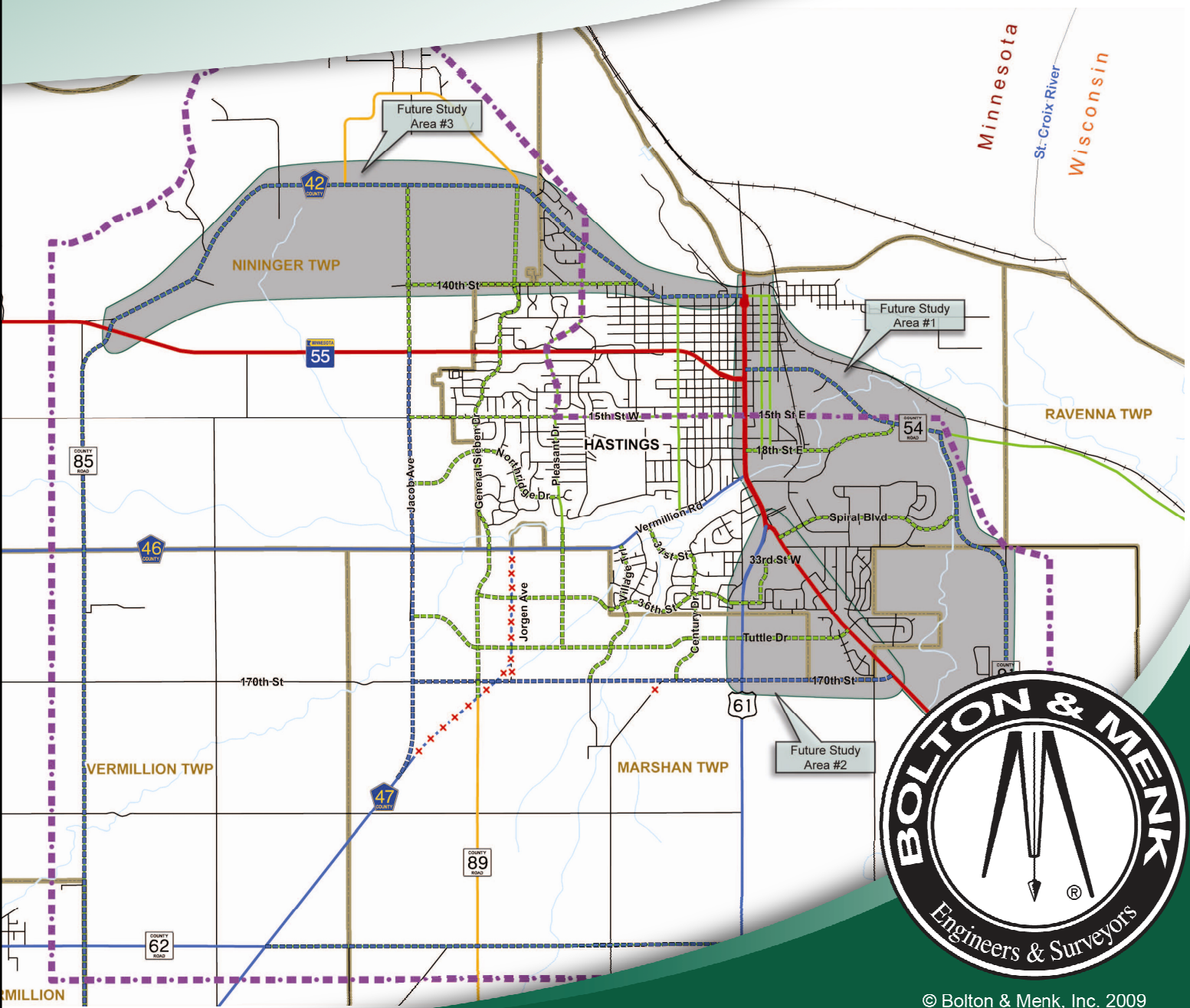
Hastings Area Roadway System Study

February 2009



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EXECUTIVE SUMMARY

The Hastings area is anticipated to reach a population over 30,000 by the year 2030. Highways 61 and 55 are currently congested roadways. To accommodate existing and anticipated future traffic, Dakota County and the City of Hastings, together with representatives from Marshan Township, Nininger Township, Metropolitan Council, and Minnesota Department of Transportation (Mn/DOT), have partnered together to develop a long–term roadway system vision to serve existing and future growth.

The overall Study Goal was to identify a long–term vision for a system of collector and arterial roadways in the potential growth areas south and west of the city that would provide for the future development of a safe and efficient system of roadways in the Hastings area. The three specific study goals were that the system vision be technically feasible, economically viable, and environmentally compatible.

Six (6) roadway network alternatives were identified and evaluated based on 13 study objectives. The identified Preferred Roadway Network alternative was a hybrid of two alternatives studied and is displayed in Figure 5 found on the following page. Based on current governmental funding, it is anticipated that the roadway network vision will be developed as land use changes are proposed. Section IV(B) includes implementation responsibilities for study participants to achieve the Preferred Roadway Network.

Figure 5 also identifies three areas where additional study is recommended. The outcomes of these studies are not expected to impact the Preferred Roadway Network.

- Study Area #1 – Eastern Minor Arterial Corridor. It is recommended that the eastern minor arterial corridor extend along CR 91 between TH 316 on the south and CR 54 on the north. The purpose of this study would be to identify the minor arterial corridor alignment and necessary safety and capacity improvements between the intersection of CR 54/91 and TH 61. The findings of this study will provide important information to be considered during the analysis associated with Study Area #2.
- Study Area #2 – Principal Arterial Designation. A focused study is necessary to determine whether TH 61 to TH 316 or TH 61 to 170th Street to TH 316 should be designated and improved with design characteristics consistent with a principal arterial route, including modifications to encourage regional traffic to use the principal arterial.
- Study Area #3 – Northern Minor Arterial Corridor. The purpose of this study would be to identify an east-west minor arterial corridor alignment that should be preserved and developed as land use changes occur in the area. The study limits are recommended to extend approximately ¼ mile north of CSAH 42 and ¼ mile south of 140th Street.

HASTINGS AREA ROADWAY SYSTEM STUDY

PREFERRED ROADWAY NETWORK ALTERNATIVE

FIGURE 5
2008

Future Study Area #3
Future Study Area #1
Future Study Area #2
NININGER TWP
RAVENNA TWP
VERMILLION TWP
MARSHAN TWP
VERMILLION
HASTINGS
Minnesota
Wisconsin
St. Croix River
140th St
15th St W
15th St E
18th St E
Spiral Blvd
33rd St W
31st St
36th St
Vermillion Rd
Tuttle Dr
170th St
Jacob Ave
General Sibley Dr
Northridge Dr
Pleasant Dr
Jorgen Ave
Century Dr
Hillcrest Dr
42
55
85
46
47
89
62
54
91
61
316

Legend

Preferred Roadway Network Alternative
- Proposed Minor Arterial
- Conceptual Major Collector
- Road Closure

Roadway Functional Classification
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Railroad
- Rivers & Streams
- Study Focus Area
- City/Township Boundary

Future Study Areas

Hwy. 61/Hwy 316: More Detailed Study Needed to Determine the Principal Arterial Route (Hwy. 316 or Hwy. 61/ 170th Street/Hwy. 316). Other Planned Roadway Corridors Will Not be Affected by the Outcome of the Future Study.

North & East Minor Arterials: More Detailed Study Needed to Identify Corridor Alignment.

N W E S

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Feet

BOLTON & MENK, INC.
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Map Document: (H:\DACO\T4222181\Arcview\22181 Preferred Roadway Network Alternative 2-No Aerial Large Symbols 11x17.mxd)
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I. INTRODUCTION & BACKGROUND

The city of Hastings is located in northeast Dakota County on the south side of the Mississippi River. State Highways 55 and 316, US Highway 61, together with County State Aid Highways (CSAH) 46 and 47, accommodate thru-trips, as well as trips beginning or ending in the Hastings area. To accommodate existing traffic and anticipated future traffic, Dakota County and the City of Hastings, together with representatives from Marshan Township, Nininger Township, Metropolitan Council, and Minnesota Department of Transportation (Mn/DOT), have partnered together to develop a long–term roadway system vision in the Hastings area to serve existing and future growth.

A. STUDY GOAL & STUDY AREA

The overall Study Goal is to identify a long–term vision for a system of collector and arterial roadways in the potential growth areas south and west of the city that will provide for the future development of a safe and efficient system of roadways in the Hastings area. The three specific study goals are that the system vision be technically feasible, economically viable, and environmentally compatible.

The study area is bound by the Mississippi River on the north, Pleasant Drive and 15th Street on the northeast, approximately County Road (CR) 85, approximately CR 91, and CR 62/190th Street alignment. The Study area boundary is illustrated in Figure 1.

B. NEED FOR STUDY

The City of Hastings, Dakota County, Mn/DOT, and area townships agree that given current congestion levels, it is necessary to plan for a system of roadways to support existing and planned growth in northeast Dakota County. Figure 2 displays issues identified relative to the existing transportation system.

EXISTING ROADWAY DEFICIENCIES

Trunk Highway (TH) 61 is a north/south corridor extending from southeast Minnesota generally along the Mississippi River. The corridor goes through downtown Hastings across the river at the busiest 2-lane bridge in Minnesota. Through the city of Hastings, the corridor includes multiple intersections and direct driveway accesses. The route is functionally classified as a principal arterial north of TH 316. North of Hastings, the route generally parallels I-35 and connects the cities of Cottage Grove, St. Paul Park, Newport, St. Paul, Maplewood, White Bear Lake, Hugo, Forest Lake, and Wyoming where TH 61 and I-35 converge. North of Duluth, TH 61 follows the Lake Superior shoreline and extends into Canada.

TH 55 is an east west principal arterial roadway. It provides connectivity from Hastings, through Minneapolis and its western suburbs of Golden Valley and Plymouth, and terminates at TH 75 near the Minnesota-North Dakota border.

Within the city of Hastings, TH 61 and TH 55 are currently congested roadways. The traffic signal controlled intersections, overall access spacing, and limited expansion potential on both corridors limit their ability to handle higher volumes of traffic.

TH 316 is a principal arterial route providing connectivity from TH 61 west of Red Wing to TH 61 south of 26th Street in Hastings. TH 316, between Tuttle Drive and TH 61, transitions through a variety of geometric configurations. This area also includes several property accesses and intersections. Within the city of Hastings, this roadway provides important regional traffic mobility, and due to adjacent land uses, the route also provides local circulation.

CSAH 46 is an east-west minor arterial corridor through central Dakota County. It provides connectivity between I-35 in Lakeville and TH 61 in Hastings. CSAH 47 provides continuity from Northfield northeast to Hastings. CSAH 46 and CSAH 47 converge east of General Sieben Drive. CSAH 46/47 (Vermillion Road) carried 10,700 vehicles per day in 2005 between TH 61 and Pine Street. This traffic volume is approaching the capacity of the roadway. Future traffic projections indicate 2025 average annual daily traffic (AADT) volumes are expected to increase to approximately 18,100 vehicles per day as this area of the city continues to grow. Appendix B details limitations of the CSAH 46/47 area.

There is a lack of north-south minor arterial roadways within the study area. Minor arterial roadways in urban areas are recommended by the Metropolitan Council to be spaced 1 to 2 miles apart in developing areas. In the approximate 9 miles between TH 61 and TH 52, CSAH 47 is the only minor arterial roadway. However, it does not provide north-south continuity. General Sieben Drive, Pleasant Avenue, and Pine Street are major collector roadways in Hastings that provide connectivity between CSAH 46 and TH 55. Their design and overall continuity makes them appropriate for local traffic. As a result, regional north-south traffic, typically provided by a minor arterial roadway, isn't accommodated.

Safe and efficient roadway route choices for local and regional traffic are necessary to reduce overburdening the existing highway and city street system.

Vision for Land Use in the Year 2030

The Metropolitan Council estimates the population in the Hastings area to increase from approximately 20,000 in 2000 to 32,500 by 2030. The City has been considering the magnitude of this growth during the development of their 2030 Comprehensive Plan. It is anticipated that 2030 land uses will extend south to 170th Street and west to Jacob Avenue as illustrated in Figure 3. Within Marshan, Nininger, and Vermillion Townships, land uses are anticipated to consist of primarily agricultural and open space activities, as well as limited single family residential opportunities. Based on the potential growth in the

Hastings area, it is necessary to plan for future transportation improvements to serve local and regional traffic.

Previous Planning Studies

Findings of the Highway 316 Bypass Feasibility Partnership Study completed in 2002 indicated that without improvements to the arterial roadway system, continued growth within the city of Hastings and the region would result in increased traffic volumes on the local street system and congestion on the arterial roadways. The study identified that the construction of a TH 316 bypass segment between TH 316 and TH 61 along the 170th Street alignment would improve the safety of the existing TH 316 segment north of Tuttle Drive by removing regional traffic from the corridor. The study identified that the bypass would improve regional mobility on the new corridor and TH 61. Further study of the arterial and collector system in the Hastings area was recommended.

Coordinating corridor routes and land use planning will result in a more sustainable community. Developing a comprehensive roadway network vision provides an opportunity to avoid negative environmental, social, and economic impacts. Rapidly increasing cost of land, future growth pressures, and traffic projections in the Study area identify the need for corridor planning.

C. Agency Coordination and Public Involvement Process

Agency coordination and public involvement were identified as key components to the success of the Study. These efforts provided the public and local agencies with continuing opportunities to be involved in the identification of preferred roadway system. Input from affected agencies and the public was important in lending credibility to key decisions made during the planning process.

A **Project Management Team** (PMT) was organized consisting of representatives from the City of Hastings, Dakota County, Dakota County Soil and Water Conservation District, Marshan Township, Nininger Township, Vermillion Township, Minnesota Department of Transportation (Mn/DOT) - Metro District, and Metropolitan Council. Members of the PMT were responsible for representing their agency's interests and reporting back information to their agency. Seven PMT Meetings were held over the course of the study. The responsibilities of the PMT included:

- Agree upon study goal, objectives, and evaluation criteria
- Identify and locate known environmental and cultural resources that may affect potential roadway network alignments
- Identify, review, and evaluate corridor alternatives
- Review and discuss public input
- Identification of a preferred roadway system alternative
- Develop consent on implementation strategies and responsibilities

Open House Meetings were held to provide a forum for the public to participate with local communities and the PMT on the development of roadway system alternatives. Notice for the meetings was provided to residents and businesses by means of press releases, the Dakota County website, and direct mailings of newsletters. The first meeting was held on August 28, 2007. The handout "Rationale for Study, Goals & Objectives, Evaluation Criteria" (Appendix A) was used to describe information about the Study. The objective of the first meeting was to explain the study objectives, present existing information regarding regional and local transportation problems and needs, present opportunities and challenges that may help determine potential transportation improvements, and receive public input on other issues.

A second meeting was held on January 17, 2008. The purpose of the second meeting was to present and receive public input on the potential regional and local transportation alternatives necessary to accommodate the projected long-term growth needs in the Hastings area.

The final open house was held on July 15, 2008. The focus of this meeting was to present and receive input on the preferred roadway network alternative. Summaries of the meetings and written comments received from the open house meetings are included in Appendix C.

County Website. The Dakota County website was utilized as a means to advertise public involvement opportunities and display information presented at open house meetings. This provided the opportunity for the public to keep abreast of the Study's progress.

Hastings City Council Meeting. A meeting was held on August 4, 2008 to present the Study findings and recommendations. The City Council approved Resolution 8-07-08 supporting the Study conclusions.

Nininger & Marshan Township Meetings. Separate meetings were held with Marshan Township on July 1, August 19, December 23, 2008, and January 12, 2009. Meetings with Nininger Township were held on July 7, August 19, September 11, December 23, 2008, and January 12, 2009. The purpose of these meetings was to provide opportunities for the townships, the county, and the study consultant to understand each others' perspectives on the transportation issues related to urbanized growth of Hastings. Both townships indicated they had reservations about the growth that the city of Hastings was planning for by 2030. As a result, both townships decided not to approve resolutions supporting the Study.

The city's planned growth for the year 2030 is consistent with Hastings' System Statement provided by the Metropolitan Council. The System Statement outlines the city's responsibility for accommodating their share of the anticipated growth in the Twin Cities Metropolitan region.

It was determined through this study that to ensure a safe and efficient system of roadways in the future, a vision for arterial and collector roadways must be identified prior to additional development occurring in the area. Refinements were made to the vision to remove future collector roads located outside of Hastings identified 2030 growth boundary, consistent with township input. Additionally,

Jacob Avenue between TH 55 and CSAH 42 was identified as a major collector corridor to reflect its more local role in the area. Ultimately, the vision identified in this study and illustrated in the Preferred Roadway Network Alternative will appropriately accommodate future development as it is currently planned. It is the intention of the county and the city to preserve these future collector and arterial roadway corridors as land use changes occur.

II. OBJECTIVES & EVALUATION CRITERIA

This planning level Study identified and evaluated potential roadway system alternatives, and screened alternatives based on their ability to be technically feasible, economically viable, and environmentally compatible. Objectives and evaluation criteria were identified to assess the alternatives' ability to achieve the study goals. Appendix E illustrates the evaluation matrix used in this study.

A. TECHNICALLY FEASIBLE

An important consideration for any roadway network alternative was that it be technically feasible. For purposes of this Study, this was defined as providing safe and efficient movement of people, goods, and services. Following were the technically feasible objectives and evaluation criteria considered.

Objectives	Evaluation Criteria (Likelihood to…)
1. Preserve and enhance the functionality of the Principal Arterial roadways in the Hastings Area (TH 55, TH 61 and TH 316).	1.1 Create Minor Arterial & Collector roadway connections that relieve travel demand on Principal Arterials by providing an efficient route alternative
2. Establish a vision for a Principal Arterial route between TH 61 and TH 316 to enhance regional mobility.	2.1 Provide a Principal Arterial route that could be improved to meet future travel demands between 25th Street & 170th Street
	2.2 Provide opportunity to reduce access locations to be more consistent with the targeted 1–mile spacing guidelines for improved safety & mobility of the corridor
	2.3 Provide Collector street connectivity that maintains land access while achieving Principal Arterial mobility functions
	2.4 Provide a corridor that offers options to drivers to efficiently connect them with the locations where their trips begin & end
3. Establish a Minor Arterial roadway vision that links to CSAH 47 corridor and CSAH 46 corridor to the Principal Arterial system, while allowing the development of a supportive system of collector roadways for local traffic circulation.	3.1 Create a corridor vision that can be developed to safely & efficiently meet the existing & future east-west travel demands on CSAH 46 between CSAH 47 & TH 61
	3.2 Create a corridor vision that can be developed to safely & efficiently meet the existing & future southwest-northeast travel demands on CSAH 47 between CSAH 46, TH 61 & TH 55
	3.3 Identify routes for a safe & efficient intersection with the Principal Arterial roadway & maintain access spacing on the Principal Arterial (1 mile spacing of Primary Intersections)
	3.4 Provide a corridor vision that offers options to drivers to efficiently connect them with the locations where their trips begin & end
	3.5 Provide public street access & traffic controls consistent with the Dakota County Transportation Plan for Minor Arterial roadways (½ mile spacing of Primary Intersections, ¼ mile spacing of Secondary Intersections)

4. Establishes a vision of existing and future collector roadways to accommodate trips beginning and ending within the City of Hastings.	4.1 Recognize & maintain the role of existing City of Hastings collector roadways (e.g. General Sieben Drive, Pleasant Drive, 15th Street, 36th Street)
	4.2 Expand Collector Street system to developing areas to promote connectivity with the city & to the Arterial Roadways (½ to 1 mile spacing between Major Collector roadways)
5. Integrate the movement of trips in the roadway network through system continuity and connectivity.	5.1 Provide continuity of roadways by minimizing jogs in Principal & Arterial roadways
	5.2 Provide safe & efficient crossings of the Principal & Minor Arterial roadways
	5.3 Avoid or minimize excessively continuous local roadways
	5.4 Identify existing & future function & jurisdictional responsibilities for each roadway in the Study area

B. ECONOMICALLY VIABLE

The ability to achieve an economically viable roadway network was an important study goal. This included considering the ability for local, regional, and state government to strategically invest public dollars, while preserving and promoting residential, agricultural, and business activities.

OBJECTIVES	**EVALUATION CRITERIA (Likelihood to…)**
6. Minimize roadway construction and right-of-way costs.	6.1 Maximize use of existing roadway alignments, bridges & right-of-way
	6.2 Minimize the number of potential business & residential relocations
	6.3 Avoid or minimize future roadway alignments in areas with soils not suitable for roadway construction or known hazardous waste sites
	6.4 Minimize need for new bridges over the Vermillion River & other costly structures
7. Provides an opportunity for corridors to be established through development driven initiatives.	7.1 Locate roadways within 2030 growth boundary or adjust 2030 growth boundary to include critical roadway connections
8. Maintain accessibility of existing business and civic destinations.	8.1 Provide local & collector street access to properties that efficiently connects to trip origins
9. Maintain opportunity for quality development opportunities.	9.1 Minimize severing of large development properties
10. Provide opportunity for continued agricultural operations.	10.1 Avoid or minimize impacts & severing of prime farmlands outside of the city 2030 growth boundary
	10.2 Avoid or minimize impacts to existing agricultural land irrigation systems

C. ENVIRONMENTALLY COMPATIBLE

While accommodating regional and local transportation needs were important Study goals, it was recognized that environmental and cultural resources needed to be carefully reviewed and impacts avoided or minimized. To be considered environmentally compatible, a roadway system alternative avoids or minimizes impacts to known environmental features and known sensitive areas or groups of people. Following are the objectives and evaluation criteria considered.

OBJECTIVES	EVALUATION CRITERIA (Likelihood to…)
11. Avoid or minimize impacts to environmental features in the Hastings area.	11.1 Avoid or minimize wetland & flood plain impacts
	11.2 Avoid or minimize impacts to quality wooded areas, regionally significant ecological areas & known habitats of threatened or endangered species
	11.3 Avoid or minimize new crossings of the Vermillion River
12. Avoid impacts to known sensitive areas or groups of people.	12.1 Avoid roadway alignments on or near known historic properties, cemeteries, known archeological sites or groups of people
13. Avoid or minimize impacts to parkland.	13.1 Avoid park & trail (Section 4f) impacts

An Environmental and Cultural Resources Overview Memorandum, including exhibits of known natural and cultural resource areas, can be found in Appendix D. The primary use of this information was to develop alternatives that avoided or minimized impacts to resources or sensitive areas. This report also provides a basis for understanding potential environmental and cultural resource impacts associated with each roadway system alternative.

Known environmental features evaluated included floodplains, wetlands, woodlands, trails and parks, Mississippi River Critical Area, Mississippi National River and Recreation Area, endangered or threatened species, shoreland districts, Vermillion River Watershed, prime farmlands, soil suitability for roadway construction, and agricultural preserves. Known sensitive areas evaluated include cemeteries, historic sites, archaeological sites, leaking underground storage tanks, and hazardous waste sites.

It is anticipated that further review of resources may be required under federal laws or state statutes depending on funding for construction or permitting issues.

III. ROADWAY NETWORK ALTERNATIVES

Six collector and arterial roadway network alternative concepts were developed. These alternatives were considered and evaluated based on the various factors identified in Sections I and II and are displayed in Figures 4A through 4F.

A. ALTERNATIVES

Developing the long-term roadway network vision began with the establishment of the minor arterial roadway system. Metropolitan Council standards recommend minor arterial roadways be spaced 1-2 miles apart in an urban or urbanizing area. These roadways have an emphasis on mobility rather than access, and they accommodate trips longer than 5 miles. Roadways of this functional classification are generally designed to have a 45 to 55 mile per hour travel speed. Intersections on minor arterial roadways are recommended to be spaced at ½ mile intersections with major collector roadways.

A goal in developing the minor arterial system vision was to improve connections between principal (i.e. TH 55, TH 61, and TH 316) and minor arterial roadways. The alternatives developed included two primary variations to the minor arterial system vision, as well as two hybrid variations.

- Variation #1 – develops a new north-south minor arterial corridor using Jacob Avenue. It maintains the east-west minor arterial at CSAH 46, and establishes a new east-west minor arterial corridor at the 170th Street alignment. Roadway network Alternatives A and B are within this variation.

- Variation #2 – develops a new east-west minor arterial corridor using CSAH 46 and the 170th Street alignment. A new north-south minor arterial corridor would be developed along the Jacob Avenue alignment and connect to CSAH 47 via CSAH 46. Roadway network Alternatives C and E are within this variation.

- Hybrid #1 – roadway network Alternative D is based on Variation #2, but the minor arterial designation on existing CSAH 46/47 between Pleasant Avenue and TH 61 remains.

- Hybrid #2 – roadway network Alternative F is similar to Variation #1, but it includes a new east-west minor arterial at CSAH 42 and a new north-south minor arterial using CR 91, CR 54, and 10th Street.

With the framework of minor arterial roadways, major collector roadways were incorporated. According to the Metropolitan Council, major collector roadways in urban areas should be spaced ½ to 1 mile apart. These roadways allow for the movement of local traffic and provide interconnectivity between neighborhoods, business concentrations, and arterial roadways. Access to these roadways is recommended to be spaced at ¼ mile intervals.

Following are descriptions of the roadway network alternatives. A larger version of each alternative can be found in the Figures section of this report.

ALTERNATIVE A – FIGURE 4A

Alternative A includes a new north-south minor arterial corridor using Jacob Avenue and CR 89. It also includes a new east-west minor arterial along the 170th Street alignment between Jacob Avenue and TH 316. CSAH 46 would maintain its current alignment to TH 61, and CSAH 47 would terminate at the new north-south minor arterial.

ALTERNATIVE B – FIGURE 4B

Alternative B includes a new north-south minor arterial corridor using Jacob Avenue and CSAH 47. Like Alternative A, it includes a new east-west minor arterial along the 170th Street alignment between Jacob Avenue and TH 316. CSAH 46 would maintain its current alignment to TH 61, and CSAH 47 would follow the Jacob Avenue alignment to TH 55.

ALTERNATIVE C – FIGURE 4C

Alternative C would include CSAH 46 maintaining its current alignment to Pleasant Avenue, and curve south and east to follow the 170th Street alignment to TH 316. CSAH 47 would follow the existing alignment to CSAH 46. A new north-south minor arterial corridor along Jacob Avenue between TH 55 and CSAH 46 would also be incorporated.

ALTERNATIVE D – FIGURE 4D

Alternative D includes a new north-south minor arterial corridor using the Jacob Avenue alignment between CSAH 46 and TH 55, as well as maintain connections between CSAH 46 and CSAH 47 on the Jorgen Avenue alignment. CSAH 46 would maintain its current alignment to TH 61. CSAH 47 would follow the 170th Street alignment to TH 316.

ALTERNATIVE E – FIGURE 4E

Alternative E includes CSAH 46 maintaining its current alignment to General Sieben Drive, and curving south along Jorgen Avenue and east to follow the 170th Street alignment to TH 316. CSAH 47 would follow its existing alignment and terminate at the new CSAH 46 alignment. A new north-south minor arterial corridor using the Jacob Avenue alignment between CSAH 46 and TH 55 would also be incorporated.

ALTERNATIVE F – FIGURE 4F

Alternative F includes a new north-south minor arterial corridor using Jacob Avenue and CR 89. CSAH 46 would maintain its current alignment to TH 61, and CSAH 47 would follow the 170th Street alignment to TH 316. A new east-west minor arterial corridor following CSAH 42 and a new north-south minor arterial corridor following CR 91, CR 54, and 10th Street would be part of this alternative.

A seventh alternative was developed after Open House #2 based on comments received from Goodhue County to maintain direct continuous routes. This alternative maintained continuity between CSAH 47 northeast to CSAH 46, CR 89 to Jacob Avenue, and CSAH 46 to 170th Street. The PMT dismissed this alternative, because the minor arterial corridors would be spaced closer than 2 miles apart as identified in Metropolitan Council guidance. Additionally, it was noted that the corridors could result in more challenges for future development on adjacent properties based on how they diagonally bisect parcels.

B. RATING SYSTEM

The criteria outlined in Section II were used to evaluate alternatives and identify the likelihood to achieve the outlined objectives. Additionally, a rating was applied to distinguish the primary differences between the alternatives. This rating system is defined as follows

- No Difference in Roadway Network Alternatives
- Rating is Similar When Compared to Other Alternatives
- Rating is a Strength When Compared to Other Alternatives
- Rating is a Weakness When Compared to Other Alternatives

C. ALTERNATIVE COMPARISON FINDINGS – ADVANTAGES & LIMITATIONS

Of the 30 evaluation criteria considered, 16 ratings were similar or had no difference when compared to other alternatives. The remaining 14 criteria represent the primary differences between the alternatives. These areas were

- Technically Feasible – Objective 3: Establish a Minor Arterial roadway vision that links the CSAH 47 and 46 corridors to the principal arterial system, while allowing the development of a supportive system of collector roadways for local traffic circulation
- Technically Feasible – Objective 5: integrate the movement of trips in the roadway network through system continuity & connectivity

- Economically Viable – Objective 6: minimize roadway construction & right-of-way costs

- Environmentally Compatible – Objective 11: avoid or minimize impacts to environmental features – new Vermillion River crossings

Details of the ratings by objective and evaluation criteria can be found in Appendix E. Following is a summary of the three goals.

TECHNICALLY FEASIBLE

When considering which alternatives best meets the goal of being technically feasible, Alternative F (Figure 4F) rates higher than the other alternatives, followed by Alternatives A and B.

The Metropolitan Council 2030 Regional Travel Demand Model was used to estimate each alternative's ability to reduce regional travel demand on TH 55, TH 61, and TH 316. The findings indicate that a significant amount of trips on TH 316 are destined to Hastings or across the TH 61 bridge. Regional trips beginning from the southeast and destined to the northwest through the Hastings area (and vice versa) are found to not represent a significant portion of the regional travel demand on TH 316.

The regional travel demand modeling analysis identifies that Alternative F is more effective than Alternatives A or B at providing efficient options to connect drivers to locations where their trips begin or end and relieving regional travel demand on the principal arterial roadways. This is because Alternative F includes minor arterial corridors on the north, south, east, and west sides of the Hastings area, accommodating regional and local travel demand and providing the ability for travelers to avoid congestion on the principal arterial routes to reach their desired destinations. The other alternatives evaluated do not contemplate minor arterial corridors on the north or east sides of the City. The traffic modeling methodology for this study can be found in Appendix F.

As an interim solution for Alternatives A, B, F, Alternative D is identified as a possible option, because of the existence of Jorgen Avenue. In the long term, Alternative D is not as effective in meeting travel demand needs due to the lack of north-south continuity of Jacob Avenue.

Alternatives C and E do not meet east-west or southwest to northeast travel demand. They also lack continuity due to jogs and curves in corridor alignments.

ECONOMICALLY VIABLE

The evaluation considers how well the alternatives could achieve an economically viable roadway network. It was found that more poor soils are likely to be encountered in Alternatives C, D, and E than the other alternatives. Alternatives B and C have been identified as requiring the least new right-of-way and Alternative F

requires the most. This is because minor arterial corridors are not contemplated on the north or east sides of the City in the other alternatives. Alternatives A, B, and F require a new Vermillion River crossing, resulting in additional project costs.

The curves on Alternatives C and E could result in more challenges for future development on adjacent properties. Based on the current funding situation at the local, county, and state level it is anticipated that new roadways would be achieved when land use changes and/or development occurs. Overall, Alternatives A, B, and F rate higher than the other alternatives.

Environmentally Compatible

Alternatives were developed to avoid existing known environmental and cultural resources described in Appendix D. While the Vermillion River is not designated as a trout stream within the study area, Alternatives A, B, and F require a new Vermillion River crossing, resulting in additional environmental impacts and lower ratings than Alternatives C, D, and E.

Environmentally sensitive habitats and protected environmental features, as well as challenging terrain, exists east of TH 316 in the Sand Coulee Flowage area. These features limit development potential. They also limit the ability and need to provide additional roadway corridors between TH 316 and CR 91.

Summary

The following graphic provides a summary comparison between each alternative's ability to meet the study goals of being technically feasible, economically viable, and environmentally compatible.

Comparison Between Alternatives - Which Alternative Best Meets Study Goal?

Study Goals	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Technically Feasible	🟠	🟠	🔴	🔴	🔴	🟢
Economically Viable	🟢	🟢	🔴	🔴	🔴	🟩
Environmentally Compatible	🟠	🟠	🟢	🟢	🟢	🟠

🟢 Most Likely to Meet Objective -- 🟠 Somewhat Likely to Meet Objective -- 🔴 Least Likely to Meet Objective

🟩 Alternative F was the only alternative that consider minor arterial corridors on the north and east side of the Hastings area

IV. PREFERRED ROADWAY NETWORK ALTERNATIVE

After evaluating comments received at Open House #2, the PMT convened to identify a preferred roadway system alternative. The study confirmed that TH 55, TH 61, and TH 316 provide appropriate connectivity to other principal arterials and meet Federal Highway Administration (FHWA) spacing guidelines. As a result no new principal arterial corridors are recommended in the Hastings area.

Through a process of elimination, the PMT agreed that a hybrid of Alternative B and Alternative F best meet the study objectives. Following were the minor arterial features of Alternative B and F that were merged together to create the Preferred Roadwork Network

- Alternative B – north-south continuity with CSAH 47 to Jacob Avenue and east-west continuity of both CSAH 46 and 170th Street
- Alternative F – incorporation of route north of TH 55 east to TH 61 and a route from TH 316 on the east side of the City of Hastings to TH 61

The Preferred Roadwork Network can be found in Figure 5. It also includes the extension of the minor arterial designation on Jacob Avenue north of TH 55 to the northern minor arterial. Revisions were also developed to the major collector routes in the area bound by CSAH 46, 170th Street, Jorgen Avenue, and Jacob Avenue to improve local traffic circulation between future neighborhoods.

As additional growth occurs in the Hastings area and to assist in managing travel demand on these routes, providing choices for travelers to connect with where their trips begin and end will be of the upmost importance. This can best be accomplished by developing the Preferred Roadwork Network as land use changes occur and managing access to these corridors consistent with FHWA standards.

A. FUTURE STUDY AREAS

Additional study is recommended at three different locations within the study area. These locations are illustrated on Figure 5.

EASTERN MINOR ARTERIAL CORRIDOR – STUDY AREA #1

It is recommended that the eastern minor arterial corridor extend along CR 91 between TH 316 on the south and CR 54 on the north. The purpose of this study would be to identify the minor arterial corridor alignment between the intersection of CR 54/91 and TH 61. The recommended study limits would be approximately 18th Street on the south and the railroad tracks on the north. The scope of this study should include an analysis of the geometric improvements necessary to provide appropriate mobility through the existing built environment on the east side of Hastings. Consideration and assessment of impacts should include pedestrian safety associated with street crossings, especially near Kennedy Elementary School and Smead Manufacturing, and overall traffic operations with the existing one-way streets (Tyler and Ramsey). The findings of this study will provide important information to

be considered during the analysis associated with Study Area #2. Recommended study partners include the city of Hastings, Dakota County, Marshan Township, Mn/DOT, and potentially Ravenna Township.

PRINCIPAL ARTERIAL DESIGNATION – STUDY AREA #2

A focused study is necessary to determine whether TH 61 to TH 316 or TH 61 to 170th Street to TH 316 should be designated and improved with design characteristics consistent with a principal arterial route. This study may also include modifications to encourage regional traffic to use the principal arterial. Other planned roadway corridors identified in the Preferred Roadway Network would not be impacted by the outcome of this future study. Recommended study partners include Mn/DOT, city of Hastings, and Dakota County.

NORTHERN MINOR ARTERIAL CORRIDOR – STUDY AREA #3

The purpose of this study would be to identify an east-west minor arterial corridor alignment that should be preserved and developed as land use changes occur in the area. The study limits are recommended to extend approximately ¼ mile north of CSAH 42 and ¼ mile south of 140th Street. The scope of this study should include the development of a conceptual layout and profile, identification of primary and secondary intersections, and approximate grading limits. This information would allow for the corridor to be constructed as land use changes occur. Recommended study partners include Dakota County, city of Hastings, Nininger Township, and Mn/DOT.

B. IMPLEMENTATION

The intent of this section is to describe the understanding shared by the City of Hastings, Dakota County, Marshan Township, Nininger Township, and Mn/DOT as to the respective responsibilities of each for preserving and ultimately developing the Preferred Roadwork Network.

The following identifies the tasks and parties responsible for implementation of the Preferred Roadway Network

- Include the Preferred Roadway Network in Transportation and/or Comprehensive Plans (County, City, and Townships)
- Ensure development is consistent with the objectives outlined in this Study (all)
- Consistent with city standards, preserve 80’ of right-of-way for major collector corridors; consistent with Dakota County standards, preserve 150’ for minor arterial corridors (all)

- Maintain ¼ mile access spacing on major collector roadways and ½ mile spacing of primary intersections and ¼ mile spacing of secondary intersections consistent with Dakota County standards on minor arterial roadways (City and Townships)
- Plan for and accommodate pedestrian and bicycle facilities in the development of collector and arterial roadways (City and County)
- Incorporate identified minor arterial corridors in Dakota County's Road Plat Review Needs Map (County)
- Require the completion of appropriate environmental reviews as required by state or federal law (County and City)