	1863	0	0	3085	545	1738	38	1583			
Grp Volume(v), veh/h	502	382	0	0	297	298	187	0	63			
Grp Sat Flow(s),veh/h/ln	1721	1863	0	0	1770	1767	1776	0	1583			
Q Serve(g_s), s	9.4	17.1	0.0	0.0	14.0	14.1	5.5	0.0	1.9			
Cycle Q Clear(g_c), s	9.4	17.1	0.0	0.0	14.0	14.1	5.5	0.0	1.9			
Prop In Lane	1.00		0.00	0.00		0.31	0.98		1.00			
Lane Grp Cap(c), veh/h	749	775	0	0	402	401	860	0	766			
V/C Ratio(X)	0.67	0.49	0.00	0.00	0.74	0.74	0.22	0.00	0.08			
Avail Cap(c_a), veh/h	1017	1107	0	0	580	579	860	0	766			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.19	0.19	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	24.2	30.0	0.0	0.0	32.3	32.4	13.4	0.0	12.5			
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	2.9	3.1	0.6	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.4	8.8	0.0	0.0	7.2	7.2	2.8	0.0	0.9			
LnGrp Delay(d),s/veh	24.4	30.1	0.0	0.0	35.2	35.4	14.0	0.0	12.7			
LnGrp LOS	C	C			D	D	B		B			
Approach Vol, veh/h		884			595			250				
Approach Delay, s/veh		26.9			35.3			13.6				
Approach LOS		C			D			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		48.1		41.9			17.0	24.9
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		27.5		53.5			19.5	29.5
Max Q Clear Time (g_c+I1), s		7.5		19.1			11.4	16.1
Green Ext Time (p_c), s		1.1		5.7			1.2	4.3

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	513	22	2	1261	0	18	0	3	0	0	0
Future Vol, veh/h	0	889	22	2	1745	0	18	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	946	23	2	1856	0	19	0	3	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1856	0	0	946	0	0	1878	2807	473	2334	2807	928
Stage 1	-	-	-	-	-	-	946	946	-	1861	1861	-
Stage 2	-	-	-	-	-	-	932	1861	-	473	946	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	322	-	-	721	-	-	44	18	538	20	18	270
Stage 1	-	-	-	-	-	-	281	338	-	76	121	-
Stage 2	-	-	-	-	-	-	287	121	-	541	338	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	322	-	-	721	-	-	44	18	538	20	18	270
Mov Cap-2 Maneuver	-	-	-	-	-	-	149	88	-	64	87	-
Stage 1	-	-	-	-	-	-	281	338	-	76	121	-
Stage 2	-	-	-	-	-	-	286	121	-	538	338	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	30	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	166	322	-	-	721	-	-	-
HCM Lane V/C Ratio	0.135	-	-	-	0.003	-	-	-
HCM Control Delay (s)	30	0	-	-	10	-	-	0
HCM Lane LOS	D	A	-	-	B	-	-	A
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	547	5	18	1336	6	9
Future Vol, veh/h	869	5	18	1587	6	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	934	5	19	1706	6	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	940	0	1829	470
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	892	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	725	-	68	540
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	725	-	34	540
Mov Cap-2 Maneuver	-	-	-	-	34	-
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	179	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	62.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	78	-	-	725	-
HCM Lane V/C Ratio	0.207	-	-	0.027	-
HCM Control Delay (s)	62.8	-	-	10.1	2.5
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

Appendix R: Synchro Reports – Phase 2 (2038)

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LT	R
Maximum Queue (ft)	18	336	337	16	108	95	109	29	366	309	84	12
Average Queue (ft)	4	218	209	3	57	41	54	8	114	233	34	2
95th Queue (ft)	20	328	332	14	106	94	112	27	389	342	77	10
Link Distance (ft)		2632	2632			1905	1905		1864		701	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			300	300			300		200		150
Storage Blk Time (%)		2	1						0	23	0	
Queuing Penalty (veh)		0	0						0	9	0	

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	EB	WB	WB	NB	SB
Directions Served	L	T	R	LTR	LTR
Maximum Queue (ft)	64	270	8	15	630
Average Queue (ft)	41	27	2	3	561
95th Queue (ft)	69	369	9	20	732
Link Distance (ft)		1513		650	602
Upstream Blk Time (%)					67
Queuing Penalty (veh)					0
Storage Bay Dist (ft)	300		300		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B26	B26	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	224	392	350	83	316	223	176	90	21	14	18	50
Average Queue (ft)	102	281	255	52	223	123	104	45	4	1	12	29
95th Queue (ft)	209	396	363	85	398	339	169	83	38	20	18	45
Link Distance (ft)		1513	1513			474	474		429	429		13
Upstream Blk Time (%)						5					15	39
Queuing Penalty (veh)						18					0	117
Storage Bay Dist (ft)	300			300	300			300			150	
Storage Blk Time (%)		7	3		14	0					15	39
Queuing Penalty (veh)		18	10		27	0					19	68

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	SB	SB	B27
Directions Served	L	TR	T
Maximum Queue (ft)	49	110	45
Average Queue (ft)	34	56	6
95th Queue (ft)	56	106	59
Link Distance (ft)		53	604
Upstream Blk Time (%)	10	9	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)	150		
Storage Blk Time (%)	10	9	
Queuing Penalty (veh)	15	9	

Intersection: 4: CSAH 2

Movement	EB	EB	B26	WB	NB
Directions Served	T	TR	T	LT	LR
Maximum Queue (ft)	332	319	7	39	44
Average Queue (ft)	130	103	1	5	17
95th Queue (ft)	343	311	11	43	44
Link Distance (ft)	429	429	474	268	451
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	2	3			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	289	288	89	191	77	115
Average Queue (ft)	250	223	51	44	31	50
95th Queue (ft)	319	336	92	172	75	123
Link Distance (ft)	268	268		711		1042
Upstream Blk Time (%)	17	12				
Queuing Penalty (veh)	150	101				
Storage Bay Dist (ft)			200		300	
Storage Blk Time (%)				1		
Queuing Penalty (veh)				1		

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	TR	LT	R
Maximum Queue (ft)	274	341	173	184	225	182	94
Average Queue (ft)	140	150	60	115	142	106	35
95th Queue (ft)	244	310	177	191	231	178	89
Link Distance (ft)		711	711	3503	3503	741	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	350						150
Storage Blk Time (%)	0	1				2	
Queuing Penalty (veh)	1	4				2	

Intersection: 7: Newton Cir & Frontage Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	12
95th Queue (ft)	35
Link Distance (ft)	650
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	860	8	30	213	0	38	3	319	6	4	6
Future Volume (veh/h)	9	1337	8	137	499	36	38	3	498	66	4	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	10	1502	9	154	561	40	43	3	560	74	4	7
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	448	1608	719	221	1790	801	87	3	496	88	3	496
Arrive On Green	0.01	0.45	0.45	0.06	0.51	0.51	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	0	10	1583	0	8	1583
Grp Volume(v), veh/h	10	1502	9	154	561	40	46	0	560	78	0	7
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	10	0	1583	8	0	1583
Q Serve(g_s), s	0.2	32.2	0.2	3.5	7.4	1.0	0.0	0.0	25.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.2	32.2	0.2	3.5	7.4	1.0	25.0	0.0	25.0	25.0	0.0	0.2
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	0.95		1.00
Lane Grp Cap(c), veh/h	448	1608	719	221	1790	801	90	0	496	90	0	496
V/C Ratio(X)	0.02	0.93	0.01	0.70	0.31	0.05	0.51	0.00	1.13	0.86	0.00	0.01
Avail Cap(c_a), veh/h	537	1663	744	221	1790	801	90	0	496	90	0	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.5	20.7	12.0	18.1	11.6	10.0	38.2	0.0	27.5	39.2	0.0	19.0
Incr Delay (d2), s/veh	0.0	10.0	0.0	9.2	0.1	0.0	19.0	0.0	81.1	62.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	17.9	0.1	2.2	3.6	0.5	1.5	0.0	22.0	3.3	0.0	0.1
LnGrp Delay(d),s/veh	11.5	30.7	12.0	27.3	11.7	10.1	57.3	0.0	108.6	102.0	0.0	19.0
LnGrp LOS	B	C	B	C	B	B	E		F	F		B
Approach Vol, veh/h		1521			755			606			85	
Approach Delay, s/veh		30.5			14.8			104.7			95.1	
Approach LOS		C			B			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		29.5	9.6	40.9		29.5	5.5	45.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		24.3	5.1	37.6		24.3	5.0	37.7
Max Q Clear Time (g_c+I1), s		27.0	5.5	34.2		27.0	2.2	9.4
Green Ext Time (p_c), s		0.0	0.0	2.2		0.0	0.0	16.7

Intersection Summary	
HCM 2010 Ctrl Delay	43.5
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1297	0	15	258	0	0	0	10	0	0	0
Future Volume (veh/h)	429	1311	251	183	282	285	151	0	111	171	0	257
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	482	1473	282	206	317	320	170	0	125	192	0	289
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	638	1538	688	240	1117	500	237	0	353	378	0	346
Arrive On Green	0.20	0.43	0.43	0.09	0.32	0.32	0.06	0.00	0.22	0.06	0.00	0.22
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	0	1583	1774	0	1583
Grp Volume(v), veh/h	482	1473	282	206	317	320	170	0	125	192	0	289
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1583	1774	0	1583
Q Serve(g_s), s	15.4	36.3	11.0	7.1	6.1	15.6	5.5	0.0	6.0	5.1	0.0	15.7
Cycle Q Clear(g_c), s	15.4	36.3	11.0	7.1	6.1	15.6	5.5	0.0	6.0	5.1	0.0	15.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	638	1538	688	240	1117	500	237	0	353	378	0	346
V/C Ratio(X)	0.76	0.96	0.41	0.86	0.28	0.64	0.72	0.00	0.35	0.51	0.00	0.83
Avail Cap(c_a), veh/h	792	1553	695	240	1117	500	237	0	353	378	0	346
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	24.6	17.5	22.7	23.1	26.4	30.1	0.0	29.5	28.6	0.0	33.6
Incr Delay (d2), s/veh	3.3	14.0	0.4	25.1	0.1	2.7	10.1	0.0	2.8	1.1	0.0	20.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	20.6	4.8	5.1	3.0	7.2	2.2	0.0	2.9	1.9	0.0	8.8
LnGrp Delay(d),s/veh	17.1	38.7	17.9	47.8	23.3	29.2	40.2	0.0	32.2	29.7	0.0	54.1
LnGrp LOS	B	D	B	D	C	C	D		C	C		D
Approach Vol, veh/h		2237			843			295			481	
Approach Delay, s/veh		31.4			31.5			36.8			44.4	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	24.6	12.2	43.6	10.0	24.2	22.9	32.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.1	19.7	7.7	39.5	5.5	19.3	26.2	21.0
Max Q Clear Time (g_c+I1), s	7.1	8.0	9.1	38.3	7.5	17.7	17.4	17.6
Green Ext Time (p_c), s	0.0	2.0	0.0	0.8	0.0	0.4	1.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1263	81	81	132	0	0	0	0	55	2	152
Future Volume (veh/h)	0	1442	188	81	430	0	0	0	0	55	2	331
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	1620	211	91	483	0				62	2	0
Adj No. of Lanes	0	2	0	1	1	0				0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1777	228	190	1235	0				375	12	345
Arrive On Green	0.00	0.56	0.56	0.10	1.00	0.00				0.22	0.22	0.00
Sat Flow, veh/h	0	3250	404	1774	1863	0				1721	56	1583
Grp Volume(v), veh/h	0	896	935	91	483	0				64	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1791	1774	1863	0				1777	0	1583
Q Serve(g_s), s	0.0	40.3	42.9	1.8	0.0	0.0				2.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	40.3	42.9	1.8	0.0	0.0				2.6	0.0	0.0
Prop In Lane	0.00		0.23	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	996	1009	190	1235	0				387	0	345
V/C Ratio(X)	0.00	0.90	0.93	0.48	0.39	0.00				0.17	0.00	0.00
Avail Cap(c_a), veh/h	0	1015	1027	206	1271	0				387	0	345
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.59	0.59	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	17.4	18.0	19.7	0.0	0.0				28.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	10.7	13.7	1.1	0.1	0.0				0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	22.4	24.9	1.3	0.0	0.0				1.4	0.0	0.0
LnGrp Delay(d),s/veh	0.0	28.1	31.7	20.8	0.1	0.0				29.5	0.0	0.0
LnGrp LOS		C	C	C	A					C		
Approach Vol, veh/h		1831			574						64	
Approach Delay, s/veh		29.9			3.4						29.5	
Approach LOS		C			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			9.0	55.2		24.1		64.2
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			5.3	51.6		19.6		61.4
Max Q Clear Time (g_c+I1), s			3.8	44.9		4.6		2.0
Green Ext Time (p_c), s			0.0	5.7		0.2		27.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1006	345	0	0	149	173	24	0	72	0	0	0
Future Volume (veh/h)	1113	417	0	0	268	173	203	0	72	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	1251	469	0	0	301	194	228	0	81			
Adj No. of Lanes	2	1	0	0	2	0	0	1	1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1441	1089	0	0	384	241	559	0	499			
Arrive On Green	0.12	0.19	0.00	0.00	0.18	0.18	0.32	0.00	0.32			
Sat Flow, veh/h	3442	1863	0	0	2182	1312	1774	0	1583			
Grp Volume(v), veh/h	1251	469	0	0	254	241	228	0	81			
Grp Sat Flow(s),veh/h/ln	1721	1863	0	0	1770	1631	1774	0	1583			
Q Serve(g_s), s	25.9	19.9	0.0	0.0	12.3	12.7	9.1	0.0	3.3			
Cycle Q Clear(g_c), s	25.9	19.9	0.0	0.0	12.3	12.7	9.1	0.0	3.3			
Prop In Lane	1.00		0.00	0.00		0.80	1.00		1.00			
Lane Grp Cap(c), veh/h	1441	1089	0	0	326	300	559	0	499			
V/C Ratio(X)	0.87	0.43	0.00	0.00	0.78	0.80	0.41	0.00	0.16			
Avail Cap(c_a), veh/h	1668	1252	0	0	364	335	559	0	499			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.27	0.27	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.3	23.1	0.0	0.0	35.0	35.2	24.2	0.0	22.2			
Incr Delay (d2), s/veh	1.3	0.1	0.0	0.0	9.4	12.1	2.2	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	15.6	10.3	0.0	0.0	6.8	6.8	4.8	0.0	1.5			
LnGrp Delay(d),s/veh	28.6	23.2	0.0	0.0	44.4	47.2	26.4	0.0	22.9			
LnGrp LOS	C	C			D	D	C		C			
Approach Vol, veh/h		1720			495			309				
Approach Delay, s/veh		27.1			45.8			25.5				
Approach LOS		C			D			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		32.9		57.1			36.1	21.1
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		20.5		60.5			37.5	18.5
Max Q Clear Time (g_c+I1), s		11.1		21.9			27.9	14.7
Green Ext Time (p_c), s		1.0		5.8			3.6	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1319	13	0	264	0	4	0	0	0	0	0
Future Vol, veh/h	36	1999	13	0	638	58	4	0	0	14	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	2246	15	0	717	65	4	0	0	16	0	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	717	0	0	2246	0	0	2685	3044	1123	1921	3044	358
Stage 1	-	-	-	-	-	-	2327	2327	-	717	717	-
Stage 2	-	-	-	-	-	-	358	717	-	1204	2327	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	880	-	-	226	-	-	10	12	200	41	12	638
Stage 1	-	-	-	-	-	-	38	70	-	387	432	-
Stage 2	-	-	-	-	-	-	633	432	-	195	70	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	880	-	-	226	-	-	9	11	200	40	11	638
Mov Cap-2 Maneuver	-	-	-	-	-	-	32	55	-	129	55	-
Stage 1	-	-	-	-	-	-	36	67	-	369	432	-
Stage 2	-	-	-	-	-	-	572	432	-	186	67	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	135.1	18
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	32	880	-	-	226	-	-	354
HCM Lane V/C Ratio	0.14	0.046	-	-	-	-	-	0.219
HCM Control Delay (s)	135.1	9.3	-	-	0	-	-	18
HCM Lane LOS	F	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.8

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1439	4	4	298	2	14
Future Vol, veh/h	1725	4	4	775	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1938	4	4	871	2	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1943	0	2384	971
Stage 1	-	-	-	-	1940	-
Stage 2	-	-	-	-	444	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	298	-	28	252
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	298	-	27	252
Mov Cap-2 Maneuver	-	-	-	-	27	-
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	598	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	39.2
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	123	-	-	298	-
HCM Lane V/C Ratio	0.146	-	-	0.015	-
HCM Control Delay (s)	39.2	-	-	17.3	0.2
HCM Lane LOS	E	-	-	C	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	LT
Maximum Queue (ft)	4	227	211	29	272	209	239	27	54	134	61
Average Queue (ft)	1	145	132	9	162	118	143	9	17	61	23
95th Queue (ft)	10	219	208	29	272	201	237	27	47	124	61
Link Distance (ft)		2632	2632			1905	1905		1864		701
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	300			300	300			300		200	
Storage Blk Time (%)		0			1					0	
Queuing Penalty (veh)		0			4					0	

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	EB	WB	NB	SB
Directions Served	L	R	LTR	LTR
Maximum Queue (ft)	162	32	52	636
Average Queue (ft)	87	7	23	614
95th Queue (ft)	161	26	62	650
Link Distance (ft)			650	602
Upstream Blk Time (%)				92
Queuing Penalty (veh)				0
Storage Bay Dist (ft)	300	300		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B26	B26	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	TR
Maximum Queue (ft)	208	333	340	74	430	510	515	384	50	52	15	46
Average Queue (ft)	118	183	188	39	169	383	400	120	5	6	12	27
95th Queue (ft)	216	303	308	71	397	514	539	392	44	46	17	40
Link Distance (ft)		1513	1513			474	474		429	429		13
Upstream Blk Time (%)						3	4				26	50
Queuing Penalty (veh)						27	38				0	303
Storage Bay Dist (ft)	300			300	300			300			150	
Storage Blk Time (%)	0	1	1		1	20	22				26	50
Queuing Penalty (veh)	0	1	2		7	31	27				68	175

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	SB	SB	B27
Directions Served	L	TR	T
Maximum Queue (ft)	52	137	355
Average Queue (ft)	48	122	175
95th Queue (ft)	61	143	374
Link Distance (ft)		53	604
Upstream Blk Time (%)	26	49	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)	150		
Storage Blk Time (%)	26	49	
Queuing Penalty (veh)	79	100	

Intersection: 4: CSAH 2

Movement	EB	EB	B26	B26	WB	WB	NB
Directions Served	T	TR	T	T	LT	T	LR
Maximum Queue (ft)	506	506	226	235	118	41	48
Average Queue (ft)	350	387	62	74	22	4	15
95th Queue (ft)	619	638	253	275	106	41	45
Link Distance (ft)	429	429	474	474	268	268	451
Upstream Blk Time (%)	14	24	0	0			
Queuing Penalty (veh)	79	136	1	1			
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	L	T	LT	R
Maximum Queue (ft)	299	295	224	684	450	1073
Average Queue (ft)	267	269	136	566	259	887
95th Queue (ft)	316	310	253	796	585	1267
Link Distance (ft)	268	268		711		1042
Upstream Blk Time (%)	42	56		4		23
Queuing Penalty (veh)	240	321		28		0
Storage Bay Dist (ft)			200		300	
Storage Blk Time (%)				46		40
Queuing Penalty (veh)				47		68

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	TR	LT	R
Maximum Queue (ft)	253	281	259	255	267	179	107
Average Queue (ft)	156	185	134	155	167	112	29
95th Queue (ft)	258	288	281	260	275	209	87
Link Distance (ft)		711	711	3503	3503	741	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	350						150
Storage Blk Time (%)						4	
Queuing Penalty (veh)						3	

Intersection: 7: Newton Cir & Frontage Rd

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	15	38
Average Queue (ft)	2	24
95th Queue (ft)	13	47
Link Distance (ft)	566	650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	478	31	281	1078	5	24	2	90	2	0	0
Future Volume (veh/h)	4	830	31	501	1666	78	24	2	222	46	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	4	892	33	539	1791	84	26	2	239	49	0	0
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	1100	492	577	1957	876	462	32	432	387	0	432
Arrive On Green	0.01	0.31	0.31	0.25	0.55	0.55	0.27	0.27	0.27	0.27	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1375	119	1583	1086	0	1583
Grp Volume(v), veh/h	4	892	33	539	1791	84	28	0	239	49	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1494	0	1583	1086	0	1583
Q Serve(g_s), s	0.1	18.6	1.2	17.4	36.6	2.0	0.0	0.0	10.3	2.7	0.0	0.0
Cycle Q Clear(g_c), s	0.1	18.6	1.2	17.4	36.6	2.0	0.9	0.0	10.3	3.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	122	1100	492	577	1957	876	494	0	432	387	0	432
V/C Ratio(X)	0.03	0.81	0.07	0.93	0.92	0.10	0.06	0.00	0.55	0.13	0.00	0.00
Avail Cap(c_a), veh/h	224	1194	534	614	1957	876	494	0	432	387	0	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.6	25.4	19.4	18.2	16.2	8.4	21.5	0.0	24.9	22.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	4.0	0.1	21.1	7.2	0.0	0.2	0.0	5.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	9.7	0.5	14.9	19.6	0.9	0.5	0.0	5.1	0.9	0.0	0.0
LnGrp Delay(d),s/veh	20.8	29.5	19.5	39.3	23.4	8.5	21.7	0.0	29.9	23.5	0.0	0.0
LnGrp LOS	C	C	B	D	C	A	C		C	C		
Approach Vol, veh/h		929			2414			267			49	
Approach Delay, s/veh		29.1			26.4			29.1			23.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		26.3	24.3	29.4		26.3	4.9	48.7
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		18.0	21.5	27.0		18.0	5.0	43.5
Max Q Clear Time (g_c+I1), s		12.3	19.4	20.6		5.6	2.1	38.6
Green Ext Time (p_c), s		0.6	0.4	4.3		1.0	0.0	4.5

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	517	0	15	1277	0	0	0	27	0	0	0
Future Volume (veh/h)	184	664	212	156	1365	123	352	0	262	205	0	309
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	200	722	230	170	1484	134	383	0	285	223	0	336
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	1614	722	349	1515	678	388	0	393	343	0	272
Arrive On Green	0.09	0.46	0.46	0.07	0.43	0.43	0.19	0.00	0.25	0.12	0.00	0.17
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1774	0	1583	1774	0	1583
Grp Volume(v), veh/h	200	722	230	170	1484	134	383	0	285	223	0	336
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1774	0	1583	1774	0	1583
Q Serve(g_s), s	13.4	22.3	14.8	8.6	66.1	8.5	30.4	0.0	26.4	16.4	0.0	27.5
Cycle Q Clear(g_c), s	13.4	22.3	14.8	8.6	66.1	8.5	30.4	0.0	26.4	16.4	0.0	27.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	1614	722	349	1515	678	388	0	393	343	0	272
V/C Ratio(X)	0.92	0.45	0.32	0.49	0.98	0.20	0.99	0.00	0.72	0.65	0.00	1.24
Avail Cap(c_a), veh/h	217	1614	722	369	1522	681	388	0	393	396	0	272
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.5	29.7	27.7	24.0	45.0	28.6	50.8	0.0	55.1	47.1	0.0	66.3
Incr Delay (d2), s/veh	39.9	0.2	0.3	1.1	18.2	0.1	42.4	0.0	11.1	3.0	0.0	133.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	11.0	6.5	4.3	36.0	3.7	21.5	0.0	12.8	8.3	0.0	22.1
LnGrp Delay(d),s/veh	91.3	29.9	27.9	25.0	63.3	28.7	93.3	0.0	66.2	50.1	0.0	199.6
LnGrp LOS	F	C	C	C	E	C	F		E	D		F
Approach Vol, veh/h		1152			1788			668			559	
Approach Delay, s/veh		40.2			57.1			81.7			140.0	
Approach LOS		D			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.1	44.2	15.1	77.5	35.4	32.0	19.6	73.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	23.5	34.6	12.5	71.4	30.9	27.2	15.1	68.8
Max Q Clear Time (g_c+I1), s	18.4	28.4	10.6	24.3	32.4	29.5	15.4	68.1
Green Ext Time (p_c), s	0.3	2.1	0.1	26.3	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	67.5
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	435	60	102	381	0	0	0	0	170	0	868
Future Volume (veh/h)	0	802	280	102	601	0	0	0	0	170	0	1000
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	853	298	109	639	0				181	0	0
Adj No. of Lanes	0	2	0	1	1	0				0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	781	272	106	681	0				1026	0	915
Arrive On Green	0.00	0.30	0.30	0.07	0.73	0.00				0.58	0.00	0.00
Sat Flow, veh/h	0	2669	898	1774	1863	0				1774	0	1583
Grp Volume(v), veh/h	0	586	565	109	639	0				181	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1704	1774	1863	0				1774	0	1583
Q Serve(g_s), s	0.0	48.5	48.5	5.5	47.0	0.0				7.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	48.5	48.5	5.5	47.0	0.0				7.7	0.0	0.0
Prop In Lane	0.00		0.53	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	536	517	106	681	0				1026	0	915
V/C Ratio(X)	0.00	1.09	1.09	1.03	0.94	0.00				0.18	0.00	0.00
Avail Cap(c_a), veh/h	0	536	517	106	681	0				1026	0	915
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.61	0.61	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	55.7	55.8	48.4	20.0	0.0				15.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	66.1	67.9	75.9	14.5	0.0				0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.4	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	33.5	32.6	4.2	26.2	0.0				3.9	0.0	0.0
LnGrp Delay(d),s/veh	0.0	121.9	123.6	124.7	34.5	0.0				16.2	0.0	0.0
LnGrp LOS		F	F	F	C					B		
Approach Vol, veh/h		1151			748						181	
Approach Delay, s/veh		122.7			47.6						16.2	
Approach LOS		F			D						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			10.0	53.0		97.0		63.0
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			5.5	48.5		92.5		58.5
Max Q Clear Time (g_c+I1), s			7.5	50.5		9.7		49.0
Green Ext Time (p_c), s			0.0	0.0		1.1		6.4

Intersection Summary	
HCM 2010 Ctrl Delay	86.4
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	271	0	0	400	85	74	4	58	0	0	0
Future Volume (veh/h)	561	418	0	0	488	85	206	4	58	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	610	454	0	0	530	92	224	4	63			
Adj No. of Lanes	2	1	0	0	2	0	0	1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	861	851	0	0	707	122	751	13	682			
Arrive On Green	0.28	0.76	0.00	0.00	0.23	0.23	0.43	0.43	0.43			
Sat Flow, veh/h	3442	1863	0	0	3111	522	1744	31	1583			
Grp Volume(v), veh/h	610	454	0	0	310	312	228	0	63			
Grp Sat Flow(s),veh/h/ln	1721	1863	0	0	1770	1771	1776	0	1583			
Q Serve(g_s), s	10.0	7.8	0.0	0.0	13.0	13.1	6.7	0.0	1.9			
Cycle Q Clear(g_c), s	10.0	7.8	0.0	0.0	13.0	13.1	6.7	0.0	1.9			
Prop In Lane	1.00		0.00	0.00		0.29	0.98		1.00			
Lane Grp Cap(c), veh/h	861	851	0	0	415	415	765	0	682			
V/C Ratio(X)	0.71	0.53	0.00	0.00	0.75	0.75	0.30	0.00	0.09			
Avail Cap(c_a), veh/h	1085	1083	0	0	520	520	765	0	682			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	15.8	6.1	0.0	0.0	28.4	28.5	14.9	0.0	13.5			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	4.5	4.7	1.0	0.0	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.7	3.8	0.0	0.0	6.9	7.0	3.5	0.0	0.9			
LnGrp Delay(d),s/veh	15.9	6.1	0.0	0.0	33.0	33.2	15.9	0.0	13.8			
LnGrp LOS	B	A			C	C	B		B			
Approach Vol, veh/h		1064			622			291				
Approach Delay, s/veh		11.7			33.1			15.4				
Approach LOS		B			C			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		39.0		41.0			17.8	23.2
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		24.5		46.5			18.5	23.5
Max Q Clear Time (g_c+I1), s		8.7		9.8			12.0	15.1
Green Ext Time (p_c), s		1.3		6.5			1.3	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	19.0
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	351.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	513	22	2	1261	0	18	0	3	0	0	0
Future Vol, veh/h	132	909	22	2	1769	241	18	0	3	147	0	373
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	300	-	300	300	-	300	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	967	23	2	1882	256	19	0	3	156	0	397

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1882	0	0	967	0	0	2193	3134	484	2650	3134	941
Stage 1	-	-	-	-	-	-	1248	1248	-	1886	1886	-
Stage 2	-	-	-	-	-	-	945	1886	-	764	1248	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	315	-	-	708	-	-	25	11	529	~ 11	11	~ 264
Stage 1	-	-	-	-	-	-	183	243	-	~ 73	118	-
Stage 2	-	-	-	-	-	-	282	118	-	362	243	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	315	-	-	708	-	-	-	6	529	~ 7	6	~ 264
Mov Cap-2 Maneuver	-	-	-	-	-	-	355	~ -27	-	~ 33	60	-
Stage 1	-	-	-	-	-	-	102	135	-	~ 41	118	-
Stage 2	-	-	-	-	-	-	-	118	-	200	135	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.1	0		$ 2439.7
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	315	-	-	708	-	-	89
HCM Lane V/C Ratio	-	0.446	-	-	0.003	-	-	6.216
HCM Control Delay (s)	-	25.3	-	-	10.1	-		$ 2439.7
HCM Lane LOS	-	D	-	-	B	-	-	F
HCM 95th %tile Q(veh)	-	2.2	-	-	0	-	-	61.4

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	547	5	18	1336	6	9
Future Vol, veh/h	1134	5	18	1688	6	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1219	5	19	1815	6	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1225	0	2168	612
Stage 1	-	-	-	-	1222	-
Stage 2	-	-	-	-	946	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	565	-	40	436
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	338	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	565	-	40	436
Mov Cap-2 Maneuver	-	-	-	-	40	-
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	338	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	54.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	88	-	-	565	-
HCM Lane V/C Ratio	0.183	-	-	0.034	-
HCM Control Delay (s)	54.9	-	-	11.6	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Appendix S: Synchro Reports – Phase 2 (2038) Recommendations

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	L	TR
Maximum Queue (ft)	27	412	391	18	154	104	124	35	215	296	84	18
Average Queue (ft)	7	280	275	4	86	65	82	12	45	194	37	4
95th Queue (ft)	26	421	401	18	148	114	130	34	191	310	80	15
Link Distance (ft)		2634	2634			1881	1881		1865		702	702
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300			300	300			300		200		
Storage Blk Time (%)		8	7						0	10		
Queuing Penalty (veh)		1	1						0	4		

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	T	T	R	T	T	R	L	LT	R
Maximum Queue (ft)	177	326	312	7	118	120	48	13	74	52
Average Queue (ft)	71	172	165	1	42	44	17	2	34	27
95th Queue (ft)	173	337	318	6	103	111	45	13	71	52
Link Distance (ft)		1881	1881		1502	1502			603	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300			300			300	150		150
Storage Blk Time (%)		3	3							
Queuing Penalty (veh)		5	0							

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	L	TR	L
Maximum Queue (ft)	448	538	530	330	245	148	150	61	31	40	37	50
Average Queue (ft)	198	393	376	139	140	74	85	31	28	24	28	37
95th Queue (ft)	452	565	550	398	276	136	142	58	41	48	43	55
Link Distance (ft)		1502	1502			463	463		12	12	12	
Upstream Blk Time (%)									48	22	28	3
Queuing Penalty (veh)									48	22	28	0
Storage Bay Dist (ft)	300			300	300			300				150
Storage Blk Time (%)		29	21		2							3
Queuing Penalty (veh)		73	61		4							4

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	SB	B27
Directions Served	TR	T
Maximum Queue (ft)	115	59
Average Queue (ft)	58	9
95th Queue (ft)	110	49
Link Distance (ft)	54	604
Upstream Blk Time (%)	8	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)	8	
Queuing Penalty (veh)	8	

Intersection: 4: CSAH 2

Movement	EB	EB	B26	B26	WB	WB	NB
Directions Served	T	TR	T	T	LT	T	LR
Maximum Queue (ft)	392	393	57	50	126	112	41
Average Queue (ft)	220	195	14	9	24	16	12
95th Queue (ft)	461	465	101	87	107	125	36
Link Distance (ft)	429	429	463	463	268	268	437
Upstream Blk Time (%)	3	2				1	
Queuing Penalty (veh)	23	14				3	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	T	T	R	L	T	LT	R
Maximum Queue (ft)	297	302	104	132	233	79	132
Average Queue (ft)	278	253	41	59	48	31	56
95th Queue (ft)	312	346	100	125	179	79	131
Link Distance (ft)	268	268	268		711		1042
Upstream Blk Time (%)	27	12	0				
Queuing Penalty (veh)	158	72	0				
Storage Bay Dist (ft)				200		300	
Storage Blk Time (%)					1		
Queuing Penalty (veh)					1		

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	TR	LT	R
Maximum Queue (ft)	187	300	105	175	222	179	89
Average Queue (ft)	130	149	48	109	133	105	29
95th Queue (ft)	189	292	112	184	229	178	89
Link Distance (ft)		711	711	3503	3503	741	
Upstream Blk Time (%)		0					
Queuing Penalty (veh)		1					
Storage Bay Dist (ft)	350						150
Storage Blk Time (%)						3	
Queuing Penalty (veh)						2	

Intersection: 7: Newton Cir & Frontage Rd

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	5	31
Average Queue (ft)	1	13
95th Queue (ft)	7	37
Link Distance (ft)	567	650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	860	8	30	213	0	38	3	319	6	4	6
Future Volume (veh/h)	9	1337	8	138	500	36	38	3	498	66	4	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	10	1502	9	155	562	40	43	3	560	74	4	7
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	460	1559	697	206	1747	782	529	34	545	350	209	367
Arrive On Green	0.01	0.44	0.44	0.13	0.99	0.99	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1312	100	1583	844	609	1066
Grp Volume(v), veh/h	10	1502	9	155	562	40	46	0	560	74	0	11
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1411	0	1583	844	0	1675
Q Serve(g_s), s	0.3	37.1	0.3	4.2	0.3	0.0	1.8	0.0	31.0	5.9	0.0	0.4
Cycle Q Clear(g_c), s	0.3	37.1	0.3	4.2	0.3	0.0	2.2	0.0	31.0	8.1	0.0	0.4
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	1.00		0.64
Lane Grp Cap(c), veh/h	460	1559	697	206	1747	782	563	0	545	350	0	576
V/C Ratio(X)	0.02	0.96	0.01	0.75	0.32	0.05	0.08	0.00	1.03	0.21	0.00	0.02
Avail Cap(c_a), veh/h	537	1569	702	206	1747	782	563	0	545	350	0	576
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.97	0.97	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.6	24.5	14.2	19.1	0.3	0.3	20.1	0.0	29.5	22.8	0.0	19.5
Incr Delay (d2), s/veh	0.0	14.9	0.0	14.1	0.1	0.0	0.3	0.0	46.0	1.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	21.2	0.1	2.8	0.1	0.0	0.8	0.0	20.4	1.5	0.0	0.2
LnGrp Delay(d),s/veh	13.6	39.4	14.2	33.2	0.4	0.3	20.4	0.0	75.5	24.2	0.0	19.6
LnGrp LOS	B	D	B	C	A	A	C		F	C		B
Approach Vol, veh/h		1521			757			606			85	
Approach Delay, s/veh		39.1			7.1			71.3			23.6	
Approach LOS		D			A			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		35.5	10.4	44.1		35.5	5.6	48.9
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		30.7	5.9	39.9		30.7	5.0	40.8
Max Q Clear Time (g_c+I1), s		33.0	6.2	39.1		10.1	2.3	2.3
Green Ext Time (p_c), s		0.0	0.0	0.5		2.9	0.0	19.8

Intersection Summary	
HCM 2010 Ctrl Delay	37.1
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1319	13	0	264	0	4	0	0	0	0	0
Future Volume (veh/h)	179	1856	13	0	587	120	4	0	0	72	0	108
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	201	2085	15	0	660	135	4	0	0	81	0	121
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	455	1954	874	80	1954	874	429	648	0	539	0	551
Arrive On Green	1.00	1.00	1.00	0.00	1.00	1.00	0.35	0.00	0.00	0.35	0.00	0.35
Sat Flow, veh/h	680	3539	1583	194	3539	1583	1265	1863	0	1319	0	1583
Grp Volume(v), veh/h	201	2085	15	0	660	135	4	0	0	81	0	121
Grp Sat Flow(s),veh/h/ln	680	1770	1583	194	1770	1583	1265	1863	0	1319	0	1583
Q Serve(g_s), s	0.0	49.7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	3.7	0.0	4.9
Cycle Q Clear(g_c), s	0.0	49.7	0.0	0.0	0.0	0.0	6.7	0.0	0.0	5.7	0.0	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	455	1954	874	80	1954	874	429	648	0	539	0	551
V/C Ratio(X)	0.44	1.07	0.02	0.00	0.34	0.15	0.01	0.00	0.00	0.15	0.00	0.22
Avail Cap(c_a), veh/h	552	2458	1100	108	2458	1100	429	648	0	539	0	551
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.29	0.29	0.29	0.00	0.96	0.96	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	23.7	0.0	0.0	21.7	0.0	20.7
Incr Delay (d2), s/veh	0.2	33.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	0.0	2.3
LnGrp Delay(d),s/veh	0.2	33.1	0.0	0.0	0.1	0.1	23.7	0.0	0.0	22.3	0.0	21.6
LnGrp LOS	A	F	A		A	A	C			C		C
Approach Vol, veh/h		2301			795			4			202	
Approach Delay, s/veh		30.0			0.1			23.7			21.9	
Approach LOS		C			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		29.8		60.2		29.8		60.2
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.5		62.5		18.5		62.5
Max Q Clear Time (g_c+I1), s		8.7		51.7		7.7		2.0
Green Ext Time (p_c), s		0.5		10.1		0.5		44.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1297	0	15	258	0	0	0	10	0	0	0
Future Volume (veh/h)	251	1369	286	205	378	168	172	0	125	101	0	151
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	282	1538	321	230	425	189	193	0	140	113	0	170
Adj No. of Lanes	1	2	1	1	2	1	2	1	0	1	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	562	1555	696	261	1479	662	617	0	330	342	0	330
Arrive On Green	0.24	0.88	0.88	0.10	0.42	0.42	0.06	0.00	0.21	0.06	0.00	0.21
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	0	1583	1774	0	1583
Grp Volume(v), veh/h	282	1538	321	230	425	189	193	0	140	113	0	170
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	0	1583	1774	0	1583
Q Serve(g_s), s	8.4	36.2	3.7	6.9	7.1	7.1	3.9	0.0	6.9	4.5	0.0	8.6
Cycle Q Clear(g_c), s	8.4	36.2	3.7	6.9	7.1	7.1	3.9	0.0	6.9	4.5	0.0	8.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	562	1555	696	261	1479	662	617	0	330	342	0	330
V/C Ratio(X)	0.50	0.99	0.46	0.88	0.29	0.29	0.31	0.00	0.42	0.33	0.00	0.52
Avail Cap(c_a), veh/h	611	1577	705	261	1479	662	617	0	330	342	0	330
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.41	0.41	0.41	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.4	5.3	3.3	21.5	17.3	17.3	26.3	0.0	30.9	26.3	0.0	31.6
Incr Delay (d2), s/veh	0.3	12.0	0.2	27.8	0.1	0.2	0.3	0.0	4.0	0.6	0.0	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	17.5	1.5	7.6	3.5	3.1	1.9	0.0	3.4	2.3	0.0	4.2
LnGrp Delay(d),s/veh	10.7	17.2	3.5	49.3	17.4	17.5	26.6	0.0	34.9	26.9	0.0	37.2
LnGrp LOS	B	B	A	D	B	B	C		C	C		D
Approach Vol, veh/h		2141			844			333			283	
Approach Delay, s/veh		14.3			26.2			30.1			33.1	
Approach LOS		B			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	23.3	13.2	44.0	9.5	23.3	15.1	42.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	18.2	8.7	40.1	5.0	18.2	13.1	35.7
Max Q Clear Time (g_c+I1), s	6.5	8.9	8.9	38.2	5.9	10.6	10.4	9.1
Green Ext Time (p_c), s	0.0	1.2	0.0	1.3	0.0	1.1	0.2	17.5

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1263	81	81	132	0	0	0	0	55	2	152
Future Volume (veh/h)	0	1443	189	81	431	0	0	0	0	55	2	331
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	1621	212	91	484	0				62	2	0
Adj No. of Lanes	0	2	1	1	1	0				0	1	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89				0.89	0.89	0.89
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1855	830	199	1162	0				411	13	378
Arrive On Green	0.00	0.52	0.52	0.10	1.00	0.00				0.24	0.24	0.00
Sat Flow, veh/h	0	3632	1583	1774	1863	0				1721	56	1583
Grp Volume(v), veh/h	0	1621	212	91	484	0				64	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1863	0				1777	0	1583
Q Serve(g_s), s	0.0	36.2	6.6	2.0	0.0	0.0				2.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	36.2	6.6	2.0	0.0	0.0				2.6	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.97		1.00
Lane Grp Cap(c), veh/h	0	1855	830	199	1162	0				424	0	378
V/C Ratio(X)	0.00	0.87	0.26	0.46	0.42	0.00				0.15	0.00	0.00
Avail Cap(c_a), veh/h	0	1947	871	219	1231	0				424	0	378
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.59	0.59	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.8	11.8	18.2	0.0	0.0				27.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.6	0.2	1.0	0.1	0.0				0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	18.7	2.9	1.2	0.0	0.0				1.4	0.0	0.0
LnGrp Delay(d),s/veh	0.0	23.4	11.9	19.2	0.1	0.0				27.8	0.0	0.0
LnGrp LOS		C	B	B	A					C		
Approach Vol, veh/h		1833			575						64	
Approach Delay, s/veh		22.1			3.1						27.8	
Approach LOS		C			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			9.0	51.7		26.0		60.7
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			5.5	49.5		21.5		59.5
Max Q Clear Time (g_c+I1), s			4.0	38.2		4.6		2.0
Green Ext Time (p_c), s			0.0	9.0		0.2		25.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1006	345	0	0	149	173	24	0	72	0	0	0
Future Volume (veh/h)	1114	417	0	0	269	173	203	0	72	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	1252	469	0	0	302	194	228	0	81			
Adj No. of Lanes	2	1	0	0	2	0	0	1	1			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	1434	1085	0	0	384	240	563	0	503			
Arrive On Green	0.12	0.19	0.00	0.00	0.18	0.18	0.32	0.00	0.32			
Sat Flow, veh/h	3442	1863	0	0	2185	1310	1774	0	1583			
Grp Volume(v), veh/h	1252	469	0	0	254	242	228	0	81			
Grp Sat Flow(s),veh/h/ln	1721	1863	0	0	1770	1632	1774	0	1583			
Q Serve(g_s), s	26.0	20.0	0.0	0.0	12.3	12.8	9.1	0.0	3.3			
Cycle Q Clear(g_c), s	26.0	20.0	0.0	0.0	12.3	12.8	9.1	0.0	3.3			
Prop In Lane	1.00		0.00	0.00		0.80	1.00		1.00			
Lane Grp Cap(c), veh/h	1434	1085	0	0	324	299	563	0	503			
V/C Ratio(X)	0.87	0.43	0.00	0.00	0.78	0.81	0.40	0.00	0.16			
Avail Cap(c_a), veh/h	1628	1227	0	0	360	332	563	0	503			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.40	0.40	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.5	23.2	0.0	0.0	35.0	35.2	24.1	0.0	22.1			
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.0	9.9	12.7	2.2	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	15.7	10.3	0.0	0.0	6.9	6.8	4.8	0.0	1.5			
LnGrp Delay(d),s/veh	29.6	23.3	0.0	0.0	44.9	47.9	26.2	0.0	22.8			
LnGrp LOS	C	C			D	D	C		C			
Approach Vol, veh/h		1721			496			309				
Approach Delay, s/veh		27.9			46.4			25.3				
Approach LOS		C			D			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		33.1		56.9			35.9	21.0
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		21.7		59.3			36.5	18.3
Max Q Clear Time (g_c+I1), s		11.1		22.0			28.0	14.8
Green Ext Time (p_c), s		1.1		5.8			3.4	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	31.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1439	4	4	298	2	14
Future Vol, veh/h	1727	4	4	776	2	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1940	4	4	872	2	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1945	0	2388	972
Stage 1	-	-	-	-	1943	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	297	-	28	252
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	297	-	27	252
Mov Cap-2 Maneuver	-	-	-	-	27	-
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	597	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	39.2
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	123	-	-	297	-
HCM Lane V/C Ratio	0.146	-	-	0.015	-
HCM Control Delay (s)	39.2	-	-	17.3	0.2
HCM Lane LOS	E	-	-	C	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection: 1: Xerxes Ave & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	LT	R	L
Maximum Queue (ft)	21	266	267	42	310	143	161	28	36	121	76
Average Queue (ft)	3	188	183	14	210	87	100	9	13	62	35
95th Queue (ft)	18	293	292	41	299	154	160	27	41	120	78
Link Distance (ft)		2634	2634			1881	1881		1865		702
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	300			300	300			300		200	
Storage Blk Time (%)		2	2		1						
Queuing Penalty (veh)		0	1		8						

Intersection: 2: Frontage Rd/Future Entrance 1 & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	T	R	L	TR	LT	R
Maximum Queue (ft)	437	1349	1303	1	9	226	248	29	34	10	146	159
Average Queue (ft)	355	618	444	0	1	146	151	16	11	1	73	99
95th Queue (ft)	546	1569	1445	2	9	226	243	35	34	9	135	164
Link Distance (ft)		1881	1881			1502	1502			651	603	
Upstream Blk Time (%)		1	0									
Queuing Penalty (veh)		3	3									
Storage Bay Dist (ft)	300			300	300			300	150			150
Storage Blk Time (%)	64	0				0	0				0	2
Queuing Penalty (veh)	288	0				0	0				1	3

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	EB	EB	EB	EB	WB	WB	WB	WB	B26	B26	NB	NB
Directions Served	L	T	T	R	L	T	T	R	T	T	L	L
Maximum Queue (ft)	180	167	174	66	258	372	377	110	21	16	57	40
Average Queue (ft)	87	111	121	37	112	275	276	35	5	4	35	26
95th Queue (ft)	182	177	191	67	284	428	429	164	38	30	50	47
Link Distance (ft)		1502	1502			463	463		429	429	12	12
Upstream Blk Time (%)					0	2	2	0			59	35
Queuing Penalty (veh)					0	17	17	0			120	71
Storage Bay Dist (ft)	300			300	300			300				
Storage Blk Time (%)					0	6	7					
Queuing Penalty (veh)					0	10	9					

Intersection: 3: Frontage Rd/Proposed Entrance & CSAH 2

Movement	NB	SB	SB	B27
Directions Served	TR	L	TR	T
Maximum Queue (ft)	56	54	148	537
Average Queue (ft)	36	52	123	327
95th Queue (ft)	54	56	157	694
Link Distance (ft)	12		54	604
Upstream Blk Time (%)	37	9	64	16
Queuing Penalty (veh)	75	0	0	0
Storage Bay Dist (ft)		150		
Storage Blk Time (%)		9	64	
Queuing Penalty (veh)		27	132	

Intersection: 4: CSAH 2

Movement	EB	WB	WB	NB
Directions Served	T	LT	T	LR
Maximum Queue (ft)	5	127	86	52
Average Queue (ft)	1	32	10	20
95th Queue (ft)	7	111	69	61
Link Distance (ft)	429	268	268	437
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: SB IH 35 On Ramp/SB IH 35 Off Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	L	T	LT	R	R
Maximum Queue (ft)	252	238	70	144	336	120	237	204
Average Queue (ft)	170	135	42	64	139	66	159	124
95th Queue (ft)	270	237	68	129	283	127	259	225
Link Distance (ft)	268	268	268		711		1041	1041
Upstream Blk Time (%)	0	0						
Queuing Penalty (veh)	1	0						
Storage Bay Dist (ft)				200		300		
Storage Blk Time (%)					2		0	
Queuing Penalty (veh)					2		0	

Intersection: 6: NB IH 35 Off Ramp/NB IH 35 On Ramp & CSAH 2

Movement	EB	EB	EB	WB	WB	NB	NB
Directions Served	L	L	T	T	TR	LT	R
Maximum Queue (ft)	160	192	153	282	304	170	92
Average Queue (ft)	77	102	64	234	246	103	26
95th Queue (ft)	155	179	153	399	416	175	78
Link Distance (ft)		711	711	3503	3503	741	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	350						150
Storage Blk Time (%)						2	
Queuing Penalty (veh)						1	

Intersection: 7: Newton Cir & Frontage Rd

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	5	31
Average Queue (ft)	1	19
95th Queue (ft)	7	43
Link Distance (ft)	567	650
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	478	31	281	1078	5	24	2	90	2	0	0
Future Volume (veh/h)	4	830	31	501	1666	78	24	2	222	46	0	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	4	892	33	539	1791	84	26	2	239	49	0	0
Adj No. of Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	127	1090	488	576	1970	881	459	33	456	391	537	0
Arrive On Green	0.01	0.31	0.31	0.34	0.74	0.74	0.29	0.29	0.29	0.29	0.00	0.00
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1326	113	1583	1134	1863	0
Grp Volume(v), veh/h	4	892	33	539	1791	84	28	0	239	49	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1439	0	1583	1134	1863	0
Q Serve(g_s), s	0.1	21.0	1.3	19.7	36.2	1.3	1.1	0.0	11.4	2.9	0.0	0.0
Cycle Q Clear(g_c), s	0.1	21.0	1.3	19.7	36.2	1.3	1.2	0.0	11.4	4.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	127	1090	488	576	1970	881	492	0	456	391	537	0
V/C Ratio(X)	0.03	0.82	0.07	0.94	0.91	0.10	0.06	0.00	0.52	0.13	0.00	0.00
Avail Cap(c_a), veh/h	216	1090	488	706	2045	915	492	0	456	391	537	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.47	0.47	0.47	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.3	28.8	22.0	17.5	9.9	5.4	23.2	0.0	26.9	24.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	5.0	0.1	10.0	3.2	0.0	0.2	0.0	4.3	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	10.9	0.6	14.3	17.9	0.6	0.5	0.0	5.5	1.0	0.0	0.0
LnGrp Delay(d),s/veh	22.4	33.8	22.1	27.5	13.1	5.4	23.5	0.0	31.1	25.4	0.0	0.0
LnGrp LOS	C	C	C	C	B	A	C		C	C		
Approach Vol, veh/h		929			2414			267			49	
Approach Delay, s/veh		33.4			16.0			30.3			25.4	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		30.4	27.4	32.2		30.4	5.0	54.6
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		19.5	29.5	27.5		19.5	5.0	52.0
Max Q Clear Time (g_c+I1), s		13.4	21.7	23.0		6.2	2.1	38.2
Green Ext Time (p_c), s		0.6	1.1	4.2		0.9	0.0	11.9

Intersection Summary	
HCM 2010 Ctrl Delay	21.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	513	22	2	1261	0	18	0	3	0	0	0
Future Volume (veh/h)	132	909	22	2	1922	88	18	0	3	147	0	220
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	140	967	23	2	2045	94	19	0	3	156	0	234
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	2418	1082	400	2418	1082	214	0	343	383	0	343
Arrive On Green	0.68	0.68	0.68	1.00	1.00	1.00	0.22	0.00	0.22	0.22	0.00	0.22
Sat Flow, veh/h	187	3539	1583	566	3539	1583	1142	0	1583	1398	0	1583
Grp Volume(v), veh/h	140	967	23	2	2045	94	19	0	3	156	0	234
Grp Sat Flow(s),veh/h/ln	187	1770	1583	566	1770	1583	1142	0	1583	1398	0	1583
Q Serve(g_s), s	61.5	10.7	0.4	0.1	0.0	0.0	1.3	0.0	0.1	8.8	0.0	12.2
Cycle Q Clear(g_c), s	61.5	10.7	0.4	10.8	0.0	0.0	10.3	0.0	0.1	8.9	0.0	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	2418	1082	400	2418	1082	214	0	343	383	0	343
V/C Ratio(X)	0.67	0.40	0.02	0.01	0.85	0.09	0.09	0.00	0.01	0.41	0.00	0.68
Avail Cap(c_a), veh/h	208	2418	1082	400	2418	1082	214	0	343	383	0	343
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	0.19	0.19	0.19	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	6.2	4.6	0.9	0.0	0.0	35.6	0.0	27.7	31.2	0.0	32.4
Incr Delay (d2), s/veh	5.1	0.1	0.0	0.0	0.6	0.0	0.8	0.0	0.0	3.2	0.0	10.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	5.1	0.2	0.0	0.2	0.0	0.5	0.0	0.1	3.8	0.0	6.3
LnGrp Delay(d),s/veh	22.0	6.3	4.6	0.9	0.6	0.0	36.5	0.0	27.7	34.4	0.0	42.9
LnGrp LOS	C	A	A	A	A	A	D		C	C		D
Approach Vol, veh/h		1130			2141			22			390	
Approach Delay, s/veh		8.2			0.5			35.3			39.5	
Approach LOS		A			A			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.0		66.0		24.0		66.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		19.5		61.5		19.5		61.5
Max Q Clear Time (g_c+I1), s		12.3		63.5		14.2		12.8
Green Ext Time (p_c), s		1.0		0.0		0.8		43.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.2
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	517	0	15	1277	0	0	0	27	0	0	0
Future Volume (veh/h)	184	664	212	156	1365	123	352	0	262	205	0	309
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	200	722	230	170	1484	134	383	0	285	223	0	336
Adj No. of Lanes	1	2	1	1	2	1	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	230	1544	691	443	1522	681	424	0	340	258	0	336
Arrive On Green	0.16	0.87	0.87	0.07	0.43	0.43	0.08	0.00	0.21	0.07	0.00	0.21
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	3442	0	1583	1774	0	1583
Grp Volume(v), veh/h	200	722	230	170	1484	134	383	0	285	223	0	336
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1721	0	1583	1774	0	1583
Q Serve(g_s), s	5.8	4.0	2.3	4.7	37.0	4.7	6.9	0.0	15.5	6.7	0.0	19.1
Cycle Q Clear(g_c), s	5.8	4.0	2.3	4.7	37.0	4.7	6.9	0.0	15.5	6.7	0.0	19.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	230	1544	691	443	1522	681	424	0	340	258	0	336
V/C Ratio(X)	0.87	0.47	0.33	0.38	0.98	0.20	0.90	0.00	0.84	0.86	0.00	1.00
Avail Cap(c_a), veh/h	230	1544	691	501	1522	681	424	0	340	258	0	336
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.7	3.5	3.4	12.3	25.2	16.0	29.5	0.0	33.9	31.3	0.0	35.4
Incr Delay (d2), s/veh	26.7	0.2	0.3	0.5	17.4	0.1	22.3	0.0	21.4	25.0	0.0	49.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	1.8	0.9	2.3	21.6	2.1	2.8	0.0	8.7	6.1	0.0	12.9
LnGrp Delay(d),s/veh	45.3	3.7	3.6	12.8	42.6	16.1	51.8	0.0	55.2	56.3	0.0	84.5
LnGrp LOS	D	A	A	B	D	B	D		E	E		F
Approach Vol, veh/h		1152			1788			668			559	
Approach Delay, s/veh		10.9			37.8			53.3			73.3	
Approach LOS		B			D			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	23.8	11.2	43.8	11.4	23.6	11.8	43.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.7	19.3	9.7	36.3	6.9	19.1	7.3	38.7
Max Q Clear Time (g_c+I1), s	8.7	17.5	6.7	6.0	8.9	21.1	7.8	39.0
Green Ext Time (p_c), s	0.0	0.7	0.1	20.2	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	435	60	102	381	0	0	0	0	170	0	868
Future Volume (veh/h)	0	802	280	102	601	0	0	0	0	170	0	1000
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1863	1863	0				1900	1863	1863
Adj Flow Rate, veh/h	0	853	298	109	639	0				181	0	0
Adj No. of Lanes	0	2	1	1	1	0				0	1	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1139	510	234	800	0				759	0	1192
Arrive On Green	0.00	0.32	0.32	0.02	0.14	0.00				0.43	0.00	0.00
Sat Flow, veh/h	0	3632	1583	1774	1863	0				1774	0	2787
Grp Volume(v), veh/h	0	853	298	109	639	0				181	0	0
Grp Sat Flow(s),veh/h/ln	0	1770	1583	1774	1863	0				1774	0	1393
Q Serve(g_s), s	0.0	19.4	14.2	3.5	29.9	0.0				5.9	0.0	0.0
Cycle Q Clear(g_c), s	0.0	19.4	14.2	3.5	29.9	0.0				5.9	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1139	510	234	800	0				759	0	1192
V/C Ratio(X)	0.00	0.75	0.58	0.47	0.80	0.00				0.24	0.00	0.00
Avail Cap(c_a), veh/h	0	1239	554	260	880	0				759	0	1192
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.60	0.60	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	27.3	25.5	21.3	34.9	0.0				16.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.4	1.4	0.9	2.9	0.0				0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.9	6.4	1.8	16.1	0.0				3.0	0.0	0.0
LnGrp Delay(d),s/veh	0.0	29.6	26.9	22.2	37.8	0.0				17.2	0.0	0.0
LnGrp LOS		C	C	C	D					B		
Approach Vol, veh/h		1151			748						181	
Approach Delay, s/veh		28.9			35.5						17.2	
Approach LOS		C			D						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			9.7	33.5		43.0		43.1
Change Period (Y+Rc), s			4.5	4.5		4.5		4.5
Max Green Setting (Gmax), s			6.5	31.5		38.5		42.5
Max Q Clear Time (g_c+I1), s			5.5	21.4		7.9		31.9
Green Ext Time (p_c), s			0.0	6.5		1.0		6.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	271	0	0	400	85	74	4	58	0	0	0
Future Volume (veh/h)	561	418	0	0	488	85	206	4	58	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1900	1863	1863			
Adj Flow Rate, veh/h	610	454	0	0	530	92	224	4	63			
Adj No. of Lanes	2	1	0	0	2	0	0	1	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	827	831	0	0	704	122	792	14	719			
Arrive On Green	0.05	0.15	0.00	0.00	0.23	0.23	0.45	0.45	0.45			
Sat Flow, veh/h	3442	1863	0	0	3111	522	1744	31	1583			
Grp Volume(v), veh/h	610	454	0	0	310	312	228	0	63			
Grp Sat Flow(s),veh/h/ln	1721	1863	0	0	1770	1771	1776	0	1583			
Q Serve(g_s), s	11.1	20.3	0.0	0.0	14.6	14.8	7.2	0.0	2.0			
Cycle Q Clear(g_c), s	11.1	20.3	0.0	0.0	14.6	14.8	7.2	0.0	2.0			
Prop In Lane	1.00		0.00	0.00		0.29	0.98		1.00			
Lane Grp Cap(c), veh/h	827	831	0	0	413	413	806	0	719			
V/C Ratio(X)	0.74	0.55	0.00	0.00	0.75	0.76	0.28	0.00	0.09			
Avail Cap(c_a), veh/h	1090	1107	0	0	541	541	806	0	719			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.60	0.60	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.7	29.9	0.0	0.0	32.1	32.1	15.4	0.0	14.0			
Incr Delay (d2), s/veh	1.1	0.3	0.0	0.0	4.2	4.4	0.9	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.3	10.6	0.0	0.0	7.6	7.7	3.7	0.0	0.9			
LnGrp Delay(d),s/veh	24.8	30.3	0.0	0.0	36.2	36.5	16.3	0.0	14.2			
LnGrp LOS	C	C			D	D	B		B			
Approach Vol, veh/h		1064			622			291				
Approach Delay, s/veh		27.1			36.3			15.8				
Approach LOS		C			D			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		45.4		44.6			19.1	25.5
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5
Max Green Setting (Gmax), s		27.5		53.5			21.5	27.5
Max Q Clear Time (g_c+I1), s		9.2		22.3			13.1	16.8
Green Ext Time (p_c), s		1.4		6.3			1.5	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.4
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	547	5	18	1336	6	9
Future Vol, veh/h	1134	5	18	1688	6	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1219	5	19	1815	6	10

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1225	0	2168	612
Stage 1	-	-	-	-	1222	-
Stage 2	-	-	-	-	946	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	565	-	40	436
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	338	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	565	-	40	436
Mov Cap-2 Maneuver	-	-	-	-	40	-
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	338	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	54.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	88	-	-	565	-
HCM Lane V/C Ratio	0.183	-	-	0.034	-
HCM Control Delay (s)	54.9	-	-	11.6	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

601 Main Street
Elko New Market, MN 55054
phone: 952-461-2777 fax: 952-461-2782

MEMORANDUM

TO: PLANNING COMMISSION
FROM: HALEY SEVENING, PLANNER I
RENEE CHRISTIANSON, COMMUNITY DEVELOPMENT SPECIALIST
RE: 2040 DRAFT COMPREHENSIVE PLAN
DATE: NOVEMBER 26, 2019

Background / History

Minnesota law requires every municipality and every county within the seven-county metropolitan area to prepare and submit a comprehensive plan to the Metropolitan Council every ten years. These updates are required to ensure consistency with the regional system plans that are prepared by the Metropolitan Council.

Authority to Plan. The enabling planning statutes (found in Minnesota Statute §462.351 through §462.364) give communities the authority to plan and manage land use and related facilities (such as transportation, utilities, and other functions) to accomplish specific objectives. These objectives are quoted as follows:

> *The legislature finds that municipalities are faced with mounting problems in providing means of guiding future development of land so as to insure a safer, more pleasant and more economical environment for residential, commercial, industrial and public activities, to preserve agricultural and open lands, and to promote the public health, safety, and general welfare.*

The Statute recognizes that the development of land is not merely a private venture. Instead, private landowners create a partnership with the public to develop the land - the landowner provides the private land (as well as the capital to develop it) and public agrees to provide access to properly maintained roads, highways, sanitary sewer treatment, water supply, stormwater management systems, parks and recreation, police and fire protection, and other public functions. Because the public has such a great stake in the ongoing cost of serving private land, the legislature has granted communities the ability to plan for development and make sure that the public's costs will be manageable in the future.

Comprehensive Plan Purpose

Generally speaking, a comprehensive plan is a document that describes a community's vision of itself in the future and provides recommendations as to how to achieve such desired future. More specifically, the Plan is a compilation of policy statements, goals, standards and maps which guide the physical, social and economic development (both private and public) of the municipality.

A comprehensive plan has several purposes:

- Guide growth and development within a community and lands expected to be part of the community at some future point.

- Document community goals and values as established throughout a planning process.
- Manage community growth in a compatible and cost effective manner.
- Serve as a communication device between decision-makers, units of government, agencies and property owners (by guiding stakeholders in making land use decisions).
- Provide a legal basis for the establishment of ordinances used to implement the Plan.

Comprehensive Plan Components

The City's draft 2040 Comprehensive Plan includes the following components:

Planning Framework (Issue Identification). The first phase of Elko New Market's 2040 Comprehensive Plan planning process was to identify issues important to the community and stakeholders. This involved the collection of community stakeholder perspectives related to community vision, development issues and future City priorities. Received input and perceptions guide the comprehensive planning process. As part of the issue identification phase, interviews and / or surveys were conducted with the City Council, Planning Commission, Park Commission, Chamber of Commerce representatives, local business owners, area developers, and residents.

Inventory / Community Profile. The second phase of Comprehensive Plan planning process was the assembly of an inventory of existing conditions. The inventory information identifies the current social, environmental, and physical facts and trends that define the community. The inventory provides empirical data from which to build recommendations and strategies for future land use, housing, utility, park, and transportation planning. The inventory information is contained within each chapter of the Plan (demographics, natural environment, housing, land use, etc.).

Policy Plan. The third phase of the process involved the formation of the Policy Plan. The City defined desired community planning goals that it wishes to accomplish through 2040. Policies were then formulated to define actions for accomplishing these desired goals. Also included in the Policy Plan are goals and policies provided in the *Thrive MSP 2040* regional development guide for "Rural Center" communities, such as Elko New Market.

Development Framework. Phase four of the Plan involves the formulation of specific plans chapters which provide specific recommendations for natural environment, land use, housing, solar resources, transportation, parks and trails, and utilities as directed by the Metropolitan Council's regional development guide. These recommendations give attention to both regional (as appropriate) and City issues.

Implementation. The fifth and final phase of the Comprehensive Plan update process is the Implementation phase. The Land Planning Act requires each community's development plans and regulations to be consistent with the Comprehensive Plan. Thus, this phase involves an analysis of the City's implementation tools such as development regulations (zoning and subdivision ordinances), capital improvement plans, and housing programs to ensure that they will effectively serve to implement the Comprehensive Plan's goals.

Requested Action

At this time, no formal action is required by the Planning Commission. Staff is seeking feedback from the Planning Commission on the draft Comprehensive Plan before formal action is taken. Due to the large amount of information included in the draft Plan, Staff intend to continue the discussion, as necessary, at the December 17, 2019 Planning Commission meeting or at a joint Planning Commission / City Council Meeting, where a formal action can be taken.

Next Steps
Once the Planning Commission is satisfied with the draft 2040 Comprehensive Plan, the Commission will need to take formal action recommending that the City Council authorize adjacent community review and public comment for the 2040 Comprehensive Plan.

Adjacent Community Review. Before formally submitting the draft Comprehensive Plan to the Metropolitan Council, the City must provide adjacent and affected jurisdictions the opportunity to review and comment on the Plan. A mandatory six month review period accommodates this requirement. Affected jurisdictions vary by community but can include school districts, watershed management organizations, state and federal agencies, park implementing agencies, transit providers, commissions, and adjacent cities, townships, and counties. The Metropolitan Council has identified eight different adjacent jurisdictions for the City of Elko New Market. These jurisdictions include:

1. New Market Township
2. Scott County
3. Independent School District 194; Lakeville
4. Independent School District 721; New Prague
5. Scott County Watershed Management Organization
6. Vermillion River Watershed Joint Powers Organization
7. MnDOT
8. MnDNR

Public Comment. State law requires communities to hold a public hearing on their draft comprehensive plan, prior to submitting the plan to the Metropolitan Council. Communities can hold as many public hearings as they deem necessary; however, at least one prior to official submittal to the Metropolitan Council is required. Before holding a public hearing, Staff would like to hold an open house to inform community members about the 2040 Comprehensive Plan components. After the City Council has authorized adjacent jurisdiction review and public comment, Staff will prepare materials for an open house and public hearing.

Authorization for Submittal. Following adjacent community review and public comment, the City Council must take action to authorize the Plan to be submitted to the Metropolitan Council for review.

Attachments:
2040 Draft Comprehensive Plan

DRAFT

2040 COMPREHENSIVE PLAN

Adopted XXXXXXX, 2020

INTRODUCTION

The City of Elko New Market is located in southeast Scott County, approximately 30 miles south of the Twin Cities metropolitan area. The City is also located on the southern boundary of the seven-county metropolitan area which is under the regional planning jurisdiction of the Metropolitan Council. The Metropolitan Council is the policy-making body, planning agency and provider of essential services for the Twin Cities metropolitan region.

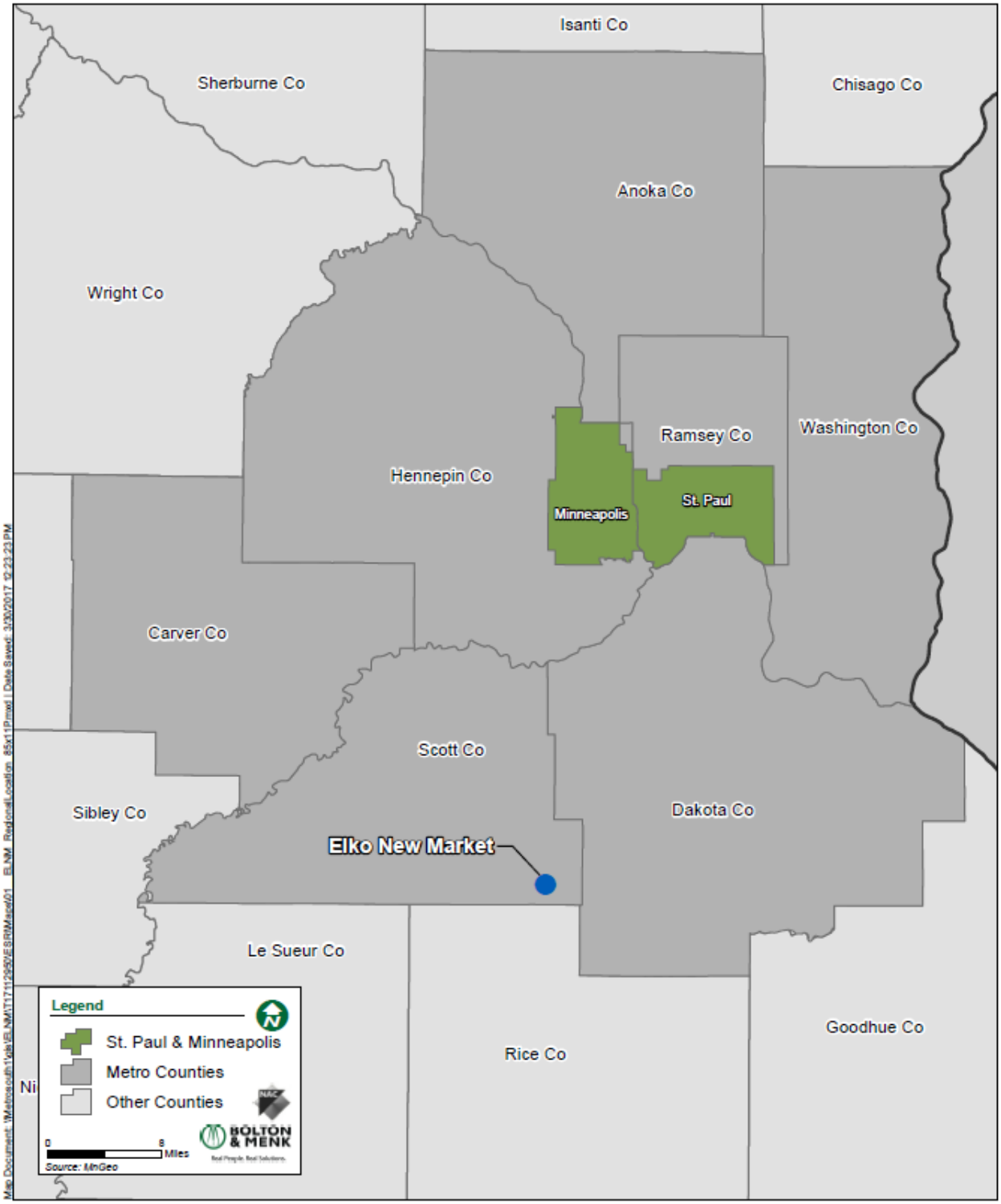
In response to State Statute requirements and to ensure a valid representation of its community vision, the City of Elko New Market has conducted a planning process to update its Comprehensive Plan through the year 2040. The Comprehensive Plan is intended to define the land use, transportation, natural environment and infrastructure goals of the City as a means of defining Elko New Market's future growth and long-term vision.

Beyond the desires and needs of the local community, the Metropolitan Council's *Thrive MSP 2040* regional development guide establishes a regional context within which the City of Elko New Market must define its role and direct its future. *Thrive MSP 2040* mandates specific regional criteria that must be addressed in the City's 2040 Comprehensive Plan Update.

The City's past planning efforts and the regional planning documents listed below provide the foundation for Elko New Market's 2040 Comprehensive Plan Update.

1996 Elko and New Market Joint Comprehensive Plan
2004 2030 Regional Development Framework - Metropolitan Council
2005 Southeast Scott County Comprehensive Plan
(for the Cities of Elko, New Market and New Market Township)
2005 Master Plan and Development Guidelines for Downtown New Market
2008 Elko New Market 2030 Comprehensive Plan (as amended)
2009 Elko New Market Park and Trail Plan
2011 Elko New Market Economic Development Strategy Plan (as amended)
2014 Elko Original Townsite "Vision"
2014 Thrive MSP 2040 Regional Development Guide - Metropolitan Council

This introductory section describes the purpose of the Comprehensive Plan, outlines Plan update process, provides a historical, local planning perspective, and finally describes the regional context that defines Elko New Market's future planning efforts.


Isanti Co
Sherburne Co
Chisago Co
Anoka Co
Wright Co
Ramsey Co
Washington Co
Hennepin Co
Minneapolis
St. Paul
Carver Co
Scott Co
Sibley Co
Dakota Co
Elko New Market
Le Sueur Co
Rice Co
Goodhue Co
Legend
St. Paul & Minneapolis
Metro Counties
Other Counties
0
8
Miles
Source: MnGeo
BOLTON & MENK

COMPREHENSIVE PLAN PURPOSE

This Comprehensive Plan is part of an ongoing planning effort to guide growth and development within the City of Elko New Market and lands expected to be part of the City at some future point. It establishes concepts, principles, relationships, and patterns that will serve as a guide for decision making. These concepts allow the Plan to be interpreted more broadly than a zoning ordinance, for example, which is interpreted and enforced as regulations. To remain viable, the Plan must be flexible and dynamic, not static. It will need to respond to change, as well as guide it. It is recognized that the Plan may need to be amended periodically. Each amendment should however, be evaluated on its merits. This Plan serves several more specific purposes as explained below:

Goals

One of the primary purposes of any comprehensive plan is to document the goals and values for the community as established throughout a planning process. Such goals and values should have a direct relationship to the desired future vision of the community.

This Plan documents the goals and policies for the City of Elko New Market, considering the goals of the larger region, as well as the impact the goals and policies have on neighboring jurisdictions and related agencies (e.g. school districts). More specifically, the Plan identifies goals and policies for physical development in the areas of land use, housing, transportation, natural resources, parks and open space, surface and stormwater management, water supply, sanitary sewer, economic development, and intergovernmental cooperation. Considering that Elko New Market lies within the larger Twin Cities Metropolitan Area, this Plan must be consistent with the policy directions and strategies identified in the Metropolitan Council's *Thrive MSP 2040* regional development guide.

Management of Growth

Primary elements of this Plan focus on the need to manage growth and the desire to maintain a high quality of life in the community as growth continues.

The multi-jurisdictional nature of many of the issues associated with growth can be managed and shaped to everyone's benefit through cooperative working relationships among stakeholders and decision makers of the area and larger region. Historically, the City of Elko New Market has had positive working relationships with both Scott County and New Market Township. By continuing to work together, neighboring jurisdictions can best deal with the issues of growth such that goals and policies of one jurisdiction do not adversely affect an adjacent jurisdiction and the benefits of growth may be shared by all.

The City of Elko New Market is designated as a "Rural Center" planning area in the Metropolitan Council's *Thrive MSP 2040* regional development guide. The *Thrive MSP* development guide defines "Rural Centers" as local commercial, employment and residential activity centers which serve rural areas in the region. "Rural Center" communities are expected to plan for forecasted population and household growth at average densities of at least 3-5 units per acre for new development and redevelopment. In addition, "Rural Center" communities are directed to strive for high density commercial uses and compatible high density residential uses in the commercial core of the community to ensure efficient use of existing infrastructure improvements.

As a designated "Rural Center", the City of Elko New Market intends to accept a share of the region's projected growth. To be postured for continued growth, the City has or will update as necessary plans and ordinances to implement this Plan and accommodate growth in an orderly, fiscally responsive manner. The goals within this Plan are consistent with the Metropolitan Council's policy directions and strategies for "Rural Centers" related to growth and land use, transportation, housing, and natural resources. As provided for in the *Thrive 2040* development guide, Elko New Market is interested in working with the Metropolitan Council to utilize their regional investments as a means of assisting in the responsible management of regional growth.

Communication Tool

The Comprehensive Plan serves as a communication tool between decision-makers, units of government, agencies, and property owners. It helps to guide stakeholders in making land use decisions by providing information as established in the planning process. For this reason, the need to update this Plan on a regular basis is significant. Communication of up-to-date information is essential in order to utilize this Plan to guide future development.

Legal Basis for Ordinances

The Comprehensive Plan provides the legal basis for the establishment of ordinances used to implement this Plan. The City of Elko New Market is responsible for land use and planning within its corporate City limits while Scott County serves as the land use authority for the township areas of the County. Scott County and surrounding New Market Township are active participants in the public hearing process by providing feedback and recommendations to Elko New Market City Officials. Having land use authority over unincorporated areas of the Comprehensive Plan study area, Scott County will utilize the City's Comprehensive Plan to assist in the eventual implementation of the City's Plan. This will be achieved primarily by imposing development limitations upon existing undeveloped lands which are slated for future urban development.

COMPREHENSIVE PLANNING PROCESS

Comprehensive Planning is a broad, problem solving process. As such, the effort involves well defined steps which begin with the identification of issues and goals, and progresses to proposed solutions and actions. Each step in the process builds upon that step which precedes it. The following is a list of general stages which have been or will be undertaken in Elko New Market's comprehensive planning process:

1. Issue Identification
2. Inventory / Community Profile
3. Policy Plan
4. Development of Plans
5. Implementation

Issue Identification

The first phase of Elko New Market's 2040 Comprehensive Plan planning process is to identify issues important to the community and stakeholders. This involves the collection of community stakeholder perspectives related to community vision, development issues and future City priorities. Received input and perceptions will guide the comprehensive planning process. As part of the issue identification phase, interviews and/or surveys were conducted with the City Council, Planning Commission, Park Commission, Chamber of Commerce representatives, local business owners, area developers, and residents.

Inventory/Community Profile

The second phase of Elko New Market's 2040 Comprehensive Plan planning process is the assembly of an inventory of existing conditions. The inventory information identifies the current social, environmental, and physical facts and trends that define the community. The inventory provides empirical data from which to build recommendations and strategies for future land use, housing, utility, park, and transportation planning. The inventory information is contained within each chapter of the Plan (natural environment, housing, land use, etc.)

Policy Plan

The third phase of the process involves the formation of the Policy Plan. The City will define desired community planning goals that it wishes to accomplish through 2040. Policies will then be formulated to define actions for accomplishing these desired goals. Also included in the Policy Plan will be goals and policies provided in the *Thrive MSP 2040* regional development guide for "Rural Center" communities.

Development of Plans

Phase four of the Plan involves the formulation of specific plans chapters which provide specific recommendations for land use, housing, natural environment, infrastructure, transportation, and parks and trails as directed by the Metropolitan Council's regional development guide. These recommendations give attention to both regional (as appropriate) and City issues. The following plans, while part of the 2040 Comprehensive Plan update, are separate documents and are included in this Plan by reference:

- Transportation Plan (Chapter _ / Appendix __)
- Park and Trail Plan (Chapter _ / Appendix __)
- Water Supply Plan (Chapter _ / Appendix __)
- Wastewater Collection System Plan (Chapter _ / Appendix __)
- Stormwater Management Plan (Chapter _ / Appendix __)

Implementation

The fifth and final phase of the Comprehensive Plan update process is the Implementation phase. The Land Planning Act requires each community's development plans and regulations to be consistent with the Comprehensive Plan. Thus, this phase involves an analysis of the City's implementation tools such as development regulations (zoning and subdivision ordinances), capital improvement plans, and housing programs to ensure that they will effectively serve to implement the Comprehensive Plan's goals.

Throughout the Comprehensive Planning process, each phase will be presented and reviewed by the Elko New Market Planning Commission and City Council which serve as the designated Comprehensive Plan Review Committee. The Planning Commission and City Council are charged with developing a draft Comprehensive Plan document that addresses community issues and lays the foundation for community planning and land use development through the year 2040. Following the initial input and discussion, the Plan will be revised and formally reviewed through a public hearing by the Planning Commission and preliminary approval by the City Council. The process will be concluded with referrals of the Comprehensive Plan update to the surrounding jurisdictions and affected units of government as well as the Metropolitan Council, and final adoption by the City Council.

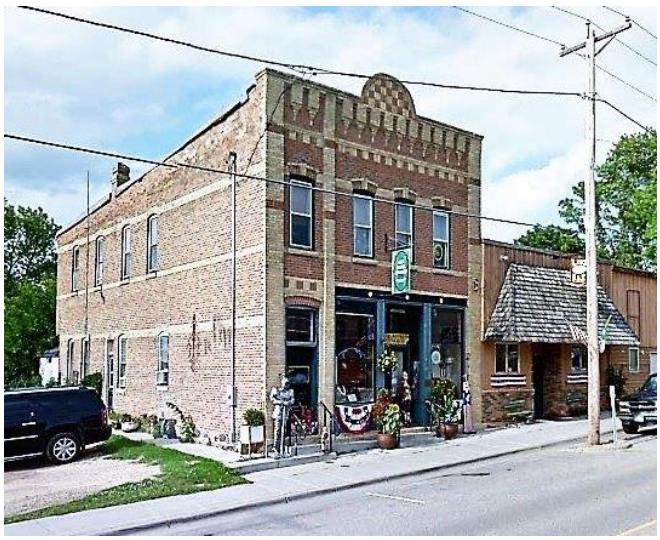
PLANNING HISTORY

The historic events surrounding the development of a community are an important part of providing baseline information in the planning process. To achieve a well-planned future, it is important to understand not only the current community, through demographic information or current land use, for example, but also its past. Understanding the history of the community can help to establish the nature of its character. This greater understanding can be utilized to create

or maintain a sense of place which is unique to a community. It may also provide an indication of locations and or physical elements that should be taken into consideration as further development occurs. These could be areas that have historic or cultural significance, which should be preserved, or sites that may present development constraints. An analysis of historic events may provide clues as to the reasons that particular types of land uses are present, or are missing from a community. Knowledge of historic patterns of development within the region may present an indication of the future within the smaller community. In addition, knowledge of historic events may provide an indication of what the community will accept in terms of new development concepts. [1]

Former City of New Market

It was during the early years of Scott County settlement that the former City of New Market began to develop into a community. German and Prussian emigrants first established the area known as Jackson (later the name would change to New Market), and by 1865, it was incorporated into a City whose social and civic activities were centered around the German Catholic Church. The incorporated area of the City initially included 320 acres, with only six blocks (approximately 17 acres) developed before 1898. By the late 1870s, the City included a post office, general stores, and several other businesses. A hotel was built in the 1890s. The City also had its own public school, which was closed in 1916, when the private parish school was opened. New Market was booming by the turn of the century, due in some part to the grain elevator and train station located in nearby Elko, which brought business activities into the area. By 1944, the City of New Market had grown to include approximately 50 acres of developed land; an area which included only 15% of the City's incorporated limits. Interstate 35 was constructed in the late 1960s which provided an entirely different mode of transportation into and out of the community. While a general store remained in operation until 1970, the advent of better transportation corresponded with the dwindling of business activity in New Market as larger shopping centers to the north developed. Even with the decline of businesses, construction of residential dwellings began to grow in the 1960s and 1970s. A moratorium on building due to lack of sewer capacity in the early 1980s halted virtually any new construction for a period of approximately five years. After cooperatively building a sewer system at the



Original hotel constructed in the 1890's

[1] Historical Information Source: *Southeast Scott County Comprehensive Plan (2005)*

headwaters of the Vermillion River located in New Market Township with the neighboring City of Elko in 1987, construction of housing again began to rise by the end of the 1990s. Between 1997 and 2003, a period of only six years, the developed area of the City of New Market expanded from 320 acres of land (as initially incorporated) to approximately 790 acres.

Former City of Elko

Even with its proximity, development of the former City of Elko was quite dissimilar to that of New Market. In 1902, the Chicago-St. Paul Railroad platted the village which would later become the City of Elko. While the community grew around the railroad and other businesses in the village, it was not incorporated until 1949. While neighboring New Market was predominately a German Catholic community, the population of Elko included a large number of Scandinavian Lutherans. Elko had its own public school, perhaps due to the fact the New Market public school regularly included Catholic religious education in its coursework, and was primarily taught in German. The Elko public school merged with Lakeville in the 1950s, leaving the Elko/New Market community without a public school.

The Elko Speedway opened in 1964 and continues to attract people into the area. With the departure of the railroad from the City in 1977 and the construction of Interstate 35 in the 1960's, business activity slowly dwindled as it did in neighboring New Market. Elko also experienced a growth in housing construction between 1960 and 2000. Until the later part of the 1990's, housing construction in Elko surpassed that in New Market.

Elko Speedway, Circa 1975

City of Elko New Market

In October of 2005, City officials from Elko and New Market first met to discuss a possible merger. Recognizing potential financial benefits from such action, the City Councils of the two cities commissioned a study to examine potential impacts. Following a series of public meetings, a referendum was held in March of 2006 to consider the potential merger. The residents of the two cities voted overwhelmingly (84 percent) to approve the merger which formally became effective on January 1, 2007. As part of the 2008 Comprehensive Plan Update cycle, the New City of Elko New Market adopted its first Comprehensive Plan. Shortly thereafter, the first zoning and subdivision ordinance were adopted for the merged City.

REGIONAL PLANNING

As part of the mandated comprehensive planning process, the City of Elko New Market is required to coordinate its comprehensive plan in a manner consistent with the *Thrive MSP 2040* regional development guide as adopted by the Metropolitan Council.

To build the foundation for a prosperous, equitable, livable, and sustainable future, the *Thrive MSP* document identifies seven general policies to guide land use and regional development. These policies are as follows:

> Orderly and Efficient Land Use: Align land use, development patterns, and infrastructure to make the best use of public and private investment.
>
> Natural Resources Protection: Conserve, restore, and protect the region's natural resources to ensure availability, support public health, and maintain a high quality of life.
>
> Water Sustainability: Conserve, restore, and protect the quality and quantity of the region's water resources to ensure ongoing availability, support public health, and maintain a high quality of life.
>
> Housing Affordability and Choice: Promote housing options to give people in all life stages and of all economic means viable choices for safe, stable, and affordable homes.
>
> Access, Mobility and Transportation Choice: Sustain and improve a multimodal transportation system to support regional growth, maintain regional economic competitiveness, and provide choices and reliability for the system's users.
>
> Economic Competitiveness: Foster connected land use options to provide businesses and industries with access to materials, markets, and talent.
>
> Building in Resilience: Promote sensitive land use and development patterns to achieve Minnesota's adopted greenhouse gas emissions goals at the regional scale, and to develop local resiliency to the impacts of climate change.

The *Thrive MSP 2040* regional development guide also provides the following specific growth strategies for "Rural Center" communities to ensure orderly and efficient land use:

- Plan for forecasted population and household growth at overall average densities of at least 3-5 units per acre (for new development and redevelopment).
- Strive for higher-density commercial uses and compatible higher-density residential land uses in the commercial core of the community to ensure efficient uses of existing infrastructure investments.

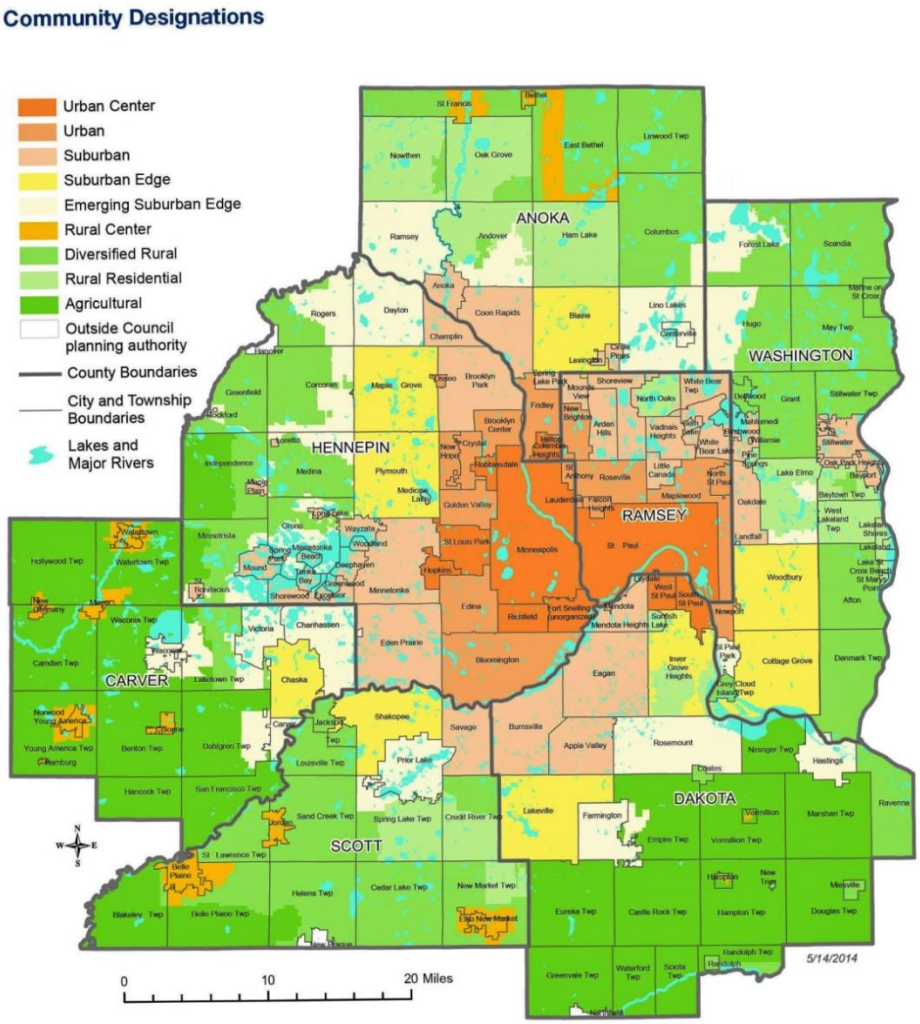
- Work with adjacent jurisdictions to execute orderly annexation agreements where forecasted growth exceeds land capacity within existing city boundaries.

- Work to focus forecasted growth in areas with existing infrastructure capacity to protect existing farm land and prime agricultural soils for the long term.

- Adopt ordinances that coordinate development with infrastructure availability.

- Identify areas that will accommodate post-2040 growth forecasts and implement strategies to preserve these areas for future growth. Plan for necessary infrastructure improvements.

As shown on the map below, the Metropolitan Council has classified the City of Elko New Market as a "Rural Center" community.



STUDY AREA

The study area for the 2040 Comprehensive Plan update extends well beyond the City's current municipal boundaries, but does not incorporate areas beyond the City's ultimate urban service area boundary (as established in the 2030 Plan).

The City's 2030 Comprehensive Plan is a reiteration of the Southeast Scott County Comprehensive Plan which was approved in 2005 for the Cities of Elko, New Market and New Market Township. The study area of the 2030 Plan incorporates portions of Scott, Dakota and Rice Counties. In Scott County, all of New Market Township and portions of Cedar Lake and Credit River Townships are included. In Dakota County, portions of Eureka and Greenville Townships are included as well as a portion of the City of Lakeville. In Rice County, portions of Webster and Wheatland Townships are included.

The study area for the 2040 Plan update will follow the City's ultimate urban service area boundary. Thus, only portions of Cedar Lake and New Market Townships in Scott County and Webster Township in Rice County lie within the study area of the 2040 Plan Update. Generally speaking, the City's ultimate urban service area is bordered on the north by 250th Street, on the south by 50th Street (in Rice County), on the east by Interstate 35 and on the west by Zachary Avenue.

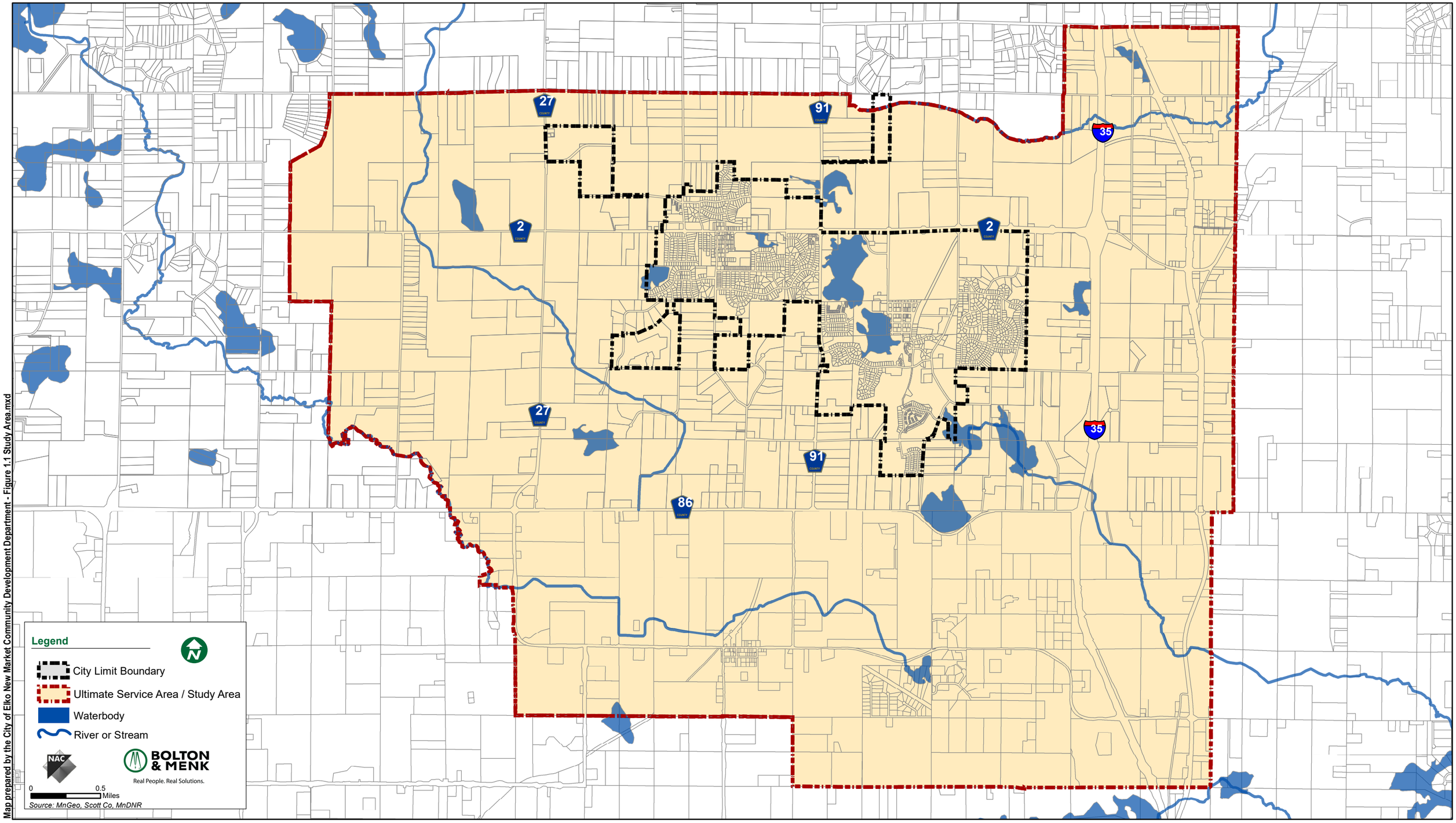
While certain land areas that were included in the 2030 study area being are excluded from the 2040 study area, it is important to note that the context of the study area and abutting physical features will be considered as part of the City's land use planning efforts (to provide an understanding of existing conditions and potential impacts). Also, to be noted is that opportunities for public feedback from surrounding jurisdictions will once again be provided as part of the 2040 Plan update.

The 2040 study area is depicted on Figure 1.1.

2040 Comprehensive Plan

Elko New Market, MN

Study Area
Figure 1.1



Map prepared by the City of Elko New Market Community Development Department - Figure 1.1 Study Area.mxd

INTRODUCTION

The Issue Identification chapter is a summary of comments and concerns raised during interviews and/or surveys with the Park Commission, Planning Commission and City Council members and other key stakeholders. Key stakeholders include local developers, business owners, and representatives of the Chamber of Commerce, school district, and residential neighborhoods. Feedback was also received from Elko New Market residents via an online survey.

Identification of each and every issue raised in the interview/survey process was not attempted. Rather, issues presented herein represent a broad categorization of topics raised. Generally, there was a strong consensus on many topics; however, where opinions differ, all sides of the issue are presented. The following perceptions and issues represent topics which require specific attention throughout the comprehensive planning process. The following survey/interview responses are numbered for ease of reference and are in no particular order of priority.

GENERAL CITY PERCEPTIONS

Opportunities and/or Strengths

Most of the interview/survey participants have a very positive image of the City of Elko New Market, describing it as a community that offers a "small town" environment with friendly neighborhoods. The following opportunities and/or strengths were identified as contributing to Elko New Market's quality of life and public image:

1. The most common interview/survey response related to Elko New Market's positive public image is the City's "small town" feel. In many cases, the City's "small town feel" was specifically identified as the primary reason for living in Elko New Market.

2. The City's proximity to Interstate 35 was identified as a positive community feature. Many respondents stated that Interstate 35 provides convenient access to the Twin Cities and other areas and is therefore considered a positive community asset. Others stated that the Interstate is expected to attract significant economic development to the City and surrounding areas which will positively contribute to the City's tax base.

3. Several respondents indicated that the City's partial location within the Lakeville School District (194) is a positive community asset. It was specifically noted from multiple developers that such feature contributes greatly to the appeal of the City.

4. Most respondents described the City as safe, quiet and walkable. It was also conveyed that the City is occupied by "nice" people and that neighborhoods feel "closely knit."

5. Several interview/survey respondents indicated that the availability of land to accommodate future growth and the opportunity for the City to guide and manage such growth in a positive manner is a positive feature that is not afforded many cities.

6. Interviewees and survey respondents were generally complimentary of City government operations and delivery of services. Most were particularly satisfied the accessibility of City Staff and City Officials.

7. A walkable downtown area was highlighted by interview and survey respondents as a positive community feature.

8. A few survey respondents expressed an opinion that the quality of the City's services (police, fire etc.) was considered a community strength.

9. Community event opportunities were highlighted as a community strength. In particular, the availability of various children's programs was noted.

10. The proximity of residential neighborhoods to the Eagle View Elementary School, St. Nicholas Church, and Boulder Pointe Golf Club was identified as a community strength.

11. One survey respondent indicated that the present size of the City is considered a community strength in that most negative aspects of larger suburbs do not presently exist in Elko New Market.

Issues and/or Concerns

While interview/survey respondents were complimentary to the City by characterizing it as a desirable place to live, respondents also identified some community weaknesses. The following were viewed as issues and/or concerns within the Elko New Market:

1. In terms of community weaknesses, most interview/survey respondents cited a lack of local commercial goods and services as a significant concern. The need for a grocery store and hardware store were mentioned on many occasions.

2. Related to the desire for goods and services is a concern over "excessive" taxes. It was suggested that future commercial and industrial uses would expand the City's tax base and potentially assist in the tax burden currently imposed upon residents.

3. Utility costs were cited as a community weakness. It was noted by several interview/survey respondents that the cost of such basic services (specifically the cost of water) exceeds that of other nearby cities.

4. A lack of jobs/employment opportunities in Elko New Market was frequently identified as a community concern.

5. Highlighted was a lack of resident amenities in the City. Interview/survey respondents specifically expressed a desire for more sidewalks/trails, a community garden, a municipal swimming pool/water park and a recycling/compost site.

6. Code enforcement was an expressed community concern. Specific concerns related to unkempt properties and specifically residential properties with excessive outside storage.

7. Some interview/survey respondents feel that City Staff is partly to blame for the lack of new development in the City. It was specifically suggested that City plans need to be prepared and implemented to attract new businesses.

8. Some interview/survey respondents expressed a concern over the City's development process and specifically the restrictions imposed upon the development community. Specific concern was expressed related to the time and expense involved. City development fees were also noted as a concern.

9. Several interview/survey respondents expressed concern over traffic volumes and speeds on County Road 2 and resulting impacts on vehicle and pedestrian safety.

10. While the partial inclusion of Elko New Market in the Lakeville School District was cited as a positive feature, the City's inclusion in two school districts was viewed by some interview/survey respondents as being divisive in that such condition discourages community unity.

11. A few interview/survey respondents feel that the City is presently lacking in character and is not particularly welcoming. It was suggested that a "Welcome to the City of Elko New Market" sign (or signs) would help in this regard. Somewhat related to this issue is an expressed opinion that the name of the City (Elko New Market) is confusing and unappealing.

12. A couple respondents cited noise resulting from Elko Speedway activities (races and concerts) and recreational motorcycle use (dirt bikes) in the City as a community concern.

13. One interview/survey respondent expressed an opinion that that there are not enough activity opportunities provided in the City for children.

14. Another interview/survey respondent raised the illegal dumping/disposal of yard waste in the City as a concern. In this regard, it was suggested that a City compost drop-off site could potentially resolve the issue.

CHALLENGES

Interview/survey respondents were asked to identify what they perceive to be the biggest challenges facing the City of Elko New Market in the next 20 years. In this regard, the following views were expressed in order of popularity (the most popular response being listed first):

1. Accommodate growth (urbanization) and provide City services in an organized and fiscally responsible manner.

2. Attract commercial development necessary to accommodate expectant population growth.

3. Accommodate future growth (and related service demands) in a well-planned manner while preserving the City's "small town" character.

4. Manage City taxes such that residents are not negatively impacted by greater service demands.

5. Provide a diverse housing mix which appeals to all age and income groups.

6. Provide suburban-type amenities associated with an increased City population.

7. Establish an appealing development character in the City.

8. Maintain a strong and healthy downtown area.

9. Accommodate increased traffic on County Road 2 in a safe and efficient manner.

10. Plan for and provide schools as necessary to meet the needs of the City's increasing population of school age children.

11. Provide public transit opportunities to Elko New Market citizens (specifically connections to south metro suburbs).

RESIDENTIAL LAND USES

Persons interviewed/surveyed were asked for their opinions related to existing and future residential uses in the City. In this regard, the following issues were identified:

1. Regarding the physical condition of the City's existing housing stock, most interview/survey respondents feel that such housing stock is either "good" or "very good."

2. Several interview/survey respondents expressed concern over the limited availability of single family residential lots in the City.

3. In regard to planning for future residential uses, most interview/survey respondents feel it is important to provide a variety of housing options which cater to different age and income groups.

4. Several interview/survey respondents cited the recent senior housing project (Market Village Apartments) as a benefit to the City as it provides an opportunity for long-time, aging residents to stay in the community. A belief was also conveyed that a market for additional senior housing presently exists in the City.

5. In regard to housing type, most interview/survey respondents feel that low density housing (single family homes – three to five units per acre) should be the City's top priority in the next 20 years. Several interview/survey respondents indicated that such high priority relates, in part, to the limited number of single family residential lots which are currently available in the City.

6. Medium density housing (five to ten units per acre) and high density housing (ten or more units per acre) are recognized as a community need and generally viewed as equally important in terms of priority.

7. A few interview/survey respondents expressed concern related to the upkeep of some single family residential properties in the City. Concerns related to both the condition/appearance of buildings and or yard areas. Excessive outdoor storage was cited as a specific concern. In this regard, it was suggested that the City should be more pro-active in the enforcement of its ordinances which relate to property maintenance.

COMMERCIAL LAND USES

Interview/survey respondents expressed several opinions regarding commercial (retail) land uses within the City. In this regard, the following comments were offered:

1. Nearly all interview/survey respondents feel that there is a lack of basic commercial services in the City. It was specifically noted that traveling to areas outside the City to obtain such services oftentimes presents an inconvenience. Services which were commonly mentioned by the respondents as an immediate need included the following:

    - Grocery
    - Hardware
    - Convenience gas

- Fast food
- Medical clinic
- Pharmacy
- Commercial daycare

2. In addition to responding to basic community needs, interview/survey respondents feel that basic commercial services will also contribute greatly to the City's tax base.

3. Most interview/survey respondents view Interstate 35 as a highly desirable community asset. It was specifically noted that the visibility and accessibility of the County Road 2/Interstate 35 interchange area is expected to attract commercial uses in the future. Anticipated commercial uses which were referenced included a grocery store, convenience gas and a home improvement center.

4. Interview/survey respondents indicated that a need is expected for commercial uses such as restaurants, liquor stores, personal services, medical/pharmacy, hotels, family entertainment centers and large (big box) chain stores by the year 2040

5. A few interview/survey respondents suggested that the City should take steps necessary to ensure high quality commercial buildings which exhibit a desirable architectural character.

6. A few interview/survey respondents expressed a desire to establish more locally-owned businesses in the City.

7. It was suggested that the City's downtown area (Downtown New Market) should not be neglected as a commercial center. Interview/survey respondents suggested that "fun" and "unique" uses which take advantage of the historical character of buildings should be encouraged. It was specifically indicated that small retail shops, restaurants, bars, coffee shops, offices and personal service uses should be promoted. It was also suggested that "mixed uses," meaning multi-story structures with ground floor commercial and upper floor office or residential uses should be considered in the area.

8. One survey respondent expressed concern about the appearance and upkeep of commercial properties in the Downtown area (Downtown New Market). It was specifically suggested that the City should provide financial incentives for small business owners in the City to improve the physical appearance of their buildings.

INDUSTRIAL USES

Interview/survey respondents provided several opinions related to existing and future industrial land uses in the City. In this regard, the following components were offered:

1. While generally not considered as high a priority (or need) as basic commercial services, interview/survey respondents feel the attraction of industrial uses in the future is important. Respondents view future industrial development as a means of improving the City's tax base.

2. Job creation associated with future industrial uses was also highlighted by interview/survey respondents as a positive aspect of industrial land uses.

3. Nearly all interview/survey respondents feel that future industrial uses should be located near the Interstate 35 to take advantage of its accessibility. It was specifically suggested by some respondents that such uses should be located on the east side of the Interstate 35 near County Road 2.

4. A few interview survey respondents indicated that long-term industrial uses should also be considered near the intersection of Interstate 35 and County Road 86.

5. Many interview/survey respondents envision uses such as warehouse/distribution centers, data centers and manufacturing facilities being located near Interstate 35, in the industrially guided areas of the City.

6. An opinion was expressed that the City should attempt to accommodate a variety of industrial use types as well as both small and large scale users.

7. Provided it can be done in a fiscally responsible manner, a few interview/survey respondents feel that improvements necessary to accommodate future industrial uses near the Interstate 35 corridor (i.e. utility extensions and transportation improvements) should be provided in the near term as an enticement for future development.

TRANSPORTATION

Interview/survey respondents offered several transportation-related comments. In this regard, the following comments and/or issues were received:

1. The clear majority of survey/interview respondents (approximately 75 percent) indicated that they are satisfied with both the physical condition of the City's existing streets and the street connections which are provided.

2. Improvement/expansion of the Interstate 35/County Road 2 interchange is viewed as the City's highest transportation-related priority going forward. It was specifically stated that improvements are necessary to address safety concerns associated with escalating traffic volumes and to accommodate future commercial and industrial development in the area.

3. Many interview/survey respondents raised concern over the segment of Xerxes Avenue located south of County Road 2. Specifically, concern was expressed that the roadway, in its current state, is "under built" and is not sufficient to accommodate both existing and future traffic volumes. Concern was also cited related to current pedestrian safety along the roadway.

4. Several interview/survey respondents indicated that it is important that the City secure right-of-way necessary to accommodate increased traffic volumes associated with future City population growth. Further, it was suggested that the City plan for and install appropriate traffic control devices as increased traffic volumes warrant.

5. A few respondents feel that the conversion of gravel-surfaced roads in the City to hard-surfaced (bituminous) roads should be a priority.

6. Some interview/survey respondents feel that transportation connections between the former Cities of Elko and New Market are lacking and are "over dependent" upon County Road 2.

7. Several specific comments/opinions were received related to County Road 2. These included the following:

    a. Improvements are needed at the County Road 2/ County Road 91 intersection. A few respondents suggested that the intersection should be signalized. One respondent indicated he is not in favor of the placement of a roundabout in such location.

    b. Within the downtown area, safety concerns were raised related to on-street parking and pedestrian movements.

    c. It was indicated that the City needs to address an ongoing pavement deterioration issue located directly south of City Hall.

    d. One respondent raised concern over a "blind spot" encountered by motorists wishing to access the County Road from Church Street.

    e. An opinion was expressed that improved lighting is needed within the corridor to improve safety.

8. Some respondents feel the City should make ongoing street maintenance a priority and that funds for such efforts should be allocated accordingly.

9. One survey respondent expressed a belief that long-term planning for County Roads 91 and 86 (including, but not limited to, right-of-way needs) should take place at this time.

10. A few interview/survey respondents feel that the improvement of Main Street in "Downtown Elko" should be made a priority and that on-street parking areas should be better defined.

11. One respondent suggested that lane markings on certain City streets could be improved. Lane markings along Aaron Drive were specifically cited.

12. Several comments were received related to sidewalks and trails which abut City streets. These comments are summarized below:

    a. Walking paths are needed alongside City streets.

    b. The width of shoulders which abut City streets should be increased.

    c. Additional attention needs to be given to pedestrian crossings to ensure safety.

PARKS AND TRAILS

As part of the interview/survey process, the following comments and/or opinions were received related to parks and trails/sidewalks:

1. Most persons interviewed/surveyed (60 percent) consider the City's existing park system to be "good" or "very good".

2. A majority of persons interviewed/surveyed (52 percent) feel that all areas of the City are adequately served by parks. In regard to areas thought to be inadequately served, the Boulder Point neighborhood was specifically identified as an area which lacks a nearby park for use by the subdivision's residents.

3. While generally satisfied with the condition of the City's sidewalks and trails, several respondents expressed concern over incomplete sidewalk and/or trail linkages in the City. Respondents indicated that such incomplete system raises safety concerns as pedestrians oftentimes must utilize streets as a travel route.

4. While many interview/survey respondents recognize that future sidewalk/trail construction in the City will accompany future development, many respondents feel that the City should take a more pro-active approach to sidewalk/trail development and promote sidewalk/trail construction in advance of development.

5. As part of future trail planning, some respondents expressed a desire to connect to regional destinations including, but not limited to, nearby cities.

6. Most persons interviewed/surveyed feel that new developments in the City should include sidewalks. Some respondents specifically noted that sidewalks on both sides of a street, rather than just one side (as currently required by the City Code), is preferable.

7. Many respondents feel there is a need for a trail along Xerxes Avenue, south of County Road 2. It was indicated that the roadway surface is oftentimes used by pedestrians which presents a safety concern.

8. One respondent suggested that the upkeep of sidewalks and trails in the City should be made a high priority and that funds should be allocated accordingly for ongoing maintenance.

9. An opinion was expressed that the trail connecting the Fish Rock Country Market and the Whispering Creek neighborhood to the north is in need of an upgrade.

10. It was also noted that, in the future, sidewalk connections to the Eagle View Elementary School will be needed to accommodate children who walk to and from school.

11. Several interview/survey respondents feel that the City is lacking in trails devoted to (or designed for) bicycle use.

12. It was further indicated by such respondents that the City is also lacking in “nature trails.”

13. One interview/survey respondent suggested that the City should be more pro-active in the removal of snow from the City’s trails in the winter months.

14. Another interview/survey respondent suggested the City should advertise trail locations in the City.

CONCLUSION

The preceding stakeholder comments are intended to help establish the basic direction of the 2040 Comprehensive Plan Update. Such comments identify a variety of community issues related to the following:

- General City Perceptions
- Challenges
- Residential Land Uses
- Commercial Land Uses
- Industrial Land Uses
- Transportation
- Parks and Trails

The extent and scope of received comments speaks to the desirable features of Elko New Market while recognizing that many concerns/issues exist which should be considered as the City continues to grow. In this regard, there is an evident appreciation of the various issues which confront the City. Simultaneously, there appears to be an equal commitment to resolving such issues and preparing for an improved future.

A common theme of the received comments is that community stakeholders are fond of Elko New Market's "small town" feel and believe that efforts should be made to retain such feature while accommodating future community growth.

To be stressed is that the stated stakeholder views and opinions have not been prioritized nor do they include any positions or responses by professional staff. At this stage in the Plan Update process, only the directions desired by community stakeholders are a matter of concern. As may be appropriate in future policy and plan discussions, professional staff recommendations and alternatives will be offered for consideration.

Ultimately, it will be the jurisdiction of City Officials to resolve the content and the direction of the Plan Update. In this regard, attempts will be made to build consensus on priority issues facing the City of Elko New Market (as identified in the interviews/surveys) and the general direction of the Plan.

INTRODUCTION

The intent of the Policy Plan is to outline community desires to be produced or accomplished relative to the physical environment. This chapter identifies general goals and supporting policies in which plans, programs and actions can be formulated and initiated. Goals and policies specific to transportation, parks and trails, water supply, wastewater and stormwater management will be provided in separate, stand-alone documents.

It is emphasized that these goals and policies are the basic and fundamental plan for the development of Elko New Market. Their purpose is to provide a decision-making framework to guide all public and private actions and the development of the City. In addition to the active function of guiding action, the goals and policies also serve the more passive function of establishing evaluation criteria for the development and change which subsequently occurs.

This Policy Plan is not an implementation program of actions as no time framework or priority of action is intended or stated. The Policy Plan is a guide which directs action of the part of the public and private sectors of the community when responding to needs, problems and opportunities.

It must be cautioned that the policies in this chapter are to be considered and utilized collectively. While in some instances a single policy may define and outline a course of action or decision, it is more common that several policies apply to a given situation. Reactions to individual policies should therefore be tempered pending consideration of all applicable statements.

Additional note should be made that policy plans are utilized as the basis of graphic plans and decision-making due to their flexibility and adaptability. Lacking a “hard line” delineation, policies can be applied and used for the basis of decision-making when unanticipated situations emerge. Such is not the case with a map plan in that it is static and fixed. Further, there may be instances when the policies contained in the Policy Plan do not reflect a change in policy direction or address an unanticipated issue. In such cases, the Plan should be amended to include policy statements which reflect the new direction or issue.

It should be noted that the use of the term “shall” within the framework of the Policy Plan is not to be considered an absolute regulation such as the case in the City’s Zoning and Subdivision Ordinances.

The Policy Plan portion of the Comprehensive Plan is based upon an analysis of the preceding Issue Identification Chapter. To ensure that the Policy Plan reflects the desires of the local community and that such desires are to be accomplished, the Plan has been subjected to detailed and thorough review by the Planning Commission, City Council and City Staff. To ensure a proper understanding and clarification, the terms utilized are defined as follows:

Goals: Desired end products.

Policies: Definite courses of action which lead toward goal achievement.

Many goal and policy statements are generalized in nature and are directed simply toward community health and welfare. Thus, many of the policies of the City's 2030 Comprehensive Plan (2008) remain valid and are reiterated. On the other hand, certain Comprehensive Plan policies are more specific in nature and reflect different courses of action than those contained in the 2030 Plan. Still other policies have been added simply because a particular issue was not relevant at the time of the 2030 Plan.

COMMUNITY PLANNING PRINCIPLES

The primary function of local municipal government is the provision of an orderly, safe, productive, and enhanced living and working environment. While this encompasses social, physical, and economic opportunities and issues, the City of Elko New Market primarily influences the quality of life for its residents through the physical environment. Within this context of the City's capabilities, the following are a list of fundamental principles that guide the planning process to develop the 2040 Comprehensive Plan:

- Facilitate a public process to obtain input from City stakeholders including but not limited to, community officials, local developers, business owners and residents to ensure that the 2040 Comprehensive Plan Update reflects the values and goals of the City of Elko New Market.

- Enhance Elko New Market's community character by ensuring that new development is respectful of the City's "small town" atmosphere while accommodating necessary urban growth.

- Promote development which is responsive to natural amenities and minimizes impacts upon environmental resources.

- Encourage growth in an orderly and fiscally responsible manner through careful management of the development process.

- Foster a strong sense of identity and quality of character for Elko New Market and its individual neighborhoods and business districts.

- Promote the economic vitality of Elko New Market businesses and industries to provide for needed services, employment opportunities, and a diversified tax base as a means of supporting future community growth.

- Expand the existing system of public parks, trails, and open space to provide equitable distribution of recreational opportunities in the City.

- Preserve and utilize Elko New Market's natural resources and scenic, and historical character to contribute to a high quality of life in the City.

- Coordinate with State and regional governments to develop an integrated transportation system for all modes of transportation (pedestrian, vehicle, and mass transit) to accommodate long range growth that is to occur.

- Provide for the health, safety, and welfare of the public by ensuring managed growth occurs within a framework of local infrastructure and services of sufficient capacity to meet community needs and expectations.

GROWTH MANAGEMENT

Goal #1: Promote growth strategies for orderly and efficient land use consistent with the *Thrive MSP 2040* regional development guide.

Policies:

1. Plan for forecasted population and household growth at overall average densities of at least 3-5 units per acre (for new development and redevelopment).

2. Strive for higher-density commercial uses and compatible higher-density residential land uses in the commercial core of the community to ensure efficient uses of existing infrastructure investments.

3. Work with adjacent jurisdictions to execute orderly annexation agreements where forecasted growth exceeds land capacity within existing City boundaries.

4. Work to focus forecasted growth in areas with existing infrastructure capacity to protect existing farm land and prime agricultural soils for the long term.

5. Adopt ordinances that coordinate development with infrastructure availability.

6. Collaborate with abutting counties and townships, as necessary, to ensure that near-term development outside of the City's 2040 MUSA boundary (but within the ultimate MUSA boundary) does not hinder long-term urbanization objectives for the area.

Goal #2: Ensure that proposed development does not overburden City resources.

Policies:

1. Maintain development projects within the limitations assigned to the City by regional agencies (i.e. the Minnesota Pollution Control Agency and/or the Metropolitan Council) in regard to public utility availability and potential sewer discharge.

2. Require developers or benefiting property owners to assume all or the significant majority of the improvement/service costs, and agree to pay assessments associated with extending service to their property.

3. Deny development or subdivision applications that qualify as premature based on non-conformity with this Comprehensive Plan or the City's Zoning and/or Subdivision Ordinances relative to:

    - Infill policies
    - Adequacy of roads or highways serving the subdivision or development
    - Adequacy of stormwater management or treatment facilities
    - Adequacy of safe water supply
    - Adequacy of safe sewage disposal system
    - Adequacy of support facilities (i.e. police, fire, schools, parks, etc.)
    - Consistency with environmental protection policies or regulations
    - Consistency with the City's five-year Capital Improvement Program

ECONOMIC DEVELOPMENT

Goal: In accordance with the City's Economic Development and Action Plan, attract, expand, and retain businesses and industries in Elko New Market as a means of adding value to and diversifying the City's tax base.

Policies:

1. Focus infrastructure planning on maximizing opportunities for job creation.

2. Expedite the planning and implementation of fiber optic availability for future economic development.

3. Solicit the support of the City's Chamber of Commerce for economic development initiatives.

4. Continue to build and promote a public sector culture of customer service, timeliness, accountability, and creative solutions.

5. Build "capacity" for economic development via City plans, policies and practices.

    a. Develop a land use plan which is conducive to the attraction of commercial and industrial land uses.

    b. Pursue infrastructure projects which will attract commercial and industrial development.

    c. Utilize available economic development tools (i.e. tax increment financing and other incentives), when appropriate, to attract commercial and industrial development.

    d. Explore opportunities to streamline the City's development review process without diminishing the public purpose of such processes.

    e. Build trust and confidence with the development community by exhibiting commitment, competence, and haste in the development review and approval process.

    f. Demonstrate that Elko New Market is a great place to do business by continuing to provide quality municipal services at reasonable property tax and utility rates.

6. Build "identity" for economic development via City plans, policies and practices.

    a. Recognize and promote the advantages of the City's proximity to Interstate 35 and southernmost location in the seven-county metropolitan area.

    b. Promote a positive City image which advertises resources which are important to business owners, employees, customers, and vendors including, but not limited to, reasonable proximity to urban amenities and property tax rates comparable to other area cities.

c. Explore ways in which the City can illustrate the cost-benefit and return on investment that Elko New Market will gain from future development.

7. Build "partnerships" for economic development via City plans, policies and practices.

   a. Nurture economic development alliances with bigger partners and leverage their initiatives in a manner which is beneficial to the City.

   b. Utilize available economic development tools in a creative manner as a means of maximizing limited development resources.

   c. Share economic development strategies for County Road 2 with Scott County and work in tandem in matters related to transportation and access, land use, and environmental issues along the corridor.

   d. Continue to work with and communicate development goals to the Elko New Market Chamber of Commerce.

   e. Meet with commercial brokers, developers, and/or other market participants for informal feedback on the City's economic development efforts.

8. Utilize the City's website to promote and enhance Elko New Market's development capacity, identity, and partnerships.

   a. Provide comprehensive information for businesses which may be considering a location in Elko New Market. Information may include, but not be limited to, zoning maps, tax and utility rates, development fees/procedures, and the City's business assistance policy.

   b. Expand the City's website to include links to real estate locator sites.

   c. Modify the City's website to provide greater emphasis on the desirable community features which may appeal to new businesses.

9. When available, consider the acquisition of properties in the downtown area (former Downtown New Market) as a means of advancing the goals of the City's Downtown Master Plan.

10. Promote Elko New Market's community identity through consistent brand messaging with all communications, signage at community gateways, and at City facilities.

NATURAL ENVIRONMENT

Goal #1: Design City regulations and performance standards to protect the natural environment, preserve natural resources, and protect natural features.

Policies:

1. Restrict and/or prohibit new development or the expansion of existing activities in environmentally sensitive areas (i.e. wetlands, floodplains, etc.) where environmental damage may result.

2. Utilize City regulations related to density, lot size, tree preservation, and wetland protection to protect natural features deemed important to the City.

3. Encourage subdivision design which preserves natural features in order to maintain a healthy environment, natural aesthetics, and economic benefits which such features provide to the area.

4. Guide development such that natural areas are not impacted or that impacts are minimized (e.g. re-configure lots and/or road alignments to less impactful locations).

Goal #2: Preserve/protect regionally significant, high value natural resources as identified in the Natural Environment Plan.

Policies:

1. Determine locations where existing natural resources can be enhanced and/or restored (e.g. types of vegetation to be planted, where stormwater ponds should be located).

2. Buffer high value natural resources from the impact of development.

3. Collaborate with Scott County, New Market Township, Three Rivers Park District, applicable Watershed Management Organizations and the Minnesota Department of Natural Resources to ensure proper management of the Vermillion River headwaters and the adjacent "priority natural area" which flanks the river.

4. Integrate natural resources with Elko New Market's park, trail, and open space systems.

5. As part of development review procedures, evaluate the following related to natural resource corridors:

   a. Determine if the property (or a portion of the property) proposed for development is within or adjacent to a natural resource corridor.

   b. Identify what types of resources are present within the corridor (e.g. wetland, woodland).

   c. Identify the purpose of the corridor (as outlined above).

   d. Determine whether preservation of the resource(s) within the corridor is appropriate.

   e. Based on purpose, determine the appropriate implementation method(s) or options.

6. Consider the following as potential methods of protecting high value natural resource corridors:

   a. Guide development (e.g. re-configure lots or road alignment or shift area of density to less significant area) such that there is no impact or impact is limited.

   b. Provide incentives such as:

      1) Allow higher density in an area for clustering development away from the resource.

      2) Allow the transfer of development rights – transferring (selling) density opportunities for development in areas where there is less of an impact on natural resources.

   c. Developer dedicated conservation easements.

   d. Acquisition of property by local government (e.g. park dedication vs. fee per lot, public easements).

   e. Acquisition of property by conservation organizations for recreational and/or preservation purposes (may be outright acquisition or easements).

   f. Do nothing – existing regulations adequately accomplish the corridor's intended purpose or no specific implementation is necessary.

7. Identify locations of significant deposits of non-metallic minerals (sand, gravel and aggregate) and where appropriate, consider preservation and protection for future access and use as a regional resource.

GENERAL LAND USE

Goal: **Develop a cohesive land use pattern that ensures compatibility and functional relationships among land use activities.**

Policies:

1. Encourage a balanced variety of development types to satisfy the needs, desires, and income levels of all people while preventing an oversupply of any one type of development.

2. Cluster complementary land uses and activities into functionally related sub-units of the community as determined by physical barriers (i.e. topography, drainageways, transportation routes, etc.), homogeneous land use characteristics, and service area boundaries.

3. Accomplish transitions between different land uses in an orderly manner so as not to create negative impacts on adjoining developments. Transitions of differing land uses shall occur either at mid-block points or along shared rear lot lines, so that similar uses front on the same street, or at borders of areas separated by physical barriers.

4. Regulate incompatible land uses such that conflicts are minimized through the use of physical barriers (i.e., topography, drainageways, transportation routes, etc.), separation, screening, or proper physical orientation of lots and buildings.

5. Amend geographic land use designations and related zoning classifications only when it can be demonstrated by those making the request that the modifications are in the best long-term interest of the City of Elko New Market and are consistent with the policies of the City's 2040 Comprehensive Plan.

6. Approve amendments to the Comprehensive Plan (or Zoning Ordinance) to allow uses or activities not guided or allowed only when such action is consistent with the City's long-term goals and not based solely on short-term market demand or potential.

7. Consider interim uses where differing land use designations are guided for long-term market needs. Such interim activities will only be considered when determined to be compatible with existing and proposed uses and will not serve as obstructions to long-term development objectives.

9. Analyze all development proposals on an individual basis from a physical, economic, and social standpoint within the context of the entire community to determine appropriate uses.

10. Deem premature any request for a rezoning of property to allow a more intensive land use than that which is guided by the City's Land Use Plan.

11. Relate the land uses guided by the Comprehensive Plan to community development priorities and transportation needs.

12. Consider the removal of land from property tax rolls only when it can be clearly demonstrated that such actions are in the public interest.

13. Establish standards for development quality which reflect the City's desired community character.

14. Coordinate Elko New Market's plans for future growth with abutting jurisdictions to encourage unified development patterns consistent with the Comprehensive Plan.

15. Plan land use development so as not to isolate or create land-locked parcels which lack adequate access to public streets.

16. Accomplish renewal, replacement, and redevelopment of substandard and grossly incompatible land uses through private means and, when appropriate, public action.

17. Encourage the conversion of nonconforming uses to uses which are consistent with those guided by the City's Land Use Plan.

18. Give due consideration to the integration of various modes of transportation and related facilities as part of land use planning activities.

19. Administer and enforce zoning, subdivision, building, and property maintenance requirements of the City Code as a means of maintaining high quality, attractive neighborhoods and business districts.

RESIDENTIAL LAND USES

Goal #1: **Recognize residential neighborhoods as the foundation of the City which are to be planned to provide safe, high quality, and high amenity living environments.**

Policies:

1. Limit new residential urban growth to areas within the 2040 Metropolitan Urban Service Area (MUSA) boundary.

2. Maintain and enhance the strong character of residential neighborhoods that are safe, healthy, and aesthetically pleasing through well-designed subdivisions for new housing.

3. Ensure that all new housing, including rental housing and housing for persons of low and moderate income, adheres to the highest possible standards of planning design and construction.

4. In the guidance of residential uses (on the City's Land Use Plan) utilize "net" site areas to make the type and density of residential uses more predictable. The net area shall be defined as being the gross area of a parcel excluding resources protected by ordinance (wetlands and steep slopes), County and State highway rights-of-way, and regional park land.

5. Provide a system of collector roadways to protect residential neighborhoods from an influx of through traffic on local streets.

6. Prohibit new development in areas where noise and/or pollution exceed accepted standards and the negative impacts are not correctable by construction, site planning or other techniques. Avoid exposure of residential development from adverse environmental impacts, including noise, air, and visual pollution.

7. Require low density residential neighborhoods to be protected from encroachment or intrusion of incompatible uses by adequate buffering and/or separation from other residential, as well as non-residential, land use categories.

8. Encourage innovation in subdivision design and housing.

9. Minimize outside storage in residential areas and in those instances when it is acceptable, require it be conducted in an orderly, confined, and limited manner.

10. Require accessory buildings located in residential neighborhoods to be of a compatible design and size to maintain a residential neighborhood character and limit the use of such buildings to be clearly incidental and secondary to the principal residential activity.

11. Allow for interim home occupations within residential neighborhoods only when they will not jeopardize the health, safety, and welfare of the surrounding neighborhood.

Goal #2: Provide housing opportunities for persons of all ages and income levels and choices that meet the changing life cycle needs of its residents.

Policies:

1. Allow for the development of a variety of quality housing styles, types and choices throughout the City based on type and density objectives established in this Plan.

2. Maintain a balance in the types and quantities of housing units available throughout the City, emphasizing single family, multiple family, housing for seniors and physically disabled with existing residential development.

3. Adhere to the highest community design, planning, and construction standards for all new residential development.

4. In recognition of the City's changing demographic profile, provide opportunities for senior living facilities.

5. Encourage housing styles and development techniques that conserve land and increase efficiency while achieving guided density objectives as established in this Plan.

6. Allow the mixing of various housing types or densities only when specifically planned and approved as part of the development approval process.

7. Establish single family dwellings as the primary type of housing maintained and developed within the community through a variety of single family lot sizes. Such varied lot sizes are intended to create potential for added diversity in the housing supply and create housing opportunities for all segments of the population.

8. Consider changes to the City's land regulations (zoning and subdivision ordinances) to better respond to current single family residential market trends.

9. Provide opportunities for housing for low and moderate income families and individuals that is not to be concentrated within a single project or area.

Goal #3: Provide for well-designed housing alternatives to single family dwellings which are compatible with the desired character of the community.

Policies:

1. Recognize the need to develop a variety of twinhome, townhome, and multiple family dwellings to supplement conventional single family homes giving due consideration to local market demands and desired community character.

2. Limit the development of two-family, townhome and multiple family dwellings to areas designated for medium and high density residential uses as designated on the City's Land Use Plan, except as may be integrated as part of a Planned Unit Development.

3. Guide areas for medium and high density residential land use so as not to be concentrated in any one area of the community or over such acreages at any one location as to create potential land use compatibility, transportation, utility, or service delivery issues.

4. Promote the development of two-family, townhome, and multiple family dwellings adjacent to areas targeted for commercial development to provide ancillary market support.

5. Establish and apply specific zoning and subdivision ordinance standards for development of two-family, townhome, and multiple family uses to ensure quality and innovation in construction and site design, as well as consistent application of development requirements.

6. Provide medium and high density residential housing development in areas which are provided reasonable access to major thoroughfares.

7. Locate residential care facilities in areas appropriately guided for residential land uses.

Goal #4: Maintain and/or upgrade the character of existing residential neighborhoods.

Policies:

1. Coordinate neighborhood preservation and rehabilitation efforts within individually defined neighborhoods.

2. Maintain a high quality residential environment through rehabilitation or where necessary, redevelopment of substandard dwelling units through private means and/or public action, when feasible.

3. Preserve and improve the existing housing stock through inspection and code enforcement efforts.

4. Consider the adoption of a housing maintenance code.

5. Abate property maintenance violations that infringe upon neighborhood quality or create public health safety and welfare concerns through code enforcement efforts.

6. Utilize public improvements as a means of civic beautification, strengthening neighborhood character, and stimulating investment in private property.

Goal #5: Build attractive residential neighborhoods which are integrated with the balance of land uses in the City.

Policies:

1. Require all new housing to comply with established zoning and building performance standards.

2. Update, as necessary, the City's development regulations to define the desired level of quality design expected for new residential subdivisions.

3. Require new subdivisions to be interconnected with existing neighborhoods (with local streets, trails, parks, etc.).

4. Require all new housing to adhere to standards related to design, planning, and construction.

5. Integrate natural features of property into subdivision design.

6. Transition differing land uses in an orderly fashion which does not create a negative impact on adjoining developments.

7. Promote housing construction which reflects modern and emerging construction techniques and styles.

8. Require financial securities to ensure performances on plats to provide an incentive for timely development.

Goal #6: Provide opportunities for affordable housing consistent with the Metropolitan Council's allocation of affordable housing need for 2021 through 2030 (326 units).

Policies:

1. Guide sufficient land at minimum residential densities of eight or more units per acre to support the City's allocation of affordable housing need for 2021-2030.

2. Continue efforts with the Scott County Community Development Agency (CDA) to provide housing for low and moderate income families, individuals, and senior citizens.

3. Encourage owner-occupied housing for low and moderate income households in a manner which does not concentrate such housing type in a single area of the City.

4. Encourage multiple family housing projects which include both subsidized and market rate housing units.

5. Establish administrative and policy mechanisms that will facilitate the development of low and moderate income housing and respond to housing deficiencies.

6. Ensure that housing assistance is available, be it State or Federal, and accessible to community residents.

COMMERCIAL LAND USES

Goal #1: Promote commercial development as a means of expanding the City's tax and employment base and providing goods and services to Elko New Market residents.

Policies:

1. Designate commercial land areas which are adequate to meet the long range commercial needs of the area.

2. In conjunction with transportation planning, locate commercial land uses in areas of high visibility and accessibility.

3. Screen and/or buffer commercial uses from adjacent residential development.

4. Promote unified commercial development patterns that serve the overall community and region, as well as smaller commercial nodes which may serve smaller portion of the community or neighborhoods.

5. Promote the Interstate 35 and designated segments of the County Road 2 corridor as areas of primary focus for commercial development.

6. Within the Interstate 35 and County Road 2 corridors, promote high quality commercial development which takes advantage of the visibility and/or access provided along such transportation routes.

7. To promote customer friendly environments, encourage commercial site designs which emphasize pedestrian accessibility, shared parking and green space.

8. Encourage multiple family residential uses as a transition between commercial uses and low density residential neighborhoods.

9. Require all new commercial development to comply with established zoning and building performance standards.

10. Update, as necessary, the City's development regulations to reflect and define the desired level of design quality for new commercial development.

11. Actively communicate with the Elko New Market Chamber of Commerce and local business owners to gain an understanding of the changing needs of the commercial market.

Goal #2: **Establish Downtown Elko New Market as a vibrant, historic area of the community which includes a broad range of mixed uses arranged in a development pattern which is characteristic of the area.**

Policies:

1. Consider the guidelines provided in the City's Downtown Master Plan as part of downtown area development and/or redevelopment proposals.

2. Review and update, as deemed necessary, the City's Downtown Master Plan to ensure that such plan is consistent with the City's current vision for the area.

3. Promote a broad range of commercial and civic uses within the Downtown including retail, service, office, entertainment, and civic uses.

4. Maintain a scale and form of development in the Downtown which emphasizes sensitivity to the pedestrian environment.

5. Minimize the impact of automobiles in the Downtown through strategies such as "shared parking", in which adjacent land uses having different peak-hour parking demands can share parking facilities.

6. Promote safe pedestrian circulation along and across County Road 2.

7. Provide easily accessible public parking areas and pedestrian connections to retail streets.

8. Achieve "traffic calming" benefits through an integrated street network which provides options for traffic flow, narrower street design, and the provision of on-street parking.

9. Provide for public open space that uses stormwater treatment ponds as a visual and recreational amenity to the project.

10. Promote buildings which are compatible with the character of existing historic buildings within their immediate context.

11. Encourage active ground floor uses, such as restaurants, shops, and services to animate retail streets.

INDUSTRIAL LAND USES

Goal: **Expand the City's tax and employment base through the promotion of industrial land uses.**

Policies:

1. Continue to implement Elko New Market's Economic Development Strategy and Action Plan.

2. Communicate with businesses and industries to stay abreast of their changing needs to facilitate industrial development.

3. Designate land areas which are considered adequate to meet long range industrial use demands of the area.

4. Locate industrial land uses near primary and easily accessible transportation routes.

5. Specifically locate industrial uses in the northeast and southeast quadrants of the Interstate 35/County Road 2 interchange area.

6. Define areas for varying types of industrial activities and provide for such varied use types within the Zoning Ordinance.

7. Encourage legal nonconforming industrial uses within residential areas of the City to relocate to areas guided for such activities.

8. Update, as necessary, the City's development regulations to reflect and define the desired level of design quality for new industrial development.

9. Investigate fiscal incentives to attract desired types of industries to the City.

10. Promote industrial developments which maximize the return on City investments in public facilities and services.

11. Consider all potential physical implications and service demands (i.e. traffic generation, sewer and water demands) of new industrial developments.

12. Encourage industrial site designs which integrate natural land features.

ADMINISTRATION

Goal #1: All development which occurs within in the City of Elko New Market is to be in accordance with the Comprehensive Plan.

Policies:

1. Apply development policies and regulations in a consistent and uniform manner.

2. Evaluate the Comprehensive Plan regularly and proceed with updates when such action is deemed appropriate by the City.

3. Periodically review and update zoning and subdivision regulations to ensure that they adequately reflect current City policies.

4. Consider the establishment of an exterior property maintenance code as a means of promoting the life, health, safety, aesthetic, economic and general welfare of Elko New Market citizens and to protect neighborhoods against nuisances, blight, and deterioration.

5. Monitor legislative changes and new requirements in community responsibilities, notably in the area of environmental protection, and update the City's development regulations as necessary.

6. Evaluate development proposals to determine all economic, physical, social, and service demand implications and provide sufficient time for thorough analysis and decision-making.

7. Document all analysis related to consideration of development proposals to substantiate the basis of the City's decisions.

8. When new or expected development necessitates, initiate impact studies and cost analysis for public service improvements (i.e. utility extensions or upgrades, fire and police protection, roadway network improvements and recreation system elements).

Goal #2: Maintain high standards for proactive involvement and communication with City residents and businesses on City issues and services.

Policies:

1. Provide opportunities for direct involvement and input of area residents, business persons, and property owners in the planning and implementation of any development-related activities in the City.

2. Utilize existing business and civic organizations as a means of communicating and informing land owners and tenants and the general citizenry of area projects, plans, and accomplishments.

3. Encourage developers to hold informal meetings with project area residents, business persons, and property owners on a neighborhood or sub-unit basis to inform them of area plans prior to proceeding with formal development applications.

4. Make use of available media such as area newspapers, social media and the City's website as a means of keeping citizens informed of development projects.

Goal #3: To the extent possible, allocate administrative and improvement costs to those generating the demand or utilizing the service.

Policies:

1. Monitor the City's administrative procedures and services, including the processing of development applications, to ensure that the financial costs associated with such services are paid by those making the request.

2. Require land dedication, easements and other such dedications at the time of subdivision and/or development to ensure the physical capability for necessary public/semi-public utilities and improvements.

3. Annually review the City's financial position to ensure proper fiscal programming and management.

4. Monitor Federal and State programs for the possibility of assisting the community with implementing the Comprehensive Plan and meeting the needs of its citizens.

5. Continue to implement a capital improvement program for the management, programming, and budgeting of capital needs.

INTRODUCTION

Protection of the City's environmentally sensitive areas and related "rural feel" is of prime importance to Elko New Market residents. Environmentally sensitive features help define the "rural character" of the community and have, to some degree, attracted residents to the City. In addition to their aesthetic value, the elements which comprise Elko New Market's natural environment serve important ecological functions and create boundaries that define the pattern of urban development.

Recognizing the value of its natural resources, the Plan is the assurance that continued expansion of urban development in Elko New Market will not result in natural resource degradation. It is therefore necessary, as part of this Comprehensive Plan Update, to give specific attention to the protection of these areas. The focus of environmental protection efforts within the City is trending towards the integration of natural environmental features within development projects.

LAKES AND RIVERS

Technically, there are no lakes within the City of Elko New Market. The largest Department of Natural Resources (DNR) protected water body in the City is located south of County Road 2 and east of County Road 91 (adjacent to the Elko Speedway). The water body, technically a DNR protected wetland, is routinely referred as "Lake Elko" by Elko New Market residents. Another large wetland complex exists, directly west of "Downtown Elko." Also to be noted is that no DNR protected lakes exist within the either the City's 2040 MUSA or ultimate urban service area boundaries.

Of primary importance in the consideration of the City's natural features is the headwaters of the Vermillion River which emerge in New Market Township, just north of the City's public works site. The City's 2040 MUSA boundary borders the south side of the river for a distance of just over one mile. Lands bordering the south side of the headwaters are largely undeveloped.

While the Vermillion River is a designated trout stream further downstream (east of the City of Elko New Market), its headwaters provide passive recreational opportunities for the City. The City's Park and Trail Plan directs the future establishment of a greenway/trail along the south side of the river. In addition to providing passive recreational opportunities, such greenway would also provide a natural buffer between urban development and the river to help protect its ecological function. Further, the greenway could provide an area for natural wildlife habitat and movement.

To manage development which occurs along the headwaters, consideration should be given to the adoption of Shoreland Overlay District regulations in advance of forthcoming urban development. Adoption of a Shoreland Overlay District is intended to maintain the natural character of the shoreline and protect the waterbody from overcrowding, pollution and flooding.

Such Overlay District regulations should be consistent with Minnesota Statutes and Department of Natural Resources (DNR) Rules. Figure 4.1 illustrates DNR Protected Waters and Wetlands.

WETLANDS

Wetlands serve important ecological functions in the City Elko New Market. These functions include the following:

- Provide critical wildlife habitat
- Allow for nutrient assimilation and ground water recharge
- Add aesthetic value

Wetlands are protected by the Wetland Conservation Act of 1991 (as amended) and the Clean Water Act, and implemented through the City's Zoning and Subdivision Ordinances. Elko New Market's efforts to protect, preserve and enhance wetlands within the community include requirements for establishment of buffers and increased building setbacks from wetlands and waterways (based upon wetland quality).

Figure 4.2 illustrates the possible location of wetlands protected under the Wetland Conservation Act and the Clean Water Act, lying within Elko New Market's existing City limits and 2040 MUSA boundary. The map depicts the 2013 National Wetland Inventory wetland boundaries which is widely used as a reference for possible location of wetlands that would be protected under the Wetland Conservation Act and Clean Water Act. It is noted that there may be additional wetlands that are protected under the Wetland Conservation Act and Clean Water Act that are not shown on this figure, and which would be identified at the time of development through a wetland delineation.

Recognizing the important function of wetlands, the City will continue to protect wetlands through the use of vegetative buffer requirements and requiring that wetlands be conveyed to the City during the development process.

FLOODPLAINS

Development in floodplain areas creates risks to public safety and expenses (resulting from property damage). To minimize these risks, the City of Elko New Market adopted regulations (as a Zoning Ordinance amendment) to direct allowed uses and establish development standards for such uses within floodplain areas. The City's Floodplain Overlay District regulations are consistent with the rules and regulations of the National Flood Insurance Program and are intended to regulate development in the flood hazard areas of the City as a means of minimizing the impact of flood events upon the City.

According to the official Flood Hazard Boundary map issued by the Federal Emergency Management Agency (FEMA), two areas of the City presently lie within the 100-year floodplain. These include a portion of Elko New Market's public works campus site which abuts the Vermillion River and a small area within the Whispering Creek North Addition located in the northwest corner of the City.

The City will continue to apply the regulations of the Floodplain Overlay District to manage the type of development allowed in floodplain areas. Figure 4.3 depicts the flood hazard boundaries identified by FEMA.

STORMWATER MANAGEMENT AND EROSION CONTROL

Issues related to stormwater management and erosion control in the City of Elko New Market are addressed within the City's 2040 Surface Water Management Plan which is attached to this document as Appendix ____ / Chapter ___, and implemented through the City's Zoning and Subdivision Ordinances.

TOPOGRAPHY

Figure 4.4 illustrates the topography within and surrounding the City of Elko New Market and depicts areas of steep slopes. The Elko New Market area features fairly substantial changes in elevation from approximately 1014 to 1228 feet above sea level, which is the highest elevation in Scott County. There are areas of moderate and steep slopes scattered throughout the City and 2040 growth area. Slopes exceeding 18% may present development challenges and function best if allowed to exist in a natural state or exist with limitation on development.

SOILS

Figure 4.5 illustrates the basic condition of soils within the City of Elko New Market and 2040 growth area. While there are many ways to classify soils, one of the most critical for the purposes of land use planning is hydric versus non-hydric soils. According to the USDA's Natural Resources Conservation Service, hydric soil is "soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part." Hydric soils typically are not as well-suited for development as non-hydric soils. As the map shows, there is a significant amount of hydric soils in portions of Elko New Market, particularly in large wetland areas.

According to the Scott County Soil Survey, the most common soil associations in the area are the Lester and Webster soil types. In 2012, the Lester association was proclaimed to be the "Official Minnesota State Soil" by Minnesota Governor Mark Dayton. Webster soils are nearly level and

generally occupy upland flats. Like the Lester association, Webster soils are well-drained and suitable for urban development.

SIGNIFICANT NATURAL AREAS

A part of the *Thrive MSP 2040* development guide, the Metropolitan Council directs Twin Cities Metropolitan Area cities to preserve and protect regionally significant natural resource areas. The City has identified the areas listed below to be of importance and to be considered during the development process and when assessing the effects of development on the natural environment.

Natural Area Corridors. With strong public support for protecting the county's woodlands, wetlands, habitat areas, and ground water, Scott County began a process in late 2006 to undertake a natural resource inventory and to ultimately identify Natural Area Corridors. Figure 4.6, which was published by Scott County, depicts areas with known sensitive species or communities, unique natural communities, and high and medium quality natural communities. Natural Area Corridors have been identified in the City's 2040 growth area, particularly on the northern portion of the City surrounding the Vermillion River.

Regionally Significant Terrestrial and Wetland Ecological Areas. The DNR has prepared a map of Regionally Significant Terrestrial and Wetland Ecological Areas, Figure 4.7. The DNR suggests additional field work be done to determine the existence of significant features in these areas. Within the City's 2040 growth area and existing City limits, there are areas considered regionally significant.

Metro Wildlife Corridor Focus Areas. Figure 4.8 depicts the Metro Wildlife Corridor Focus Areas, also mapped by the DNR. The focus areas shown on the map identify regionally significant upland and/or wetland habitat area and wildlife corridors that the DNR, along with public and private partners, endeavor to preserve. Through the Wildlife Corridor Program partners purchase conservation easements which allow them to restore, enhance, or maintain significant habitat areas.

The areas identified in Figures 4.6, 4.7 and 4.8 are not intended to prohibit development. Rather, the intent is to guide development-related decisions. When a property within a mapped area is proposed for development, the City will evaluate the proposal alongside the following statements and make decisions accordingly:

- Determine if the property is within a mapped area;
- Identify what types of resources are present within the corridor;
- Identify the purpose of the corridor;
- Determine whether preservation of the resource(s) within the corridor is appropriate;
- Determine what levels of resource protection already exist for the area in question;
- Guide development such that the area is not impacted or impact is limited;

Examples of implementation tools, to help in the preservation of mapped corridors, may include:

- Provide higher densities in exchange for preservation areas, through the use of PUD zoning;
- Developer dedicated conservation easements;
- Acquisition by location government (e.g. park dedication)
- Acquisition by conservation organizations

AGGREGATE

Metropolitan Council's *Thrive MSP 2040* regional development guide includes a policy which directs the conservation, restoration and protection of the region's natural resources to ensure availability, support public health, and maintain a high quality of life. Specifically, the Metropolitan Council considers aggregate (sand gravel and crushed rock) an important resource as it relates to the construction of regional transportation systems. The City of Elko New Market likewise recognizes that aggregate resources are of regional significance, particularly as it relates to the construction of regional transportation systems.

No "regionally significant" aggregate deposits exist in the Elko New Market area. Some smaller deposits do however, exist in isolated areas. Figure 4.9 depicts areas of aggregate deposits.

Recognizing that both the Metropolitan Council and City of Elko New Market consider aggregate to be a valued regional resource, the following policy statement has been incorporated into the Policy Plan chapter of this Plan:

1. *The City of Elko New Market shall identify locations of significant deposits of non-metallic minerals (sand, gravel and aggregate) and where appropriate, consider preservation and protection for future access and use as a regional resource.*

WATERSHEDS

Elko New Market is located within three watershed districts. The Vermillion River Watershed District encompasses the largest amount of land area of the three, stretching approximately two miles south of the Vermillion River. The Vermillion River Watershed District is the largest watershed in the Minneapolis-St. Paul Metropolitan Area. The Sand Creek is the second largest watershed, overlaying land located in the extreme southwest corner of the City. The North Cannon Watershed overlays land generally located north of 270th Street and east of County Road 91 in the southeast area of the City. Watershed district boundaries are depicted on Figure 4.10. As developments are considered by the City, the City will continue to comply with individual watershed regulations.

DEVELOPMENT CONSTRAINTS

Several of the natural features identified in this chapter, including but not limited to wetlands, flood plain areas, hydric soils, areas of steep slopes, and regionally significant ecological areas, will present constraints to future development in the 2040 growth area. Figure 4.11 illustrates these potential constraints to development. The boundaries on the map are a compilation of floodplain areas, DNR Protected Waters & Wetlands, National Wetland Inventory data areas, areas of steep slopes, and areas of hydric soils. It is noted that further review of these areas is required prior to development. This map is intended to provide a general overview of potentially constrained development areas.

AGRICULTURAL PRESERVATION / GREEN ACRES

The Metropolitan Agricultural Preserve Program was established to preserve areas of prime farmland. While there are no agricultural preserves within the City of Elko New Market or the 2040 growth area, it is recognized that there are many active farming operations. Several properties surrounding the City limits are enrolled in the Green Acres Program, which provides property tax relief for the owners of productive agricultural property. The City of Elko New Market supports the preservation of prime farmland by:

- Pursuing a growth plan that emphasizes compact and contiguous growth patterns
- Encourages 1 unit per 40 acre densities in rural areas

GROUNDWATER

Elko New Market draws its groundwater from the Prairie Du Chien - Jordan aquifer. Groundwater quality is thought to be generally good; however the City does treat for iron, manganese, and radium. Groundwater in the area is considered to be free from contamination; however the Minnesota Pollution control Agency reports seven confirmed instances of leaking underground storage tanks within the City dating back to 1989. All files on the sites have been closed as of the drafting of this Plan. The sites are identified in the following table:

Table 4- 1

Minnesota Pollution Control Agency Tank Leak Sites		
ID	Site Name	Address
LS0001616	New Market Oil (bulk Plant)	341 Main St PO Box 38
LS0001796	Maynards Auto Service	10881 E 260th St
LS0004619	Home Oil Co	320 Main St
LS0004929	Mn Department Of Transportation	I35 N of Elko
LS0015935	G & T Trucking	11111 Deuce Rd Ste 5
LS0016832	G and T Trucking Co	11111 Deuce Rd Ste 5
LS0018629	Waconia Transport Co Tanker Spill	Main St & Balte Ave
Source: Minnesota Pollution Control Agency (2019)		

HISTORIC PRESERVATION

The City of Elko New Market has only one structure which is listed on the National Register of Historic Places, that being the New Market Hotel and Store located at 441 Main Street.

In addition, the St. Nicolas Cemetery located within the St. Nicolas Church campus site (south of County Road 2 and east of Church Street) is also considered historically significant.

The City of Elko New Market is committed to the preservation of its history. As opportunities arise and funding is available, the City will take appropriate steps to ensure preservation.

AIR AND NOISE POLLUTION

Primary sources of air pollution within the City of Elko New Market are projected to be the high-volume streets which intersect and/or border the City. Within the 2040 planning period, these are anticipated to be County Roads 2 and 91 and Interstate 35.

Recognizing that residential uses currently abut such transportation corridors and will continue to do so in the future, buffer strips, including landscaping, berming and/or fencing should be established wherever possible (to mitigate adverse impacts). In addition, vehicular circulation associated with commercial and industrial uses should be discouraged, and in some cases prohibited, from using local residential streets.

The City is presently lacking in any significant industrial use sites. Recognizing however, that areas of the City are guided for such uses, assurances should be put in place which ensure that

incompatible land use relationships will be minimized (via land use planning) and that thoughtful site designs are implemented (via site plan review efforts).

Further, new commercial and industrial developments (including expansions) should comply with existing State and Federal pollution emission standards. In this regard, environmental assessments should be conducted for new projects when required by State Rules.

While it is acknowledged that the Elko Speedway is a well-known source of noise within the community, parameters have been established to minimize adverse impacts. These include compliance with applicable Minnesota Pollution Control Agency standards and maximum dBA limits placed upon noise events (related to time of day) as measured from site property lines. Such standards have been imposed as conditions of past development approvals.

LIGHT POLLUTION

A common result of on-going urban development within cities are additional light sources which illuminate streets, intersections, yards, parks, parking lots, business signs, etc. The growing number of light sources within the cities results in increased levels of light being directed or reflected skyward that can obscure the dark rural skyline.

To minimize the effects of light pollution, the City should consider the adoption of comprehensive lighting standards to ensure appropriate levels of night time illumination (that are controlled in intensity and direction to preserve the dark sky). Such standards could be applied to both new developments and the redevelopment of existing uses within the City.

SOLID WASTE

The City of Elko New Market's 2040 MUSA and ultimate urban service area boundaries encompass a large area of undeveloped land. In recognition of the City's proximity to the Twin Cities urban area, the possibility exists that lands slated for long-term urbanization could be viewed as an attractive location for a solid waste facility at some future point.

Presently, lands which lie outside of the City's municipal boundaries are subject to Scott County and/or Township zoning regulation. With this in mind and recognizing the regional significance of such a use, consideration of a solid waste facility proposal within the Elko New Market's ultimate urban service area boundary should be a collaborative review effort which minimally involves appropriate State agencies, Scott County, impacted Townships and the City.

While Elko New Market remains open to any potential development proposal, this type of land use has historically been discouraged due to inherent conflicts with the type and rate of anticipated City urbanization. In responding to a development request, waste disposal facilities

would not be allowed unless it is clearly demonstrated that such an activity can exist in harmony with both the natural environment as well as existing and anticipated urban land uses. In this regard, the following would be considered as part of a development request for such use:

- A comprehensive evaluation of potential environmental impacts.
- The proposed location, operation and long term use of the facility.
- The methods of collection, transportation, processing, and disposal.
- Potential for eventual reclamation and reuse of the site.

RESILIENCE

The Metropolitan Council's *Thrive MSP 2040* regional development guide encourages planning for climate change as part of the update of Twin Cities Metropolitan Area comprehensive plans. In this regard, cities must integrate strategies into their 2040 plans to be more resilient in the face of a changing climate.

Of specific concern is the impact which extreme weather events may have upon public facilities and the higher costs of providing services. Thus, there is growing need to not only plan for these events, but to also reduce the impacts through conscious climate adaptation and resilience planning.

With the preceding objectives in mind, the following efforts have been made by the City of Elko New Market:

Back-Up Power Systems. Within the City's sanitary sewer and water supply plans, efforts are being made toward addressing the impacts of severe weather. To minimize the risk of sewage backup in the event of electricity failure, such plans specify that new lift stations and wells should include standby power generators. Such a back-up system presently exists at the City's new water treatment plant which became operational in 2016, and the City is currently planning for stand-by generators at all City sanitary sewer lift stations.

Facility and Equipment Upgrades. In 2015, the Elko New Market Public Works Department moved into a new public works facility. Such facility (and additional floor area) enabled heavy equipment to be added to the City's fleet which is stored and maintained indoors. Such additional equipment enables a more expeditious response to damage resulting from extreme weather events. Specifically, streets (emergency travel routes) may be cleared of downed trees, debris and/or snow in a prompt manner.

Stormwater Storage. The City of Elko New Market recognizes that changing rainfall patterns may require additional storm water management capacity. Acknowledging such risks, the City has adopted stormwater rules that are implemented through the City's

Zoning and Subdivision Ordinances that promote retention of rainfall on-site in a manner which mimics pre-development conditions.

Further, City requirements for developers to construct rear-yard stormwater drainage facilities reduce the incentive for residents to make illegal sump pump connections to the sanitary sewer system. This requirement reduces inflow and infiltration into the sanitary sewer system, and in turn, reduces the financial costs associated with the transportation and treatment of water that is not technically "wastewater."

GreenStep Cities Program. In 2013, the City of Elko New Market joined the Minnesota GreenStep Cities program. The GreenStep Cities program is a voluntary challenge, assistance and recognition program which is intended to help cities achieve their sustainability and quality-of-life goals. This free, continuous improvement program, managed by a public-private partnership, is based upon several best practice categories (29 in total) as reiterated below:

Buildings and Lighting:

Efficient Existing Public Buildings: Benchmark energy usage, identify savings opportunities in consultation with state programs, utilities and others to implement cost-effective energy and sustainability improvements.

Efficient Existing Private Buildings: Provide incentives for energy, water and sustainability improvements in existing buildings/building sites.

New Green Buildings: Construct new buildings to meet or qualify under a green building framework.

Efficient Outdoor Lighting and Signals: Improve the efficiency and quality of street lighting, traffic signals and outdoor public lighting.

Building Redevelopment: Create economic and regulatory incentives for redeveloping and repurposing existing buildings before building new.

Land Use:

Comprehensive Plans: Build public support and legal validity to long-term infrastructural and regulatory strategy.

Efficient City Growth: Promote financial and environmental sustainability by enabling and encouraging walkable housing and commercial land use.

Mixed Uses: Develop efficient and healthy land patterns that generate community wealth.

Efficient Highway- and Auto-Oriented Development: *Adopt commercial development and design standards for auto-oriented development corridors and clusters.*

Design for Natural Resource Conservation: *Adopt development ordinances or processes that protect natural systems and valued community assets.*

Transportation:

Living Streets: *Create a network of green complete streets that improves city quality of life and adds value to surrounding properties.*

Mobility Options: *Promote active transportation and alternatives to single-occupancy car travel.*

Efficient City Fleets: *Implement a city fleet investment, operations and maintenance plan.*

Demand-Side Travel Planning: *Implement Travel Demand Management and Transit-Oriented Design in service of a more walkable city.*

Environmental Management:

Sustainable Purchasing: *Adopt environmentally preferable purchasing policies and practices.*

Urban Forests: *Add city tree and plant cover that increases community health, wealth and quality of life.*

Stormwater Management: *Minimize the volume of and pollutants in stormwater runoff.*

Parks and Trails: *Support active lifestyles and property values by enhancing the city's green infrastructure.*

Surface Water Quality: *Improve local water bodies.*

Efficient Water and Wastewater Systems: *Assess and improve city drinking water and wastewater systems and related facilities.*

Septic Systems: *Implement an effective management program for decentralized wastewater treatment systems.*

Solid Waste Reduction: *Increase waste reduction, reuse and recycling.*

Local Air Quality: *Prevent generation of local air contaminants.*

Economic and Community Development:

Benchmarks & Community Engagement: *Adopt outcome measures for GreenStep and other city sustainability efforts, and engage community members in ongoing education, dialogue, and campaigns.*

Green Business Development: *Support expansion of the city's green business sector.*

Renewable Energy: *Remove barriers to and encourage installation of renewable energy generation capacity.*

Local Food: *Strengthen local food and fiber production and access.*

Business Synergies: *Network/cluster businesses to achieve better energy, economic and environmental outcomes.*

Climate Adaptation and Community Resilience: *Plan and prepare for extreme weather, adapt to changing climatic conditions, and foster stronger community connectedness and social and economic vitality.*

As a current participant in the GreenStep Cities program, the City of Elko New Market will continue to work toward implementation of the preceding practices, as may be applicable.

Solar Access Protection. It is important to the City of Elko New Market that all properties have adequate access to sunlight. In this regard, solar access protection is considered a priority not only for solar energy systems but for the protection of property and aesthetic values as well.

Protection of solar access to properties will continue to be ensured by the City of Elko New Market via the uniform implementation of lot and building performance standards as established in the City's Zoning Ordinance. Requirements such as maximum building height and yard setback standards exist to create separation between structures and allow equal sunlight access such that a property is not in the shadow of an adjacent building.

Solar energy systems are a permitted accessory use in all zoning districts within the City. A specific set of performance standards applicable to solar systems is currently in place.

Wind Energy Protection. It is important to the City of Elko New Market that all properties have access to alternative energy systems. Wind energy systems are protected

through the City's ordinances in a manner that removes regulatory barriers and creates a clear path for wind energy, while still considering aesthetics and property values.

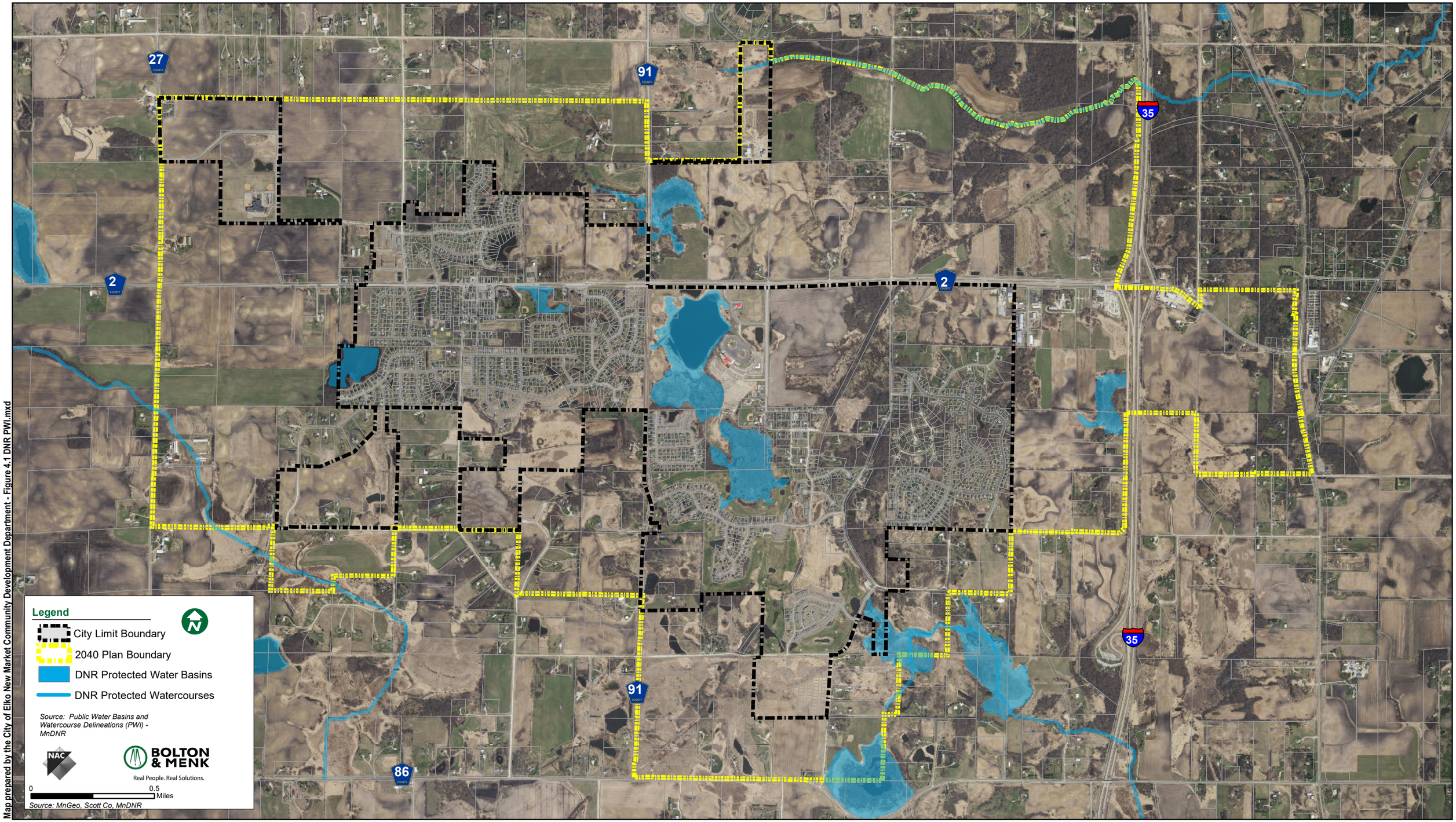
Protection of wind energy will continue to be ensured by the City of Elko New Market through uniform implementation of lot and performance standards as established in the City's Zoning Ordinance. Wind energy systems are permitted in all zoning districts within the City.

2040 Comprehensive Plan

Elko New Market, MN

DNR Protected Waters & Wetlands

Figure 4.1

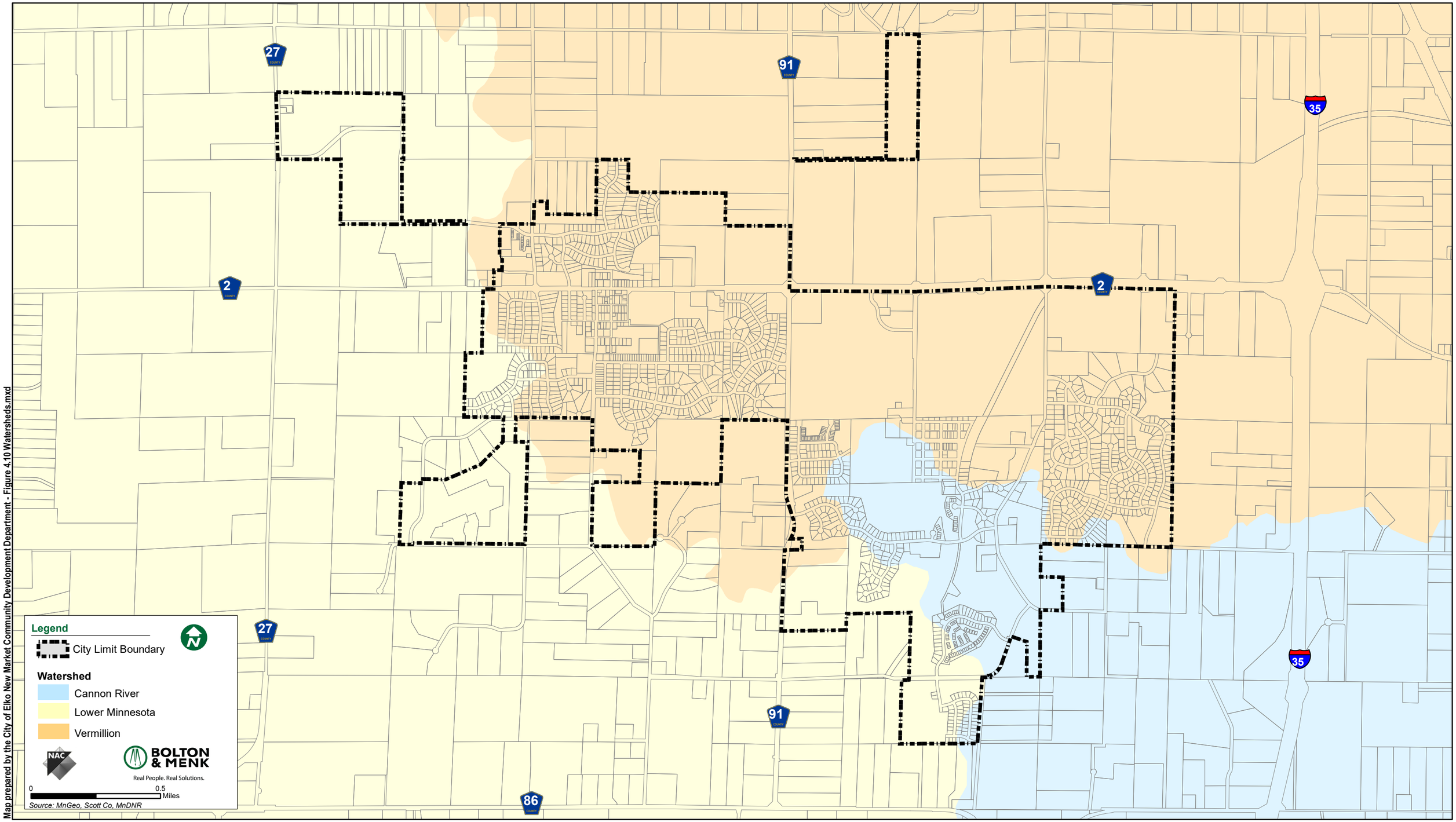


Map prepared by the City of Elko New Market Community Development Department - Figure 4.1 DNR PWI.mxd

2040 Comprehensive Plan

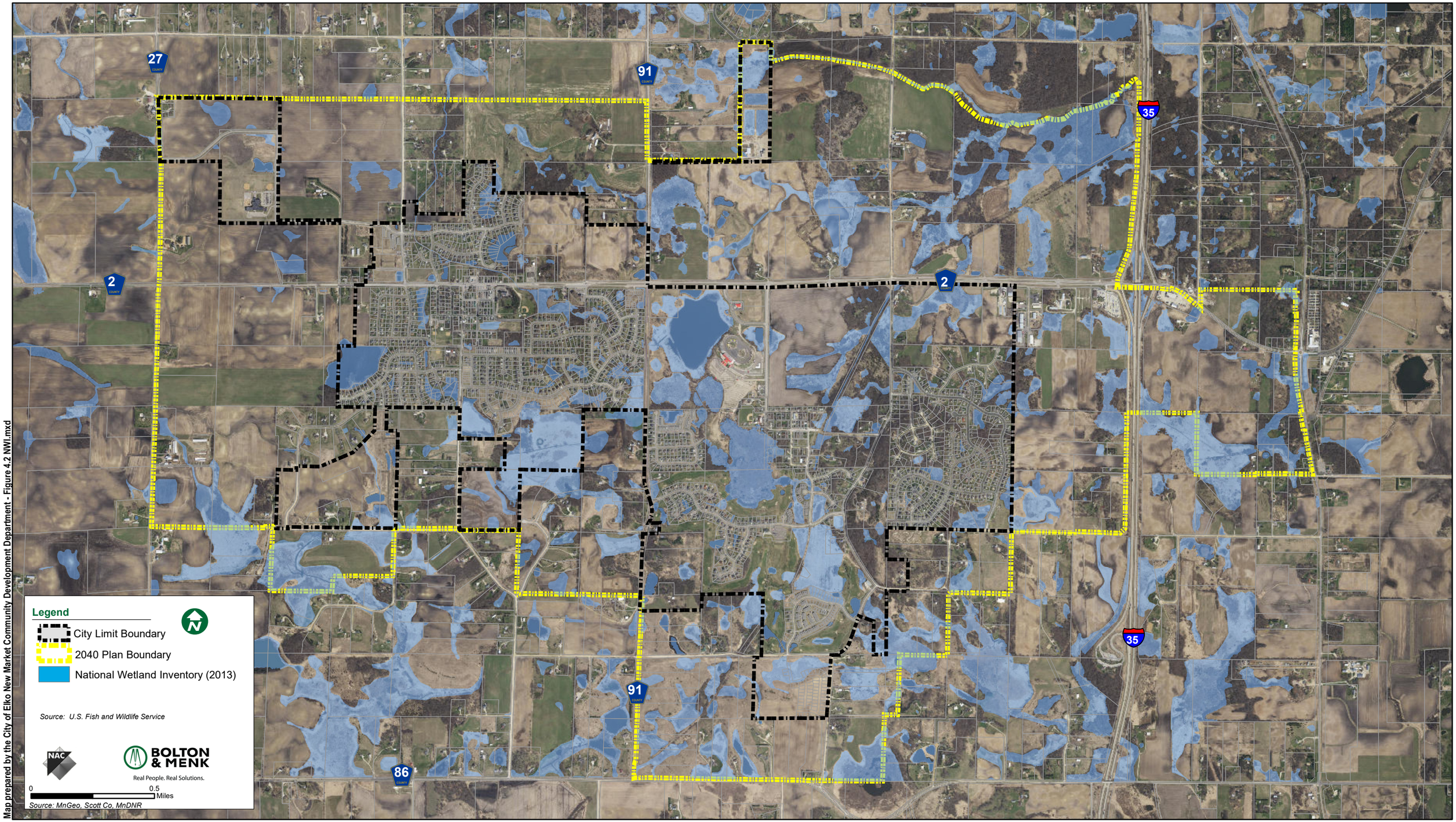
Elko New Market, MN

Watersheds
Figure 4.10



Map prepared by the City of Elko New Market Community Development Department - Figure 4.10 Watersheds.mxd

National Wetland Inventory
Figure 4.2



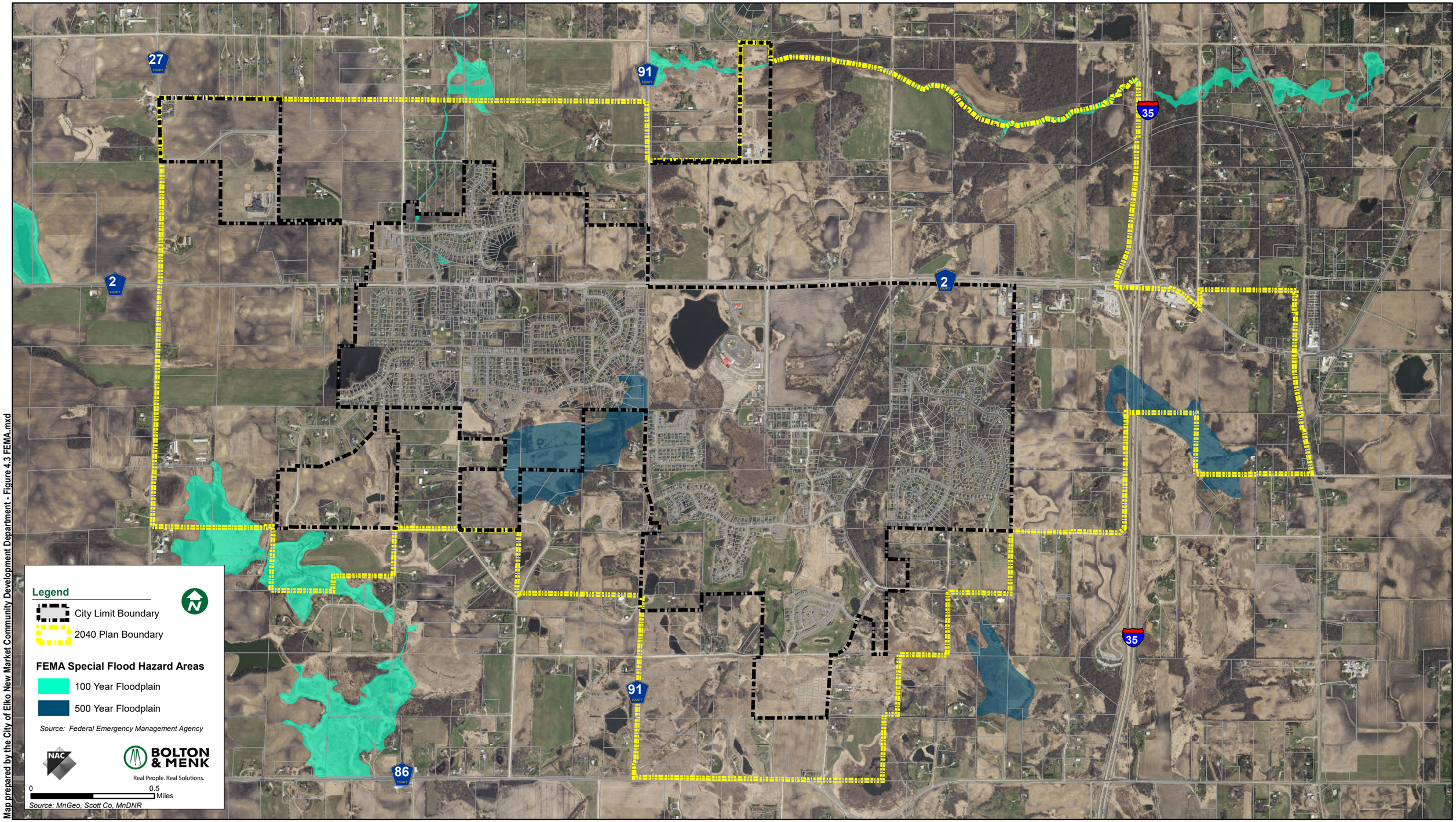
Map prepared by the City of Elko New Market Community Development Department - Figure 4.2 NWI.mxd

2040 Comprehensive Plan

Elko New Market, MN

(FEMA) Flood Hazard Boundaries

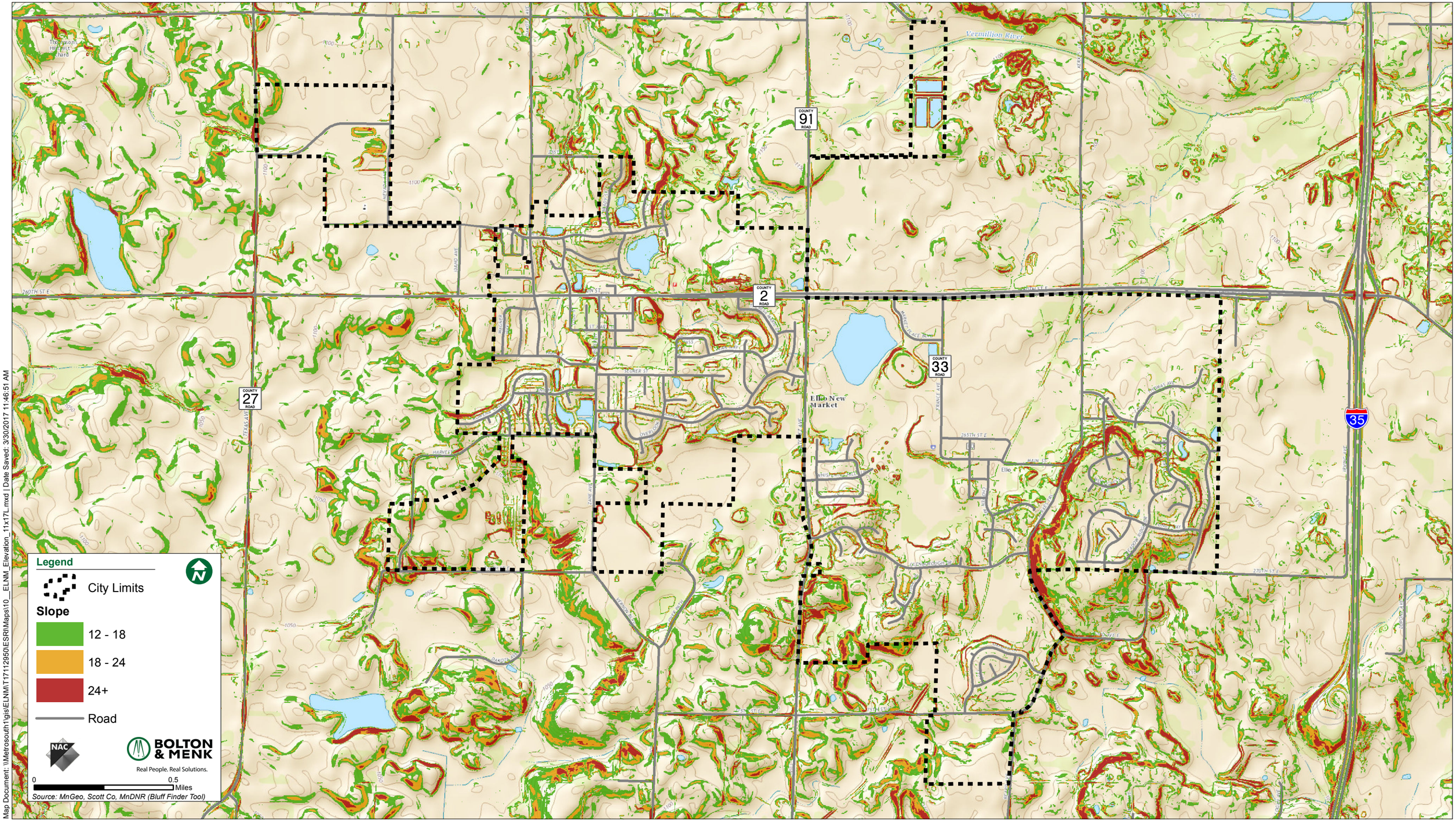
Figure 4.3



Map prepared by the City of Elko New Market Community Development Department - Figure 4.3 FEMA.mxd

Elevation & Slope

Figure 4.4

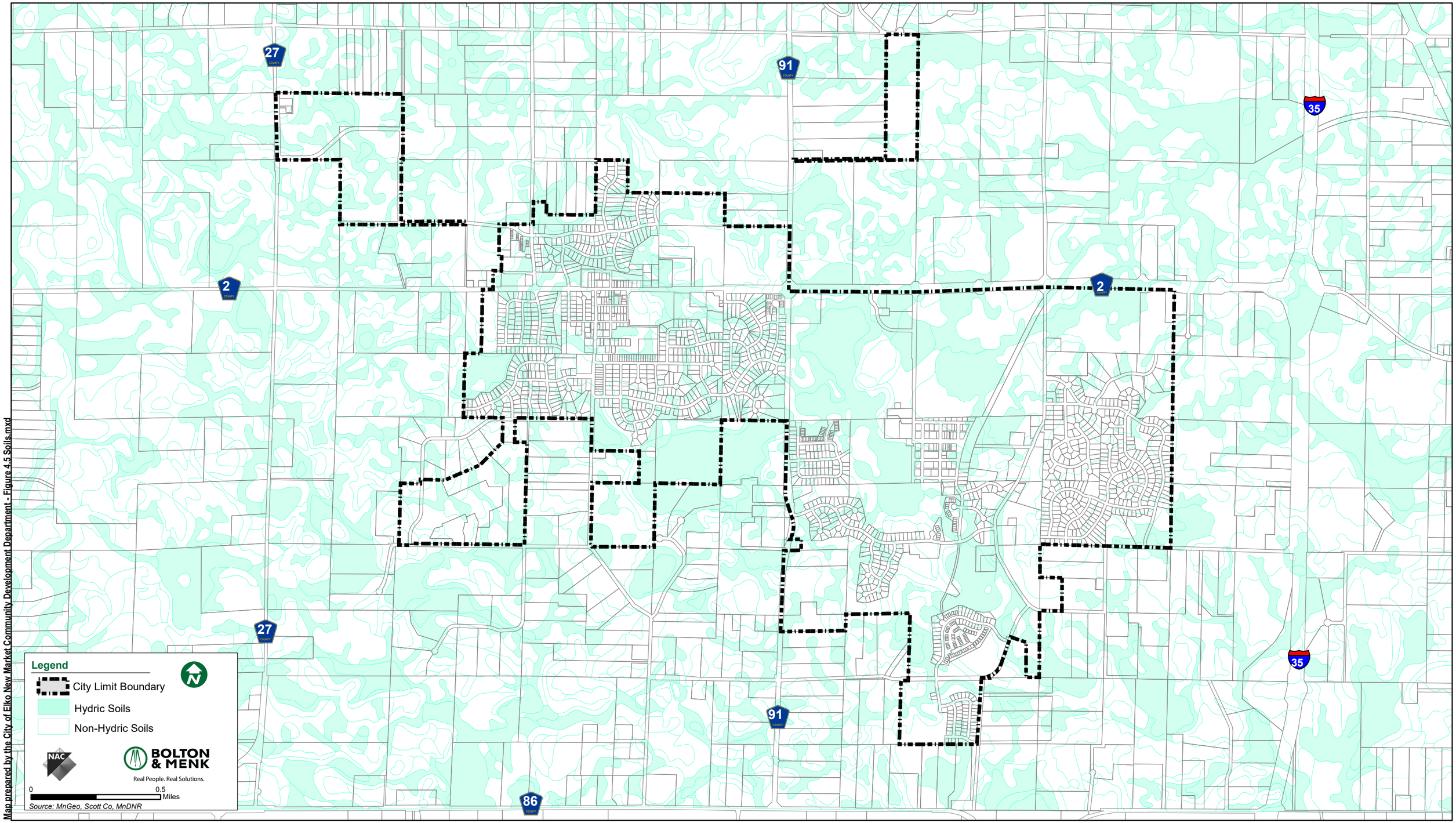


2040 Comprehensive Plan

Elko New Market, MN

Soils

Figure 4.5



Map prepared by the City of Elko New Market Community Development Department - Figure 4.5 Soils.mxd

Scott County 2040 Comprehensive Plan Update

County Defined Natural Area Corridors

Legend

Natural Area Corridor

Municipalities

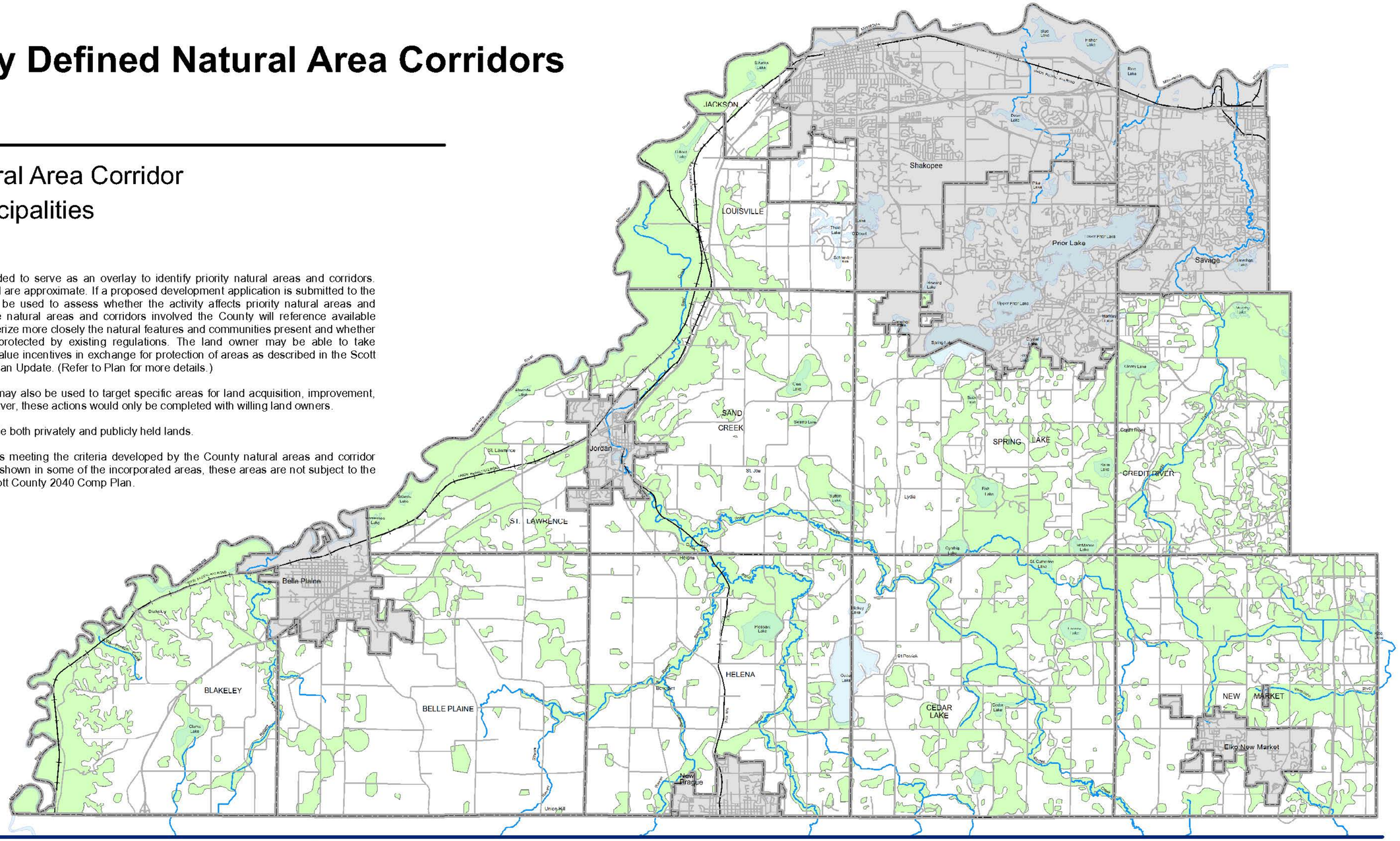
Note:

1) This map is intended to serve as an overlay to identify priority natural areas and corridors. Boundaries presented are approximate. If a proposed development application is submitted to the County this map will be used to assess whether the activity affects priority natural areas and corridors. If there are natural areas and corridors involved the County will reference available databases to characterize more closely the natural features and communities present and whether the land is already protected by existing regulations. The land owner may be able to take advantage of public value incentives in exchange for protection of areas as described in the Scott County 2040 Comp Plan Update. (Refer to Plan for more details.)

2) This overlay map may also be used to target specific areas for land acquisition, improvement, and restoration. However, these actions would only be completed with willing land owners.

3) Areas shown include both privately and publicly held lands.

4) While priority areas meeting the criteria developed by the County natural areas and corridor planning process are shown in some of the incorporated areas, these areas are not subject to the approaches in the Scott County 2040 Comp Plan.



SCOTT COUNTY COMMUNITY SERVICES DIVISION
Planning & Zoning Administration
200 Fourth Avenue West, Shakopee, Minnesota 55379-1220
(952) 496-8653 - Fax (952) 496-8496 - Web: scottcountymn.gov

0 0.5 1 2 3 4 5
Miles

This map is neither a legally recorded document nor a survey and is intended for planning purposes only. Delineations may not be exact.

Prepared by: Scott County Zoning Administration, December 1, 2017

Z:\2040 Comp Plan\NaturalAreaCorridors.mxd

Figure 4.7

Regionally Significant Terrestrial and Wetland Ecological Areas*

For more information, contact:

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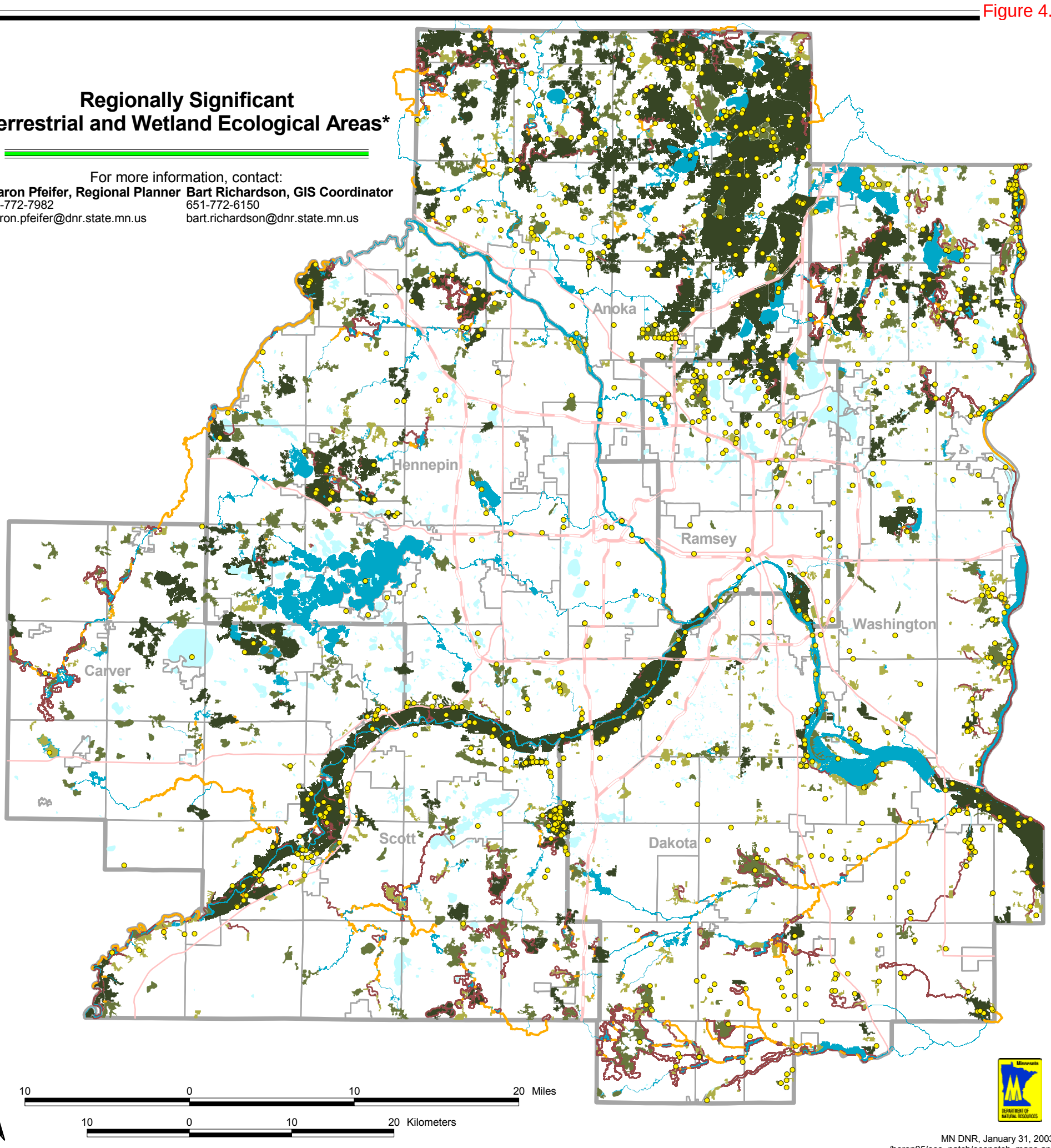


MN DNR, January 31, 2003
/heron05/eco_patch/ecopatch_maps.apr

Ecological Score*+

Regionally Significant Ecological Areas were given a score of 1, 2, or 3 (3 being the highest possible score) based on how well continuous natural areas met standards for size, shape, connectivity, adjacent land use, and species diversity.

3 - *These areas tend to be larger in size, and/or with few adjacent land cover types or land uses that could adversely affect the area; may have greater diversity of vegetation cover types; or it may be an isolated native plant community mapped and given a score of outstanding biodiversity significance by the Minnesota County Biological Survey.*

2 - *These areas tend to be moderate in size and/or with more adjacent land cover types or land uses that could adversely affect the area; may have less diversity of vegetation cover types; or it may be an isolated native plant community mapped and given a score of high biodiversity significance by the Minnesota County Biological Survey.*

1 - *These areas tend to be smaller in size while still meeting the minimum size requirements for regional significance (minimum size is variable based on cover type); may have less diversity of vegetation cover types; may have more adjacent cover types or land uses that could adversely affect the area; or it may be an isolated native plant community mapped and given a score of moderate biodiversity significance by the Minnesota County Biological Survey.*

River and Stream Corridors*+

Shortest-distance paths in and along rivers, streams, lakes, and wetlands that connect at least two RSEAs.

Terrestrial Species Routes
link upland derived RSEAs using natural/ semi-natural vegetation cover along the banks of open water.

Aquatic Species Routes
link wetland derived RSEAs using any open water (streams, rivers, or lakes).

Sections where Routes Coincide

Rare Species and Animal Aggregations**+

Mapped by the Minnesota County Biological Survey

Animals and plants, federally- or state-listed, found after 1970, excluding aquatic species.

Open Water

Interstate Highway

Federal Trunk Highway

Municipal Boundary

County Boundary

*Copyright 2003, Minnesota Department of Natural Resources.

The Regionally Significant Terrestrial and Wetland Ecological Areas (RSEA) are derived from a modeling process that predicts the likelihood that regionally significant natural resources exist in a contiguous area. These areas must meet specific criteria that were established to qualify an area as regionally significant (size, shape, connectivity, adjacent land use, and species diversity). The River and Stream Corridors show connections via rivers, streams, lakes, and wetlands for the RSEAs. The data for the modeling process was compiled from several different sources and its completeness or total accuracy cannot be guaranteed. The data and products have not been ground truthed. NOTE: The Terrestrial and Wetland Ecological Assessment does not model for aquatic species, although some aquatic features appear in the results. The Metropolitan Council, in association with DNR staff is undertaking a separate Aquatic Ecological Assessment.

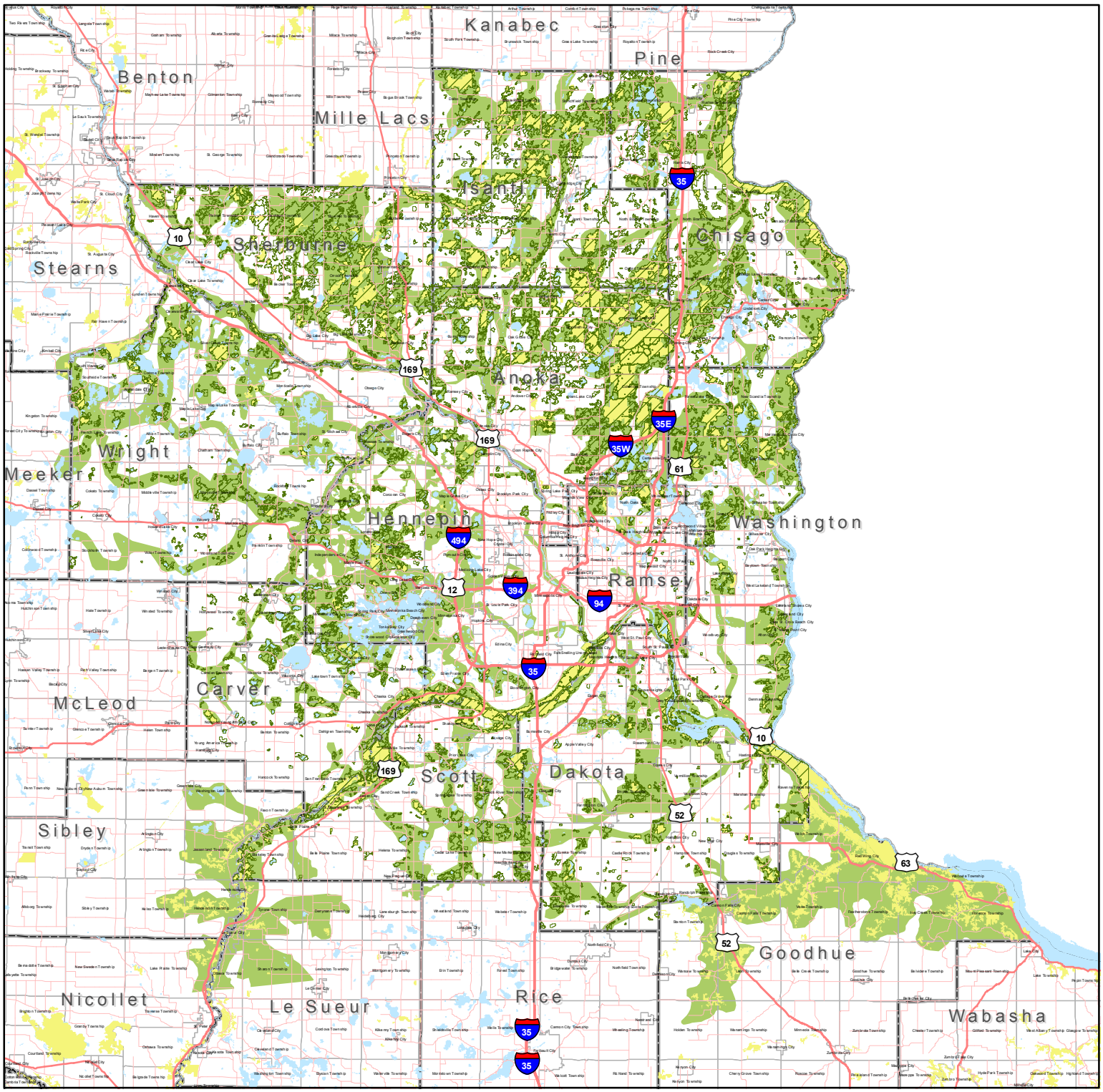
**Copyright 2003, Minnesota Department of Natural Resources.

Rare features data included here were provided by the Natural Heritage and Nongame Research Program of the Division of Ecological Services, Minnesota Department of Natural Resources (DNR), and were current as of January 31, 2003. These data are not based on an exhaustive inventory of the state. Permission to use these data does not imply endorsement or approval by the DNR of any interpretations or products derived from the data.

+There may be inaccuracies in the data or which the DNR is not aware and for which the DNR will not be held responsible.
The lack of data for any geographic area shall not be construed to mean that no significant features are present.

Metro Conservation Corridors - 2007

Figure 4.8



Metro Conservation Corridors

Regionally Significant Ecological Areas

MCBS Sites of Biodiversity Significance

Lake, Pond, Stream, River

Interstate Highways

Secondary Highways

County Roads

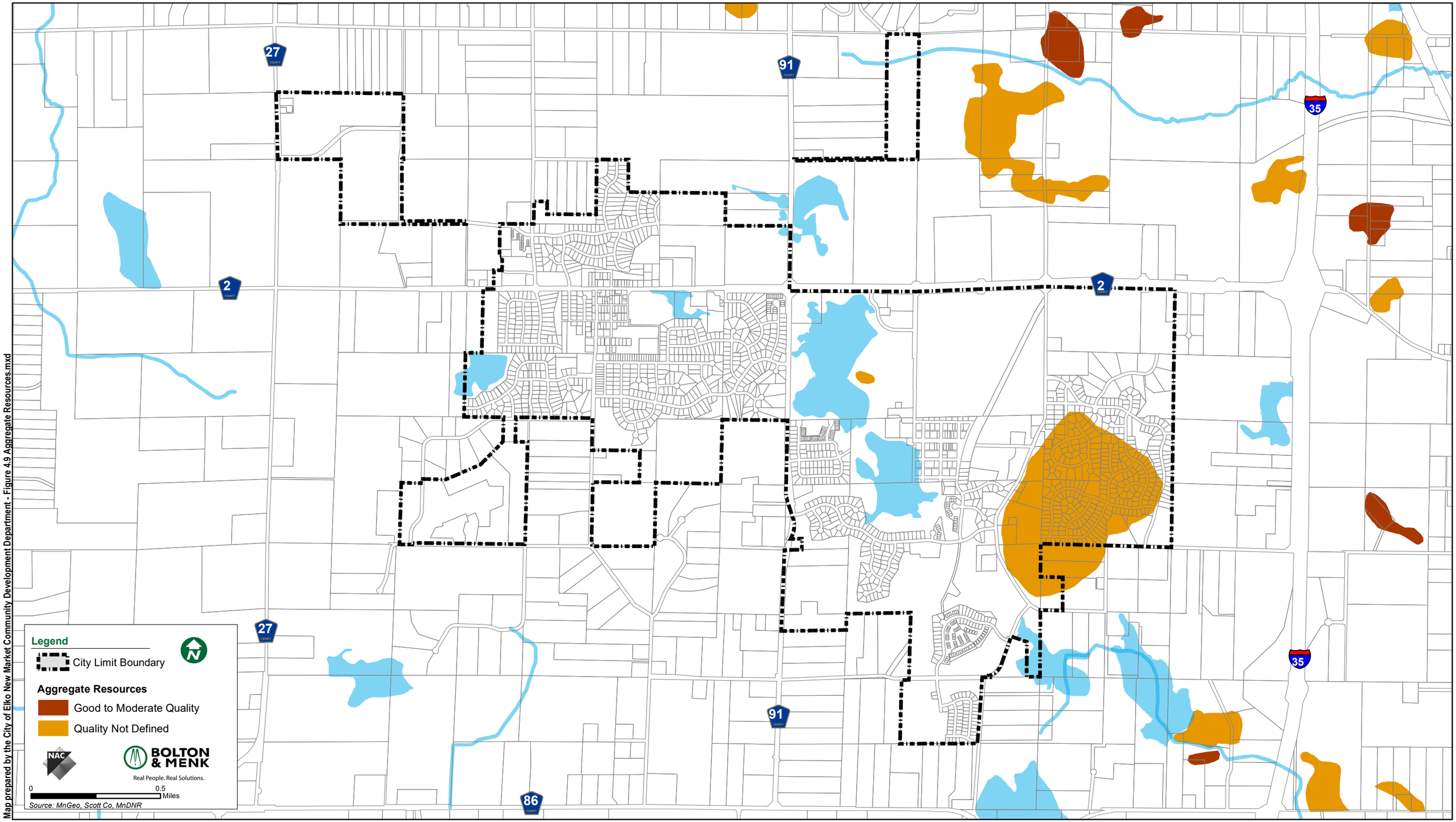
County Boundaries

DNR Central Region
2008

2040 Comprehensive Plan

Elko New Market, MN

Aggregate Resources
Figure 4.9



Map prepared by the City of Elko New Market Community Development Department - Figure 4.9 Aggregate Resources.mxd

INTRODUCTION

In order to analyze future housing, park and recreation, utility and transportation needs of the City of Elko New Market, it is important to review historic trends that have occurred and development assumptions for the future growth of the community. This Demographic Inventory documents the existing conditions and the type, amount and pattern of growth that has taken place within the City. It provides an informational base which will be used to identify issues and planning policies. With the help of a solid information base, decision-makers can evaluate and guide proposals in the short term (to benefit the residents of Elko New Market and the surrounding area), while fulfilling the City's long term goals and objectives.

The information contained in this chapter has been obtained through statistical data released by the United States Census Bureau, the Minnesota State Demographic Center, Scott County, the Metropolitan Council, and the City of Elko New Market.

Summary

- **Population**. The 2010 Census population for the City of Elko New Market was 4,110 persons, an increase of 411% over the 2000 Census population of 804.

- **Future Population**. The Comprehensive Plan update projects and plans for the future population of Elko New Market to be approximately 6,100 in 2020, 8,600 in 2030, and 11,900 in 2040.

- **Housing**. The number of housing units increased from 286 in 2000 to 1,259 in 2010, a 440% increase.

- **Household Size**. The average household size in 2010 was 3.26 person, which is forecasted to decrease to 2.7 persons by 2040.

- **Future Housing and Households**. This Comprehensive Plan projects that the City will have 3,030 housing units in 2030 and 4,400 housing units in 2040. Due to the aging demographics it is projected that the household size will decrease to 2.7 persons per household by 2040.

- **Age**. The City had a median age of 30.9 in 2000, compared to a median age of 30.4 in 2010. Elko New Market's median age in 2010 was nearly seven years younger than the median age in Minnesota (37.4) and the United States (37.2).

- **Median Household Income**. The 2010 Census median household income in Elko New Market was $90,071. Census estimates for median household income had grown to $105,042 by 2015.

- **Employment**. The 2010 Census estimated the local employment to be 317, which is forecasted to increase to 1,940 by 2040.

- **Travel Time to Work**. According to the 2010 Census, workers in Elko New Market traveled a mean travel time of 31.2 minutes to work. This travel time remained the same for 2015 Census Bureau estimates.

SOCIO-ECONOMIC PROFILE

Since the completion of the 2030 Comprehensive Plan in 2008, the City of Elko New Market has experienced modest population growth. While the timing and rate of future growth is uncertain, future population growth is expected to occur. With this in mind, the City's Comprehensive Plan remains an important tool in planning for and managing future growth.

Population and Household Growth

Population, Households and Household Size. Table 5-1 displays population and household growth trends for the City of Elko New Market from 2000 to 2010, along with estimates for 2015 provided by the State Demographer's office. Projections for 2020, 2030 and 2040 as provided by the Metropolitan Council.

The Census information reveals that Elko New Market added 3,306 people and 973 households between 2000 and 2010. For 2015, the State Demographer estimated a population of 4,555 persons with 1,399 households.

The Metropolitan Council, as part of the *Thrive MSP 2040* regional development guide, provides forecasts for population, households and employment for each community in the seven-county Metropolitan Area. The forecasts directed by the Metropolitan Council are intended to serve as a basis for future community planning. For the year 2040, the Metropolitan Council forecasts a population of 11,900 and a declining household size of 2.7 persons per household.

To be noted is that, in the City's 2030 Comprehensive Plan, the Metropolitan Council forecasted a 2030 population of 20,800 persons, which contrasts sharply to the new forecast of 8,600 persons for the year 2030. The dramatic reduction in population reflects the economic downturn which occurred in Elko New Market since the completion of the 2030 Plan. The City is however, expected to see continued growth based on the City's proximity to the metro area and available land supply, utility infrastructure and improved arterial roadways that provide convenient access for residents and businesses.

Also to be noted is that a significant decrease in household size is forecasted between 2010 and 2040 (from 3.26 persons to 2.7 persons per household). This household size reduction is likely

reflective of an aging demographic and an expected increase in retirement age households and the national trend of declining birth rates.

Table 5 - 1

Elko New Market Population and Households 2000 to 2040						
	U.S. Census		State Demographer Population Estimate	Metropolitan Council Forecasts		
	2000	2010	2015	2020	2030	2040
Population	804	4,110	4,555	6,100	8,600	11,900
Households	286	1,259	1,399	2,000	3,030	4,400
HH Size	2.81	3.26	3.26	3.05	2.84	2.70
Sources: U.S. Census Bureau, MN State Demographer and the Metropolitan Council						

Comparison to Scott County Cities. Table 5-2 provides a comparison between the populations of Scott County Cities and the City of Elko New Market. As shown, the City of Elko New Market experienced an overwhelming percentage of growth from 2000 to 2010, and has maintained a consistent percentage of Scott County's population between 2010 and 2015 at approximately three percent of the total County population.

Table 5 - 2

Elko New Market vs. Scott County Area Cities Population 2000 to 2015				
	U.S. Census		Percent Growth	State Demographer Estimate
	2000	2010	2000 to 2010	2015
Belle Plaine	3,789	6,661	75.8	6,742
Elko New Market	**804**	**4,110**	**411.2**	**4,555**
Jordan	3,833	5,470	42.7	6,150
New Prague	4,559	7,321	60.6	7,508
Prior Lake	15,917	22,796	43.2	25,049
Savage	21,115	26,911	27.4	30,024
Shakopee	20,568	37,076	80.3	40,254
Scott County Total (includes Townships)	89,498	129,928	45.2	140,898
Elko New Market Percent of County (%)	0.8	3.16		3.23
Sources: U.S. Census Bureau and Metropolitan Council				

Residential Building Permits. Table 5-3 illustrates annual building permits issued for new home construction from 2007 through 2016. During this period, Elko New Market added 268 new housing units. Building permit activity was inconsistent as years having significant building

permit activity (i.e. 2010 and 2013) were oftentimes followed by years of minimal residential development activity.

Table 5 - 3

Elko New Market Building Permits Issued for Residential Dwelling Units 2007 to 2016			
		Annual Increase	
Year	Number of Permits	Change In Number From Previous Year	Percent (%)
2007	51	-90	----
2008	15	-36	-71
2009	10	-5	-3
2010	68	58	580
2011	4	-64	-94
2012	27	23	575
2013	40	13	48
2014	18	-22	-55
2015	14	-4	-22
2016	21	7	50
Total	**268**	**----**	**----**
Sources: Metropolitan Council Residential Building Permit Survey and City of Elko New Market			

Expectant Growth Factors. The City of Elko New Market has and is projected to continue to grow at a moderate pace. Factors which contribute to Elko New Market's expectant growth include the following:

Proximity to Twin Cities Urban Core. The outer-ring suburbs of the Twin Cities Metropolitan Area and beyond experienced rapid growth during the 1990s as the Metropolitan Area continued to expand outward. While not to the same degree as growth during the 1990's, this outward growth trend is expected to continue.

Access to Regional Employment and Commuter Routes. Elko New Market's proximity to the Twin Cities Metropolitan Area provides residents with a multitude of employment opportunities within a reasonable commuting distance from their homes. Employment opportunities within the Metropolitan Area are easily accessible to residents due to the City's proximity to Interstate 35.

Vacant Land Supply. A healthy supply of vacant land is available for development in the Elko New Market area. The City's existing 2030 MUSA (between the current City limits and 2030 MUSA boundary) contains approximately 2,500 acres (upland) of vacant land which is guided for future urban development.

Small Town Character. Because Elko New Market is less populated and less developed, it offers residents the appeal of a small town but with the services and amenities of a large metropolitan area in relatively close proximity.

Age of Population

Table 5-4 summarizes the age of Elko New Market's population. The table indicates that the City has continued to have a relatively young population since 2000, with the median age ranging from 30.9 in 2000 to 31.8 in 2015. Having a high "under 40" population indicates the existence of many families in the community. This is supported by the fact that the greatest increases in population from 2000 to 2010 occurred among those under age 10. This younger age group places demands on the City for resources including schools, parks, and a variety of housing options.

Elko New Market also has a large, older work force population, those between the ages 30 to 64. It is believed that the lack of alternative housing options in the City (apartments, townhomes and low-income housing) has contributed to the limited number of young adults (age 20-29) who reside in the City.

While the 2010 Census data suggests that the City does not have a lot of older adults and seniors (those ages 65 and over), it is important to note that the senior population of the Market Village senior housing project (constructed in 2011), had not been considered in the U.S. Census Bureau information. It should be recognized that 49 senior living units have been added to the City's population since 2010.

Table 5 - 4

Elko New Market Population by Age 2000 to 2010						
	2000		2010		% Change 2000 - 2010	2015
	Population	Percentage	Population	Percentage		Population
School Age						
Under 5 years	39	4.9	511	12.4	1,210.3	490
5 to 9 years	73	9.1	511	12.4	600.0	524
10 to 14 years	61	7.6	365	8.9	498.4	428
15 to 19 years	36	4.5	226	5.5	527.8	197
Work Force						
20 to 24 years	41	5.1	140	3.4	241.5	227
25 to 29 years	80	10.0	268	6.5	235.0	699
30 to 34 years	102	12.7	511	12.4	401.0	
35 to 39 years	101	12.6	488	11.9	383.2	918
40 to 44 years	56	7.0	359	8.7	541.1	
45 to 49 years	40	5.0	284	6.9	610.0	617
50 to 54 years	42	5.2	151	3.7	259.5	
55 to 59 years	22	2.7	97	2.4	340.9	135
60 to 64 years	20	2.5	88	2.1	340.0	94
Retired						
65 to 69 years	12	1.5	50	1.2	316.7	164
70 to 74 years	9	1.1	30	0.7	233.3	
75 to 79 years	6	0.7	16	0.4	166.7	36
80 to 84 years	9	1.1	6	0.1	-33.3	
85 and over	8	1.0	9	0.2	12.5	0
Total	**804**		**4,110**			
Median Age	**30.9**		**30.4**			**31.8**
Source: U.S. Census Bureau						

Household Income

Comparison to Scott County. Table 5-5 provides a summary of Elko New Market's 2010 household income as well as a comparison of household income to Scott County for the same year. Per the 2010 Census, the greatest percentage of households in Elko New Market (37.2 percent) had household incomes between $100,000 and $149,999. In comparing the City's household income levels to Scott County, the County had noticeably greater percentages of its households which had incomes less than $50,000. Also included in Table 5-5 is a 2015 household income estimate from the Census Bureau which shows growth in the percentages of households of incomes between $75,000 to $149,999.

Table 5 - 5

	Elko New Market vs. Scott County Household Income 2010				Elko New Market Household Income 2015 Estimate	
	Scott County		City of Elko New Market		City of Elko New Market	
	Households	Percent of Total (%)	Households	Percent of Total (%)	Households	Percent of Total (%)
Less than $10,000	1,094	2	15	1	16	1
$10,000 to $14,999	888	2	0	---	0	0
$15,000 to $24,999	2,570	6	68	5	67	5
$25,000 to $34,999	2,523	5	0	---	0	0
$35,000 to $49,999	3,953	9	103	7	65	4
$50,000 to $74,999	8,380	18	263	19	235	16
$75,000 to $99,999	7,510	16	287	20	321	22
$100,000 to $149,999	10,492	23	523	37	595	40
$150,000 to $199,999	4,931	11	105	8	86	6
$200,000 or more	3,873	8	41	3	90	6
Total	**46,214**	**100**	**1,405**	**100**	**1,475**	**100**
Source: U.S. Census Bureau						

Median Income. Table 5-6 displays the median household income for the City of Elko New Market for 2010, 2014 and 2015 as well as a comparison to Scott County. As shown, the median household income in the City in 2015 was $105,042. This income figure was notably higher than the median income for Scott County ($87,794) in the same year.

The higher median incomes in Elko New Market compared to Scott County can likely be attributed primarily to the age of the City's population. Most of Elko New Market's population consists of adults and older adults ages 35 to 50. Most adults reach their peak earning years between ages 45 to 54. This demonstrates that many residents in Elko New Market are in their peak earning years. The data also suggests that the City of Elko New Market has continued an influx of population from higher earning households (in comparison to Scott County).

Table 5 - 6

Elko New Market vs. Scott County Median Household Income 2010, 2014 and 2015			
	2010	2014	2015
City of Elko New Market	$90,071	$97,131	$105,042
Scott County	$82,190	$86,510	$87,794
Sources: U.S. Census Bureau and U.S Dept. of Labor – Bureau of Labor Statistics			

Education and Schools

Districts. Elko New Market is located within two school districts, Lakeville Public Schools ISD 194, and New Prague Public Schools ISD 721. Areas of the City generally east of County Road 91 lie within the Lakeville School District while areas west of County Road 91 lie within the New Prague School District.

All the Lakeville School District's buildings are located within the City of Lakeville (approximately 10 minutes from Elko New Market). Students who reside on the east side of the City attend John F. Kennedy Elementary School, McGuire Middle School, and Lakeville South High School.

The New Prague Public School District serves the Cities of New Prague, Lonsdale, Elko New Market and the unincorporated community of Veseli. The School District's high school and middle school are located in the City of New Prague (approximately 10 minutes from Elko New Market). Students who reside on the City's west side attend Eagle View Elementary School, New Prague Middle School and New Prague High School. To be noted is that the Eagle View Elementary School site has been designed to accommodate a middle school at some future point.

School district boundaries are depicted on Figure 5.1.

Educational Attainment. Table 5-7 displays education levels attained by Elko New Market residents age 25 and over. According to the 2015 Census Bureau estimates, 99.2 percent of Elko New Market's population over the age of 25 completed high school and 49.2 percent obtained a post-secondary degree. The Census Bureau data indicates that the number of Elko New Market residents that hold bachelor and graduate degrees increased 13.2 percent between 2010 and 2015.

Table 5 - 7

Elko New Market
Educational Attainment
Age 25 and Over

	2010		2015	
	Number of People	**% of Total**	**Number of People**	**% of Total**
Less than 9th grade	17	1	5	.2
9th to 12th grade, no diploma	47	2	16	.6
High school graduate (includes equivalency)	485	23	423	15.9
Some college, no degree	497	24	543	20.4
Associate's degree	302	14	367	13.8
Bachelor's degree	625	29	875	32.9
Graduate or professional degree	151	7	434	16.3
Total	**2,124**	**100**	**2,663**	**100.0**

* Includes equivalent (i.e., GED)

Source: U.S. Census Bureau

Employment

Growth. Table 5-8 displays forecasted employment growth for the City of Elko New Market and Scott County. As shown, the City of Elko New Market is anticipated to have 1,630 people employed in the City by 2020 and 1,940 employed by the year 2040. The forecasted increase in local employment between 2010 and 2020 (1,313) is considered significant. This is likely due to jobs which are expected to be created in association with Interstate 35 area development.

Table 5 - 8

Elko New Market vs. Scott County
Employment Growth
2000 to 2030

	2010	2020	2030	2040	Percent Change 2010 – 2040 (%)
Elko New Market	317	1,630	1,780	1,940	512
Scott County	41,545	54,900	61,990	68,440	65

Source: Metropolitan Council

Workforce Occupations. Table 5-9 displays occupations of the City's work force as provided by the U.S. Census. The table indicates that education, professional and retail jobs were the most predominant occupations for Elko New Market residents in 2010. The 2015 estimates indicate that education, manufacturing and retail jobs were most predominant occupations.

Table 5 - 9

Elko New Market
Employment by Industry
Workers Age 16 and Over

	2010		2015 Estimate	
Occupation	**No. of Persons**	**Percent of Total (%)**	**No. of Persons**	**Percent of Total (%)**
Agriculture, forestry, fishing and hunting, and mining	0	0	29	1.1
Construction	160	8	117	4.5
Manufacturing	214	11	330	12.8
Wholesale Trade	44	2	195	7.6
Retail Trade	247	12	305	11.8
Transportation and warehousing, and utilities	151	8	180	7
Information	22	1	47	1.8
Finance, insurance, real estate and rental and leasing	229	11	127	4.9
Professional, scientific, management, administrative	325	16	256	9.9
Educational, health and social services	378	19	569	22
Arts, entertainment, recreation, accommodation, food	171	8	212	8.2
Public administration	40	2	172	6.7
Other services	41	2	42	1.6
Total	**2,022**	**100**	**2581**	**100.0**

Source: U.S. Census Bureau

Commuter Times. Table 5-10 below displays travel time to work for Elko New Market residents for 2010 and 2015. In 2010 approximately 59 percent of Elko New Market's residents commuted 30 minutes or more to work, and in 2015 approximately 56 percent of Elko New Market residents commuted 30 minutes or more to work. Such travel times are understandable recognizing that Elko New Market is considered a "bedroom" community (to the Twin Cities Metropolitan Area) and that most residents who live in the City must drive a significant distance to their places of employment.

Table 5 - 10

Elko New Market
Travel Time to Work
Workers Age 16 and Over

	2010		2015	
Travel Time to Work	**Number of Persons**	**Percent of Total (%)**	**Number of Persons**	**Percent of Total (%)**
Less than 10 minutes	109	5.7	142	5.7
10 to 14 minutes	41	2.2	154	6.2
15 to 19 minutes	184	9.6	184	7.4
20 to 24 minutes	231	12.0	333	13.4
25 to 29 minutes	231	12.0	278	11.2
30 to 34 minutes	401	20.9	579	23.3
35 to 44 minutes	312	16.3	450	18.1
45 to 59 minutes	282	14.7	209	8.4
60 minutes or more	127	6.6	159	6.4
Total	**1,918**	**100.0**	**2,487**	**100.0**

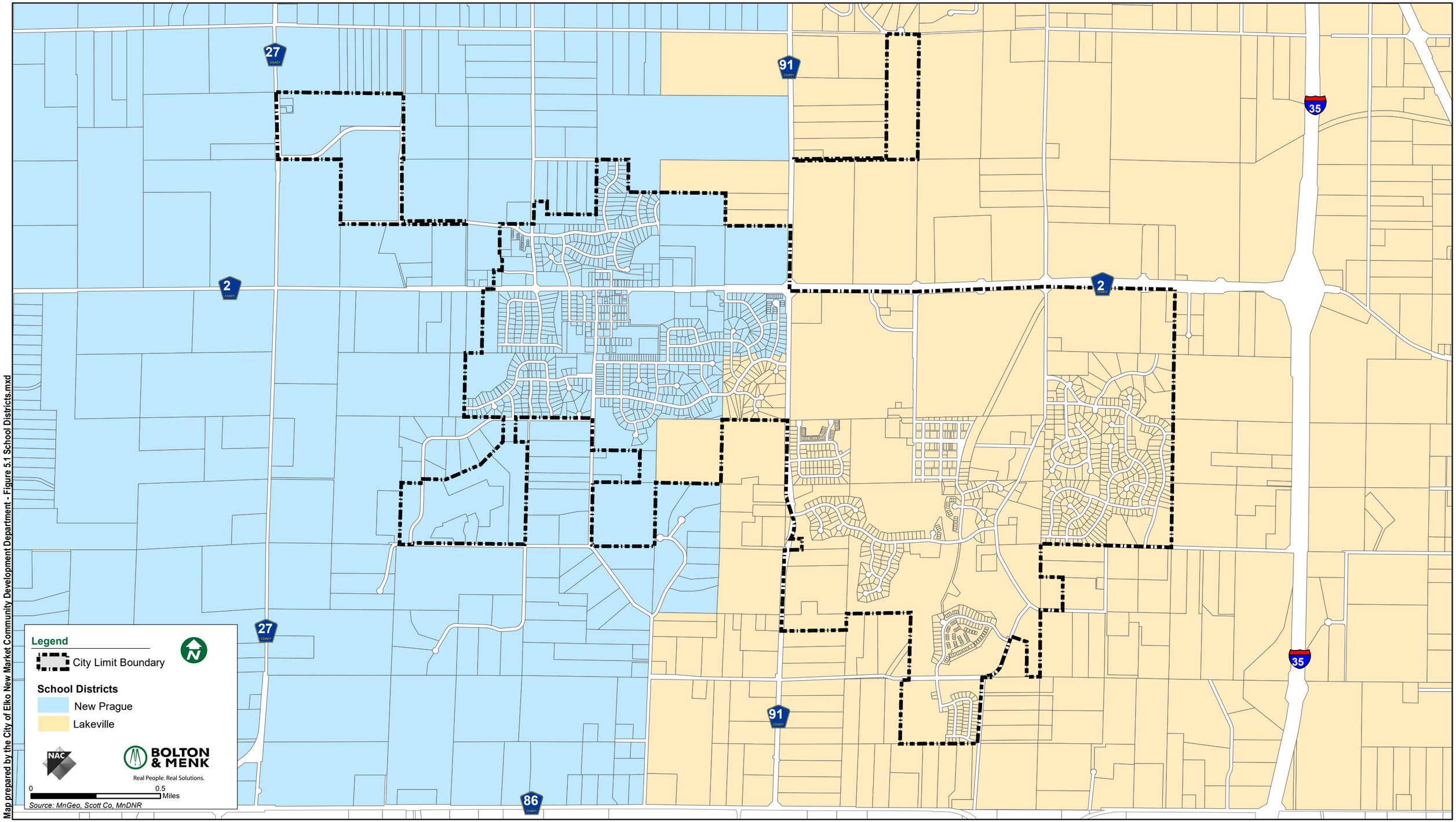
Source: U.S. Census Bureau

2040 Comprehensive Plan

Elko New Market, MN

School District Boundaries

Figure 5.1



Map prepared by the City of Elko New Market Community Development Department - Figure 5.1 School Districts.mxd

INTRODUCTION

The Land Use Plan guides and directs future land uses within the City of Elko New Market through the year 2040. The Land Use Plan is a narrative and graphic description that provides the background and rationale for land use designations as represented on the 2040 Land Use Plan Maps. The Land Use Plan also holds an educational and decision-making function by helping to improve the general understanding of how continued City growth is expected to occur.

GROWTH MANAGEMENT

Thrive MSP Regional Development Guide Directives

The Metropolitan Council's *Thrive MSP 2040* regional development guide designates the City of Elko New Market as a "Rural Center." Based on this designation, the Metropolitan Council has established certain land use-related expectations for the City as described in the Policy Plan chapter.

Goals and Policies

As indicated in the Metropolitan Council Policy Plan, an established goal of the City of Elko New Market is to promote growth strategies for orderly and efficient land use which are consistent with the *Thrive MSP 2040* regional development guide. With this in mind, growth expectations as described in the Policy Plan chapter have been integrated into the City's growth management policies as provided below:

1. Plan for forecasted population and household growth at overall average densities of at least 3-5 units per acre (for new development and redevelopment).

2. Strive for higher-density commercial uses and compatible higher-density residential land uses in the commercial core of the community to ensure efficient uses of existing infrastructure investments.

3. Work with adjacent jurisdictions to execute orderly annexation agreements where forecasted growth exceeds land capacity within existing City boundaries.

4. Work to focus forecasted growth in areas with existing infrastructure capacity to protect existing farm land and prime agricultural soils for the long term.

5. Adopt ordinances that coordinate development with infrastructure availability.

6. Identify areas that will accommodate post-2040 growth forecasts and implement strategies to preserve these areas for future growth and plan for necessary infrastructure improvements.

7. Collaborate with abutting counties and townships, as necessary, to ensure that near-term development outside of the City's 2040 MUSA boundary (but within the ultimate MUSA boundary) does not hinder long-term urbanization objectives for the area.

8. Maintain development projects within the limitations assigned to the City by regional agencies (i.e. the Minnesota Pollution Control Agency and/or the Metropolitan Council) regarding public utility availability and potential sewer discharge.

9. Require developers or benefiting property owners to assume all or the significant majority of the improvement/service costs, and agree to pay assessments associated with extending service to their property.

10. Deny development or subdivision applications that qualify as premature based on nonconformity with this Comprehensive Plan or the City's Zoning and/or Subdivision Ordinances relative to:

    - Infill policies
    - Adequacy of roads or highways serving the subdivision or development
    - Adequacy of stormwater management or treatment facilities
    - Adequacy of safe water supply
    - Adequacy of safe sewage disposal system
    - Adequacy of support facilities (i.e. police, fire, schools, parks, etc.)
    - Consistency with environmental protection policies or regulations
    - Consistency with the City's five-year Capital Improvement Program

Undesignated MUSA Reserve (2040 MUSA)

In 2005, the former Cities of Elko and New Market entered into an "undesignated Metropolitan Urban Service Area (MUSA) reserve" agreement with the Metropolitan Council. This agreement, which was subsequently applied to the merged City of Elko New Market, is intended to help manage existing and anticipated growth in the Elko New Market area. The agreement provides the City the opportunity to designate the acreage, types and density of land uses, and local/regional service levels for each five-year stage to the year 2040, with the exact location of each stage unspecified. As part of this staging option, an undesignated MUSA reserve boundary is mapped, but the timing of when and where a parcel is considered developable is driven by the ability to respond to market forces in a controlled manner not by a fixed staging area. By not designating the specific developable parcels by stage in advance, the community may reduce the problems associated with landowners withholding development on land designated for urban services, thereby driving up land prices. The undesignated MUSA reserve boundary (2040 MUSA) is illustrated on Figure 6.1.

The following growth management-related conditions, as identified in Elko New Market's 2030 Comprehensive Plan and part of the City's 2005 agreement with the Metropolitan Council, will continue to be identified as part of the 2040 Comprehensive Plan Update:

1. **The development at each stage will be built at or above the negotiated densities.**

   The Metropolitan Council has forecasted a total of 4,400 households and a population of 11,900 persons for the 2040 planning period. Considering that the City of Elko New Market has experienced extremely limited population growth since the adoption of the 2030 Plan in 2008, it is anticipated the existing acreage allocations within the existing undesignated MUSA reserve will accommodate residential land demands through the 2040 planning period. The City expects residential densities to be 3 or more units per acre.

2. **New development is contiguous to the current urban service area**

   According to the 2030 Regional Development Framework, "achieving a connected land use pattern that can be served efficiently and economically with urban services will be more important than adherence to regulatory requirements such as making new growth contiguous with existing development." This policy is considered relevant to the 2040 Comprehensive Plan Update, recognizing that extraordinary circumstances may exist that warrant development and corresponding infrastructure that may not necessarily be contiguous to the existing urban service area. Such circumstances may include the development of institutional uses that serve a public good such as schools and/or public health and safety facilities. Other such circumstances may include the development of highway dependent commercial uses along I-35 that positively influences the development of other uses within the community. This Plan supports this policy as a means of managing the pace of growth and the City's investment in public infrastructure.

3. **Development at each stage can be accommodated within the planned capacity of the regional sewer system.**

   The expansion of the Empire Waste Water Treatment Plant service area and the City's connection to the Metropolitan interceptor (2011) provided the City adequate capacity to accommodate the forecasted development within the 2040 undesignated MUSA reserve boundary.

4. **The local community adopts a premature subdivision ordinance.**

   The Elko New Market Subdivision Ordinance includes provisions related to premature development. Such provisions ensure that development proceeds in an orderly fashion by denying development or subdivision applications that qualify as premature based on non-conformity with this Comprehensive Plan or the City's Zoning and/or Subdivision Ordinances relative to:

   - *Infill policies*
   - *Adequacy of roads or highways serving the subdivision or development*
   - *Adequacy of stormwater management or treatment facilities*
   - *Adequacy of safe water supply*

- *Adequacy of safe sewage disposal system*
- *Adequacy of support facilities (i.e. police, fire, schools, parks, etc.)*
- *Consistency with environmental protection policies or regulations*
- *Consistency with the City's five-year Capital Improvement Program*

5. **Local infrastructure implications for all potentially designated areas have been determined and candidate sites that fall outside the capability of the local community to implement - via its Capital Improvement Plan (CIP) or other approved financing plan - have been eliminated from consideration for development.**

   The Elko New Market Facility Plans specifically address sanitary sewers, water supply, surface water management and transportation issues. These plans have analyzed future needs of the community and included specific recommendations for infrastructure improvements where necessary. The undesignated MUSA reserve boundary has been established based on these plans and the ability for the City to efficiently service the area.

6. **The local community development program (for example, financial commitments, five-year CIPs) provides the requisite local service and infrastructure needs of the proposed development for each stage, preserving the planned capacity and service level in the regional highway system.**

   The Elko New Market Facility Plans specifically address sanitary sewers, water supply, surface water management and transportation issues. These plans have analyzed future needs of the community and included specific recommendations for infrastructure improvements where necessary. The undesignated MUSA reserve boundary has been established based on these plans and the ability for the City to efficiently service the area.

   In addition, as part of the implementation phase, the City of Elko New Market will update its local Capital Improvement Program (CIP) to be consistent with the Comprehensive Plan.

7. **Annual reporting of local use of the MUSA reserve and corresponding local CIP adjustments are required as a condition of agreement.**

   The City of Elko New Market agrees to provide the Metropolitan Council with an annual accounting of development projects in the City including expansions, type of development, location, number of units, acreage, net density, and associated flows.

8. **Timely notification of annexation proposals.**

   The City of Elko New Market agrees to provide the Metropolitan Council with timely notification of annexation. This is important to ensure proper communication between the City and the Metropolitan Council as well as notification of when the Ultimate Land Use Plan goes into effect.

Much of the land area outside the City of Elko New Market boundaries, but within the undesignated MUSA reserve, is currently guided Urban Expansion Area by the Scott County Land Use Plan, which designates residential densities of 1 unit per 40 acres (with a clustering option). As part of this Comprehensive Plan update, this same area has been analyzed as to the most appropriate land uses should public utilities be made available or the land area annexed into City jurisdiction. These proposed land use designations are illustrated on the City's 2040 Ultimate Land Use Plan. It is the intention of this Comprehensive Plan to preserve the areas currently outside the City boundaries in accordance with Scott County's Land Use Plan until such time that public utilities are made available or the area is annexed into the City. At such time, the City's Ultimate Land Use Plan (as may be amended) shall take precedence over the Scott County Land Use Plan.

EXISTING LAND USE INVENTORY

City of Elko New Market (Existing Municipal Boundary)

In total, the City of Elko New Market measures approximately 3.5 square miles in size and overlays 2,226.75 acres of land. Figure 6.2 and Table 6-1 identify existing land uses within Elko New Market's current municipal boundaries, as reported by the Metropolitan Council. Existing land uses in the City are primarily reflective of historic development patterns which occurred in the former Cities of Elko and New Market. The land use categories referenced below are those utilized by the Metropolitan Council. Excepting agricultural/undeveloped lands, single family detached residential uses are the most predominant use within the City. Such uses overlay 617 acres of land and 28 percent of the City's total land area. Multiple family residential uses make up the balance of the housing stock, representing two percent of the total acreage devoted to housing.

Commercial uses comprise only two percent of the City's land area (55 acres) and only four acres of land in the City are presently devoted to industrial uses.

Table 6 - 1

Elko New Market Existing Land Use (Acreage)		
Land Use	**Acres**	**% of Total**
Agricultural and Undeveloped	1,155.75	52%
Agriculture - 424 acres (19%)		
Undeveloped Land – 731.75 acres (33%)		
Residential	652	30%
Single Family Detached - 617 acres (28%)		
Multi-family - 35 acres (2%)		
Commercial	55	2%
Industrial	4	---
Institutional	79	4%
Park and Recreational	219	10%
Park, Recreational or Preserve - 88 acres (4%)		
Golf Course - 131 acres (6%)		
Mixed Use	1	---
Open Water Total	61	3%
Total	**2,226.75**	**100%**
Source: Met Council and NAC		

2040 Metropolitan Urban Service Area

Figure 6.3 depicts existing land uses within the proposed 2040 Metropolitan Urban Service Area (MUSA) boundary. As depicted on the map, the vast majority of the land in the within the proposed 2040 MUSA boundary has a present land use of either agricultural or undeveloped. The City credits this to Scott County, who has largely zoned property located in the 2040 MUSA boundary as Urban Expansion Reserve, which limits development to a one home per forty acre density.

FUTURE LAND USE PLAN

2040 Land Use Plan

The 2040 Land Use Plan is depicted on Figure 6.4 and incorporates lands which presently lie within the existing City limits and those unincorporated bordering areas of New Market Township which lie within the City's proposed 2040 MUSA boundary. The MUSA boundary identifies a geographic area where growth is expected to occur (and utilities are planned to be provided) within the 2040 planning cycle.

The 2040 MUSA boundary mimics the existing 2030 MUSA boundary with one exception. East of the Interstate 35/County Road 2 interchange (north and south of County Road 2), a total of 140 acres is proposed to be added to the MUSA. In 2015, the City of Elko New Market and Metropolitan Council approved a Comprehensive Plan Amendment to expand the 2030 MUSA boundary to include approximately 125 acres of land located east of Interstate 35 and south of

County Road 2. Such MUSA boundary change was made in response to received development interest in the property from a large industrial user. In response to such development interest, the City prepared and approved an Alternative Urban Areawide Review (AUAR) which evaluated the environmental impacts which could result from such development. The AUAR study area included 265 acres of land, including the referenced 125-acre industrial development site. As part of the 2040 Comprehensive Plan Update, the City of Elko New Market wishes to include the balance of the AUAR study area (140 acres) in the 2040 MUSA.

The City of Elko New Market considers the MUSA boundary change described above to be consistent with the Metropolitan Council's "economic competitiveness" policy of promoting regional economic prosperity. The Interstate 35 corridor is considered a prime location for businesses to succeed and specifically those industries which export products or services beyond the Twin Cities Metropolitan Area and bring revenue and jobs to the region.

Lands located outside the City of Elko New Market's municipal boundaries, but within the 2040 MUSA, are presently reserved for urban development by the Scott County Land Use Plan and implemented through County Zoning and Subdivision Ordinance requirements. Specifically, such areas are guided "Urban Expansion Reserve", "Transition Area", or "Urban Business Reserve" which designates maximum residential densities of 1 unit per 40 acres.

Like the City's 2030 Plan, it is the intention of this 2040 Comprehensive Plan Update to preserve the areas currently outside the City boundaries in accordance with the Scott County Land Use Plan until such time that public utilities are made available and/or areas are annexed into the City. Upon annexation, the City's Land Use Plan and land use ordinances (zoning and subdivision) shall take precedence over the County Plan and ordinances.

Ultimate Land Use Plan (Post 2040)

The Metropolitan Council's *Thrive MSP 2040* development guide stipulates that "Rural Center" communities such as Elko New Market must identify areas that will accommodate post 2040 growth forecasts and implement strategies to preserve these areas for future growth. This directive mimics a similar policy provided in the Metropolitan Council's 2030 Regional Development Framework.

As part of the City of Elko New Market's 2030 Comprehensive Plan, an effort was made to implement this strategy by establishing a boundary line which delineates areas that would be ultimately served by public sanitary sewer and water services (public utilities). Many factors were considered in determining where physical constraints would make it difficult or cost prohibitive to extend public utilities. These factors included an analysis of the location and configuration of existing parcels, topography and natural geographic boundaries, natural resources, transportation corridors, and other general development constraints. Ultimately, a long-term public utility service area was determined which is considered the City's Ultimate Service Area Boundary.

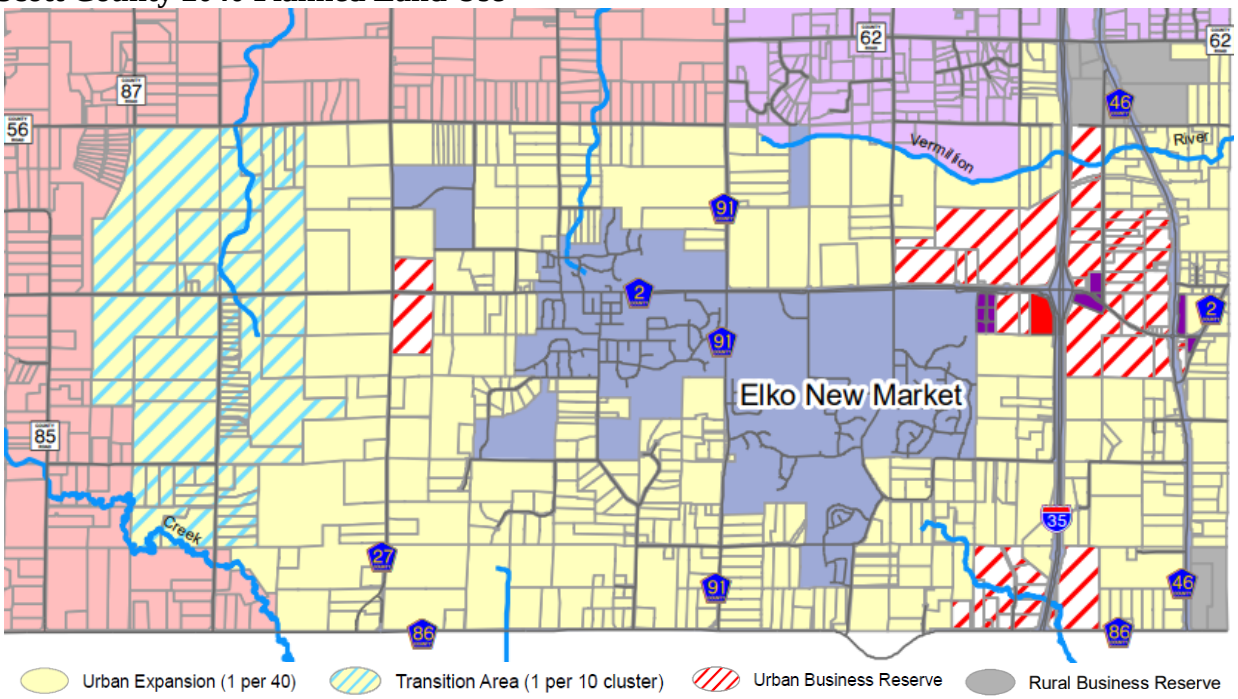
This 2040 Plan Update likewise identifies land areas which lie outside of the 2040 MUSA boundary but within the City's Ultimate Service Area Boundary (where urban services are ulti-

mately expected). The boundary or limits of the 2040 Ultimate Service Area, which are depicted on Figure 6.5, are the same as those applied to the City's 2030 Plan.

The Ultimate Land Use Plan is intended to provide a vision for land contained within the Ultimate Service Area Boundary which is anticipated to be the City of Elko New Market's municipal boundaries at full development. Recognizing that it will likely take more than 60 years to realize the ultimate build-out of the area, it is not the function of the Ultimate Land Use Plan to guide future uses on a parcel by parcel basis. Rather, the Plan is intended to simply assist the City in determining long term utility service needs and earmark general locations for future commercial and/or industrial uses. The Ultimate Land Use Plan is depicted on Figure 6.6.

It is the intention of this Comprehensive Plan to preserve areas currently outside the City municipal boundary until such time that public utilities are made available and the area is annexed into the City. Recognizing the City's Ultimate Urban Service Area, Scott County has guided these areas for preservation from development. There are three basic land use designations depicted within Scott County's 2040 Comprehensive Plan which take measures to preserve land for future urban development: Urban Expansion, Transition Area, and Urban Business Reserve. A new land use category has also been created within Scott County's 2040 Comprehensive Plan, Rural Business Reserve, which allows limited commercial and industrial uses in the far reaches of the City's Ultimate Urban Service Area. The City of Elko New Market will continue to collaborate with Scott and Rice Counties so that County Plans may take steps to preserve such lands for future urban development.

Scott County 2040 Planned Land Use



Source: Scott County Planning Department

LAND USE CATEGORY DESCRIPTIONS

Land use category descriptions, as referenced on the 2040 Land Use Plan and Ultimate Land Use Plans, define each land use category's objective, development location criteria, density, minimum requirements for development and typical uses.

In all cases, public utilities are required for development within any of the land use designations. Development proposals which are determined to be premature (based upon the "premature subdivision" criteria provided in the City's Subdivision Ordinance) shall not be approved.

Consistent with regional directives, future residential land uses within the City of Elko New Market will have a minimum mean net density of 3.0 dwelling units per acre through designation of Low, Medium and High Density Residential land use categories. The "Town Center" land use category also provides opportunities for residential development and contributes to such density determination.

As development occurs, net residential density shall be calculated as follows:

> Gross land area minus resources protected by ordinances (e.g. wetlands and steep slopes), County and State highway rights-of-way, and regional park land. Local streets, local parks, and stormwater holding ponds are not subtracted when calculating net density.

Low Density Residential

Objective:

This land use classification is characterized by low residential densities that provide opportunities for a variety of detached single family residential housing options. Traditional single family detached homes at the lowest of the urban densities are typical uses. Lower densities are often required to preserve and protect environmentally sensitive land. At the present time, this land use designation corresponds with the R1 and R2 zoning districts.

Development Location Criteria:

- The characteristics of a proposed development will be based upon consideration of several factors including, but not limited to, topography, geography, existing development and character of the surrounding area, transportation system access, and market conditions.

- Final density and development design will be a function of adopted zoning and subdivision standards and procedures.

Density:

- Residential densities with a range of 2.5 to 5 units per net acre.

Minimum Requirements for Development:

- Lot sizes typically are 8,400 – 12,000 square feet, but can be larger or smaller depending on the type of development and the specific property's characteristics.

- Planned unit development may be utilized to provide for a mixture of housing styles at higher densities provided the objectives of planned unit development, as provided in the City's Zoning Ordinance, are achieved.

Typical Uses:

- Single family detached dwellings; other dwelling designs by planned unit development; parks and playgrounds.

- Accessory uses that are compatible with low density residential neighborhoods.

Medium Density Residential

Objective:
This land use classification is characterized by medium residential densities that provide opportunities for a variety of detached and attached residential housing options. The land use designation is intended to provide alternative housing options which address the City's life cycle housing needs. Medium density residential developments are often established as transitional uses between low density residential uses and greater intensity uses such as high density residential and commercial. At the present time, this land use designation corresponds with the R3 zoning district.

Development Location Criteria:

- The location and characteristics of a proposed medium density residential development will be based upon consideration of several factors including, but not limited to, topography, geography, existing development (character of the surrounding area) and market conditions.

- Development of attached homes and multiple family dwellings is appropriate near major parks (open space), along collector roadways, near commercial centers and employment centers.

- The wide range of possible housing styles and design options make medium density residential housing a suitable transition between lower and higher intensity adjacent uses.

Density:

- Residential densities with a range between 5 and 10 units per net acre.

Minimum Requirements for Development:

- Lot sizes vary depending upon the number of units contained within the residential structures, as regulated in the City's Zoning Ordinance. Minimum lot areas per dwelling unit range from 3,500 to 7,200 square feet per unit.

- Specific design and construction standards are typically imposed upon medium density residential developments including standards related to exterior building finishes, garage construction and size, guest parking and open space requirements.

Typical Uses:

- Single-family detached dwellings, and two-family dwellings, and townhouses, condominiums and apartments which do not exceed eight units per building are considered permitted uses in this land use category. Manufactured home parks may also be allowed by conditional use permit.

High Density Residential

Objective:
This land use classification is characterized by high density residential developments which provide housing opportunities in multiple family structures (apartments, townhouses, and condominiums). High density residential developments are often established as transitional uses between lower density residential uses and higher intensity uses such as commercial, industrial and/or civic. High density residential developments are typically accessible to thoroughfares and activity centers such as community centers, libraries, shopping areas and employment centers. At the present time, this land use designation corresponds with the City's R4 zoning district. Additional opportunities for high density mixed use housing are available in the City's current R5 zoning district which is guided by the City's Downtown Master Plan.

Development Location Criteria:

- The location and characteristics of a proposed high density residential development will be based upon consideration of several factors including, but not limited to accessibility, topography, geography, existing development (character of the surrounding area), and market conditions.

- Development of high density, multiple family dwellings is appropriate along collector roadways and near major parks (open space), activity centers, and employment centers.

- High density residential housing is considered a suitable transition between lower and higher intensity adjacent uses.

Density:

- Residential densities with a range of 10 to 30 units per net acre.

Minimum Requirements for Development:

- While a minimum lot area of 15,000 square feet is required for high density residential uses, lot sizes typically relate to structure setback and green space requirements.

- Specific design and construction standards are typically imposed upon high density residential developments including standards related to exterior building finishes, garage construction and size, guest parking and open space requirements.

- Final density and development design will be a function of adopted zoning and subdivision standards and procedures.

Typical Uses:

- Multiple family dwelling structures which contain more than eight dwelling units. Manufactured home parks may also be allowed by conditional use permit.

- Mixed use projects which contain ground floor commercial uses and high density residential uses on upper floors may be accommodated by planned unit development in R5 zoning districts as guided by the City's Downtown Master Plan.

Town Center

Objective:

This land use classification is a special designation for traditional Town Centers which retain attributes of a recognized "downtown" and provide a sense of place based on historic nature and building character elements. Such elements include brick, awnings, street lighting, signage, etc.

The Town Center should be the recognized civic, commercial, and cultural gathering place for the community. Retail uses are expected to be relatively specialized and even unique and should easily mix with service uses and cultural places, rather than serve as the foundation of another shopping node. Pedestrian circulation within, as well as to the area is a distinguishing land use category feature.

New development in the Town Center area can provide for limited residential uses, excluding new single family detached dwellings, which can be integrated with the commercial and service environment, or multiple family dwellings which are consistent with the New Market Downtown Master Plan. Senior housing may be appropriate uses at selected locations. This land use designation corresponds with the B2, B3, and R5 zoning districts.

Development Location Criteria:

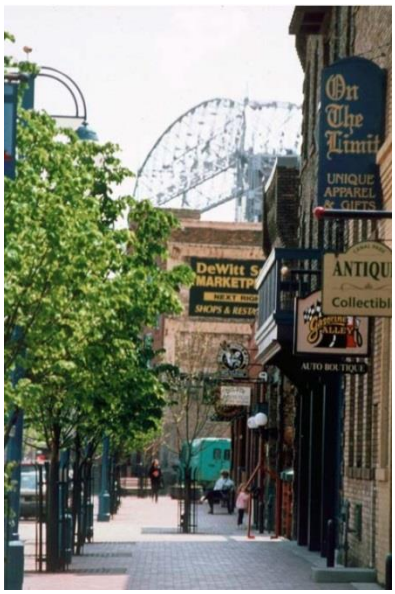
- The Town Center area is located along County Road 2 in the City's historic downtown New Market area, as identified in the City's Downtown Master Plan, and in the historic downtown Elko area of the City.

- The character of the Town Center should be defined by an approved master plan or planned unit development or through specialized Zoning Ordinance provisions.

Density:

- For projects which include residential land uses, a range between 10 to 30 units per net acre.

Minimum Requirements for Development:



- Uses and structural designs shall be found to preserve and enhance the "sense of community" broadly defined in the City's Downtown Master Plan. This does not require rigid use patterns, but does require a demonstration that the relatively unique character of the Town Center is evident. Great emphasis should be given to building features located at primary intersections or where streets intersect with central open space, as these locations will become future landmarks of the community.

- Traditional commercial development design, such as zero lot line development (buildings with little to no setback) will be encouraged to provide a continuation of the traditional atmosphere of the Town Center land use category.

- Approved planned unit development within this category may provide for off-site parking legally encumbered for a specific use, shared parking facilities, public on-street and off-street parking facilities, and public open space in lieu of private yards for certain uses.

- The Town Center area bisected by County Road 2 presents a dilemma for prospective development and redevelopment. Based on functional classification of County Road 2 and traffic volumes, private access to the County Road is highly restricted. Traffic calming and pedestrian access will be an important component of development designs.

- Buildings should be designed to create street-level interest and enhance the pedestrian experience.

- Surface parking lots should be located away from major streets, or behind or to the side of primary buildings.

Typical Uses:

- Town Center projects may include residential, commercial, and institutional developments, but by and large will consist of a mix of multi-family residential and commercial uses. The goal for the Town Center land use category is to maintain average land use distributions of 50 percent attached and multi-family homes, and 50 percent commercial uses.

- Mixed use buildings (with commercial uses on a lower level and residential uses above), restaurants (without drive-through facilities), professional offices, personal services, retail, craft, and specialty shops, clinics, banks, bakeries, and accessory and related uses that are clearly incidental to the primary use.

- Government and/or other public uses/community facilities such as offices, post offices, schools, parks, and libraries.

Commercial

Objective:

The commercial land use category is characterized by a wide range of commerce, recreation, and entertainment uses whose trade area is the community, and under certain conditions, the region (e.g. Elko Speedway). Arterial roadway-orientated uses and single stop or destination stores are also included. An important role of the commercial land use category is to provide a location for goods, services, and employment opportunities related to both the continued dependence upon the automobile for high mobility and in the case of the City's Downtown, a walkable commercial center.

The City of Elko New Market's proximity to Interstate 35, an existing interchange, and the existence of historic business districts within the community will require a variety of commercial zoning districts in order to define guided uses and standards within different geographic areas. Uses and design that may be appropriate near the interchange may not be appropriate near the historic business district. At the present time, the City's Zoning Ordinance contains a number of com-

mercial zoning district designations that may be appropriate based on various locations within the community (B1, B2, B3, B4, & B5).

Development Location Criteria:

- Generally speaking, commercial uses should not be located directly adjacent to low density detached single family residential uses. It is however, recognized that such land use relationships are common in the City's Downtown area. For new commercial development, a high level of transition to all proximate residential land and development is desirable. Commercial uses should be located near high volume roadways, with access limited to frontage roads or to internal common parking and driving areas.

- The wide variety of commercial uses allowed (as defined by assigned zoning districts) often produces undesirable effect on abutting and nearby uses. Extra care must be exercised in the evaluation of location criteria, transition design, and the effectiveness of buffering uses in this land use category.

- The currently established B1, B2, and B3 zoning districts were established to commercial guide uses within or close to the City's historic downtown areas, and therefore would not be appropriate zoning districts for commercial developments near the interchange area.

- The currently established B4 and B5 zoning districts were established to guide uses closer to Interstate 35 and existing interchange, and therefore would not be appropriate zoning districts for commercial development in the historic downtown areas of the community.

Minimum Requirements for Development:

- Specific design and construction standards are imposed upon commercial developments including standards related to building finish materials, off-street parking, and green space.

- Appropriate green space, yard (setbacks) and off-street parking must be satisfied and may vary based on specific commercial zoning district standards.

- Buildings in the City's historic downtown areas should be designed to create street level interest and enhance the pedestrian experience.

Typical Uses:

- Allowed uses in the City's various commercial land use categories can vary greatly and are specifically defined via the application of various commercial zoning districts.

- While the intensity of development, allowable uses, and performance standards vary from zoning district to zoning district, common commercial uses include: various retail, service, office, entertainment, restaurant, and motor fuel facilities and accessory uses that are clearly incidental to the primary use.

Business / Limited Industrial

Objective:

This land use category is intended to provide for the establishment of high quality business offices, wholesale showrooms, limited light industrial and light manufacturing, and related uses in an environment which provides a high level of amenities, including landscaping, preservation of natural features, architectural controls, pedestrian trails, and other features. Limited outdoor storage may be permitted in locations with appropriate buffers from adjacent residential and commercial uses and roadways.

Business / Limited Industrial, often formed as Planned Unit Developments (PUD), can serve small professional services in a group setting whereas such uses might otherwise be located in retail centers or in scattered free-standing buildings. Retail activities should only be allowed as an accessory use when it is clearly incidental to the primary use. High design standards should be imposed to ensure compatibility with nearby high density residential housing. Such uses should also provide open space, and opportunities for shared parking when possible. The corresponding zoning designations are presently B6, B7, and PUD.

Development Location Criteria:

- Locate near existing or planned multi-family residential, commercial, or industrial use areas

- Generally provide a buffer between lands guided Commercial and Medium Density Residential.

- Business / Limited Industrial uses should provide a high level of transition to nearby residential land uses.

- Access to major collector or local roadways should be provided.

Minimum Requirements for Development:

- High amenity features (site and/or building) which are conducive to "gateway" recognition are strongly encouraged. Areas visible from I-35 or County Road 2 shall have enhanced design features.

- Appropriate green space and buffers to adjacent land uses, as established by the Zoning Ordinance, should be provided.

- Overall size of buildings shall be limited as to not allow for overly large industrial uses.

Typical Uses:

- Primary uses are conference centers, professional and administrative offices, wholesale showrooms, automobile repair, open sales lots, indoor commercial recreation, limited light industrial and light manufacturing uses, small assembly and warehousing, limited research and development, and small contractor operations.

Industrial

Objective:

This land use classification is characterized by industrial uses of larger scale and intensity. Primary uses include business offices, manufacturing, assembly, warehousing, and outdoor sales.

Development in planned industrial centers in separate areas of the community allow for the distribution of peak period traffic, efficient access, effective distribution of public utilities, and sound use of land suited for industry.

Certain limited accessory and compatible commercial uses may be allowed depending upon zoning classification. It is not the purpose of this category however, to duplicate or conflict with the commercial land use category. At the present time, this land use designation corresponds with the I1, I2 and PUD zoning districts.

Development Location Criteria:

- Locate/congregate industrial uses in areas considered "suitable" for such activities.
- Locate industrial development near major transportation corridors. Provide access to arterial roadways via major collector roadways or local roads.
- Industrial parks should be planned upon lands which are considered appropriate and reasonably adaptable to site development without severe earthwork or the removal of significant tree stands.
- Locate near other intensive land uses (commercial centers that may provide goods and services for the volume of potential industrial employees, and high density multifamily residential developments that may provide housing opportunities for the volume of potential industrial employees).
- Locate near existing or planned mass transit routes.

Minimum Requirements for Development:

- Specific design and construction standards are imposed upon industrial developments including standards related to building finish materials, off-street parking and green space.
- Appropriate green space and buffers to adjacent land uses shall be provided as established by the Zoning Ordinance.

Typical Uses:

- Uses vary in scale and intensity by zoning district. Primary uses range from business offices, light industrial uses, heavy industrial uses (manufacturing facilities) all of which are subject to certain performance standards as outlined in the City's Zoning Ordinance.

Public and Semi-Public

Objective:

This land use classification is characterized by public and semi-public facilities and institutions which provide necessary services to the City and have their own unique set of land use characteristics. Such uses frequently operate on a nonprofit basis rather than the sale of goods and services.

Development Location Criteria:

- Public and semi-public uses are intended to be compatible with adjoining development and are typically located adjacent to collector or arterials streets.

Minimum Requirements for Development:

- To provide an example for the private sector, public and semi-public land uses are encouraged to integrate and/or reflect high levels of quality site and building design.

- Where feasible, incorporate sustainable, energy efficient building and low impact development techniques.

- Consistent architectural themes are encouraged as well as the use of consistent building materials or other design elements (to strengthen overall community identity).

- In locations where public and semi-public uses abut residential land uses, buffers and/or transitions shall be provided to mitigate potential compatibility issues. Such efforts may include site design, building orientation, access locations, setbacks, landscaping, and screening.

Typical Uses:

- Various facilities ancillary to an urban community including governmental facilities and offices, schools, churches, parks, and utility sites.

- While the need for public and semi-public uses is recognized, it is not practical at this time to identify future sites where such uses may be appropriate. Processing requirements and standards which apply to public and semi-public uses are subject to applicable Zoning Ordinance requirements.

GUIDED LAND USE CALCULATIONS

2040 Land Use Plan

Table 6-2 below identifies the total gross land area for each land use category depicted upon the 2040 Land Use Plan (Figure 6.4). This includes lands within the City's existing municipal boundaries and the surrounding unincorporated areas within the 2040 MUSA, including developed and undeveloped land.

Table 6 - 2

Elko New Market - 2040 MUSA Gross Land Area by Land Use Plan Category		
Land Use Category	**Gross Acres**	**Percentage**
Public and Semi Public	193.38	3.45
Low Density Residential	3,309.15	59.01
Medium Density Residential	572.82	10.21
High Density Residential	82.12	1.46
Town Center	51.59	.92
Commercial	524.3	9.35
Business / Limited Industrial Park	236.4	4.22
Industrial	250.98	4.48
Right of Way	386.94	6.90
Total Acres	**5,607.68**	**100**
Source: City of Elko New Market GIS		

Table 6-3 illustrates net acreages available for future residential development and the potential number of housing units within the 2040 MUSA. The results indicate that there is a potential to add a minimum of 3,860 housing units between 2021 and 2030, and 3,242 housing units between 2031 and 2040, for a total of 7,202 housing units. Based on 2040 Land Use Plan, the net residential density is 3.2 units per acre.

Table 6 - 3

Elko New Market
Net Acreages Future Residential Development & Potential Number Residential Housing Units Within 2040 MUSA

Res. Land Use Category	Net Acres	Density Range		Acres		Total Potential Units 2021-2030		Total Potential Units 2031-2040	
		Min	Max	2021-2030 (54.35%)	2031-2040 (45.65%)	Min	Max	Min	Max
Low Density	1,853.75	2.5	5	1,007.51	846.24	2,519	5,038	2116	4231
Medium Density	340.25	5	10	184.93	155.32	925	1,849	777	1553
High Density	62.36	10	30	33.89	28.47	339	1,017	285	854
Town Center	14.23	10	30	7.73	6.5	77	232	65	195
TOTAL	**2,270.59**			**1,234.07**	**1,036.52**	**3,860**	**8,136**	**3,242**	**6833**

- Calculations are based on gross land area, minus National Wetland Inventory wetlands and 10% park dedication requirement to determine the net acreage available for residential development.
- Town Center (mixed use) area contains 28.47 acres; 50% permitted as high density residential
- Percentage of growth in each decade is based on Metropolitan Council growth projections

Source: City of Elko New Market GIS

Table 6-4 illustrates net acreages available for future commercial and industrial development and the potential number of jobs that may be added within the 2040 MUSA. The results indicate that there is a potential to add a 3,483 job within the 2040 MUSA.

Table 6 - 4

Elko New Market
Net Acreages Future Commercial / Industrial Development & Potential Number Jobs Within 2040 MUSA

Land Use Category	Net Acres	Number of Employees Per Acre	Number of Potential Jobs
Town Center	14.23	10	85
Commercial	315.02	6	1,890
Business / Limited Industrial	164.57	5	823
Industrial	171.20	4	685
TOTAL	**665.02**		**3,483**

- Calculations are based on gross land area, minus National Wetland Inventory wetlands and 10% park dedication requirement to determine the net acreage available for residential development.
- Town Center (mixed use) area contains 28.47 acres; 50% permitted as commercial uses
- Source: City of Elko New Market GIS

Growth Staging Plan

The Metropolitan Council has forecasted that the City will have a total of 3,030 households by 2030 and a total of 4,400 households by 2040. These forecasts indicate an increase of 1,631 households between the present time and 2030, and an increase of 1,370 households between 2031 and 2040. These forecasts indicate that 54.35% of the City's household growth will occur between the present time and 2030, and 45.65% of the City's growth will occur between 2031 and 2040. Table 6-5 illustrates the household projections forecasted by Metropolitan Council's Thrive MSP, by decade, as well as the net acreages needed to accommodate the Thrive MSP housing projections.

Table 6 - 5

Elko New Market
Acres Needed to Accommodate Thrive MSP Housing Forecasts

	Total through 2040	2021-2030	2031-2040
Households (Metropolitan Council Forecasts)	3,001	1,631 (54.35% of total)	1,370 (45.65% of total)
Acres Needed to Accommodate Thrive MSP Household Projections	1,000	543	457

- Assumes 3 units per acre.

Sources: Metropolitan Council

Table 6-6 below illustrates acreage allocation forecasts in 10-year increments to the year 2040. The results indicate that the 2040 MUSA boundary contains sufficient land to accommodate the housing unit and employment forecasted by Thrive MSP.

Table 6 - 6

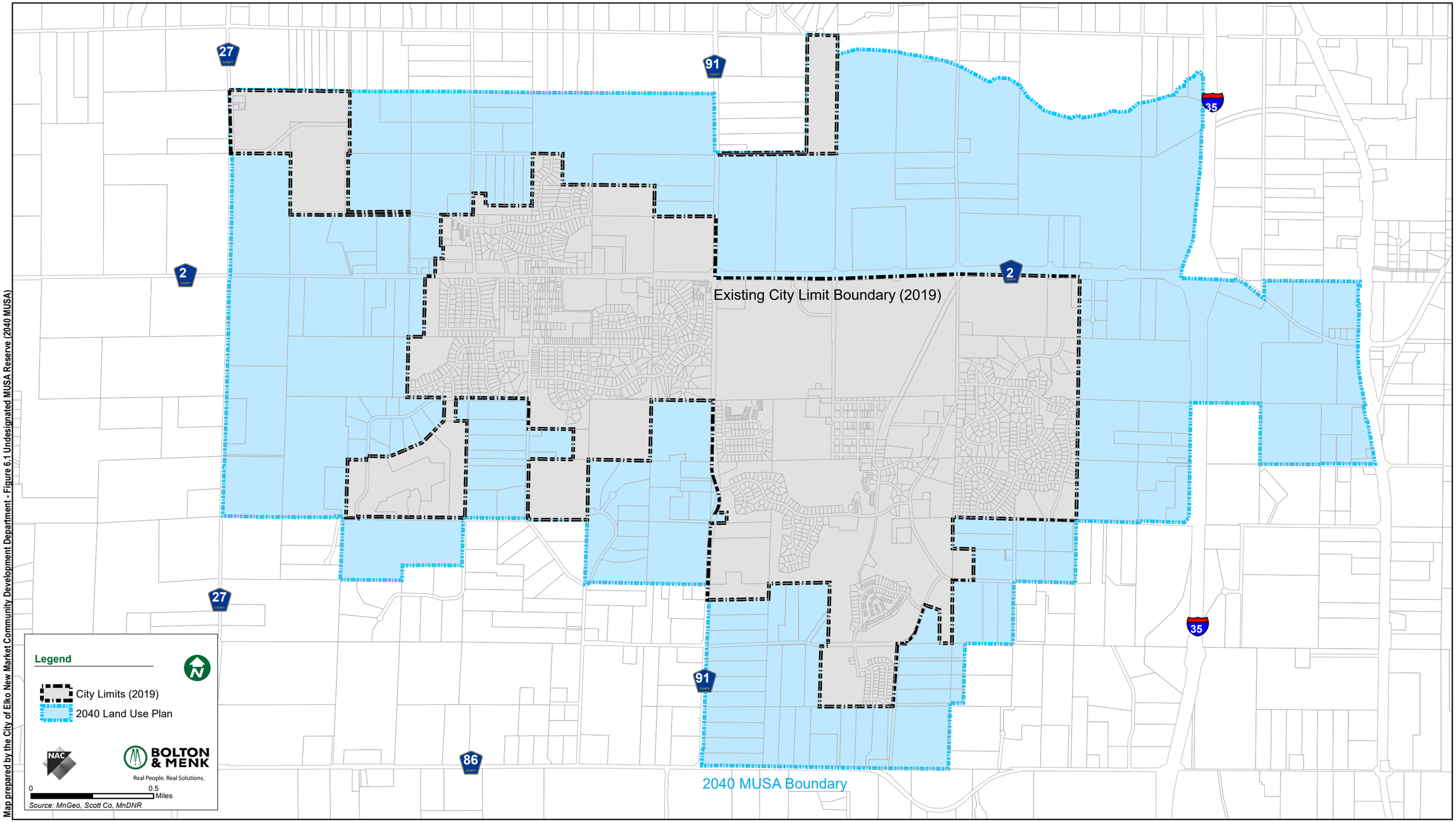
Elko New Market Acreage Available for Development Within 2040 MUSA			
	Total Net Acres Available for Development through 2040	**Acres Available for Development 2021-2030 (54.53% of Total)**	**Acres Available for Development 2031-2040 (34.65% of Total)**
Low Density Residential Acres	1,853.75	1,007.51	846.24
Medium Density Residential Acres	340.25	184.93	155.32
High Density Residential Acres	62.36	33.89	28.47
Town Center Acres	28.47	15.47	13.00
Commercial Acres	315.02	171.21	143.81
Business / Limited Industrial Acres	164.57	89.44	75.13
Industrial Acres	171.20	93.05	78.15
Public / Semi-Public /Park Acres	326.18	177.28	148.90
TOTAL	**3,261.8**	**1,772.78**	**1,489.02**

- Net acreages calculated based on gross land area, minus National Wetlands Inventory wetlands and park dedication requirements to determine the net acreage available for development.
- Includes undeveloped land within existing city limit boundary and 2040 MUSA boundary.
- Town Center allows up to 50% residential development.

Sources: City of Elko New Market GIS

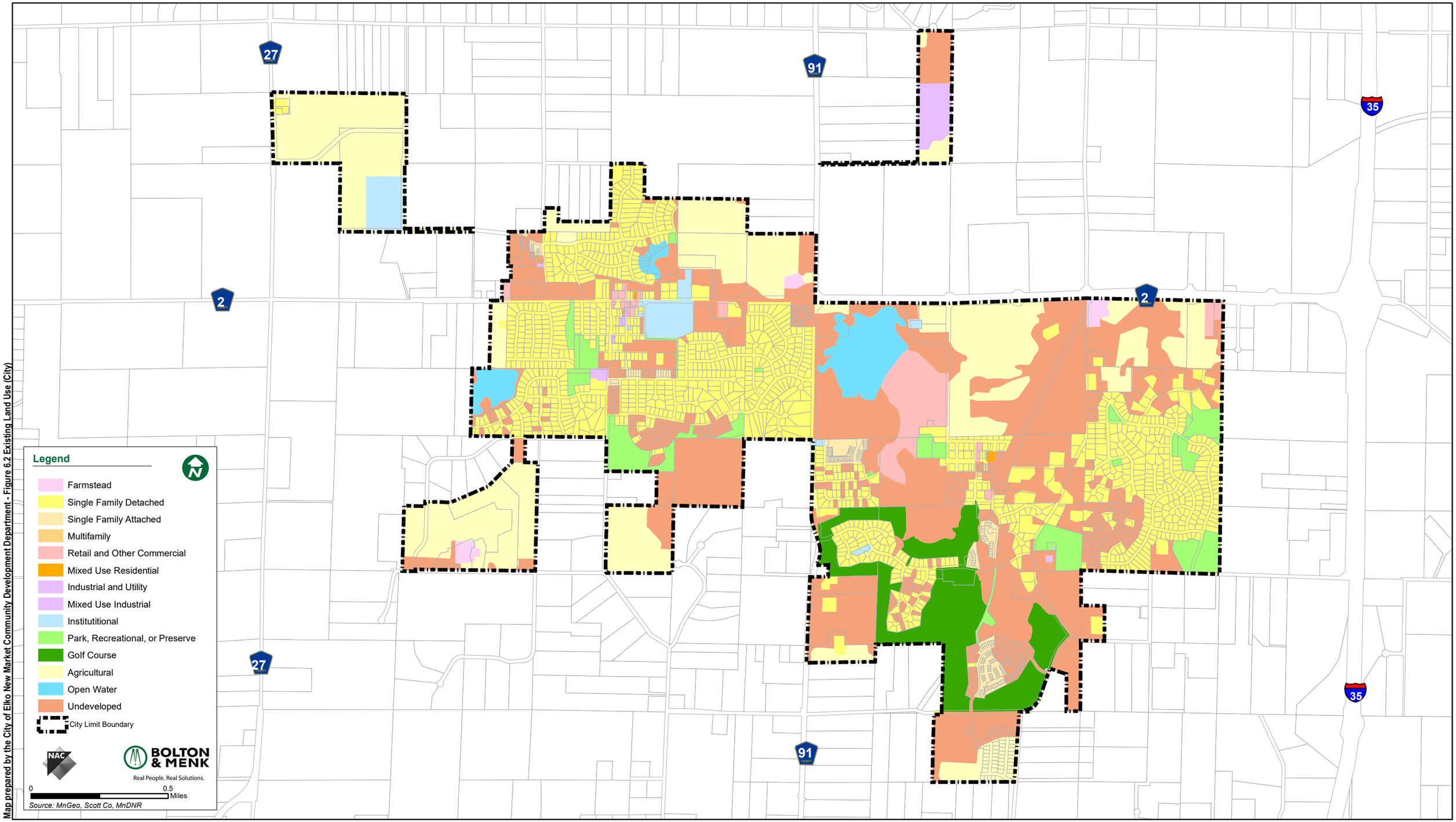
Undesignated MUSA Reserve Boundary (2040 MUSA)

Figure 6.1



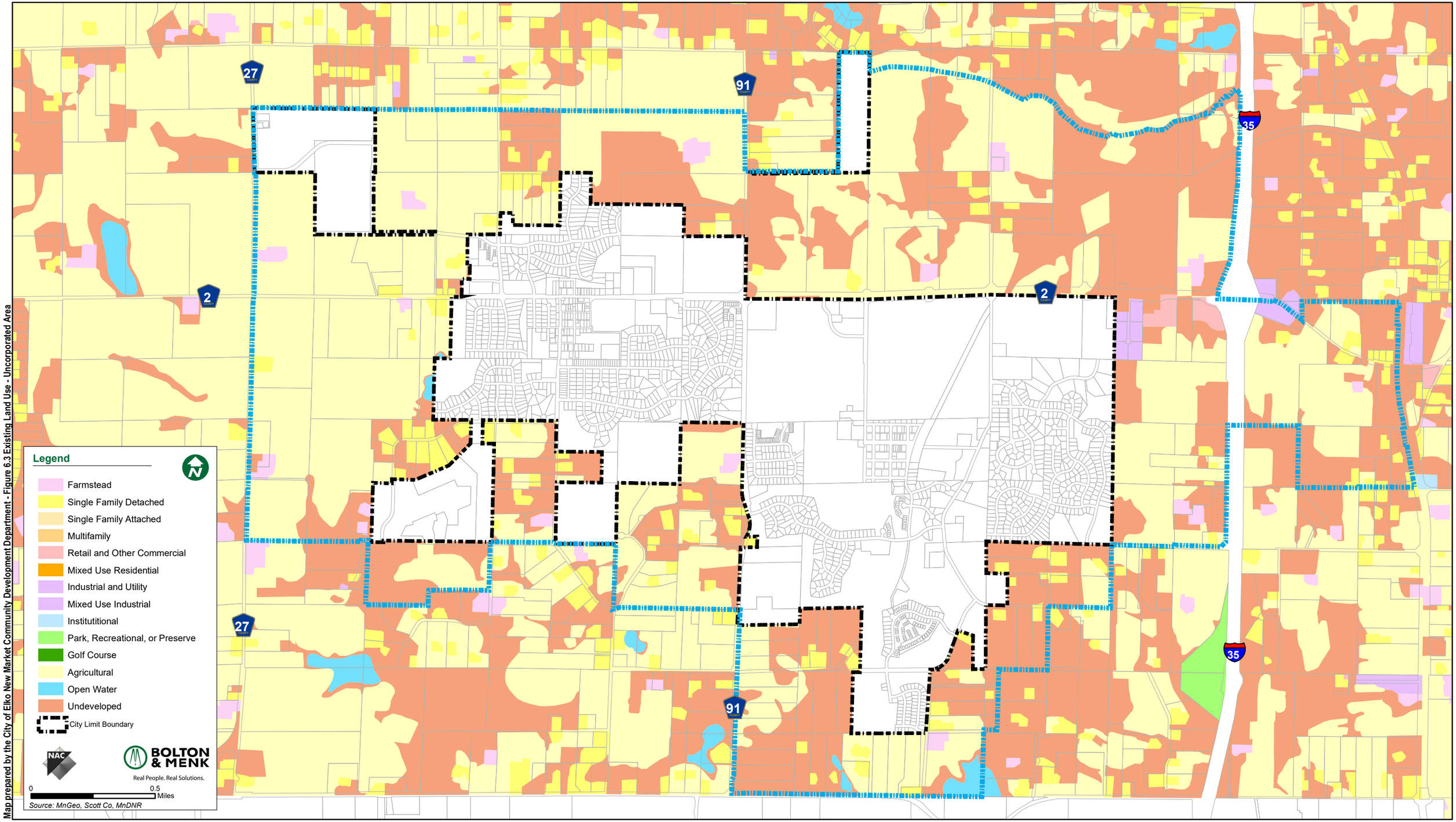
Map prepared by the City of Elko New Market Community Development Department - Figure 6.1 Undesignated MUSA Reserve (2040 MUSA)

Existing Land Use (City)
Figure 6.2



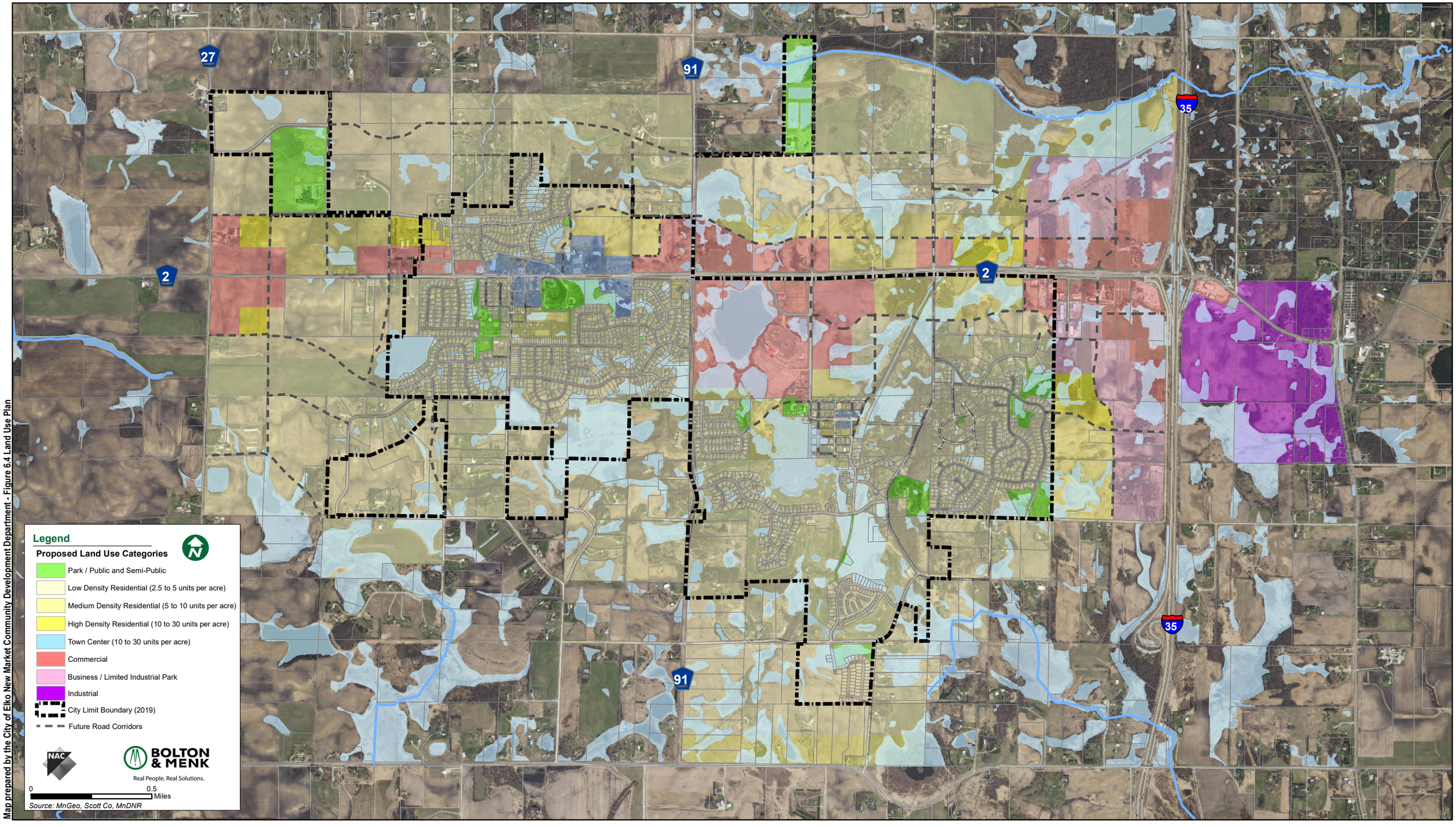
Map prepared by the City of Elko New Market Community Development Department - Figure 6.2 Existing Land Use (City)

Existing Land Use - Unincorporated Area
Figure 6.3



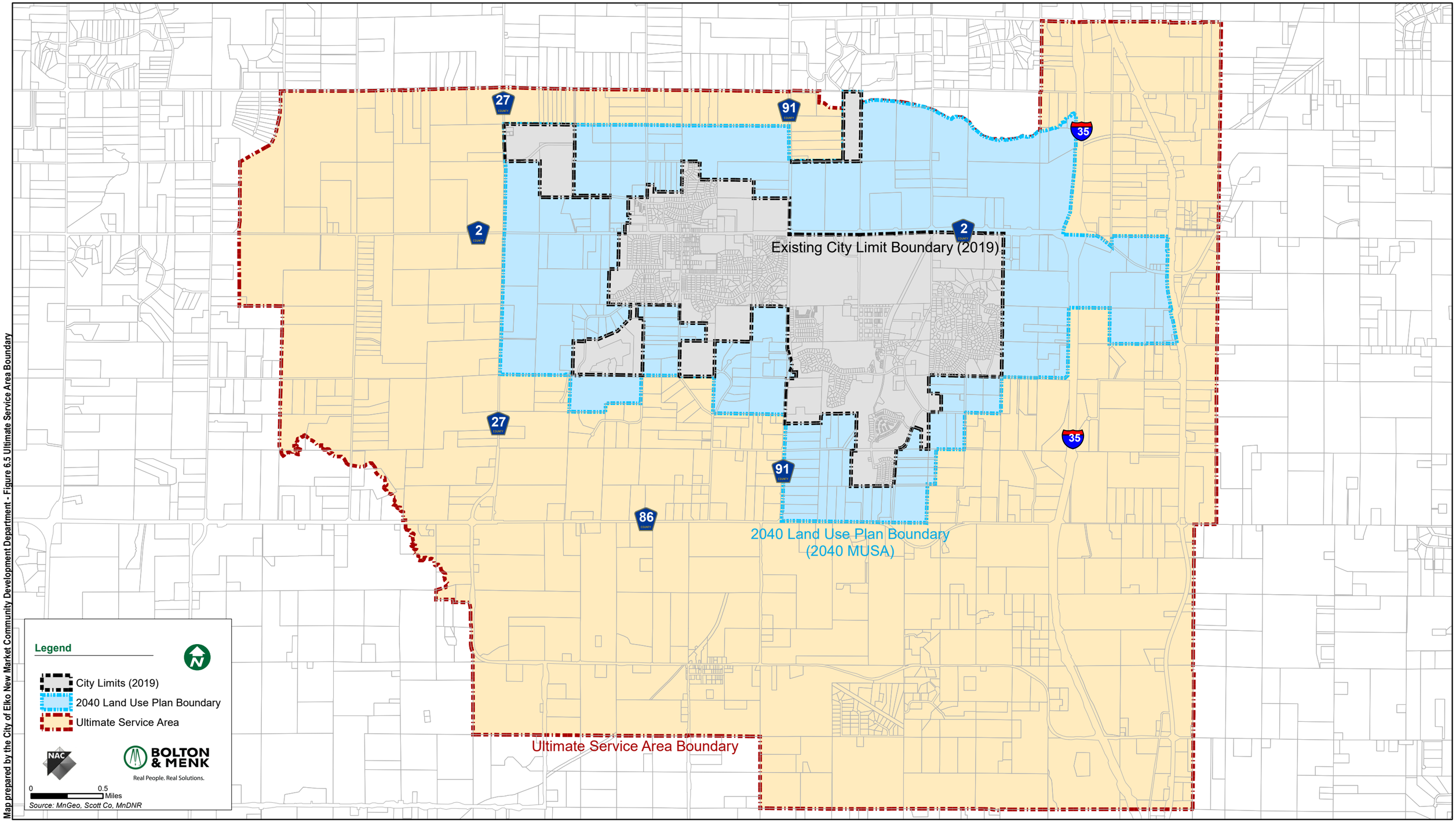
Map prepared by the City of Elko New Market Community Development Department - Figure 6.3 Existing Land Use - Uncorporated Area

2040 Land Use Plan
Figure 6.4



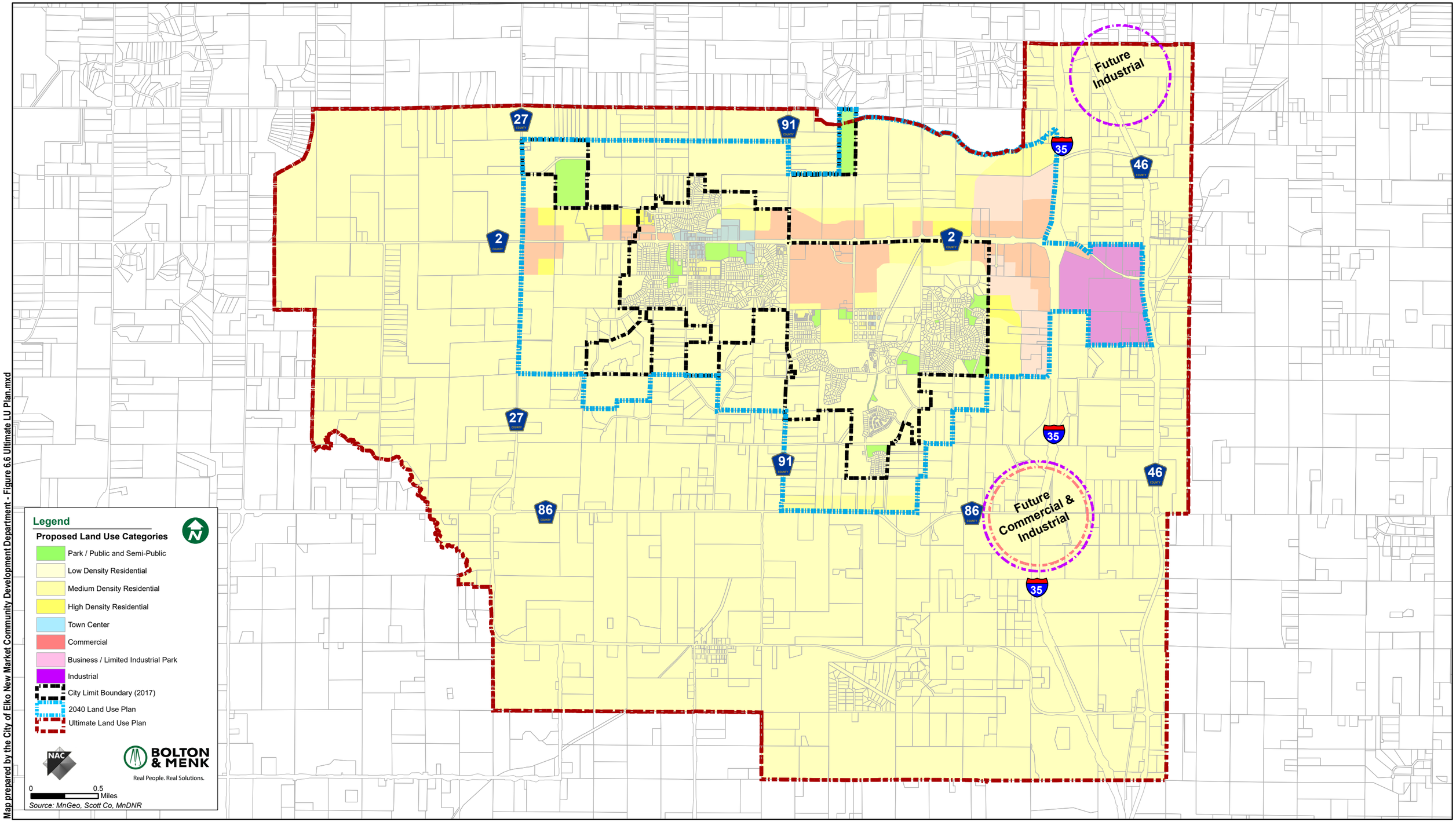
Map prepared by the City of Elko New Market Community Development Department - Figure 6.4 Land Use Plan

Ultimate Service Area Boundary
Figure 6.5



Map prepared by the City of Elko New Market Community Development Department - Figure 6.5 Ultimate Service Area Boundary

2040 Ultimate Land Use Plan
Figure 6.6



Map prepared by the City of Elko New Market Community Development Department - Figure 6.6 Ultimate LU Plan.mxd

INTRODUCTION

The purpose of this chapter is to summarize housing conditions within the City of Elko New Market and establish goals and work items promoting a healthy residential infrastructure and furthering a variety of life-cycle housing options. This chapter includes an analysis of existing housing conditions, housing policies, and implementation recommendations.

HOUSING PROFILE

Housing Types

Table 7-1 summarizes the City of Elko New Market's housing stock by type based upon quantity numbers provided by the U.S. Census and Metropolitan Council. As shown, the overwhelming majority of dwelling units in the City (83 percent) are single family detached homes. Townhomes comprise approximately 10 percent of the total and multi-family units (5 units or more per building) comprise 7 percent.

Table 7 - 1

Elko New Market
Number of Housing Units By Type

	2000 (Census)		2010 (Estimates)		2015 (Estimates)	
	Quantity	Percent (%)	Quantity	Percent	Quantity	Percent (%)
Single Family Detached	287	60.0	1,135	85.5	1,239	83.0
Duplex, Triplex, and Quadplex	6	1.0	6	0.5	6	0.5
Townhome (single family attached)	138	29.0	138	10.0	140	9.5
Multi-family (5 units or more)	49	10.0	49	4.0	98	7.0
Total	**474**	**100.0**	**1,328**	**100.0**	**1,483**	**100.0**

Source: US Census Bureau and Metropolitan Council

Age of Housing Stock

Table 7-2 summarizes the age of the City of Elko New Market's housing stock. Based on 2010 Census data and City building permit information through 2016, the City of Elko New Market has a total of approximately 1,547 housing units.

The clear majority (approximately 70 percent) of Elko New Market's housing stock was constructed during the 2000s. The City has issued building permits for a total of 156 housing units since 2010. The decrease in building permit issuance since 2016 likely relates to a combination of economic conditions and a limited availability of single family residential lots in the City.

Table 7 - 2

Elko New Market Age of Housing Stock		
Year Built	**No. of Units**	**Percent of Total (%)**
2010 to 2016	156	10
2000 to 2009	1,087	70
1990 to 1999	113	8
1980 to 1989	49	3
1970 to 1979	34	2
1960 to 1969	45	3
1950 to 1959	33	2
1940 to 1949	15	1
1939 or earlier	15	1
Total	**1,547**	**100**
Source: U.S. Census Bureau and City of Elko New Market		

The age of structures and their locations within Elko New Market are graphically illustrated on Figure 7.1. As can be expected, older homes in the City are clustered around the historic City of Elko and City of New Market downtown areas. Also of interest is that residential growth between 1990 and 2010 is evenly dispersed between the former Cities of Elko and New Market.

Owner-Occupied and Rental-Occupied

Table 7-3 displays the breakdown between owner-occupied and renter-occupied units within Elko New Market in 2010 and 2016. As indicated, the majority (98%) of the housing units within the City were owner-occupied units in 2010. Only two percent were rental. By 2016, the number of rental units had increased to 15% of the City's total housing units. To be noted is that 49 rental units included in the Market Village Apartments are not included in the 2010 Census data. Market Village was constructed by the Scott County Community Development Agency in 2011 and is designated for adults age 55 and over. The Market Village project was constructed using tax credits and is therefore considered a subsidized housing project. The data also indicates that an increasing number of single family homes are also being rented.

Table 7 - 3

Elko New Market Owner-Occupied and Rental Statistics				
	No. of Units (2010 Census)	**Percent of Total (%) 2010**	**No. of Units (2016 Metropolitan Council Estimate) 2010**	**Percent of Total (%) 2016**
Owner Units	1,145	98	1,276	85
Rental Units	27	2	221	15
Total	**1,172**	**100**	**1,497**	**100**
Source: U.S. Census Bureau & Metropolitan Council				

Housing Costs

Table 7-4 provides a comparison of housing costs between the City of Elko New Market and Scott County. As shown, the median sale price for a home in Elko New Market in 2015 was $264,250. This number was notably higher than the median sale price of $244,950 in all of Scott County during the same period.

There were 106 homes sold in the City of Elko New Market in 2015, which represented only about four percent of the total number of homes sold in Scott County in the same year. This percentage of home sales is consistent with Elko New Market's population in 2015 representing approximately 3.2 percent of Scott County's total population.

Table 7 - 4

Elko New Market vs. Scott County
Housing Costs
2015

	Number of Sales	Median Sale Price	Average Days on Market
Elko New Market	106	$264,250	76
Scott County	2,588	$244,950	80
Source: Regional Multiple Listing Service of Minnesota, Inc.			

Housing Values

Table 7-5 below provides a comparison of the median housing value in the City of Elko New Market and Scott County, based on Census Bureau data. The median housing value of a single-family home in the City of Elko New Market rose slightly between 2001 and 2010, from an average value of $276,258 to $287,100. The median home value in 2016 dropped to $268,200 according to the US Census Bureau.

Table 7 - 5

Elko New Market
Median Housing Value

Location	Median Value 2010	Median Value 2016
Elko New Market	$287,100	$268,200
Scott County	$274,300	$258,400
Source: US Census Bureau, ACS		

Gross Rent

Table 7-6 provides a summary of monthly rents paid by Elko New Market residents in 2010 and 2015. The number of rental units and the amount of rents paid increased significantly over the five year period. The Market Village Apartments are not included in the 2010 estimates and account for some of the increase in the number of units in 2015. It can also be concluded based

on the number of residents paying $1,500 or greater for rent that a larger number of single family homes were being rented in 2015.

Table 7 - 6

Elko New Market Gross Rent				
	2010		2015	
Gross Rent (per month)	**No. of Units**	**Percent of Total (%)**	**No. of Units**	**Percent of Total (%)**
$499 and under	0	---	0	---
$500 to $999	12	44	47	23
$1,000 to $1,499	7	26	67	33
$1,500 or More	8	30	88	44
Total	**27**	**100**	**202**	**100**
Median Rent	**$1,094**		**$1,201**	
Source: U.S. Census Bureau				

Cost Burden Households

Cost burden households are households whose housing costs are at least 30% of their income. In 2016 the Metropolitan Council estimated that 191 low-income households within the City were cost burned. Table 7-7 below depicts the Metropolitan Council estimates:

Table 7 - 7

Housing Cost-Burdened Households 2016		
Income at or below 30% of AMI	**Income 31% to 50% of AMI**	**Income 51% to 80% of AMI**
43	86	62
Source: Metropolitan Council AMI = Area Median Income Baseline AMI = $85,800 / year		

HOUSING PLAN

Future Housing Options

The City of Elko New Market recognizes the need to promote a greater variety of housing choices in the City to serve the life cycle needs of current and future residents. A primary goal of the 2040 Land Use Plan is to continue to maintain single family neighborhoods as the focus of the community while also providing sufficient opportunities for a variety of housing styles, sizes and values. Housing options, from efficiency apartments through executive homes which are suitable for all ages from young adult through end of life, are desired within the community. Affordable and workforce housing are important components of a complete housing system but

are not the only components. Affordable and workforce housing are of interest to the City in that the demand for such units is quickly increasing.

In an effort to provide housing options, the 2040 Land Use Plan provides opportunities for medium and high density residential uses as transitions between higher intensity commercial uses and lower intensity single family neighborhoods.

The City desires neighborhoods which provide a variety of housing choices, with convenient access to goods and services needed in daily life, along with the availability of public schools, recreational facilities, and open spaces.

Affordable Housing

Affordable housing is a concern to government leaders as people on low incomes are at high risk when there is a shortage of rental supply resulting in an increase in rental rates. Households struggling with housing costs are often faced with issues that further compromise their financial stability such as: traveling long distances to work or to access goods and services; having to live in overcrowded or substandard housing; going without food, heat, medication, or education; and working long hours or multiple jobs leading to decreased family time and chronic stress.

Investment in affordable housing can contribute to community health. Increasingly, occupations including teachers, police officers, public workers, health care workers, and skilled laborers can't afford housing near their workplaces so they travel longer distances to find affordable housing. Increased commutes negatively impact worker productivity and quality of life, and cause traffic congestion.

Nationwide and locally, housing developments containing affordable units are often opposed by neighbors, town residents, and public officials (e.g. not in my back yard). Opposition typically cites a series of negative outcomes such as concerns of increased traffic, added costs for schools, decreasing property values, increased demand on other municipal services such as police and fire, stresses on sewer and water systems, concerns about developer quality and/or experience, environmental degradation, and negative changes to town character.

When affordable housing is well designed, fits with the surrounding neighborhood, and is well managed, there appears to be only minimal impacts on property values and adjacent neighborhoods. Studies have shown population increases attributable to affordable housing (typically apartments) do not equate to higher municipal costs and are often less than those costs related to new single-family houses due to density of development.

Input from neighbors, town residents, and public officials can be constructive when it results in improvements in development design. Improvements in development design can result in higher levels of acceptance, and increased harmony between existing and proposed development.

Thrive MSP Affordable Housing Allocation

The City of Elko New Market recognizes its responsibility to provide opportunities for its share of the region's need for low and moderate-income housing. Affordable housing provides housing options for a diverse population and furthers one of the City's economic development goals by providing housing opportunities to support an employment base for future commercial and industrial development.

"Affordable Housing" is defined differently by various organizations. The Metropolitan Council defines the terms "affordable housing" and "low income" as follows:

> Affordable Housing. *Housing is "affordable" for low and moderate-income households when they pay no more than 30 percent of gross household income on housing.*
>
> Low Income. *A household is considered "low income" if it makes 80% or less of the median income of the seven-county region.*

For the purpose of this 2040 Comprehensive Plan, housing will be considered "affordable" if total housing and related costs are equal to or less than 30 percent of gross income.

The Metropolitan Council's Thrive MSP 2040 Plan assigns a low and moderate-income housing need for the City from 2021 through 2030. Specifically, a need for 326 new affordable units within such time period has been established. The allocation reflects the City's share of forecasted regional household growth that will need affordable housing. Of these new units, 195 need to be affordable to households earning at or below 30 percent of the area median income, 121 need to be affordable to households earning 31 to 50 percent of the area medium income and 10 need to be affordable to households earning 51 to 80 percent of the area median income. Income is based on percentage of area median income (AMI) with a baseline of $85,800 which is the AMI established by the Department of Housing and Urban Development (HUD) for a household of four in the Minneapolis-St. Paul metro area in 2016. The City's affordable housing "needs", as directed by the Metropolitan Council, are summarized in Table 7-8 below:

Table 7 - 8

Elko New Market Thrive MSP 2040 Affordable Housing Need Allocation 2021-2030	
Percent of Area Medium Income	**Housing Unit Need**
At or Below 30% AMI	195
31% to 50% AMI	121
51% to 80% AMI	10
Total Units Needed	**326**
AMI = Area Median Income Source: Metropolitan Council	

Elko New Market's land use plan addresses planned use types and densities sufficient to accommodate the Metropolitan Council's forecast allocations. Between 2021 and 2030 a total of 41.62 acres are planned for land uses that will accommodate 'high density residential' use with a minimum density of ten units per acre. Applying a minimum of 10 units per acre to the planned 41.62 acres indicates that the City can accommodate 416 affordable housing units, meeting the City's Thrive MSP 2040 affordable housing allocation. The City projects that affordable housing opportunities may be most likely to occur in 'high density residential districts' due to the increased allowable housing density within this land use designation.

Affordability Analysis

With the preceding Metropolitan Council directives to provide 326 affordable housing units in mind, it is worthwhile to understand the number of affordable housing units which presently exist in the City. For 2016, the Metropolitan Council has calculated that homes with a purchase price of $243,500 or less are considered "affordable" in the seven-county metropolitan area for a family of four earning 80% of the area median income. According to the Scott County Assessor's Office, 1,428 owner-occupied housing units existed in the City on January 1, 2017. Of these, 626 units had an assessed value of $243,500 or less. The results indicate 43.8 percent of the City's existing owner-occupied housing stock at that time was considered "affordable." The locations of housing units with an assessed value of $243,500 or less, which are considered "affordable" based on Metropolitan Council calculations, are depicted on Figure 7.2.

Households with different income levels have different thresholds of "affordable" as seen in Table 7-9. The income limits shown in Table 7-9 were established by HUD for fiscal year 2016. The Metropolitan Council has selected the four-person household thresholds as a general measurement for affordable housing needs at each income level.

Table 7 - 9

2016 Income Limit Summary
Minneapolis-St. Paul–Bloomington MSA

Household Size	30% AMI	50% AMI	80% AMI
One-person	$18,050	$30,050	$46,000
Two-person	$20,600	$34,350	$52,600
Three-person	$23,200	$38,650	$59,150
Four-person	***$25,750***	***$42,900***	***$65,700***
Five-person	$28,440	$46,350	$71,000
Six-person	$32,580	$49,800	$76,250
Seven-person	$36,730	$53,200	$81,500
Eight-person	$40,890	$56,650	$86,750

AMI = Area Median Income
Source: Department of Housing and Urban Development (HUD)
Based on 2016 AMI of $85,800

Table 7-10 illustrates potential need for affordable housing units and associated affordability thresholds in terms of rent rates and owner-occupied home values. The table utilizes HUD data

for the Twin Cities MSA to better define and understand affordability for Elko New Market. It is important to understand affordable monthly rental rates and home values associated with various income levels. Two approaches to affordability analysis are depicted; the first references affordability thresholds for a family of four, the second a single person.

Table 7 - 10

Housing Affordability Thresholds Minneapolis-St. Paul–Bloomington MSA		
Family of Four Household	**Affordable Rent Using 30% of Income For Housing Related Costs**	**Affordable Home Value Using 30% of Income For Housing Related Costs***
30% of AMI ($25,750/yr; $12.38/hour)	$644	$83,189
60% of AMI ($51,480/yr; $24.75/hr)	$1,287	$166,314
80% of AMI ($65,700/yr; $31.58/hr)	$1,643	$212,254
120% of AMI ($102,950/yr; $49.50/hr)	$2,574	$332,595
Single Person Household	**Affordable Rent Using 30% of Income For Housing Related Costs**	**Affordable Home Value Using 30% of Income For Housing Related Costs***
30% of AMI ($18,050/yr; $8.68/hour)	$451	$65,000
60% of AMI ($36,060/yr; $17.34/hr)	$902	$150,000
80% of AMI ($46,000/yr; $22.12/hr)	$1,150	$175,000
120% of AMI ($72,050/yr; $34.64/hr)	$1,801	$290,000
*5% down, 30 year fixed AMI = Area Median Income, based on 2016 AMI of $85,800 Source: Metropolitan Council		

Projected Housing Needs

As noted earlier, the City of Elko New Market recognizes the need to promote a variety of housing choices to serve the life cycle needs of current and future residents. This includes a wide variety of housing styles, sizes, and values, and options ranging from rental apartments through executive homes.

In 2016 the Metropolitan Council estimated that there were 1,497 total housing units within the City. Projected housing needs for Elko New Market are based on Elko New Market's affordable housing allocation and the household projections as provided by the Metropolitan Council's Thrive MSP document. The Metropolitan Council requires that the City embrace the need for 326 affordable housing units by 2030, and total of 4,400 housing units in the City by 2040, which is an additional 2,903 housing units. The Metropolitan Council 2020 / 2030 / 2040 household projections are shown in Table 7-11.

Table 7 - 11

Elko New Market Thrive MSP Housing Projection (Total)			
Location	**2020**	**2030**	**2040**
Elko New Market	2,000	3,030	4,400
Source: Metropolitan Council			

It is also worth noting that in 2016, Maxfield Research completed a study entitled "Comprehensive Housing Needs Update: Scott County, Minnesota". The Study forecasts a need for 2,548 additional general occupancy units, and 220 senior housing units, for a total of 2,768 additional housing units. The Maxfield Research Study forecasts for general and senior occupancy, for sale and rental dwellings, are depicted in Table 7-12.

Table 7 - 12

Housing Needs Forecasts for Elko New Market						
General Occupancy Demand – 2,548 Total Units						
For Sale Demand – 2,235 units		**Rental Demand – 313 units**				
1,802 Single-Family	433 Multifamily	141 Market Rate	125 Shallow Subsidy	47 Deep Subsidy		
Senior Housing Demand – 220 Total Units						
Senior Ownership – 41 units	**Senior Rental – 179 units**					
	50 Market Rate	1 Shallow Subsidy	35 Deep Subsidy	41 Congregate Care	24 Assisted Living	28 Memory Care
Source: 2016 Comprehensive Housing Needs Update for Scott County, Maxfield Research						

Shallow subsidy housing is defined as income-restricted to households earning at or below 80 percent of AMI, although individual properties can have income-restrictions set at 40 to 80 percent AMI. Deep subsidy housing is income-restricted to households with earnings at or below 30 percent of AMI.

The 2040 housing projections provided by the Metropolitan Council, and the 2040 housing needs projected by the Maxfield Research Study are very similar, 2,903 versus 2,768. The Maxfield Research Study reaffirms the need to provide a variety of housing options within the community.

Livable Communities Program

The 1995 Livable Communities Act (LCA) was enacted to provide incentives for addressing various issues facing the seven-county Metropolitan Area and is administered by the Metropolitan Council. Metropolitan Area municipalities which elect to participate in the Livable Communities Program are eligible to compete for funding for community development activities. The former Cities of Elko and New Market began participation in the Livable Communities Act in 2002 and has continued to participate (as the City of Elko New Market) since the merger of the two cities in 2007.

Through the Livable Communities Program, the Metropolitan Council has the ability to make grant and loan awards to communities from the following accounts:

- Livable Communities Demonstration Account (LCDA)
- Local Housing Incentives Account (LHIA)
- Tax Base Revitalization Account (TBRA)

- Transit Oriented Development (TOD)

Of the four accounts, two provide funding for affordable housing goals of cities. The Local Housing Incentives Account (LHIA) provides funding to produce and preserve affordable housing choices while the Tax Base Revitalization Account (TBRA) provides funding for clean ups of brownfield sites for redevelopment, including affordable housing projects.

To compete for Livable Communities grants, communities must participate in the Local Housing Incentives program established by the Metropolitan Livable Communities Act (LCA) as well as negotiate with the Metropolitan Council to establish a set of goals for affordable and lifecycle housing. As development occurs, the City will continue to work toward the achievement of the affordable and lifestyle housing goals of the Livable Communities Act.

In regard to the achievement of affordable housing goals, it is important to recognize that there is an ample supply of developable land available within with City 2040 MUSA which is guided high density residential use (minimum of 10 units per acre). Thus, affordable housing goals are considered attainable in the long-term.

Housing Goals / Policies

The following housing goals / policies have been developed to meet the needs of the growing population through the year 2040. Table 7-13 is a summary of tools that may be used to address those needs.

Housing Goal #1: Support preservation of existing housing stock.
Policies:

- Encourage upkeep and proper maintenance of residential properties in the City.
- Evaluate City zoning codes to ensure that reasonable maintenance of residential properties is required.
- Consider future efforts to survey housing conditions in various neighborhoods to evaluate if deterioration exists and additional action is required.
- Consider implementing a Rental Housing Registration Program to monitor the condition of the City's rental housing stock.
- Consider housing programs such as the Small Cities Development Grant to assist with residential rehabilitation in targeted areas of the community where housing stock is older and in need of rehabilitation.
- Be aware of and promote programs offered through the Scott County CDA and Minnesota Housing Finance Agency, and other agencies that may provide assistance for residential rehabilitation.

Housing Goal #2: Provide housing options for people in all life stages and of all economic means.

Policies:

- Provide opportunities for the potential development of a variety of dwelling unit types through sufficient amounts of appropriately zoned land.
- Maintain zoning and subdivision regulations that allow for the construction of a variety of housing types and price ranges.
- Utilize Planned Unit Development zoning to provide for a mixture of housing types.
- Promote the development of multifamily housing in areas that are well suited to serve high densities.
- Guide and zone land suitable for additional senior housing, in close proximity to goods and services.
- Market and encourage development on existing vacant lots.

Housing Goal #3: Remove barriers to providing a variety of housing options.

Policies:

- Evaluate current City ordinances which may provide barriers to providing housing options and make changes where necessary.

Housing Goal #4: Provide opportunities for the City's share of affordable dwelling units.

Policies:

- Provide sufficient land within the City to accommodate the City's allocation of affordable housing units.
- Provide programs and incentives to encourage the development of affordable dwelling units.
- Maintain strong partnerships with the Scott county Community Development Agency, Metropolitan Council and other agencies / programs such as Habitat for Humanity.
- Encourage the incorporation of affordable housing units as part of mixed-use projects or as components of new multifamily projects.
- Participate in the Livable Communities Act Local Housing Incentive Program to meet benchmarks.

Table 7 - 13

Housing Plan Implementation Tools		
Housing Goal	**Available Tool**	**Opportunity for Use**
Support preservation of existing housing stock.	City Zoning Codes	The City will evaluate City zoning codes to ensure that reasonable maintenance of residential properties is required.
	Rental Housing Registration Program	The City may consider implementing a rental housing registration program to monitor the condition of the City's rental housing stock.

	Housing Survey	The City will consider completion of a housing survey to document housing conditions in various neighborhoods to evaluate if deterioration exists and additional action is required.
	Small Cities Development Grant	The City may consider applying for a Small Cities Development Grant to assist with residential rehabilitation in targeted areas of the community where housing stock is older and in need of rehabilitation.
	Scott County Community Development Agency (CDA)	The City will coordinate with the CDA to be aware of and promote programs that may provide assistance for residential rehabilitation.
	Minnesota Housing Finance Agency (MHFA)	The City will be aware of and promote programs offered through MHFA that may provide assistance for residential rehabilitation.
	Naturally Occurring Affordable Housing (NOAH)	The City will support the continuation of naturally occurring affordable housing within the City. The City may explore opportunities with the Minnesota Housing Fund on the use of NOAH Impact Funds to finance the acquisition and preservation of naturally occurring affordable housing.
Provide housing options for people in all life stages and of all economic means.	Guide land at densities supporting affordable housing	See Future Land Use Map depicting sufficient land to meet the City's affordable housing allocation.
	City Zoning Codes	The City will review zoning and subdivision codes to ensure regulations allow the construction of a variety of housing types and price ranges.
	Home Buyer Counseling / Education	The Scott County Community Development Agency offers first-time homebuyer workshops and counseling services. The City will coordinate with the Scott County Community Development Agency to promote their services in Elko New Market.
	Homeowner Counseling / Education	The Scott County Community Development Agency provides counseling to homeowners struggling with their mortgage payments. The City will coordinate with the Scott County Community Development Agency to promote their services in Elko New Market.
	TIF	The City will consider TIF for development proposals creating multi-family housing options that are not currently available within the community and meet TIF requirements under state statute.

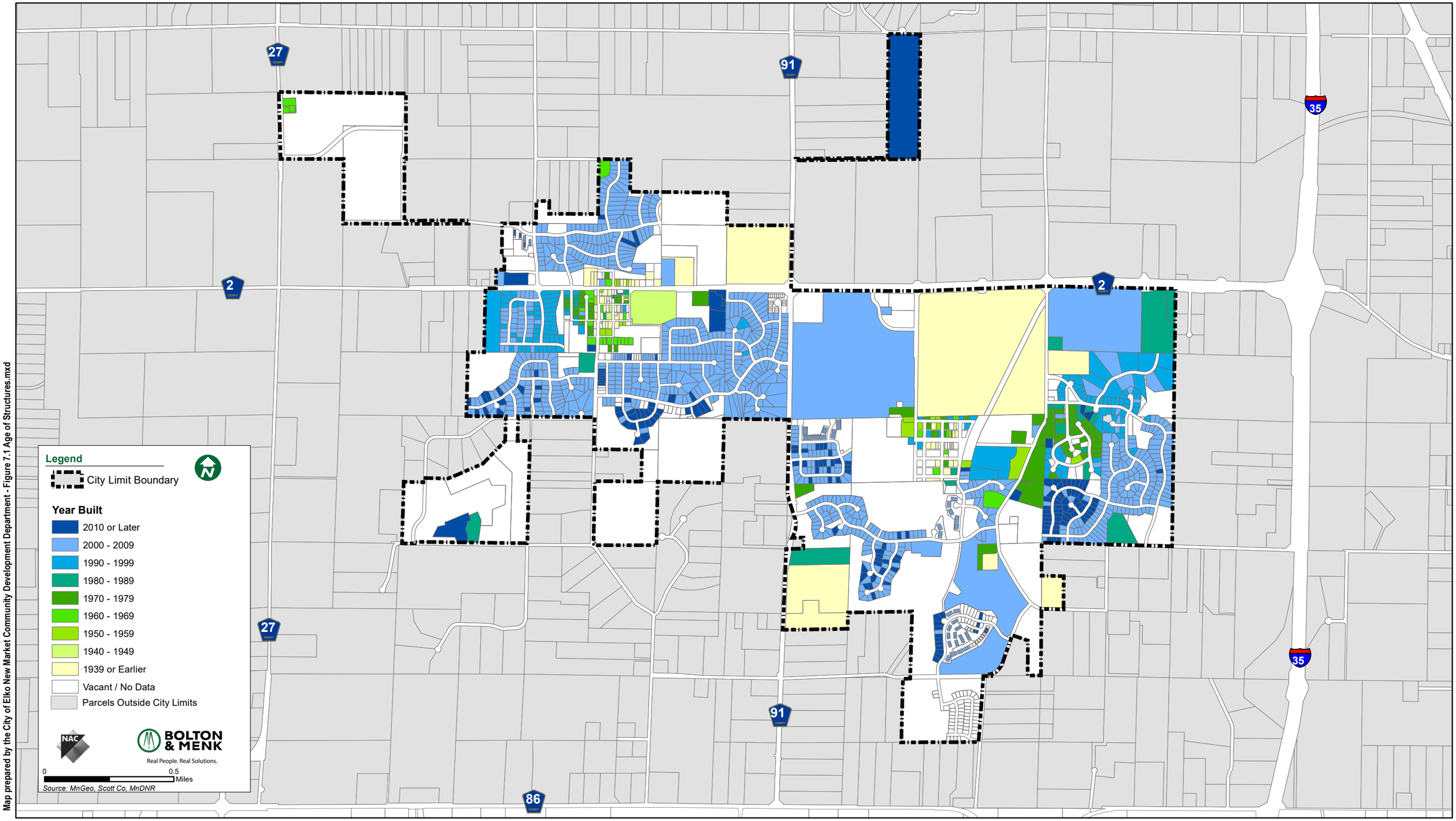
	TAX Abatement	The City will consider the use of tax abatement for multi-family development proposals that create housing options that are not currently available within the community.
	Accessory Dwelling Unit (ADU)	The City will research information regarding ADU's and will educate the City's Planning Commission and City Council regarding ADU's. If supported, a regulatory framework to allow ADU's will be prepared for consideration.
	Housing Bonds	The City will consider the use of housing bonds to facilitate housing projects creating dwellings affordable to persons at or below 80% AMI.
	Scott County CDA	The City will coordinate with the CDA to best align their resources with this stated goal. Examples may be CDA support of 55+, Workforce, or Deep Subsidy Housing.
	Naturally Occurring Affordable Housing (NOAH)	The City will support the continuation of naturally occurring affordable housing units within the City. The City may explore opportunities with the Minnesota Housing Fund on the use of NOAH Impact Funds to finance the acquisition and preservation of naturally occurring affordable housing.
	Fair Housing Policy	The City will consider adoption of a Fair Housing Policy.
Remove barriers to providing a variety of housing options.	City Ordinances	Evaluate current City ordinances which may provide barriers to providing housing options and make changes where necessary.
	Naturally Occurring Affordable Housing (NOAH)	The City will support the continuation of naturally occurring affordable housing units within the City. The City may explore opportunities with the Minnesota Housing Fund on the use of NOAH Impact Funds to finance the acquisition and preservation of naturally occurring affordable housing.
	Fair Housing Policy	The City will consider adoption of a Fair Housing Policy.
Provide for the City's Share of Affordable Dwelling Units	TIF	The City will consider TIF for multi-family development proposals creating dwelling units affordable to persons at or below 80% AMI and meet TIF requirements under state statute.
	Tax Abatement	The City will consider using tax abatement for multi-family development projects

		creating dwellings affordable to persons at or below 80% AMI
	Livable Communities Act	The City will consider supporting and sponsoring an application to Livable Communities Account program for multi-family rental proposals with units suitable for large families, and in areas guided for high density residential.
	Scott County CDA	The City will coordinate with the Scott County Community Development Agency to best align their resources with projects meeting this stated need.
	Guide Appropriate Land Uses and Densities	The City will guide sufficient land to a high-density residential land use designation, which provide the opportunity to construct at least 326 housing units between 2021 and 2030, see planned land use map (Map 6-5).
	Housing Bonds	The City will consider the use of housing bonds to facilitate housing projects creating dwellings affordable to persons at or below 80% AMI
	Monitor Progress	The City will monitor progress toward meeting the affordable housing goals required by the Thrive MSP 2040 plan.

2040 Comprehensive Plan

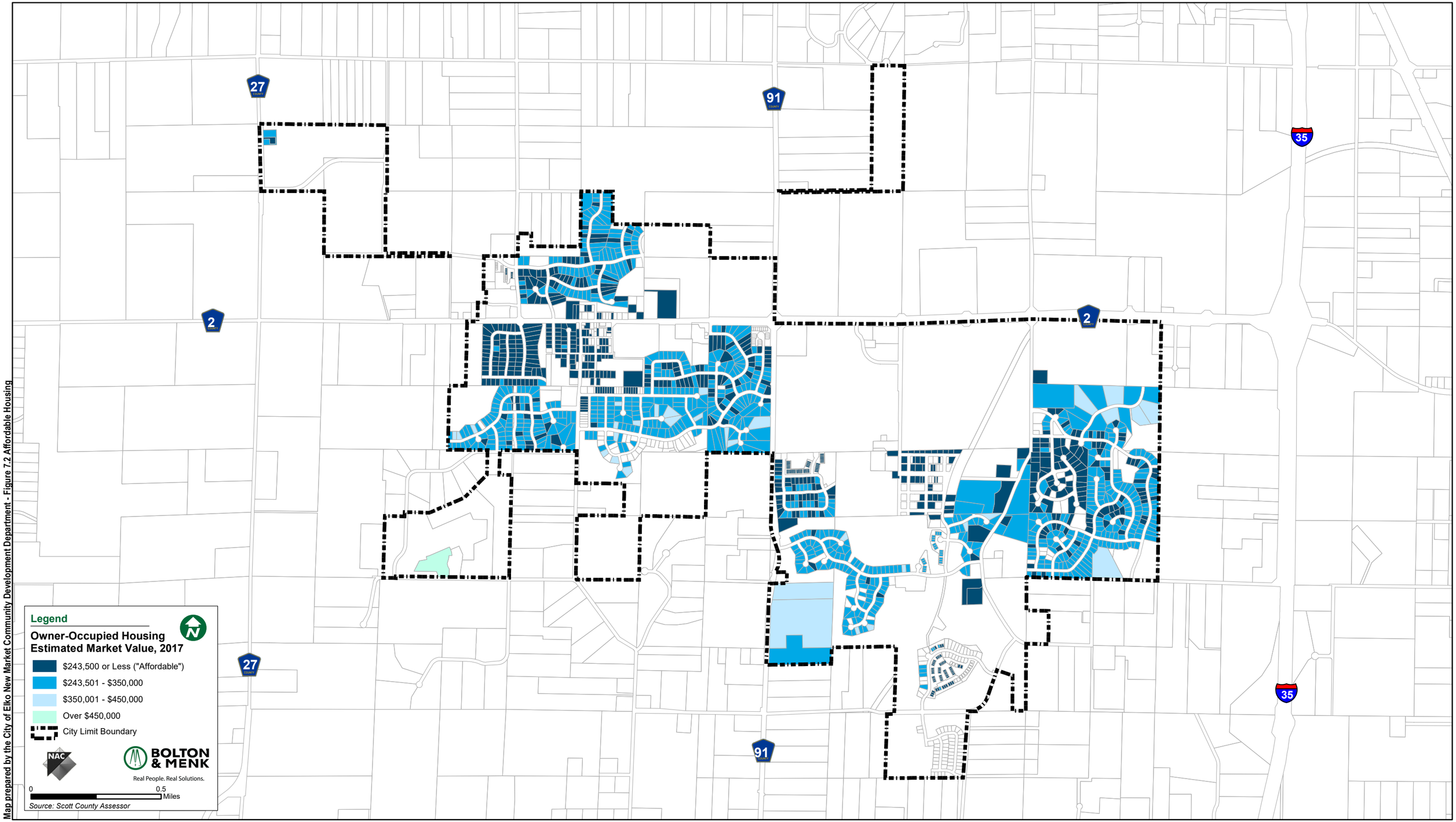
Elko New Market, MN

Age of Structures
Figure 7.1



Map prepared by the City of Elko New Market Community Development Department - Figure 7.1 Age of Structures.mxd

Figure 7.2
Affordable Housing Units



Map prepared by the City of Elko New Market Community Development Department - Figure 7.2 Affordable Housing

INTRODUCTION

The Metropolitan Land Planning Act requires that comprehensive plans for Metropolitan Area communities to contain an element related to the protection and development of access to direct sunlight for solar energy systems. As a result, the following solar resource-related information must be included in the Elko New Market's 2040 Comprehensive Plan update:

1. A map which illustrates the City's gross solar potential.

2. A calculation of the City's solar resources.

3. A policy (or policies) which relate to the development of access to direct sunlight for solar energy systems.

4. Strategies to be applied to implement established solar resource policies.

SOLAR PLAN

Solar Potential

Attached as Figure 8.1 is a graphic depiction (map) of Elko New Market's gross solar potential. The map was developed by the University of Minnesota and is being utilized by the Metropolitan Council. The map illustrates annual sun energy dispersed throughout the City with "high end" potential areas shown in yellow and areas having "low end" energy potential illustrated in black. Such information can be used to predict the productivity of solar installations. According to the Metropolitan Council, the primary issue in the consideration of solar energy installations is intermittent shading due to nearby structures and trees. In this regard, areas which are shown to have "high end" potential in the City are those areas with very little tree cover.

Solar Resource Calculations

Table 8-1 below provides an approximation of Elko New Market's solar potential. The gross solar potential and gross solar rooftop potential, as provided by the Metropolitan Council, are expressed in megawatt hours per year (Mwh/yr). To be noted is that the calculations estimate the current potential resource of the City (prior to the removal of areas considered unsuitable for solar development or factors related to solar efficiency).

Table 8 - 1

Elko New Market - Gross Solar Potential (Megawatt Hours per Year)			
Gross Potential (Mwh/yr)	**Rooftop Potential (Mwh/yr**	**Gross Generation Potential (Mwh/yr)**	**Rooftop Generation Potential (Mwh/yr)**
6,880,061	193,918	688,006	19,391
Source: Metropolitan Council			

Metropolitan Council Notes:

- In general, a conservative assumption for panel generation is to use 10 % efficiency for conversion of total insolation into electric generation.
- The rooftop generation potential does not consider ownership, financial barriers or building-specific structural limitations.

The estimated gross solar generation potential and gross solar rooftop potential are intended to convey how much electricity could be generated in the City of Elko New Market using existing technology and assumptions on the efficiency of conversion. According to the Metropolitan Council, for most cities, the rooftop generation potential is equivalent to between 30 and 60 percent of a community's total electric energy consumption. To be noted is that there is no minimum amount of solar resource development required for cities in the Metropolitan Area.

Solar Policies

The City of Elko New Market has established the following policies which relate to solar resources:

1. Promote reasonable access to solar energy by controlling artificial blockage of solar radiation through land management tools, such as zoning and building codes, for optimum long-term economic and environmental benefits.

2. Encourage residential solar development which maintains community and neighborhood character.

3. Increase energy resilience of critical facilities such as police, fire and emergency and hazard response centers.

4. Fairly balance the development rights of land owners with solar resources with the community character rights of adjacent landowners.

5. Encourage the development of community solar gardens on lands outside of the City's 2040 MUSA boundary which retain the community character and provide co-benefits such as the creation of pollinator habitat.

Solar Goal Implementation

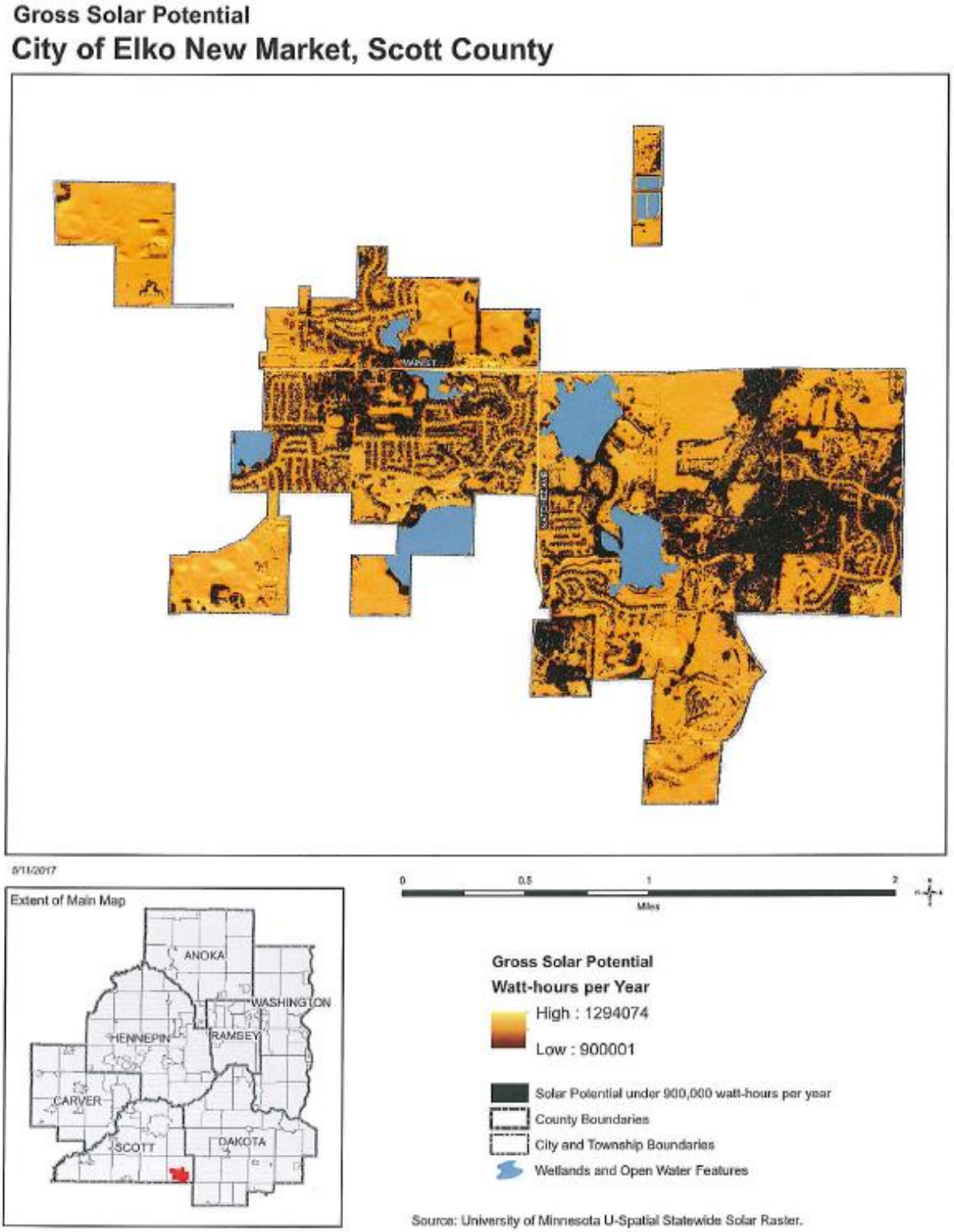
City actions will include the following:

- Consider changes needed to local ordinances which will make solar energy more feasible. This may include evaluating regulations to allow additional solar opportunities in the City's Institutional zoning districts (schools, churches, public facilities).

- Continue to accommodate alternative energy systems (wind, solar and geothermal) in accordance with applicable Ordinance requirements.

- Continue to monitor technological changes which relate to alternative energy systems, including solar, to ensure that the City's Ordinance provisions respond to such changes in a responsible manner.

Figure 8.1


Gross Solar Potential
City of Elko New Market, Scott County
5/11/2017
Extent of Main Map
ANOKA
WASHINGTON
HENNEPIN
RAMSEY
CARVER
SCOTT
DAKOTA
0
0.5
1
2
Miles
Gross Solar Potential
Watt-hours per Year
High : 1294074
Low : 900001
Solar Potential under 900,000 watt-hours per year
County Boundaries
City and Township Boundaries
Wetlands and Open Water Features
Source: University of Minnesota U-Spatial Statewide Solar Raster.

INTRODUCTION

Overview & Purpose

The City of Elko New Market is a free-standing community in a rural setting with growing suburban-style development. Its location within the regional transportation network is depicted on **Figure T-1**. With its close access to I-35, Elko New Market has strong potential for future growth. Scott County arterial roadways provide the backbone of Elko New Market's roadway system, and the City is developing a growing system of collector roadways to support development and complement County roads.

The primary purpose of this Transportation chapter is to provide guidance to City staff and elected officials regarding the implementation of effective, integrated transportation facilities and programs through the 2040 planning timeframe. This chapter is consistent with regional requirements for transportation as captured in the Metropolitan Council's 2040 *Local Planning Handbook*.

This chapter is organized into the following sections:

- Existing Roadway Conditions
- Transportation Questions from Residents
- Summary of Existing Transportation Studies
- Roadway System Plan
- Transit
- Biking and Walking
- Aviation
- Freight
- Transportation Funding Sources

Transportation Goals

The City of Elko New Market adopts the following goals to guide the continued development of a transportation system that best serves its residents and businesses:

- <u>Overall transportation system attributes</u> – Plan/provide a system that is:
    - Safe
    - Economically feasible
    - Functional
    - Convenient
    - Multi-modal (vehicles [cars and trucks], bicyclists and pedestrians accommodated)
    - Designed appropriate to context
    - Aesthetically pleasing

- Safe pedestrian crossings – Scott County arterial roadways are the primary roadways within the community; therefore, coordinate with the County to provide safe crossings of these and other higher volume roadways which are safe and comfortable for pedestrians.

- Comprehensive trail network – Trails represent a quality-of-life type of amenity which is important to many current and future residents; therefore, provide off-street trails in a comprehensive and coordinated manner.

- Importance of CSAH 2 and I-35 Travel – Many Elko New Market residents work in the Twin Cities metro area and use CSAH 2 to access I-35 for their work commutes; therefore, ensure that CSAH 2 and the I-35/CSAH 2 interchange operate safely and with minimal delay.

- Regional coordination – County roadways are key arterials within and surrounding the City's roadway network, and I-35 is critical for access to the metro area for jobs and other purposes; therefore, coordinate effectively with Scott County, Dakota County, and MnDOT regarding regional improvements beneficial to City and regional users. This includes promoting a new I-35 interchange at CSAH 86.

- Collector/local street system – There is substantial potential for future development within the current City limits and planned 2040 growth area; therefore, develop a collector and local street network which is convenient for residents and limits the need to use existing arterials for local travel. This network should be well planned, accommodating anticipated growth patterns as well as terrain and environmental factors, and should be financed in an equitable manner with appropriate funding levels provided by development.

More focused strategies to meet these goals are presented throughout the remainder of this chapter.

EXISTING ROADWAY CONDITIONS

Existing Traffic Volumes and Crash Data

The most basic characteristic of a given roadway is the volume of traffic that it carries. Existing traffic volumes on roadways in the Elko New Market area are presented on **Figure T-2** which represents MnDOT traffic data. The most recent crash data focusing on intersections is also summarized on **Figure T-2**. It can be seen that the largest number of crashes was at the CSAH 2/CSAH 91 intersection. This is not surprising, since this is the highest volume intersection in the City. A roundabout is in the City's Capital Improvement Program for this location in 2020, which will improve safety conditions.

Jurisdictional Classification

Roadways are classified on the basis of which level of government owns and has jurisdiction over them. For the Elko New Market area, roadways are under the jurisdiction of MnDOT (Interstate 35), Scott County, New Market Township, or the City itself. **Figure T-3** depicts the existing roadway jurisdictional classification system in the Elko New Market area.

Functional Classification

The functional classification system is a roadway network that distributes traffic from neighborhood streets to collector roadways, then to minor arterials, and ultimately the Metropolitan Highway System. Roads are placed into categories based their function: the degree to which they provide **access** to adjacent land uses and lower level roadways versus providing higher-speed **mobility** for "through" traffic. Functional classification is a cornerstone of transportation planning. Within this approach, roads are located and designed to perform their designated function.

The current roadway map for Elko New Market reflecting functional classifications consistent with Metropolitan Council definitions is presented on **Figure T-4.** The roadway system presently consists of six functional roadway classifications:

- Principal arterial
- "A" minor arterial, including the sub-categories: reliever, expander, connector, and augmenter
- Major collector
- Minor collector
- Local street

The Metropolitan Council has defined four sub-categories of "A" minor arterials: reliever, expander, connector, and augmenter. These sub-categories have to do primarily with Metropolitan Council's allocation of federal funding roadway improvements, but do not translate into specific design characteristics or requirements. While "A" minor arterials are eligible for federal funding, "other arterials" are not.

For arterial roadways, the Metropolitan Council has designation authority. Local agencies may request that their roadways become arterials (or are downgraded from arterial to collector), but such designations or re-designations must be approved by the Metropolitan Council. The agency which has jurisdiction over a given roadway (e.g. Scott County or the City of Elko New Market) has the authority to designate collector status.

<u>Principal Arterials</u>
Principal arterials are the highest roadway classification and make up the Metropolitan Highway System. The primary function of these roadways is to provide **mobility** for regional trips, and they do not provide a land access function. They are intended to interconnect regional business

concentrations in the metropolitan area, including the central business districts of Minneapolis and St. Paul. These roads also connect the Twin Cities with important locations outside the metropolitan area. Principal arterials are generally constructed as limited access freeways, but may also be multiple-lane divided highways.

There are no principal arterials within the current Elko New Market city limits. The closest principal arterial, and one which is critical to Elko New Market residents regarding travel to the Twin Cities metro area and other regional destinations is Interstate 35 (I-35). This freeway is approximately one-half mile east of the easterly city limit and is within the City's planned 2040 growth area.

"A" Minor Arterials

"A" Minor Arterials connect important locations within the City of Elko New Market to access points of the metropolitan highway system and to important locations outside the City. These arterials are also intended to carry short to medium trips that would otherwise use principal arterials. While "A" minor arterial roadways provide more access than principal arterials, their primary function is still to provide **mobility** rather than access.

Within the existing City limits and planned 2040 growth area there are four "A" minor arterials:

County State Aid Highway (CSAH) 2 (Main Street/260th Street) – CSAH 2 is an east-west route providing connectivity across southern Scott County between Scott County CSAH 11 on the west and Dakota County CSAH 9 at the Dakota County border on the east. CSAH 2 provides the only interchange access to I-35 in Scott County and is heavily traveled in the a.m. and p.m. peak hours. It is Main Street through the downtown portion of Elko New Market (former New Market).

CSAH 86 (280th Street West) – CSAH 86 is an east-west route just south of the Elko New Market city limits along the Scott County and Rice County borders. It provides connectivity between the interregional corridors of Trunk Highway (TH) 169 west of the City of New Prague and TH 52 in Dakota County.

CSAH 27 (Texas Avenue) – CSAH 27 is a north-south corridor beginning at CSAH 86 and terminating at CSAH 16 in Savage. Since the 2030 Transportation Plan, CSAH 27 has been realigned to link with Rice County CSAH 3 at CSAH 86.

CSAH 46 (Pillsbury Avenue, north of CSAH 2) – CSAH 46 is a north-south corridor generally paralleling I-35 to the east. The route of old Hwy 65 which I-35 replaced in the 1960s. South of CSAH 2, CSAH 46 is classified by the Metropolitan Council as "other arterial" (see below).

Other Arterials

Like "A" minor arterials, other arterials also serve more of a mobility function than an access function. However, they may not have as much regional importance as "A" minor arterials and

are not eligible for federal roadway improvement funding. This classification used to be termed "B" minor arterials. The Metropolitan Council now refers to them as "other arterials."

There are two "other arterial" roadways in the Elko New Market area:

CSAH 91 (Nachez Avenue) – CSAH 91 is a north-south corridor that begins at CSAH 86 (280th Street) south of the Elko New Market area, and continues north to CSAH 21 (Eagle Creek Avenue/185th Street), in Credit River Township. CSAH 91 runs through the City limits of Elko New Market. Traffic volumes are significantly heavier on this roadway south of CSAH 2 than north of CSAH 2, partly due to residential development in Elko New Market over the last 10-20 years. The roadway also carries a significant amount of traffic from southerly part of Scott and northerly parts of Rice and Le Sueur counties to and from Interstate 35.

CSAH 46 (Pillsbury Avenue, south of CSAH 2) – CSAH 46 is a north-south corridor generally paralleling I-35 to the east. The route of old Hwy 65 which I-35 replaced in the 1960s. North of CSAH 2, CSAH 46 is classified by the Metropolitan Council as an "A" minor arterial.

Major and Minor Collectors

Collector roadways provide a **balance** of the **mobility** and land-use **access** functions. They generally serve trips that are entirely within the City and connect neighborhoods and smaller commercial areas to the arterial network. Minor collectors generally are shorter in length, with lower volumes and lower speeds than major collectors.

Existing major collector streets are as follows:

Xerxes Avenue – The existing "major collector" portion of Xerxes Trail runs from Glenborough Drive on the south, to CSAH 2 on the north. This street collects traffic from adjacent residential neighborhoods and conveys it to CSAH 2 on the north. 2014 traffic volumes are approximately 2,600 AADT, with counts tapering off further to the south.

Existing minor collector streets are as follows:

France Avenue – The "minor collector" portion of France Avenue runs from CSAH 2 to the main Elko Speedway access approximately 2,000 feet to the south. Elko Speedway is a major traffic generator within the City.

Glenborough Drive – Glenborough Drive, from CSAH 91 on the west to Xerxes Trail on the east, functions as a minor collector street. This primarily residential street was constructed during the 2000's and does include residential driveway access, but based on the "through" design of the street, it functions as a minor collector street. Glenborough Drive collects traffic from residential neighborhoods and conveys it to higher level roadways. It also serves as access to a local golf course.

Aaron Drive – Aaron Drive, from Webster Street on the west to CSAH 91 on the east, functions as a minor collector street. This primarily residential street was constructed during the 2000's and does include residential driveway access, but based on the "through" design of the street, it functions as a minor collector street. Aaron Drive collects traffic from adjacent residential neighborhoods and conveys it to higher level roadways.

James Parkway – James Parkway, lying west of Dakota Avenue, functions as a minor collector street. This segment of James Parkway was constructed in the mid-2000's. The adjacent properties are primarily undeveloped; however, James Parkway serves as the primary access to Eagleview Elementary School. Current traffic volumes are approximately 1,000 AADT.

Local Streets

Local streets are primarily for **access** to adjacent land uses. Mobility is significantly hampered by traffic entering and leaving driveways, parked cars, and pedestrians and bicyclists. They connect land uses to the collector and arterial street system. They're often designed to discourage through traffic by short blocks, offsets in alignment, or looped layouts to promote the quality of life desired by residents. However, connections to adjacent neighborhoods must also be considered to avoid creating undue inconvenience to residents and unnecessary local traffic on mobility-oriented roads.

The recommended **future** functional classification network is discussed under the Future Roadways and Functional Classification heading of the Roadway System Plan section (see also **Figure T-5**). There are various existing roadways (e.g. 255th Street East) which are too short currently to be collector roadways, but as these roadways are extended to meet development needs, the City intends to classify them as collectors. When coordinating with developers on roadway design standards, access standards, and similar design parameters, it is the future functional classification of the given roadway as identified on **Figure T-5** that will apply.

Number of Travel Lanes

All roadways in Elko New Market are two-lane except for the following:

- CSAH 2 (A minor arterial) – four-lane divided from CSAH 91 to west of I-35
- France Avenue (minor collector) – four-lane undivided between CSAH 2 and the main access to Elko Speedway approximately 2,000 feet to the south

Please see **Figure T-4**.

TRANSPORTATION QUESTIONS FROM RESIDENTS

The most frequently-asked transportation-related questions or requests from local stakeholders involve the speed of traffic through town, as well as roadway signage and pavement markings. Information is provided under the following headings to address these factors.

Speed Limits

Residents sometimes ask for speed limits to be reduced to slow down traffic. Minn. Statute 169.14 establishes statutory speed limits on most roadways, regardless of what agency has jurisdiction over the roadway (i.e. city, county, state). Speed limits are set by the City at the time a street is opened. The most common speed limits are:

- 10 mph in alleys
- 30 mph on streets in urban districts
- 55 mph on other roads
- 65 mph on expressways
- 65 mph on urban interstate highways
- 70 mph on rural interstate highways

A jurisdiction may reduce the speed limit on residential roadways to 25 mph, or increase speed limits to 35 mph in a rural residential district. All other speed limits are set by the Department of Transportation Commissioner based upon an engineering and traffic investigations.

Studies have shown that lowering a speed limit does not actually reduce speeds or driver behavior. A driver is much more influenced by the roadway design and conditions than the posted speed limit. Likewise, lowering a speed limit is not proven to reduce crashes. Crashes are most often the result of driver inattention and driver error.

More information can be found by visiting the Minnesota Department of Transportation's speed limits page, http://www.dot.state.mn.us/speed/

Stop Signs

Stop signs are sometimes requested in response to a specific incident or condition involving vehicles and/or pedestrians. Or, in some instances, they are requested as part of a broader desire to reduce travel speeds through town.

The use of stop signs is guided by MnDOT's *Manual of Uniform Traffic Control Devises* (MUTCD). The MUTCD defines a list of conditions under which the installation of stop signs should be considered pending traffic engineering analysis which supports such an action. In the absence of these conditions, stop signs are not recommended. The MUTCD identifies that research suggests that at most low traffic volume locations, increasing the level of intersection control (e.g. through stop signs) will not improve safety (Section 2B.6). It also specifically recommends that stop signs should not be used for speed control.

A general "rule-of-thumb" of traffic engineering is that if control measures such as stop signs are overused, they tend to be disregarded by motorists, and safety or other potential problem conditions can be made worse. The installation of any stop signs on CSAH 2, CSAH 91, or CSAH 27 would be under the authority of Scott County. On City roadways, the City Engineering

department needs to consider any request for stop signs within the context of MUTCD guidance as well as traffic engineering analysis which meets industry standards. This analysis would consider factors such as traffic/pedestrian volumes, crash history, vehicle turning movements, adjacent land uses, and intersection geometry and sight distances.

It is recognized by the City that there are stops signs that exist within the community which likely do not meet the guidance contained in the MUTCD for placement of such signs. Such signs were likely placed many years ago, at a time when the City did not heavily rely on engineering based guidance documents such as the MUTCD. As opportunities arise, the City supports removal of stop signs at locations that do not meet MUTCD guidance.

Pedestrian Crosswalks

Pavement markings such as crosswalks are also often requested by residents with the intention of making it safer to cross a street in a specific location. The nationwide incidence rate of crashes involving pedestrians is extremely low; however, the fears, often expressed by parents, are genuine. The City should respond to these requests with the intention of improving safety rather than assuaging fears. This can be challenging in the face of emotional pleas to take action; however making unwarranted improvements may actually decrease safety – ***no sign or pavement marking, no matter how noticeable, can actually make a motorist stop.*** Measures that reduce pedestrian vigilance can therefore be detrimental to the intended purpose.

Crosswalks are covered in the MUTCD referenced above. However, its guidance for crosswalks is relatively generalized and leaves significant discretion to traffic engineering analysis and judgement. There has been extensive research into the question of whether crosswalks improve pedestrian safety conditions. The results for unsignalized intersections indicate that crosswalks on higher speed arterial roadways actually increase the frequency of pedestrian crashes. Even for lower speed and volume roadways, the research results are inconclusive as to whether crosswalks enhance pedestrian safety conditions.[1]

One strategy that can be effective in improving pedestrian safety and feelings of security is to pay attention to how development may influence the need or desire for pedestrians to cross in a particular location. The location of sidewalks, streets and intersections relative to neighborhoods and park, institutional, or retail uses can often be managed to promote crossings of streets away from busy, higher speed zones, or areas with less sight distance between cars and pedestrians. Mid-block crossings should be avoided, and promoting crossing of the less-busy legs of intersections (providing pedestrian guidance is the actual purpose of crosswalk markings) should be favored if a street crossing is necessary.

The implementation of any new crosswalks on CSAH 2, CSAH 91, or CSAH 27 would be under the authority of Scott County. Regarding requests for new crosswalks on City streets, they should

[1] *Traffic Safety Fundamentals Handbook* (Section C-39), MnDOT, 2015.

be referred to the City Engineering Department for review using MUTCD guidance and analysis by a licensed traffic engineer.

Traffic Operation Change Requests

Recognizing that public input regarding the City's overall transportation system is important, the City of Elko New Market has adopted a formal policy regarding requests related to changes in traffic operations, such as a request for stop sign installation or change in speed limit. The policy documents that any changes in traffic operations shall conform to the Minnesota Manual of Uniform Traffic Control Devices, Minnesota Statute, or engineering based studies.

SUMMARY OF EXISTING TRANSPORTATION STUDIES

A summary of transportation studies most relevant to roadways in the Elko New Market area is provided below.

Highway 2 and 91 Gateway and Access Study/Grant Award

The City of Elko New Market commissioned a study focusing on the CSAH 2/CSAH 91 intersection. The study, completed by Bolton & Menk in May of 2013, evaluated benefits and costs associated with constructing a roundabout at this location. The key findings of the study were as follows:

- A roundabout would have gateway and place-making benefits at this location for those traveling westbound into the downtown (old New Market) area on CSAH 2.
- A roundabout would have operational and safety benefits based on intersection functional area analysis and other well-documented roundabout safety factors.
- A roundabout would be preferable to a conventional signal-controlled intersection in terms of providing access to adjacent land uses and allowing those areas to develop to their highest and best potential.

Following the results of the study, the City, with the assistance and support of Scott County, applied for funding under MnDOT's Highway Safety Improvement Program (2016 solicitation) to construct a roundabout at the CSAH 2/CSAH 91 intersection. This funding was awarded, and the City plans to construct the project in 2020.

Elko New Market Alternative Urban Areawide Review (AUAR)

Ryan Companies initiated discussions with the City of Elko New Market regarding a development project called Park I-35. Park I-35 includes a 125 acre parcel of land envisioned for industrial park/distribution center development in the southeast quadrant of the I-35/CSAH 2 interchange. To clear the area for development in terms of environmental review, the City conducted an Alternative Urban Areawide Review (AUAR) consistent with Minnesota

Environmental Policy Act requirements. The AUAR process was initiated in 2014 and concluded in 2015. It covered not only the 125 acre Ryan parcel, but an additional 140 acres of adjacent land with potential for similar development.

One of the key issues addressed in the AUAR was traffic, and the proposed development's anticipated impacts on surrounding roadways. The traffic analysis included extensive coordination with Scott County and MnDOT. It concluded that interim-level improvements generally including traffic signals and turn lanes at I-35 ramp intersections with CSAH 2 would adequately accommodate traffic growth associated with associated with development at the AUAR site up to 1.5 million square feet of light industrial development. The AUAR analysis identified the ultimate need for replacement of the CSAH 2 bridge over I-35 with a wider bridge section to accommodate additional development beyond 1.5 million square feet.

I-35/CSAH 2 Interchange Environmental Assessment Worksheet (EAW)

Following completion of the Elko New Market AUAR which identified the long-term need for replacement of the CSAH 2 bridge over I-35, government agencies convened an effort to identify the preferred long-term solution to the bridge replacement. A comprehensive review of the interchange was completed, including preparation of an EAW.

The purpose of the interchange review was to:

- Identify the appropriate interchange design
- Provide information to guide local land use planning and preserve the necessary right-of-way for the interchange footprint

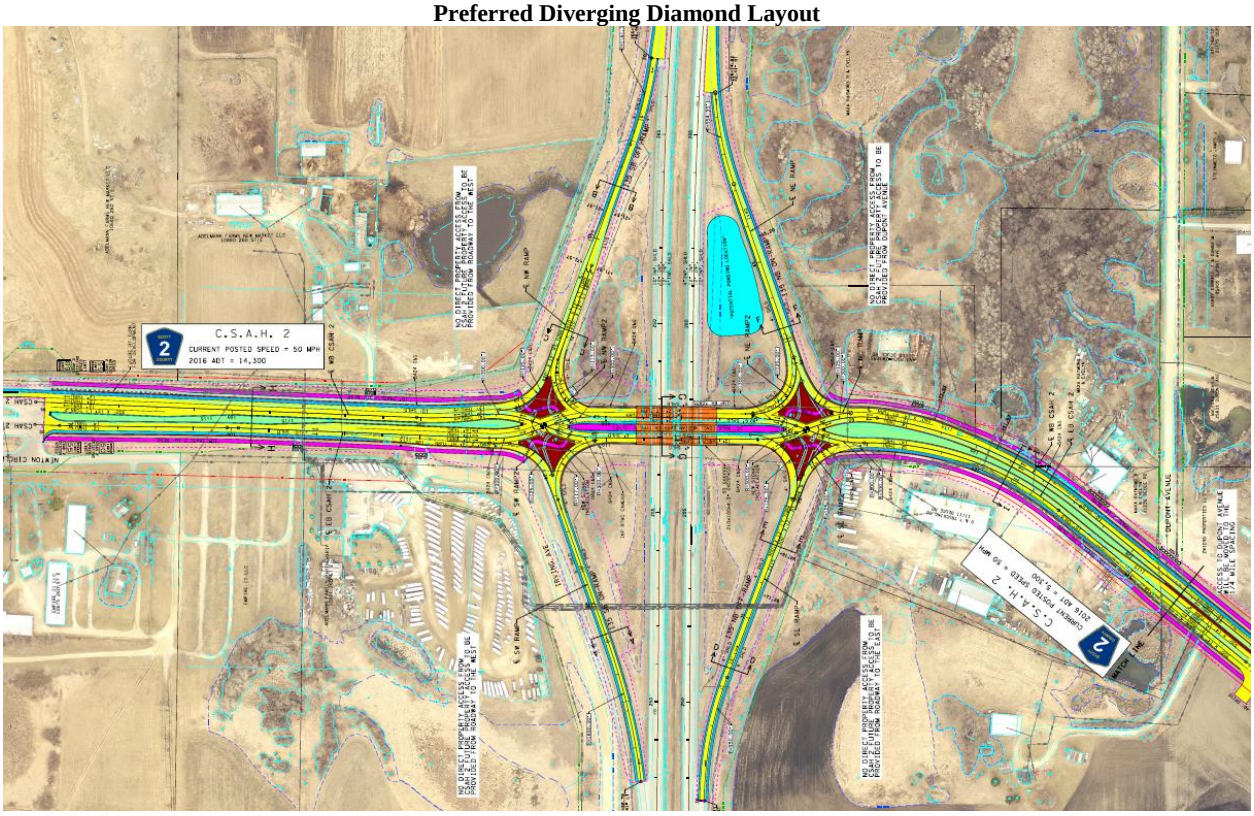
The study process supporting the EAW analyzed the following interchange designs:

- Traditional diamond interchange
- Diverging diamond interchange
- Partial cloverleaf interchange
- Single point urban interchange

A diverging diamond interchange was selected to be evaluated in the EAW. This selection was based on evaluation of the following primary factors:

- Operational/safety benefits
- Cost
- Right-of-way and environmental impacts

Preferred Diverging Diamond Layout



MnDOT, Scott County, the City of Elko New Market, and New Market Township ultimately entered into a Memorandum of Understanding regarding the diverging diamond interchange design whereby all agencies agreed to guide to development in such a manner that would preserve the ability to construct the diverging diamond at some point in the future. Ultimate reconstruction of the interchange will require improvements to CSAH 2 to include widening and channelization.

The interchange project is currently not programmed or funded in any government capital improvement plan.

CSAH 2 Development Infrastructure Needs Study

The City of Elko New Market commissioned this study to review roadway and other infrastructure needs to support future development on either side of CSAH 2 between CSAH 91 and I-35, a distance of approximately two miles. The purpose of the study was to perform technical analyses and solicit stakeholder input to help define the City's future infrastructure plans along this stretch of CSAH 2. This will inform the City's funding plans and facilitate discussions with developers. The focus of the summary below is on the roadway elements of the study; however, the study also covered utility elements.

To comply with Scott County access management guidelines, development along CSAH 2 in the study area will rely on a new collector roadway system parallel to CSAH 2 which will provide frontage/backage access to properties. The study addressed two challenges:

- Under current City access management guidelines, private access is not allowed on major collector streets, and access on minor collectors must have a minimum 1/8 mile (660 feet) setback from the intersection of a collector or higher level roadway.
- The current design guidelines for collector roadways as defined in the 2030 Elko New Market Transportation Plan call for relatively high-cost roadways relative to initial demand when development commences.

To address these factors, the study created a new collector classification, "commercial collector." These roadways would be designed to provide more of a mobility/connectivity function than local streets, but would allow flexibility regarding access and design characteristics. The study identified that design standards will be established for commercial collectors which include:

- Narrower widths (relative to current City collector standards) achieved by restricting parking
- Commercial access allowed as guided; access sharing promoted
- Use of turn lanes as volumes dictate, meaning associated rights-of-way must be preserved
- Heavier-duty pavement sections to facilitate truck traffic to support commercial deliveries and services
- Use of a continuous two-way center left turn lane in some cases where projected volumes dictate or the opposite half of the roadway from planned development isn't ready to make improvements. The section would provide an interim, fire-code compliant roadway design.

The location and access provisions of the envisioned commercial collectors considered as part of this study are identified on **Figure T-6**.

ROADWAY SYSTEM PLAN

Future Roadways and Functional Classification

With anticipated development in the City's 2040 growth area, the roadway network will need to be expanded accordingly. The City has identified a future network of collector roadways to support future development and limit the volume of local trips on arterials (most notably CSAH 2). The City's future roadway network is depicted on **Figure T-5**. This map also depicts the Metropolitan Council functional classification. It is noted that not all of the future roadways identified will be constructed by 2040; the collector system should be constructed as actual development occurs. However it is necessary to have a long-term vision in place as the system is built incrementally.

Figure T-6 depicts Elko New Market commercial collectors. This designation is not part of the Metropolitan Council classification system, and therefore is not depicted on **Figure T-5**. However, the City has jurisdiction over its roadways regarding design and access standards. The concept of commercial collectors was a result of the CSAH 2 Infrastructure Development Needs Study summarized earlier in this Transportation Chapter.

Traffic Forecasts for 2040 Roadway Network

The roadway network assumed for the 2040 traffic forecast analysis includes the existing network, plus anticipated funding-constrained improvement projects. Neither the City of Elko New Market nor Scott County have any programmed new roadway or capacity expansion improvement projects within the current city limits or 2040 growth boundary.

Scott County entered into an agreement with its cities and townships, including Elko New Market, to perform traffic forecasting using the Metropolitan Council regional forecast model in their 2040 transportation plans. Following Metropolitan Council guidelines, Scott County assumed one funding-constrained improvement within the City by 2040 – construction of a minor collector CSAH 2 service road on the south side of the highway between France Avenue and approximately Newton Circle. While this improvement is not programmed, the City considers it likely by 2040 and it met County requirements for being included in the 2040 model. In the City's functional classification system, this is a commercial collector roadway.

It may be noted that other improvement projects have been studied and/or discussed and may be constructed prior to 2040. This includes:

- I-35/CSAH 2 interchange reconstruction project discussed previously in this report. It is anticipated that this project will add one travel lane in each direction on CSAH 2 between approximately Newton Circle and the interchange on the west side. East of the interchange, the County is planning for a three-lane roadway from the interchange to approximately a quarter mile east of Dupont Avenue.

- Continued buildout of the commercial collector network identified on **Figure T-6**

- Construction of other future City collector roadways depicted on **Figure T-5**.

Construction of these and other potential projects would be dictated by development demand and/or funding availability. Construction of these projects would not be anticipated to affect the 2040 volumes on the regional minor arterial network. Using applicable design standards per information elsewhere in this Transportation Plan, the roadways would be able to handle the projected 2040 volumes.

Transportation Analysis Zone Information and 2040 Forecast Results

Traffic forecasts are based on the use of Transportation Analysis Zones (TAZs). Each TAZ has demographic and employment information that translates to vehicular trip origins and

destinations. Computer models assign the resulting trips to specific routes (roadways). The baseline TAZs for metro communities to be used in the 2040 comprehensive planning process were defined by the Metropolitan Council.

A map of Elko New Market TAZs is provided on **Figure T-7**. The anticipated future land use patterns discussed in the Land Use chapter of this Comprehensive Plan were assumed for the 2040 TAZ allocations identified in **Table T-**1. Projections are also provided for 2020 and 2030 consistent with Metropolitan Council requirements for the transportation elements of 2040 Comprehensive Plans.

Table T-1

Elko New Market TAZ Projections									
TAZ	**2020**			**2030**			**2040**		
	HH	**Pop**	**Jobs**	**HH**	**Pop**	**Jobs**	**HH**	**Pop**	**Jobs**
2259	600	1,424	200	707	2,006	210	1,026	2,620	219
2260	575	1,220	260	606	1,720	270	880	2,422	280
2261	412	2,019	325	1,003	2,847	375	1,457	4,034	415
2262	413	1,437	845	714	2,027	925	1,037	2,824	1,026
TOTAL	**2,000**	**6,100**	**1,630**	**3,030**	**8,600**	**1,780**	**4,400**	**11,900**	**1,940**

It should be noted that Metropolitan Council requirements dictate that all future growth be assigned within existing City limits for these estimates. Given this restriction, an attempt was made to reflect some anticipated growth that will more likely take place outside of existing City limits. This affects projections for 2040, and back to 2020, in the table.

Future Roadway Capacity Evaluation for 2040 Traffic Forecasts

Traffic modeling was completed by Scott County, as referenced previously, and generated 2040 traffic projections for primary roadways. These results are presented as average daily traffic (ADT) on **Figure T-8**. Adjustments relative to the County forecasts were made at certain locations, following professional traffic engineering practices and judgement, to account for local conditions.

Table T-2 provides a method to evaluate roadway capacity for mid to long-range planning purposes. Typical roadway capacities are presented for different roadway types. These capacities are presented in terms of vehicles per day, and may be compared against the projected 2040 volumes summarized on **Figure T-8**. These estimates were based on methods and guidance from Transportation Research Board's *Highway Capacity Manual*.

Table T-2

Typical Traffic Capacity by Roadway Type/Configuration For Roadways in Elko New Market	
Roadway Design	**Planning Level Capacity (vehicles per day)**
Gravel road	500
2-lane local/residential road	1,000
Urban 2-lane minor collector	1,700
Urban 2-lane undivided (major collector/minor arterial)	11,000
Rural 4-lane divided (minor arterial)	37,000
Source: Bolton & Menk, Inc., using methods from Highway Capacity Manual, Sixth Edition	

Based on the projected 2040 traffic volumes on primary roadways relative to the identified capacity estimates, it is not anticipated that significant roadway expansions will be required by 2040. While forecasts are not included for all future collector roadways, these roads will be able to handle future traffic volumes as long as they are built according to City standards as summarized in this Transportation Plan.

Please note that this capacity review is for overall roadway segments and does not cover any detailed intersection analyses which may be required over the planning horizon.

Design Speed

The design speed of a roadway is directly related to the roadway's function in the roadway system. The focus of minor arterial roadways is mobility; therefore these roadways should be designed to accommodate higher travel speeds. Likewise, minor collector roadways are more focused on land use access and should be designed to accommodate lower travel speeds. The function of major collectors is balanced between mobility and accessibility; therefore, these roadways should be designed accordingly. **Table T-2(a)** presents the recommended design speeds for the Elko New Market roadway network.

Table T-2(a)

Roadway Design Speed Guidelines	
Functional Classification	**Design Speed[(1)]**
Minor collector street	30 mph
Major collector roadway	30 – 40 mph
Minor arterial roadway	45 – 55 mph
[(1)]At the discretion of the City Engineer for City roadways, with approval by the City Council.	

Recommended Roadway System Improvements and Studies

No major studies concerning local roadways are identified at this point. Smaller scale studies may be required as individual properties develop to determine the development's impact on the surrounding road network.

The improvements to the CSAH 2 / I-35 interchange as described previously (interim improvements and full interchange replacement) are a high priority for the City. The City will continue to actively promote efforts to advance these improvements. The City will also support future efforts to study an I-35 interchange at CSAH 86.

"Mini Roundabouts" are roundabouts having much smaller inscribed diameters than conventional roundabouts, which generally allows them to fit within a standard intersection layout. The idea behind this type of installation is that they are relatively inexpensive and provide the safety benefits of typical roundabouts (on lower volume roadways), yet also provide more operational capacity than a four-way stop sign intersection. They can have significant pedestrian safety benefits by reducing travel speeds through the intersection and by providing a pedestrian refuge on splitter islands if they are designed in this manner. The City will evaluate mini roundabouts where appropriate as retrofits of existing intersections and/or as the future collector network is built out.

Future Jurisdictional Classification

The City does not anticipate that there will be any jurisdictional transfer of roadways in the 2040 planning period, other than transfers from township to city with potential annexations.

Access Management

The purpose of access management is to provide adequate access to adjacent land development while also maintaining traffic flow on higher level roadways. Management consists of carefully controlling the spacing and design of public street intersections, as well as the location of private access points (driveways) on the public roadway system based on the roadway functional classification system discussed previously. Arterials, being designed for higher speed, longer-distance trips, generally have restricted access. Conversely, local streets serve low speed, short distance trips and therefore can accommodate much greater access than arterials. Collector roadways fall in between arterials and local streets regarding the amount of access that is permitted.

The government agency that has jurisdiction over a given roadway defines the applicable access management guidelines for that roadway. Since there are no trunk highways in the Elko New Market area, MnDOT access management guidelines to not directly apply. However, Scott County guidelines apply for County roads in the Elko New Market area. Most notably, this includes CSAH 2 and CSAH 91, but also includes CSAH 27 and CSAH 86. Scott County access management guidelines are presented in **Appendix T-1**.

The City of Elko New Market determines guidelines for appropriate access spacing and design for City streets. These guidelines are presented on **Table T-3** and **T-4. Table T-3** provides guidelines for private access points (driveways), and **Table T-4** provides information on City spacing/access guidelines for roadways.

Table T-3

City Driveway Dimension and Access Guidelines [1]		
Driveway Dimensions/Access Permitted	**Driveway Type**	
	Residential[2]	**Commercial or Industrial**[2]
Driveway Width	11' – 22' (16' Desired)	16' – 32' (32' desired)
Minimum Distance between Driveways	20'	20'
Minimum Corner Clearance from an intersecting Collector Roadway	60'	80'[3]
Direct Access to a Major Collector	Not Permitted[4]	Not Permitted[4]
Direct Access to a Minor Collector	Discouraged[5]	Discouraged[5]
Direct Access to a Commercial Collector	Permitted with Review[6]	Permitted with Review[6]

[1]Spacing distances measured from curb to curb.
[2]Unless shared/common driveway.
[3]At the discretion of the City Engineer, 80' minimum.
[4]Access to major collectors is limited to public streets only. Steps must be taken to redirect private access to other local streets. New private access to major collectors is not permitted unless deemed necessary by the Elko New Market City Council.
[5]Whenever possible, residential access must be directed to local streets rather than minor collector roadways.
[6]An important function of commercial collectors is to provide controlled access for commercial land uses. Commercial driveways connecting to these roadways must be set back 660' feet from intersecting roadways to allow for turn lanes, vehicle queues, and driver decision-reaction requirements. Commercial properties are encouraged to use common accesses with adjacent properties. Cross traffic between adjacent compatible properties must be accommodated when feasible.

Table T-4

City Roadway Spacing Guidelines [1]		
Type of Collector Roadway being Accessed	**Minimum Spacing from an adjacent Collector/Arterial Roadway**	
	Residential[2]	**Commercial or Industrial**[2]
Major Collector	660'	660'
Minor Collector	300'	660'
Commercial Collector	N/A	660'

[1]Spacing distances measured from centerline to centerline. These guidelines apply to City streets only. Scott County and MnDOT have access authority for roadways under their jurisdiction. Please refer to Scott County's minimum access spacing guidelines in the Transportation element of their current Comprehensive Plan.
[2] Based on predominant adjacent land use.

As identified previously, it is the future functional classification map (**Figure T-5**) that applies when coordinating with developers and others regarding access spacing and setbacks. City commercial collectors are identified on **Figure T-6**.

Geometric Design Standards and Right-of-Way Preservation

A system of design guidelines is an effective tool to help provide safe, efficient, and consistent roadway networks within communities. Some situations may require additional analysis due to unusual or unforeseen conditions, but established baseline standards will minimize design uncertainty in many circumstances. These guidelines also help define right-of-way (ROW) needs for different categories of roadways.

As depicted on **Figure T-9** (sheets 1 and 2), typical sections have been defined for the following categories of City streets:

- Local residential
- Minor collector
- Commercial collector
- Major collector

Figure T-9 shows recommended roadway dimensions, adjacent non-motorized facilities, and overall ROW needs. It may be noted that the collector level roadways have Baseline Design information, as well as Extended/Future Design information. This is based on the fact that new collector level roadways are often initially constructed when the adjacent development is limited and corresponding traffic needs are not extensive. However, as adjacent development advances and increased traffic needs are realized, then the demand on collector roadways increases. Often it does not make sense from an economic and assessment perspective to construct the full design for a collector roadway when the full traffic demand on it will not be realized 10 or 15 years or more into the future. However, it is very important that the ROW is preserved for the ultimate design so future costly and socially disruptive property acquisitions do not need to take place. In addition, the initial design should be consistent with the intended ultimate design in terms of alignment, intersection spacing, and other factors.

Traffic Impact Studies

Traffic Impact Studies are utilized to evaluate the interaction between existing transportation infrastructure and proposed land use development project. The basic premise is that land development generates new traffic that will travel on the adjacent roadway system, and that the amount of traffic and the relative impact to the transportation system is predictable. Traffic Impact Studies:

- Identify potential adverse impacts to the existing transportation system and to the proposed development such as:
  - On-site congestion and/or congestion on adjacent roadways
  - Inadequate access capacity
  - Crash experience / crash expectancy

- Assist public and private sector entities in identifying and resolving issues related to the location of driveways, public streets, traffic controls (i.e. signals, signs, striping) and other transportation facilities that are requested.
- Assist in long term planning such that the extension and growth of the transportation system may occur in a manner than is comprehensive in nature and supportive of public good.

To assist in identifying impacts to the transportation system, the City of Elko New Market supports the requirement for a Traffic Impact Study if any of the following conditions are expected:

- A development will generate 100 or more new a.m. or p.m. peak hour vehicle trips.
- A development will generate 750 or more new daily vehicle trips.
- New development traffic will substantially affect an intersection or roadway segment already identified as operating at an unacceptable level of service.
- The development would likely create a hazard to public safety.
- The location of the development is in an environmentally or otherwise sensitive area, or in an area which is likely to generate public controversy.
- The development will substantially change the off-site transportation system or connections to it.

Trip generation should be estimated using the ITE Trip Generation Handbook (10th Edition or most current publication). The City will utilize the quality of traffic operations as the key performance measure for the roadway system within the City. The Highway Capacity Manual estimates the quality of traffic flow in letter grades (A – F). The City establishes, as a citywide target, a Level of Service (LOS) "C" on all roads and intersections within the City. When the LOS without development is LOS A, B or C, the minimum acceptable projected LOS shall be LOC C. When the LOS without development is LOS D, E or F, the minimum acceptable LOS shall be equal to the LOS without development. See table

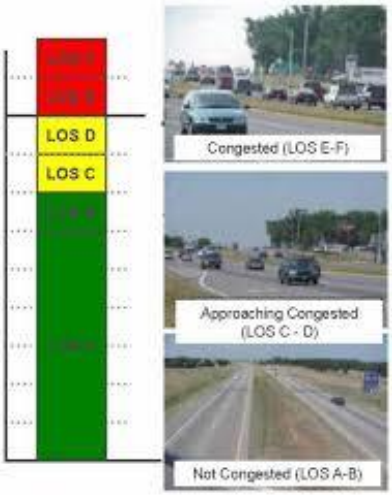


FIGURE 1
Level of Service Thresholds of Congestion

Table T-5

Acceptable Levels of Service with New Development Development							
	Level of Service without Development						
Projected Level of Service (with Proposed Development		A	B	C	D	E	F
	A	N.A.					
	B	B	N.A.				
	C	C	C.	N.A.			
	D	C	C	C	N.A.		
	E	C	C	C	D	N.A.	
	F	C	C	C	D	E	N.A

TRANSIT

The Metropolitan Council has established a series of Transit Market Areas throughout the metropolitan area as a guide for the provision of appropriate transit service. Transit Market Areas are defined by the demographic and urban design factors that are associated with successful transit service. There are five Transit Market Areas with Transit Area I having the most potential for successful transit (high population density, high job density, dense network of local routes, high percentage of transit-dependent residents, and other factors), and Transit Area V having the least potential for successful transit service.

The Metropolitan Council has categorized Elko New Market as being Transit Market Area V. The Metropolitan Councils System Statement for Elko New Market describes Market Area V as follows:

> *Transit Market Area V has very low population and employment densities and tends to be primarily Rural communities and Agricultural uses. General public dial-a-ride service may be appropriate here, but due to the very low-intensity of land uses, these areas are not well-suited for fixed-route transit service.*

There currently is no scheduled transit service in Elko New Market. The closest scheduled service is commuter service provided by Metro Transit to downtown Minneapolis via the Lakeville Kenrick Avenue Park & Ride facility. This facility is approximately nine miles north of the I-35/CSAH 2 interchange. There is no transitway as defined in the Metropolitan Council's 2040 Transportation Policy Plan in or near Elko New Market. The closest identified transitway is the proposed Metro Orange Line (I-35W Bus Rapid Transit). The southernmost Orange Line station is identified in Burnsville, approximately 14 miles north of the I-35/CSAH 2 interchange.

Elko New Market is not in the metro area transit taxing district. It is not anticipated that there will be sufficient demand for commuter transit in Elko New Market to justify extending scheduled transit service along I-35 to Elko New Market through the 2040 planning horizon. However, it is recommended that the City consider a park-and-ride location close to the I-35/CSAH 2 interchange to help foster new van/car pools. This could provide the basis for a transit facility providing commuter service to the core metro area pending future development and associated transit demand within the City.

Dial-a-ride service in Elko New Market is provided by SmartLink, which is under contract with Scott and Carver Counties. Buses operate Monday through Friday from 6 a.m. through 7 p.m. Rides can be provided to/from any location in the seven county Metro area; in some cases a transfer to another transportation provider may be required. Rides are booked in advance through SmartLink customer service agents.

BIKING AND WALKING

Existing and Planned Facilities

Existing and planned sidewalk and trail facilities are discussed and mapped in the Parks and Recreation Chapter of this Comprehensive Plan. Please refer to Figure X in that Chapter. The facilities discussed therein are primarily those not tied to a roadway corridor. The City's Subdivision Ordinance requires construction of pedestrian and biking facilities along roadway corridors with new developments. In general, shared use paths are required when development occurs next to a collector or arterial roadway. Sidewalks are required at a minimum on one side of local and minor collector streets.

Regional Bicycle Transportation Network (RBTN)

There are no RBTN alignments or corridors as designated by the Metropolitan Council in or near the City of Elko New Market. The closest RBTN location is a Tier II alignment approximately five miles to the northeast, on the other side of I-35.

Removal of Non-Motorized Barriers

The largest barriers to non-motorized movements in Elko New Market are CSAH 2 and CSAH 91 (in particular south of CSAH 2). CSAH 2 is an important east-west regional highway with a connection to I-35 which is located approximately two miles east of its intersection with CSAH 91. CSAH 2 currently has an average daily traffic (ADT) count of 6,400 through the old downtown New Market area, and 9,200 east of CSAH 91. East of CSAH 91, it is a four-lane divided facility. CSAH 91 is a north-south arterial roadway with a current ADT of 1,050 north of CSAH 2 and 4,050 south of CSAH 2. CSAH 2 at CSAH 91 is the most prominent intersection within the City. These volumes are expected to increase during the 2040 planning cycle, increasing the impact on non-motorized movements.

While higher vehicular volumes can mean fewer gaps available for pedestrian crossings and therefore longer wait times, the real peril of these roadways to pedestrians and bicyclists is speed. Higher speed roadways tend to be wider and are more difficult to judge available crossing time. Motorists on these roadways are less inclined to stop for pedestrians, perhaps because speed on the road is otherwise unfettered and/or pedestrian crossings are rare. It takes longer for an emergency stop on these roads if a pedestrian makes an unexpected entry to the roadway. Perils are even greater where the roadway has four lanes – one approaching car may stop, encouraging a pedestrian to proceed, while the car following in the adjacent lane may not stop for the pedestrian.

One project that should help reduce the non-motorized barrier aspect for both the highways identified above is a roundabout that is planned for construction in 2020. Relative to the current thru-stop traffic control conditions (stop signs on the CSAH 91 legs only), the roundabout will improve pedestrian safety conditions by substantially slowing vehicular speeds on CSAH 2 through the intersection. Also, pedestrians wishing to cross from the one side of CSAH 2 to the

other at this location must currently cross six lanes (two turn lanes and four thru lanes) with no pedestrian safety features. The proposed roundabout includes a CSAH 2 pedestrian crossing on the west side of the roundabout which will include pavement markings and a refuse area within the splitter island. Pedestrians will have fewer lanes to cross than under current conditions. Also included are CSAH 91 pedestrian crossings on both the north and south sides of the proposed roundabout.

As the City develops its collector roadway network in the years to come, it plans to evaluate mini-roundabouts at all potentially viable locations. This type of design has vehicular safety benefits and, relative to uncontrolled or thru-stop control only conditions, pedestrian safety benefits as well. Benefits are primarily because of reduced travel speeds through the intersection as well as breaking each pedestrian crossing into two separate crossing with the splitter island as a refuge.

The City will continue to work with Scott County to evaluate pedestrian safety features along the county road system. This will be particularly important as development advances and pedestrian barrier and safety considerations become more pronounced.

AVIATION

The closest metro airport to Elko New Market is the Lakeville Airlake Airport, located approximately five miles to the northeast. The City is not impacted by an airport. There are no radio beacons or other air navigation aids sited in off-airport locations in or near Elko New Market.

There are no structures within Elko New Market that exceed 500 feet in height. Any applicant who proposes to construct a structure 200 feet above the ground that could affect navigable airspace level must get appropriate approvals. The Federal Aviation Administration and the Minnesota Department of Transportation must be notified at least 30 days in advance in advance of construction, as required by law per MCAR 8800.1200, Subpart 3 and FAA Form 7460-8. It is unlikely such a structure would be proposed in Elko New Market.

FREIGHT

There are no railways, barge facilities or freight terminals within or near Elko New Market. There are no industrial parks or large commercial centers at this time that would generate significant freight movement. As discussed previously, the City of Elko New Market conducted an Alternative Urban Areawide Review (AUAR) covering a 265 acre area of proposed industrial park/distribution center land use in the southeast quadrant of the I-35/CSAH 2 interchange. One of the primary issues covered was transportation. This development could significantly increase freight movement on City, County, and State roadways. The AUAR process included extensive coordination between the City, Township, Scott County, and MnDOT. The agencies have a

good understanding of how traffic and freight movement generated from future industrial development may affect the surrounding transportation system.

TRANSPORTATION FUNDING SOURCES

There are a number of funding mechanisms currently available or available in the future to support Elko New Market transportation projects, including those addressed under the following headings.

Minnesota State Aid Street (MSAS) System

To support the state's system of streets, roads and bridges, MnDOT distributes funds for roadway maintenance and construction to counties, cities and townships based on a formula determined by the Legislature. Local agencies must have a minimum population of 5,000 to receive State Aid funding. Within each eligible city, up to 20 percent of the local streets and county roads may be designated as MSAS. A street may be selected as MSAS if:

- It is projected to carry a relatively heavy traffic volume and/or is functionally classified as collector or arterial as identified on the city's functional classification plan.
- Connects points of major traffic interest, parks, parkways, or recreational areas.
- Provides an integrated and coordinated highway and street system affording, within practical limits, an overall state-aid network consistent with projected traffic demands.

The City of Elko New Market is close to the 5,000 population threshold, and will be able to use this funding source once the threshold is reached. It should be noted that for the competitive grant programs addressed in the following headings, Elko New Market generally would need to work with Scott County as the application sponsor until the City becomes a State Aid city (5,000 residents).

Regional Solicitation Federal Funding

The Regional Solicitation is a funding resource for local projects with federal transportation funds. The solicitation is traditionally run on a biennial basis and administered by the Metropolitan Council within the seven-county metropolitan area. This is a competitive solicitation process for agencies including Elko New Market, with the application process and evaluation criteria periodically updated by the Transportation Advisory Board (TAB) of the Metropolitan Council to accommodate regional needs. The application categories are:

<u>Roadway</u>

- Roadway expansion
- Roadway reconstruction/modernization
- Roadway system management
- Bridge rehabilitation/replacement

Bicycle and Pedestrian Facilities

- Multi-use trails and bicycle facilities
- Pedestrian facilities
- Safe Routes to School

Transit

- Transit expansion
- Travel demand management
- Transit system modernization

Local agencies must provide a minimum 20 percent match for awarded projects.

MnDOT Local Road Improvement Program (LRIP)

This program provides funding on a competitive basis to local agencies constructing or reconstructing roadways. Criteria for this program include:

- The regional significance of the route
- Effectiveness of the proposed project in eliminating a transportation system deficiency
- Number of persons positively impacted by the project
- The project's contribution to other local, regional, or state economic development or redevelopment efforts

MnDOT Cooperative Agreement Funds

MnDOT's Cooperative Agreements section provides MnDOT trunk highway construction funding through a competitive selection process to local agencies for roadway improvement projects. The program selects projects that are initiated and administered by a local agency, involving a trunk highway such as I-35, where MnDOT funds are utilized for part of the project to the mutual benefit of all partners. The program relies on the initiative of the local agencies and their commitment to making roadway improvements.

Highway Safety Improvement Program

The Highway Safety Improvement Program (HSIP) is a federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including locally-owned roads. The HSIP requires a data-driven, strategic approach to improving highway safety with a focus on performance. In Minnesota, this program is administered by MnDOT, which on a periodic basis awards HSIP grants on a competitive application process. The future roundabout at CSAH 2 and CSAH 91 received funding through this program.

Transportation Economic Development Infrastructure (TEDI)

Minnesota cities, counties and other government entities can apply for matching funds for transportation infrastructure projects that support economic development through MnDOT and the Minnesota Department of Employment and Economic Development (DEED). The TEDI program, jointly administered by MnDOT and DEED, awards funds on a competitive basis to projects on local roadways and non-roadway transportation projects. It is administered on a parallel basis with the Transportation Economic Development (TED) program, which focuses more on the trunk highway network. The TED/TEDI grant programs are designed to help meet the state's transportation and economic development needs by creating and preserving well-paying jobs and leveraging private and local investment in transportation infrastructure.

Minnesota Department of Natural Resources Grants

Various federal and state grants as administered by the Minnesota Department of Natural Resources (MnDNR) are available for the development or reconstruction of recreational trails. These programs include the Federal Recreational Trail Grant Program, the Regional Trail Grant Program, the Outdoor Recreation Grant Program, and the Local Trail Connections Program. Typically these grants require a 25 percent local match (50 percent match in the case of the Outdoor Recreation Grant Program), and demonstration that the trail is not only of local but regional significance. Grants are awarded on a competitive application process.

Private Developer Contributions

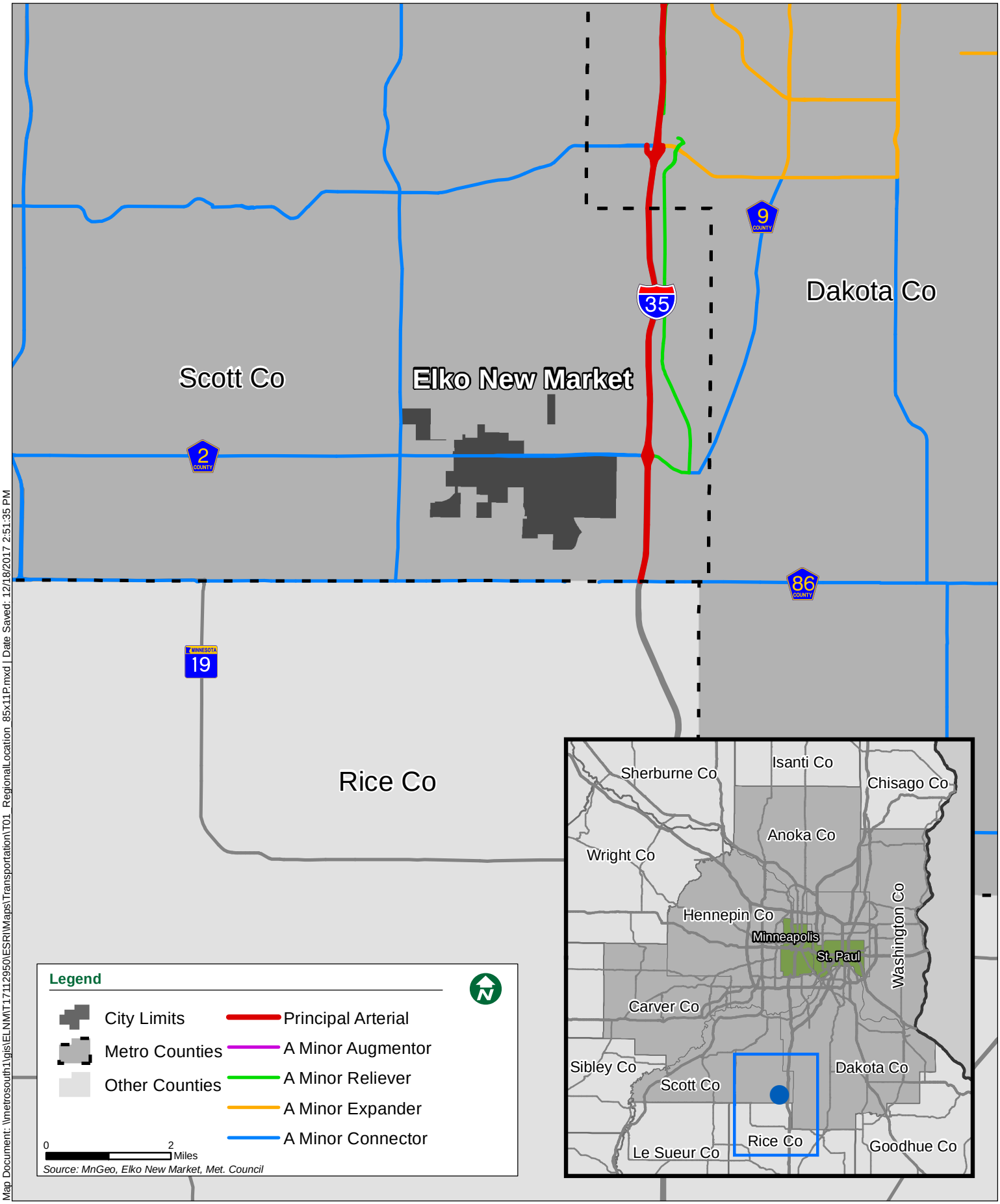
Developers may be required to fund the entire cost of collector roadways, as well as local streets, as a part of their development fees.

2040 Comprehensive Plan

City of Elko New Market, Minnesota

Figure T-1 - Regional Location Map

December 2017



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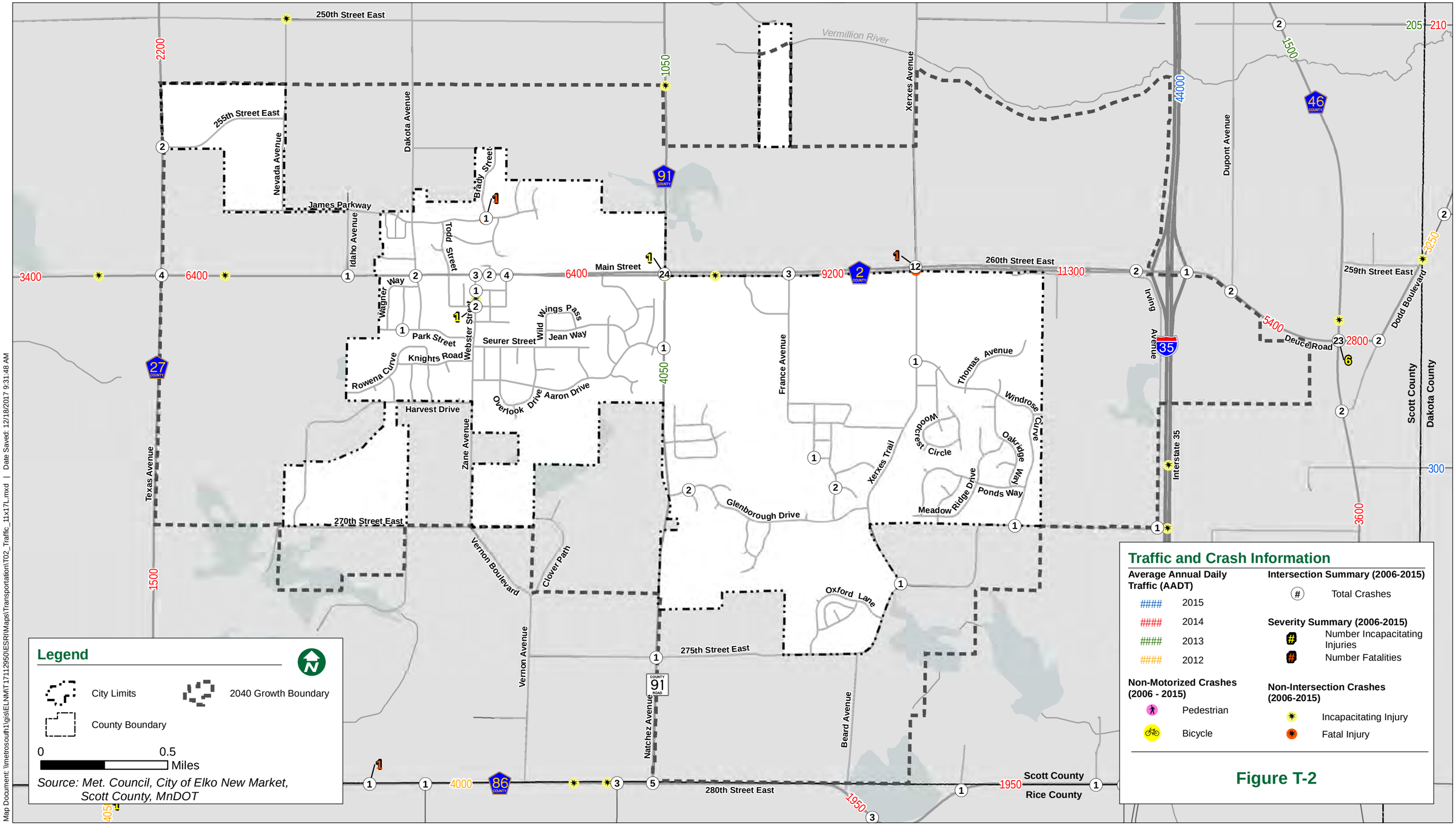

Figure T-2

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2040 Comprehensive Plan

Elko New Market, Minnesota

Roadway Jurisdiction

December 2017

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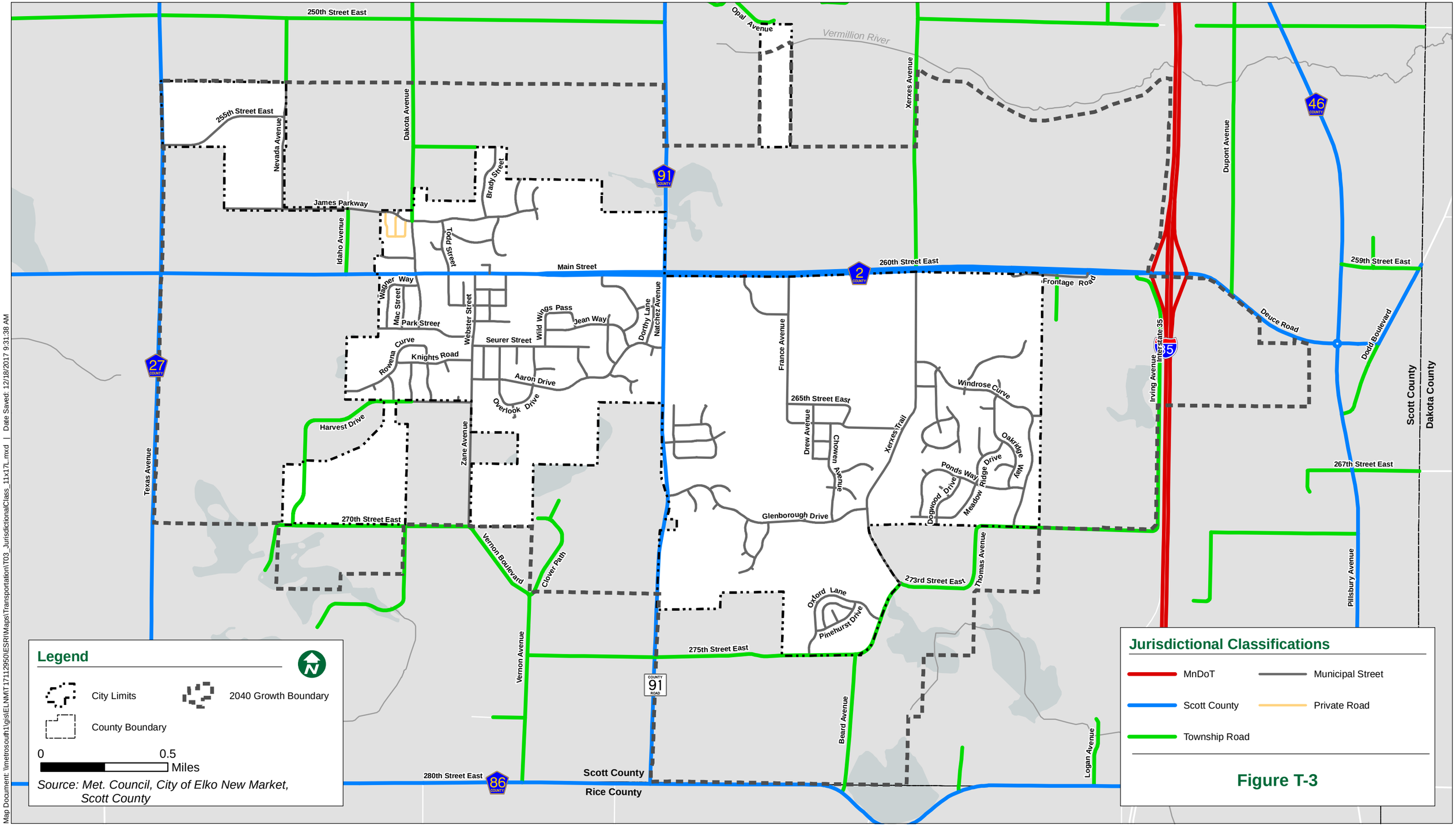

Legend

City Limits

2040 Growth Boundary

County Boundary

0 0.5 Miles

Source: Met. Council, City of Elko New Market, Scott County

Jurisdictional Classifications

- MnDoT
- Municipal Street
- Scott County
- Private Road
- Township Road

Figure T-3

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2040 Comprehensive Plan

Elko New Market, Minnesota

Existing Roadway Functional Class

December 2017

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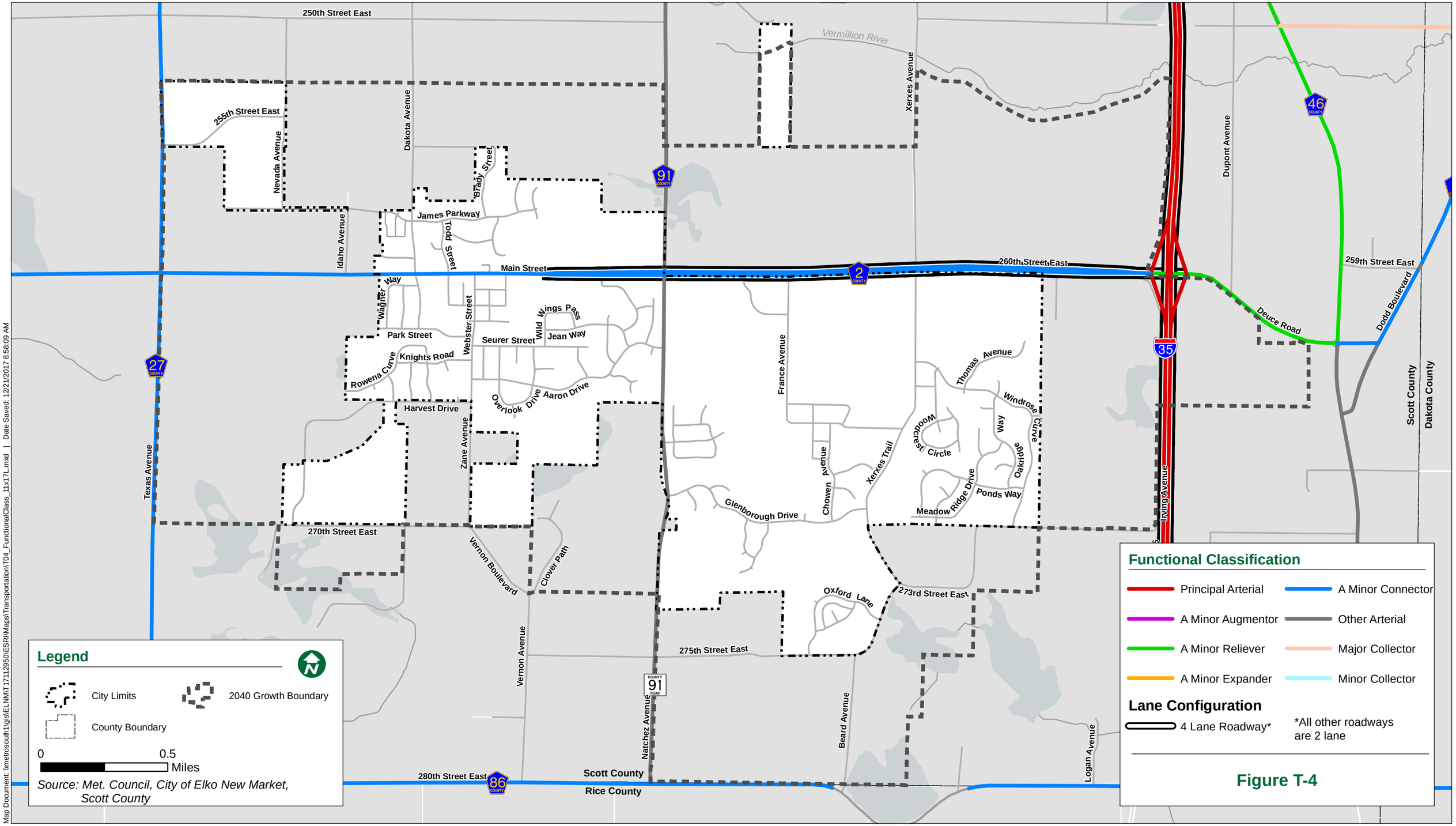

Figure T-4

Map Document: \\metrosouth1\gis\ELNMT\17112950\ESRI\Maps\Transportation\T04_FunctionalClass_11x17L.mxd | Date Saved: 12/21/2017 8:58:09 AM

2040 Comprehensive Plan

City of Elko New Market, Minnesota

Future Roadway Network and Met. Council Functional Class

December 2017

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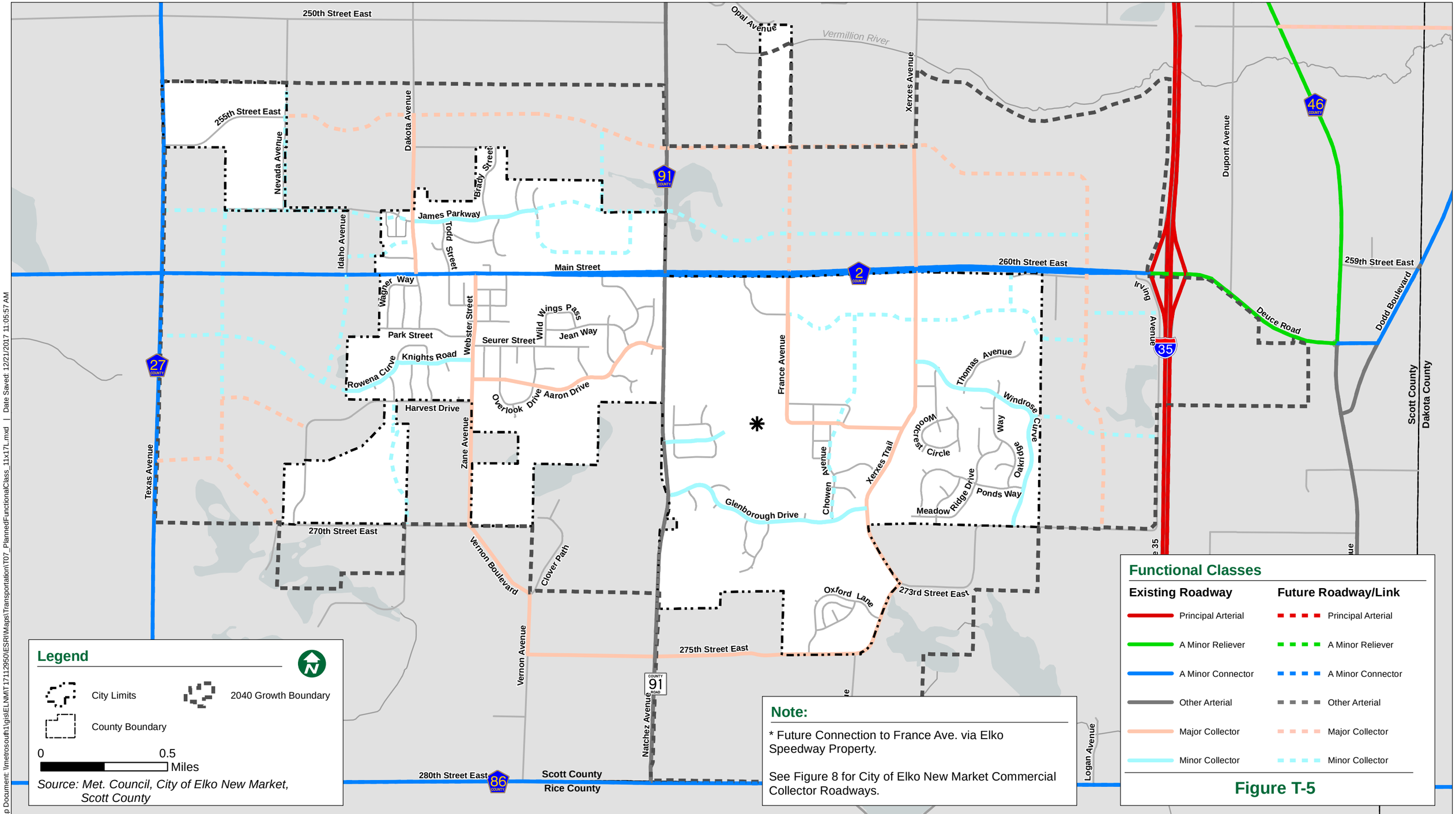

Note:

* Future Connection to France Ave. via Elko Speedway Property.

See Figure 8 for City of Elko New Market Commercial Collector Roadways.

Figure T-5

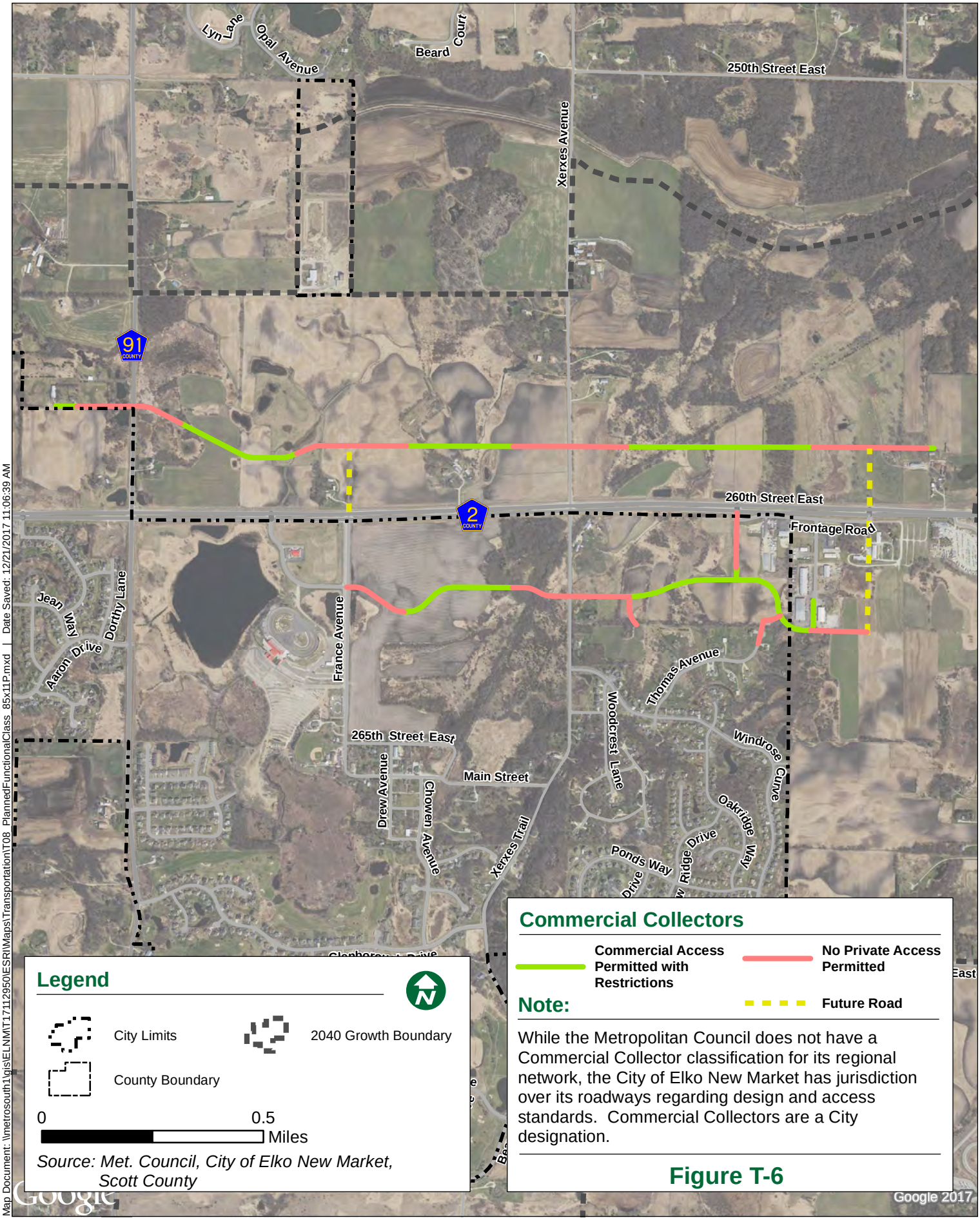

Figure T-6

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Transportation Analysis Zones

December 2017

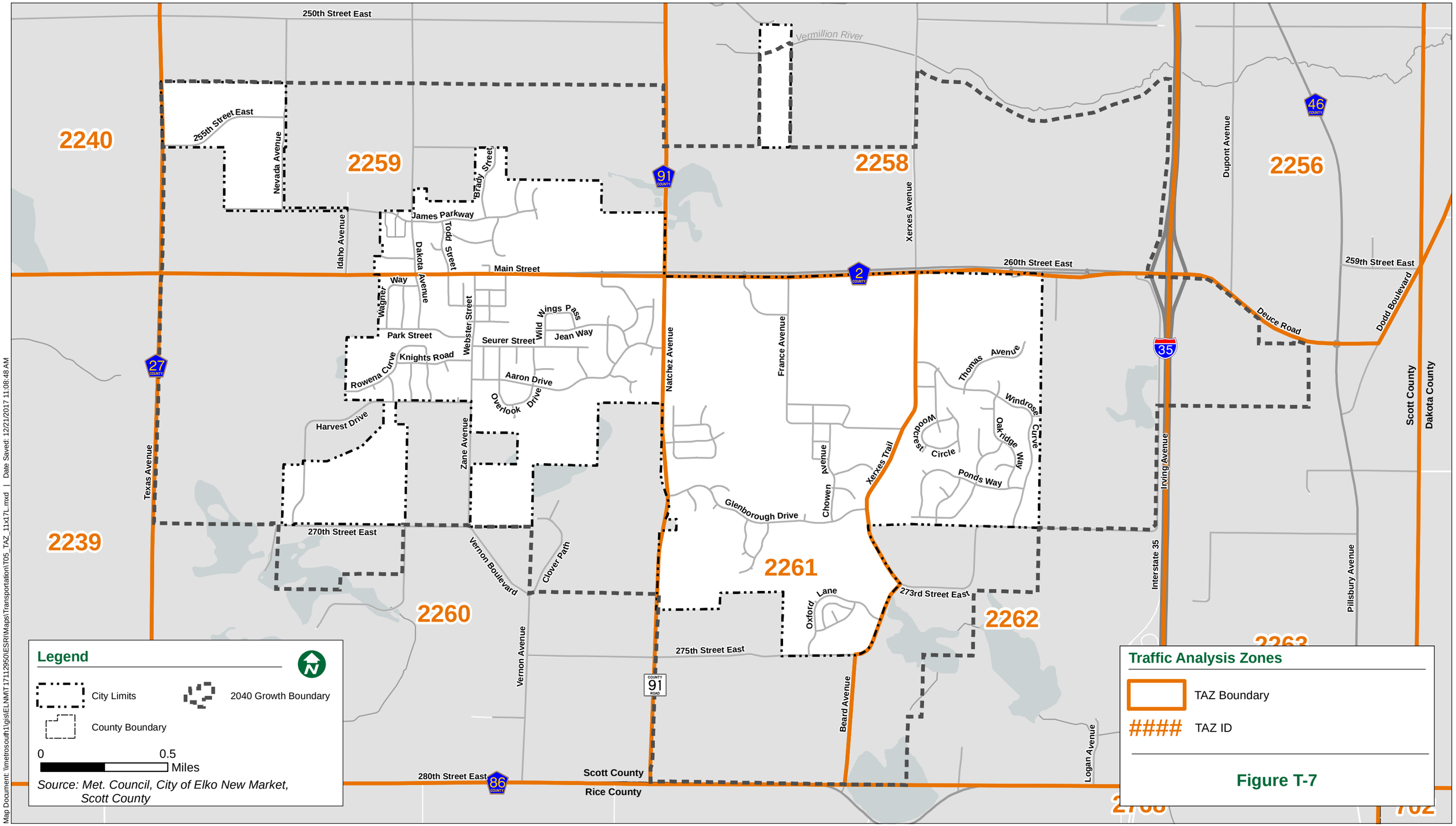

Figure T-7

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Projected 2040 Traffic Volumes

December 2017

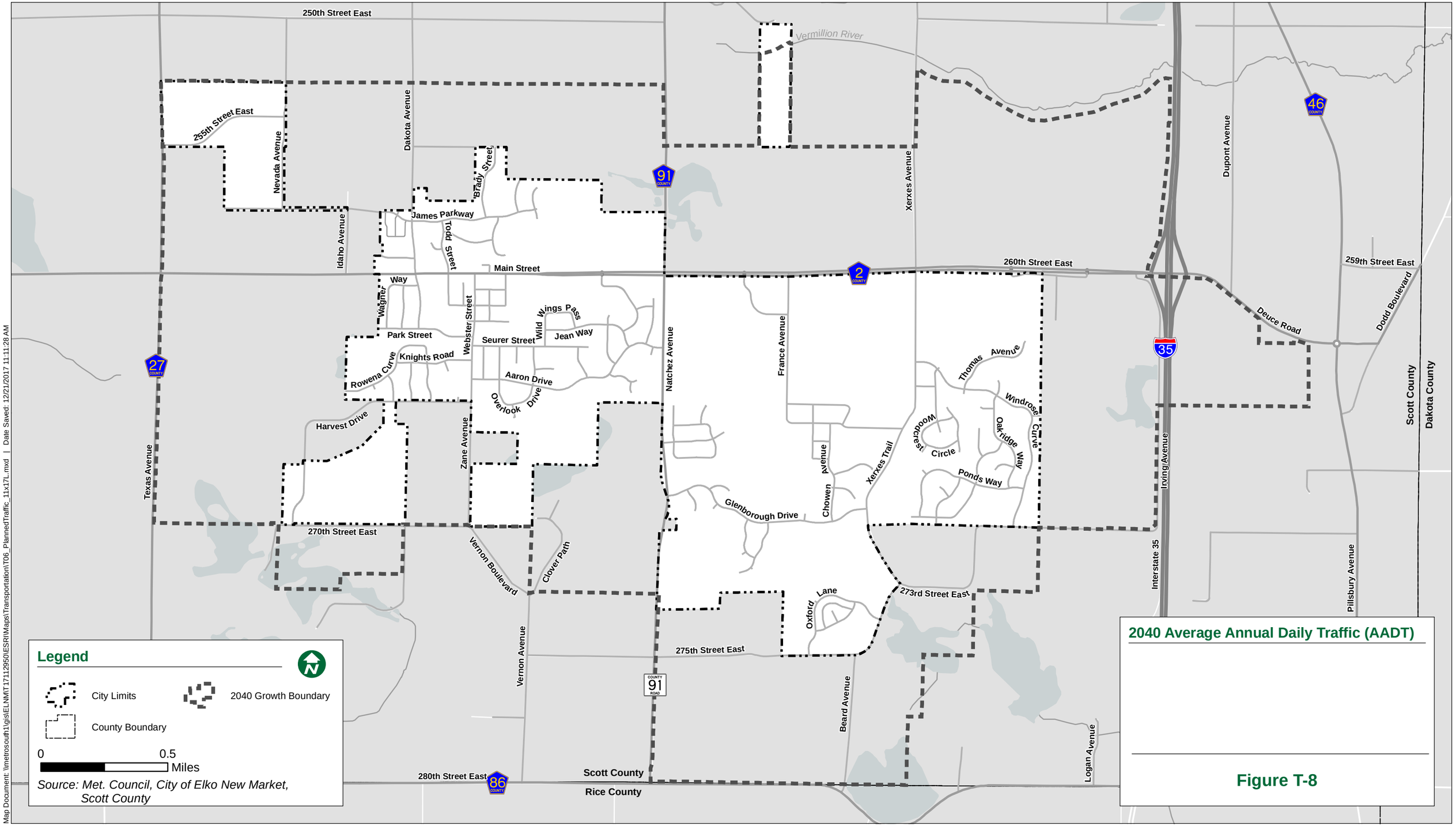

Figure T-8

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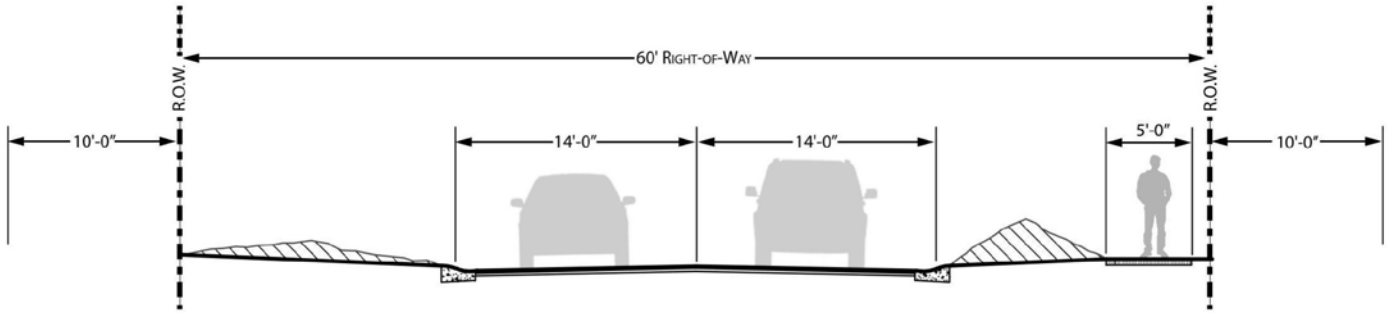
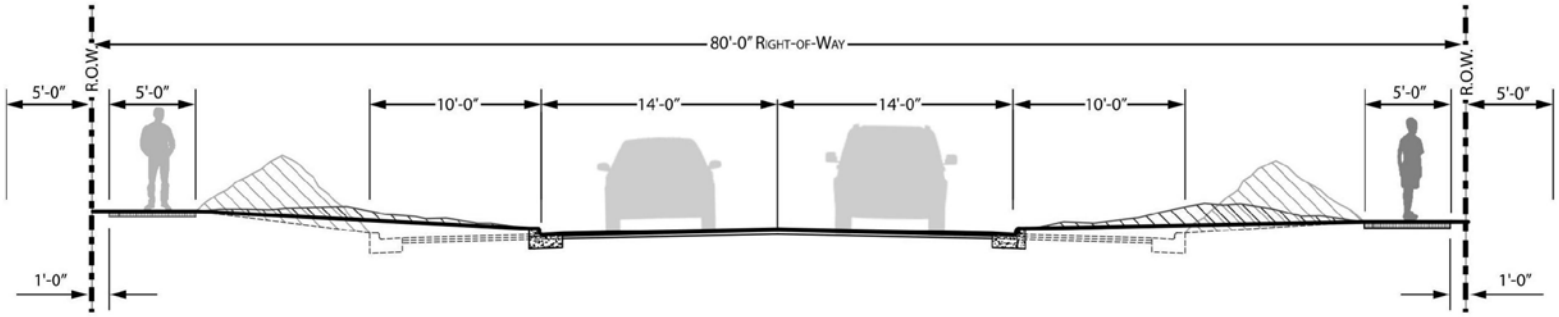
Local Residential Street
Typical Section



Minor Collector Street
Typical Section



Legend

- Baseline Design
- Extended/Future Design
- Snow Storage (8" Snowfall) in width*

Note: Pedestrian-only sidewalks would be 5'-8' in width. Multi-use trail would be 10'.

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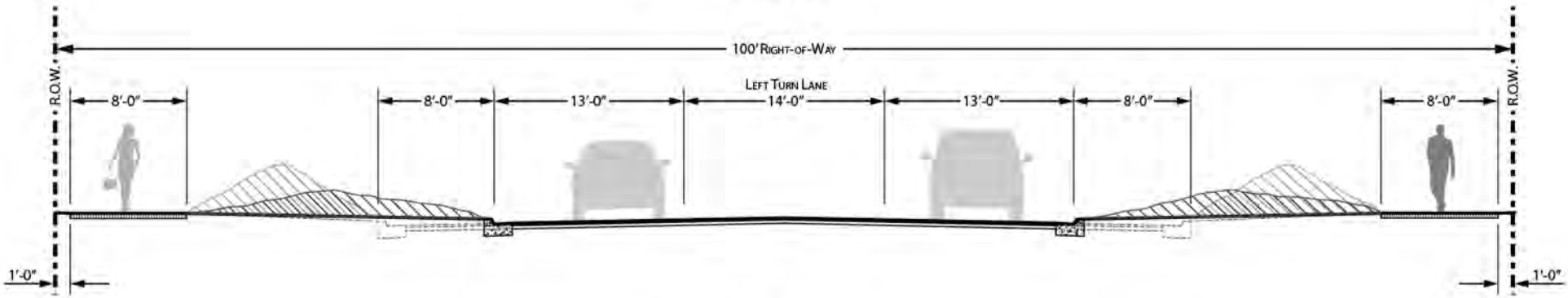
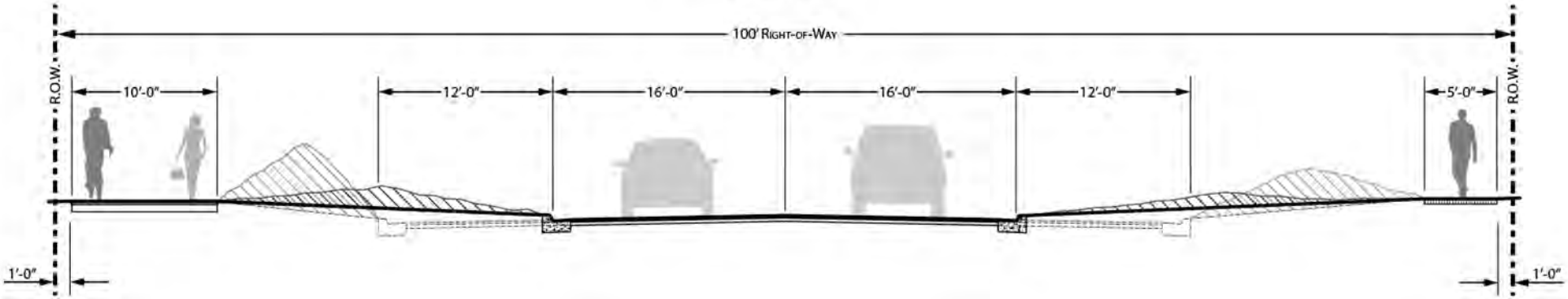
Commercial Collector
Typical Section



Major Collector
Typical Section



Legend

- Baseline Design
- Extended/Future Design
- Snow Storage (8" Snowfall) in width*

Note: Pedestrian-only sidewalks would be 5'-8' in width. Multi-use trail would be 10'.

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APPENDIX T-1

Scott County Access Management Standards

Figure 1

MINIMUM ACCESS SPACING GUIDELINES 2008

TYPE OF ACCESS BEING REQUESTED	TYPE OF COUNTY HIGHWAY FUNCTION AFFECTED BY ACCESS			
	PRINCIPAL ARTERIAL	Minor Arterial A and B Minor	Collector	Local
A. **Private Residential** (3 or less shared driveways)	Not Permitted	*Not Permitted in 2030 Urban Services Area & Urban reserve *1/4 mile in rural	1/8 Mile	Determination based on other criteria
B. **Commercial Driveways, Or Private Streets**	Not Permitted	Not Permitted	*Right In/Right out at 1/8 Mile *Full access at 1/4 Mile	Determination based on other criteria
C. **Local Streets**	Not Permitted	*Full access at 1/4 Mile *Right in/Right out at 1/8 Mile	1/8 Mile	1/8 Mile
D. **Collector Streets**	*1 Mile Full Access (rural) *3/4 or Right In/Right out at 1/2 Mile (urban)	*Full access at 1/4 Mile *Right in/Right out at 1/8 Mile	1/4 Mile	1/4 Mile
E. **Minor Arterial**	*1 Mile Full (rural) *1 Mile full Access (urban)	*1/2 to 1 Mile (urban) *1/2 Mile to 1 Mile (rural)	*1/4 to 1 Mile (urban) *1/2 to 1 Mile (rural)	*1/4 to 1 Mile (urban) *1/2 to 1 Mile (rural)

Notes:

1. The Functional Classification is based on the Future Functional Classification Map (Figure VI-17).
2. Fully developed urban area will require individual evaluation on a case by case basis.
3. When there is opportunity for private or public access on more than one public roadway, access shall be taken on lower functional roadway.
4. Turn lanes shall be required at all access locations except for private residential direct access in the rural area.
5. Intersection Control/Signals shall be installed only where warranted and justified, consistent with the MMUTCD. 1 mile signal spacing on Principals and 1/2 mile signal spacing will be preserved on other roadways.
6. Access spacing may be modified to be more or less restrictive per adopted County corridor study.
7. Private residential access in the rural area shall be located where there is the optimum distance or future shared access
8. Environmental constraints may be considered when determining access spacing locations.
9. Access spacing within Interchange influence areas shall meet all stopping and intersection site distance requirements on Principal Arterials.
10. Existing access on Principal Arterials outside the 2030 service area may be relocated provided sight distance is improved and opportunities for access consolidation do not exist. Future removal of the access must be planned for.

INTRODUCTION

The 2040 Park and Trail Plan is intended to support and supplement the City's Comprehensive Plan as it relates to planning and providing active and passive recreational opportunities for residents. Specifically, the Plan provides an analysis and a subsequent decision-making framework to guide City officials in providing recreational opportunities and to address private development proposals. The Plan will be used to earmark future park and trail areas in advance of development. The Plan also provides implementation strategies and includes an analysis of the park dedication and funding needed to implement.

PARK CLASSIFICATIONS

Based upon an analysis of community conditions and needs, there are six general classifications of parks existing or proposed within Elko New Market. These classifications include: mini park (MP), neighborhood park (NP), community park (CP), community playfield / athletic complex (CPA), conservation area / greenway (CA), and special use park (SUP). These classifications are nationally recognized park types with modifications made for local Elko New Market conditions and needs. Table 10-1 provides a description, service area radius, and size criteria for each of the park classifications.

Table 10 - 1

Park Classifications			
Classification	**General Description**	**Service Area Radius**	**Size Criteria**
Mini Park	Provides limited recreational opportunities due to their small size. Usually include play equipment, multiuse hard-courts, and a limited number of playfields.	¼ mile	1-5 acres
Neighborhood Park	Provides neighborhood open space with provisions for active and passive recreation use which responds to residential neighborhood needs. Recreational uses could include play equipment, trails, multiuse hard-courts, open playfields, ball fields, picnic areas and ice skating rinks. Primary users will be children and families rather than organized athletic functions.	½ mile	6-20 acres
Community Park	Includes both parks and playfields that provide facilities for more intensive recreation activities, such as ball fields, tennis courts, ice skating rinks and picnicking.	1 mile	Varies. Generally more spacious than neighborhood parks.
Community Playfield / Athletic Complex	Targeted towards organized adult and youth play and require baseball / softball fields, soccer / football fields, tennis courts, etc.	Community Wide	20-60 acres
Conservation Area / Greenway	Natural areas where preservation of the environment is the primary emphasis. Primary uses typically include hiking trails, wildlife habitat and picnic facilities.	Community Wide	Varies. At least 100 feet in width.
Special Use Park	Provides special activities, unique built environments, historical sites or single purposes. Respond to distinct markets, demands or opportunities within the community.	Community Wide	Varies. Historical features should be a minimum of ½ acre.
Source: National Recreation and Parks Association			

The park classification system standards should be utilized to guide Elko New Market decision makers in determining future park location, size and amenities as dictated by local circumstances. The City of Elko New Market recognizes the importance of using park and recreation standards to:

1. Define minimum acceptable facilities for residents of the community.

2. Establish guidelines to determine land requirements for various kinds of park and recreation facilities.

3. Establish a basis for relating recreational needs to spatial analysis within a comprehensive recreation system.

4. Utilize the Park and Trail Plan as a means to justify the need for parks and open space within the overall land use pattern of the City.

EXISTING RESOURCES

The Elko New Market park system is comprised of approximately 59 acres of parkland including 11 existing parks and three platted parks to be developed in the future. The approximate park acreage pertains to the core park systems, exclusive of trail corridors and wetlands. In addition, Elko New Market has approximately 77,300 lineal feet or 14.7 miles of public trails and sidewalks throughout the community. Figure 10.1 depicts the existing parks, trails, and sidewalks within the community.

Existing City Parks

Of the 11 existing parks in Elko New Market, seven are mini parks, two are community parks, one is a conservation area / greenway, and one is a special use park. The three platted parks to be developed in the future have not yet been given a park classification. The City does not currently have any existing neighborhood parks or community playfields / athletic complexes. The existing park inventory is summarized in Table 10-2.

Table 10 - 2

Existing City Park Inventory		
Park Name	**Classification**	**Total Acres**
Historic Elko Park	MP	0.94
Kelly Glen Park	MP	0.21
Little Windrose	MP	2.80
Rowena Ponds Park	MP	3.35
Whispering Creek Park	MP	0.62
Whispering Hills Park	MP	2.63
Woodcrest Park	MP	0.44
Mini Park Acreage Subtotal		**11.0**
Wagner Park	CP	7.10
Windrose Park	CP	7.61
Community Park Acreage Subtotal		**14.7**
Elko North Park	CA	3.43
Conservation Area / Greenway Acreage Subtotal		**3.43**
Pete's Hill Park	SUP	11.8
Special Use Park Acreage Subtotal		**11.8**
Boulder Heights Platted Park	--	1.49
Farm 3rd Addn Platted Park	--	8.80
Pete's Hill Platted Park	--	7.71
Platted (Undeveloped) Park Acreage Subtotal		**18.0**
TOTAL PARK ACREAGE		**58.9**
Source: Elko New Market GIS		

Fifteen different park amenities can be found throughout the City. These amenities include: baseball / softball fields, basketball courts, conservation areas, disc golf, ice rinks, off-street parking, open playfields, park buildings, picnic facilities, picnic shelters, playground equipment, restrooms, skate parks, and trails. Amenities located within each of the developed City parks are identified in Table 10-3.

Table 10 – 3

Existing City Park Amenities															
Park Name	**Baseball Field**	**Basketball Court**	**Conservation Area**	**Disc Golf**	**Ice Skating**	**Off Street Parking**	**Open Playfield**	**Park Building**	**Picnic Facilities**	**Picnic Shelter**	**Playground Equipment**	**Restroom**	**Skate Park**	**Softball Field**	**Trails**
Elko North Park			•												
Historic Elko Park						•					•	•			
Kelly Glen Park									•		•				
Little Windrose		•	•		•				•		•	•			
Pete's Hill Park			•						•						•
Rowena Ponds Park	•		•						•		•	•		•	•
Wagner Park	•	•	•		•	•		•	•	•	•	•	•	•	•
Whispering Creek Park									•		•				
Whispering Hills Park			•						•		•				
Windrose Park			•	•			•		•	•	•	•			•
Woodcrest Park		•							•		•				
Source: Elko New Market GIS															

Figure 10.2 depicts the location of existing parks within the City and their service areas based on park classification. This map is a useful tool to indicate certain areas within the 2040 City boundary that are not serviced by a mini, neighborhood or community park. A buffer is given for parks which can be related to a park service area specifically defined as: ¼ mile for mini parks, ½ mile for neighborhood parks and 1 mile for community parks. Community playfield / athletic complexes, conservation areas / greenways and special use parks do not have a defined service area as they are utilized at a community wide level.

It should be noted that 260th Street East (CSAH 2) and Natchez Avenue (CSAH 91) create barriers that limit the accessibility of parks within the community. The service areas for parks which are affected by these roadways have been abbreviated and condensed.

Existing City Trails

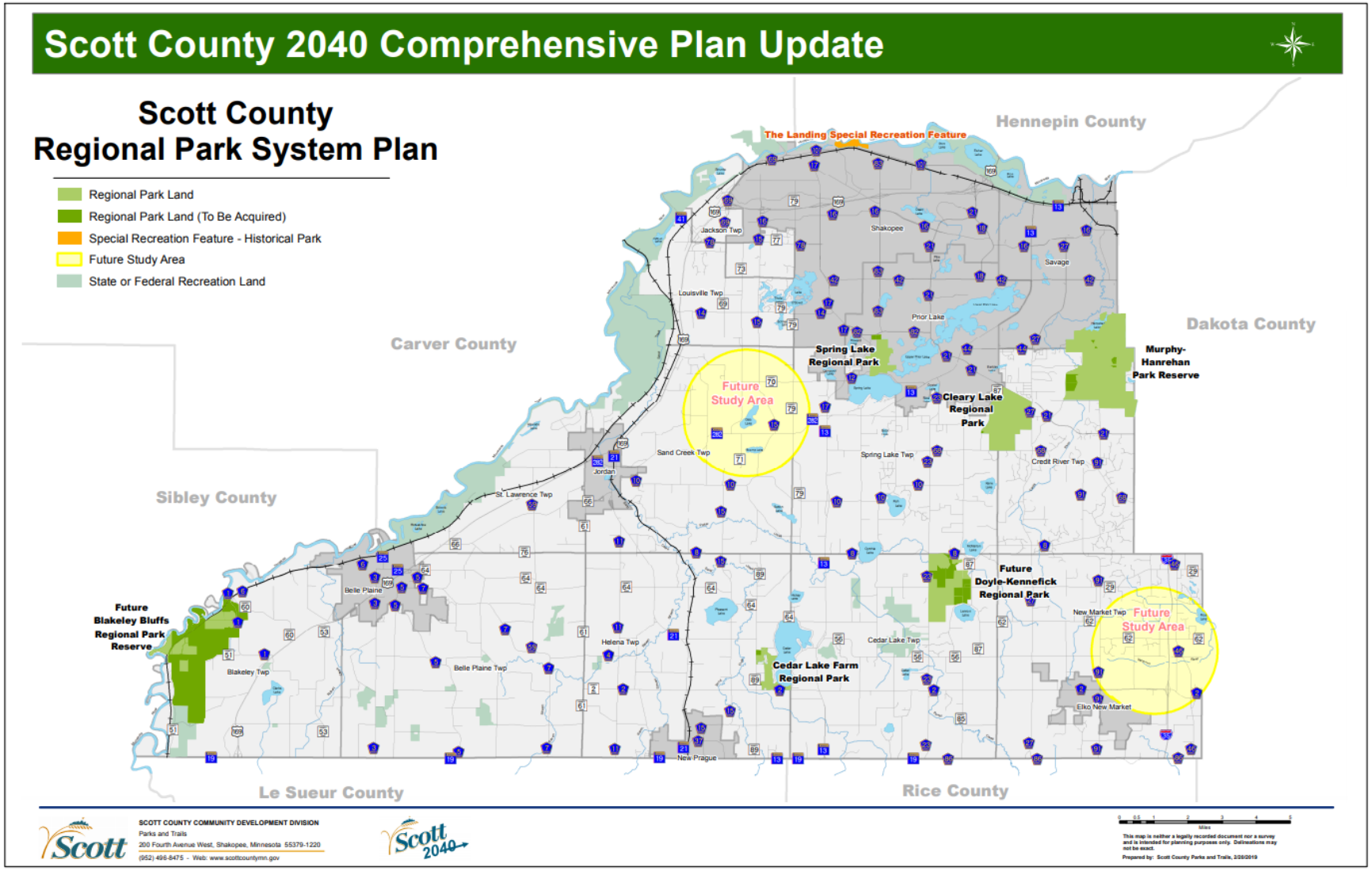
As of 2019, Elko New Market contained approximately 77,300 feet or 14.7 miles of trails and sidewalks maintained by the City. Of the approximately 14.7 miles, approximately 8.3 miles are trails and approximately 6.4 miles are sidewalks. Figure 10.3 depicts the existing trails and sidewalks within the community.

Existing School Facilities

The City of Elko New Market is served by two school districts: Lakeville Independent School District 194 and New Prague Independent School District 721. Eagle View Elementary, which is part of the New Prague district, is the only school located in Elko New Market. Eagle View Elementary supports the park system by providing baseball / softball fields, multiuse hard courts (including court games and basketball hoops), open playfields, and play equipment. Facilities at Eagle View Elementary function primarily as a neighborhood park and are available for use by the Elko New Market community through a joint powers agreement. The location of Eagle View Elementary is depicted on Figure 10.1.

REGIONAL RECREATIONAL FACILITIES

No Regional Parks System facilities exist in Elko New Market. However, Scott County, in partnership with the Three Rivers Park District, provides parks, trails and recreational facilities that serve Elko New Market residents. The Scott County Parks Program is focused on creating, operating and maintaining a system of parks, trails and open space to meet the needs of 11 townships and seven cities that make up Scott County, while continuing to support the existing facilities of the Three Rivers Park District. The Scott County Parks Program is focused on land acquisition and planning for the development and operation of regional and county parks and trails. The map included on the following page depicts the existing and planned Regional Parks within Scott County while Table 10-4 summarizes the amenities located at each.



Source: Scott County

Table 10-4:

Regional Recreational Facilities

Recreational Facilities	Total Acres	Miles of Trails	Archery	Bike/Boat Rental	Boat Launch	Biking/Walking Trails	Camping	Conservation Area	Cross Country Skiing	Dog Off-Leash Area	Equestrian Trail	Fishing	Golf	Interpretive Programming	Mountain Bike Trails	Park Building	Picnic Facilities	Picnic Shelter	Playground Equipment	Restroom	Snowmobile Trails	Swimming
Blakely Bluffs Park Reserve (Planned)	2,440					•		•														
Cedar Lake Farm Regional Park	172	1.3			•	•	•				•	•		•		•						
Cleary Lake Regional Park	1,045	8.5		•	•	•	•		•	•		•	•			•	•		•			•
Doyle-Kennefick Regional Park (Planned)	882	13				•		•									•	•				
Murphy Hanrehan Park Reserve	2,400	40			•	•	•		•		•				•							
Spring Lake Regional Park	373	3.5	•			•	•	•		•		•		•		•	•	•		•	•	

Source: Scott County and Three Rivers Park District

PARK AND TRAIL GOALS / POLICIES

Continued expansion of the City park and trail system is an important amenity that the City desires to provide for its residents and market to visitors. Elko New Market can plan and provide for parks and trails in advance of the actual need should funding be available. The City's Park and Trail Plan is an essential tool to ensure that adequate open space and recreational needs of the community are provided for both now and in the future. The following goals and policies are intended to serve as a guide for future system acquisition and development.

Park and Trail Goal #1: Protect, preserve and improve environmentally sensitive areas and natural/cultural resources.

Policies:

- Establish the following as protection and preservation priorities:
    - Vermillion River corridor.
    - Shoreland areas, wetland complexes, water ways, water bodies and ponds.
    - Ground water resources.
    - Significant forested vegetation, prairies, and savannas.
- Promote innovative development concepts that seek to protect, preserve and improve environmentally sensitive areas and natural/cultural resources, as well as take advantage of any unique features for enjoyment by residents.
- Implement innovative stormwater management techniques and best management practices in existing and future park and trail projects.
- Promote and engage the community in environmental preservation projects, such as cleanups, education, pollinator habitats, and native grass, wildflower and tree plantings.

Park and Trail Goal #2: Acquire land for development of a park and trail system to fulfill the long-term needs of community residents.

Policies:

- Acquire park and trail land through land dedication, purchase, or donation.
- Acquire parcels that will provide for both active recreation needs and that contain natural amenities and unique landscape areas such as the Vermillion River corridor, shoreland areas, wetland complexes, water ways, water bodies, ponds, significant forested vegetation, prairies, and savannas.
- Accept land dedication for park, trail and open space facilities in satisfaction of subdivision requirements only when the parcel satisfies the needs of the community and is compatible with surrounding parcels, as determined by the City.
- Accept lands that serve no previously defined system purpose as a donation, but do not accept the lands as part of required development contributions. Unsolicited donations will only be accepted if they are free of obligations or impacts that may limit their use.

- Dedicate proper right-of-way for sidewalks and trails during the subdivision process or acquired as part of improvement projects.
- Promote acquisition of land which provides public view, access and exposure to improve safety and to maximize public use for the facility.
- Require that costs of acquisition and development of park and trail facilities be borne by those that benefit from the improvements.

Park and Trail Goal #3: Establish a comprehensive park and trail system for all residents of Elko New Market.

Policies:

- Preserve inherent natural amenities or cultural resources when planning the development of specific park and trail sites.
- Establish parks and trails to segregate urban land use patterns, provide public access, allow wildlife movement, and preserve open space while allowing the community to enjoy the natural amenities within the City. These natural amenities may include both buildable land and environmentally sensitive areas with a linear park design to conserve and enhance areas such as significant vegetation, water bodies, waterways, wetlands, ponds, prairies, savannas other natural resources within the community.
- Emphasize Elko New Market as a trailway hub:
    - Work with the state of Minnesota to interconnect City greenway corridors and trailways to larger state-wide trails.
    - Interconnect Elko New Market and adjacent county's greenway corridors and trailways, specifically the Vermillion River corridor with Dakota County.
    - Work with Scott County to interconnect City trails with County parks and trails.
- Maintain a balance between active and passive recreational areas and activities tailored to the needs of the entire community.
- Integrate park and trail facilities that can be utilized during all seasons.
- Utilize consistent design elements for park and trail facilities (buildings, play equipment, landscape plantings, signage, fixtures, etc.) that promote community identity, recognition of public facilities and safety.
- Consider long-term costs for maintenance and operation in a facility's design and construction as part of the planning process.
- Minimize impacts upon adjacent land uses through provision for, but not limited to the following:
    - Appropriate location and orientation of activity areas and buildings.
    - Screening and landscaping site design elements.
    - Structure designs with appropriate scale, color and materials.
    - Adequate off-street parking.
- Develop a trail system which is both functional for transportation and recreation with priority given to the following areas:

  - Trail connections with existing and proposed parks and trails, activity centers, school sites, natural resource areas and natural habitat / greenway corridors such as the Vermillion River.
  - Trails along major streets that have the most direct access to destinations.
  - Trails that are routed to minimize stop signs, cross traffic and mixing with other modes of transportation, but are not limited to trail crossings at controlled intersections.
- Coordinate the construction of trails in conjunction with State, County or City street improvement projects to minimize costs.
- Require park and trail projects to be in accordance with City design standards, American's with Disabilities Act (ADA) requirements and National Recreation and Park Association and playground standards.

Park and Trail Goal #4: Ensure that the City park and trail system is related to the needs of community residents and that the dedication requirements are roughly proportionate to the impacts generated by development.

Policies:
- Evaluate capital improvements made to individual park facilities on the basis of relative need for developed park facilities.
- Program recreational open space improvements in accordance with a Capital Improvement Program and update on an annual basis.
- Monitor park dedication fee structure to ensure that implementation of the comprehensive park and trail system will be accomplished in a manner that is consistent with the law.
- Require park improvements associated with development proposals be installed at the time of development to ensure that park facilities are available to neighborhood residents.

Park and Trail Goal #5: Develop a partnership between the City of Elko New Market, Lakeville ISD 194, New Prague ISD 721, Scott County, Elko New Market Township, churches and civic organizations to provide recreation facilities and programs.

Policies:
- Pursue grants, joint powers agreements and other alternative funding sources for the acquisition and development of park, trail and open space facilities.
- Coordinate local facility development with the needs and facilities of surrounding communities, school districts, athletic associations, civic groups, etc.
- Coordinate recreational programming with the needs of surrounding communities, school districts, athletic associations, civic groups, etc.

PARK AND TRAIL PLAN

The Elko New Market 2040 Park and Trail Plan is intended to provide guidance to City Officials, developers and residents for continued development of the City's park and trail system. The Plan projects park and trail development needs through the year 2040 and identifies search areas for future park needs. It must be emphasized that the future park search areas identified herein do not target specific properties. Instead, the search areas identify general areas of acquisition toward the goal of providing the City with the ability to reserve land from development as it becomes available.

Trail development is addressed somewhat differently, in that major future trail corridors have been identified by the Scott County Comprehensive Plan. The proposed park and trail system (Figure 10.4) identifies these important corridors and trail segments that the City believes should be constructed in order to link community facilities to regional facilities and open space systems that exist or are being planned in adjacent communities and townships. The basic concept of the 2040 Park and Trail Plan is to provide for a pedestrian and bicycle transportation network that connects to important recreational and social centers in the community. The comprehensive trail system should not only ensure public access to community amenities but should also provide recreation opportunities for all age groups and safer access to facilities than are currently available within the community.

Park Needs

The population of the City of Elko New Market is projected to grow to 11,900 by the year 2040. For park planning purposes, communities range in the amount of parkland that is desired per capita. Generally, the amount of park acreage per capita ranges from 10 to 20 acres per 1,000 residents. Utilizing the population forecast from the Metropolitan Council for Elko New Market, Table 10-5 summarizes the number of acres of park that will be needed to accommodate future populations through the year 2040.

Table 10-5

Park Acreage Needs through 2040				
Year	**Elko New Market Population Forecasts**	**Required Park Acreage**		
		Low (10 acres per 1,000 residents)	**Mid (15 acres per 1,000 residents)**	**High (20 acres per 1,000 residents)**
2018	4,769	48	72	95
2020	6,100	61	92	122
2030	8,600	86	129	172
2040	11,900	119	179	238
Source: Metropolitan Council				

Based on the 10 to 20 acres per 1,000 residents standard, the Elko New Market park system should currently include approximately 48 to 95 acres of parkland to serve the existing (2018)

population. The City currently has approximately 41 acres of public park area with an additional 18 acres of platted parks that are to be developed in the future. This gives Elko New Market a current total of approximately 59 acres of public park areas, which is within the recommended parameters. A minimum of 119 acres of park / recreation area will be needed to accommodate the anticipated 2040 population of 11,900. To meet the 119 acre total, 60 additional acres of land will need to be added to the current park system between now and 2040.

It should be noted that the acres per 1,000 residents standard typically pertain to the core park systems, exclusive of trail corridors and special use facilities like golf courses, regional parks and wetland open space areas. The acres per 1,000 residents standard provides one method to evaluate park systems. The City should utilize the standard as a way to evaluate whether the overall park system acreage is generally acceptable.

In addition to the acres per 1,000 residents standard, the City should utilize the per capita standards for each park classification to ensure sufficient acreage of each park type is provided in the community. Table 10-6 summarizes the park classifications per capita standards and acreage needs through 2040.

Table 10-6

Park Acreage Need through 2040 By Park Classification

Classification	Per Capita Standard (acres per 1,000 residents)	Existing Acreage	2018 Required Acreage[1]	2040 Required Acreage[2]	Additional Acreage Needed by 2040 to Meet Requirements[3]
Mini Park	0.25 to 0.5	11.0	1.2 to 2.4	3.0 to 6.0	**0.00**
Neighborhood Park	2.5 to 3.5	0	11.9 to 16.7	29.8 to 41.7	**29.8 to 41.7**
Community Park	5.0 to 8.0	14.7	23.8 to 38.2	59.5 to 95.2	**44.8 to 80.5**
Community Playfield / Athletic Complex	2.0 to 2.5	0	9.5 to 11.9	23.8 to 29.8	**23.8 to 29.8**
Conservation Area / Greenway	N/A	3.43	--	--	--
Special Use Park	N/A	11.8	--	--	--

[1] Based on 2018 Estimated Population: 4,769
[2] Based on 2040 Projected Population: 11,900
[3] Difference between existing acreage and the 2040 required acreage.
Source: National Recreation and Park Association, Metropolitan Council

Based on the per capita standards for each park classification, Elko New Market needs a minimum of 30 acres of Neighborhood Park, 45 additional acres of Community Park, and 24 acres of Community Playfield / Athletic Complex. No additional Mini Park acreage is needed for the projected 2040 population.

As a part of the park planning effort, Park Commission members inquired about the type of facilities that should be offered within the park system for residents. The type, number and quality of park equipment, courts and fields are subject to individual goals and objectives of each

community and the amount of land available. As there are a number of parks that will be outfitted within the future, it may be an opportune time for the City to survey residents to determine what type of amenities they would like to have in future parks.

Proposed Park Recommendations

To provide the park acreage needs for the projected 2040 population and address service area gaps, the Parks Commission recommends that the City consider adding a minimum of 30 acres of neighborhood parks, 45 acres of community parks, and 24 acres of community playfield / athletic complex over the next 20 years. Meeting these minimum recommendations would result in 99 additional acres of parkland bringing the total projected park acreage to 158. The projected total of 158 parkland acres by 2040 results in just over 13 acres per 1,000 residents, which exceeds the minimum required acreage to serve the projected 2040 population.

The City should also consider the development of conservation areas / greenways and special use parks as the need or opportunity arises. Figure 10.4 depicts the proposed 2040 park plan. Proposed park search areas are based on future residential land uses, land topography, park service area deficits and proximity to existing and proposed community facilities.

When planning for future parks, Elko New Market decision makers should utilize the park classification standards to determine the exact park location, size and amenities provided. The standards are to be coupled with conventional wisdom and judgment relating to the particular situation to which they are applied and specific local needs. Occasionally, more than one component may occur within the same site, particularly with regard to a specialized use or conservation areas within a larger park. The following descriptions supplement the standards summarized in Table 10-1 by providing additional guidelines for each of the park classifications and noting proposed search areas, if applicable.

Mini Park. Mini parks are intended to service special neighborhoods due to geographic limitations. They have insufficient size to fulfill the needs of a complete neighborhood park. The sites usually have less than five acres of usable land and therefore only allow for play equipment, multiuse hard-courts and possibly substandard ball fields (suitable for informal recreation). These areas are highly individualized based upon the nature of the site and the needs of the immediate adjacent population.

Desirable Park Size: 1 to 5 acres.

Service Area: Less than ¼ mile radius preferred. ½ mile radius in select circumstances.

Per Capita Standard: 0.25 to 0.5 acres per 1,000 residents.

Typical Facilities:
Active

- Play equipment

- Multiuse hard-courts (basketball, court games)
- Ball fields

Passive
- Park benches / seating areas
- Picnic facilities

Search Areas: No search areas have been identified as the City has sufficient mini park acreage to accommodate the projected 2040 population.

Neighborhood Park. Neighborhood parks should provide neighborhood open space with provisions for active recreation use which responds to residential neighborhood needs. These recreational uses could include play equipment, open playfields, ball fields, multiuse hard-courts, multiuse trails, picnic areas and ice skating. Primary users will be children and families rather than organized athletic functions.

Convenient pedestrian and bicycle linkages from the neighborhood into the parks should occur along with community trail connections. Adjacent land use should be residential (limited to two edges), school grounds, collector roadway or community open space. In some cases, joint use of elementary or middle school sites should be considered to minimize duplication of active recreation facilities.

Desirable Park Size: 6 to 20 acres.

Service Area: ½ mile radius with secondary service to residences within ¾ mile radius.

Per Capita Standard: 2.5 to 3.5 developed acres per 1,000 residents.

Typical Facilities:
Active
- Play equipment
- Open playfields
- Ball fields
- Multiuse hard-courts (basketball, court games)
- Tennis courts (optional, can vary by location and neighborhood desires)
- Trails – both internal loops and access to community system
- Sledding
- Ice rinks

Passive
- Park benches / seating areas
- Picnic facilities

Support Elements:
- Trash containers
- Landscaping with native plant materials
- Identification sign/regulatory signs
- Off-street parking, disability accessible (20 car standard)
- Park shelter for principal neighborhood parks (15 acres and larger that are geographically distributed throughout the City)

Search Areas:
- North of 260th Street, South of 250th Street East, East of Dakota Avenue, and West of Natchez Avenue.
- North of James Parkway, South of 250th Street East, East of Nevada Avenue, and West of Dakota Avenue.
- North of 270th Street East, South of 260th Street East, East of Texas Avenue, and West of Zane Avenue.
- North of 275th Street East, South of Glenborough Drive, along Natchez Avenue.

Community Park. Community parks should be differentiated from neighborhood parks by two factors: size and function. The Community Park designation includes both parks and playfields that provide facilities for recreational activities such as walking, picnicking, viewing, water sports, ice skating, passive sports and organized community events. These parks serve larger sections of the City and are typically more spacious than neighborhood parks.

Desirable Park Size: Varies.

Service Area: 1 mile.

Per Capita Standard: 5 to 8 acres per 1,000 residents.

Typical Facilities:
Active
- Active facilities compatible with large groups such as volleyball, horseshoes, baseball / softball, soccer, football, court games, etc.
- Play equipment
- Multiuse trails
- Beach front
- Boat access

Passive
- Picnic facilities
- Seating areas with attractive views
- Fishing
- Conservation areas

Support Elements:
- Trash containers
- Comfort facilities with restrooms which may integrate an information center, picnic facility, storage or other building elements
- Off-street parking for large groups and community events
- Identification sign / regulatory signs

Search Areas:
- North of 260th Street East, south of 250th Street, along Xerxes Avenue. This location serves to preserve the existing wetland, remnant forest patch and give connection to the Vermillion River. It may also provide an opportunity to work with Scott County, the State DNR and conservation organizations to finance the environmental protection of the area.
- City extension of land South, East, and West of Windrose Park.

Community Playfield / Athletic Complex. Community playfields / athletic complexes are targeted towards organized adult and youth play on a citywide basis. The majority of the users for these facilities will come from beyond a walking range and as a result will require adequate parking and available restrooms. Community playfields / athletic complexes should respond to the following types of athletic facility needs: baseball / softball fields, soccer / football fields, multiple tennis courts, swimming pools, etc. Facility use and team competition play may require site lighting and irrigation to extend their useable hours. Community playfields / athletic complexes should be maintained with more intensity than other parks due to the amount of use and level of play.

Community playfields / athletic complexes generally service populations up to 25,000 however, their service base relates primarily to individual facility needs and the demands placed on them by user groups. Minimum size should not be less than 20 acres with optimum size being 30 acres or larger. Locations near thoroughfares to accommodate vehicle access and movement are preferred. Joint use of facilities with elementary, middle or senior high schools can be considered where schedules and maintenance requirements agree.

Desirable Park Size: 20 to 60 acres.

Service Area: Community wide.

Per Capita Standard: 2.0 to 2.5 acres per 1,000 residents.

Typical Facilities:
Active
- Ball fields
- Ice rinks
- Basketball

- Tennis (multiple courts)
- Swimming pools
- Disk golf
- Play equipment

Passive
- Spectator seating and bleacher areas
- Picnic facilities for group events and tournaments
- Trails connecting facilities and linking to the community trail system

Support Elements:
- Trash containers
- Off-street parking for players and spectators, including buses
- Comfort facilities including restrooms and concessions
- Storage facilities

Search Areas:
- North of 260th Street East, South of 250th Street East, East of Natchez Avenue, and West of Xerxes Avenue.
- City extension of land South of Eagle View Elementary and North of 260th Street East.

Conservation Area / Greenway. Conservation areas / greenways are set in natural areas of the community where preservation of the natural environment is the primary emphasis as opposed to active recreation and play. Hiking trails, wildlife habitat and picnic facilities are among the primary uses of the park facility. This type of facility is typically developed for one or more varying modes of recreational travel such as hiking, biking, skiing, roller blading, skating, canoeing, etc. Developed facilities should be limited to elements compatible with resource preservation or management.

Desirable Park Size: Varies by use and function, but corridors are to be a minimum of 100 feet in width.

Service Area: Community wide.

Per Capita Standard: N/A

Typical Facilities:
Active
- Small play area

Passive
- Park benches / seating areas
- Picnic facilities

- Passive trails
- Scenic overlook

Support Elements:
- Comfort facilities
- Interpretive / informational signage
- Lighting
- On / off-street parking

Search Areas:
- North of 260th Street East, South of 250th Street East, East of Xerxes Avenue, West of I-35, along the Vermillion River.
- City extension of land South, East, and West of Pete's Hill Platted Park. This location serves to preserve the existing Natural Area Corridor and DNR protected water basins.

Special Use Park. Special use parks are facilities which provide special activities, unique built environments, historical sites or single purposes. Their need should respond to distinct markets, demands or opportunities within the community. Characteristics vary widely in response to the facility and the demand responded to. Included in this classification are formal designations of a site with historical character or cultural significance. Uses typical of this special designation include dog parks, golf courses, nature centers, conservatories, arboretums, gardens, fishing piers, amphitheaters or downhill ski areas.

The Parks Commission will work collectively with the Scott County Historical Society and other local historical commissions to facilitate identification and designation of potentially significant historical sites within the Elko New Market.

Desired Park Size: Varies by function and facility type. Historical features should be a minimum of one half acre to encourage use and provide support facilities.

Service Area: Community wide.

Per Capita Standard: N/A

Typical Facilities:
- Facilities vary according to function and facility type

Support Elements:
- Parking
- Comfort facilities
- Multiuse trails
- Identification / informational signage

Search Areas: Future special use parks are dependent on market demand and the availability of sites with historical character or cultural significance.

Proposed Trail Recommendations

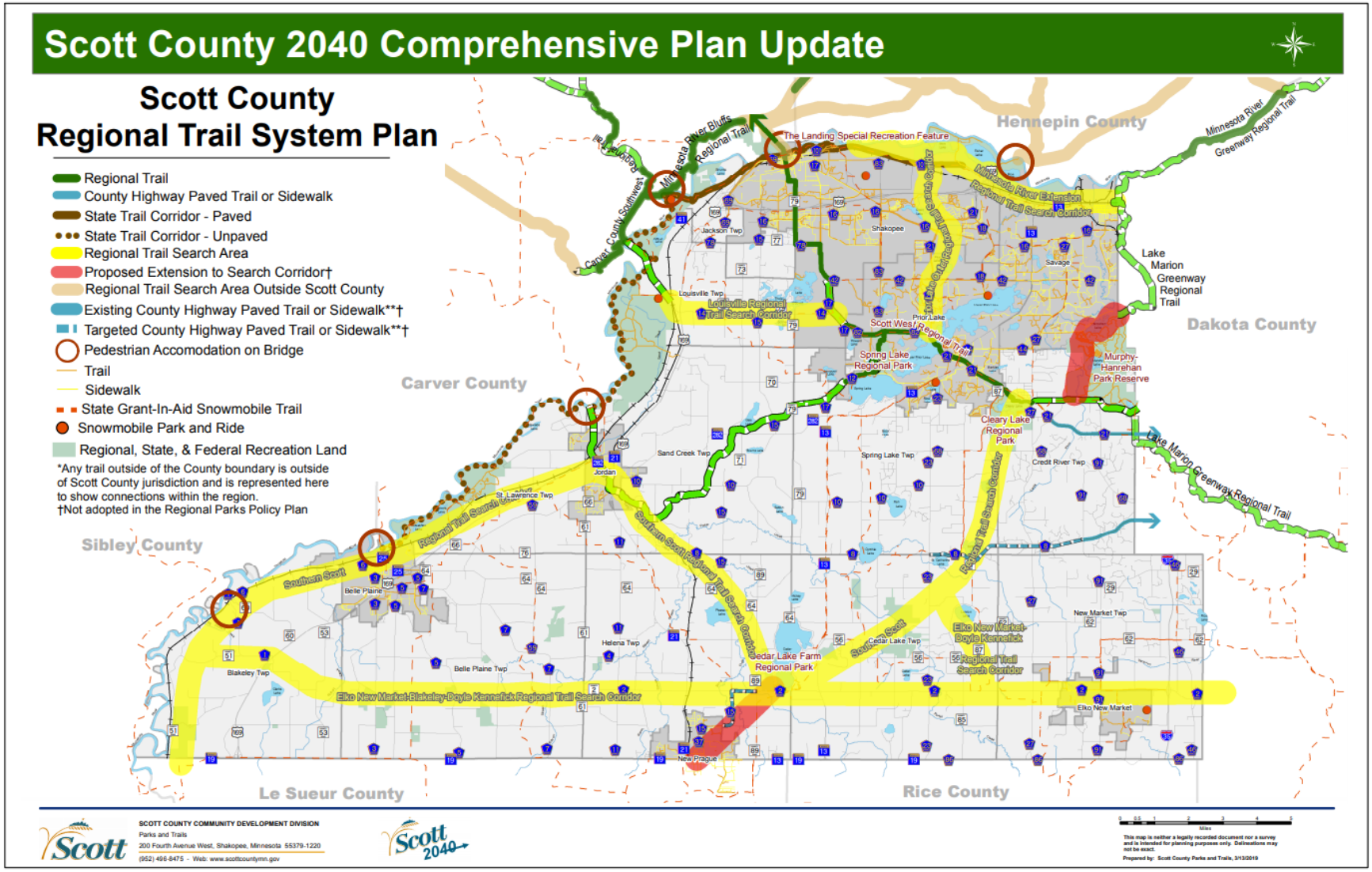
Figure 10.4 identifies a number of trail segments that are proposed to connect various recreation areas, commercial nodes, schools and neighborhoods throughout the community within the 2040 planning area. The total proposed distance of future trails that are needed to provide connections to existing and proposed park and recreation areas is approximately 175,000 linear feet or 33 miles.

In order to provide the regional, county and city trailway corridor links, it will be important for all of the communities, including Scott County and adjacent counties, Elko New Market and New Market Township, to work together to develop an overall plan, method to acquire lands, and funding mechanism to install the trails. It will be imperative to begin working on a joint plan in order to acquire or preserve the lands adjacent to these features prior to development. The 2040 Park and Trail Plan suggests that the City of Elko New Market Parks Commission act as the steering committee to make contact with adjacent jurisdictions and agencies that could help provide direction to implement a joint trailway system. The following summary outlines the proposed plans for the 2040 trail system:

Regional and County Trailway Corridors. The City of Elko New Market will continue to work with Metropolitan Council, Scott County, Dakota County, New Market Township and associated stakeholders to implement regional and county trailway corridors when applicable. Scott County has identified CSAH 2 through Elko New Market as part of the Elko New Market-Blakely-Doyle Kennefick Regional Trail Search Corridor. This corridor is proposed to connect Elko New Market to Cedar Lake Farm Regional Park and the Minnesota River.

In addition to the above mentioned regional and county trailway corridors, the Minnesota Pipe Line Company has indicated that a passive recreational corridor could extend through Elko New Market over the MinnCan natural gas pipeline. The MinnCan natural gas pipeline was constructed from Clearwater County in northern Minnesota, south to the Twin Cities metropolitan area. The pipeline alignment runs west / east through the southern border of Scott County, along Elko New Market's current boundary and through the City's 2040 boundary.

According to Minnesota Pipe Line Company, which is responsible for the construction of the pipeline, the route requires a 50 to 100 foot buffer. This buffer must be kept clear of vegetation to service the pipeline if necessary. Although not yet identified by other Minnesota communities which are affected by the pipeline location, it has been indicated by the City of Elko New Market that this pipeline corridor offers opportunity to be included in the proposed trail system network as a passive recreational corridor. It has been indicated that separate trail easements will be required from each property owner. With the implementation of this Plan, the City will continue to pursue this 3.24 mile trailway corridor potential.



Source: Scott County

City Trailway Corridors. The proposed Park and Trail Plan depicts four city trailway corridor segments. The first is a Vermillion River city trailway corridor which extends east / west along the Vermillion River. A proposed city trailway corridor south from this corridor links the Vermillion River to CSAH 2 along Xerxes Avenue. Another city trailway corridor is proposed southwest through the City of Elko New Market, at times following an existing railroad bed. Lastly, a city trailway corridor is proposed southeast from Pete's Hill Park to I-35 and beyond into Dakota County. The City will continue to pursue construction of these trail alignments as opportunity arises, along with other links, such as along Xerxes Avenue.

City Trails / Sidewalks. City trails and sidewalks supplement the aforementioned county and city trailway corridors, connecting these larger trail networks to local neighborhoods, commercial nodes, school facilities and other parks within the network. Future arterial roads which include Natchez Avenue, 260th Street East and 280th Street East are guided to receive trails on both sides of the roadway. In addition, a diverse network of residential trails and sidewalks are proposed to interconnect neighborhoods, parks and city facilities.

These proposed city trails and sidewalks guided for construction are dependent on future residential plats and reconstruction of county roads. The City's Subdivision Ordinance requires construction of sidewalks and / or trails along roadway corridors with new developments. In general, trails are required when development occurs next to a collector or arterial roadway and sidewalks are required, at a minimum, on one side of local and minor collector streets.

Implementation

This section of the Park and Trail Plan identifies the tools and processes to implement the Plan. The following implementation strategies may be used:

1. The Park Commission will review and update neighborhood park needs and service areas as development occurs so that new barriers and changing recreational needs are acknowledged and accommodated.

2. The Park Commission will review and evaluate each development project to ensure it provides appropriate park land dedication, open space preservation and trail connections parks, trails, greenways, schools, and commercial/industrial developments.

3. The Park Commission will review and prioritize trail needs and recommend a schedule and funding framework to the City Council.

4. The Park Commission will investigate the use of grants, donations, partnerships, and opportunities for additional joint powers agreements for the development of park, trail and recreation facilities.

5. The Park Commission recommends that the City Council amend its City Code to incorporate current state statue language associated with park dedication. This language states that the

City may require that a reasonable portion of the buildable land, as defined by the City's ordinance, of any proposed subdivision be dedicated to the public or preserved for public use as parks, recreational facilities and open space. The City may also accept a cash fee, based on fair market value, in lieu of land dedication. The land dedication or cash fee must bear a rough proportionality to the need created by the proposed subdivision or development.

Cash payments received must be placed by the municipality in a special fund to be used only for the purposes for which the money was obtained. Cash payments received must be used only for the acquisition and development or improvement of parks, recreational facilities, playgrounds, trails, wetlands, or open space based on the approved park systems plan. Cash payments must not be used for ongoing operation, maintenance, or redevelopment of parks, recreational facilities, playgrounds, trails, wetlands, or open space.

6. The City will develop comprehensive maintenance and management plans for its Park and Trail System. Minnesota Statutes specify that park dedication fees may not be used for operation or maintenance purposes and therefore it is important for the City to continue to provide a separate budget fund for maintenance and management.

7. The Park Commission recommends that the City Council consider incorporating park redevelopment infrastructure planning as part of the 5-year Capital Improvement Plan. It is anticipated that significant funding over many years will be needed to enhance or redevelop aging parks and provide facility improvements.

8. The Park Commission recommendations for future land dedication will be based on the park land need defined by the Elko New Market Park and Trail Plan. Active park areas shall be exclusive of wetlands, slopes exceeding 12 percent, ponding areas, or other features unsuitable for active park development. The City may accept natural open space as part of the parkland dedication. Selection of parkland for dedication shall be at the discretion of the City Council, based upon the policies and recommendations of the Park Commission and Elko New Market Park and Trail Plan.

9. The Park Commission will act to further investigate options and agency participation for development of the greenway / natural habitat corridor and trail system outside of the 2040 planning area.

Funding Mechanisms

Financing the park and trail improvements will be a challenge for the City. The acquisition and development of the park and trail system will not occur without adequate funding and taking advantage of opportunities as they present themselves. A brief description of potential funding sources is provided as follows:

Park Dedication. Pursuant to Minnesota State Statutes, the City requires the dedication of either land or cash, or combination thereof at the time that property is subdivided. Dollars collected

from park dedication fees represent the primary source of park and trail revenue and should be used for parkland acquisition or park / trail development.

Property Taxes. The City has the ability to raise property taxes to help to pay for the park and trail system. In the event that future changes to the Park and Trail Plan, growth projections, land areas subject to the dedication analysis or other changes occur, the park dedication will need to be reviewed and adjusted accordingly. Property taxes are a means to raise revenue for the part of the Park and Trail system that should be borne by existing residents. The use of property tax may be limited by overall financial management of the City or by State imposed levy limitations.

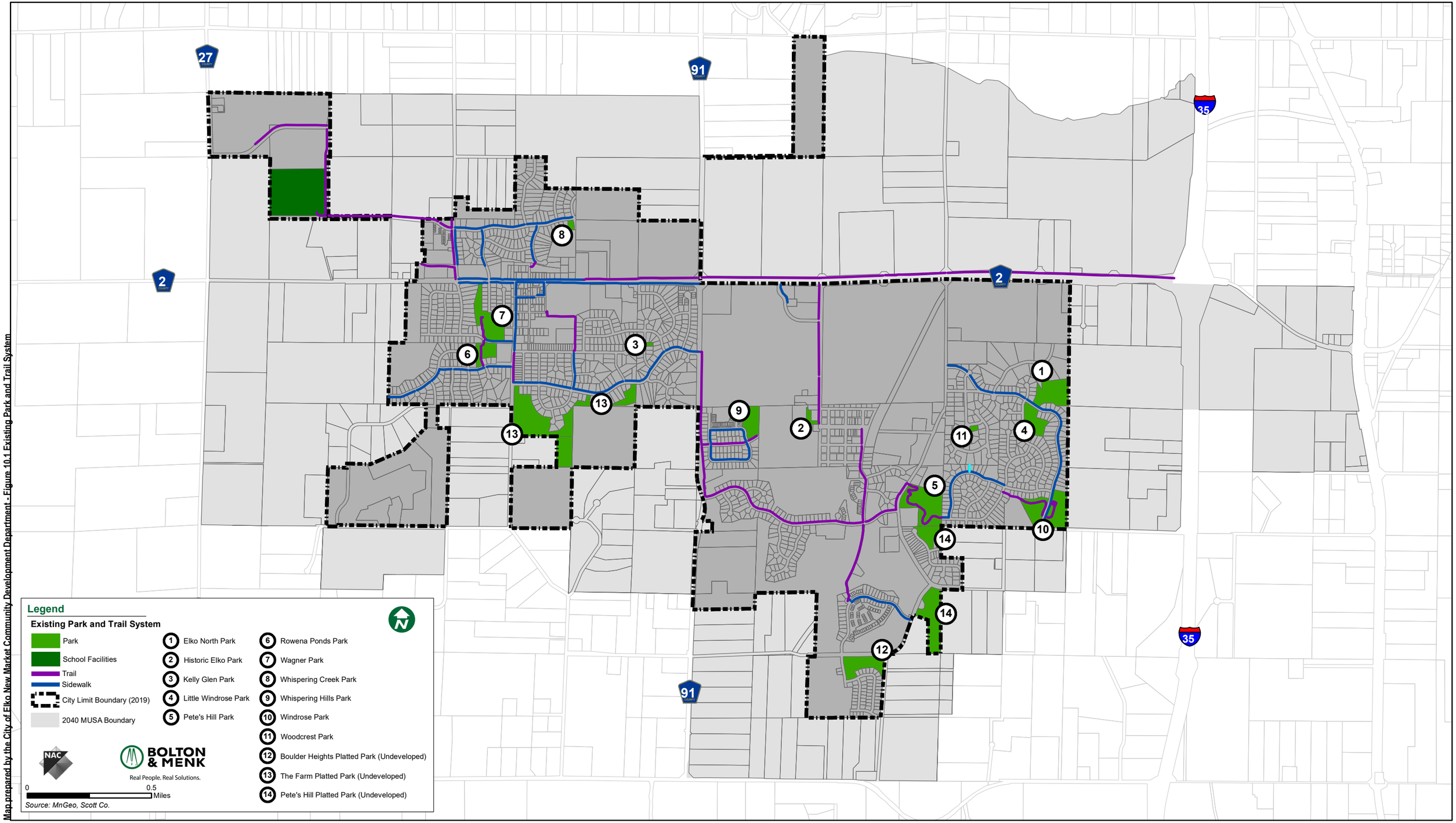
Special Assessments. The ability of a city to levy assessments for park improvements is governed by Minnesota Statutes, Chapter 429. This statute defines eligible park improvements as "acquire, improve and equip parks, open space areas, playgrounds, and recreational facilities within or without the corporate limits." This definition would cover the vast majority of projects anticipated by this Plan. A special assessment represents the portion of a park improvement costs levied against benefiting properties. The special assessment tool must be reviewed carefully to identify whether historic park dedication fees have been collected and applied to the benefiting properties to ensure that owners are not charged twice for park and trail improvements. Also, an analysis would need to be done to identify which properties receive benefit from the park and trail improvement as there must be a rational nexus between the charge and benefit received. The typical method would be to levy an equal assessment on each benefiting parcel. The assessment could be for all or any portion of the improvements. At least 20% of the costs of the improvement must be assessed to gain the authority to issue bonds. If less than 100% of the costs are assessed, then park dedication fees, property taxes, or other available revenues would be needed to pay back the debt.

Referendum – Voter Approved Bonds. The City may place a referendum on voter ballets for consideration by the public to support park and trail improvements. Voter approved debt service levies are spread on the market value of property. This funding mechanism is typically utilized for major improvements such as a community center, athletic complex or to acquire high amenity park and recreation areas.

Grants. The City should continue to apply for available grants for development of its Park and Trail Plan through agencies such as the Minnesota Department of Natural Resources, Minnesota Department of Transportation, Scott County, and any other agencies.

Private Donations. The City should establish a policy identifying park and trail needs and a process the public can use to donate revenue or equipment to meet those needs. The City should also consider establishing a Community Foundation for use for park projects and equipment. Additionally, the Park Commission should proactively contact private foundations such as The Trust for Public Land, 1,000 Friends of Minnesota, McKnight Foundation, Metro Greenways and others to identify potential funding sources for the community park and trail system.

Existing Park and Trail System
Figure 10.1

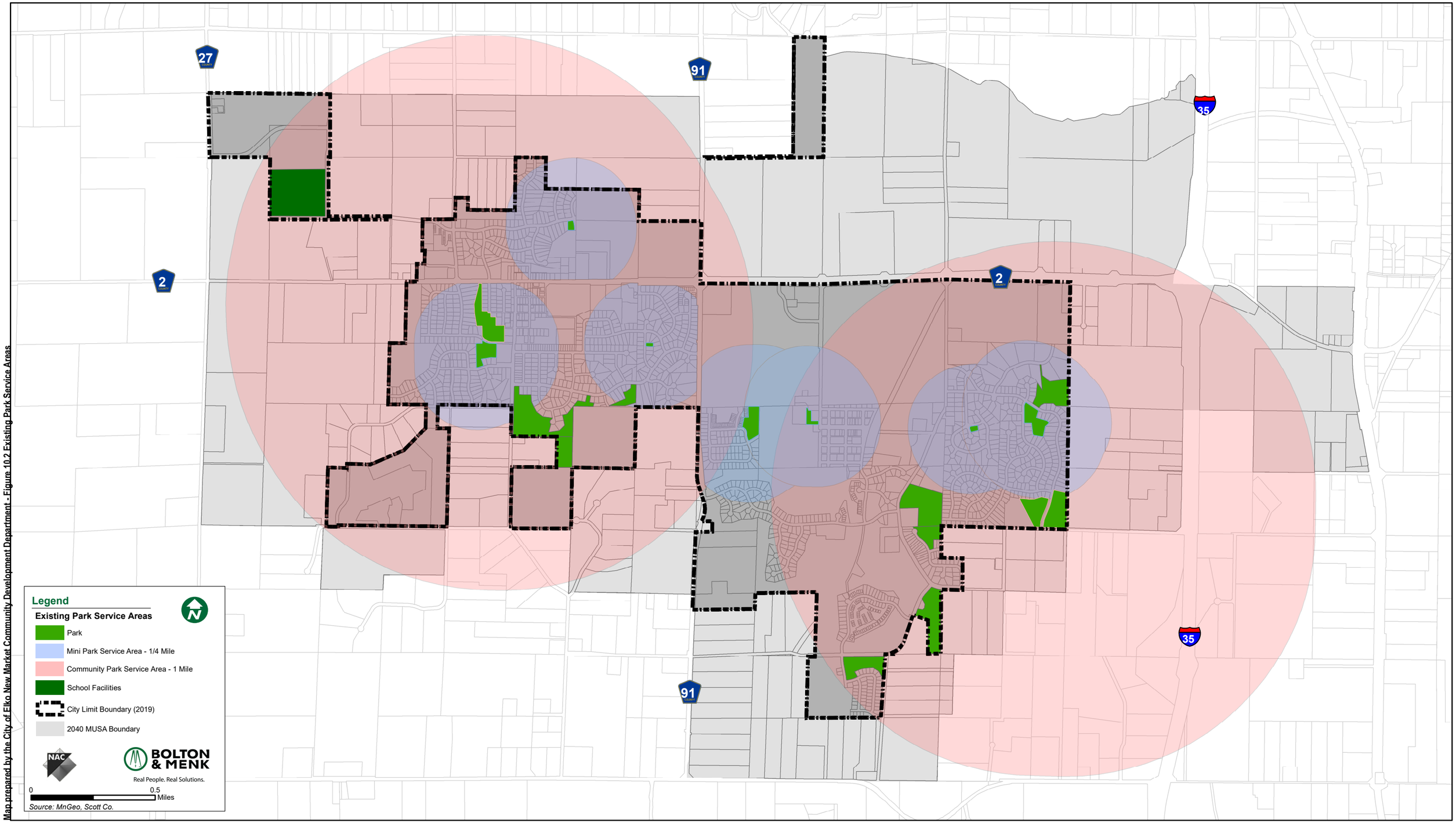


Map prepared by the City of Elko New Market Community Development Department - Figure 10.1 Existing Park and Trail System

2040 Comprehensive Plan

Elko New Market, MN

Existing Park Service Areas
Figure 10.2

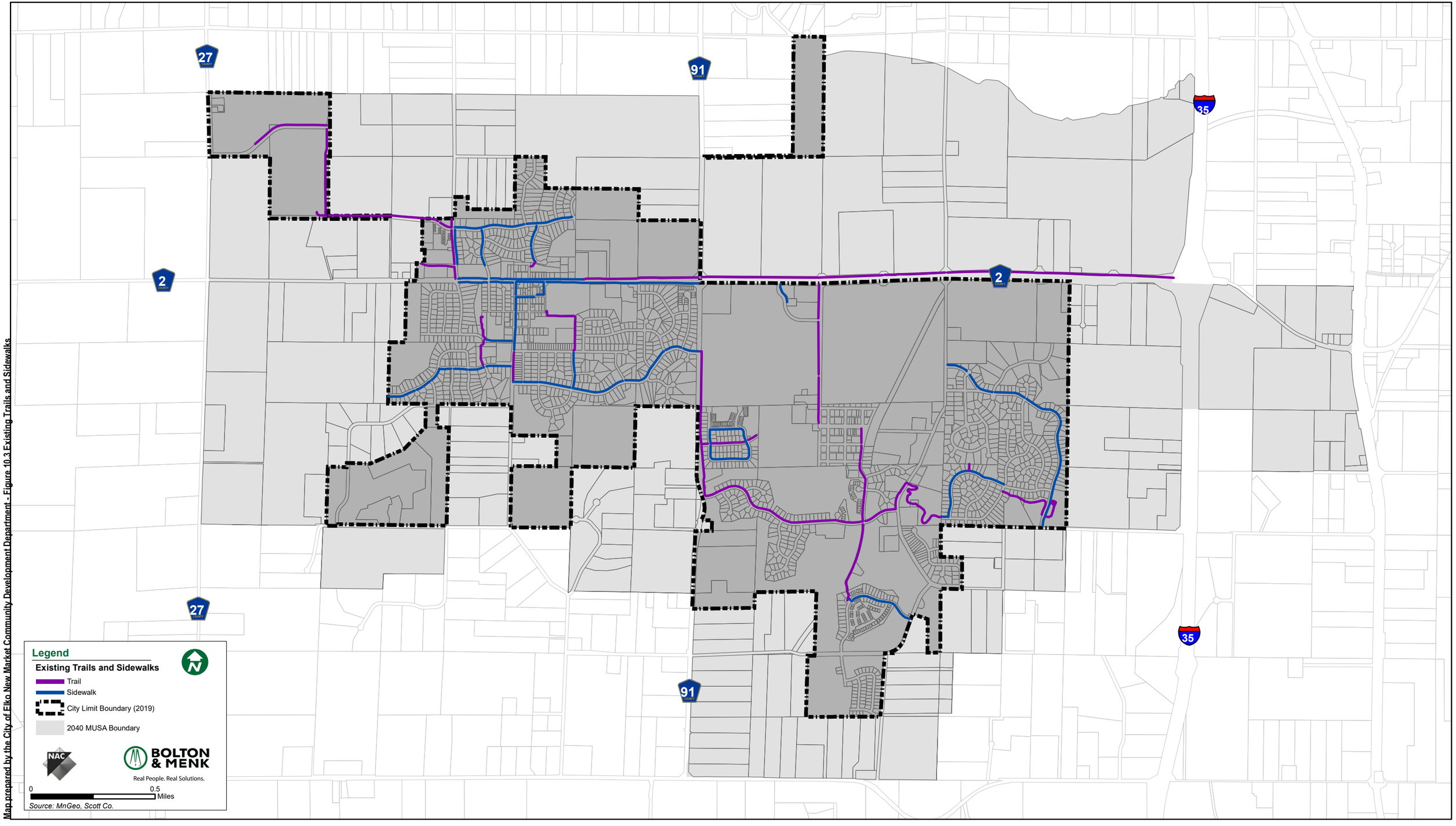


Map prepared by the City of Elko New Market Community Development Department - Figure 10.2 Existing Park Service Areas

2040 Comprehensive Plan

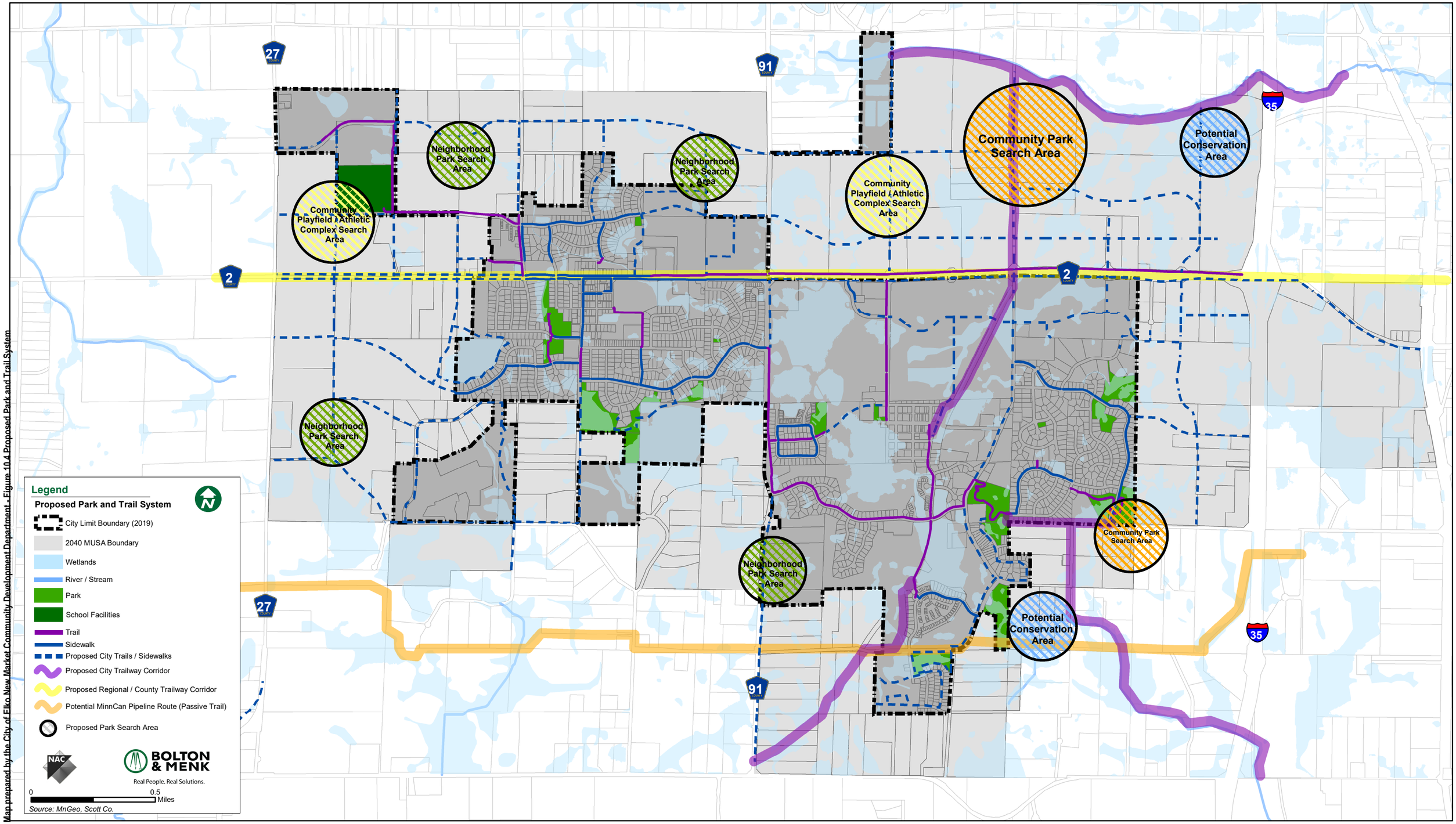
Elko New Market, MN

Existing Trails and Sidewalks
Figure 10.3



Map prepared by the City of Elko New Market Community Development Department - Figure 10.3 Existing Trails and Sidewalks

Proposed Park and Trail System
Figure 10.4



Map prepared by the City of Elko New Market Community Development Department - Figure 10.4 Proposed Park and Trail System

Local Water Supply Plan Elko New Market, MN

Third Generation for 2016-2018

Revised April 10, 2017

Formerly called Water Emergency & Water Conservation Plan

DEPARTMENT OF NATURAL RESOURCES

Cover photo by Molly Shodeen

For more information on this Water Supply Plan Template, please contact the DNR Division of Ecological and Water Resources at (651) 259-5034 or (651) 259-5100.

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This information is available in an alternative format upon request.

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DEPARTMENT OF NATURAL RESOURCES – DIVISION OF ECOLOGICAL AND WATER RESOURCES AND METROPOLITAN COUNCIL

INTRODUCTION TO WATER SUPPLY PLANS (WSP)

Who needs to complete a Water Supply Plan

Public water suppliers serving more than 1,000 people, large private water suppliers in designated Groundwater Management Areas, and all water suppliers in the Twin Cities metropolitan area are required to prepare and submit a water supply plan.

The goal of the WSP is to help water suppliers: 1) implement long term water sustainability and conservation measures; and 2) develop critical emergency preparedness measures. Your community needs to know what measures will be implemented in case of a water crisis. A lot of emergencies can be avoided or mitigated if long term sustainability measures are implemented.

Groundwater Management Areas (GWMA)

The DNR has designated three areas of the state as Groundwater Management Areas (GWMAs) to focus groundwater management efforts in specific geographies where there is an added risk of overuse or water quality degradation. A plan directing the DNRs actions within each GWMA has been prepared. Although there are no specific additional requirements with respect to the water supply planning for communities within designated GWMAs, communities should be aware of the issues and actions planned if they are within the boundary of one of the GWMAs. The three GWMAs are the North and East Metro GWMA (Twin Cities Metro), the Bonanza Valley GWMA and the Straight River GWMA (near Park Rapids). Additional information and maps are included in the DNR Groundwater Management Areas webpage.

Benefits of completing a WSP

Completing a WSP using this template, fulfills a water supplier's statutory obligations under M.S. M.S.103G.291 to complete a water supply plan. For water suppliers in the metropolitan area, the WSP will help local governmental units to fulfill their requirements under M.S. 473.859 to complete a local comprehensive plan. Additional benefits of completing WSP template:

- The standardized format allows for quicker and easier review and approval
- Help water suppliers prepare for droughts and water emergencies.
- Create eligibility for funding requests to the Minnesota Department of Health (MDH) for the Drinking Water Revolving Fund.
- Allow water suppliers to submit requests for new wells or expanded capacity of existing wells.
- Simplify the development of county comprehensive water plans and watershed plans.
- Fulfill the contingency plan provisions required in the MDH wellhead protection and surface water protection plans.
- Fulfill the demand reduction requirements of Minnesota Statutes, section 103G.291 subd 3 and 4.

- Upon implementation, contribute to maintaining aquifer levels, reducing potential well interference and water use conflicts, and reducing the need to drill new wells or expand system capacity.
- Enable DNR to compile and analyze water use and conservation data to help guide decisions.
- Conserve Minnesota's water resources

If your community needs assistance completing the Water Supply Plan, assistance is available from your area hydrologist or groundwater specialist, the MN Rural Waters Association circuit rider program, or in the metropolitan area from Metropolitan Council staff. Many private consultants are also available.

WSP Approval Process

10 Basic Steps for completing a 10-Year Water Supply Plan

1. Download the DNR/Metropolitan Council Water Supply Plan Template from the DNR Water Supply Plan webpage.
2. Save the document with a file name with this naming convention: WSP_cityname_permitnumber_date.doc.
3. The template is a form that should be completed electronically.
4. Compile the required water use data (Part 1) and emergency procedures information (Part 2)
5. The Water Conservation section (Part 3) may need discussion with the water department, council, or planning commission, if your community does not already have an active water conservation program.
6. Communities in the seven-county Twin Cities metropolitan area should complete all the information discussed in Part 4. The Metropolitan Council has additional guidance information on their Water Supply webpage. All out-state water suppliers ***do not*** need to complete the content addressed in Part 4.
7. Use the Plan instructions and Checklist document from the DNR Water Supply Plan webpage to insure all data is complete and attachments are included. This will allow for a quicker approval process.
8. Plans should be submitted electronically using the MPARS website – no paper documents are required.
9. DNR hydrologist will review plans (in cooperation with Metropolitan Council in Metro area) and approve the plan or make recommendations.
10. Once approved, communities should complete a Certification of Adoption form, and send a copy to the DNR.

Complete Table 1 with information about the public water supply system covered by this WSP.

Table 1. General information regarding this WSP

Requested Information	Description
DNR Water Appropriation Permit Number(s)	**1984-6141**
Ownership	☒ Public or ☐ Private
Metropolitan Council Area	☒ Yes or ☐ No (Scott)
Street Address	**601 Main Street**
City, State, Zip	**The City of Elko New Market, MN 55054**
Contact Person Name	Thomas Terry
Title	City Administrator
Phone Number	(952) 461-2777
MDH Supplier Classification	Municipal

PART 1. WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

The first step in any water supply analysis is to assess the current status of demand and availability. Information summarized in Part 1 can be used to develop Emergency Preparedness Procedures (Part 2) and the Water Conservation Plan (Part 3). This data is also needed to track progress for water efficiency measures.

A. Analysis of Water Demand

Complete Table 2 showing the past 10 years of water demand data.

- Some of this information may be in your Wellhead Protection Plan.
- If you do not have this information, do your best, call your engineer for assistance or if necessary leave blank.

If your customer categories are different than the ones listed in Table 2, please describe the differences below:

The cities of Elko and New Market were combined in 2007. Therefore, the data for 2007 and 2008 is complete data for the combined city. Data prior to 2007 was the combination of the data from the two cities. Some of the required data was not available from both cities prior to 2005. Some data from 2010 – 2014 was missing.

Table 2. Historic water demand (see definitions in the glossary after Part 4 of this template)

Year	Pop. Served	Total Connections	Residential Water Delivered (MG)	C/I/I Water Delivered (MG)	Water used for Non-essential	Wholesale Deliveries (MG)	Total Water Delivered (MG)	Total Water Pumped (MG)	Water Supplier Services	Percent Unmetered/ Unaccounted	Average Daily Demand (MGD)	Max. Daily Demand (MGD)	Date of Max. Demand	Residential Per Capita Demand (GPCD)	Total per capita Demand (GPCD)
2005	2,525	870	83.6	8.0	0	0	92	96	0	4.8%	0.25	0.93	N/A	90.7	104.4
2006	3,167	1,085	114.7	4.4	0	0	119	114	0	-4.5%	0.33	1.19	N/A	99.2	98.6
2007	3,788	1,130	117.7	14.1	0	0	132	135	0	2.4%	0.36	0.75	N/A	85.1	97.6
2008	3,788	1,613	106.2	3.9	0	0	110	124	0	11.0%	0.30	0.60	N/A	76.8	89.5
2009	3,800	1,644	112.5	3.8	0	0	116	123	0	5.1%	0.32	--	N/A	81.1	88.4
2010	3,943	1,324	102.2	2.8	0	0	105	103	0	-2.1%	0.29	--	N/A	71.0	71.4
2011	4,110	1,303	101.2	3.2	0	0	104	114	0	8.3%	0.29	0.98	N/A	67.5	75.9
2012	4,200	1,300	115.7	5.1	0	0	121	122	0	0.7%	0.33	1.30	N/A	75.5	79.4
2013	4,300	1,381	--	--	0	0	115	115	0	--	0.31	--	N/A	0.0	73.2
2014	4,390	1,383	99.0	5.5	0	0	104	116	0	9.9%	0.29	--	N/A	61.8	72.3
2015	4,472	1,380	88.8	3.7	0	0	93	96	0	3.7%	0.25	0.90	N/A	54.4	58.9
2016	4,483	1,473	84.8	7.2	0	0	92	99	0	7.1%	0.25	0.71	N/A	51.8	60.5
Avg. 2010-2016	4,271	1,363	99	5	0	0	105	109	0	3.9%	0.29	0.97	N/A	54.6	70.0

MG – Million Gallons **MGD –** Million Gallons per Day **GPCD** – Gallons per Capita per Day

See Glossary for definitions. A list of Acronyms and Initialisms can be found after the Glossary.

Complete Table 3 by listing the top 10 water users by volume, from largest to smallest. For each user, include information about the category of use (residential, commercial, industrial, institutional, or wholesale), the amount of water used in gallons per year, the percent of total water delivered, and the status of water conservation measures.

Table 3. Large volume users

Customer	Use Category (Residential, Industrial, Commercial, Institutional, Wholesale)	Amount Used (Gallons per Year)	Percent of Total Annual Water Delivered	Implementing Water Conservation Measures? (Yes/No/Unknown)
Market Village Apartments	Residential	111,250	0.1%	Unknown
Villas of Boulder Pointe Assn.	Residential	73,817	0.1%	Unknown
NP Area Schools (No. 3)	Institutional	57,167	0.1%	Unknown
Townhomes of the Farm	Residential	51,167	0.1%	Unknown
Townhomes Whispering Hills	Residential	41,512	0.0%	Unknown
Firehouse Grill LLC.	Commercial	36,250	0.0%	Unknown
Villas of Boulder Pointe Assn.	Residential	29,667	0.0%	Unknown
Townhomes Whispering Hills	Residential	21,662	0.0%	Unknown
Townhomes Whispering Hills	Residential	19,340	0.0%	Unknown
Arif Seepersaud	Residential	18,757	0.0%	Unknown

B. Treatment and Storage Capacity

Complete Table 4 with a description of where water is treated, the year treatment facilities were constructed, water treatment capacity, the treatment methods (i.e. chemical addition, reverse osmosis, coagulation, sedimentation, etc.) and treatment types used (i.e. fluoridation, softening, chlorination, Fe/MN removal, coagulation, etc.). Also describe the annual amount and method of disposal of treatment residuals. Add rows to the table as needed.

Table 4. Water treatment capacity and treatment processes

Treatment Site ID (Plant Name or Well ID)	Year Constructed	Treatment Capacity (GPD)*	Treatment Method	Treatment Type	Annual Volume of Residuals	Disposal Process for Residuals	Do You Reclaim Filter Backwash Water?
WTF 1	2016	1,920,000 (1,600 gpm)	Gravity filtration	Fe/Mn and radium removal, chlorination, fluoridation	unknown	sanitary sewer	yes
Total	NA	1,920,000	NA	NA	N/A	NA	N/A
*Capacity is based on operation of 20 hours per day							

Complete Table 5 with information about storage structures. Describe the type (i.e. elevated, ground, etc.), the storage capacity of each type of structure, the year each structure was constructed, and the primary material for each structure. Add rows to the table as needed.

Table 5. Storage capacity, as of the end of the last calendar year

Structure Name	Type of Storage Structure	Year Constructed	Primary Material	Storage Capacity (Gallons)
Elko Tower 1	Elevated	1997	Steel	150,000
New Market Tower 1	Elevated	2000	Steel	250,000
WTF Clearwell	Ground	2016	Concrete	490,000
Total	NA	NA	NA	890,000

Treatment and storage capacity versus demand

It is recommended that total storage equal or exceed the average daily demand.

Discuss the difference between current storage and treatment capacity versus the water supplier's projected average water demand over the next 10 years (see Table 7 for projected water demand):

Currently, the City of Elko New Market has three (3) storage facilities totaling 0.890 million gallons of storage capacity. There are two elevated storage facilities and one-ground storage facilities (WTF clearwell). The two elevated storage facilities have a combined total capacity of 0.40 million gallons while the single clearwell/reservoir at the WTF has a capacity of 0.490 million gallons. Since there are pumps and a generator that can pump the water in the event of a power failure, the 0.415 million gallons in the clearwell/reservoirs at the WTF is included in the total storage capacity. AWWA recommends that the storage capacity should equal or exceed the average day demand. Based on the data provided in Table 2, the current storage capacity is adequate for current average day demands. Using table 7 and the future average day projections, by 2025, there is an estimated average day demand of 0.55 MGD, leaving a surplus storage capacity of 337,000 gallons. Looking at 2030, the projected average day demand is 0.65, yielding a surplus in storage of 243,000 gallons. There is adequate storage capacity for the City of Elko New Market for the next 10 to 15 years and beyond. It is not until 2040 that a deficit in storage capacity of 5,000 gallons is projected. It is best to start planning and strategizing additional storage by 2040 to avoid having a deficit in storage capacity.

The City of Elko New Market has one water treatment facility (see Table 4). WTP No. 1 was construction and went online in 2016. The new plant has a capacity of 1,600 gpm (1.92 MGD) based on 20 hours of operation per day. This WTF is served by wells E2 – E4. Based on the data provided in Table 2, the average maximum day demand is approximately 0.66 MGD, yielding a surplus in treatment capacity of 1.26 MGD, which is sufficient for current demands. Table 7 indicates that the projected peak day demand will continue to increase as the population increases. By 2025, the projected peak day demand is 1.71 MGD, which is still less than the plant capacity. By 2030, the peak demand is projected to be 2.00 MGD, yielding a deficit in capacity of 0.08 MGD. Taking into account operation for 24 hours per day, the plant has a total capacity of 2.30 MGD, yielding adequate capacity. However, it running the plant for 24 hours per day does not allow for maintenance or backwashing. There is adequate treatment capacity for the next 10 years.

C. Water Sources

Complete Table 6 by listing all types of water sources that supply water to the system, including groundwater, surface water, interconnections with other water suppliers, or others. Provide the name of each source (aquifer name, river or lake name, name of interconnecting water supplier) and the Minnesota unique well number or intake ID, as appropriate. Report the year the source was installed or established and the current capacity. Provide information about the depth of all wells. Describe the status of the source (active, inactive, emergency only, retail/wholesale interconnection) and if the source facilities have a dedicated emergency power source. Add rows to the table as needed for each installation.

Include copies of well records and maintenance summary for each well that has occurred since your last approved plan in **Appendix 1.**

Table 6. Water sources and status

Resource Type (Groundwater, Surface water, Interconnection)	Resource Name	MN Unique Well # or Intake ID	Year Installed	Capacity (Gallons per Minute)	Well Depth (Feet)	Status of Normal and Emergency Operations (active, inactive, emergency only, retail/wholesale interconnection))	Does this Source have a Dedicated Emergency Power Source? (Yes or No)
Groundwater	Elko 2	594234	1997 (redone in 2016)	850	521	Active	Yes
Groundwater	Elko 3	680569	2002 (redone in 2016)	850	525	Active	Yes
Groundwater	New Market 1	211953	1930	80	410	Sealed and abandoned	Unknown
Groundwater	New Market 2	451825	1988	250	435	Monitoring Well	No
Groundwater	New Market 3	686687	2003	945	439	Emergency Only	Unknown
Groundwater	Elko 4	805363	2016	1000	500	Active	Yes

Limits on Emergency Interconnections

Discuss any limitations on the use of the water sources (e.g. not to be operated simultaneously, limitations due to blending, aquifer recovery issues etc.) and the use of interconnections, including capacity limits or timing constraints (i.e. only 200 gallons per minute are available from the City of Prior Lake, and it is estimated to take 6 hours to establish the emergency connection). If there are no limitations, list none.

New Market Well 3 is not treated and may take some effort to get it running in an emergency situation.

D. Future Demand Projections – *Key Metropolitan Council Benchmark*

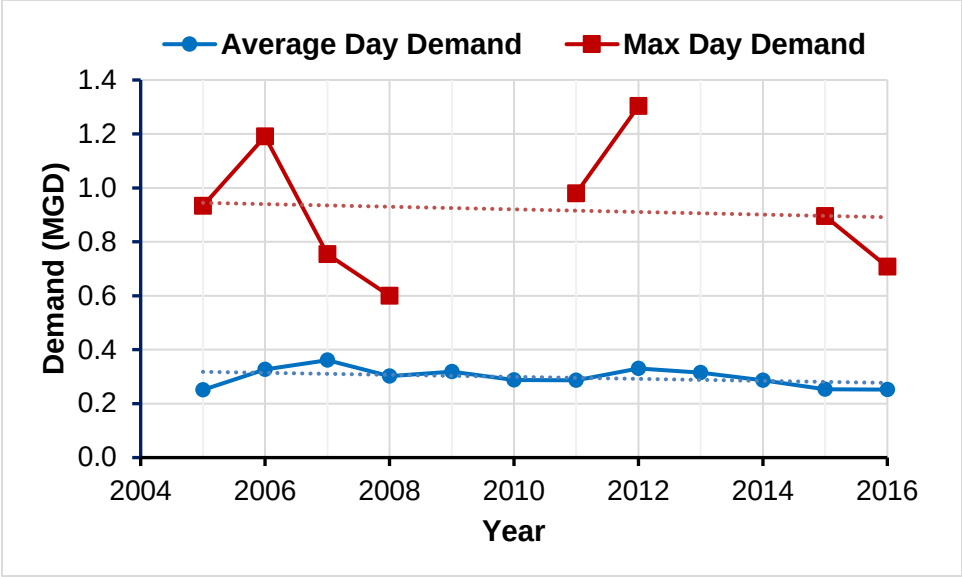
Water Use Trends

Use the data in Table 2 to describe trends in 1) population served; 2) total per capita water demand; 3) average daily demand; 4) maximum daily demand. Then explain the causes for upward or downward trends. For example, over the ten years has the average daily demand trended up or down? Why is this occurring?

From 2005 to 2016, the City of Elko New Market saw an increase in population served of 77.5%, from 2,525 in 2005 to 4,483 in 2016. The total population trend has slightly increased over the last 10 years at about the same rate as the population served. There are slightly more people that the population served by the distribution system. Based on the historical population, it is anticipated that the projected population will follow similar growth trends.

The total per capita demand has average 80.8 gallons per capita per day (gpcd) from 2005 through 2016. When looking at data from 2011 through 2016, the average day demand is 70 gpcd. This decrease in average per capita demand reflects water conservation measures the City has been implementing for the last several years. The per capita demand had a peak in 2005 at 104.4 gpcd. Since then, the per capita demand has been decreasing as water conservation measures have been implemented and education about water conservation becomes easier to find. The demands in 2015 and 2016 have significantly declined (43% less than the average of the previous 10 years). Increased precipitation along with increased water conservation has led to the lower water demands.

Average day demand has been consistent over the 10-year historical period. The historical average of the average day demand is 0.30 MGD. Overall, there have not been any major fluctuations in average day demand. The steady demand could be attributed to the size of Elko New Market and efforts by the City to implement water conservation techniques and programs. The figure below represents the historical average and max day demand trends for Elko New Market.



Maximum day demand has a slight decreasing trend over the historical period. Not all data was available for the analysis. Major peaks occurred in 2006 and 2012 (during drought years). Peaking factors have been relatively similar over the historical period. The peaking factor averages 3.09, which is typical for a town the size of Elko New Market. Maximum day demands are most likely slightly decreasing due to the implementation of water conservation measures and education about conserving water being more easily accessible to customers. As more water conservation measures get implemented,

Use the water use trend information discussed above to complete Table 7 with projected annual demand for the next ten years. Communities in the seven-county Twin Cities metropolitan area must also include projections for 2030 and 2040 as part of their local comprehensive planning.

Projected demand should be consistent with trends evident in the historical data in Table 2, as discussed above. Projected demand should also reflect state demographer population projections and/or other planning projections.

Table 7. Projected annual water demand

Year	Projected Total Population [1]	Projected Population Served	Projected Total Per Capita Water Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD) [2]
2016	4,716	4,716	75	0.35	1.10
2017	5,062	5,062	75	0.38	1.18
2018	5,408	5,408	75	0.41	1.26
2019	5,754	5,754	75	0.43	1.34
2020	6,100	6,100	75	0.46	1.42
2021	6,350	6,350	75	0.48	1.48
2022	6,600	6,600	75	0.50	1.54
2023	6,850	6,850	75	0.52	1.59
2024	7,100	7,100	75	0.53	1.65
2025	7,350	7,350	75	0.55	1.71
2030	8,600	8,600	75	0.65	2.00
2040	11,900	11,900	75	0.89	2.77

[1] Total Population Projections based on Metropolitan Council (2016 population estimate is from MN State Demographer)
[2] Peaking Factor based on historical data

GPCD – Gallons per Capita per Day **MGD** – Million Gallons per Day

Projection Method

Describe the method used to project water demand, including assumptions for population and business growth and how water conservation and efficiency programs affect projected water demand:

Water demand projections were based on historical trends and the increase in population. The Metropolitan Council population projections were used to for population projections through 2040. It is assumed that the projected service population will equal the projected total population.

The historical total per capita demand from 2011 through 2014 of 75 gallons per capita per day (gpcd) was used to make water demand projections through 2040. This also matches the Met Council Master WSP projections. Based on historical trends in per capita demand and future population projections, it is acceptable to use 75 gpcd through 2040. The reason 2015 and 2016 were omitted was that the demands were significantly lower than previous years demands and when the averages were compared to Met Council projections, it was decided that 75 gpcd water usage is more practical. The reason 2011 through 2014 data was used is that the City has implemented water conservation measures over the last several years and the per capita demand reflects those efforts. It is important to consider these water conservation measures when making projections as they can help make accurate projections with regards to the City's plan of conserving water and reducing per capita demands. Commercial and industrial development was accounted for by using the historical demands to make projections. It is assumed that the rate at which commercial and industrial water usage increases will remain the same as the historical demands. The C/I/I water usage for Elko New Market is primarily residential. Therefore, the C/I/I water usage is insignificant when it comes to making water use projections.

The projected average day demand was calculated by multiplying the projected total per capita demand of 75 gpcd by the projected service area population. It is assumed that in the future, the service area population will equal the total population of the City. The projected average day demand shows a increasing demand through 2040 because the population is increasing at a similar rate on a yearly basis. As the population increases and the per capita demand

remains constant, the average day demand will slightly increase. By 2040, a projected average day demand of 0.89 MGD is expected.

The projected maximum day demand was calculated by multiplying the average day demand by a peaking factor. The peaking factor used to calculate the projected maximum day demand is the average historical peaking factor from 2005 through 2016 of 3.09. This peaking factor was used to project maximum day demands up to 2040. By 2040, a maximum day demand of 2.77 MGD is projected.

E. Resource Sustainability

Monitoring – *Key DNR Benchmark*

Complete Table 8 by inserting information about source water quality and quantity monitoring efforts. The list should include all production wells, observation wells, and source water intakes or reservoirs. Groundwater level data for DNR's statewide network of observation wells are available online through the DNR's Cooperative Groundwater Monitoring (CGM) webpage.

Table 8. Information about source water quality and quantity monitoring

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
Elko 2 594234	☒ production well ☐ observation well ☐ source water intake ☐ source water reservoir ☐ Emergency Only	☒ routine MDH sampling ☒ routine water utility sampling ☐ other	☒ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☒ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge
Elko 3 680569	☒ production well ☐ observation well ☐ source water intake ☐ source water reservoir ☐ Emergency Only	☒ routine MDH sampling ☒ routine water utility sampling ☐ other	☒ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☒ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge
New Market 1 211953 SEALED	☐ production well ☐ observation well ☐ source water intake ☐ source water reservoir ☐ Emergency Only	☐ routine MDH sampling ☐ routine water utility sampling ☐ other	☐ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☐ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge
New Market 2 451825	☐ production well ☒ observation well ☐ source water intake ☐ source water reservoir ☐ Emergency Only	☐ routine MDH sampling ☐ routine water utility sampling ☒ other	☐ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☐ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
New Market 3 686687	☐ production well ☐ observation well ☐ source water intake ☐ source water reservoir ☒ Emergency Only	☐ routine MDH sampling ☐ routine water utility sampling ☒ other	☐ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☐ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge
Elko 4 805363	☒ production well ☐ observation well ☐ source water intake ☐ source water reservoir ☐ Emergency Only	☒ routine MDH sampling ☒ routine water utility sampling ☐ other	☒ continuous ☐ hourly ☐ daily ☐ monthly ☐ quarterly ☐ annually	☒ SCADA ☐ grab sampling ☐ steel tape ☐ stream gauge

Water Level Data

A water level monitoring plan that includes monitoring locations and a schedule for water level readings must be submitted as **Appendix 2**. If one does not already exist, it needs to be prepared and submitted with the WSP. Ideally, all production and observation wells are monitored at least monthly.

Complete Table 9 to summarize water level data for each well being monitored. Provide the name of the aquifer and a brief description of how much water levels vary over the season (the difference between the highest and lowest water levels measured during the year) and the long-term trends for each well. If water levels are not measured and recorded on a routine basis, then provide the static water level when each well was constructed and the most recent water level measured during the same season the well was constructed. Also include all water level data taken during any well and pump maintenance. Add rows to the table as needed.

Groundwater hydrographs illustrate the historical record of aquifer water levels measured within a well and can indicate water level trends over time. For each well in your system, provide a hydrograph for the life of the well, or for as many years as water levels have been measured. Include the hydrographs in **Appendix 3**. An example of a hydrograph can be found on the DNR's Groundwater Hydrograph webpage. Hydrographs for DNR Observation wells can be found in the CGM discussed above.

Table 9. Water level data

Unique Well Number or Well ID	Aquifer Name	Seasonal Variation (Feet)	Long-term Trend in water level data	Water level measured during well/pumping maintenance
Elko 2 594234	Prairie du-Chein Jordan	The City has insufficient data to accurately record well readings. The SCADA system is not recording the well data correctly and therefore is not collecting accurate data. The City is working to resolve this issue to collect well level data.	☐ Falling ☐ Stable ☐ Rising	New wells are measured by SCADA continuously. The City is currently working to resolve the issue with data recording. Once the issue is resolved, the City will record and follow trends in well water levels. No well data is available at this time.
Elko 3 680569	Prairie du-Chein Jordan		☐ Falling ☐ Stable ☐ Rising	
Elko 4 805363	Prairie du-Chein Jordan		☐ Falling ☐ Stable ☐ Rising	

Potential Water Supply Issues & Natural Resource Impacts – *Key DNR & Metropolitan Council Benchmark*

Complete Table 10 by listing the types of natural resources that are or could potentially be impacted by permitted water withdrawals in the future. You do not need to identify every single water resource in your entire community. The goal is to help you triage the most important water resources and/or the water resources that may be impacted by your water supply system – perhaps during a drought or when the population has grown significantly in ten years. This is emerging science, so do the best you can with available data. For identified resources, provide the name of specific resources that may be impacted. Identify what the greatest risks to the resource are and how the risks are being assessed. Identify any resource protection thresholds – formal or informal – that have been established to identify when actions should be taken to mitigate impacts. Provide information about the potential mitigation actions that may be taken, if a resource protection threshold is crossed. Add additional rows to the table as needed. See the glossary at the end of the template for definitions.

Some of this baseline data should have been in your earlier water supply plans or county comprehensive water plans. When filling out this table, think of what are the water supply risks, identify the resources, determine the threshold and then determine what your community will do to mitigate the impacts.

Your DNR area hydrologist is available to assist with this table.

For communities in the seven-county Twin Cities metropolitan area, the Master Water Supply Plan *Appendix 1 (Water Supply Profiles)*, provides information about potential water supply issues and natural resource impacts for your community.

Steps for completing Table 10

1. ***Identify the potential for natural resource impacts/issues within the community***
   First, review available information to identify resources that may be impacted by the operation of your water supply system (such as pumping).
   Potential Sources of Information:
   - County Geologic Atlas
   - Local studies
   - Metropolitan Council System Statement (for metro communities)
   - Metropolitan Council Master Water Supply Plan (for metro communities)

   ACTION: Check the resource type(s) that may be impacted in the column "Resource Type"

2. ***Identify where your water supply system is most likely to impact those resources (and vice versa).***
   Potential Sources of Information:
   - Drinking Water Supply Management Areas
   - Geologic Atlas - Sensitivity
   - If no WHPA or other information exists, consider rivers, lakes, wetlands and significant within 1.5 miles of wells; and calcareous fens and trout streams within 5 miles of wells

   ACTION: Focus the rest of your work in these areas.

3. ***Within focus areas, identify specific features of value to the community***
   You know your community best. What resources are important to pay attention to? It may be useful to check in with your community's planning and zoning staff and others.

   Potential Sources of Information:
   - Park plans
   - Local studies
   - Natural resource inventories
   - Tourist attractions/recreational areas/valued community resource

   ACTION: Identify specific features that the community prioritizes in the "Resource Name" column (for example: North Lake, Long River, Brook Trout Stream, or Green Fen). If, based on a review of available information, no features are likely to be at risk, note "None".

4. ***Identify what impact(s) the resource is at risk for***
   Potential Sources of Information:
   - Wellhead Protection Plan
   - Water Appropriation Permit
   - County Geologic Atlas
   - MDH or PCA reports of the area
   - Metropolitan Council System Statement (for metro communities)
   - Metropolitan Council Master Water Supply Plan (for metro communities)

   ACTION: Check the risk type in the column "Risk". If, based on a review of available information, no risk is identified, note "None anticipated".

5. ***Describe how the risk was assessed***

   Potential Sources of Information:

   - Local studies
   - Monitoring data (community, WMO, DNR, etc.)
   - Aquifer testing
   - County Geologic Atlas or other hydrogeologic studies
   - Regional or state studies, such as DNR's report 'Definitions and Thresholds for Negative Impacts to Surface Waters'
   - Well boring logs

   ACTION: Identify the method(s) used to identify the risk to the resource in the "Risk Assessed Through" column

6. ***Describe protection threshold/goals***

   What is the goal, if any, for protecting these resources? For example, is there a lower limit on acceptable flow in a river or stream? Water quality outside of an accepted range? A lower limit on acceptable aquifer level decline at one or more monitoring wells? Withdrawals that exceed some percent of the total amount available from a source? Or a lower limit on acceptable changes to a protected habitat?

   Potential Sources of Information:

   - County Comprehensive Water Plans
   - Watershed Plans or One Watershed/One Plan
   - Groundwater or Aquifer Plans
   - Metropolitan Master Plans
   - DNR Thresholds study
   - Community parks, open space, and natural resource plans

   ACTION: Describe resource protection goals in the "Describe Resource Protection Threshold" column or reference an existing plan/document/webpage

7. ***If a goal/threshold should trigger action, describe the plan that will be implemented.***

   Identify specific action, mitigation measures or management plan that the water supplier will implement, or refer to a partner's plan that includes actions to be taken.

   Potential Sources of Information:

   - County Comprehensive Water Plans
   - Watershed Plans or One Watershed/One Plan
   - Groundwater or Aquifer Plans
   - Metropolitan Master Plans
   - Studies such as DNR Thresholds study

   ACTION: Describe the mitigation measure or management plan in the "Mitigation Measure or Management Plan" column.

8. ***Describe work to evaluate these risks going forward.***

   For example, what is the plan to regularly check in to stay current on plans or new data?

Identify specific action that the water supplier will take to identify the creation of or change to goals/thresholds, or refer to a partner's plan that includes actions to be taken.

Potential Sources of Information:

- County Comprehensive Water Plans
- Watershed Plans or One Watershed/One Plan
- Groundwater or Aquifer Plans
- Metropolitan Master Plans
- Studies such as DNR Thresholds study

ACTION: Describe what will be done to evaluate risks going forward, including any changes to goals or protection thresholds in the "Describe how Changes to Goals are monitored" column.

Table 10. Natural resource impacts (*List specific resources in Appendix 12)

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
☐ River or stream	none	☒ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles) ☐ Other:	☒ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ No data available ☐ Other: _____	☒Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other:	☒Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other:
☐ Calcareous fen	None	☒ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed Report ☐Proximity (<5 miles) ☐ Other: _____ ☐ Other: ___	☒ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☒Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other: _____	☒Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
☐ Lake	None	☒ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles) ☐ Other: _____ ☐ Other: ___	☒ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☒Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other: _____	☒Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____
☐ Wetland	None	☒ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles) ☐ Other: _____	☒ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☒Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other: _____	☒Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
☒ Trout stream	Vermillion River	☐ None anticipated ☒ Flow/water level decline ☒ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (< 5 miles) ☒ Other: Evaluation of water quality and stream flow data	☐ Not applicable ☒ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ☐ Change groundwater pumping ☒ Increase conservation ☒ Other: Consult with MN DNR_____	☐Not applicable ☒ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☒ Other: Consult with MN DNR_____
☒ Aquifer	Praire du-Chien Jordan	☐ None anticipated ☒ Flow/water level decline ☒ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☒ Monitoring ☐ Aquifer testing ☐Proximity (obwell < 5 miles) ☒ Other: Evaluation of well water level data	☐ Not applicable ☒ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ☐ Change groundwater pumping ☒ Increase conservation ☐ Other: _____	☐Not applicable ☒ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☒ Other: Consult with MN DNR area hydrologist

Wellhead Protection (WHP) and Source Water Protection (SWP) Plans

Complete Table 11 to provide status information about WHP and SWP plans.

The emergency procedures in this plan are intended to comply with the contingency plan provisions required in the Minnesota Department of Health's (MDH) Wellhead Protection (WHP) Plan and Surface Water Protection (SWP) Plan.

Table 11. Status of Wellhead Protection and Source Water Protection Plans

Plan Type	Status	Date Adopted	Date for Update
WHP	☐ In Process ☒ Completed ☐ Not Applicable	August 2008	2018
SWP	☐ In Process ☐ Completed ☒ Not Applicable		

WHP – Wellhead Protection Plan **SWP** – Source Water Protection Plan

F. Capital Improvement Plan (CIP)

Please note that any wells that received approval under a ten-year permit, but that were not built, are now expired and must submit a water appropriations permit.

Adequacy of Water Supply System

Complete Table 12 with information about the adequacy of wells and/or intakes, storage facilities, treatment facilities, and distribution systems to sustain current and projected demands. List planned capital improvements for any system components, in chronological order. Communities in the seven-county Twin Cities metropolitan area should also include information about plans through 2040.

The assessment can be the general status by category; it is not necessary to identify every single well, storage facility, treatment facility, lift station, and mile of pipe.

Please attach your latest Capital Improvement Plan as **Appendix 4**.

Table 12. Adequacy of Water Supply System

System Component	Planned action	Anticipated Construction Year	Notes
Wells/Intakes	☒ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition	N/A	N/A
Water Storage Facilities	☒ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition	N/A	N/A
Water Treatment Facilities	☒ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition	N/A	N/A
Distribution Systems (Pipes, valves, etc.)	☐ No action planned - adequate ☒ Repair/replacement ☐ Expansion/addition	As needed	Repair and replace watermains throughout the City.

System Component	Planned action	Anticipated Construction Year	Notes
Pressure Zones	☒ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition	N/A	N/A
Other:	☐ No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition	N/A	N/A

Proposed Future Water Sources

Complete Table 13 to identify new water source installation planned over the next ten years. Add rows to the table as needed.

Table 13. Proposed future installations/sources

Source	Installation Location (approximate)	Resource Name	Proposed Pumping Capacity (gpm)	Planned Installation Year	Planned Partnerships
Groundwater	none	none	none	none	none
Surface Water	none	none	none	none	none
Interconnection to another supplier	none	none	none	none	none

Water Source Alternatives - *Key Metropolitan Council Benchmark*

Do you anticipate the need for alternative water sources in the next 10 years? Yes ☐ No ☒

For metro communities, will you need alternative water sources by the year 2040? Yes ☐ No ☒

If you answered yes for either question, then complete table 14. If no, insert NA.

Complete Table 14 by checking the box next to alternative approaches that your community is considering, including approximate locations (if known), the estimated amount of future demand that could be met through the approach, the estimated timeframe to implement the approach, potential partnerships, and the major benefits and challenges of the approach. Add rows to the table as needed.

For communities in the seven-county Twin Cities metropolitan area, these alternatives should include approaches the community is considering to meet projected 2040 water demand.

Table 14. Alternative water sources

Alternative Source Considered	Source and/or Installation Location (approximate)	Estimated Amount of Future Demand (%)	Timeframe to Implement (YYYY)	Potential Partners	Benefits	Challenges
☐ Groundwater	N/A	N/A	N/A	N/A	N/A	N/A
☐ Surface Water	N/A	N/A	N/A	N/A	N/A	N/A

Alternative Source Considered	Source and/or Installation Location (approximate)	Estimated Amount of Future Demand (%)	Timeframe to Implement (YYYY)	Potential Partners	Benefits	Challenges
☐ Reclaimed stormwater	N/A	N/A	N/A	N/A	N/A	N/A
☐ Reclaimed wastewater	N/A	N/A	N/A	N/A	N/A	N/A
☐ Interconnection to another supplier	N/A	N/A	N/A	N/A	N/A	N/A

PART 2. EMERGENCY PREPAREDNESS PROCEDURES

The emergency preparedness procedures outlined in this plan are intended to comply with the contingency plan provisions required by MDH in the WHP and SWP. Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failings, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan. Municipalities that already have written procedures dealing with water emergencies should review the following information and update existing procedures to address these water supply protection measures.

A. Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act, (Public Law 107-188, Title IV- Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan. MDH recommends that Emergency Response Plans are updated annually.

Do you have an Emergency Response Plan? Yes ☒ No ☐

Have you updated the Emergency Response Plan in the last year? Yes ☐ No ☒

When did you last update your Emergency Response Plan? 2009_____

Complete Table 15 by inserting the noted information regarding your completed Emergency Response Plan.

Table 15. Emergency Response Plan contact information

Emergency Response Plan Role	Contact Person	Contact Phone Number	Contact Email
Emergency Response Lead	COREY SCHWEICH	(952) 224-6781	CSCHWEICH@CI.ENM.MN.US
Alternate Emergency Response Lead	THOMAS TERRY	(952) 461-2777	TTERRY@CI.ENM.MN.US

B. Operational Contingency Plan

All utilities should have a written operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance.

Do you have a written operational contingency plan? Yes ☒ No ☐

At a minimum, a water supplier should prepare and maintain an emergency contact list of contractors and suppliers.

C. Emergency Response Procedures

Water suppliers must meet the requirements of MN Rules 4720.5280. Accordingly, the Minnesota Department of Natural Resources (DNR) requires public water suppliers serving more than 1,000 people to submit Emergency and Conservation Plans. Water emergency and conservation plans that have been

approved by the DNR, under provisions of Minnesota Statute 186 and Minnesota Rules, part 6115.0770, will be considered equivalent to an approved WHP contingency plan.

Emergency Telephone List

Prepare and attach a list of emergency contacts, including the MN Duty Officer (1-800-422-0798), as **Appendix 5**. An Emergency Contact List template is available at the MnDNR Water Supply Plans webpage.

The list should include key utility and community personnel, contacts in adjacent water suppliers, and appropriate local, state and federal emergency contacts. Please be sure to verify and update the contacts on the emergency telephone list and date it. Thereafter, update on a regular basis (once a year is recommended). In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the Emergency Manager for that community. Responsibilities and services for each contact should be defined.

Current Water Sources and Service Area

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency purposes. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and be able to easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

Do records and maps exist? Yes ☒ No ☐

Can staff access records and maps from a central secured location in the event of an emergency?

Yes ☒ No ☐

Does the appropriate staff know where the materials are located?

Yes ☒ No ☐

Procedure for Augmenting Water Supplies

Complete Tables 16 – 17 by listing all available sources of water that can be used to augment or replace existing sources in an emergency. Add rows to the tables as needed.

In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community. Municipalities are encouraged to execute cooperative agreements for potential emergency water services and copies should be included in **Appendix 6**. Outstate Communities may consider using nearby high capacity wells (industry, golf course) as emergency water sources.

WSP should include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MDH are required for interconnections or the reuse of water.

Table 16. Interconnections with other water supply systems to supply water in an emergency

Other Water Supply System Owner	Capacity (GPM & MGD)	Note Any Limitations On Use	List of services, equipment, supplies available to respond
NONE	N/A	N/A	N/A

GPM – Gallons per minute MGD – million gallons per day

Table 17. Utilizing surface water as an alternative source

Surface Water Source Name	Capacity (GPM)	Capacity (MGD)	Treatment Needs	Note Any Limitations On Use
NONE	NONE	NONE	NONE	NONE

If not covered above, describe additional emergency measures for providing water (obtaining bottled water, or steps to obtain National Guard services, etc.)

Obtain bottled water

Allocation and Demand Reduction Procedures

Complete Table 18 by adding information about how decisions will be made to allocate water and reduce demand during an emergency. Provide information for each customer category, including its priority ranking, average day demand, and demand reduction potential for each customer category. Modify the customer categories as needed, and add additional lines if necessary.

Water use categories should be prioritized in a way that is consistent with Minnesota Statutes 103G.261 (#1 is highest priority) as follows:

1. Water use for human needs such as cooking, cleaning, drinking, washing and waste disposal; use for on-farm livestock watering; and use for power production that meets contingency requirements.
2. Water use involving consumption of less than 10,000 gallons per day (usually from private wells or surface water intakes)
3. Water use for agricultural irrigation and processing of agricultural products involving consumption of more than 10,000 gallons per day (usually from private high-capacity wells or surface water intakes)
4. Water use for power production above the use provided for in the contingency plan.
5. All other water use involving consumption of more than 10,000 gallons per day.
6. Nonessential uses – car washes, golf courses, etc.

Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Lower priority uses will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. Water use for lawn sprinkling, vehicle washing, golf courses, and recreation are legislatively considered non-essential.

Table 18. Water use priorities

Customer Category	Allocation Priority	Average Daily Demand (GDP)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	280,000	112,000
Commercial/Institutional/Industrial	2	20,000	8,000
Non-Essential	3	0	0
TOTAL	NA	300,000	120,000

GPD – Gallons per Day

Tip: Calculating Emergency Demand Reduction Potential

The emergency demand reduction potential for all uses will typically equal the difference between maximum use (summer demand) and base use (winter demand). In extreme emergency situations, lower priority water uses must be restricted or eliminated to protect priority domestic water requirements. Emergency demand reduction potential should be based on average day demands for customer categories within each priority class. Use the tables in Part 3 on water conservation to help you determine strategies.

Complete Table 19 by selecting the triggers and actions during water supply disruption conditions.

Table 19. Emergency demand reduction conditions, triggers and actions (Select all that may apply and describe)

Emergency Triggers	Short-term Actions	Long-term Actions
☒ Contamination ☒ Loss of production ☒ Infrastructure failure ☒ Executive order by Governor ☐ Other: _____	☐ Supply augmentation through ____ ☒ Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☐ Water allocation through____ ☐ Meet with large water users to discuss their contingency plan.	☐ Supply augmentation through ____ ☒ Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☐ Water allocation through____ ☒ Meet with large water users to discuss their contingency plan.

Notification Procedures

Complete Table 20 by selecting trigger for informing customers regarding conservation requests, water use restrictions, and suspensions; notification frequencies; and partners that may assist in the notification process. Add rows to the table as needed.

Table 20. Plan to inform customers regarding conservation requests, water use restrictions, and suspensions

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
☒ Short-term demand reduction declared (< 1 year)	☒ Website ☐ Email list serve ☒ Social media (e.g. Twitter, Facebook) ☐ Direct customer mailing, ☒ Press release (TV, radio, newspaper), ☐ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☐ Daily ☐ Weekly ☐ Monthly ☐ Annually ☒ As needed	none
☒ Long-term Ongoing demand reduction declared	☒ Website ☐ Email list serve ☒ Social media (e.g. Twitter, Facebook) ☐ Direct customer mailing, ☒ Press release (TV, radio, newspaper), ☐ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☐ Daily ☐ Weekly ☐ Monthly ☐ Annually ☒ As needed	none
☒ Governor's critical water deficiency declared	☒ Website ☐ Email list serve ☒ Social media (e.g. Twitter, Facebook)	☐ Daily ☐ Weekly ☐ Monthly ☐ Annually	none

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
	☐ Direct customer mailing, ☒ Press release (TV, radio, newspaper), ☐ Meeting with large water users (> 10% of total city use) ☐ Other: _____	☒ As needed	

Enforcement

Prior to a water emergency, municipal water suppliers must adopt regulations that restrict water use and outline the enforcement response plan. The enforcement response plan must outline how conditions will be monitored to know when enforcement actions are triggered, what enforcement tools will be used, who will be responsible for enforcement, and what timelines for corrective actions will be expected.

Affected operations, communications, and enforcement staff must then be trained to rapidly implement those provisions during emergency conditions.

Important Note:

Disregard of critical water deficiency orders, even though total appropriation remains less than permitted, is adequate grounds for immediate modification of a public water supply authority's water use permit (2013 MN Statutes 103G.291)

Does the city have a critical water deficiency restriction/official control in place that includes provisions to restrict water use and enforce the restrictions? (This restriction may be an ordinance, rule, regulation, policy under a council directive, or other official control) Yes ☒ No ☐

If yes, attach the official control document to this WSP as **Appendix 7**.

If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

Irrespective of whether a critical water deficiency control is in place, does the public water supply utility, city manager, mayor, or emergency manager have standing authority to implement water restrictions? Yes ☒ No ☐

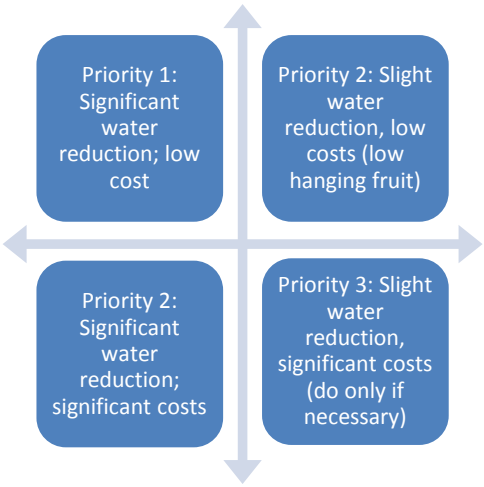
If yes, cite the regulatory authority reference: City Council.

If no, who has authority to implement water use restrictions in an emergency?

n/a

PART 3. WATER CONSERVATION PLAN

Minnesotans have historically benefited from the state's abundant water supplies, reducing the need for conservation. There are however, limits to the available supplies of water and increasing threats to the quality of our drinking water. Causes of water supply limitation may include: population increases, economic trends, uneven statewide availability of groundwater, climatic changes, and degraded water quality. Examples of threats to drinking water quality include: the presence of contaminant plumes from past land use activities, exceedances of water quality standards from natural and human sources, contaminants of emerging concern, and increasing pollutant trends from nonpoint sources.



There are many incentives for conserving water; conservation:

- reduces the potential for pumping-induced transfer of contaminants into the deeper aquifers, which can add treatment costs
- reduces the need for capital projects to expand system capacity
- reduces the likelihood of water use conflicts, like well interference, aquatic habitat loss, and declining lake levels
- conserves energy, because less energy is needed to extract, treat and distribute water (and less energy production also conserves water since water is used to produce energy)
- maintains water supplies that can then be available during times of drought

It is therefore imperative that water suppliers implement water conservation plans. The first step in water conservation is identifying opportunities for behavioral or engineering changes that could be made to reduce water use by conducting a thorough analysis of:

- Water use by customer
- Extraction, treatment, distribution and irrigation system efficiencies
- Industrial processing system efficiencies
- Regulatory and barriers to conservation
- Cultural barriers to conservation
- Water reuse opportunities

Once accurate data is compiled, water suppliers can set achievable goals for reducing water use. A successful water conservation plan follows a logical sequence of events. The plan should address both conservation on the supply side (leak detection and repairs, metering), as well as on the demand side (reductions in usage). Implementation should be conducted in phases, starting with the most obvious and lowest-cost options. In some cases, one of the early steps will be reviewing regulatory constraints to water conservation, such as lawn irrigation requirements. Outside funding and grants may be available for implementation of projects. Engage water system operators and maintenance staff and customers in brainstorming opportunities to reduce water use. Ask the question: "How can I help save water?"

Progress since 2006

Is this your community's first Water Supply Plan? Yes ☐ No ☒

If yes, describe conservation practices that you are already implementing, such as: pricing, system improvements, education, regulation, appliance retrofitting, enforcement, etc.

n/a

If no, complete Table 21 to summarize conservation actions taken since the adoption of the 2006 water supply plan.

Table 21. Implementation of previous ten-year Conservation Plan

2006 Plan Commitments	Action Taken?
Change water rates structure to provide conservation pricing	☒ Yes ☐ No
Water supply system improvements (e.g. leak repairs, valve replacements, etc.)	☒ Yes ☐ No
Educational efforts	☒ Yes ☐ No
New water conservation ordinances	☒ Yes ☐ No
Rebate or retrofitting Program (e.g. for toilet, faucets, appliances, showerheads, dish washers, washing machines, irrigation systems, rain barrels, water softeners, etc.	☐ Yes ☒ No
Enforcement	☒ Yes ☐ No
Describe other	☐ Yes ☐ No

What are the results you have seen from the actions in Table 21 and how were results measured?

Reduction in average day demand and maximum day demand, which results in lower per capita demands and less stress on the distribution system.

A. Triggers for Allocation and Demand Reduction Actions

Complete table 22 by checking each trigger below, as appropriate, and the actions to be taken at various levels or stages of severity. Add in additional rows to the table as needed.

Table 22. Short and long-term demand reduction conditions, triggers and actions

Objective	Triggers	Actions
Protect surface water flows	☐ Low stream flow conditions ☒ Reports of declining wetland and lake levels ☐ Other: _____	☒ Increase promotion of conservation measures ☐ Other: _____
Short-term demand reduction (less than 1 year	☒ Extremely high seasonal water demand (more than double winter demand) ☒ Loss of treatment capacity ☒ Lack of water in storage ☒ State drought plan ☒ Well interference ☐ Other: _____	☒ Adopt (if not already) and enforce the critical water deficiency ordinance to restrict or prohibit lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☐ Supply augmentation through ____ ☐ Water allocation through____ ☒ Meet with large water users to discuss user's contingency plan.
Long-term demand reduction (>1 year)	☒ Per capita demand increasing ☒ Total demand increase (higher population or more industry). Water level in well(s) below elevation of half of available static head. Unable to maintain at least 15 ft. in water tower. ☐ Other: _____	☒ Develop a critical water deficiency ordinance that is or can be quickly adopted to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☐ Enact a water waste ordinance that targets overwatering (causing water to flow off the landscape into streets, parking lots, or similar), watering impervious surfaces (streets, driveways or other hardscape areas), and negligence of known leaks, breaks, or malfunctions. ☒ Meet with large water users to discuss user's contingency plan. ☐ Enhanced monitoring and reporting: audits, meters, billing, etc.
Governor's "Critical Water Deficiency Order" declared	☒ Per capita demand is increasing and there is limited water supply. Water supply wells cannot meet peak day demands.	☒ Enforce water restriction ordinances and restrict non-essential water usage if possible.

B. Conservation Objectives and Strategies – *Key benchmark for DNR*

This section establishes water conservation objectives and strategies for eight major areas of water use.

Objective 1: Reduce Unaccounted (Non-Revenue) Water loss to Less than 10%

The Minnesota Rural Water Association, the Metropolitan Council and the Department of Natural Resources recommend that all water uses be metered. Metering can help identify high use locations and times, along with leaks within buildings that have multiple meters.

It is difficult to quantify specific unmetered water use such as that associated with firefighting and system flushing or system leaks. Typically, water suppliers subtract metered water use from total water pumped to calculate unaccounted or non-revenue water loss.

Is your five-year average (2005-2014) unaccounted Water Use in Table 2 higher than 10%?

Yes ☐ No ☒

What is your leak detection monitoring schedule? (e.g. Monitor 1/3rd of the city lines per year)

Leak detection is done on an as needed basis. The distribution system has been well maintained and is predominantly less than 20 years old. Therefore, leak detections are done as needed throughout the year.

Water Audits - are designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. The American Water Works Association (AWWA) has a recommended water audit methodology which is presented in AWWA's M36 Manual of Water Supply Practices: Water Audits and Loss Control Programs. AWWA also provides a free spreadsheet-based water audit tool that water suppliers can use to conduct their own water audits. This free water audit tool can be found on AWWA's Water Loss Control webpage. Another resource for water audit and water loss control information is Minnesota Rural Water Association.

What is the date of your most recent water audit? unknown

Frequency of water audits: ☐ **yearly** ☒ **other (specify frequency) As needed**
Leak detection and survey: ☐ **every year** ☐ **every other year** ☒ **periodic as needed**
Year last leak detection survey completed: unknown

If Table 2 shows annual water losses over 10% or an increasing trend over time, describe what actions will be taken to reach the <10% loss objective and within what timeframe

N/A. Water losses are less than 10%.

Metering -AWWA recommends that every water supplier install meters to account for all water taken into its system, along with all water distributed from its system at each customer's point of service. An effective metering program relies upon periodic performance testing, repair, maintenance or replacement of all meters. Drinking Water Revolving Loan Funds are available for purchase of new meters when new plants are built. AWWA also recommends that water suppliers conduct regular water audits to account for unmetered unbilled consumption, metered unbilled consumption and source water and customer metering inaccuracies. Some cities install separate meters for interior and exterior water use, but some research suggests that this may not result in water conservation.

Complete Table 23 by adding the requested information regarding the number, types, testing and maintenance of customer meters.

Table 23. Information about customer meters

Customer Category	Number of Customers	Number of Metered Connections	Number of Automated Meter Readers	Meter testing intervals (years)	Average age/meter replacement schedule (years
Residential	1,403	1,403	1,403	As needed	Variable / As needed
Commercial	61	61	61	As needed	Variable / As needed
Agricultural	9	9	9	As needed	Variable / As needed
TOTALS	1,473	1,473	1,473	NA	NA

For unmetered systems, describe any plans to install meters or replace current meters with advanced technology meters. Provide an estimate of the cost to implement the plan and the projected water savings from implementing the plan.

n/a

Table 24. Water source meters

	Number of Meters	Meter testing schedule (years)	Number of Automated Meter Readers	Average age/meter replacement schedule (years
Water source (wells/intakes)	3	As needed	3	< 10 years/every 10 – 20 years
Treatment plant	2	As needed	2	< 10 years/every 10 – 20 years

Objective 2: Achieve Less than 75 Residential Gallons per Capita Demand (GPCD)

The 2002 average residential per capita demand in the Twin Cities Metropolitan area was 75 gallons per capita per day.

Is your average 2010-2015 residential per capita water demand in Table 2 more than 75? Yes ☐ No ☒

What was your 2010 – 2015 five-year average residential per capita water demand? 55 g/person/day

Describe the water use trend over that timeframe:

Residential water demand decreased from 99 gpcd in 2006 to 52 gpcd in 2016. This decrease in demand is most likely attributed to increased water conservation and improved water metering and accounting for lost water and repairing leaks in the system. The total per capita demand follows a similar trend, decreasing from 104 gpcd in 2006 to 61 gpcd in 2016. Overall, residential per capita demand has significantly decreased and has remained below 75 gpcd since 2010 with the exception of 2012 where the demand was slightly over 75 gpcd at 75.5 gpcd. This could be attributed to drought, which increased water usage in the residential sector. This is common for a City such as Elko New Market where the primary water users are residential and there is very little commercial or

industrial water usage. Water usage for residential customers is projected to remain less than 75 gpcd for future demands.

Complete Table 25 by checking which strategies you will use to continue reducing residential per capita demand and project a likely timeframe for completing each checked strategy (Select all that apply and add rows for additional strategies):

Table 25. Strategies and timeframe to reduce residential per capita demand

Strategy to reduce residential per capita demand	Timeframe for completing work
☐ Revise city ordinances/codes to encourage or require water efficient landscaping.	
☒ Revise city ordinance/codes to permit water reuse options, especially for non-potable purposes like irrigation, groundwater recharge, and industrial use. Check with plumbing authority to see if internal buildings reuse is permitted	Currently in effect per City Code.
☒ Revise ordinances to limit irrigation. Describe the restricted irrigation plan: Odd-even watering	Ongoing
☐ Revise outdoor irrigation installations codes to require high efficiency systems (e.g. those with soil moisture sensors or programmable watering areas) in new installations or system replacements.	
☒ Make water system infrastructure improvements	As needed to improve efficiency of distribution system and repair leaks.
☐ Offer free or reduced cost water use audits) for residential customers.	
☐ Implement a notification system to inform customers when water availability conditions change.	
☐ Provide rebates or incentives for installing water efficient appliances and/or fixtures indoors (e.g., low flow toilets, high efficiency dish washers and washing machines, showerhead and faucet aerators, water softeners, etc.)	
☐ Provide rebates or incentives to reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	
☐ Identify supplemental Water Resources	
☐ Conduct audience-appropriate water conservation education and outreach.	
☒ Describe other plans	Rate tiers with aggressive upper tier pricing

Objective 3: Achieve at least 1.5% annual reduction in non-residential per capita water use (For each of the next ten years, or a 15% total reduction over ten years.) This includes commercial, institutional, industrial and agricultural water users.

Complete Table 26 by checking which strategies you will used to continue reducing non-residential customer use demand and project a likely timeframe for completing each checked strategy (add rows for additional strategies).

Where possible, substitute recycled water used in one process for reuse in another. (For example, spent rinse water can often be reused in a cooling tower.) Keep in mind the true cost of water is the amount on the water bill PLUS the expenses to heat, cool, treat, pump, and dispose of/discharge the water. Don't just calculate the initial investment. Many conservation retrofits that appear to be prohibitively expensive are actually very cost-effective when amortized over the life of the equipment. Often reducing water use also saves electrical and other utility costs. Note: as of 2015, water reuse, and is not allowed by the state plumbing code, M.R. 4715 (a variance is needed). However, several state agencies are addressing this issue.

Table 26. Strategies and timeframe to reduce institutional, commercial industrial, and agricultural and non-revenue use demand

Strategy to reduce total business, industry, agricultural demand	Timeframe for completing work
☐ Conduct a facility water use audit for both indoor and outdoor use, including system components	
☐ Install enhanced meters capable of automated readings to detect spikes in consumption	
☐ Compare facility water use to related industry benchmarks, if available (e.g., meat processing, dairy, fruit and vegetable, beverage, textiles, paper/pulp, metals, technology, petroleum refining etc.)	
☐ Install water conservation fixtures and appliances or change processes to conserve water	
☒ Repair leaking system components (e.g., pipes, valves)	Ongoing
☐ Investigate the reuse of reclaimed water (e.g., stormwater, wastewater effluent, process wastewater, etc.)	
☐ Reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	
☐ Train employees how to conserve water	
☐ Implement a notification system to inform non-residential customers when water availability conditions change.	
☐ Nonpotable rainwater catchment systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, industrial processes, water features, vehicle washing facilities, cooling tower makeup, and similar uses shall be approved by the commissioner. Plumbing code 4714.1702, Published October 31, 2016	
☒ Describe other plans:	Rate tiers with aggressive upper tier pricing

Objective 4: Achieve a Decreasing Trend in Total Per Capita Demand

Include as **Appendix 8** one graph showing total per capita water demand for each customer category (i.e., residential, institutional, commercial, industrial) from 2005-2014 and add the calculated/estimated linear trend for the next 10 years.

Describe the trend for each customer category; explain the reason(s) for the trends, and where trends are increasing.

Total water demands show a decreasing trend. The total demand decreased from 104 gpcd in 2006, to 61 gpcd in 2016, a decrease of 41%. The decrease in demand reflects water conservation efforts that the City has implemented to reduce water demands. Future demands will most likely be linked to residential demand trends. If the residential demand trends continue to decrease, the total demand will most likely decrease. This occurs because the residential demand makes up a majority of the water usage for Elko New Market.

Residential water demand follows a similar trend to the total water demand. Because Elko New Market's water demand is mostly residential usage, this category drives the water demand trends. The residential water usage is a decreasing trend. The residential water usage peaked in 2006 at 99 gpcd and reached a new low in 2016 at 51.8 gpcd, a decrease of 48%. Even during drought years (2007), the water demands decreased for this category. This is not typical as during drought conditions, residents tend to water lawns more frequently, which drives up the water usage. The decrease in residential demand over the last 5 years, stems from an increase in water conservation education and changing the utility billing to a tiered system that charges more for high water usage. The decreasing trends are predicted slow down and plateau, but are expected to continue the slight decrease over the next 10 years.

Commercial/Institutional/Industrial water demand has remained stable over the last 10 years. There are small peaks and valleys in the graph shown in appendix 8, which is typical as businesses, and commercial industries move into or out of the City. This trend is predicted to continue over the next 10 years. Overall, the C/I/I water usage category is small for Elko New Market.

Objective 5: Reduce Ratio of Maximum day (peak day) to the Average Day Demand to Less Than 2.6

Is the ratio of average 2005-2014 maximum day demand to average 2005-2014 average day demand reported in Table 2 more than 2.6? Yes ☒ No ☐

Calculate a ten-year average (2005 – 2014) of the ratio of maximum day demand to average day demand: <u>3.09</u>

The position of the DNR has been that a peak day/average day ratio that is above 2.6 for in summer indicates that the water being used for irrigation by the residents in a community is too large and that efforts should be made to reduce the peak day use by the community.

It should be noted that by reducing the peak day use, communities can also reduce the amount of infrastructure that is required to meet the peak day use. This infrastructure includes new wells, new water towers which can be costly items.

Objective 6: Implement Demand Reduction Measures

Water Conservation Program

Municipal water suppliers serving over 1,000 people are required to adopt demand reduction measures that include a conservation rate structure, or a uniform rate structure with a conservation program that

achieves demand reduction. These measures must achieve demand reduction in ways that reduce water demand, water losses, peak water demands, and nonessential water uses. These measures must be approved before a community may request well construction approval from the Department of Health or before requesting an increase in water appropriations permit volume (Minnesota Statutes, section 103G.291, subd. 3 and 4). Rates should be adjusted on a regular basis to ensure that revenue of the system is adequate under reduced demand scenarios. If a municipal water supplier intends to use a Uniform Rate Structure, a community-wide Water Conservation Program that will achieve demand reduction must be provided.

Current Water Rates

Include a copy of the actual rate structure in **Appendix 9** or list current water rates including base/service fees and volume charges below.

Volume included in base rate or service charge: 1,000 gallons or ____ cubic feet ___ other

Frequency of billing: ☒ Monthly ☐ Bimonthly ☐ Quarterly ☐ Other: _____

Water Rate Evaluation Frequency: ☒ every year ☐ every ___ years ☐ no schedule

Date of last rate change: January 2017_

Table 27. Rate structures for each customer category (Select all that apply and add additional rows as needed)

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
Residential	☒ Monthly billing ☒ Increasing block rates (volume tiered rates) ☐ Seasonal rates ☐ Time of use rates ☒ Water bills reported in gallons ☐ Individualized goal rates ☐ Excess use rates ☐ Drought surcharge ☐ Use water bill to provide comparisons ☒ Service charge not based on water volume ☐ Other (describe)	☐ Uniform ☒ Odd/even day watering	☐ Service charge based on water volume ☐ Declining block ☐ Flat ☐ Other (describe)
Commercial/ Industrial/ Institutional	☒ Monthly billing ☒ Increasing block rates (volume tiered rates) ☐ Seasonal rates ☐ Time of use rates ☒ Water bills reported in gallons ☐ Individualized goal rates ☐ Excess use rates	☐ Uniform	☐ Service charge based on water volume ☐ Declining block ☐ Flat ☐ Other (describe)

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
	☐ Drought surcharge ☐ Use water bill to provide comparisons ☐ Service charge not based on water volume ☐ Other (describe)		
☐ Other			

*** Rate Structures components that may promote water conservation:**

- **Monthly billing:** is encouraged to help people see their water usage so they can consider changing behavior.
- **Increasing block rates (also known as a tiered residential rate structure):** Typically, these have at least three tiers: should have at least three tiers.
    - The first tier is for the winter average water use.
    - The second tier is the year-round average use, which is lower than typical summer use. This rate should be set to cover the full cost of service.
    - The third tier should be above the average annual use and should be priced high enough to encourage conservation, as should any higher tiers. For this to be effective, the difference in block rates should be significant.
- **Seasonal rate:** higher rates in summer to reduce peak demands
- **Time of Use rates:** lower rates for off peak water use
- **Bill water use in gallons:** this allows customers to compare their use to average rates
- **Individualized goal rates:** typically used for industry, business or other large water users to promote water conservation if they keep within agreed upon goals. **Excess Use rates**: if water use goes above an agreed upon amount this higher rate is charged
- **Drought surcharge:** an extra fee is charged for guaranteed water use during drought
- **Use water bill to provide comparisons**: simple graphics comparing individual use over time or compare individual use to others.
- **Service charge or base fee that does not include a water volume** – a base charge or fee to cover universal city expenses that are not customer dependent and/or to provide minimal water at a lower rate (e.g., an amount less than the average residential per capita demand for the water supplier for the last 5 years)
- **Emergency rates** -A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

****Conservation Neutral****

- **Uniform rate**: rate per unit used is the same regardless of the volume used
- **Odd/even day watering** –This approach reduces peak demand on a daily basis for system operation, but it does not reduce overall water use.

***** Non-Conserving *****

- **Service charge or base fee with water volume:** an amount of water larger than the average residential per capita demand for the water supplier for the last 5 years
- **Declining block rate:** the rate per unit used decreases as water use increases.
- **Flat rate:** one fee regardless of how much water is used (usually unmetered).

Provide justification for any conservation neutral or non-conserving rate structures. If intending to adopt a conservation rate structure, include the timeframe to do so:

n/a

Objective 7: Additional strategies to Reduce Water Use and Support Wellhead Protection Planning

Development and redevelopment projects can provide additional water conservation opportunities, such as the actions listed below. If a Uniform Rate Structure is in place, the water supplier must provide a Water Conservation Program that includes at least two of the actions listed below. Check those actions that you intent to implement within the next 10 years.

Table 28. Additional strategies to Reduce Water Use & Support Wellhead Protection

☐	Participate in the GreenStep Cities Program, including implementation of at least one of the 20 "Best Practices" for water
☐	Prepare a master plan for smart growth (compact urban growth that avoids sprawl)
☐	Prepare a comprehensive open space plan (areas for parks, green spaces, natural areas)
☒	Adopt a water use restriction ordinance (lawn irrigation, car washing, pools, etc.)
☒	Adopt an outdoor lawn irrigation ordinance
☐	Adopt a private well ordinance (private wells in a city must comply with water restrictions)
☒	Implement a stormwater management program
☐	Adopt non-zoning wetlands ordinance (can further protect wetlands beyond state/federal laws- for vernal pools, buffer areas, restrictions on filling or alterations)
☐	Adopt a water offset program (primarily for new development or expansion)
☐	Implement a water conservation outreach program
☐	Hire a water conservation coordinator (part-time)
☐	Implement a rebate program for water efficient appliances, fixtures, or outdoor water management
☐	Other

Objective 8: Tracking Success: How will you track or measure success through the next ten years?

Monitor per capita demand as well as peak day demand to determine trends.

Tip: The process to monitor demand reduction and/or a rate structure includes:

a) The DNR Hydrologist will call or visit the community the first 1-3 years after the water supply plan is completed.
b) They will discuss what activities the community is doing to conserve water and if they feel their actions are successful. The Water Supply Plan, Part 3 tables and responses will guide the discussion. For example, they will discuss efforts to reduce unaccounted for water loss if that is a problem, or go through Tables 33, 34 and 35 to discuss new initiatives.
c) The city representative and the hydrologist will discuss total per capita water use, residential per capita water use, and business/industry use. They will note trends.
d) They will also discuss options for improvement and/or collect case studies of success stories to share with other communities. One option may be to change the rate structure, but there are many other paths to successful water conservation.

e) If appropriate, they will cooperatively develop a simple work plan for the next few years, targeting a couple areas where the city might focus efforts.

C. Regulation

Complete Table 29 by selecting which regulations are used to reduce demand and improve water efficiencies. Add additional rows as needed.

Copies of adopted regulations or proposed restrictions or should be included in **Appendix 10** (a list with hyperlinks is acceptable).

Table 29. Regulations for short-term reductions in demand and long-term improvements in water efficiencies

Regulations Utilized	When is it applied (in effect)?
☐ Rainfall sensors required on landscape irrigation systems	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☐ Water efficient plumbing fixtures required	☐ New development ☐ Replacement ☐ Rebate Programs
☒ Critical/Emergency Water Deficiency ordinance	☒ Only during declared Emergencies
☒ Watering restriction requirements (time of day, allowable days, etc.)	☒ Odd/even ☐ 2 days/week ☐ Only during declared Emergencies
☐ Water waste prohibited (for example, having a fine for irrigators spraying on the street)	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☐ Limitations on turf areas (requiring lots to have 10% - 25% of the space in natural areas)	☐ New development ☐ Shoreland/zoning ☐ Other
☒ Soil preparation requirement s (after construction, requiring topsoil to be applied to promote good root growth)	☒ New Development ☒ Construction Projects ☐ Other
☒ Tree ratios (requiring a certain number of trees per square foot of lawn, tree planting requirements)	☒ New development ☐ Shoreland/zoning ☐ Other
☐ Permit to fill swimming pool and/or requiring pools to be covered (to prevent evaporation)	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☐ Ordinances that permit stormwater irrigation, reuse of water, or other alternative water use (Note: be sure to check current plumbing codes for updates)	☐ Describe

D. Retrofitting Programs

Education and incentive programs aimed at replacing inefficient plumbing fixtures and appliances can help reduce per capita water use, as well as energy costs. It is recommended that municipal water suppliers develop a long-term plan to retrofit public buildings with water efficient plumbing fixtures and appliances. Some water suppliers have developed partnerships with organizations having similar

conservation goals, such as electric or gas suppliers, to develop cooperative rebate and retrofit programs.

A study by the AWWA Research Foundation (Residential End Uses of Water, 1999) found that the average indoor water use for a non-conserving home is 69.3 gallons per capita per day (gpcd). The average indoor water use in a conserving home is 45.2 gpcd and most of the decrease in water use is related to water efficient plumbing fixtures and appliances that can reduce water, sewer and energy costs. In Minnesota, certain electric and gas providers are required (Minnesota Statute 216B.241) to fund programs that will conserve energy resources and some utilities have distributed water efficient showerheads to customers to help reduce energy demands required to supply hot water.

Retrofitting Programs

Complete Table 30 by checking which water uses are targeted, the outreach methods used, the measures used to identify success, and any participating partners.

Table 30. Retrofitting programs (Select all that apply)

Water Use Targets	Outreach Methods	Partners
☐ Low flush toilets, ☐ Toilet leak tablets, ☐ Low flow showerheads, ☐ Faucet aerators;	☐ Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company ☐ Watershed organization
☐ Water conserving washing machines, ☐ Dish washers, ☐ Water softeners;	☐ Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company ☐ Watershed organization
☒ Rain gardens, ☐ Rain barrels, ☐ Native/drought tolerant landscaping, etc.	☐ Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company ☐ Watershed organization

Briefly discuss measures of success from the above table (e.g. number of items distributed, dollar value of rebates, gallons of water conserved, etc.):

Stormwater management ordinance requires volume control to promote infiltration and/or stormwater reuse.

E. Education and Information Programs

Customer education should take place in three different circumstances. First, customers should be provided information on how to conserve water and improve water use efficiencies. Second, information should be provided at appropriate times to address peak demands. Third, emergency notices and educational materials about how to reduce water use should be available for quick distribution during an emergency.

Proposed Education Programs

Complete Table 31 by selecting which methods are used to provide water conservation and information, including the frequency of program components. Select all that apply and add additional lines as needed.

Table 31. Current and Proposed Education Programs

Education Methods	General summary of topics	#/Year	Frequency
Billing inserts or tips printed on the actual bill			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Consumer Confidence Reports	Water quality	1	☒ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Press releases to traditional local news outlets (e.g., newspapers, radio and TV)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Social media distribution (e.g., emails, Facebook, Twitter)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Paid advertisements (e.g., billboards, print media, TV, radio, web sites, etc.)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Presentations to community groups			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Staff training			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Facility tours			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Displays and exhibits			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Marketing rebate programs (e.g., indoor fixtures & appliances and outdoor practices)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies

Education Methods	General summary of topics	#/Year	Frequency
Community news letters	Water quality and water conservation tips. General information	4	☒ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Direct mailings (water audit/retrofit kits, showerheads, brochures)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Information kiosk at utility and public buildings			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Public service announcements			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Cable TV Programs			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Demonstration projects (landscaping or plumbing)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
K-12 education programs (Project Wet, Drinking Water Institute, presentations)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Community events (children's water festivals, environmental fairs)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Community education classes			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Water week promotions			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Website (include address: www.ci.enm.mn.us)	General information about water quality, water resources, water conservation, and water system components. Also includes information on possible restrictions etc.	Continuous	☒ Ongoing ☐ Seasonal ☐ Only during declared emergencies

Education Methods	General summary of topics	#/Year	Frequency
Targeted efforts (large volume users, users with large increases)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Notices of ordinances			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Emergency conservation notices			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Other:			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies

Briefly discuss what future education and information activities your community is considering in the future:

Held a water expo to explain new water treatment facility and upcoming rate changes and tiers. Could do that again if an issue of such importance arises that justifies the time and cost of hosting such an event.

PART 4. ITEMS FOR METROPOLITAN AREA COMMUNITIES

Minnesota Statute 473.859 requires WSPs to be completed for all local units of government in the seven-county Metropolitan Area as part of the local comprehensive planning process.

Much of the information in Parts 1-3 addresses water demand for the next 10 years. However, additional information is needed to address water demand through 2040, which will make the WSP consistent with the Metropolitan Land Use Planning Act, upon which the local comprehensive plans are based.

This Part 4 provides guidance to complete the WSP in a way that addresses plans for water supply through 2040.

A. Water Demand Projections through 2040

Complete Table 7 in Part 1D by filling in information about long-term water demand projections through 2040. Total Community Population projections should be consistent with the community's system statement, which can be found on the Metropolitan Council's website and which was sent to the community in September 2015.

Projected Average Day, Maximum Day, and Annual Water Demands may either be calculated using the method outlined in *Appendix 2* of the *2015 Master Water Supply Plan* or by a method developed by the individual water supplier.

B. Potential Water Supply Issues

Complete Table 10 in Part 1E by providing information about the potential water supply issues in your community, including those that might occur due to 2040 projected water use.

The Master Water Supply Plan provides information about potential issues for your community in *Appendix 1 (Water Supply Profiles).* This resource may be useful in completing Table 10.

You may document results of local work done to evaluate impact of planned uses by attaching a feasibility assessment or providing a citation and link to where the plan is available electronically.

C. Proposed Alternative Approaches to Meet Extended Water Demand Projections

Complete Table 12 in Part 1F with information about potential water supply infrastructure impacts (such as replacements, expansions or additions to wells/intakes, water storage and treatment capacity, distribution systems, and emergency interconnections) of extended plans for development and redevelopment, in 10-year increments through 2040. It may be useful to refer to information in the community's local Land Use Plan, if available.

Complete Table 14 in Part 1F by checking each approach your community is considering to meet future demand. For each approach your community is considering, provide information about the amount of

future water demand to be met using that approach, the timeframe to implement the approach, potential partners, and current understanding of the key benefits and challenges of the approach.

As challenges are being discussed, consider the need for: evaluation of geologic conditions (mapping, aquifer tests, modeling), identification of areas where domestic wells could be impacted, measurement and analysis of water levels & pumping rates, triggers & associated actions to protect water levels, etc.

D. Value-Added Water Supply Planning Efforts (Optional)

The following information is not required to be completed as part of the local water supply plan, but completing this can help strengthen source water protection throughout the region and help Metropolitan Council and partners in the region to better support local efforts.

Source Water Protection Strategies

Does a Drinking Water Supply Management Area for a neighboring public water supplier overlap your community? Yes ☐ No ☒

If you answered no, skip this section. If you answered yes, please complete Table 32 with information about new water demand or land use planning-related local controls that are being considered to provide additional protection in this area.

Table 32. Local controls and schedule to protect Drinking Water Supply Management Areas

Local Control	Schedule to Implement	Potential Partners
☒ None at this time	Unknown at this time	None at this time
☐ Comprehensive planning that guides development in vulnerable drinking water supply management areas		
☐ Zoning overlay		
☐ Other:		

Technical assistance

From your community's perspective, what are the most important topics for the Metropolitan Council to address, guided by the region's Metropolitan Area Water Supply Advisory Committee and Technical Advisory Committee, as part of its ongoing water supply planning role?

☒ Coordination of state, regional, and local water supply planning roles
☒ Regional water use goals
☒ Water use reporting standards
☐ Regional and sub-regional partnership opportunities
☐ Identifying and prioritizing data gaps and input for regional and sub-regional analyses
☐ Others: _____

GLOSSARY

Agricultural/Irrigation Water Use - Water used for crop and non-crop irrigation, livestock watering, chemigation, golf course irrigation, landscape and athletic field irrigation.

Average Daily Demand - The total water pumped during the year divided by 365 days.

Calcareous Fen - Calcareous fens are rare and distinctive wetlands dependent on a constant supply of cold groundwater. Because they are dependent on groundwater and are one of the rarest natural communities in the United States, they are a protected resource in MN. Approximately 200 have been located in Minnesota. They may not be filled, drained or otherwise degraded.

Commercial/Institutional Water Use - Water used by motels, hotels, restaurants, office buildings, commercial facilities and institutions (both civilian and military). Consider maintaining separate institutional water use records for emergency planning and allocation purposes. Water used by multi-family dwellings, apartment buildings, senior housing complexes, and mobile home parks should be reported as Residential Water Use.

Commercial/Institutional/Industrial (C/I/I) Water Sold - The sum of water delivered for commercial/institutional or industrial purposes.

Conservation Rate Structure - A rate structure that encourages conservation and may include increasing block rates, seasonal rates, time of use rates, individualized goal rates, or excess use rates. If a conservation rate is applied to multifamily dwellings, the rate structure must consider each residential unit as an individual user. A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

Date of Maximum Daily Demand - The date of the maximum (highest) water demand. Typically this is a day in July or August.

Declining Rate Structure - Under a declining block rate structure, a consumer pays less per additional unit of water as usage increases. This rate structure does not promote water conservation.

Distribution System - Water distribution systems consist of an interconnected series of pipes, valves, storage facilities (water tanks, water towers, reservoirs), water purification facilities, pumping stations, flushing hydrants, and components that convey drinking water and meeting fire protection needs for cities, homes, schools, hospitals, businesses, industries and other facilities.

Flat Rate Structure - Flat fee rates do not vary by customer characteristics or water usage. This rate structure does not promote water conservation.

Industrial Water Use - Water used for thermonuclear power (electric utility generation) and other industrial use such as steel, chemical and allied products, paper and allied products, mining, and petroleum refining.

Low Flow Fixtures/Appliances - Plumbing fixtures and appliances that significantly reduce the amount of water released per use are labeled “low flow”. These fixtures and appliances use just enough water to be effective, saving excess, clean drinking water that usually goes down the drain.

Maximum Daily Demand - The maximum (highest) amount of water used in one day.

Metered Residential Connections - The number of residential connections to the water system that have meters. For multifamily dwellings, report each residential unit as an individual user.

Percent Unmetered/Unaccounted For - Unaccounted for water use is the volume of water withdrawn from all sources minus the volume of water delivered. This value represents water “lost” by miscalculated water use due to inaccurate meters, water lost through leaks, or water that is used but unmetered or otherwise undocumented. Water used for public services such as hydrant flushing, ice skating rinks, and public swimming pools should be reported under the category “Water Supplier Services”.

Population Served - The number of people who are served by the community's public water supply system. This includes the number of people in the community who are connected to the public water supply system, as well as people in neighboring communities who use water supplied by the community's public water supply system. It should not include residents in the community who have private wells or get their water from neighboring water supply.

Residential Connections - The total number of residential connections to the water system. For multifamily dwellings, report each residential unit as an individual user.

Residential Per Capita Demand - The total residential water delivered during the year divided by the population served divided by 365 days.

Residential Water Use - Water used for normal household purposes such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. Should include all water delivered to single family private residences, multi-family dwellings, apartment buildings, senior housing complexes, mobile home parks, etc.

Smart Meter - Smart meters can be used by municipalities or by individual homeowners. Smart metering generally indicates the presence of one or more of the following:

- Smart irrigation water meters are controllers that look at factors such as weather, soil, slope, etc. and adjust watering time up or down based on data. Smart controllers in a typical summer will reduce water use by 30%-50%. Just changing the spray nozzle to new efficient models can reduce water use by 40%.
- Smart Meters on customer premises that measure consumption during specific time periods and communicate it to the utility, often on a daily basis.
- A communication channel that permits the utility, at a minimum, to obtain meter reads on demand, to ascertain whether water has recently been flowing through the meter and onto the premises, and to issue commands to the meter to perform specific tasks such as disconnecting or restricting water flow.

Total Connections - The number of connections to the public water supply system.

Total Per Capita Demand - The total amount of water withdrawn from all water supply sources during the year divided by the population served divided by 365 days.

Total Water Pumped - The cumulative amount of water withdrawn from all water supply sources during the year.

Total Water Delivered - The sum of residential, commercial, industrial, institutional, water supplier services, wholesale and other water delivered.

Ultimate (Full Build-Out) - Time period representing the community's estimated total amount and location of potential development, or when the community is fully built out at the final planned density.

Unaccounted (Non-revenue) Loss - See definitions for "percent unmetered/unaccounted for loss".

Uniform Rate Structure - A uniform rate structure charges the same price-per-unit for water usage beyond the fixed customer charge, which covers some fixed costs. The rate sends a price signal to the customer because the water bill will vary by usage. Uniform rates by class charge the same price-per-unit for all customers within a customer class (e.g. residential or non-residential). This price structure is generally considered less effective in encouraging water conservation.

Water Supplier Services - Water used for public services such as hydrant flushing, ice skating rinks, public swimming pools, city park irrigation, back-flushing at water treatment facilities, and/or other uses.

Water Used for Nonessential Purposes - Water used for lawn irrigation, golf course and park irrigation, car washes, ornamental fountains, and other non-essential uses.

Wholesale Deliveries - The amount of water delivered in bulk to other public water suppliers.

Acronyms and Initialisms

AWWA – American Water Works Association
C/I/I – Commercial/Institutional/Industrial
CIP – Capital Improvement Plan
GIS – Geographic Information System
GPCD – Gallons per capita per day
GWMA – Groundwater Management Area – North and East Metro, Straight River, Bonanza,
MDH – Minnesota Department of Health
MGD – Million gallons per day
MG – Million gallons
MGL – Maximum Contaminant Level
MnTAP – Minnesota Technical Assistance Program (University of Minnesota)
MPARS – MN/DNR Permitting and Reporting System (new electronic permitting system)
MRWA – Minnesota Rural Waters Association
SWP – Source Water Protection
WHP – Wellhead Protection

APPENDICES TO BE SUBMITTED BY THE WATER SUPPLIER

Appendix 1: Well records and maintenance summaries

Go to Part 1C for information on what to include in appendix

Appendix 2: Water level monitoring plan

Go to Part 1E for information on what to include in appendix

Appendix 3: Water level graphs for each water supply well

Go to Part 1E for information on what to include in appendix

Appendix 4: Capital Improvement Plan

Go to Part 1E for information on what to include in appendix

Appendix 5: Emergency Telephone List

Go to Part 2C for information on what to include in appendix

Appendix 6: Cooperative Agreements for Emergency Services

Go to Part 2C for information on what to include in appendix

Appendix 7: Municipal Critical Water Deficiency Ordinance

Go to Part 2C for information on what to include in appendix

Appendix 8: Graph of Ten Years of Annual Per Capita Water Demand for Each Customer Category

Go to Objective 4 in Part 3B for information on what to include in appendix

Appendix 9: Water Rate Structure

Go to Objective 6 in Part 3B for information on what to include in appendix

Appendix 10: Ordinances or Regulations Related to Water Use

Go to Objective 7 in Part 3B for information on what to include in appendix

Appendix 11: Implementation Checklist

Provide a table that summarizes all the actions that the public water supplier is doing, or proposes to do, with estimated implementation dates.

Appendix 12: Sources of Information for Table 10

Provide links or references to the information used to complete Table 10. If the file size is reasonable, provide source information as attachments to the plan.

2040 Comprehensive Plan

Elko New Market, MN

Figure 1 - Watershed Drainage District Map

February 2018

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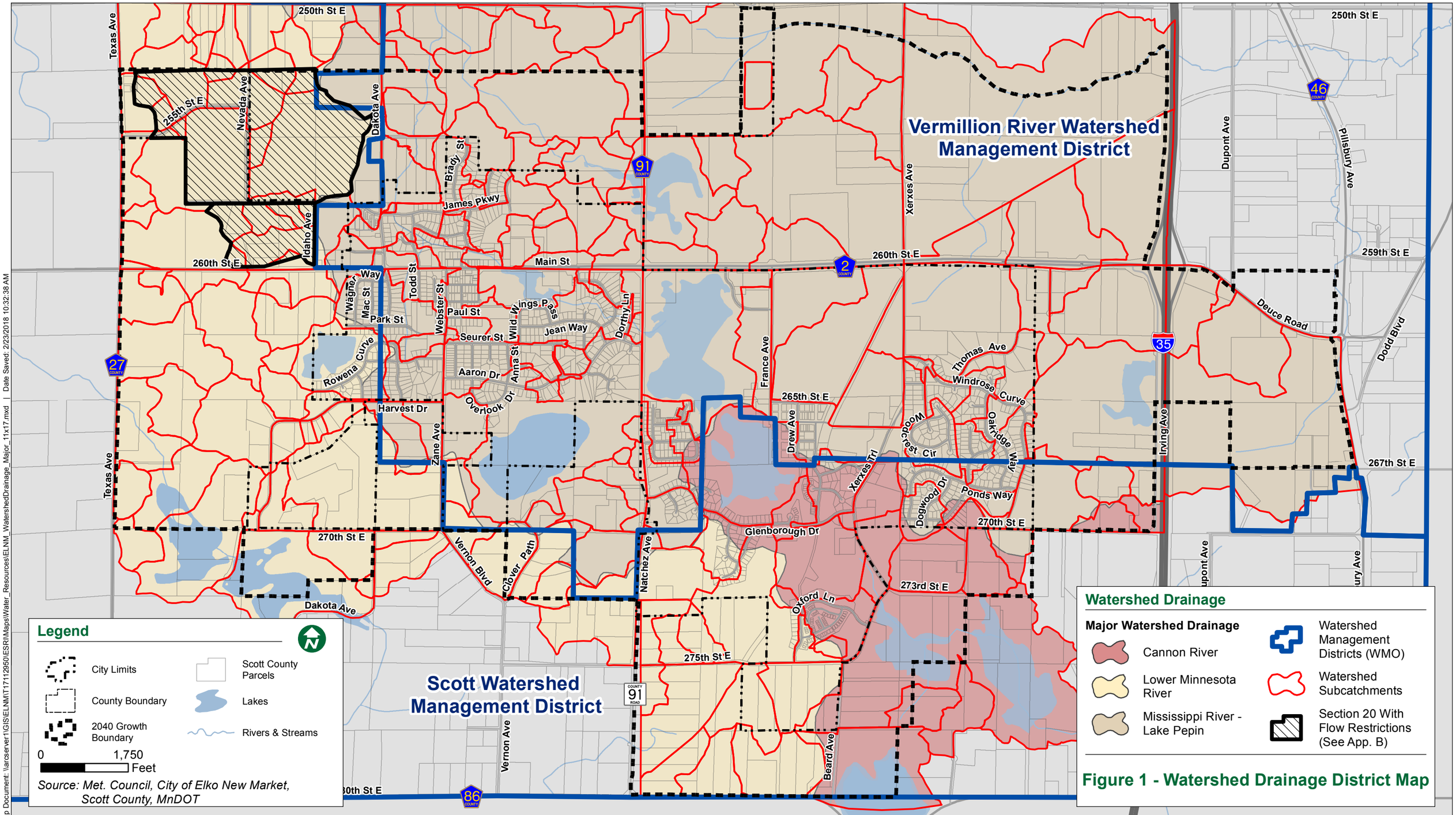
Real People. Real Solutions.



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Real People. Real Solutions.

City of Elko New Market
2040 Sanitary Sewer Plan

February 2018

Submitted by:
Bolton & Menk, Inc.
12224 Nicollet Avenue
Burnsville, MN 55337
P: 952-890-0509
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2040 Sanitary Sewer Plan

For the City of

Elko New Market, Minnesota

BMI Project No. T17.112950

February 10, 2018

I hereby certify that this plan, specification, or 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: _____
Richard J. Revering, P.E.
License No. 20711

Date: 02/23/18

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Appendix

Appendix A: Figure 1 – Existing Sanitary Sewer Map
Appendix B: Figure 2 – Future Sanitary Sewer Map
Appendix C: Design Flow Tabulation
Appendix D: 2040 Trunk Sewer Design and Capacity Tabulation

I. EXECUTIVE SUMMARY

In the past, the City of Elko New Market had been a remote, rather isolated rural community to the Twin City Metropolitan Area. Today, it has changed to that of a "bedroom community" and in the near future it will reach that of a full "suburb" to the Twin City Metropolitan Area. The City has significant commercial and industrial growth potential. These changes will place new demands on the infrastructure and public services. For the purpose of this Sanitary Sewer System Study, the following two study areas were chosen: 1) The ultimate boundary of the City, and 2) The 2040 boundary of the City.

The topography, wetland presence, interstate, and location of the Metropolitan Council's interceptor sewer all dramatically influence the ultimate configuration and sequence of construction of the wastewater collection system. The system will rely on 17 local and regional lift stations within the 2040 growth boundary, with forcemains to transport the wastewater to the MCES Interceptor or a gravity branch sewer. During the growth process, some lift stations will be interim to serve areas where gravity sewer may not yet be available. The areas served by this type of station will be served by future development of the gravity system, so interim designs should facilitate decommissioning of the interim lift station.

Eventually, when the entire system is developed the following will be a result:

1. Approximately 30 permanent lift stations and forcemains will remain in use (eight of which are already in service).
2. Seven locations where connections to the MCES interceptor have been provided as it was constructed as described below. Three were installed along with the County Road 2 reconstruction project in 2006. MCES prefers connection at these locations; however, exceptions have historically been granted under certain circumstances in other communities. MCES approval would be required for any variance to the following points:
    a) #1: East side of CR 91, south of CR 2.
    b) #2: West side of Xerxes Avenue, south of CR 2.
    c) #3: East side of Newton Circle, north of CR 2.
    d) #4: West side of I-35, south of the Vermillion River.
    e) #5: West side of I-35, north of the Vermillion River.
    f) #6: East side of I-35, intersection of 250th St. & Dupont Avenue.
    g) #7: East side of I-35, on CR 62 east of Pillsbury Avenue.

A. RECOMMENDATIONS

1. It is suggested that the City of Elko New Market periodically revisit this study to update the underlying assumptions, and make such adjustments as are appropriate.

2. The characteristics of actual development, i.e. density of residential, wet industry, percentage of higher density residential, will change the sizing of the proposed lift stations.

3. The City should compare existing well pump and waste water discharge records to see if there is a clear correlation between the two. If a spike in the waste water flow shows up during fall and spring wet periods, then a sump pump inspection program should be considered.

4. The City has a policy of requiring rear-yard drainage systems to prevent the development of chronically wet turf grass areas due to tight soils, dense lawns, irrigation, and builder/homeowner alterations that can affect drainage ways over time. The policy requires the provision of connections for sump pump systems to the drainage system. It is recommended this policy be retained and enforced. While intended primarily to benefit drainage, the sump connections offer the additional benefit of dis-incenting illicit connections of sump pumps to the sanitary system by homeowners fed up with wet yards. The inflow from illicit connections means clear water must be unnecessarily treated, raising costs and taking up capacity needed for wastewater. The inflow also is not metered at the house by the City, which would increase sewer bills and generate revenue to cover the costs incurred by the City for it. The clear water does show up at the MCES meter for the City's wastewater flow and affects City charges.

B. ESTIMATED COSTS

1. The costs incurred to achieve these improvements should be borne by new development by application of the City's Sewer Trunk Fee. The fee should be updated and published annually in the City's Fee Schedule.

2. The trunk fee collected from new development on an area or unit basis as adopted by the Council is intended to offset sewer system investments made by the City to prepare for and/or accommodate new development. Trunk fees cover those costs that will be incurred by the development whether the lots or parcels develop. These are the "make-ready" costs.

The minimum fee recommended would recover oversizing of systems illustrated at a conceptual level in this report. At any time during implementation of this system there may be other factors affecting the trunk fee the City would charge in order to maintain a minimum projected fund balance and protect existing rate payers. These factors may include the development climate, debt service for past sewer investments, existing fund balances, or other factors. A "floor-level" trunk fee based on an estimate of the costs for the 2040 system in this report follows:

ESTIMATED COSTS	
ITEM	**COST**
Lift Stations	$1,760,000
Forcemain	$831,550
Power Generation	$400,000
Gravity Sewer Over-sizing	$2,126,644
Subtotal	$5,118,194
Price Contingency, Engineering & Administration	$1,791,368
Total	$6,909,562
Net Acreage Served	3,570
Approximate Cost Per Acre	**$1,935**

II. INTRODUCTION

A. Purpose of Study

The purpose of this study is to examine the wastewater collection system for the city. The study provides a layout of a future system required to serve the City as it grows. This layout is based on topography, constraints such as wetlands and highways, and planned land uses. The layout includes gravity pipes and lift stations with forcemains. The layout will be referenced to influence investment decisions as development occurs. The intention is to avoid under-building initial sewer facilities so they can be expanded in an efficient manner, avoiding the need to re-build them, as the City grows. The layout offers a base of estimating the minimum cost the City will need to recover from development as it occurs.

The study also seeks to identify challenges the City may face related to wastewater collection and provide recommendations to meet these challenges.

The age and condition of individual elements in the collection system were not a part of this study. Conclusions and recommended priorities may have to be adjusted in the future, if failures in the existing system occur or as development conditions or technology changes. Comprehensive televising, rating and consistently performing preventative maintenance of the sewers in the existing system could lessen the impact of these unexpected events.

III. BACKGROUND

A. Location

The City of Elko New Market is located approximately 30 miles south of Minneapolis and is bisected by CR 91/Natchez Avenue. Its northern boundary on the east side of CR 91 is approximately the Vermillion River headwaters (see Figure 1).

B. Flow Characteristics

A conceptual understanding of the flow characteristics of sanitary sewers is helpful to appropriately interpret the information in this report.

1. The vast majority of the time, sanitary sewers appear virtually unused and the sewer is barely flowing.
2. However, given the normal patterns of human habitation, there is a consistency in the total volume of water used per person that is focused during a limited number of hours in the day.

3. In order not to cause backups into peoples' homes, sanitary sewers must be designed to accommodate this maximum peak rate of flow that occurs during that focused period each day.

4. The City first started installing a wastewater system in the 1980s, but the majority of the existing system has been constructed since 1990. Therefore, the materials used have modern joints that are capable of resisting inflow & infiltration (I & I). For that reason, no analysis of I & I or allowance for additional flow has been included in past studies by the City.

C. Topography of the Area

1. The unusual land forms that dominate the City of Elko New Market can be described as:

   a) "Dead ice moraine" - It is a rugged landscape that formed as the last glaciers were melting at the end of the Ice Age, between about 12,000 and 9,000 years ago…..They are rough, boulder-strewn, and undrained. They do, however, include a lot of excellent rangeland and thousands of undrained depressions - lakes, ponds, and sloughs known collectively as prairie potholes - that serve as important nesting and feeding areas for waterfowl. [1]

2. This landform presents unique challenges to the efficient and orderly collection of wastewater in that there are very few natural tributary flow patterns that could be described as the branches of a tree. Rather, the underlying dead ice moraine left numerous individual low pockets with intermediate high points that are fifty to seventy feet higher. This topography is a significant obstacle to the efficient use of gravity sewers to collect wastewater for treatment. The protocol to overcome these obstacles is:

   a) Analyze the natural tributary patterns that do exist in an effort to maximize the use of gravity sewers.

   b) This analysis will result in identifying the locations of the "pockets" which can only be drained by either:

      (1) Extending deeper interceptor sewers through the intermediate high areas.

      (2) Constructing gravity sewers to deliver wastewater to lift stations that pump it through forcemains to the treatment plant or other drainage districts closer to the treatment plant.

      (3) Constructing pressure sewer systems where every few houses have a lift station which pumps into a pressurized sewer system that eventually reaches the treatment plant. At this time, the use of

[1] Bluemle, John P.; North Dakota Geological Survey as described in *NORTH DAKOTA NOTES NO. 14* published on May 19, 2004 at http://www.state.nd.us/ndgs/ndnotes/ndn14_h.htm.

pressurized sewer systems is limited for financial and maintenance reasons to special circumstances like around lakes or through historic districts. Therefore, little consideration was given to this option.

3. Superimposed on the drainage patterns are the potential developable and non-developable areas. Non-developable properties include:

   a) Protected waters of the state.

   b) Wetland areas that would require mitigation. Given that the first rule of mitigation is "avoidance", which is in conformity with the stormwater management plan, it is anticipated that little or no development will occur in these areas.

D. Sewer Routing

1. Five system constraints have a major influence on the ultimate sewer pattern to serve the City of Elko New Market. They are:

   a) Vermillion River Corridor - Shared Goal #1 in the Southeast Comprehensive Plan Update is to: Protect and preserve the Vermillion River, and "exceptional" and "high quality" sites identified in the Natural Resource Inventory as unique and valuable state and regional resources. Therefore, it is recommended that a protective 100 to 200-foot natural buffer be maintained from the Vermillion River through the City.

   b) Metropolitan Council Environmental Services (MCES) Interceptor Sewer – A Metropolitan Council interceptor sewer provides wastewater collection service to the Elko New Market area. The wastewater from Elko New Market is carried by this interceptor pipe to the MCES Empire WWTF for treatment. Flow from Elko New Market is metered for billing purposes downstream of the City's future service boundary. The interceptor will have service connections for the City of Elko New Market at seven (7) locations, as previously discussed.

   c) Interstate 35 – The I-35 freeway runs north/south on the east side of the city. This influences the wastewater system in two ways:

      (1) Development patterns are expected to focus commercial, industrial and high residential land uses on either side of the highway.

      (2) The highway presents a physical barrier against the efficient routing of sanitary sewers and forcemains. The future system will largely rely upon the interceptor sewer that already provides a crossing of this freeway. This means; however, that what would appear on the map to be the "closest" available sewer may not offer the most effective route because of the high cost associated with boring or drilling under the freeway.

d) Development Pressure – The Twin City Metropolitan Area is gradually enveloping the City of Elko New Market. As such, developers will investigate sites, purchase property, establish development plans and approach the City for the extension of municipal services. These requests will come at times that are opportune to the developers. It may be difficult or impossible for the City to meet these requests in the developers' timeframes. It is also not possible to reliably predict when development requests will occur, or where.

E. Existing Facilities

1. Collection System - The existing wastewater collection system in the City of Elko New Market consists of sewers ranging in size from 8-inches to 18-inches and eight lift stations. The sewer locations, manhole and pipe sizes are shown on Figure 1.

EXISTING PUMP STATIONS				
Service Area	**Commonly Used Name**	**Location**	**Discharges to:**	**Capacity**
LS #1	City Hall Lift Station	City Hall	MH approx. 600 LF west of CR 91 and CR 2; MH is behind curb	350
LS #1A	Dakota Lift Station	CR 2 @ Dakota Ave	MH approx. 600 LF west of CR 91 and CR 2; MH is behind curb	210
LS #1B	Carter Lift Station	Carter Street @ James Pkwy	MH approx. 250 ft west of Carter/James intersection on James Pkwy; in the future will discharge to MH in James Pkwy @ at Riley/James intersection	200
LS #2	Elko Downtown Lift Station	Main St. @ Chowen Ave	MH 3001 in CR 2 @ France Ave.	200
LS #2A	Ptarmigan Lift Station	Ptarmigan Drive @ Woodcrest	MH 2001 in Xerxes Avenue, 210 LF northeast of Xerxes/Main intersection.	250
LS #4	Glenborough Lift Station	Glenborough @ Chowen	MH 3064 in Glenborough, 200 LF southeast	200

EXISTING PUMP STATIONS				
			of Stirling Court	
name	Public Works Lift Station	Public Works Campus	MCES Interceptor at CRs 91 and 2 intersection	find
LS #6	Oxford Lift Station	Beard Ave @ Oxford Ln	MH 4043 in Xerxes @ Beard Ave	110

a) Given the relative young age of most of the collection system, no investigation or assessment of the materials or condition of these sewer lines was included in this study.

2. Subsurface Sewage Treatment Systems (SSTS) – Currently the City has approximately ninety SSTSs within the city limits, see Figure 1. Scott County is the regulative authority for administering ordinances related to SSTS permitting and inspections. There are no community systems within the City. Scott County has no point of sale compliance inspection requirement; however, inspections are triggered by certain building permits. Scott County officials estimate a third or more of systems in the City would not pass a compliance inspection.

3. Existing SSTSs will be generally be connected to the municipal sanitary sewer system when these services become available or are made so by the City to address compliance issues or demand from the neighborhood. The City has established a policy for providing City sewer in the Woodcrest neighborhood, for example, where lots relatively undersized for SSTS, tight soils, and extensive tree cover are expected to make it infeasible for many parcels to replace SSTS systems as they age. Three of the 40-odd homes in the neighborhood have already hooked up and sewer in place for several more to gain sewer availability by adding individual packaged pump stations at their properties.

F. Inflow and Infiltration (I &I)

Due to the size of the City and the relatively modern piping system infiltration has not been a major issue in the past. Flow records to indicate a correlation between rainfall and flow. It is believed this is largely due to inflow from illicit sump pump connections and possibly at some manholes subject to sheet flow or low-point flooding.

The Metropolitan Council established a regional waste water surcharge program that took effect in January, 2007. This program was for metropolitan communities that discharge into MCES

treatment plants. With the addition of clean rainwater the capacity of the MCES treatment plants is greatly reduced, which may result in sewage backups into basements and/or sewage overflows that could cause environmental damage. The surcharge program establishes goals for communities with time periods set for eliminating excessive I & I.

The City should continue to compare existing well pump and waste water discharge records to see if there is a clear correlation between the two. If there is a surcharge of waste water flows in the fall or spring months during a precipitation event, this may suggest that there are sump pump connections to the sanitary sewer, or that there are leaks in the system. Given the relatively young age of the sanitary piping system, the connection of sump pump discharge lines would likely be a major cause for flow spikes. If a correlation is found a sump pump inspection program should be considered that would disconnect sump pump discharge lines from the sanitary sewer system.

The City has an ordinance that prohibits the connection of roof downspouts, foundation drains, areaway drains, surface runoff and groundwater to a building sewer or indirectly to the sanitary sewer system.

IV. CONDUCT OF THIS STUDY

A. Standards

1. The Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers have developed a standard for wastewater facilities that is commonly referred to as Ten States Standards. The development of this study followed these standards.

B. Methods Employed

1. Two features determine the potential extension of an existing sewer.

    a) The Elevation of the Existing Sewer Versus the Topography - Given the required slope for the sewer, there is established a gravity service area boundary. Properties beyond this boundary cannot be directly served with gravity sewers.

    b) The Size and Grade of the Existing Sewers - These determine a maximum flow capacity that the existing system can carry.

2. Sanitary sewer service to areas beyond this gravity service boundary, can only be serviced by either:

    a) Constructing a new interceptor sewer, or

    b) Constructing lift stations and forcemains to pump the sewage, or

c) Constructing pressure sewer systems to transport the wastewater.

3. Existing Capacities

a) The driving energy of flow in a sanitary sewer is gravity. Therefore, the pipes must be laid on a grade (or slope) to force the flow. Slopes are expressed in percentage (%) and represent the number of feet of fall in 100 feet of length. i.e., a grade of 1.00% is one foot of fall in 100 horizontal feet.

b) The slope, together with the diameter and material type, are used to calculate the actual volume of flow that a full pipe can carry. Typically, this volume is expressed in cubic feet per second (cfs) or gallons per minute (gpm). This rate of flow is the actual capacity of the sewer line.

4. Required Capacities

a) The 2030 sewer plan relied on land use data from the Southeast Comprehensive Plan Update - Land Use Plan prepared by the City and Scott County. All areas were identified with an anticipated land use and density to model wastewater generation rates as follows:

(1) For areas that are already developed, actual lot counts were used. For undeveloped low-density residential areas, a 2.7 units per acre lot count was predicted.

(2) For areas designated as “mixed use” the distribution of land use is:

(a) Seventy percent - low density residential (2.7 units per acre).

(b) Twenty percent – high density residential (8 units per acre).

(c) Ten percent commercial / industrial.

(3) Commercial and industrially zoned areas - 1,000 gallons per acre per day. This is much more difficult to predict, since the character and size of specific occupants is unknown at this time. Further, the water use patterns of commercial and industrial property can easily change. For example, a warehouse could be replaced by a much larger user, resulting in a significantly higher flow. Therefore, any temptation to lessen the design standards could prove to be ill advised.

(4) Institutional use was predicted at the same rate as commercial.

(5) Recreational areas, cemeteries, ravines, escarpments, flood plain, and wetlands were not considered to contribute wastewater flow.

b) For the 2040 plan we reviewed effects of the land use plan proposed by the City for the 2040 Comprehensive Plan update. Our finding is that wastewater generation either stayed the same or was reduced. Where commercial or industrial uses replaced single family, the higher generation rate was offset by a reduced peaking factor. No changes in pipe sizes due to land use changes were made. Our opinion is that the 2030 plan provided conservative pipe sizes that allow for increased density or other flexibility in development without unduly affecting minimum required trunk fees. The

alignment, size, material, and depth of any future facility will need to consider this layout, but also the developments preceding and proposed at the time and other conditions present.

V. LAND USE / DESIGN FLOW

A. General

1. The rolling nature of the topography requires that the sanitary sewer system collection system make extensive use of lift stations and forcemains to service the area.

2. The land use of each sub-district for 2030 flow modeling is summarized in the Appendix. The 2030 plan's design flows* remain the basis for determining the necessary pipe sizing and lift station capacities for future improvements.

   * The flow rate numbers have been designed for purposes of sizing the City's sanitary sewer piping network for future development and may not represent the flows to be expected by the MCES.

3. For planning purposes, the city has been divided into nine service districts and those districts have been further divided into forty sub-districts, see Figure 2. Each sub-district is served by a lift station that pumps wastewater to a gravity sewer line. The lift stations are summarized in the following table:

LIFT STATION SUMMARY					
	Lift Station Number	**Lift Station Capacity (GPM)**	**Located in District:**	**Location**	**Discharges to:**
District	LS 1S-2	292	1S-2	Glenborough Dr./Chowen Ave.	Gravity sewer at Glenborough Dr./Stirling Ct.
	LS 1S-3	97	1S-3	Beard Ave./Oxford Ln.	Gravity sewer at Xerxes Ave./Beard Ave.
	LS 1S-4	174	1S-4	990' west of CR 91/Glenborough Dr.	Gravity sewer at CR 91/ Glenborough Dr.
	LS 1S-5	632	1S-5	1500' north of 275th St./CR 91 on CR 91	Gravity sewer at CR 91/ Glenborough Dr.
	LS 1S-6	201	1S-6	275th St./Oxford Ln.	Gravity sewer 525' west of 275th St./Oxford Ln. on 275th St.
	LS 1S-7	361	1S-7	1040' north of 280th St. on CR 91	Trunk gravity line 450' west of 275th/CR 91
East	LS 5A-3	424	5A-3	460' west of Pillsbury Ave./270th St. on 270th St.	Gravity sewer line at Pillsbury Ave./270th St.
Elko	LS 2S-2	514	2S-2	Chowen Ave./Main St.	Trunk gravity line at 265th/Beard
	LS 2S-3	264	2S-3	Xerxes Ave./Ptarmigan Ave.	Trunk gravity line at Xerxes Ave./Ptarmigan Ave
New Market	LS NM-2	7048	NM-2	City Hall	Trunk gravity line 600' west of CR 91/CR 2; MH is behind curb
	LS NM-3	153	NM-3	320' north of Carter Ave./James Pkwy on Carter Ave.	Gravity sewer. 250' west of Carter/James intersection on James Pkwy
Southeast	LS 3S-2	4985	3S-2	1290' north of Logan Rd./280th St. on Logan Rd.	Trunk gravity line 2348' east of Thomas Ave./270th St. on 270th St.
	LS 3S-2A	Not Available	3S-2	1700' west of Pillsbury Ave./280th and 1855' south of 280th St.	1700' west of Pillsbury Ave./280th St. on 280th St.
	LS 3S-3	1576	3S-3	6250' south of Beard Ave./280th St.	Trunk gravity line 2630' south of Beard Ave./280th St.
	LS 3S-4	868	3S-4	2740' south of CR 91/280th St.	Trunk gravity line 4000' south of CR 91/280th St.
	LS 3S-5	229	3S-5	Thomas Ave./273rd St.	Trunk gravity line at Thomas Ave./270th St.
	LS 3S-6	1097	3S-6	9130' south of I35/280th St.	Trunk gravity line 7515' south of I35/280th St.
	LS 3S-7	465	3S-7	5700' south of 280th St. (CR 86)/CR 46 on CR 46	Trunk gravity line 4150' south of 280th St. (CR 86)/CR 46 on CR 46
	LS W-1	7000	W-1	CR2/Dakota Ave.	Trunk gravity line 600' west of CR 91 and CR 2; MH is behind curb
	LS W-2	694	W-2	2620' south of CR 2/Texas Ave. on Texas Ave.	Trunk gravity line 1480' east of CR 2/Texas Ave. on CR 2

LIFT STATION SUMMARY					
West	LS W-3	236	W-3	880' north of CR 2/Texas Ave. on Texas Ave.	Trunk gravity line 1480' east of CR 2/Texas Ave. on CR 2
	LS W-5	368	W-5	Nevada Ave./255th St.	Gravity sewer at James Pkwy./Nevada Ave.
	LS W-6	5555	W-6	2200' west of CR 2/Texas Ave. on CR 2	Trunk gravity line 1480' east of CR 2/Texas Ave. on CR 2
	LS W-7	548	W-7	1870' south of Harvest Dr./Saxon Dr.	Gravity sewer at Harvest Dr./Cedric Lane
	LS W-8	1111	W-8	1830' north of CR 2/ Jonquil Ave.	Trunk gravity line at CR 2/Jonquil Ave.
	LS W-9	3534	W-9	4130' north of 280th St./Texas Ave. on Texas Ave.	Trunk gravity line at 5510' north of 280th St./Texas Ave. on Texas Ave.
	LS W-10	1215	W-10	2050' west of 280th St./ Vernon Ave and 1450' south of 280th St.	Trunk gravity line 2050' west of 280th St./ Vernon Ave. on 280th St.
	LS W-11	854	W-11	730' west of 280th St./Vernon Ave. and 2650' south of 280th St.	Trunk gravity line 730' west of 280th St./Vernon Ave. and 1040' south of 280th St.
North	LS 4A-3	417	4A-3	950' east of 250th St/Dakota and 200' south of 250th St.	2600' east of 250th St/Dakota Ave. on 250th St.

The table below shows the population, household, employment and estimated wastewater flows projected by the Metropolitan Council through the year 2040.

Forecast of population, households, employment and wastewater flow:

FORECAST 2010 THROUGH 2040				
	2010	**2020**	**2030**	**2040**
Population	4,110	6,100	8,600	11,900
Households	1,259	2,000	3,030	4,400
Employment	317	1,630	1,780	1,940
Estimated Average Flow (MGD)	0.23	0.35	0.49	0.69

VI. SUMMARY

The topography, wetland presence, interstate, and location of the Metropolitan Council's interceptor sewer all dramatically influence the ultimate configuration and sequence of construction of the wastewater collection system. The system will rely on 17 local and regional lift stations within the 2040 growth boundary, with forcemains to transport the wastewater to the MCES Interceptor or a gravity branch sewer. During the growth process, some lift stations will be interim to serve areas where gravity sewer may not yet be available. The areas served by this type of station will be served by future development of the gravity system, so interim designs should facilitate decommissioning of the interim lift station.

Eventually, when the entire system is developed the following will be a result:

1. Approximately 30 permanent lift stations and forcemains will remain in use (eight of which are already in service).

2. Seven locations where connections to the MCES interceptor have been provided as it was constructed as described below. MCES prefers connection at these locations; however, exceptions have historically been granted under certain circumstances in other communities. MCES approval would be required for any variance to the following points:

    a) #1: East side of CR 91, south of CR 2.
    b) #2: West side of Xerxes Avenue, south of CR 2.
    c) #3: East side of Newton Circle, north of CR 2.
    d) #4: West side of I-35, south of the Vermillion River.
    e) #5: West side of I-35, north of the Vermillion River.
    f) #6: East side of I-35, intersection of 250th St. & Dupont Avenue.
    g) #7: East side of I-35, on CR 62 east of Pillsbury Avenue.

3. For areas designated as "mixed use" the distribution of land use is:

    a) Seventy percent - low density residential (2.7 units per acre).
    b) Twenty percent – high density residential (8 units per acre).
    c) Ten percent commercial / industrial.

VII. RECOMMENDATIONS

1. It is suggested that the City of Elko New Market periodically revisit this study to update the underlying assumptions, and make such adjustments as are appropriate.

2. The characteristics of actual development, i.e. density of residential, wet industry, percentage of higher density residential, will change the sizing of the proposed lift stations.

3. The City should compare existing well pump and waste water discharge records to see if there is a clear correlation between the two. If a spike in the waste water flow shows up during fall and spring wet periods, then a sump pump inspection program should be considered.

4. The City has a policy of requiring rear-yard drainage systems to prevent the development of chronically wet turf grass areas due to tight soils, dense lawns, irrigation, and builder/homeowner alterations that can affect drainage ways over

time. The policy requires the provision of connections for sump pump systems to the drainage system. It is recommended this policy be retained and enforced. While intended primarily to benefit drainage, the sump connections offer the additional benefit of dis-incenting illicit connections of sump pumps to the sanitary system by homeowners fed up with wet yards. The inflow from illicit connections means clear water must be unnecessarily treated, raising costs and taking up capacity needed for wastewater. The inflow also is not metered at the house by the City, which would increase sewer bills and generate revenue to cover the costs incurred by the City for it. The clear water does show up at the MCES meter for the City's wastewater flow and affects City charges.

VIII. ESTIMATED COSTS

A summary of costs and computation of minimum recommended trunk fee in 2018 dollars is provided in the Executive Summary at the beginning of this document.

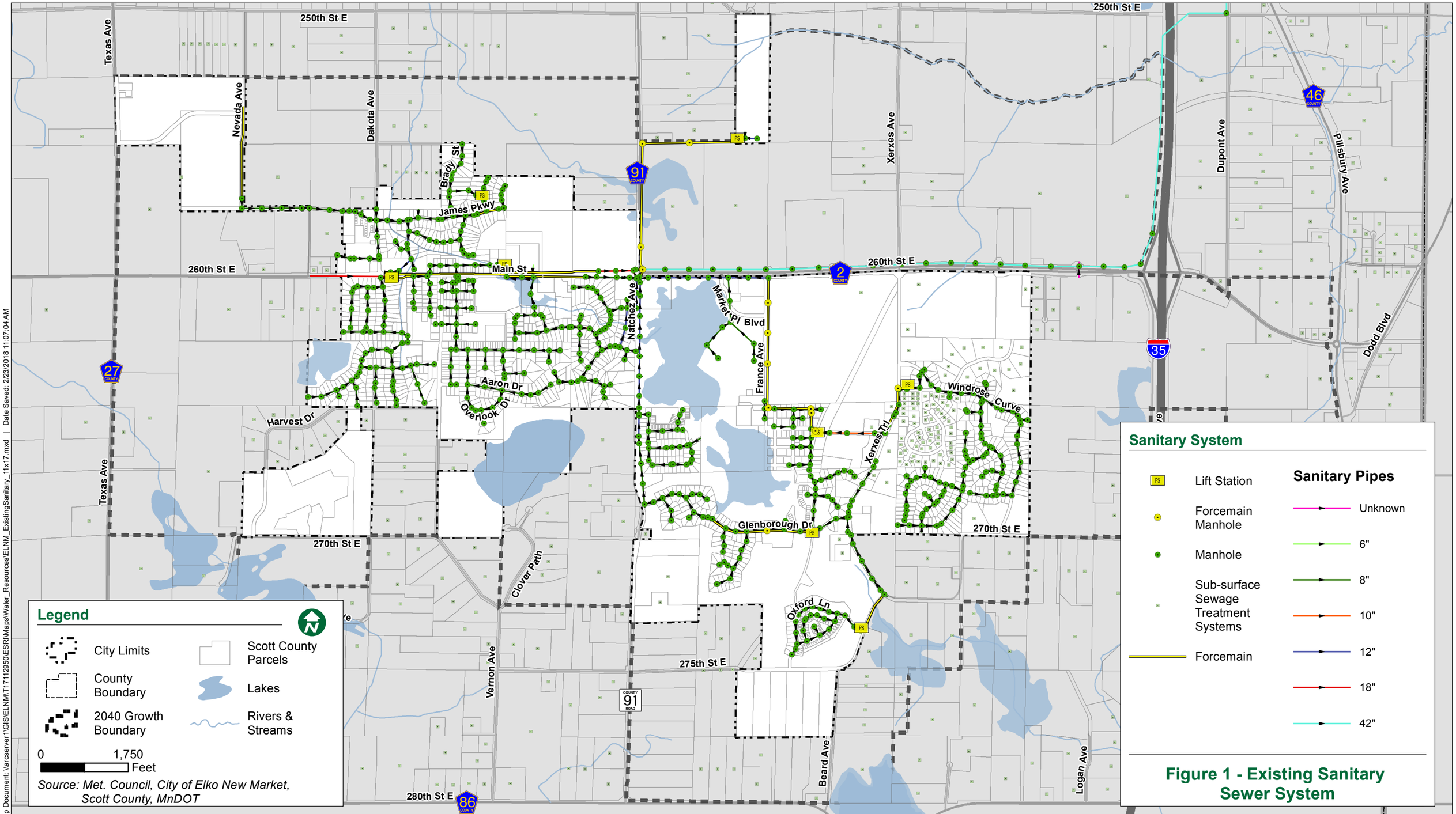
Appendix A: Figure 1 – Existing Sanitary Sewer Map

2040 Comprehensive Plan

Elko New Market, MN

Figure 1 - Existing Sanitary Sewer System

February 2018



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Appendix B: Figure 2 – Future Sanitary Sewer Map

Figure 2 - Proposed 2040 Sanitary Sewer Plan

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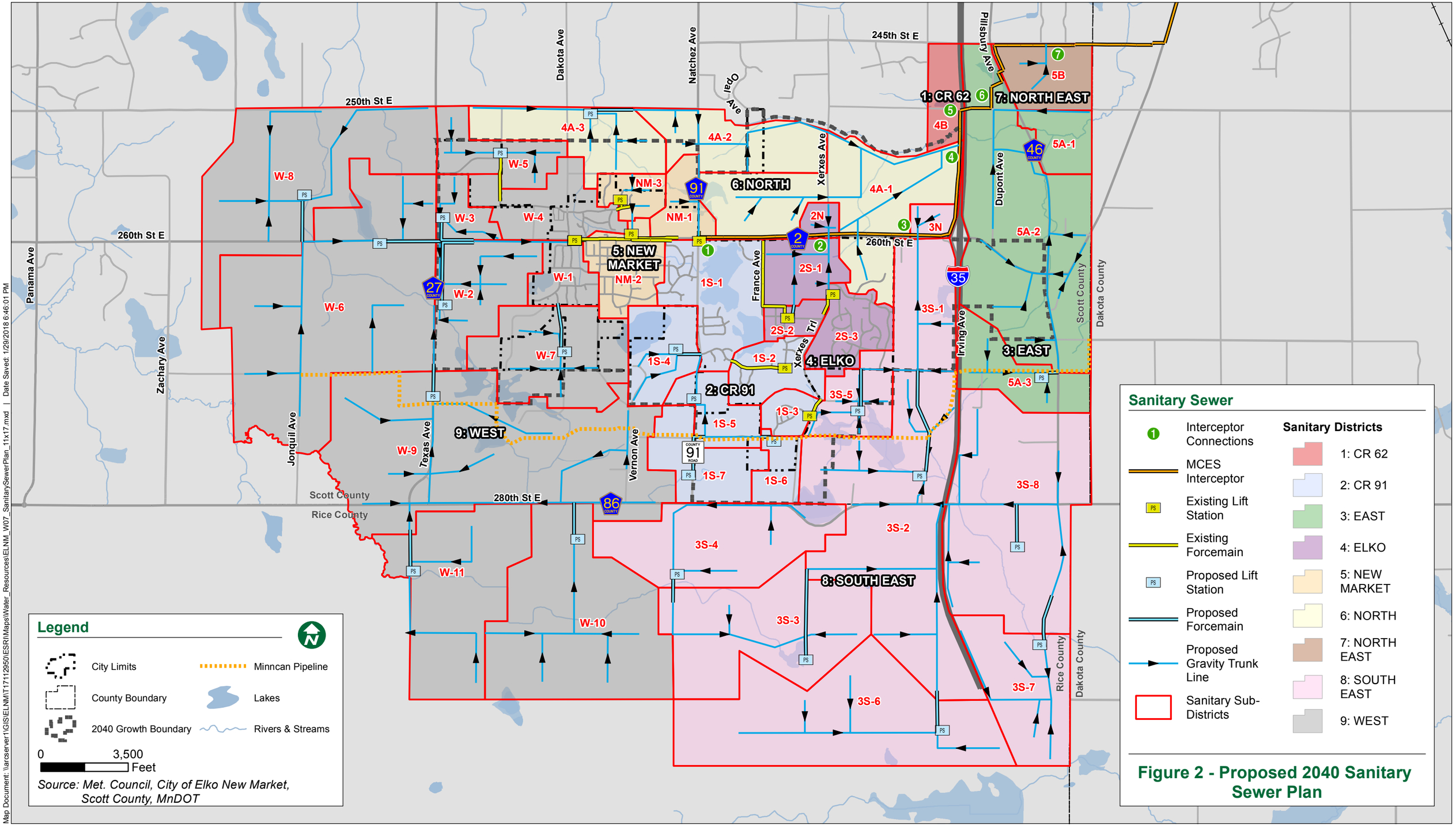

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Appendix C: Design Flow Tabulation

LAND USE / DESIGN FLOW (ULTIMATE POTENTIAL) FROM 2030 PLAN										
District	Area	Total Area (Acres)	Wetland Area (Acres)	Residential – Low Density (Acres)	Mixed Use (Acres)	Comm/ Industrial (Acres)	Town Center (Acres)	Average flow (MGD)	Design Flow (MGD)	MCES Connection Point
West	W-3	95	4	0	55	0	0	0.085	0.31	1
	W-5	221	18	112	91	0	0	0.137	0.47	1
	W-7	490	74	416	0	0	0	0.208	0.69	1
	W-2	357	33	0	0	0	0	0.269	0.83	1
	W-4	305	38	68	68	0	9	0.196	0.59	1
	W-11	712	104	510	98	0	0	0.342	1.03	1
	W-8	934	111	706	116	0	64	0.456	1.32	1
	W-10	983	124	728	64	0	68	0.514	1.49	1
	W-9	1542	241	651	650	0	0	0.901	2.16	1
	W-6	1493	128	896	469	0	0	0.863	1.81	1
	W-1	137	23	8	1	0	0	0.060	0.13	1
CR-91	1S-3	77	9	0	0	0	0	0.034	0.13	1
	1S-4	226	100	126	0	0	0	0.063	0.23	1
	1S-6	105	3	46	57	0	0	0.073	0.27	1
	1S-2	180	38	212	0	0	0	0.071	0.25	1
	1S-7	253	33	162	58	0	0	0.133	0.45	1
	1S-5	175	17	157	0	0	0	0.079	0.24	1
	1S-1	377	133	39	0	28	8	0.191	0.55	1
New Market	NM-3	100	9	52	0	0	6	0.054	0.21	1
	NM-2	212	26	0	0	0	0	0.145	0.30	1
	NM-1	132	15	0	52	0	66	0.136	0.27	1
***Total to MCES connection point 1 =**									**12.02**	

LAND USE / DESIGN FLOW (ULTIMATE POTENTIAL) FROM 2030 PLAN										
District	Area	Total Area (Acres)	Wetland Area (Acres)	Residential – Low Density (Acres)	Mixed Use (Acres)	Comm/ Industrial (Acres)	Town Center (Acres)	Average flow (MGD)	Design Flow (MGD)	MCES Connection Point
Elko	2N	49	3	0	33	13	0	0.042	0.16	2
	2S-3	196	8	28	0	0	0	0.094	0.34	2
	2S-2	75	13	14	0	0	13	0.057	0.19	2
	2S-1	179	18	38	98	9	17	0.139	0.40	2
***Total to MCES connection point 2 =**									**12.29**	
Southeast	3N	57	1	0	0	0	0	0.056	021	3
	3S-5	181	30	135	16	0	0	0.082	0.30	3
	3S-7	433	90	343	0	0	0	0.172	0.57	3
	3S-4	597	71	305	221	0	0	0.348	1.04	3
	3S-6	1041	140	901	0	0	0	0.451	1.31	3
	36-3	733	51	682	0	0	0	0.341	0.95	3
	3S-2	2264	375	956	467	221	0	1.347	2.96	3
	3S-1	324	48	106	87	18	0	0.208	.46	3
***Total to MCES connection point 3 =**									**17.53**	

LAND USE / DESIGN FLOW (ULTIMATE POTENTIAL) FROM 2030 PLAN										
District	Area	Total Area (Acres)	Wetland Area (Acres)	Residential – Low Density (Acres)	Mixed Use (Acres)	Comm/ Industrial (Acres)	Town Center (Acres)	Average flow (MGD)	Design Flow (MGD)	MCES Connection Point
North	4A-3	341	36	305	0	0	0	0.153	0.52	4
	4A-2	328	27	18	283	0	0	0.260	0.78	4
	4A-1	741	129	0	400	0	18	0.562	1.46	4
***Total to MCES connection point 4 =**									**19.58**	
CR 62	4B	133	15	0	109	3	0	0.104	0.36	5
East	5A-1	141	33	0	108	0	0	0.095	0.34	6
	5A-3	261	24	141	97	0	0	0.157	0.53	6
	5A-2	1102	106	40	470	465	0	0.923	2.86	6
***Total to MCES connection point 6 =**									**21.20**	
Northeast	5B	216	47	0	87	83	0	0.159	0.54	7
***Total to MCES connection point 7 =**									**21.52**	

Appendix D: 2040 Trunk Sewer Design and Capacity Tabulation

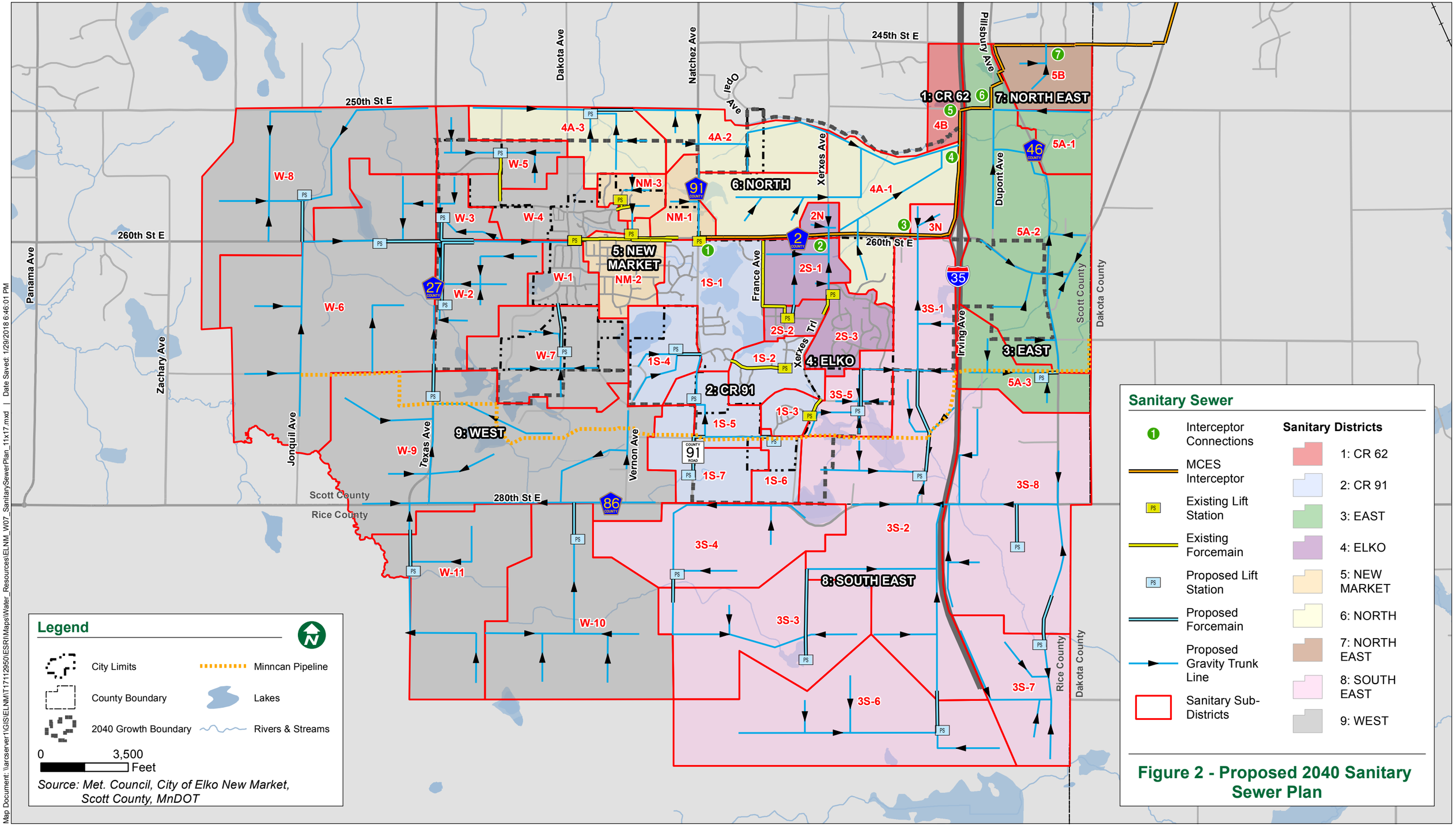
TRUNK SEWER DESIGN AND CAPACITY INFORMATION						
From Point	**To Point**	**Design Flow (MGD)**	**Pipe-Existing/Proposed**	**FM Size (in.)**	**FM Length (ft.)**	**Length to be Oversized (ft.)**
CR 62						
4B	**Interceptor**	0.42	PROPOSED	--	--	0
CR 91						
1S-1	**Interceptor**	1.58	EXISTING	Ex 8	--	0
1S-2	**1S-1**	0.42	EX. FM	Ex 6	--	0
1S-3	**1S-2**	0.14	EX. FM	Ex 4	--	0
1S-4	**1S-1**	0.25	PROP. FM	8	1000	4750'(10")
1S-5	**1S-1**	1.05	PROPOSED	8	1820	1650'(10")
1S-6	**1S-5**	0.29	PROPOSED	4	550	0
1S-7	**1S-5**	0.52	PROPOSED	6	2070	0
EAST						
5A-1	**Interceptor**	0.38	PROPOSED	--	--	0
5A-2	**Interceptor**	1.13	PROPOSED	--	--	10700'(24")
5A-3	**5A-2**	0.61	PROPOSED	6	500	2160' (12")
ELKO						
2N	**Interceptor**	0.17	PROPOSED	--	--	0
2S-1	**Interceptor**	1.50	PROPOSED	--	--	5950'(15")
2S-2	**2S-1**	0.74	PROPOSED	Ex 6	--	0
2S-3	**2S-1**	0.38	EXISTING	Ex 6	--	0
NORTHEAST						
5B	**Interceptor**	0.62	PROPOSED	--	--	2050'(10")

TRUNK SEWER DESIGN AND CAPACITY INFORMATION - CONTINUED						
NORTH						
4A-1	**Interceptor**	3.12	PROPOSED	--	--	5700'(21"), 12469'(10")
4A-2	**4A-1**	1.44	PROPOSED	--	--	3955'(12"), 5724(18")
4A-3	**4A-2**	0.60	PROPOSED	8	1700	0
NEW MARKET						
NM-1	**Interceptor**	10.48	EXISTING	Ex 12, Ex 6	--	0
NM-2	**NM-1**	10.15	EXISTING	Ex 12, Ex 6	--	0
NM-3	**NM-2**	0.22	PROPOSED	--	--	0
Incoming Flow	**NM-2**	10.08	--	--	--	--
SOUTHEAST						
3N	**Interceptor**	0.22	PROPOSED	--	--	0
3S-1	**Interceptor**	7.66	PROPOSED	--	--	5430'(36")
3S-2	**3S-1**	7.18	PROPOSED	6 & 20	1615'(6"), 4190'(20")	3066'(36"), 5202'(21"), 7493'(18")
3S-3	**3S-2**	2.27	PROPOSED	12	3530	7530'(21")
3S-6	**3S-2**	1.58	PROPOSED	10	1680	7980'(18")
3S-7	**3S-2**	0.67	PROPOSED	6	2130	4550'(12")
3S-5	**3S-1**	0.33	PROPOSED	--	1750	0
3S-4	**3S-3**	1.25	PROPOSED	8	1280	6310'(15")

TRUNK SEWER DESIGN AND CAPACITY INFORMATION - CONTINUED						
WEST						
W-1	**Outgoing Flow**	10.08	PROPOSED	--	--	1400'(21")
W-2	**W-1**	1.00	PROPOSED	8	3770	0
W-3	**W-2**	0.34	PROPOSED	6	2020	2742'(24")
W-4	**W-1**	1.20	EX. FM	Ex 12	465	0
W-5	**W-1**	0.53	EXISTING	Ex 6	--	0
W-6	**W-1**	8.00	PROPOSED	18	3700	3167'(33"), 7398'(24")
W-7	**W-1**	0.79	PROPOSED	8	2000	4160' (12")
W-8	**W-6**	1.60	PROPOSED	10	1640	9830'(12")
W-9	**W-6**	5.09	PROPOSED	16	1470	4120'(27"), 7660'(24"), 4090'(15")
W-10	**W-9**	1.75	PROPOSED	10	1490	6400'(18")
W-11	**W-9**	1.23	PROPOSED	8	1600	11400'(15")

Figure 2 - Proposed 2040 Sanitary Sewer Plan

February 2018



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Real People. Real Solutions.

2040 Comprehensive Surface Water Management Plan

Elko New Market, MN

Submitted by:
Bolton & Menk, Inc.
1960 Premier Drive
Mankato, MN 56001
P: 507-625-4171
F: 507-625-4177

Certification

2040 Comprehensive Surface Water Management Plan

for

The City of Elko New Market

T17.112950

February 2018

I hereby certify that this plan, specification or 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: _____

Richard J. Revering, P.E.
License No. 20711

Date: 02/23/18

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Appendix C: Hydroperiod Guidelines for Wetlands

I. EXECUTIVE SUMMARY

The City of Elko New Market's Comprehensive Surface Water Management Plan (Plan) was modeled after Minnesota Rules Chapter 8410 (Metropolitan Area Local Water Management), Minnesota Statutes Section 103B.235, the Scott Watershed Management Organization (WMO) Comprehensive Water Resource Management Plan (CWRMP) and the Vermillion River Watershed Management Plan (VRWMP). The City of Elko New Market (City) will utilize this Plan, the accompanying Rules, and the existing and new Ordinances as the basis for managing wetlands, surface, storm, flood, and groundwater within the municipal boundary.

This Plan, accompanying Rules, and Ordinances, when adopted in conjunction with the Scott CWRMP and the VRWMP, will provide the management goals, policies, and objectives the City will implement to protect, improve, and preserve wetlands, surface, storm, flood, and groundwater resources within the City. It will also address the topics required to meet the Scott WMO CWRMP and the VRWMP criteria for a Local Water Plan for submittal, acceptance, and approval under Minnesota Statutes 103B and Minnesota Rule 8410.

The Plan has been prepared with cooperation of Scott and Dakota County staff, the City of Elko New Market Staff, and the Elko New Market City Council to address the concern for the City's wetlands, surface, storm, flood, and groundwater impacts resulting from continued development and growth both in and adjacent to the City of Elko New Market.

Elko New Market is situated in a unique area geographically in that the study area sits at the headwaters of three watersheds: 1) Vermillion River, 2) Sand Creek (via Porter Creek and Duck Creek), and 3) the Cannon River. There are four Department of Natural Resources protected wetlands within the City limits and numerous smaller wetlands. There are no major water bodies or rivers in the City. Given this, the City's protection of land and resources during the planning and design of development will affect downstream resources. To protect natural communities the natural resources and environmental conservation goals of the current Southeast Scott County Comprehensive Plan will be included in the City's 2040 update and ordinances adopted that will implement the standards of the Scott WMO and VRWMP.

This Plan addresses various methods of ensuring that continued growth and development does not adversely affect the City's natural resources as well as the existing storm sewer, open channel, and regional pond networks. Acceptance of this Plan by the Scott WMO and the VRWJPO identifies the City of Elko New Market as the Local Government Unit (LGU) for matters related to protection, preservation, use, and regulation of surface and groundwater resources. In addition, this Plan includes a review of the surface water related costs associated with continued development in the City. It identifies a basis and a methodology for storm sewer infrastructure related charges associated with the corresponding development and provides a framework for managing the City's natural resources in relation to continued development and urban growth. The costs and regulatory efforts are proportional to the burdens that urban developments place on existing and future public infrastructure as well as the City's natural resources. Given this information, the findings and goals of this Plan are summarized as follows:

- The majority of the existing storm sewer and regional detention basin networks serving the developed portion of the City are adequately sized to accommodate the design storm runoff from the existing service area given current land use data. Further information on the hydrologic model is available upon request by the City Engineer.
- The existing storm sewer conveyance and regional detention systems do not have capacity to accommodate future development within the City's ultimate growth boundary.
- The existing natural resources within the City must be preserved while accommodating the

projected growth and development. The City's goal for wetland management is for no net loss of wetland area. The City looks forward to working with Scott WMO and the Minnesota Pollution Control Agency (MPCA) in developing the Total Maximum Daily Load (TMDL) concentrations for Porter Creek. The groundwater resources in the City will be managed in conjunction with Minnesota Department of Health (MDH) through the Wellhead Protection Plan (WHPP).

- Although there are numerous alternative methods of accommodating future development and growth, the City is advocating the continued design and construction of localized detention basins as the preferred BMPs for water quality and rate control associated with future development in the City's outlying growth areas.
- Localized detention basins are advocated because of a number of benefits. They are the most easily adapted to unforeseen changes in development design and layout. They can accommodate changes in the rate and location of development. They require no investment in land rights, pipes sized for un-attenuated peak runoff from development, or pond construction in advance of development and the associated fee revenue that would be required to create the facilities. They facilitate development stormwater design that more closely mimics existing hydrologic and hydraulic conditions. They do reduce developable acreage within developments, but the local approach also means stormwater area charges to developers can be much lower.
- Due to the amount of data contained in the Hydrologic modeling files (HydroCAD), detailed information including surface areas, storage volumes, flow rates for the existing conditions, etc. will be available upon request and modified as required to account for future development and provide the required level of service.
- An estimate of the costs associated with the facilities to be funded with storm water area charges has been included in this Plan. The SWAC is a per-acre fee that is collected from developers based on projected costs. The SWAC should be reviewed and adjusted on an annual basis for inflation or other factors.
- This Plan is a document-in-progress and will be amended as required. Annually as development occurs the hydrologic model will be reviewed and modified to account for the differences between the actual and modeled hydrologic conditions. It is anticipated that, as development layouts are submitted for review, the proposed storm sewer and detention pond improvements can be temporarily entered into the hydrologic model and analyzed for possible adverse effects on the area hydrology. If accepted and constructed, these improvements will then be permanently entered into the comprehensive hydraulic and hydrologic model as an existing condition.

II. PURPOSE

This Plan, in conjunction with the Scott WMO CWRMP and the VRWMP, satisfies the requirements of MN Statute 103B.205 to 103B.255 – Local Water Management Plans and MN Rule-8410 – Local Water Management.

The overall purpose of this plan is to protect, preserve, and manage surface and groundwater systems within the City while accommodating rapid municipal, residential, commercial development, and agricultural activity. This Plan outlines sustainable and equitable means to effectively reach this goal. This Plan provides goals, policies, guidance, and specific standards for decision-makers, residents, landowners, and City personnel.

This submittal is a culmination of many months of research, mapping, land use analysis, planning, and hydrologic and hydraulic design. The end product is a comprehensive design tool that may be

used by the City for managing growth and planning for future public infrastructure construction. Approximately 180 City watersheds were identified and modeled as part of this Plan and are available to City staff for reference during future development plan reviews. This Plan is not a "stand-alone" document and should only be utilized in conjunction with the Scott WMO CWRMP and the VRWMP.

This Plan represents a technical report and includes a large amount of detailed design data. The accompanying overall Watershed Drainage District map (Figure No. 1) identifies major watershed boundaries and major water bodies along with identify minor subwatersheds, contours, proposed storm sewer improvements, and regional development detention basin locations. This map serves as an overview of the entire system and proposed stormwater improvements.

The maps identify the present land use conditions and the proposed drainage conditions required to accommodate anticipated development within the City defined growth boundary. A summary of the hydrologic modeling data for the 2-, 10- and 100-year, 24-hour storm events is available from the City Engineer.

A. Hydrologic Methodology

The hydrologic analysis utilized in this Plan has been performed using the HydroCAD Modeling Software as developed by HydroCAD software solutions, LLC. The model is based on SCS TR-20. The SCS TR-20 methodology is widely accepted among water resource engineers across the United States. The SCS procedure is based on a standard rainfall hydrograph, which is modified by site-specific parameters (i.e., rainfall amount, soil type, ground cover, time of concentration, time to peak flow, etc.).

Information such as pond storage volumes, runoff slopes, drainage areas and ditch locations were compiled directly from the topographic maps. Topographic slope information was used to calculate the time of concentration for each sub-watershed, a critical parameter in the hydrological analysis. Soil cover was compiled from review of orthographic photos obtained from Scott County.

The SCS defines the time of concentration as the total travel time of a particle of water from the hydraulically most distant point in the watershed to the outlet itself. The time of concentration was tabulated for each sub-basin by breaking the sub-basin flow length into regions of sheet flow, shallow concentrated flow, and channel flow, if applicable. A separate time of concentration was computed for each length, with the summation resulting in the total time of concentration for each sub-basin.

The effects of a 2-year (2.8-inch), 10-year (4.2-inch), and 100-year (6.0-inch), 24-hour storm events for the Scott WMO portion of the watershed, and the 1-year (2.4-inch), 10-year (4.2-inch) and 100-year (6.0-inch), 24-hour storm events were analyzed for the VRWJPO portion of the watershed in the 2008 comprehensive plan. Conceptually, the 1-year storm event has a 100 percent chance of occurring in any given year, the 2-year storm event has a 50 percent chance, the 10-year storm event has a 10 percent chance and the 100-year storm event has a 1 percent chance of occurring in any given year.

For future development purposes the Atlas 14 distribution MSE 3 rainfall depths will be used for quantifying stormwater runoff.

Project specific detention basin design procedure requires ponds to be sized to ensure there is no net increase in off-site flow rates for specific storm events. This procedure will minimize adverse effects to downstream properties. Unfortunately, when this procedure is applied to individual development sites without comprehensive review of regional drainage patterns the cumulative effect may be to inadvertently increase downstream flow conditions and possibly cause flooding at some locations. The use of the City-wide hydrology and hydraulic model is suggested as a way to review cumulative impacts of development.

Based on our analysis, the existing pond and culvert system will function properly for storm events less than or equal to the 100-year, 24-hour storm. However, for future detention and water quality ponds the 100-year storm events will need to be managed to prevent damage to the downstream properties. This may be accomplished by volume controls, proper siting of improvements, consideration and protection of natural resources, constructing emergency spillways, increased pond storage volume, and/or adoption of low-impact site design practices. All of these options can be implemented while protecting the natural features of the City.

B. Water Resource Management Responsibilities and Related Regulatory Responsibilities

The City of Elko New Market (City) will be assuming regulatory authority for development while recognizing the role of other local, state, and federal entities. Several entities will have administrative responsibilities within the planning area. For a local water management effort to be successful, each entity's commitment and role must be clearly understood. The agencies currently having some level of administration responsibility include the City, Scott WMO, VRWJPO, Scott County, Minnesota Department of Natural Resources (Mn/DNR), Minnesota Pollution Control Agency (MPCA), the U.S. Army Corps of Engineers (USACE), and the Board of Water and Soil Resources (BWSR). It has been recognized that regulatory agencies can achieve common goals by joining together to combine already scarce financial and regulatory resources.

Intergovernmental cooperation is an excellent tool to address natural resource protection. This is due to the fact that natural resources do not recognize political boundaries and are often located across local, state, and federal regulatory boundaries. The City is ultimately responsible for planning, permitting, construction, maintenance, and other projects related to the City's surface water and ground water infrastructure and will work in conjunction with other local, state and federal agencies to achieve its goal of sound resource management. The City looks forward to cooperating with intergovernmental agencies in the future if the need should arise.

Items specifically identified in the Scott WMO plan that require City cooperation include:

- Providing Scott WMO assistance with wetland banking opportunities - The City will seek to promote the use of wetland banking for projects within the City over the creation of wetland for mitigation where the size, surroundings, and location of the created wetland provide limited opportunities for success. The City will also seek to promote the creation of wetland banks within the City where the prospects for creating a viable and beneficial wetland are evident.
- Coordination and meeting attendance - The City will send representatives to participate in meetings held by the WMO for the purpose of discussing watershed-wide management issues when specifically invited by the WMO.
- Support Wellhead Protection – The City has an approved wellhead protection plan and is actively implementing provisions in the plan.
- MS4 Maintenance Requirements – The City is implementing BMPs and maintenance requirements in accordance with its SWPPP and permit.
- Technical Advisory Committee – The City participates in this committee. See bullet no. 2 above.
- Share Data and Information – The City will cooperate with Scott WMO and other agencies in sharing information.

The major task of administering this plan will be in the permitting process. It is the intent

of the City to assume the role of permitting for all land alteration, thereby enforcing the policies and standards of this Plan. The City's existing permit procedures include surface water management elements outlined in this Plan and the current Environmental Protection Ordinance. Surface water management elements will be reviewed at the same time all other permits are reviewed.

To ensure conformance to this Plan and the associated Rules, the City's preliminary and final platting process and site plan approval process will require more detailed information. Erosion control, water quality, and other pertinent information such as stormwater rate and volume control, regarding local plan standards are among the elements that will be addressed on preliminary and final plans and/or preliminary plats. Conditional approvals by the Planning Commission and/or City Council must require the incorporation of conditional elements into the final plan to ensure compliance.

The revised plan will then be re-distributed to City staff to confirm the inclusion of the provisions under which the plans were approved. The Building Permit issuance process can be the check-point for staff to review final plans for compliance with this Plan and associated Rules while holding the condition of building permit issuance as the incentive. Engineering staff will have a sign-off procedure prior to permit issuance.

The City's administrative responsibilities include, but are not limited to the following:

- Comprehensive Plan update(s);
- Land use regulation;
- Ordinance review and amendment;
- Local plat review and amendments;
- Permits;
- Wetland management as the LGU;
- Sediment and erosion control (Ordinance);
- Groundwater – City wells;
- Participation and cooperation with the programs of the Scott WMO, VRWJPO, Minnesota DNR, and Scott County;
- Hydrologic model update with condition changes;
- Financing Alternatives;
- Capital improvements; and
- Conveyance system and detention pond maintenance;
- Continued Administration of its Stormwater Pollution Prevention Program in accordance with MPCA requirements based on the City's status as a Municipal Separate Storm Sewer Systems (MS4) community.
- Amending its Zoning Ordinance as necessary to establish rules for the implementation of this plan within 120 days following any plan amendments.

Scott WMO and VRWJPO responsibilities and authorities may include but are not limited to the following:

- Monitoring;
- Establishing land use or ordinance requirements;

- Local plan review and approval;
- Review and comment on projects 40 acres and greater in size (VRWJPO);
- Projects of regional significance; and
- Verification of plan implementation.
- Approval of variances.

Metropolitan Council: Comprehensive Plan Amendment

Metropolitan Council has a regional review authority regarding surface water management including:

- Local Plan review; and
- Regional controls related to nonpoint source pollution.

This Plan and all subsequent amendments will become part of the City's Comprehensive Plan (adopted by reference), in accordance with Minnesota Rule 8410, Minnesota Statutes 103B.235, Subd. 3A and 473.859, Subd. 2 (Chapter 176, Laws of Minnesota 1995), as part of the adoption process for this Plan.

This Plan does not have to be re-submitted as a formal comprehensive plan amendment, subject to additional review, at a later date. The adopted City Plan and associated Rules will satisfy Metropolitan Council's requirements and will be thereby recognized as an amendment to the City's Comprehensive Plan.

C. Neighboring Jurisdictions and Water Resource Related Agreement

The City's location at the top of the watershed means that all of its runoff in the watershed drains to other jurisdictions within the watershed. The City's Zoning Ordinance contains provisions for the evaluation of downstream impacts from development to prevent downstream damage. These provisions apply to all developments whether they drain to Scott WMO, VRWJPO, or other watersheds unless superseded by separate, more stringent agreements.

One agreement is in place with New Market Township at this time. As part of the 2005 School Core Street and Utility Improvements an agreement between the City of New Market and New Market Township was reached to limit surface water discharge from the associated drainage area in Section 20 to limited pre-settlement rates. Future development in this subwatershed will limit discharge on a per acre basis. Developers will be encouraged to use low impact development, infiltration practices and Best Management Practices to meet the requirements. A copy of the agreement letter is located in Appendix B.

III. LAND AND WATER RESOURCE INVENTORY

The City of Elko New Market is located in the southeast corner of Scott County and is surrounded by New Market Township. The total hydrologic study area includes over 5,220 acres of watershed and is shown in Figure No. 1. As can be seen from the figure, the study area lies both within and outside of the current City limits. It has been assumed that growth around Elko New Market will continue to expand in all directions outward of the current City limits.

Elko New Market is situated at the divide of four major watershed divides. To the northeast is the Vermillion River, to the northwest is Credit River, to the southwest is Sand Creek and to the southeast is the North Cannon watershed. The stormwater runoff begins in each of these upper-most basins as sheet and shallow concentrated flow. This flow follows existing contours and

ravines and develops into intermittent surface flows and creeks directed downstream where they eventually enter into the Minnesota and Mississippi Rivers. The Vermillion River watershed areas within the City are the headwaters for a branch of the Vermillion River that is a designated trout stream located downstream in Eureka Township, which is in Dakota County.

Land use with the study area, outside of the urban areas, consists chiefly of gently rolling agricultural crop land with interspersed wetlands.

A. Soils and Geology

For the most part, the majority of soils in the Elko New Market study area consist of loam and silty clay loam. Although there are random areas that have high sand content with high infiltration rates, a large percentage of the soils found are classified as SCS, type B and/or type D, which are known to have moderate to low infiltration capabilities.

The typical B type soil consists of Hayden loam, which occupy approximately one-third of the upland soils in Scott County. Hayden soils are light-colored and are well-drained. These soils have a moderate rate of infiltration in the range of 0.15-0.30 inches/hour. Type D soils have a high runoff potential due to very slow infiltration rates. These soils consist primarily of soils with high ground water tables, soils with a claypan or a clay layer at or near the surface, and shallow soils over nearly impervious parent material. These soils have a very low rate of infiltration in range of 0-0.05 inches/hour. The watershed soil classifications are shown in Figure No. 3.

The dominant land form in Elko New Market is “dead ice moraine”, which refers to the remnants of the last of the glacier as it retreated. As the last ice melted it released huge piles of accumulated debris in a random pattern. The net result was the creation of a vast number of both connected and isolated wetlands with few organized stream patterns, except for the Vermillion River and Credit River corridors. The preservation and any potential enhancement of the Vermillion River and the enhancement of Credit River are key components of the City’s Storm Water Pollution Prevention Plan.

B. Temperature, Precipitation and Evaporation Summary

The typical Atlas 14 24-hour storm events to be used for future modeling in the Elko New Market area are shown in the table below:

Temperature, Precipitation and Evaporation Summary				
	1 Year	**2 Year**	**10 Year**	**100 Year**
Rainfall	2.47	2.8	4.2	7.29

The total average annual precipitation in this area is approximately 31 inches. The average annual snowfall is about 22 inches, which is roughly equivalent to 2.2 inches of water. It is interesting to note that the average annual pan evaporation amount is almost 37 inches for the months from April to October, which does not include evaporation that may occur during the winter months.

Average Monthly Temperature, Precipitation and Snowfall			
Station: Jordan 1 S, MN4176 (For the months from 1981 – 2010)			
Month	**Avg. Temperature (°F)**	**Avg. Precipitation (inch)**	**Avg. Snowfall (inch)**
January	13.0	0.73	6.6
February	18.4	0.62	3.3
March	30.6	1.73	2.4
April	45.5	2.53	1.4
May	57.3	3.69	0.0
June	66.7	4.64	0.0
July	70.7	3.49	0.0
August	68.0	5.05	0.0
September	59.6	3.41	0.0
October	47.1	2.47	0.1
November	31.9	1.64	2.0
December	17.2	0.95	6.3
Average =	43.8	2.58	
Total =		30.95	22.0

Pan evaporation is used to estimate the evaporation from lakes. An evaporation pan is used to hold water during observations for the determination of the quantity of evaporation at a given location. The table below shows the average pan evaporation at the University of Minnesota St. Paul campus.

Monthly PAN Evaporation (inches)								
1972 – 2014 PAN EVAPORATION DATA: St. Paul Climatological Observatory 21-8450-6								
	April	**May**	**June**	**July**	**Aug.**	**Sept.**	**Oct.**	**Total**
Avg.	1.85	6.72	7.50	8.06	6.67	4.75	1.26	36.83

The Scott WMO CWRMP – Section 1: Land and Water Resource Inventory contains the most current and comprehensive resource inventory for the Scott WMO portion of the watershed. Please reference Section 1, page 5, of the Scott WMO CWRMP for further information: (http://www.scottcountymn.gov/DocumentCenter/Home/View/4801)

The VRWMP – Section1: Existing and Future Physical Environment, and Section 2: Existing and Future Biological Environment, provide existing and historical information regarding land and water resource information for the Vermillion River portion of the watershed. Please reference Sections 1 and 2 of the VRWMP for further information:

(http://www.vermillionriverwatershed.org/plans-reports/watershed-management-plan/)

IV. ESTABLISHEMENT OF GOALS AND POLICIES

The primary goal of the City's Plan and associated Rules is to provide the framework for the

management of all forms of surface water as development occurs both within and adjacent to the City in the area defined as the City's ultimate growth boundary. This Plan provides clear guidance on how the City will manage surface water both in terms of quantity and quality. The goals and policies stated in this Plan are complimentary to the goals and policies stated in the Scott WMO CWRMP and VRWMP.

An interceptor sewer line was constructed in 2005 along CSAH 2 to the City's eastern boundary. In 2011 this was connected to the Empire Waste Water Treatment Plant, which replaced the City's old waste water treatment plant. It is anticipated that growth in the Elko New Market community will begin to occur at a more rapid pace. Population growth, resource education, and increasing regulation of surface water at the State, County, and Federal levels necessitate that the City's surface water management goals evolve over time with increased awareness.

The goals and policies detailed in this Plan focus on future development as much as the existing infrastructure. The City only conducts plan reviews "as development occurs" as part of the preliminary plat submittal and approval process. This emphasis on future requirements ensures that future development augments the City's amenities rather than diminishes the complex environments that the City is located within.

A. Goal 1: Water Quantity

(See City ordinances for implementation of these polices)

The purpose of this goal is to control flooding and minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of surface water runoff, in accordance with the Scott WMO CWRMP and the VRWMP. Traditional surface water management deals with just one component of the hydrologic cycle; surface runoff. Large amounts of energy are directed towards alleviating significant negative impacts of surface runoff and flooding for the cultural, water, and natural resources.

The primary management strategy is shifting from detention in both existing natural and constructed basins, to Low Impact Development (LID) techniques and Integrated Management Practices (IMPs) that emphasize reduction of runoff volume and on-site runoff control via infiltration or small volume storage to mimic predevelopment hydrology for more frequent rainfall events. This trend will help remedy the negative impact of stormwater runoff on water quality and downstream flooding. With increased value placed on natural wetlands, the number and extent to which wetlands can be used for detention is already in decline. The approach to sound water quantity management relates directly to water quality, wetland management, erosion control, and land development strategies. By comprehensively managing the quantity and quality of surface water runoff, the other goals of this Plan are more efficiently achieved.

Subject: Surface Water Runoff (Rate and Volume) Management.

Purpose: Control post-development stormwater runoff.

Goal: Control flooding, protect human life, protect public and private property, mimic existing runoff conditions, minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of surface water runoff from entering rivers, streams and wetlands in the watershed, and maintain or improve the downstream conveyance system.

Surface Water Quantity Policies

***Policy 1.1*:** Utilize LID site design and alternative landscape techniques where applicable, along with conventional constructed on-site detention ponds for large, infrequent rainfall events. Pre-developed peak flow rates for the 1-yr, 2-yr, 10-yr, and 100-yr, 24-hour, storm

events cannot be exceeded by new development. These design techniques will be relied upon to help mimic pre-development hydrology and to control downstream flooding.

Unincorporated areas/development that are annexed into the City within the Scott WMO that have storm water facilities designed to the unincorporated standard of pre-settlement rates must retain that design rate.

The NOAA Atlas 14 rainfall depths using a NRCS MSE 3 or nested distribution shall used for calculating peak flow rates. The main reasons behind this are that the City is located at the top of several watersheds, this type of distribution is familiar to design engineers in Minnesota, and the most conservative peak runoff rates typically result with the use of this distribution in the Elko New Market watershed environment.

Policy 1.2: The City encourages the use of regional detention ponds rather than localized on-site ponding when it works effectively into the planning and design of proposed improvements. The City recognizes that regional ponding works best when incorporated into active developments and will not in general initiate the construction of regional ponds independently.

Policy 1.3: Development that creates more than one acre of new impervious surface must incorporate volume control practices into the design sufficient to control the most restrictive of either the runoff volume from the 2-year 24-hour rainfall event to pre-development conditions, or one inch (1") of runoff from new impervious surfaces. This requirement may be met on a regional or site by site basis.

Policy 1.4: Credits for various site design techniques will be allowed to help meet the volume control requirements and are the preferred approach for meeting volume controls.

Policy 1.5: Where LID techniques and localized ponding are not feasible, the City may consider cash in lieu of on-site ponding if downstream regional ponding facilities are feasible.

Policy 1.6: Emergency overflows or outlets for drainage systems are required and shall be provided to prevent flood damages and overtopping of constructed basins. These shall not be placed below the seasonally high water table unless it can be demonstrated that there is a reasonable need for such an outlet to control seepage damage to existing structures.

Policy 1.7: The minimum building elevation shall be set/designed to prevent flood damage from the established 100-year, 24-hour, storm event in accordance with established City Ordinances and the standards of this Plan, and associated Rules.

Policy 1.8: The City rewards the use of alternative landscape techniques and materials to reduce rates and volumes of stormwater runoff.

Policy 1.9: The City shall require stormwater ponds, wetlands, flood plains, and ditches to be located in outlots as part of the land development approval process.

Policy 1.10: Outlets from landlocked basins will be allowed, provided such outlets are consistent with State and federal regulations, and the downstream impacts, riparian impacts, and habitat impacts of such outlets have been analyzed and no detrimental impacts result.

Policy 1.11: The City shall maintain and periodically inspect stormwater management facilities and structures to assure they function as originally designed according to the Storm Water Pollution Prevention Plan requirements.

Policy 1.12: For development that occurs near the outer limits of the City's 2040 growth boundary, adjacent to the townships, the City will work closely with the County and the

townships to ensure that downstream conveyance systems are not impacted by upstream development.

The City of Elko New Market Environmental Protection Ordinance addresses the current water quantity requirements. When this Plan is adopted the Ordinance will be revised to incorporate by reference this Plan that reflects the new goals, policies and forthcoming Rules.

B. Goal 2: Water Quality

The purpose of this goal is to achieve water quality standards in lakes, creeks, and wetlands consistent with the intended use and classification, in accordance with the Scott WMO CWRMP and the VRWMP. Water quality is often directly related to the level of nutrients in the water body. While nutrients comprise only one category of substances that can affect water quality, nutrients, principally phosphorous, must be controlled to achieve the water quality goals of this Plan. Phosphorous is generally the limiting factor to plant growth. An increase in phosphorous will cause the plant species dominating the lakeshore, open water, or marsh to shift in favor those plants that can best take advantage of the increased supply of the nutrient.

Controlling nutrients through housekeeping practices are a way for City residents to make a difference. According to the Minneapolis Chain of Lakes Clean Water Partnership, many people do not realize that organic materials like leaves, grass clippings, fertilizers, pesticides, and pet waste can disrupt the fragile ecosystem of a lake or creek.

Leaves and grass clippings that make their way into lakes and creeks are doing more damage than fertilizers, pesticides, or motor oils, according to the Minneapolis Chain of Lakes Clean Water Partnership. Once in the lakes and creeks, these organic materials decay, and subsequently release nutrients. The excess nutrients increase algae growth, which inhibits the growth of other aquatic plants and animals. When algae die and decay, they exert a biological oxygen demand on the lake, depleting available oxygen for fish. Algae growth due to nutrient loading can damage or even kill a lake's ecosystem.

Fertilizer application may be necessary for a healthy lawn, but the nutrients in fertilizer can be harmful to lakes, creeks, and wetlands. Nutrients from fertilizers run off lawns and ultimately discharge to area lakes, creeks, and wetlands. Effective January 1, 2005, in Minnesota, fertilizers containing phosphorous cannot be used on lawns. Refer to the Minnesota Department of Agriculture (www.mda.state.mn.us/appd/ace/phoslaw.htm) website for additional information. Applying the proper fertilizer, in the right amount, ensures a healthier lawn and healthier lakes, creeks, and wetlands.

Total Maximum Daily Load (TMDL) represents the maximum amount of a pollutant that a water body can receive and still meet federal and state water quality standards. TMDL also refers to the process of allocating pollutant loadings among point and non-point sources.

That portion of the Vermillion River within the 2040 growth boundary, from the headwaters to the east, was added to the 2012 draft list of impaired waters. It was listed for impairment due to fecal coliform. The TMDL study was completed in 2015. The fecal coliform is considered a non-construction related impairment and does not require best management practices for compliance with the construction permit.

Porter Creek has been listed as a state impaired stream for turbidity from Fairbanks Avenue to 250th Street East. It was added to the impaired list in 2010. The target date for completion of the TMDL is 2019. The City looks forward to working with the MPCA and Scott County in the study planning process.

The VRWJPO Standards have criteria for temperature control of discharge from areas that

do not first drain to a waterbody of 10 or more acres of open water. The western one-third of the Vermillion River Watershed in the City drains through Rice Lake, a lake approximately 40 acres in size, prior to flowing into a reach of the Upper Vermillion River. The easterly two-thirds portion of the Vermillion River Watershed in the City's growth area drains to the east, on the south side of Rice Lake, where it then joins together with the outlet channel from Rice Lake. The distance from the easterly portion of the Vermillion River Watershed to the designated trout stream portion of the river is approximately 16,500-ft (~3 miles). In a report prepared by Emmons & Olivier Resources, titled "Vermillion River Headwaters Groundwater Area Inventory and Protection Plan", this 3mile stretch of river was classified as a losing reach. This means that the river was losing water to the adjacent soils and groundwater.

With the westerly portion of the City's Vermillion River Watershed draining through Rice Lake and the interaction of runoff from the easterly portion through a "losing reach", temperature control of runoff from the Vermillion River Watershed in the City would have little, if any, effect on the downstream temperature of the trout stream. Given this, the City will establish policies that promote cooling of runoff, but does not intend to establish limits or required BMP's.

Subject: Water quality in lakes, rivers, creeks, and wetlands.

Purpose: To protect and enhance water quality.

Goal: Achieve water quality standards in lakes, rivers, creeks, and wetlands consistent with their intended use and established classification.

Water Quality Policies (see City ordinances for implementation of these policies)

Policy 2.1: Development that disturbs more than one acre, or creates more than one acre of impervious surface, shall demonstrate that phosphorus and Total Suspended Solids (TSS) reduction in discharge runoff meets NURP levels described in this Plan and accompanying Rules.

Policy 2.2: Public road and utility projects that disturb greater than one acre must include temporary BMPs to control water quality; if more than one acre of additional impervious surface is created, the project shall include permanent water quality BMPs to meet the requirements of the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit, this Plan, and accompanying Rules.

Policy 2.3: The rebuilding, repair, or alteration of a structure, land surface, road or street, or facility that creates less than 1 acre of new impervious surface, and disturbs, replaces, or alters more than 1 acre of existing impervious surface shall incorporate water quality BMPs to the extent practical.

Policy 2.4: Proposed developments must identify all reasonable steps taken to avoid water quality impacts. They must also mitigate unavoidable impacts with appropriate BMPs to prevent water quality in receiving waters from falling below established standards including TMDLs, and to meet City erosion control Ordinance standards.

Policy 2.5: The City shall supplement its regulatory approach with an education-based approach to achieve appropriate yard care measures. This will reduce nutrient loading to City lakes, creeks, and wetlands, and will reduce the impacts of domestic animal waste.

Policy 2.6: The City shall promote the reduction or minimization of hard surfaced areas, where applicable.

***Policy 2.7*:** The City will balance protection of natural wetlands and utilization of

constructed wetlands to protect the water quality of other water resources (i.e., wetlands, lakes, creeks) based on Mn/RAM 3.4 wetland classification.

Policy 2.8: The City encourages and rewards the use of alternative landscape techniques and materials and LID IMPs to reduce and mitigate water quality impacts.

Policy 2.9: The City will manage public properties in accordance with the appropriate BMPs.

Policy 2.10: It essential that the condition of water bodies in the Watershed included on the MPCA impaired waters [303(d)] list be improved so that these waterbodies can be removed from the 303d list.

Policy 2.11: Use of existing natural retention and detention areas for stormwater management to maintain or improve existing water quality will be achieved to the extent possible.

Policy 2.12: The City supports land use planning, policies and controls that maintain sustainable, high-quality surface water resources and ensure that development causes no adverse or cumulative impacts.

Policy 2.13: Require buffers adjacent to major waterways tributary to the Vermillion River. See Figure No. 8 for the waterway corridors to be protected and the required buffer widths. The buffers shall be protected as outlots or with conservation easements.

The City of Elko New Market Environmental Protection Ordinance addresses the current water quality requirements. When this Plan is adopted the Ordinance will be revised to incorporate by reference this Plan that reflects the new goals, policies and accompanying Rules.

C. Goal 3: Erosion Control

The purpose of this goal is to minimize soil erosion through increased education and enforcement, in accordance with the Scott WMO CWRMP and VRWMP. Water quality problems are frequently linked to high phosphorus concentrations. Phosphorus is often transported to surface water through soil erosion but can also be transported to waters in a variety of other mechanisms. Nevertheless, erosion control is an important factor in the effort to improve surface water quality. Soil erosion and sediment deposition can also impact pond and drainage-way performance and create maintenance issues.

Ponds and drainage facilities may be impacted by erosion and sedimentation from a variety of sources including construction sites and winter street sanding. The coarse sediment accumulates in ditches and ponds where runoff velocities are low. When a sand delta appears at a storm sewer outfall that is a visible indication of the effectiveness of erosion and sediment control measures and road maintenance activities of the past winter. As the sediment builds up over time, it reduces the capacity of the drainage system and the pollutant removal capabilities of ponds by reducing storage volume below the outlet. This also reduces the infiltration rates for stormwater facilities. Extending the life of facilities involves source control and elimination of the material that causes the problem. Regulatory actions will control a major portion of the sediment. Street maintenance and an effective sweeping program will also have a positive impact.

Subject: Erosion control.

Purpose: To control erosion and sedimentation.

Goal: Minimize soil erosion through increased education, enforcement and management of stormwater.

Erosion Control Policies

Policy 3.1: Erosion and Sedimentation Control Plans shall be reviewed and enforced by the City for all grading activities. These plans shall conform to the general criteria set forth by the City's Environmental Protection Ordinance and applicable NPDES /SDS Permit (MPCA Permit MN R100001) requirements.

Policy 3.2: The City will implement an erosion control Ordinance to control erosion and sediment to extend the effective life of water resource facilities and reduce pollutant loading to streams, lakes, and wetlands.

Policy 3.3: The City will develop proactive measures such as education, incentives, and recognition of erosion control efforts to prevent soil erosion and encourage responsible site development.

Policy 3.4: Construction site inspection by the City must be completed prior to commencing earthwork activities to ensure the proper BMPs are in place and operational.

Policy 3.5: Horizontal, vegetative buffer zones between twenty -five and fifty feet are required around existing wetlands based on the MnRAM rating, the VRWJPO buffer requirements, and the NPDES/SDS Permit. Stormwater ponds shall have a minimum 25-foot building setback from buffers. New development or redevelopment projects must provide the appropriate buffer zone around new and existing wetlands and are required to provide 25-foot buffers around existing and new stormwater ponds. Buffers shall be maintained in native vegetation to provide habitat for wildlife. These buffer widths will be required by ordinance and protected by outlots or conservation easements.

Policy 3.6: The City will maximize the use of bioengineering approaches whenever possible for all slope stabilization and permanent erosion control projects.

Policy 3.7: If a construction activity creates more than 1 acre of disturbed area and the activity takes place where the soils are currently disturbed, areas that will not be graded as part of the development and areas that will not be stabilized according to the NPDES/SDS Permit, shall be seeded with a temporary or permanent cover before commencing the proposed land disturbing activity.

The City of Elko New Market Environmental Protection Ordinance addresses the current erosion control requirements. When this Plan is adopted the Ordinance will be revised to incorporate by reference this Plan that reflects the new goals, policies and accompanying Rules.

D. Goal 4: Wetlands

The purpose of this goal is to maintain or increase the amount of wetland acreage, and increase the wetland functions and values within the City, in accordance with the Scott WMO CWRMP and the VRWMP. The City is the LGU for the Wetland Conservation Act (WCA). The City has not completed a Comprehensive Wetland Management Plan. The wetland inventory is based on the wetlands in the National Wetland Inventory (NWI) and Scott County's records, which may not include all of the wetlands and aquatic resources in the City. The City does not have the resources to survey all of the wetlands at this time. Field delineation, assessment of hydrology, identification of plant species, characterizations of soils, MnRAM assessment and restoration are generally completed and reviewed on an "as development occurs" basis. This approach places the financial burden for identification, delineation, and possible restoration on the land developer.

The policies below will be used to achieve the City's wetland goals. The strategies will apply to new development and redevelopment projects submitted to the City for review and

approval. Any wetland habitat on property to be developed will be subject to the following management strategies, as well as the rules and requirements of the WCA and other City, State, and Federal regulations.

Proper implementation of stream, bluff, and wetland buffers in new developments is paramount. Without proper implementation of buffers; stream and wetland water temperatures increase, sediment deposition increases, stream and bluff bank erosion and collapse are more severe, and riparian habitats are destroyed.

Subject: Wetland Management

Purpose: To utilize, protect, preserve, and enhance existing natural wetlands.

Goal: Maintain or increase the amount of wetland acreage, and increase the wetland functions and values within the City.

Wetland Policies

Policy 4.1: The City shall administer wetland protection and mitigation as the LGU for the WCA in accordance with the Minnesota WCA, Scott WMO CWRMP and the VRWMP.

Policy 4.2: A vegetative function and value assessment using the most current version of MnRAM shall be completed for each wetland delineated.

Policy 4.3: The City will require the establishment of vegetative buffers around wetlands in accordance with its MnRAM ranking and regulatory requirements. Development or redevelopment of an area adjacent to a wetland will require the establishment of the appropriate buffer. The buffer areas will be protected by outlots or conservation easements.

Policy 4.4: The artificial water level fluctuation (bounce) in wetlands resulting from stormwater runoff will be managed in accordance with the WCA, Scott WMO CRWMP and the VRWMP. Outflow rates and elevations must be controlled to avoid water elevations that may permanently affect the character of the resource per "Recommended hydroperiod standards for wetlands" table in the State of Minnesota Stormwater Manual (see Appendix C).

Policy 4.5: The City may utilize the available technical resources of outside agencies, such as the Minnesota DNR, USACE, Scott SWCD, the Board of Water and Soil Resources and/or the Scott WMO and VRWJPO, for review of private developments and City-proposed projects that may affect wetland resources.

Policy 4.6: Developers must provide a field delineation in accordance with applicable rules and regulations to determine the jurisdictional boundaries of wetlands, including a report of the results of the field delineation, detailing the methodology and findings of the delineation. A printed and electronic copy (.dwg) of the approved delineation boundary will be required to be submitted to the City.

Policy 4.7: Prior to any site development activities, the City will verify through a wetland boundary delineation review, the location and extent of all wetlands present. The results of the wetland boundary delineation will be compared to the field delineation data provided by the developer.

Policy 4.8: Any review of a proposed wetland encroachment must first address the issue of avoidance and project alternatives. Prior to allowing any wetland encroachment, all reasonable attempts to avoid such alteration must be demonstrated. This avoidance must also consider the reasonableness of the no-build alternative.

Policy 4.9: Replacement for unavoidable wetland impacts will be provided (if possible, within the same subwatershed), in accordance with the requirements of the Scott WMO CWRMP, the VRWMP and the WCA.

Policy 4.10: The City will not allow excavation, or other non-filling related alterations to an existing wetland without the expressed written approval of the City Administrator or designee.

Policy 4.11: The City shall require pretreatment of stormwater runoff discharged directly into wetlands, except possibly for wetlands with a low quality MnRam rating. Treatment will be required to meet or exceed N.U.R.P. efficiencies for removal of TSS and total phosphorous prior to discharge.

Policy 4.12: The City will encourage wetland restoration as well as wetland protection strategies in proposed development and redevelopment projects. Public Value Credits (PVCs) may be provided for improvement of existing wetland habitat associated with development and/or wetland replacement projects, in accordance with established WCA rules.

Policy 4.13: Fragmentation and impacts to natural areas and corridors will be avoided when feasible or mitigated when unavoidable at equal value. High priority natural areas identified through the land cover mapping done for the Scott Biological Survey and other inventories will be the tools used to evaluate development proposals and set preservation goals to protect high-quality habitat for plants and animals.

The City of Elko New Market Environmental Protection Ordinance addresses the current wetland requirements. When this Plan is adopted the Ordinance will be revised to incorporate by reference this Plan that reflects the new goals, policies and accompanying Rules.

E. Goal 5: Public Participation, Information & Education

The purpose of this goal is to increase public participation and knowledge in management of the City's water resources, in accordance with the Scott WMO CWRMP and the VRWMP. Public involvement is a strategy that recognizes people want to be involved in decisions that affect any facet of their life. It provides opportunities for the public to participate in the processes that lead to decision-making.

As part of the NPDES/SDS Phase II requirements the City was required to prepare a Surface Water Pollution Prevention Plan (SWPPP). There are two minimum control measures in the SWPPP that deal with public education and participation. Measure number one is: Public Education and Outreach on Storm Water Impacts. Measure number two is: Public Participation and Involvement. To meet the permit requirements the City must educate its citizens on six minimum control measures in the SWPPP. The City must also hold at least one public meeting per year to address an annual report regarding the SWPPP to receive public input. The activities described in the SWPPP will be the guiding document that will be followed to increase public awareness of the storm water related issues.

Website Availability - http://www.ci.enm.mn.us/. The website is an alternative medium to provide municipal information to both City residents and those people who live outside Elko New Market. An electronic version of this Plan will ultimately be accessible on the website. Because the Plan has such a wide audience from engineers, planners, developers, citizens, scientists, and educators electronic access to the text and mapping creates a better understanding of the goals, policies, and activities of this Plan.

The City will continue to distribute information on pertinent water and wetland

management issues via the City of Elko New Market Monthly Newsletter. The newsletter will promote opportunities for residents to participate in water resources management activities. The City will make an ongoing effort on both a City-wide and watershed level toward educating the public by distributing information to its residents on responsible practices they should employ to protect water resources within the community. The program will also educate residents on the benefits of using phosphorus-free fertilizer.

Subject: Enhancement of Public Participation, Information and Education

Purpose: Encourage active community involvement in water resources management.

Goal: Increase public participation and knowledge in management of the water resources of the community.

Public Involvement Policies

Policy 5.1: The City will use a public involvement process in resource management decision-making (i.e., the Parks Commission, and the Planning Commission).

Policy 5.2: The City will use a variety of media, including newsletters, and the City's Website, to inform the community about water resource issue programs including alternative landscapes, phosphorus free fertilizer, aquatic plant management, etc. The City will make an ongoing effort on both a local and municipal level to distribute information to residents on responsible practices to protect water resources in the City. Educational information will also be provided regarding the proper use of a wide range of lawn chemicals and proper disposal of hazardous household materials.

Policy 5.3: The City will work with all available resources to increase public participation in water resources management.

Policy 5.4: The City will follow the best management practices outlined in the City's Storm Water Pollution Prevention Plan (SWPPP) that address public education and outreach and public participation/involvement. Educational goals and activities have been identified in the SWPPP to make the public more informed of the impact storm water discharges and pollutants have on receiving waters.

F. Goal 6: Groundwater Management

The City's groundwater resources are identified in the city of Elko New Market Wellhead Protection Plan. The City's aquifers have been assigned a "Not Vulnerable" rating. This rating indicates "there is not a hydraulic connection between surface waters and the aquifer serving the water supply system for the City".

The City of Elko New Market Wellhead Protection Plan currently outlines requirements for continued groundwater protection and well management. The report is obtainable directly from the City's Website.

Subject: Groundwater Management

Purpose: To protect groundwater quality and improve groundwater supplies through effective management.

Goal: Provide clean and safe drinking water for the City while managing increased development and population.

Groundwater Management Policies

Policy 6.1: Promote ongoing evaluation of land use impacts on groundwater quality and quantity.

Policy 6.2: Provide information to the public by revising and updating the City Wellhead Protection Plan as required by the Minnesota Department of Health.

Policy 6.3: Support identification and reduction of groundwater contamination from both point and non-point sources.

Policy 6.4: Promote water conservation efforts to reduce water use and conserve the City's groundwater resources.

Policy 6.5: Groundwater quality should not be sacrificed to manage surface water. Holding ponds, animal watering ponds, wetlands and other water storage areas must be designed to protect groundwater.

Policy 6.6: Infiltration of stormwater and resulting groundwater recharge will be promoted where it is feasible and does not pose a threat to groundwater quality.

G. Goal 7: Floodplain Management

There are multiple areas shown on the Flood Insurance Rate Map (FIRM) for the City of Elko New Market and the growth area that are identified as Zone A floodplains in the 2040 study area (see Figure No. 6). No base flood elevations have been determined for these floodplains. The City's ordinance will regulate development adjacent to the floodplain districts.

Moderate flood hazard areas, labeled Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood (100-year) and the 0.2-percent-annual-chance (or 500-year) flood. Unshaded Zone X areas are those areas determined to be outside the 100-year and 500-year floodplains.

These areas have been identified on the FIRM as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems.

FEMA and Scott County are currently updating the FIRM's for the Vermillion River with new panels expected to be published in the near future.

Subject: Floodplain Management

Purpose: To provide flood protection for people and property.

Goal: Manage and protect the floodplains from encroachment.

Floodplain Management Policies

Policy 7.1: Protect the natural function of a floodwater storage area in a floodplain from encroachment.

Policy 7.2: Work to maintain no net loss of floodplain storage.

Policy 7.3: Manage floodplains to maintain critical 100-year flood storage volumes.

Policy 7.4: Restrict construction of new structures to sites above flood prone areas.

Policy 7.5: Maximize upstream floodwater storage areas and require mitigation for any fill within a floodplain.

POND DESIGN AND CRITERIA

When possible, regional detention/water quality ponds will meet NURP or NPDES/SDS standards and City requirements. Wet settling basins are an accepted and proven BMP technique widely accepted for stormwater quality treatment prior to discharge. All regional

and localized detention/water quality pond design parameters will need to be carefully considered to ensure that there is no impact to existing downstream properties. It is imperative not to increase the groundwater gradient and the potential for basement seepage associated with regional or localized detention/water quality ponds.

Every attempt has been made to strategically locate regional and localized detention/water quality ponds in existing closed depressions within a given watershed or subwatershed. Steps have been taken to avoid wetlands and DNR waters. The intent is to minimize the excavation required and to optimize the volume and size of storm sewer conveyance piping associated with pond construction.

The proposed conveyance network utilizes the natural drainage routes wherever feasible. An advantage of incorporating large, detention/water quality ponds is the associated multi-functional recreational uses for these areas. A buffer zone encompassing each regional pond may be used for greenway, walking trails, parks, conservation areas, and wildlife habitat.

The proposed detention/water quality ponds may be designed as non-uniform meandering waterways, creating a more natural appearance while maintaining the design intent and providing cost savings by reducing the length of large diameter pipe.

The VRWJPO set flow limits, via numeric standards, at two northern City limit locations that must not be exceeded. The first location is approximately 250 feet east of Dakota Avenue with a flow limit of 232 cfs. The second location is approximately 1,300 feet east of Xerxes Avenue with a flow limit of 26 cfs. The hydrologic model will need to be analyzed and ran to determine how these set flowrates will be affected as future development occurs in the catchments upstream of these outflow locations.

The City has an agreement with New Market Township regarding the flow rates from Section 20 that discharges through a culvert under 250th Street, approximately 2,750 feet east of Texas Avenue. Details of the agreement are in a memo, located in Appendix B.

When reviewing development plans the SCS runoff curve number (CN) for the existing agricultural areas and the minimum CN's for developed conditions should be limited to the values in the following table:

Land Use Curve Number	
Maximum existing (excludes wetlands)	70
Minimum residential development	72
Minimum commercial development	90
Minimum industrial development	90

These values are general in nature and typically apply to the urban development of existing farmland. We anticipate instances in which the existing land use is either pasture, wetland, or ungrazed meadows, etc., which will require appropriate curve number adjustment in accordance with standard SCS TR-20 and TR-55 methodology. The City Engineer may allow exceptions to the table above based on land cover and soil types when adequate data is provided for review.

V. ASSESSMENT OF PROBLEMS AND CORRECTIVE ACTIONS

There are no lakes, as defined by the DNR, or navigable waters within the City's growth boundary. There are several ditches that are the headwaters of creeks and rivers, which are part of three different watersheds. Given the lack of aquatic resources most of the water resource related issues the City faces will deal with development and the problems associated with it. Given this, the City will concentrate on effective implementation of their Storm Water Pollution Prevention Plan (SWPPP), which addresses all aspects in the protection of water resources.

The assessment of problems in the Plan includes reviewing possible adverse effects of surface water that have been identified by local, state and federal agencies, in research, literature, and other stormwater management materials. The assessments were divided into three potential sources of problems (Source Areas).

A. Public Lands Managed by Public Agencies

The first potential Source Area addresses public lands or areas that are managed by public agencies (i.e., public streets, parking lots, sewer lines, parks, public facilities, etc.). The identified potential problems in this source area include but are not limited to:

1. The need to maintain high quality recreational use of the City's water resources, whether it is for fishing, waterfowl habitat, etc. The MPCA first listed the Vermillion River as state impaired water in the 2008 TMDL List of Impaired Waters and the TMDL for E. coli was completed in 2015. Porter Creek was first listed by the MCA as impaired for turbidity in 2010. The Porter Creek TMDL is scheduled to be completed in 2019.
2. The need for community education programs regarding sustainable water resource management.
3. The need for an adequate road salt management program.
4. The importance of maintaining the City's surface water management system and overall goals while encouraging private development.
5. The need for and frequency of sweeping of public and private streets and parking lots. The City currently sweeps all City streets and parking lots in the spring and fall.
6. The need to establish local spill containment plans. A portion of the downtown drains by storm sewer directly to Whispering Creek. This area is exposed to filling station tank refueling activity.
7. The need for other management programs as considered necessary. The City is beginning to receive inquiries from residents regarding "beautification" projects for stormwater ponds. Establishment of policies limiting modifications to those that do not impact their function may be beneficial in promoting water quality.

B. Privately Owned Lands

The second potential Source Area addresses existing development on privately owned lands (i.e., private homes, small businesses, large commercial areas, industrial areas, private parking lots, and private streets, etc.). The identified potential problems in this source area include but are not limited to:

1. Soil erosion from site disturbances (construction) on private lands.
2. Private lawn and garden maintenance (phosphorous and nitrogen loading).
3. Landscaping of stream banks on private land.
4. Litter accumulation on private lands.

5. Wetland buffer degradation on private lands.
6. Stream bank erosion and collapse on private lands.
7. Private vehicle and equipment storage sites.
8. Snow and ice removal methods from private parking lots and streets.
9. Impervious surface management (private streets and parking lots).
10. Illicit discharge to storm sewers.

C. New Residential, Commercial, and Industrial Development

The third potential source area focuses on new residential, commercial, and industrial development. Possible surface water problems in this section are directly associated with the construction process and how new developments may impact local natural resources and public infrastructure both during construction and after they are completed.

A major source of concern for the City is the projected development rate and associated stormwater volume and rate increases. In addition, problems caused by development in environmentally sensitive areas are also a concern (i.e., buffers, streams and wetlands). The identified potential problems in this Source Area include but are not limited to:

1. Concern about contamination of Credit River, Vermillion River and public conveyance networks with sediment from construction sites and improper use of BMPs in new developments (e.g., detention basins, grass swales, etc.).
2. Proper implementation of creek, bluff, and wetland buffers in new developments. Without proper implementation of buffers, sediment deposition increases, creek bank erosion and collapse are more severe, and riparian habitats are destroyed. See Appendix A, for the applicable area maps. As part of the development permitting process the City will determine, based on accurate topographical maps, whether development will be permitted in any particular bluff, creek, or wetland area.

The Environmental Protection Agency developed a program called the General Permit To Discharge Stormwater Associated With Small Municipal Separate Storm Sewer Systems (MS4) Under The National Pollution Discharge Elimination System (NPDES/SDS). The City is a mandatory MS4 community. Under Phase II of this program, small MS4s were required to get a permit for their storm water management system. As a condition of the permit the City was required to prepare a SWPPP. The SWPPP identifies structural and non-structural controls that will be put into place to minimize negative impacts caused by storm water discharges to the environment. Best management practices (BMPs) have been identified and are used to meet the six minimum control measures requirements of the NPDES/SDS Phase II Permit.

Programmatic improvements and implementations will be required to manage the water resources within the City more effectively. For the area within the City's defined growth boundary area where there is a planned increase in development and stormwater runoff systems are planned, corrective actions may include but are not be limited to:

1. Implement City programs to target developer and resident education efforts. The programs will outline what residents and developments can do to improve the efficiency of nitrogen and phosphorus reduction from existing and proposed surface water runoff.
2. Review of proposed development submittals to verify the requirements stated in the City Comprehensive Surface Water Management Plan Rules and existing City Ordinances have been met prior to approval. This will ensure that the approved BMPs have been selected and the City is engaged in a pattern of sustainable growth.

Many of the following issues and corrective actions have been identified in the City's SWPPP and associated BMP summary sheets.

D. Issues and Corrective Actions

Issue	Corrective Action
Illicit discharge detection and elimination	An illicit discharge ordinance prohibiting non-storm water discharges, including illegal dumping into the storm sewer system was adopted by the City
Public education regarding storm water related issues	An education program that involves distributing storm water related educational materials to the community was implemented by the City as part of its MS4 permit
Illicit discharge detection and elimination plan	An illicit discharge inspection and assessment program was adopted as part of the City's MS4 permit. Administrative procedures for notifying and enforcing non-compliance was included as part of the program
Construction site storm water runoff control	A construction site storm water runoff control ordinance to reduce pollutants in storm water runoff from construction activities was adopted by the City
Location of farm field drain tiles	The location of existing drain tiles will be required by developers when proposed development occurs. Drain tiles will need to be rerouted as necessary to maintain existing flows
Floodplain management ordinance	An ordinance to effectively address floodplain management was adopted by the City in 2014
Site inspection and enforcement procedures	Procedures, including an inspection checklist and time frames for conducting site inspections, were established as part of the City's MS4 permit
Financing of storm water projects, which include storm water facilities, water quality improvements and community education	Review storm water area charge and utility fee to insure that sufficient funds are being collected by the City
Pollution prevention and good housekeeping practices	Annual inspection of all structural pollution control devices within the City. Use of the following BMPs related to salt and sanding for snow and ice control: Use of additives such as “Clear Lane” to allow less salt and sand to be applied Use of remote distribution rate controls on each truck to facilitate instantaneous modification of application rates to match conditions Sweep entire City as early as possible each Spring Annual maintenance and calibration of distribution equipment Limit snow removal and associated ice control to snowfall events greater than two inches or locations where there is a present ice hazard for lesser events only
Ground water protection	A well head protection plan was prepared per the Minnesota Department of Health requirements
Increased runoff volumes due to new development	Promote a decrease in runoff volume through infiltration and other volume reduction best management practices through administrative policies and decisions
Compliance with future TMDL standards	Participate in the development of TMDL studies for water bodies affected by the City's watersheds as applicable

VI. IMPELMENTATION PRIORITIES

The criteria, considerations, and constraints used to prioritize City surface water improvements and activities reflect the City's values, goals, and policies. Changes in any one of these factors can result in a change in project priority. The City's stormwater management program has evolved over time, and in view of recent challenges, the future will bring even more significant change. The breadth and extent of these changes, at present, are largely unknown.

The City's SWPPP identifies an implementation schedule for each of the six minimum control measures identified. The implementation priorities will closely follow those specified in the SWPPP. For management components that are not identified in the SWPPP they will be addressed largely through the rules that will enforce this plan.

Some factors that influence the City's stormwater management program do not lend themselves to a quantitative system of prioritization. For example, deciding the exact projects to include in each year's City improvement plan requires a high level of professional judgment based upon the best available knowledge and awareness of the local political climate toward cost-effective improvements. Many projects that are included in an annual improvement package most likely will have surface water components although the project focus is not surface water. Though difficult to quantify, these components and influences play an important part in deciding the inclusion of selected projects into the following improvement program.

The City of Elko New Market will continue to conduct private development project reviews on a "project-by-project" basis. Based on when specific property owners choose to develop the City will take that opportunity to implement the following priorities. The City will also implement the following components of possible CIP projects;

A. Surface Water Quantity Management

Prioritize City projects that provide storm water runoff quantity management. The purpose is to control post-development surface water runoff. The goal is to promote projects that control flooding and minimize related public capital and maintenance expenditure necessary to control excessive volumes and rates of runoff.

B. Surface Water Quality Management

Prioritize projects that provide water quality improvements in lakes, creeks, and wetlands within the City. The purpose is to protect and improve water quality in the City's lakes, creeks and wetlands. The goal is to achieve water quality standards in lakes, creeks, and wetlands consistent with their intended use and established classification.

C. Erosion Control Management

Prioritize projects that minimize the mobilization of sediment and enhance site erosion control requirements. The purpose is to control erosion and sedimentation on private developments and in public drainage systems. The goal is to minimize soil erosion through increased education and enforcement of existing BMP Ordinance.

D. Wetland Management

Prioritize projects that enhance the City's wetland management. The purpose is to utilize, protect, preserve, and enhance existing natural wetlands. The goal is to maintain or increase the amount of wetland acreage, and increase the wetland functions and values within the City, in accordance with the Scott WMO CWRMP and VRWMP.

E. Public Participation and Education

Prioritize projects that enhance the current level of public participation, information, and education on City projects. The purpose is to encourage active community involvement in

all aspects of surface water resources management. The goal is to increase public assistance, participation, and knowledge in management of the water resources of the community.

F. Groundwater Management

Prioritize projects that provide sound, long-term groundwater and aquifer management. The purpose is to protect groundwater quality and improve groundwater supplies through effective management. The goal is to provide clean and safe drinking water for the City while managing increased development and population.

VII. IMPLEMENTATION PROGRAM

The primary means the City will use to implement the standards of this Plan, the Scott WMO CWRMP and the VRWMP is through the adoption and implementation of the City of Elko New Market Plan, associated Rules, and Ordinances. Private development projects within the City are reviewed on a "project-by-project" basis and it is during this review the City has the opportunity to implement the goals, policies, and priorities developed in the Plan.

City improvement projects provide another opportunity for the City to implement the goals, policies, and priorities developed in this Plan. Most CIP projects generally have a surface water component. Development of a CIP will serve as a useful planning tool for City sponsored surface water projects.

There are also specific development-independent implementation goals that the City will continue to develop on a parallel administrative track to the general goals listed above. The City will finance these goals either directly or by specific development related review and construction inspection budgets.

The following is an implementation process list of the recommended actions, timing, responsible party, and the cost or funding sources which are presented for the City Council's consideration based upon the data compiled in this report. Actions are listed in order of priority, from highest to lowest.

Action	Timing	Responsible Party	Funding Source
Maintain and implement Capital Improvement Program	On-going, updated on a 5 year period	City of Elko New Market	Storm water area charge, utility fee and project specific engineering budgets
Storm water maintenance program to ensure the successful operation of the drainage system.	On-going	City of Elko New Market	Storm water area charge, utility fee and annual engineering and maintenance budgets
Corrective actions for storm water problems be developed and implemented.	On-going, as problems are brought to the attention of Staff	City of Elko New Market	Storm water area charge, assessments and project specific engineering budgets
Enforcement of the erosion and sedimentation control ordinance for new developments.	On-going, as development projects are submitted to the City for approval	City of Elko New Market	Funding by developer's fees, building permits and fines collected for non-compliance
Encourage low impact development and better site design components for new development projects.	On-going, as development projects are submitted to the City for approval	City of Elko New Market	Funding by developer's fees and project specific engineering budgets
Established modeled ponding areas and maximum flow rates and volumes as referenced during initial phases of development projects.	On-going, as developments are submitted to the City for approval	City of Elko New Market	Funding by developer's fees and annual engineering budget
Review procedures to be established to ensure all construction projects within the City are in compliance with erosion control ordinance.	On-going	City of Elko New Market	Funding by developer's fees and annual engineering budget
Update the City detailed hydrologic analysis during final design of all ponding areas.	Currently in place. Update as necessary.	City of Elko New Market	Funding by developer's fees and project specific engineering budgets
High water elevations governing building finish floor elevations adjacent to ponding areas and floodplains to be established per this Plan, Rules, and Ordinance.	On-going, as development projects are submitted to the City for approval	City of Elko New Market	Funding by developer's fees and building permits.

Action	Timing	Responsible Party	Funding Source
Emergency overflow routes to be established and maintained to provide stabilized relief during extreme storm conditions, which exceed design conditions.	On-going, as development projects are submitted to the City for approval	City of Elko New Market	Funding by developer's fees and project specific engineering budgets
An education program for City residents, staff, and development community to be developed and implemented.	On-going	City of Elko New Market	City of Elko New Market with assistance from Scott WMO, DNR, U of M Extension Service, SWCD & VRWJPO
Amendments to the SWMP be adopted and implemented and the SWMP be updated.	As warranted by future standards or regulations	City of Elko New Market	Storm water area charge and annual engineering budget
Encourage landowners to retain areas of native vegetation, and to plant species native to the area, to protect and improve wildlife habitat and maintain the historic ecological role.	On-going, as developments are submitted to the City for approval	City of Elko New Market	Funding by developer's fees, storm water utility and project specific engineering budgets
Review City-wide street sweeping frequency	On-going	City of Elko New Market	Storm Water Utility

IX. FINANCIAL CONSIDERATIONS

The cost of implementing the Surface Water Management Plan will be supported by several revenue sources. Following are several of the sources that will be used to implement the plan. As new development occurs within the City the amount of impervious cover typically increases. This places additional burden on the existing storm sewer infrastructure by increasing the volume of storm water runoff, which also increases the amount of pollutants transferred downstream to the receiving waters. To minimize these impacts, new development and redevelopment shall implement these standards and associated rules. The City has 180 days upon approval of this plan to update City ordinances that will enforce it.

Potential Funding Source	Revenue Produced
City's Storm Water Utility Fee The City has implemented a storm water utility fee that charges property owners on a monthly basis. The funds generated from this fee are used to finance the storm water management program.	Approximately $198,000/year
Special Assessments The idea behind this assessment method is that generally the benefited properties pay in relation to the benefits received. The benefit would be realized by an increase in market value of the property that resulted from the improvement.	Variable depending on the projects undertaken.
Grants State and Federal grants are available for surface water management and non-point source pollution. Grants can be a good way to help fund special projects that meet grant eligibility criteria, but are not a good finance source to depend upon for an annual income source.	Variable depending on the projects undertaken.
Wetland Permit Review Fees Local government units, per M.S. 103G.2242 Sub. 5, can charge processing fees to cover the costs of implementing the rules and administrative review time. Costs could also include site evaluation and inspection of the project site.	Variable depending upon the number of permits reviewed.
Land Development Fees As new development occurs within the City, the developer pays a storm sewer trunk fee based upon the net acreage of the property, exclusive of road right-of-way and public ponding areas. If the development includes oversizing of trunk facilities, a credit for oversizing will be given to the developer. If the City determines that a development is premature, the developer will pay for oversizing.	Variable depending upon the amount of development that occurs on an annual basis.

STORMWATER IMPROVEMENTS AND BMP PROGRAM							
PROJECT DESCRIPTION	ESTIMATED$ COST	FUNDING SOURCE	ESTIMATED EXPENSE				
			2018	2019	2020	2021	2022
BACKYARD DRAINAGE IMPROVEMENTS (CITY SHARE)	$75,000	STF	$15,000	$15,000	$15,000	$15,000	$15,000
INSPECT STORMWATER PONDS (20% PER YEAR)	$10,000	GF & SUF	$2,000	$2,000	$2,000	$2,000	$2,000
STORM SEWER POND MAINTENANCE & CLEAN OUT	$100,000	GF & SUF	$20,000	$20,000	$20,000	$20,000	$20,000
INSPECT 20% OF ALL OUTFALLS 24" AND LARGER	$10,000	GF & SUF	$2,000	$2,000	$2,000	$2,000	$2,000
INSPECT EROSION CONTROL BMP'S ON ALL CONSTRUCTION SITES	$25,000	DA, GF & SUF	$5,000	$5,000	$5,000	$5,000	$5,000
STREET SWEEPING @2 TIMES PER YEAR	$33,000	GF	$6,600	$6,600	$6,600	$6,600	$6,600
PERFORM WETLAND CONSERVATION ACT LGU RESPONSIBILITIES	$25,000	DA & GF	$5,000	$5,000	$5,000	$5,000	$5,000
PARTICIPATE IN TMDL DEVELOPMENT FOR PORTER CREEK	$10,000	GF	$5,000	$5,000			
DEVELOP & DISTRIBUTE INFORMATION FLIERS ON PRE/POST CONSTRUCTION BMP'S	$15,000	GF & SUF	$3,000	$3,000	$3,000	$3,000	$3,000
MAINTAIN CITY WEBSITE WITH STORMWATER MANAGEMENT ISSUES	$7,500	GF	$1,500	$1,500	$1,500	$1,500	$1,500
UPDATE STORM SEWER SYSTEM MAP	$12,500	GF	$2,500	$2,500	$2,500	$2,500	$2,500
REVIEW STORMWATER UTILITY FEE FOR SUFFICIENT OPERATING FUNDS	$6,000	GF	$2,000		$2,000		$2,000
TOTALS	**$329,000**		**$69,600**	**$67,600**	**$64,600**	**$62,600**	**$64,600**

DA = DEVELOPER'S AGREEMENT, GF = GENERAL FUND, STF = STORMWATER TRUNK FEE, SUF = STORMWATER UTILITY FEE

It is the current policy of the City to charge new land development a Stormwater Area Charge (SAC) to finance storm drainage improvements on a per-acre basis.

As with all improvements, there is a cost associated with prudent stormwater management. The costs incurred to achieve these improvements should be supported by new developments coming into the city through the Storm Water Area Charge. The following is an estimate of future improvement costs:

Estimated 2040 Costs	
Item	**Cost**
Culverts for Existing Streams and Creeks (increment over 24 inches)	$400,000
County Road Drainage Facilities	$2,600,000
Total Cost	$3,000,000

As with all estimates of this nature, they are based on current construction costs and should be adjusted annually to account for inflation, bonding costs, legal costs, interest costs, etc.

Stormwater Area Charge (SAC) Cost Summary

The net developable land area in the 2040 is estimated at 3,570 acres. This results in a minimum-recommended SAC of $840 per acre. Projected costs are only one factor, however. Existing debt service for past development-promoting investments, fund balances, development phasing and timing would be other factors the City considers in setting annual area charges. The stormwater area charge will be published annually in the City's fee schedule.

The SAC enables the construction of, and provides for, the effective management and financing of the recommended storm water management system within the projected City growth boundary area. Existing areas of development, large wetland areas, trunk highway rights-of-way and the areas shown on the watershed drainage district map that require further analysis have been excluded from the calculation for developable acres. It is recommended that these areas be excluded in the future when computing the SAC for new development.

A. Stormwater Area Charge (SAC) Annual Inflation

The SAC should be adjusted annually for inflation or changes in conditions. As with all estimates of this nature, they are based on current construction costs and should be adjusted annually to account for inflation, bonding costs, legal costs, interest costs, etc.

B. Stormwater Area Charge (SAC) Cost Summary

The net developable land area in the 2040 is estimated at 3,570 acres. This results in a minimum-recommended SAC of $840 per acre. Projected costs are only one factor, however. Existing debt service for past development-promoting investments, fund balances, development phasing and timing would be other factors the City considers in setting annual area charges. The stormwater area charge will be published annually in the City's fee schedule.

The SAC enables the construction of, and provides for, the effective management and financing of the recommended storm water management system within the projected City growth boundary area. Existing areas of development, large wetland areas, trunk highway rights-of-way and the areas shown on the watershed drainage district map that require further analysis have been excluded from the calculation for developable acres. It is recommended that these areas be excluded in the future when computing the SAC for new development.

X. AMENDMENTS TO THE PLAN

A. Amendment Procedures

For the Plan to remain a dynamic, effective document, a system must be identified and available to update information and implement new ideas, methods, standards, management practices, and any other changes, which may affect the intent and/or results of the Plan. This Plan shall remain in effect for five years from its adoption date by the Council or until an amended Plan is adopted, not to exceed 10 years from the date of initial adoption. Any person or persons either residing or having business within the City may request amendment at any time. The City itself may amend this Plan at any time if changes are required or if issues or opportunities arise that are not currently addressed. All amendments shall be in accordance with Minnesota Rules 8410.0160 Subp. 4 and Minnesota Statutes 103b.235 Subd. 5.

B. Request for Amendment

The amendment process begins when a written request for a plan amendment is submitted to the City administrator. The request must outline the need for the specified amendment as well as additional materials that the City will need to consider before making its decision.

C. City Staff Review

A decision is made as to the validity of the request. Two options exist;

1. Accept the amendment as a minor issue, with minor issues collectively added to the Plan during the annual review process; and
2. Accept the amendment as a major issue, and refer the matter to the City Council for consideration. In acting on an amendment request, staff shall recommend to the City Council whether or not a public hearing is warranted.

D. Council Consideration

The amendment and the need for a public hearing shall be considered at a regular or special City Council meeting. Staff recommendations should also be considered before decisions on appropriate action(s) are made.

E. Public Hearing and Council Approval

This step allows for public input based on public interest. The City Council shall determine when the public hearing should occur in the process. Based on the Public hearing, the City Council will approve or reject the amendment.

F. Watershed Organizational Approval

Proposed amendments must be reviewed and approved by the watershed organizations according to their amendment procedures, including Metropolitan Council, prior to final adoption of the amendments by City Council.

XI. FUTURE CONSIDERATIONS

Numerous factors were considered in developing the proposed future storm sewer plan for the City. Because of the intricacies of the planned improvements, this summary report will the not discuss every detail. The enclosed HydroCAD data sheets of the existing conditions can be compared with existing storm sewer data as necessary to address specific issues. However, we wish to highlight several key design features and recommendations.

A. Acquiring Space for Localized Detention

In the older more densely developed areas of the community, such as the originally platted areas and the historic downtown business and residential district areas, the possibility of acquiring space for localized detention basin construction is reduced. Throughout most of this area, new detention basin construction would require site clearing and re-platting of developed properties. Consequently, in these developed areas, water quality and detention requirements will be complicated and may require construction of regional facilities with collection piping to serve the existing/new uses. The hydrologic analyses of these areas will be reviewed on a case-by-case basis as required. Downtown Elko New Market is served by such a pond, with the intent that as redevelopment that would normally trigger stormwater management occurs, the parcel pays a cash-in-lieu of stormwater facilities fee and runoff from the site is routed to the City pond when feasible.

To meet the future Scott County, Vermillion River Watershed or possible NPDES/SDS Phase III requirements, it may be necessary to construct and/or install some form of in-line treatment that does not require a large amount of open space. Stormwater Management, Inc., Bay Saver and Stormceptor are a few of a many of in-line treatment systems being presently being incorporated into existing developed areas.

B. Flood Plains Adjacent to Corridor along the Vermillion River

The flood plain areas adjacent to the corridor along the Vermillion River and the unnamed stream along the east side of Dakota Avenue will need a hydraulic analysis as these areas develop in the future. These regions are typically protected from future development by floodplain Ordinances.

A majority of Section 20, located in the northwest corner of the study boundary area, will be limited to discharge limits that were agreed upon between the City, New Market Township and Scott County. When development occurs in this area, see Figure No. 1, runoff will be limited on a per acre basis to the amounts agreed upon in the memo, located in Appendix B.

XII. CONCLUSIONS

The City's existing storm sewer treatment and conveyance system cannot accommodate continued development in the growth boundary area. New development will need to include BMPs to manage runoff rate, volume, and quality and preserve existing drainage patterns.

The localized stormwater detention/water quality pond model presented in this Plan is one approach to accommodate the predicted urban development in the regional growth boundary area of the City. Further enhancement of this model must include updates on a project by project basis particularly in the event a private development will be constructing a regional pond as a condition of their permit. These updates will ensure that adjustments, due to new construction and urban development, can be coordinated with the model and regional flow rates and volumes can continually be reviewed, verified, and updated to ensure they do not exceed the numerical standards to be set by the VRWJPO. The components of the proposed SAC should also be reviewed and updated annually. These reviews will ensure that developers are paying their fair share for the improvements.

As stated earlier, this model is predominantly based on information obtained from available Scott County GIS mapping data, the City aerial and contour maps, field verification of accurate watershed boundaries, and discussions with City staff relative to the historical flooding areas. Based on all available information the modeled system closely matches qualitative descriptions given by individual observation. We believe this Comprehensive Surface Water Management Plan has significant benefit as a planning, engineering, and design tool. However, this Plan and the regional and localized stormwater and water quality pond network model is not necessarily the only method of accomplishing the goal of comprehensive surface water management. The quality and accuracy of this model may be further validated with more detailed survey data at the time of proposed development in the regional growth area of the City.

Appendix A: Maps

Watershed Drainage District Map	Figure No. 1
Digital Aerial Photographic Map	Figure No. 2
Scott County Soils Map	Figure No. 3
Scott County Wetlands and Bluff Areas Map	Figure No. 4
DNR Protected Waters Map	Figure No. 5
Floodplain Map	Figure No. 6
Future Land Use Map	Figure No. 7
Waterway Corridor Classification Map	Figure No. 8

2040 Comprehensive Plan

Elko New Market, MN

Figure 1 - Watershed Drainage District Map

February 2018

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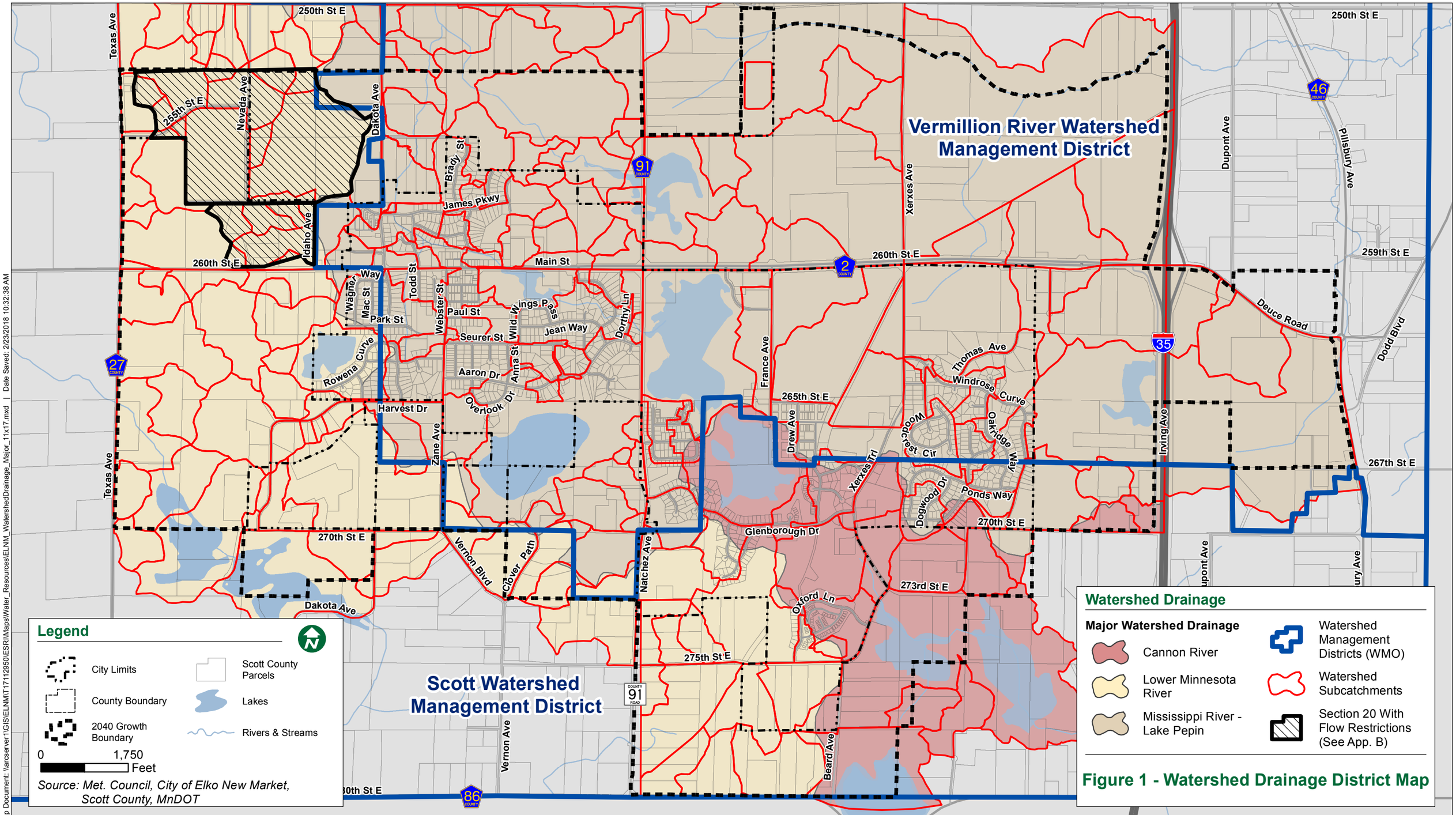

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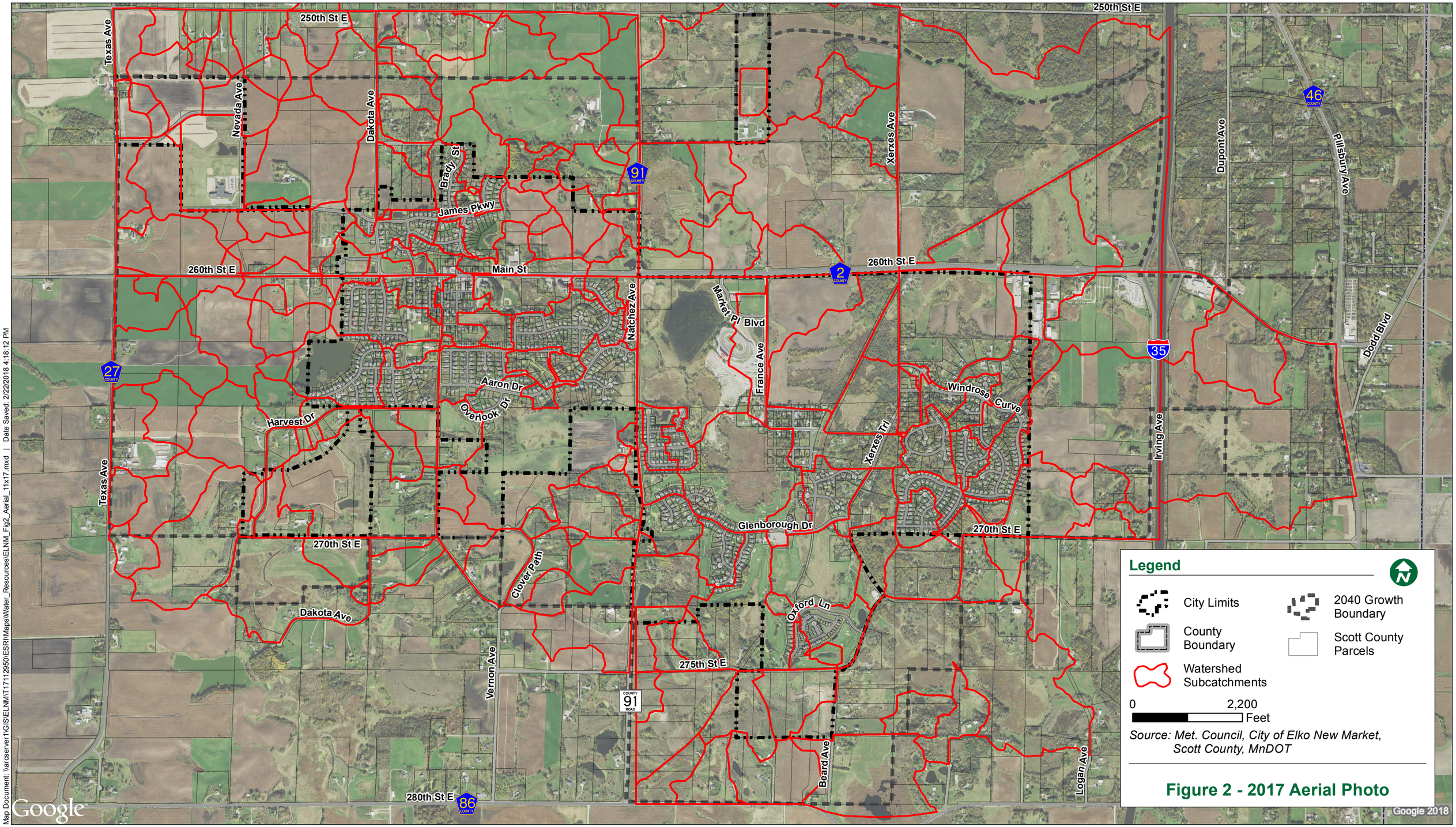
Figure 2 - 2017 Aerial Photo

February 2018



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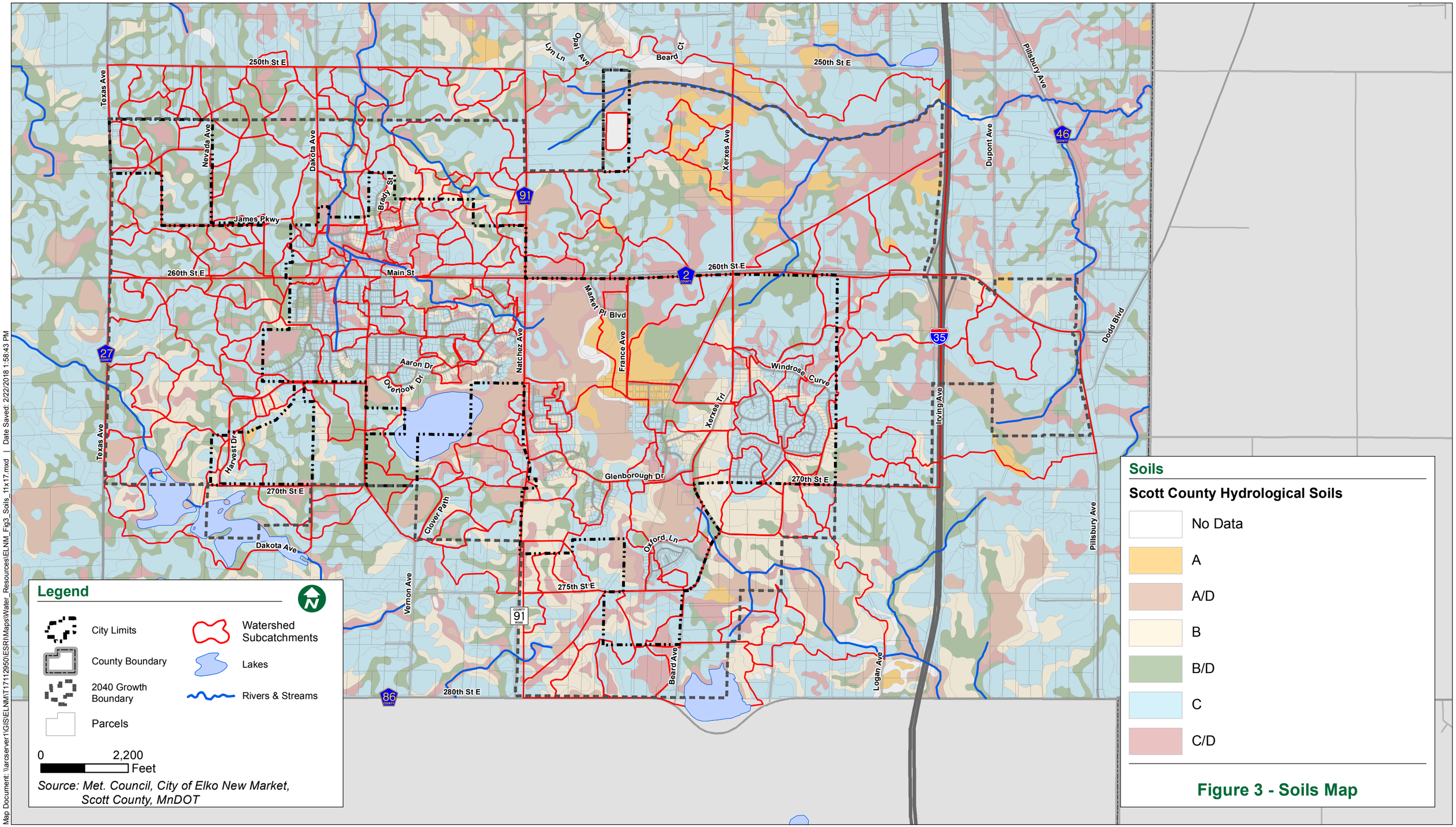

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2040 Comprehensive Plan

Elko New Market, MN

Figure 4 - Wetlands and Bluffs

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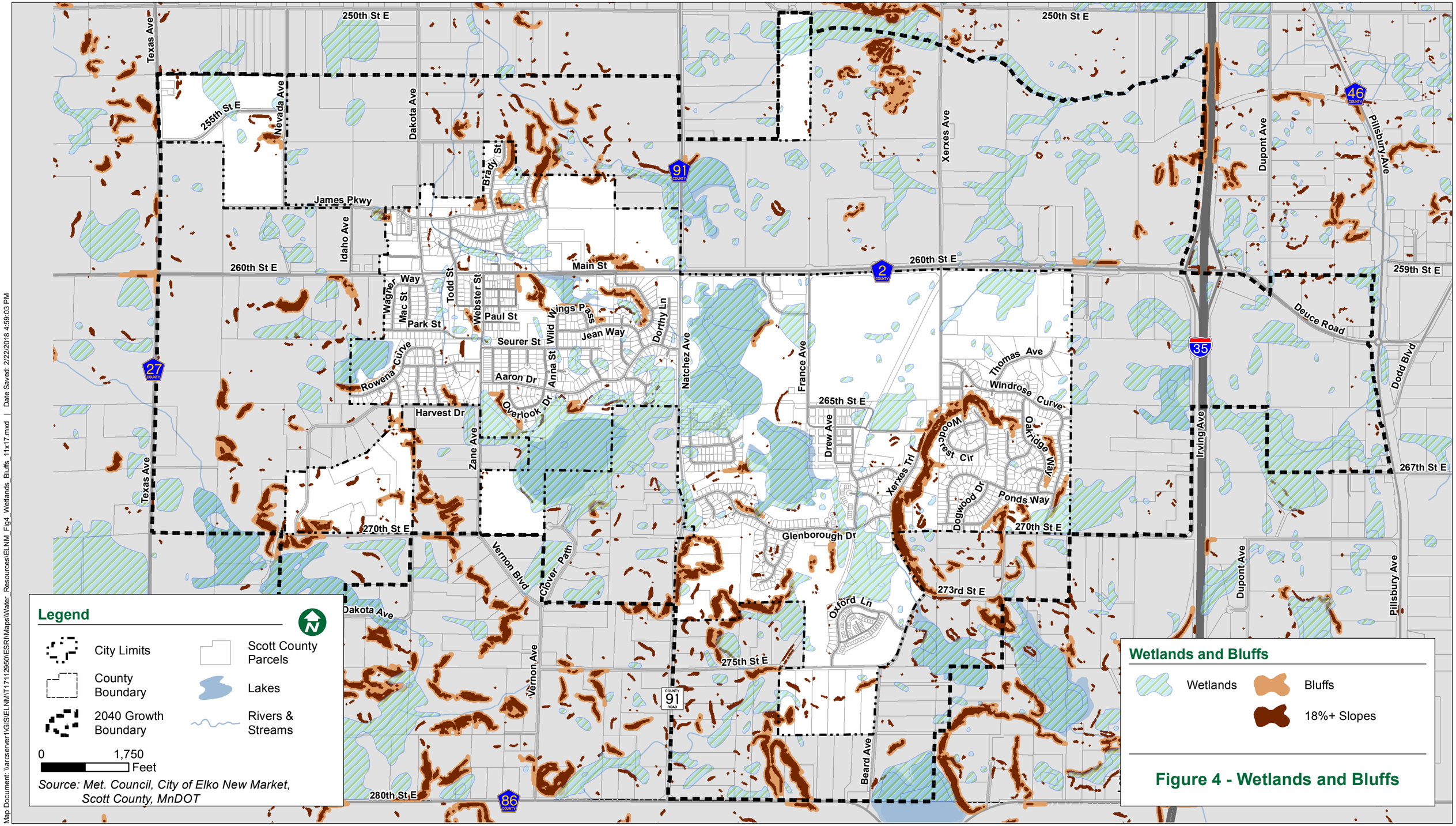

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Figure 5 - DNR Public Waters

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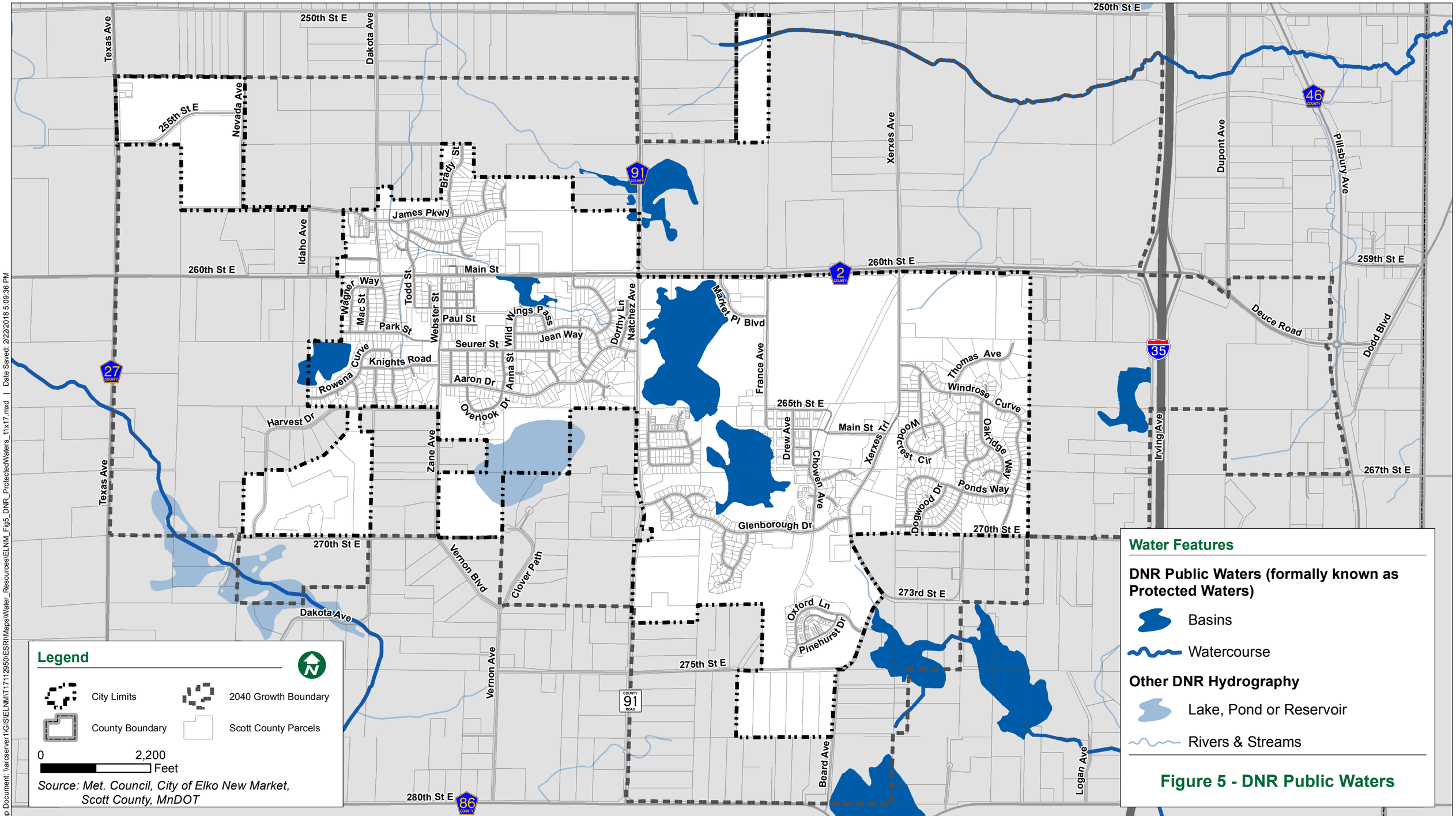

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2040 Comprehensive Plan

Elko New Market, MN

Figure 6 - FEMA Floodplain Map

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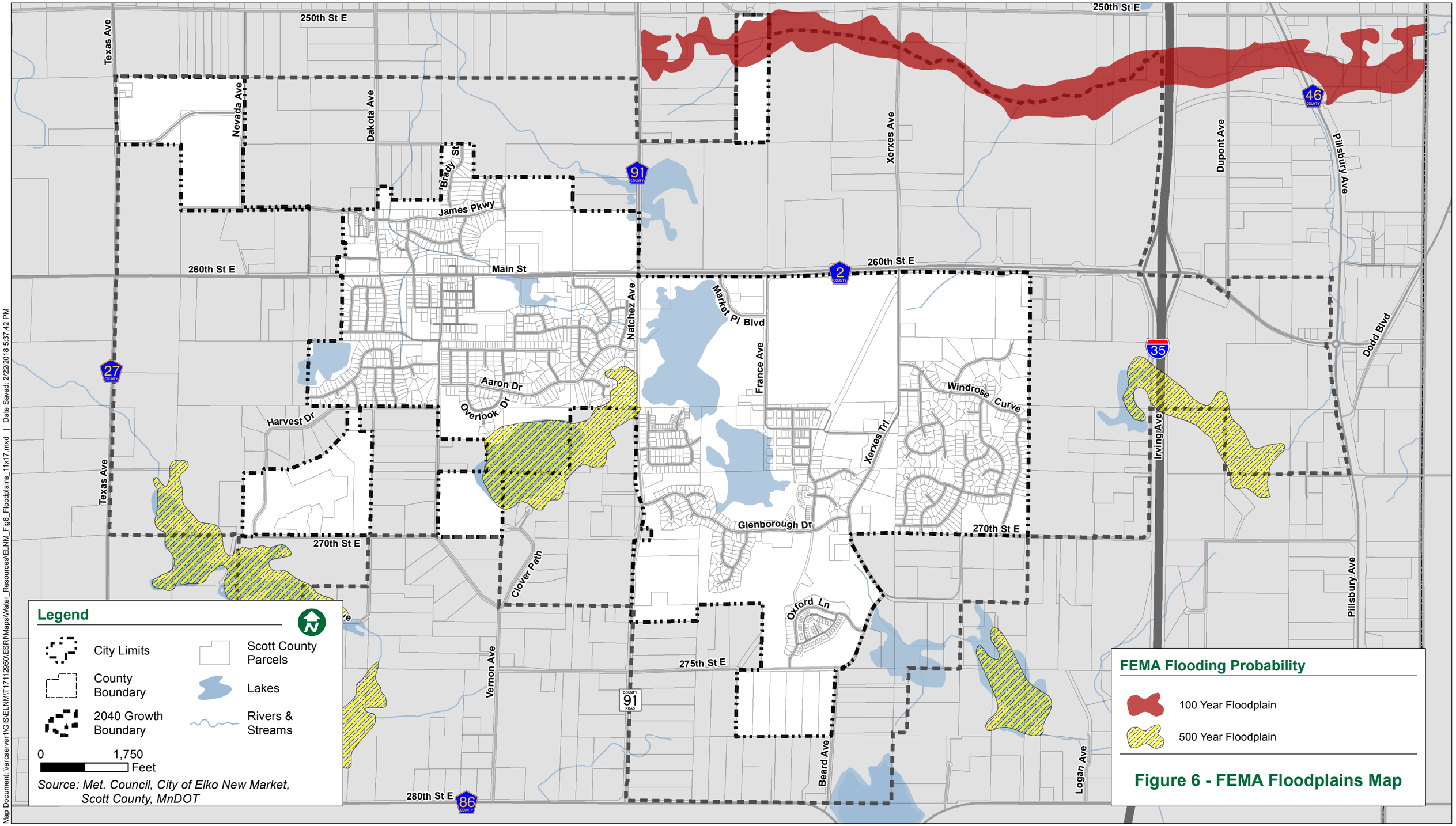

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2040 Comprehensive Plan

Elko New Market, MN

Figure 7 - Future Land Use Map

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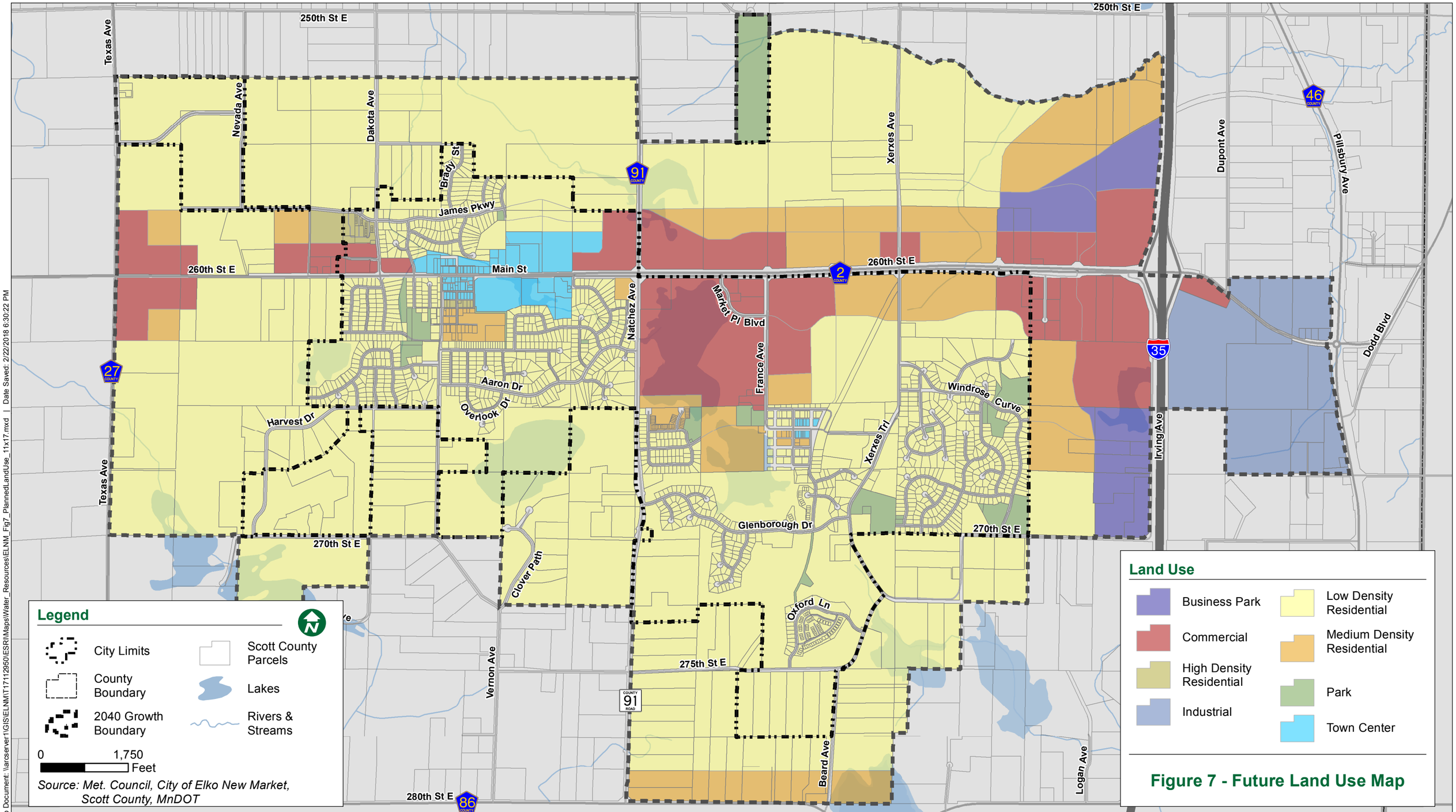

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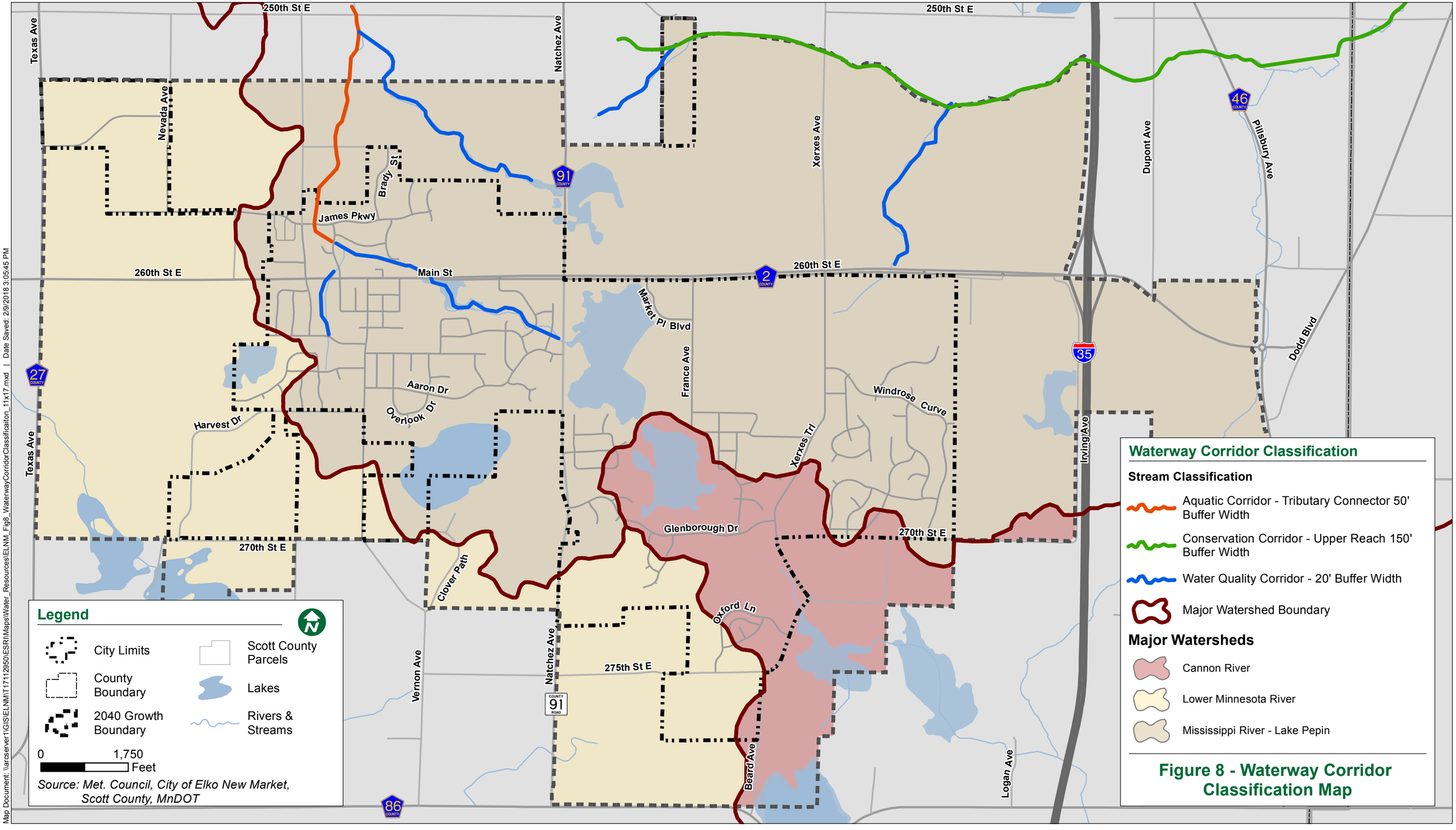
Figure 8 - Waterway Corridor Classification Map

February 2018



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Appendix B: Section 20 Discharge Agreement

EarthTech
A Tyco International Ltd. Company

MEMO

May 1, 2006

To: New Market Town Board

Copy: Albert Zweber, Township Clerk
Eric Braaten, Township Attorney

From: Scott Young

Subject **Drainage and Utilities Easement**
City of New Market Trunk Storm Sewer
Earth Tech Project No. 90566.01

On April 29th we received updated information from Thatcher Engineering, the City of New Market's engineer, regarding issues discussed at the March 30th meeting. These materials include a memo from Thatcher Engineering, dated April 27, 2006, and a memo from Wenck Associates, Inc., dated April 24, 2006, both of which are attached.

As summarized in the Thatcher memo of April 27th, the City's proposal meets the significant concerns raised during our review of the proposed project. In short, the proposal:

- is based on pre-settlement conditions,
- limits discharges for design storm events on a per acre basis,
- emphasizes the use of BMP's, infiltration and Low Impact Development methods,
- maintains existing draintile for school road, and
- minimizes the potential for run-on from undeveloped properties to adjacent roads.

Given the revisions to the plan incorporated in this latest material, we believe the New Market Town Board may allow the use of its drainage and utilities easement for the City of New Market's trunk storm sewer.

We are available on Tuesday evening if you have questions regarding this matter.

L:\work\newmark\90566\corres\City of New Market Drainage Permit 20060501.doc

Thatcher Engineering, Inc.
3055 Old Highway 8, Suite 103
Minneapolis, MN 55418-2500
Phone: (612) 781-2188
Fax: (612) 781-2241

MEMORANDUM

To: Thomas Borchert, Earth Tech
Thomas Meyer, Scott County

From: Rich Revering, City Engineer

CC: Thomas Terry, City Administrator
Andrea McDowell Poehler, City Attorney

Date: April 27, 2006

Re: New Market Township Right of Way Permit and Scott County Grading Permit
Trunk Storm Sewer Installation – School Core Street and Utility Project

---

Our office has completed a follow-up of the issues discussed during our March 30th meeting. The results are presented below in italics following a brief description of each issue:

1. Provide the geotechnical report for the school road project to each party.

   Done.

2. Review watershed modeling

   Wenck Associates represents several watersheds in the metro area and has watershed experience in Scott County. We asked them to review the Hydrocad models prepared by our office. A memorandum summarizing their tasks and findings is enclosed.

   We concur with their findings and have also attached the revised HydroCAD model for presettlement conditions.

3. Apportion peak flows from smaller storms for setting future development discharge limits. Combined pond discharges must not exceed presettlement conditions.

   The City will limit release rates from developments in the watershed to the following presettlement rates:

1-year	*No peak discharge*
2-year	*.008 cfs/acre*
10-year	*.044 cfs/acre*
100-year	*.150 cfs/acre*

   We will require developers provide a draintile/filtration system in future ponds that will prevent any release through the control structures for 1-year storms or smaller. Release for these small events will only occur via filtration in the ponds. This requirement will have water quality and temperature

benefits for the stream, and outflows from ponds will contribute to stream base flow rather than peak discharges.

4. Subwatershed plan

   The City will present a subwatershed plan focusing on the following issues in addition to the modeling already completed and the requirements listed above. The plan will be completed by July 30th, 2006 and will guide any future developments in this subwatershed until such time as a comprehensive local water plan is completed for the City as required by State Statute.

   a. *Identify and preserve any infiltration opportunities in the watershed.*

   b. *Define and require the use of Low Impact Development techniques where feasible.*

   c. *Set forth a draintile policy that benefits receiving waters.*

5. Modify school road plans to prevent any run-on from undeveloped property to roads or account for run-on in ponding to be built as part of the school or On-Site/Wagner project.

   The Contractor for the school road project has been notified of this requirement and we are currently preparing this plan revision. Low berms will be place in boulevards where run-on could occur and existing tile systems will be preserved or modified as necessary to drain the resulting low points with no connection to the trunk sewer.

6. Modify school road plans to require existing tile be reconnected only – not intercepted by the City storm sewer.

   The Contractor for the school road project has been notified of this requirement and we are currently preparing this plan revision. Non-perforated tile will be placed across the City's rights of way to carry flow from existing tile systems across the roadway. We are using non-perforated tile to minimize backflow into imported granular subgrades.

This project will enable the City to control stormwater runoff from future developments in a manner that will eventually reduce overland flows and flooding in the lower end of the subwatershed while meeting the common goal of preserving existing drainage patterns and minimizing downstream impacts. On behalf of the City, we request your recommendation to approve the respective permits based on the commitments stated above.

End of Memo

Memorandum

1800 Pioneer Creek Center, Maple Plain, MN 55359
Phone: 763-479-4200 Fax: 763-479-4242

Wenck

To: Rich Revering, P.E., Thatcher Engineering Inc.

From: Chris Meehan, P.E, Wenck Associates, Inc.

Date: April 24, 2006

Subject: New Market Township Right of Way Permit and Scott County Grading Permit Trunk Storm Sewer Installation – School Core Street and Utility Project.

INTRODUCTION

After our meeting last week, Wenck Associates, Inc. was requested to review and provide a summary of the hydrology associated with the 2005 School Core Street and Utility Improvements. Thatcher Engineering Inc. supplied for review a HydroCAD model and drainage map for pre-settlement, existing and future conditions.

The following concerns of New Market Township and Scott County were also to be included in the review:

- Accuracy of hydrologic model calculated flows and volumes, and verification of the validity of Curve Numbers used in the model.

- How peak flow rates would be apportioned for the 1, 2, 10, and 100-year storms in the watershed, thus allowing the establishment of discharge limits for future developments.

The remainder of this memo will summarize the model review and address agency concerns.

APPROACH

Upon receiving the HydroCAD model and drainage map for the site, several review actions were taken to validate the hydrologic and hydraulic characteristics of the watershed. These actions included:

- Verify accuracy of drainage boundaries with 2-foot contour map.
- Review soils for proper Hydrologic Soil Group classification.
- Confirm SCS Curve Number used in model.
- Evaluate Time of Concentration (Tc).
- Confirm overland and channel flow patterns.

Initial review of the model demonstrated that it was reasonably representing the watershed; however, a few changes to the HydroCAD model were required. These changes included:

- Additional field reconnaissance revealed an additional 7-acres drains south into the study area through an 18" CMP across 250th Street into subwatershed 8SB.

- Overland flow routes were identified which show Pond 16P flows into pond 13P vs. pond 24P. Therefore, the storage for ponds 13P, 15P, and 16P was combined since pond 13P outlet elevation would control the bounce in these ponds.

- Subwatersheds 8SC and 9SB were redelineated to better reflect surface drainage patterns. Subwatershed 8SC drains directly to pond 24P, where previously it drained to pond 14P then 24P. The redelineation also resulted in a new watershed (8SD), which drains directly to pond 14P.

- A new pond, 25P, was added to reflect a lowland area in subwatershed 9SB. Pond 25P discharges east into pond 14P.

RESULTS

After incorporation of these revisions, the model results were reviewed to determine 100-year flow rates for existing and presettlement conditions. A ratio of peak flow rate to drainage area is provided as a method to apportion flows in the watershed. Table 1 provides the results of the HydroCAD model.

Table 1. HydroCAD results for 100-year event (6.0")

Drainage Condition	Peak Flow at Outlet (cfs)	Ratio of Peak Flow to Drainage Area (cfs/ac)*
Existing	60.4 cfs	0.17 cfs/ac
Presettlement	52.5 cfs	0.15 cfs/ac

*Contributing Drainage Area = 350 acres

The ratio of peak flow to drainage area is similar to previous work completed by Wenck which found a ratio of 0.15 cfs/acre.

A 48" RCP trunk storm sewer is proposed to serve this drainage area, and based on full flow conditions the pipe will have a capacity of 60 cfs demonstrating it will have adequate capacity to convey peak flows from the site.

Agencies also requested the evaluation of existing conditions for the 1,2, and 10-year events. Table 2 provides a summary of the additional modeling.

Table 2. HydroCAD results for 1, 2, 10-year event (2.4", 2.8", and 4.25")

Drainage Condition	Peak Flow at Outlet (cfs)	Ratio of Peak Flow to Drainage Area (cfs/ac)*
1-year	5.8 cfs	0.02 cfs/ac
2-year	8.9 cfs	0.03 cfs/ac
10-year	19.5 cfs	0.06 cfs/ac

*Contributing Drainage Area = 350 acres

SUMMARY

Review of the modeling resulted in a 25% reduction in existing peak flow rates due to additional field reconnaissance and storage correction. The revised modeling provides reasonable representation of existing conditions and provides a defendable peak flow rate on which to base rate control requirements for the watershed.

Modeling results also indicate that the proposed 48" RCP will have adequate capacity to convey the 100-year event, limiting the chance for any overland flooding on the site.

To achieve existing rates to the trunk storm sewer future development should be limited to a rate of 0.17 cfs/acre for the 100-year event. Subsequent lesser year events (1, 2, and 10-year) should also meet their apportioned rate (0.02, 0.03, 0.06 cfs/ac). Rate control values provided do not incorporate the benefits of infiltration, draintile, or Low Impact Development techniques, which should be used to meet the established criteria.

Appendix C: Hydroperiod Guidelines for Wetlands

HYDROPERIOD GUIDELINES FOR WETLANDS

Recommended Hydroperiod Standards for Wetlands (Source: State of Minnesota Storm-Water Advisory Group, 1997)				
	Susceptible		**Non-Susceptible**	
Hydroperiod Standard	Highly Susceptible Wetlands	Moderately Susceptible Wetlands	Slightly Susceptible Wetlands	Least Susceptible Wetlands
Storm Bounce	Existing	Existing plus 0.5 ft	Existing plus 1.0 ft	No limit
Discharge Rate from Wetland	Existing	Existing	Existing or less	Existing or less
Inundation Period* for 1 & 2 –Year Precipitation Event	Existing	Existing plus 1 day	Existing plus 2 days	Existing plus 7 days
Inundation Period for 10 –Year Precipitation Event & Greater	Existing	Existing plus 7 days	Existing plus 14 days	Existing plus 21 days
Run-Out Control Elevation (Free Flowing)	No change	No change	0 to 1.0 feet above existing run out	0 to 4.0 feet above existing run out
Run-Out Control Elevation (Landlocked)	Above delineated wetland	Above delineated wetland	Above delineated wetland	Above delineated wetland
*Inundation period is the time above the normal water level (NWL)				

Source: State of Minnesota Stormwater Manual, November 2005, Chapter 10, Volume 2, Page 35.

2040 Comprehensive Plan

Elko New Market, MN

Figure 1 - Watershed Drainage District Map

February 2018

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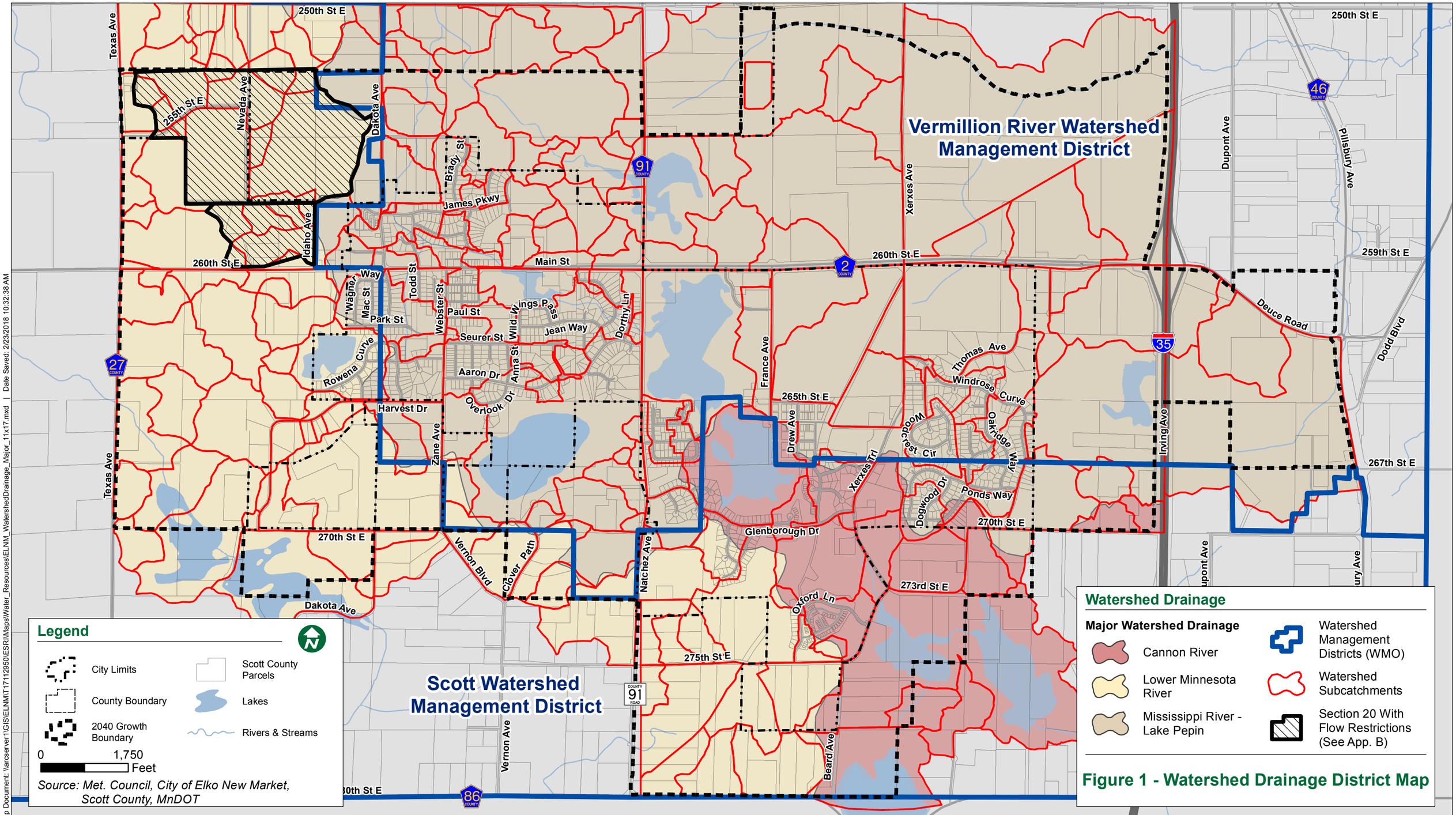

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INTRODUCTION

Administration and implementation of the Comprehensive Plan and related supportive ordinances are equally important as the development of the Plan itself. Only through proper coordination of the Comprehensive Plan with the City's official controls can the desired community vision and goals be fulfilled. Official controls are adopted ordinances, policies, design guidelines, fiscal tools and other local regulations that direct, guide, and assist in development decisions. This chapter will describe official controls and other implementation strategies that should be enacted to support implementation of the 2040 Comprehensive Plan.

ZONING ORDINANCE AND SUBDIVISION ORDINANCE

In Elko New Market, the Zoning Ordinance and Subdivision Ordinance are the primary controls which govern land use and development in the City. The City adopted a new Zoning Ordinance (in 2006) and Subdivision Ordinance (in 2007) in response to the merger of the former Cities of Elko and New Market in 2007. Numerous amendments to each have occurred since that time. Notable amendments included the following:

- Environmental protection regulations in 2008 (Chapter 11 of the Zoning Ordinance). Such regulations address stormwater management, erosion control, wetlands, bridge and culvert crossings, drainage alterations, groundwater, grading operations and tree preservation and flood regulations.

- Alternative energy regulations in 2011 (Chapter 14 of the Zoning Ordinance). Such regulations address and regulate geothermal, wind and solar energy systems.

- A floodplain overlay zoning district in 2014 (Section 11-28D of the Zoning Ordinance). Such district provisions regulate development in the flood hazard areas of the City.

- Residential lot size regulations in 2018 (Chapter 25 of the Zoning Ordinance). Such regulations reduced lot sizes in the R-2 Urban (Small Lot) Single-Family Residential District and the R-3 Medium Density Residential District.

Elko New Market's Zoning Ordinance and Subdivision Ordinance both stipulate that land uses and subdivisions must be consistent with the Comprehensive Plan and its related policies (Sections 11-3-2, 11-3-7 and 11-3-8 of the Zoning Ordinance and Section 12-9-1 of the Subdivision Ordinance). If, upon annexation, a proposed land use differs from that illustrated on the 2040 Land Use Plan, an amendment to the Plan (in accordance with Metropolitan Council requirements) is required.

A description of the zoning districts established in the Elko New Market Zoning Ordinance and the respective land use designation they apply to is included on the following pages. The Zoning Ordinance incorporates an official zoning map which defines the location and boundaries of the various districts established therein. The City's current Zoning Map is illustrated in Figure 14.1.

R-1 Suburban Single Family Residential District. The purpose of the R-1 Suburban Single-Family Residential District is to provide for low density detached single-family uses in developed and developing areas of the community that are predominantly residential in character.

Designation of the R-1 District corresponds to areas guided for Low Density Residential use on the 2040 Land Use Plan with development densities between 2.5 and 5 dwelling units per net acre.

Within the R-1 District, the minimum lot area is 12,000 square feet for interior lots and 12,500 square feet for corner lots. The minimum lot width is 85 feet for interior lots and 100 feet for corner lots.

R-2 Urban (Small Lot) Single Family Residential District. The purpose of the R-2 Urban (Small Lot) Single-Family Residential District is to provide for single-family dwelling units at a relatively dense urban scale.

Designation of the R-2 District corresponds to areas guided for Low Density Residential land use on the 2040 Land Use Plan with development densities between 2.5 and 5 dwelling units per net acre.

Within the R-2 District, the minimum lot area is 8,400 square feet and the minimum lot width is 70 feet.

R-3 Medium Density Residential District. The purpose of the R-3 Medium Density Residential District is to establish low to moderate density residential housing in multiple-family structures which satisfy the following planning objectives:

1. Create a cohesive medium density neighborhood that provides attractive living environments and contributes to the City's identity.

2. Provide attractive and durable medium density housing options as a means of addressing the City's life cycle housing needs.

3. Preserve natural land forms, open spaces, greenways for scenic enjoyment and recreational use through the regulation of medium density residential land use.

4. Allow for the subdivision of twinhome, quadraminium and townhome base lots to permit individual private ownership of a single dwelling within such a structure.

5. Comply with the provisions of this chapter, other applicable provisions of this title, and the City Subdivision Ordinance.

Designation of the R-3 District corresponds to areas guided for Medium Density Residential land use on the 2040 Land Use Plan, with development densities ranging from 5 to 10 dwelling units per net acre.

Allowed R-3 District uses are subject to comprehensive performance standards addressing site design, building construction, landscaping and maintenance of common open spaces. Minimum lot area requirements in the district vary depending upon the number of units:

- Single family dwelling units must provide a minimum lot area of 7,200 square feet and a minimum lot width of 60 feet.
- Two-unit dwellings must provide a minimum lot area of 6,000 square feet per unit and a minimum lot width of 100 feet.
- Structures having more than two dwelling units must provide a minimum lot area of 3,500 square feet per unit and a minimum lot width of 100 feet.

R-4 High Density Residential District. The purpose of the R-4 High Density Residential District is to create, preserve and enhance areas for multi-family use at higher densities for both permanent and transient families. The district is intended to be applied in areas served by public utilities, with good accessibility to thoroughfares, public community centers, libraries, shopping, and where such development is consistent with the Comprehensive Plan and its included planning policies.

Designation of the R-4 District corresponds to areas guided for High Density Residential use on the 2040 Land Use Plan with development densities ranging from 10 to 30 dwelling units per net acre.

Allowed R-4 District uses are subject to comprehensive performance standards addressing site design, building construction, landscaping and maintenance of common open spaces. The R-4 District makes an allowance for multiple family dwellings containing eight or more dwelling units as a permitted use. The minimum lot area is 15,000 square feet and the minimum lot width is 100 feet.

R-5 Downtown Residential District. The purpose of the R-5 Downtown Residential District is to provide medium density residential housing and integrated service retail space in the downtown area of the City, as directed by the City's Downtown Master Plan. A compatible

mix of land uses is intended to be achieved through the mitigation of land use conflicts between differing uses.

Designation of the R-5 District corresponds to areas guided for Town Center use on the 2040 Land Use Plan, with development densities ranging from 10 to 30 dwelling units per net acre.

Allowed R-5 District uses are subject to comprehensive performance standards addressing site design, building construction, landscaping and maintenance of common open spaces. The R-5 District makes an allowance for multiple family dwellings containing six or more dwelling units as a permitted use. There is no minimum lot area or lot width in this district.

B-1 Neighborhood Business District. The purpose of the B-1 Neighborhood Business District is to provide for the establishment of local centers for convenient, limited office, retail or service outlets which deal directly with the customer for whom the goods or services are furnished.

Allowed B-1 District uses include limited retail, service and office uses. The market for these businesses is intended to be neighborhood-oriented and located at the edge of residential neighborhoods accessed by major collector or arterial streets.

B-2 Downtown Business District. The purpose of the B-2 Downtown Business District is to provide for a mix of business and multi-family housing in the downtown area of the City as directed by the City's Downtown Master Plan. The B-2 District provides the broadest variety, highest density and greatest intensity of development within the City.

The B-2 District makes an allowance for a variety of ground floor retail and service uses as well as above ground floor multiple family developments containing eight or more units per acre. Allowed B-2 District uses are subject to comprehensive performance standards addressing site design, building construction, landscaping and maintenance of common open spaces.

B-3 Original Townsite District. The purpose of the B-3 Original Townsite District is to:

A. Establish a district applicable to the original Elko Townsite that is compatible with existing uses;

B. Encourage a compatible mix of land uses through the mitigation of land use conflicts between differing uses;

C. Adhere to the goals and objectives of the Comprehensive Plan;

D. Provide opportunities for neighborhood businesses to concentrate for the convenience of the public and in mutually beneficial relationships to each other;

E. Permit the development of neighborhood businesses in those areas for the uses identified in the comprehensive plan, according to standards that minimize adverse impacts on adjacent uses;

F. Provide adequate space to meet the needs of modern development, including off street parking areas, loading areas and landscaping; and

G. Protect neighbors from noise, odor, dust, dirt, smoke, vibration, heat, traffic, noxious fumes and other objectionable or hazardous influences.

The B-3 District provides for a variety of ground floor retail and service uses as well as above ground floor residential dwellings as permitted uses. Ground floor dwellings are allowed as a conditional use in the District. Dwelling units above the ground floor are allowed at a density of one dwelling unit per 3,000 square feet of lot area while ground floor dwellings are allowed at a density of one unit per 10,000 square feet of lot area.

B-4 Highway Business District. The purpose of the B-4 Highway Dusiness District is to provide for and limit motor vehicle dependent commercial and service activities, while creating an attractive "gateway" to the City which fosters high quality development of businesses, with careful attention to the appearance of the site and buildings.

Uses allowed in the B-4 District include a range of retail, service and office uses in addition to specific provisions applying to motor fuel and auto service centers (as conditional uses). Consistent with the purpose of the district, specific site and building requirements are imposed to ensure high quality development products.

B-5 General Business District. The purpose of the B-5 General Business District is to provide for the establishment of commercial and service activities which draw from and serve customers from the entire community or region. A full range of retail, service and office activities are allowed in the B-5 District.

B-6 Business Warehousing District. The purpose of the B-6 Business Warehousing District is to provide for the establishment of wholesale and retail trade of large volume or bulk commercial items, storage and warehousing. The overall character of the B-6 District is intended to be transitional in nature. Thus, industrial uses allowed within the district are limited to those which can compatibly exist adjacent to commercial and lower intensity activities.

B-7 Business Campus District. The purpose of the B-7 Business Campus District is to provide for the establishment of business offices, wholesale showrooms, and related uses in

an environment which provides a high level of amenities, including landscaping, preservation of natural features, architectural controls, pedestrian trails, and other features.

I-1 Limited Industrial District. The purpose of the I-1 Limited Industrial District is to provide for the establishment of warehousing and light industrial development. Industrial uses allowed in this district are limited to those which can compatibly exist adjacent to both lower intensity business uses and high intensity manufacturing uses and which have limited amounts of truck traffic in comparison to higher intensity industrial districts. It is further the intent of the District to direct industrial development such that it occurs in an orderly, well planned manner at locations identified in the comprehensive plan where urban services are provided.

I-2 General Industrial District. The purpose of the I-2 General Industrial District is to provide areas suitable for the location of general industrial activities which have adequate and convenient access to major streets and provide effective controls for "nuisance" and pollution characteristics. The district is also intended to encourage industrial development in a compact and orderly manner consistent with the general locations shown in the Comprehensive Plan providing a compatible relationship with other land uses where a full complement of urban services are provided.

UR Urban Reserve District. The purpose of the UR Urban Reserve District is to preserve areas where urban public utilities are not presently available. These lands are to be retained in a natural state or in agricultural use pending the proper timing for the economical provision of sewer and water, streets, parks, storm drainage and other public utilities and services so that orderly development can occur. Upon annexation, all newly incorporated lands assume a UR Urban Reserve zoning designation and are subject to rezoning to accommodate urban development.

INS Institutional District. The purpose of the INS Institutional District is to provide a specific zoning district for facilities devoted to serving the public. The district is unique in that the primary objective of allowed uses is the provision of services, frequently on a nonprofit basis, rather than the sale of goods or services. It is intended that uses within this district will be compatible with adjoining development and typically located on an arterial street or thoroughfare.

PUD Planned Unit Development District. The PUD Planned Unit Development District provides opportunities for flexibility in the application of established performance standards for the development of residential land uses, non-residential land uses or mixed-use projects that would not otherwise be possible under conventional zoning. The intent of the PUD District is to:

A. Provide for the establishment of PUD (planned unit development) zoning districts in appropriate settings and situations to create or maintain a development pattern that complies with the city comprehensive plan.

B. Allow for the mixing of land uses within a development when such mixing of land uses could not otherwise be accomplished under this title.

C. Provide for variations to the strict application of the land use regulations in this title in order to improve site design and operation, while at the same time incorporating design elements (e.g., construction materials, landscaping, lighting, etc.) that exceed the city's standards to offset the effect of any variations.

D. Promote a more creative and efficient approach to land use within the city, while at the same time protecting and promoting the health, safety, comfort, aesthetics, economic viability, and general welfare of the city.

E. Preserve and enhance natural features and open spaces.

F. Maintain or improve the efficiency of public streets and utilities.

G. Ensure the establishment of appropriate transitions between differing land uses.

Establishment of a PUD District is considered a legislative act (public policy decision) of the City Council based on the policies of the Comprehensive Plan.

FP Floodplain Overlay District. The purpose of the FP Floodplain Overlay District is to:

A. Regulate development in the flood hazard areas of the City. These flood hazard areas are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base. It is the purpose of the article to promote the public health, safety, and general welfare by minimizing these losses and disruptions.

B. Comply with the rules and regulations of the National Flood Insurance Program, as amended, to maintain the City's eligibility in the program.

C. Preserve the natural characteristics and functions of watercourses and floodplains in order to moderate flood and storm water impacts, improve water quality, reduce soil erosion, protect aquatic and riparian habitat, provide recreational opportunities, provide aesthetic benefits and enhance community and economic development.

IMPLEMENTATION STRATEGIES

In addition to the Zoning Ordinance and Subdivision Ordinance, the City has identified a number of other controls that assist in implementation of the Comprehensive Plan. These controls are grouped by topic area and summarize implementation strategies from each element of the Plan. The City will implement these strategies to achieve the vision and goals previously outlined within the Plan.

Housing & Economic Development

- The City will work with adjacent jurisdictions to execute orderly annexation agreements where forecasted growth exceeds land capacity within existing City boundaries.
- The City will make any necessary changes to the zoning map to ensure consistency with the land use map contained in this Plan.
- The City will adopt ordinances that coordinate development with infrastructure availability.
- The City will evaluate zoning codes and make changes as necessary to ensure that reasonable maintenance of residential properties is required and barriers to providing a variety of housing types and price ranges are reduced.
- The City will consider implementing a rental housing registration program to monitor the condition of the City's rental housing stock.
- The City will consider the adoption of a housing maintenance code.
- The City will consider completion of a housing survey to document housing conditions in various neighborhoods to evaluate if deterioration exists and additional action is required.
- The City will work with other organizations such as the Scott County Community Development Agency, Metropolitan Council and Minnesota Housing Finance Agency to identify and promote relevant housing programs to Elko New Market residents.
- The City will identify naturally occurring affordable housing within the City and explore opportunities with the Minnesota Housing Fund to finance the acquisition and preservation of naturally occurring affordable housing.
- The City will educate the City's Planning Commission and City Council regarding accessory dwelling units, inclusionary zoning, and fair housing policies. If supported, prepare a regulatory framework for adoption.
- The City will monitor progress toward meeting the affordable housing goals required by the Thrive MSP 2040 Plan.
- The City will continue to consider TIF, tax abatement, and conduit bonding (when authorized) to encourage growth and development projects.
- The City will pursue infrastructure projects which will attract commercial and industrial development.
- The City will explore opportunities to streamline the City's development review process without diminishing the public purpose of such processes.

- The City will meet with commercial brokers, developers, and/or other market participants for informal feedback on the City's economic development efforts.
- The City will actively communicate with the Elko New Market Chamber of Commerce and local business owners to gain an understanding of the changing needs of the commercial market.
- The City will update the City's website to provide greater emphasis on the desirable community features which may appeal to new businesses and include links to real estate locator sites.
- The City will consider the possible elimination or consolidation of a number of the City's commercial zoning districts.
- The City will promote the maintenance, modernization and expansion of local commercial and industrial land uses to preserve and expand the City's tax base and revenues.
- The City will pursue available County, State and Federal grants and aids, as appropriate, to facilitate community improvements and programs.

Natural Environment & Recreation.

- The City will encourage landowners to retain areas of native vegetation, and to plant species native to the area, to protect and improve wildlife habitat and maintain the historic ecological role.
- The City will guide development such that natural areas are not impacted or that impacts are minimized (e.g. re-configure lots and/or road alignments to less impactful locations).
- The City will collaborate with Scott County, New Market Township, Three Rivers Park District, applicable Watershed Management Organizations and the Minnesota Department of Natural Resources to ensure proper management of the Vermillion River headwaters and the adjacent "priority natural area" which flanks the river.
- The City will consider incentives such as density bonuses or the transfer of development rights to protect high value natural resource corridors.
- The City will adopt shoreland regulations, which will apply to lands within 1,000 feet of the ordinary high-water level of lakes and 300 feet from the ordinary high-water level of rivers and designated river tributaries, when necessary.
- The City will review and update neighborhood park needs and service areas as development occurs so that new barriers and changing recreational needs are acknowledged and accommodated.
- The City will review and evaluate each development project to ensure it provides appropriate park land dedication, open space preservation and trail connections parks, trails, greenways, schools, and commercial/industrial developments.
- The City will review and prioritize trail needs and recommend a schedule and funding framework to the City Council.

- The City will investigate the use of grants, donations, partnerships, and opportunities for additional joint powers agreements for the development of park, trail and recreation facilities.
- The City will amend its City Code to incorporate current state statue language associated with park dedication.
- The City will develop comprehensive maintenance and management plans for its Park and Trail System.
- The City will consider incorporating park redevelopment infrastructure planning as part of the 5-year Capital Improvement Plan.
- The City will act to further investigate options and agency participation for development of the greenway / natural habitat corridor and trail system outside of the 2040 planning area.

Solar

- The City will consider changes needed to local ordinances which will make solar energy more feasible. This may include evaluating regulations to allow additional solar opportunities in the City's Institutional zoning districts (schools, churches, public facilities).
- The City will continue to accommodate alternative energy systems (wind, solar and geothermal) in accordance with applicable Ordinance requirements.
- The City will continue to monitor technological changes which relate to alternative energy systems, including solar, to ensure that the City's Ordinance provisions respond to such changes in a responsible manner.

Utilities (Sanitary Sewer, Stormwater, and Water)

- The City should compare existing well pump and waste water discharge records to see if there is a clear correlation between the two. If a spike in the waste water flow shows up during fall and spring wet periods, then a sump pump inspection program should be considered.
- The City will continue to enforce the policy requiring rear-yard drainage systems to prevent the development of chronically wet turf grass areas.
- The City will develop a stormwater maintenance program to ensure the successful operation of the drainage system.
- The City will develop and implement corrective actions for stormwater problems.
- The City will encourage low-impact development and better site design components for new development projects.
- The City will establish emergency overflow routes to be established and maintained to provide stabilized relief during extreme storm conditions, which exceed design conditions.

- The City will review street sweeping frequency.
- The City will update and enforce the City's critical water deficiency ordinance to restrict or prohibit lawn water, vehicle washing, golf course and park irrigation and other nonessential uses.
- The City will meet with large water users to discuss user's contingency plan.
- The City will maintain, replace, and repair water system infrastructure as necessary.
- The City will continue to require utility infrastructure costs to be borne by the development which creates the demand for such utilities.

Administration

- The City will will continue to hold Public hearings required for proposed development applications in accordance with the procedures established by the Zoning Ordinance and / or Subdivision Ordinance and as required by Minnesota Statute.
- The City shall, as appropriate, encourage developers to host neighborhood meetings with residents, businesses and property owners in the area to provide information regarding a proposed project.
- The City will continue to include news releases in the City newsletter and / or official newspaper related to on-going planning related activities and development proposals.
- The City will make available on its website information regarding on-going planning related activities, development proposals and Planning Commission and City Council meetings.
- The City will continue to work with established business and civic organizations as a means of communicating information regarding the Comprehensive Plan and implementation strategies.
- The City will conduct periodic community surveys to solicit input from residents, businesses and property owners regarding the character of the community, potential issues to address and satisfaction with the City's administration, services and facilities.
- The City will be proactive in the pursuit and utilization of new technologies that may contribute to more effective communications with residents, businesses and property owners.
- The City will maintain open lines of communication between the City Council and advisory committees.
- The City will attempt to "learn from others" by consulting with other communities to leverage experiences and expertise, when appropriate.
- The City will remain proactive in the pursuit and utilization of new technologies which may contribute to more effective operation and delivery of community services.
- The City will operate in a fiscally sound manner and provide cost-conscious solutions for the provision of public services.
- The City will allocate administrative and improvement costs to those generating the demand or utilizing the public services.

- The City will encourage ongoing staff training and education as a means of maintaining the delivery of high quality services to residents.
- The City will continue proactive maintenance of public facilities to avoid significant disrepair and/or breakdowns.
- The City will pursue intergovernmental cooperation for the sharing of public services and facilities as a means of avoiding duplication and economizing City investments.
- The City will maintain a 5-year Capital Improvement Plan which identifies needed public capital improvements and assigns costs and schedules based on project priority and funding availability. Table 14-1 outlines the City's Capital Improvement Program for 2020 to 2024.

Table 14-1

Capital Improvement Plan
2020 – 2024

Project	Year	Estimated Cost	Description
2019 Pavement Rehab	2020	$600,000	Include a mill and overlay of several City streets. The project was needed to extend the life of the existing streets.
Onsite Generation	2020	$242,700	On-site generation provides increased reliability for lift station operation in the event of power outages to reduce the potential of sewer backups. In addition, it increases worker safety – power outages typically occur during severe weather events. It also reduces the need for Staff to manually visit the sites in the event of a power failure.
Police Station Remodel	2020	$2,000,000	Includes a new addition to the current City Hall while making health and safety improvements to the existing Police Department building, so that it could be used for community purposes.
Roundabout	2020	$1,205,000	Located at CSAH 2 & CSAH 91, the purpose of this project responds to existing and forecast traffic volumes and movements, conducting traffic through the intersection as safely and conveniently as possible.
Fire Department Rescue Truck	2020	$290,000	The current heavy rescue is over 18 years old and at the end of its usable life as a reliable response vehicle. The new rescue truck is smaller, more

			maneuverable, four wheel drive, and reflects the Department's operational needs based on experience.
Source: City of Elko New Market			

IMPLEMENTATION SCHEDULE

State Statute requires that Metropolitan Area communities update their official controls within nine months of the adoption of their Comprehensive Plan. The requirement is intended to ensure that such controls are not in conflict with the Plan and promote its vision and goals. The City of Elko New Market intends to meet this requirement within the referenced nine month time period. Table 14-2 summarizes the implementation strategies and identifies a responsible party and time period for when each strategy is to be completed. The time periods are categorized as follows:

- Immediate (0 – 9 months)
- Short Term (9 months – 5 years)
- Long Term (5+ years)
- Ongoing

Table 14-2

Implementation Schedule		
Strategy	**Responsible Party**	**Timing**
Housing & Economic Development		
Work with adjacent jurisdictions to execute orderly annexation agreements where forecasted growth exceeds land capacity within existing City boundaries.	City Administrator Community Development Staff	Short Term
Make any necessary changes to the zoning map to ensure consistency with the planned land use map contained in this Plan.	Community Development Staff	Immediate
Adopt ordinances that coordinate development with infrastructure availability.	Community Development Staff	Immediate
Evaluate zoning codes and make changes as necessary to ensure that reasonable maintenance of residential properties is required and barriers to providing a variety of housing types and price ranges are reduced.	Community Development Staff	Immediate
Consider implementing a rental housing registration program to monitor the condition of the City's rental housing stock.	Community Development Staff	Short Term
Consider the adoption of a housing maintenance code.	Community Development Staff	Short Term
Consider completion of a housing survey to document housing conditions in various neighborhoods to evaluate if deterioration exists and additional action is required.	Community Development Staff	Short Term
Work with other organizations such as the Scott County Community Development Agency, Metropolitan Council and Minnesota Housing Finance Agency to identify and promote relevant housing programs to Elko New Market residents.	Community Development Staff	Ongoing
Identify naturally occurring affordable housing within the City and explore opportunities with the Minnesota Housing Fund to finance the acquisition and preservation of naturally occurring affordable housing.	Community Development Staff	Short Term
Educate the City's Planning Commission and City Council regarding accessory dwelling units, inclusionary zoning, and fair housing policies. If supported, prepare a regulatory framework for adoption.	Community Development Staff	Immediate

Monitor progress toward meeting the affordable housing goals required by the Thrive MSP 2040 Plan.	Community Development Staff	Ongoing
Continue to consider TIF, tax abatement, and conduit bonding (when authorized) to encourage growth and development projects.	Community Development Staff	Ongoing
Pursue infrastructure projects which will attract commercial and industrial development.	Community Development Staff	Ongoing
Explore opportunities to streamline the City's development review process without diminishing the public purpose of such processes.	City Administrator Community Development Staff	Short Term
Meet with commercial brokers, developers, and/or other market participants for informal feedback on the City's economic development efforts.	Community Development Staff	Ongoing
Communicate with the Elko New Market Chamber of Commerce and local business owners to gain an understanding of the changing needs of the commercial market.	Community Development Staff	Ongoing
Update the City's website to provide greater emphasis on the desirable community features which may appeal to new businesses and include links to real estate locator sites.	Community Development Staff	Immediate
Consider the possible elimination or consolidation of a number of the City's commercial zoning districts.	Community Development Staff	Immediate
Promote the maintenance, modernization and expansion of local commercial and industrial land uses to preserve and expand the City's tax base and revenues.	Community Development Staff	Ongoing
Pursue available County, State and Federal grants and aids, as appropriate, to facilitate community improvements and programs.	Community Development Staff	Ongoing
Natural Environment & Recreation		
Encourage landowners to retain areas of native vegetation, and to plant species native to the area, to protect and improve wildlife habitat and maintain the historic ecological role.	Community Development Staff	Ongoing

Guide development such that natural areas are not impacted or that impacts are minimized (e.g. re-configure lots and/or road alignments to less impactful locations).	Community Development Staff	Ongoing
Collaborate with Scott County, New Market Township, Three Rivers Park District, applicable Watershed Management Organizations and the Minnesota Department of Natural Resources to ensure proper management of the Vermillion River headwaters and the adjacent "priority natural area" which flanks the river.	Community Development Staff City Engineer	Long Term
Consider incentives such as density bonuses or the transfer of development rights to protect high value natural resource corridors.	Community Development Staff	Immediate
Adopt shoreland regulations, which will apply to lands within 1,000 feet of the ordinary high-water level of lakes and 300 feet from the ordinary high-water level of rivers and designated river tributaries, when necessary.	Community Development Staff	Long Term
Review and update neighborhood park needs and service areas as development occurs so that new barriers and changing recreational needs are acknowledged and accommodated.	Parks Staff	Ongoing
Review and evaluate each development project to ensure it provides appropriate park land dedication, open space preservation and trail connections parks, trails, greenways, schools, and commercial/industrial developments.	Community Development Staff	Ongoing
Review and prioritize trail needs and recommend a schedule and funding framework to the City Council.	Parks Staff	Ongoing
Investigate the use of grants, donations, partnerships, and opportunities for additional joint powers agreements for the development of park, trail and recreation facilities.	Parks Staff	Ongoing
Amend its City Code to incorporate current state statue language associated with park dedication.	Community Development Staff	Immediate
Develop comprehensive maintenance and management plans for its Park and Trail System.	Parks Staff	Short Term

Consider incorporating park redevelopment infrastructure planning as part of the 5-year Capital Improvement Plan.	City Administrator Parks Staff	Short Term
Act to further investigate options and agency participation for development of the greenway / natural habitat corridor and trail system outside of the 2040 planning area.	Parks Staff	Ongoing
Solar		
Consider changes needed to local ordinances which will make solar energy more feasible.	Assistant City Administrator Community Development Staff	Immediate
Continue to accommodate alternative energy systems (wind, solar and geothermal) in accordance with applicable Ordinance requirements.	Assistant City Administrator Community Development Staff	Immediate
Continue to monitor technological changes which relate to alternative energy systems, including solar, to ensure that the City's Ordinance provisions respond to such changes in a responsible manner.	Assistant City Administrator Community Development Staff	Ongoing
Utilities (Sanitary Sewer, Stormwater, and Water)		
Compare existing well pump and waste water discharge records to see if there is a clear correlation between the two. If a spike in the waste water flow shows up during fall and spring wet periods, then a sump pump inspection program should be considered.	Public Works	Short Term
Continue to enforce the policy requiring rear-yard drainage systems to prevent the development of chronically wet turf grass areas.	Public Works Community Development Staff	Ongoing
Develop a stormwater maintenance program to ensure the successful operation of the drainage system.	Public Works	Short Term
Develop and implement corrective actions for stormwater problems.	Public Works City Engineer	Short Term
Encourage low-impact development and better site design components for new development projects.	Community Development Staff City Engineer	Ongoing

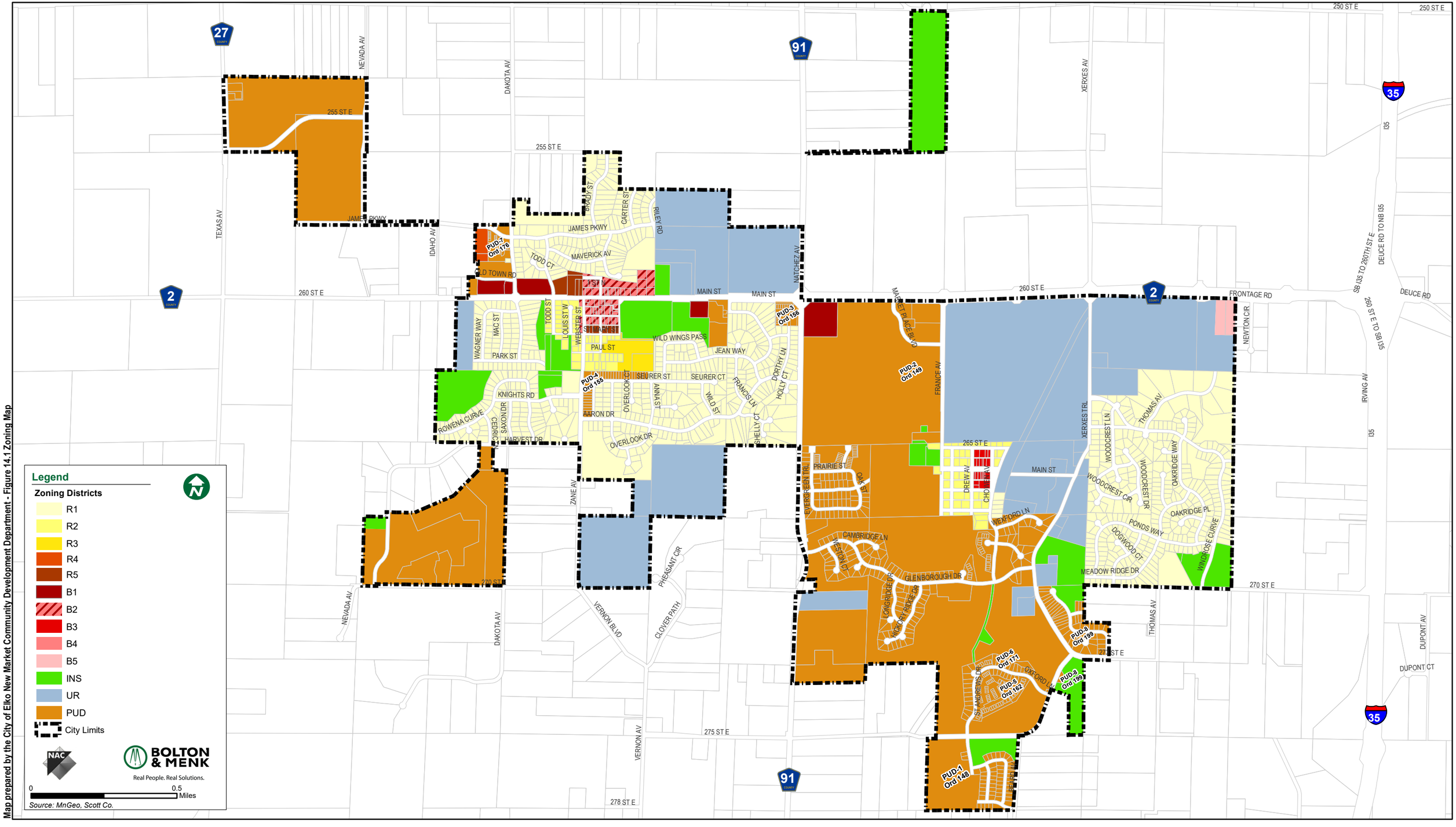
Establish emergency overflow routes to be established and maintained to provide stabilized relief during extreme storm conditions, which exceed design conditions.	City Engineer	Ongoing
Review street sweeping frequency.	Public Works	Short Term
Update and enforce the City's critical water deficiency ordinance to restrict or prohibit lawn water, vehicle washing, golf course and park irrigation and other nonessential uses.	Community Development Staff	Immediate
Meet with large water users to discuss user's contingency plan.	City Administrator City Engineer	Short Term
Maintain, replace, and repair water system infrastructure as necessary.	Public Works	Ongoing
Continue to require utility infrastructure costs to be borne by the development which creates the demand for such utilities.	Community Development Staff City Attorney	Ongoing
Administration		
Continue to hold public hearings required for proposed development applications in accordance with the procedures established by the Zoning Ordinance and / or Subdivision Ordinance and as required by Minnesota Statute.	Community Development Staff	Ongoing
Encourage developers to host neighborhood meetings with residents, businesses and property owners in the area to provide information regarding a proposed project.	Community Development Staff	Ongoing
Continue to include news releases in the City newsletter and / or official newspaper related to on-going planning related activities and development proposals.	Community Development Staff	Ongoing
Make available on its website information regarding on-going planning related activities, development proposals and Planning Commission and City Council meetings.	Community Development Staff	Ongoing
Continue to work with established business and civic organizations as a means of communicating information regarding the Comprehensive Plan and implementation strategies.	City Administrator Community Development Staff	Ongoing

Conduct periodic community surveys to solicit input from residents, businesses and property owners regarding the character of the community, potential issues to address and satisfaction with the City's administration, services and facilities.	City Administrator Assistant City Administrator	Ongoing
Be proactive in the pursuit and utilization of new technologies that may contribute to more effective communications with residents, businesses and property owners.	Administrative Staff	Ongoing
Maintain open lines of communication between the City Council and advisory committees.	Administrative Staff	Ongoing
Attempt to "learn from others" by consulting with other communities to leverage experiences and expertise, when appropriate.	Administrative Staff	Ongoing
Remain proactive in the pursuit and utilization of new technologies which may contribute to more effective operation and delivery of community services.	Administrative Staff	Ongoing
Operate in a fiscally sound manner and provide cost-conscious solutions for the provision of public services.	City Administrator	Ongoing
Allocate administrative and improvement costs to those generating the demand or utilizing the public services.	Administrative Staff	Ongoing
Encourage ongoing staff training and education as a means of maintaining the delivery of high quality services to residents.	Administrative Staff	Ongoing
The City will continue proactive maintenance of public facilities to avoid significant disrepair and/or breakdowns.	Public Works City Administrator	Ongoing
Pursue intergovernmental cooperation for the sharing of public services and facilities as a means of avoiding duplication and economizing City investments.	City Administrator	Ongoing
Maintain a 5-year Capital Improvement Plan which identifies needed public capital improvements and assigns costs and schedules based on project priority and funding availability. Table 14-1 outlines the City's Capital Improvement Program for 2020 to 2024.	City Administrator	Ongoing

2040 Comprehensive Plan

Elko New Market, MN

Zoning Map
Figure 14.1



601 Main Street
Elko New Market, MN 55054
phone: 952-461-2777 fax: 952-461-2782

MEMORANDUM

TO: CITY COUNCIL, PLANNING COMMISSION, EDA & CHAMBER OF COMMERCE
FROM: RENEE CHRISTIANSON, COMMUNITY DEVELOPMENT SPECIALIST
SUBJECT: COMMUNITY DEVELOPMENT UPDATES
DATE: NOVEMBER 22, 2019

Background / History

The purpose of this memo is to provide updates regarding miscellaneous projects and activities being worked on by Community Development staff. Below is a summary of projects that are currently being worked on, inquiries received, and miscellaneous information:

Christmas Pines – Streets have now been paved in this 20 lot residential townhome development. There are a few items left to complete including landscaping, street signs, and installing a second/final layer of pavement. The development is eligible for two building permits at this time. The City has received a building permit application for one townhome unit which is intended to be a spring Parade of Homes model.

Boulder Heights – Streets have now been paved in this 53 lot residential subdivision. There are still items left to be completed, including paving of 275th Street from CSAH 91 and Oxford Lane. The City does not anticipate that any homes will be constructed in the development over the winter months. The City is not currently planning to plow the streets in this development over the 2019/2020 winter months.

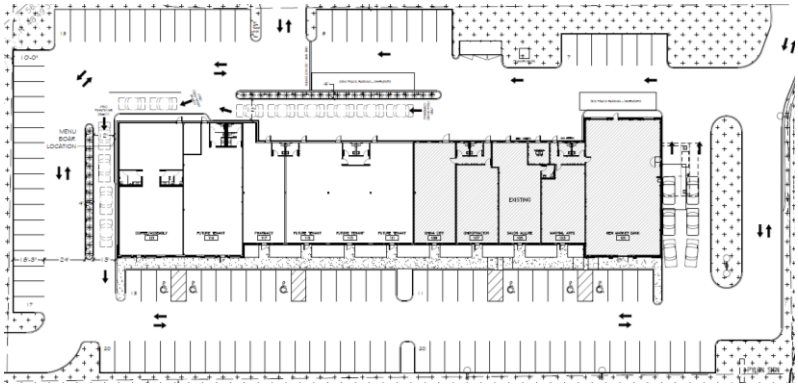
Dakota Acres / Global Properties – On 11/21/19 the City Council approved the plat of Dakota Acres 2nd Addition, as proposed by Global Properties. The plat contains one 3.1 acre lot, and a 68-unit apartment development is currently planned on this lot. Two separate apartment buildings are currently proposed; the first phase would consist of one 28-unit building. The property is zoned High Density Residential and apartments are a permitted use. Below is a rendering of a proposed building.

Dakota Acres 1st Addition / Syndicated Properties – This plat, which contains 28 attached townhome units, has been recorded with Scott County. The City has issued a building permit for one 4-unit townhome building within this development, which is now under construction. Construction of the private street in the development, and additional townhome units, is planned for the spring of 2020.

Adelmann Property – City staff has been working with the Adelmann family and their consultants in the preparation of an AUAR (environmental study) for their 242.5 acres located on the west side of the I-35 / CSAH 2 interchange. As part of the AUAR and preparation for development, several studies are being completed, including a wetland delineation, traffic impact study, tree inventory, Phase I ESA, and geotechnical work. The AUAR is scheduled for review by the Planning Commission on November 26, 2019. Following review by the Planning Commission, the City Council is scheduled to approve the AUAR for authorization of the 30-day public comment period.

Sylvester Meadows – The Planning Commission recommended approval of this proposed 9-lot residential subdivision on July 30th, 2019. The developer has requested that City Council action on the project be delayed, and he has extended the City's statutory review period for a required decision until June 1, 2020. The City Council has yet to act on the request.

Elko New Market Commerce Center – Construction has commenced on Phase II of the Elko New Market Commerce Center. The building permit has been issued on the "shell" building only. Finishing of the individual unit (interiors) will require separate building permits.



Pete's Hill – Construction on this 45 lot residential development has ceased for the season due to early winter weather conditions.

Degross Property – City staff is working with a developer regarding possible development of the Degross property. A wetland delineation has been completed on the property and the City is currently processing the wetland application.

Business Leads – There are no new business leads.

Building Permits – The City issued a building permit for a 4-unit townhouse building in October. The City also received two applications for single family home permits in November.

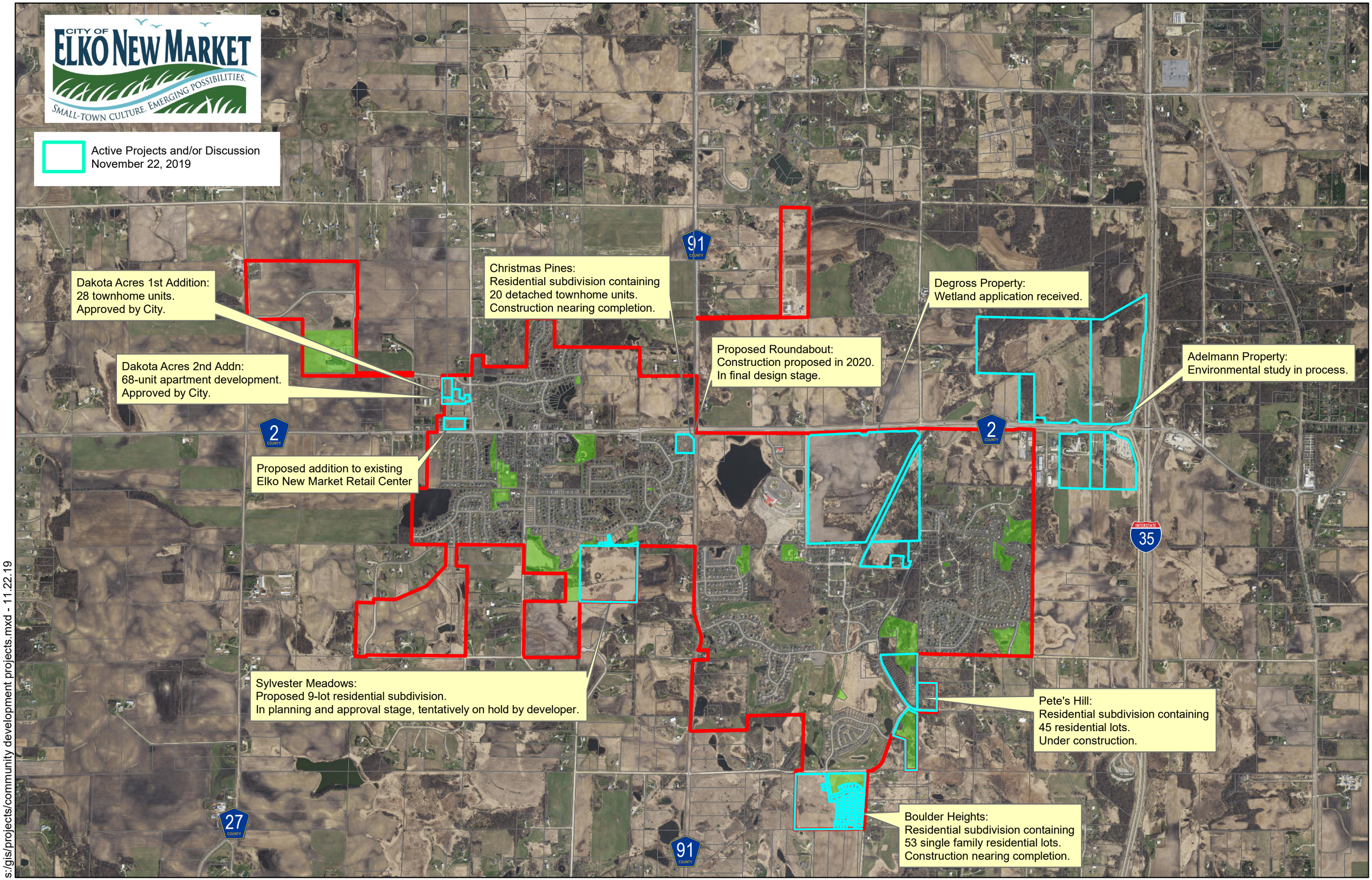
Ordinance Updates –

- Recreational Vehicle Storage – The Planning Commission is currently reviewing, and considering amendments to the City Code regarding the parking of recreational vehicles (boats, campers, fish houses, etc.) on residential properties within the City. The Planning Commission indicated that the ordinance, as currently written, may be overly restrictive and has directed City staff complete further research on the matter. A public hearing will be held prior to any changes being formally adopted.

- Garbage and Refuse – The Planning Commission is currently reviewing, and considering amendments to the City Code regarding the storage of garbage receptacles in residential zoning districts. The current ordinance requires that all garbage receptacles be stored within an enclosed building or fully screened from view. A public hearing will be held prior to any changes being formally adopted.

2040 Comprehensive Plan – City staff has been working on the draft 2040 Comprehensive Plan. The Planning Commission is scheduled to receive an overview of the draft 2040 Comprehensive Plan on November 26, 2019. The City Council must approve the draft Plan for review by adjacent jurisdictions. Adoption of the final plan is anticipated in 2020.

Roundabout Project – City staff and Bolton & Menk, the City's engineering firm, have been working on the roundabout project scheduled for construction in 2020. Construction plans and specifications are 95% complete and will be submitted to Scott County for review and approval in the near future.



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