

Highway 52/42/55  
Interchange and  
Highway 55  
Regional Corridor  
Study

## Executive Summary

May 2002



## Highway 52/42/55 Interchange Partnership Study Project Management Team (PMT)

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# Executive Summary

## Introduction

This Highway 52/42/55 Interchange Partnership Study is part of Mn/DOT's statewide Moving Minnesota initiative and focuses on the needs of Highway 55 and Highway 42 between Highway 52 and the City of Hastings. The key outcomes of this Partnership Study include the identification of a preferred ultimate roadway system plan for the study area and the identification of a preferred concept for the Highway 52/42 interchange. The preferred interchange concept can immediately progress into preliminary design and official mapping activities. Right-of-way can then be reserved for the ultimate interchange configuration.

The Executive Summary presents the purpose and need for the study and highlights the key outcomes of this study process. Details regarding the following study content are provided in the body and Appendix of this report:

- Public involvement
- Background/issues identification
- Overall study area system options identification and evaluation
- Highway 52/42 interchange alternatives identification and evaluation

A summary of major study area issues is presented in Figure ES-1.

## Purpose and Need

The purpose and need of this study is to:

- Assess the need to improve the study area roadway network to accommodate land use development plans of surrounding communities 20 years into the future.
- Maintain Highway 42 as an important roadway for east-west through traffic. This will include considering improvement to a four-lane facility and managing the spacing of direct access roadways.
- Maintain Highway 52 as an important roadway for north-south through traffic. This includes assessing the need to eliminate the existing Highway 52/55 interchange and assessing the need to reconstruct the existing Highway 52 interchange at Highway 42. In conjunction with the elimination of the Highway 52/55 interchange, the potential to combine Highway 42 and Highway 55 into a continuous east-west principal arterial will be considered.
- A supporting roadway system is needed including frontage and backage roads to serve the identified land uses.
- Address the existing limited visibility between the Highway 52 ramp approaches along Highway 42 under the Highway 52 bridges and alignment of Highway 42. Address the deficient ramp lengths at the Highway 52/42 interchange.



# Highway 52/55/42 Interchange Partnership Project

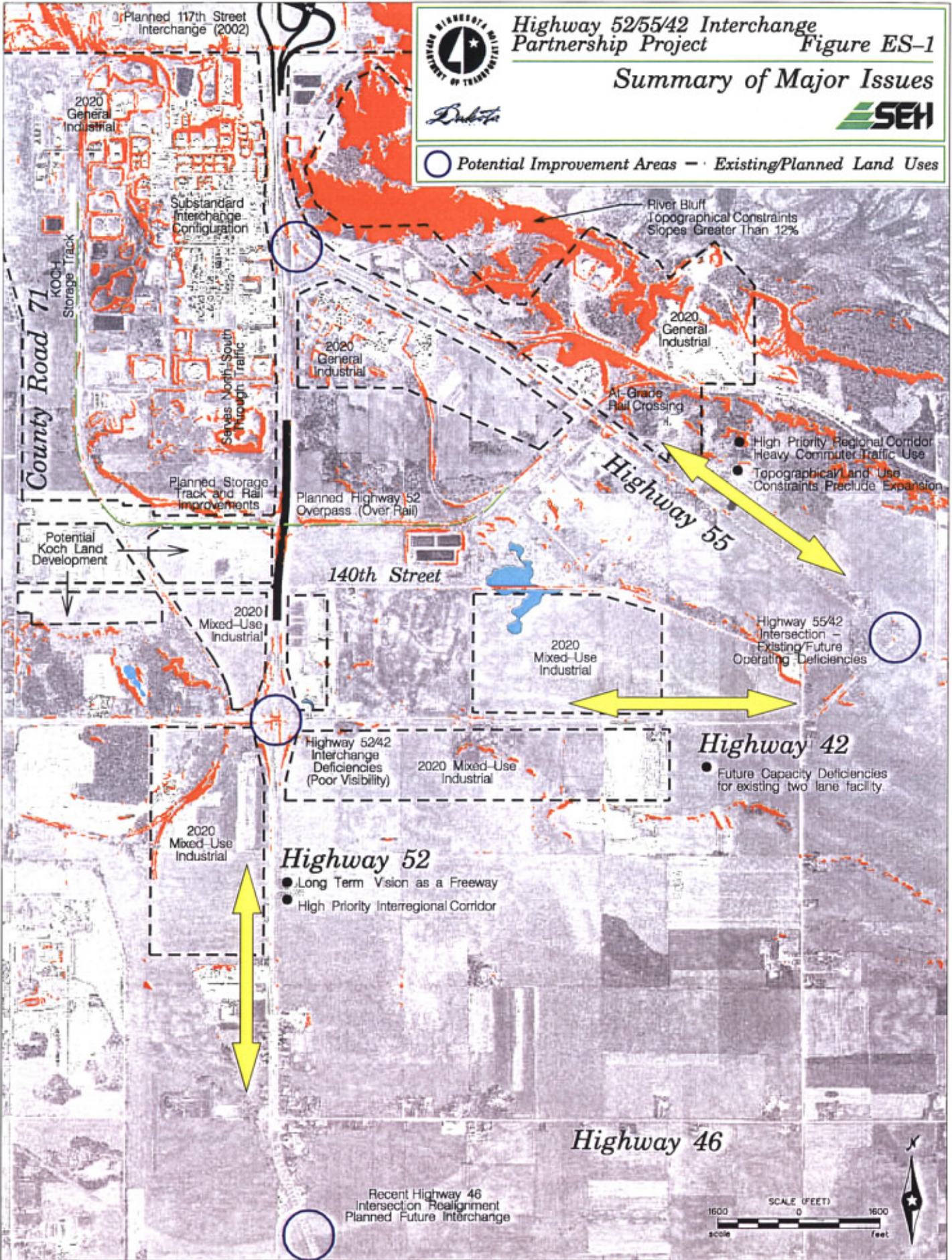
## Figure ES-1

### Summary of Major Issues

*Dubois*



○ Potential Improvement Areas — Existing/Planned Land Uses



Planned 117th Street Interchange (2002)

2020 General Industrial

Substandard Interchange Configuration

County Road 71

KOCH Storage Track

Serves North-South Through Traffic

Planned Storage Track and Rail Improvements

2020 General Industrial

Planned Highway 52 Overpass (Over Rail)

River Bluff Topographical Constraints Slopes Greater Than 12%

2020 General Industrial

At-Grade Rail Crossing

● High Priority Regional Corridor Heavy Computer Traffic Use

● Topographical Land Use Constraints Preclude Expansion

Highway 55

Potential Koch Land Development

140th Street

2020 Mixed-Use Industrial

2020 Mixed-Use Industrial

Highway 55/42 Intersection - Existing/Future Operating Deficiencies

Highway 52/42 Interchange Deficiencies (Poor Visibility)

2020 Mixed-Use Industrial

Highway 42

● Future Capacity Deficiencies for existing two lane facility

2020 Mixed-Use Industrial

Highway 52

● Long Term Vision as a Freeway

● High Priority Interregional Corridor

Highway 46

Recent Highway 46 Intersection Realignment Planned Future Interchange



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## Preferred Highway 52/42/55 System Option

Due to the unique transportation flow characteristics of the Highway 52/42/55 triangle, a comprehensive range of eight system level alternatives were developed and assessed. Through a comparative screening and evaluation process, the Project Management Team (PMT) was able to identify a preferred system option. The preferred system option has been identified as Option F and is shown graphically in Figure ES-2.

The following positive characteristics of Option F outweigh the shorter travel distance (1.4 miles) and travel time (1.7 minutes during peak periods) associated with other options that maintain the existing Highway 55 diagonal segment and interchange with Highway 52.

- Eliminates substandard Highway 52/55 interchange.
- Upgrades Highway 42/55 to a four-lane continuous east-west facility from west of Highway 52 to Highway 61 in Hastings. This will improve continuity/reliability for east-west through traffic.
- Reorients arterial commuter traffic from a two-lane Highway 55 to an upgraded four-lane Highway 42/55 facility. The diagonal segment of Highway 55 becomes a collector roadway (Courthouse Boulevard) compatible with existing and future direct property access.
- Eliminates weave movement from 117<sup>th</sup> Street interchange to Highway 52 left hand exit.
- Provides intermediate 140<sup>th</sup> Street crossing of Highway 52 between 117<sup>th</sup> Street and Highway 42 interchanges. This crossing will enhance the integrity of Highway 52 and the adjacent interchange by reducing local traffic use of these facilities.
- Environmental impacts limited to impacts on agricultural land along Highway 42 and in the Highway 52/42 interchange area.
- Development of Highway 42/55 as a continuous east-west facility that will minimize conflicting side street volumes. This in turn will minimize the need for a signal.
- Avoids support roadway improvements along the topographically constrained Highway 55 corridor.

Two critical support roadway connections were assessed in detail during this study resulting in the following preferred treatments:

- The Courthouse Boulevard intersection with Highway 42/new 55 would be relocated approximately ½-mile west of the existing west intersection of Highway 42 and Highway 55. Courthouse Boulevard would form the minor street leg (see Figure ES-2).
- The Courthouse Boulevard connection to 117<sup>th</sup> Street would be made adjacent to the east side of Highway 52. This would require a constrained segment along the Pine Bend Cemetery with constrained roadway dimensions and railroad clearance.

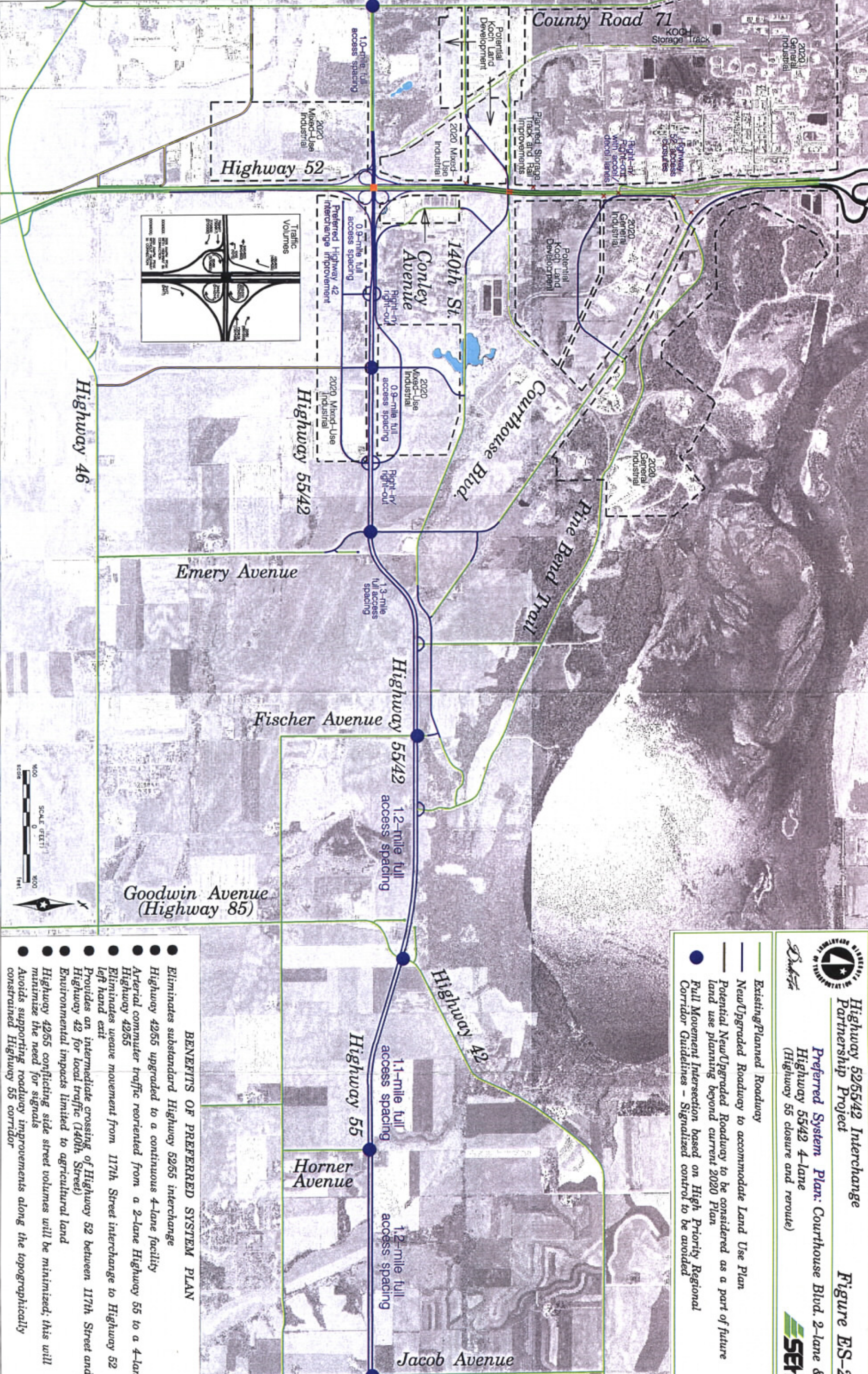
Highway 52/55/42 Interchange  
 Partnership Project  
 Figure ES-2



Preferred System Plan: Courthouse Blvd. 2-lane & Highway 55/42 4-lane (Highway 55 closure and reroute)



- Existing/Planned Roadway
- New/Upgraded Roadway to accommodate Land Use Plan
- Potential New/Upgraded Roadway to be considered as a part of future land use planning beyond current 2020 Plan
- Full Movement Intersection based on High Priority Regional Corridor Guidelines - Signalized control to be avoided



**BENEFITS OF PREFERRED SYSTEM PLAN**

- Eliminates substandard Highway 52/55 interchange
- Highway 42/55 upgraded to a continuous 4-lane facility
- Arterial commuter traffic reoriented from a 2-lane Highway 55 to a 4-lane Highway 42/55
- Eliminates weave movement from 117th Street interchange to Highway 52 left hand exit
- Provides an intermediate crossing of Highway 52 between 117th Street and Highway 42 for local traffic (140th Street)
- Environmental impacts limited to agricultural land
- Highway 42/55 conflicting side street volumes will be minimized; this will minimize the need for signals
- Avoids supporting roadway improvements along the topographically constrained Highway 55 corridor

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## Highway 52/42 Interchange Alternative

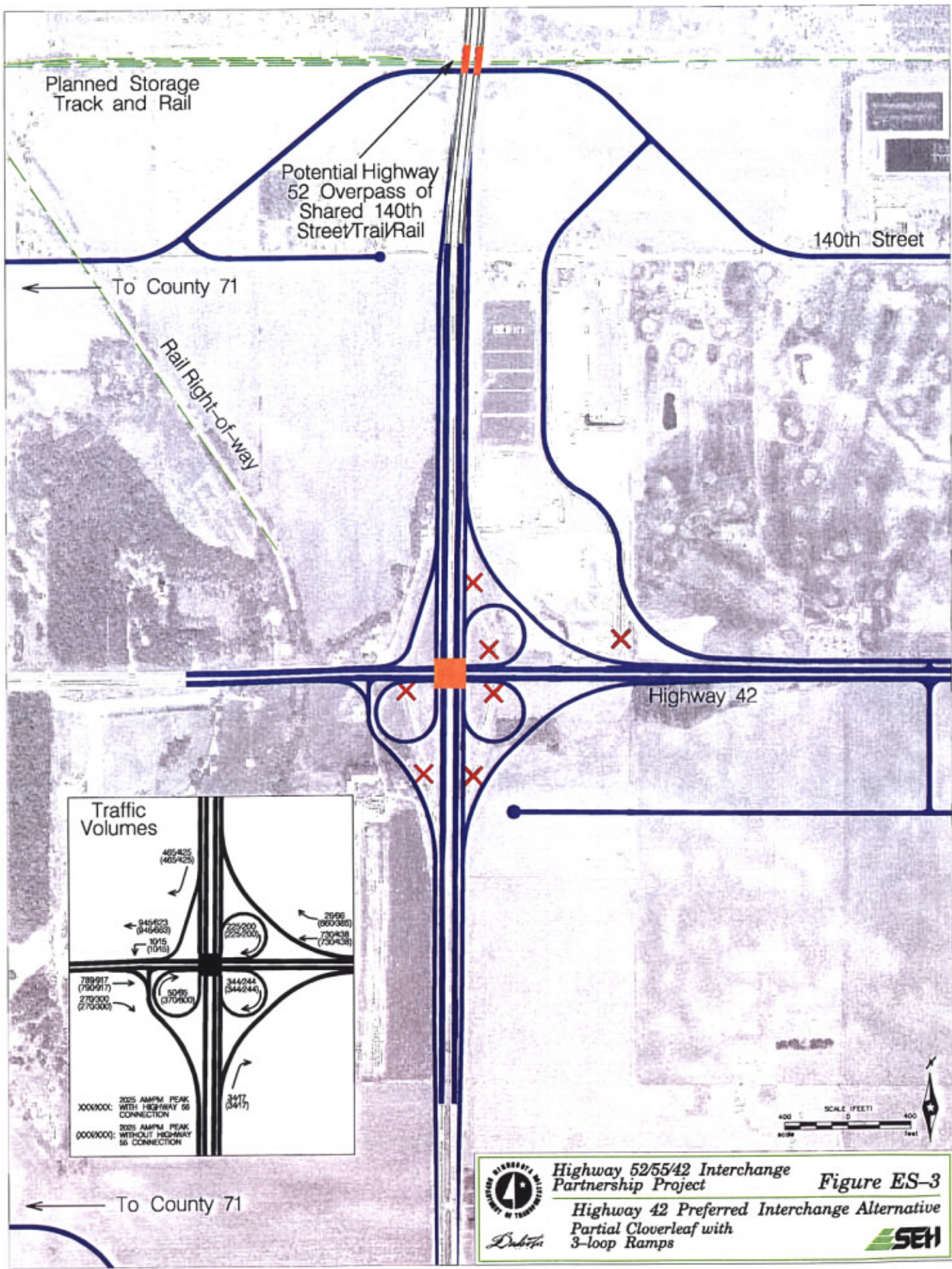
A wide range of configuration alternatives for the Highway 52/42 interchange have been considered and assessed with respect to operational utility, compatibility with future land use development, and overall land area impacts. The elimination of the Highway 55 interchange with Highway 52 would require the reorientation of current Highway 55 traffic between the north and east to the Highway 42 interchange. How this major movement between the north and east is accommodated is a major factor in the development and assessment of Highway 42 interchange alternatives.

Six alternatives have been identified that provide a comprehensive range of configurations for the Highway 52/42 interchange.

Alternative 5B, identified as the preferred interchange configuration, is shown graphically in Figure ES-3. This configuration provides a high level of overall interchange operations, ensures free flow operations for Highway 42 through traffic by eliminating the need for signals, and provides free flow ramps for all major movements. The operational integrity of the interchange is high due to the provision of free flow conditions and can be easily signed and understood by motorists. Furthermore, the interchange configuration and absence of signals is highly compatible with the heavy existing/future truck traffic activity through the interchange.

### Implementation Plan

An Implementation Plan has been developed for the preferred study area roadway system alternative as shown in Table 1. A logical order of improvements is proposed to ensure that the best possible traffic flow/operations are maintained over time. Actual implementation timeframes will be driven by needs along study area roadways and funding availability. Based on the 2020 Land Use Plan and year 2025 forecast traffic volumes, this Implementation Plan could have a 25-year or greater timeframe based on statewide funding priorities. This Implementation Plan assumes the completion of the 117<sup>th</sup> Street interchange (including the required bridge structure for the shared Union Pacific Rail and 140<sup>th</sup> Street underpass) and the Highway 55/Highway 42/County Road 85 intersection realignment improvement projects.



Planned Storage Track and Rail

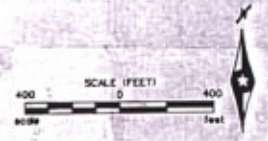
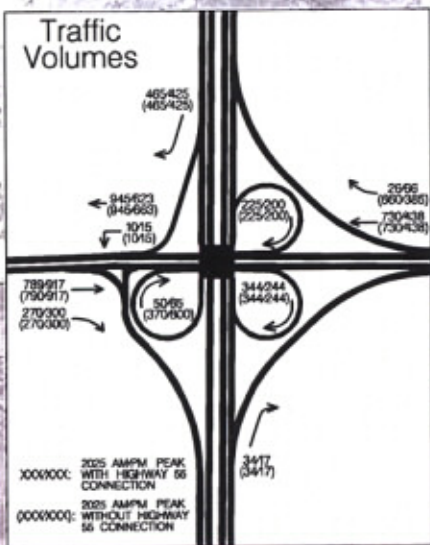
Potential Highway 52 Overpass of Shared 140th Street/Trail/Rail



140th Street

To County 71

Rail Right-of-way

Highway 42




**Highway 52/55/42 Interchange Partnership Project** **Figure ES-3**  
**Highway 42 Preferred Interchange Alternative**  
**Partial Cloverleaf with 3-loop Ramps**  


To County 71



**Table 1**  
**Implementation Plan**  
**Highway 52/42/55 Interchange Partnership Study**

	<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>
Priority Improvement Elements	<ul style="list-style-type: none"> <li>Reconstruct Highway 52/42 interchange including four-lane section on Highway 42.</li> </ul>	<ul style="list-style-type: none"> <li>Realign Highway 42 and Highway 55 to form a continuous east-west facility through the Highway 55/42 west junction area</li> </ul>	<ul style="list-style-type: none"> <li>Remove existing Highway 55 interchange with Highway 52.</li> </ul>
Key associated improvement elements that <u>may</u> be done concurrently with major improvement element.	<ul style="list-style-type: none"> <li>Construct rail overpass north of 140<sup>th</sup> Street (proposed by 117<sup>th</sup> Street design for 2002-2004 construction).</li> <li>Construct 140<sup>th</sup> Street connection to under Highway 52.</li> <li>Revise west side Highway 52 frontage road adjacent to Koch to right-in/right-out)</li> </ul>	<ul style="list-style-type: none"> <li>Realign Courthouse Boulevard and Emery Avenue to form a single relocated full access intersection.</li> </ul>	<ul style="list-style-type: none"> <li>Connect Courthouse Boulevard with 117<sup>th</sup> Street on the east side of Highway 52.</li> <li>Upgrade remaining two-lane segments of Highway 55 to form a continuous four-lane divided facility.</li> </ul>
	System plan roadway improvements not addressed above as needed in conjunction with land use development.		

### Next Steps

Preliminary design of the preferred Highway 52/42 interchange configuration concept will be developed as the next phase of this Partnership Study. Key components include:

- An official map of the interchange that will assist responsible agencies in guiding future land development near the interchange.
- Preliminary design is expected to be completed by the summer of 2002.
- Mn/DOT has committed to providing an adequate span in the proposed Highway 52 railroad overpass bridges for a local roadway crossing of Highway 52.
- The Highway 52 bridges are the responsibility of Mn/DOT as part of the 117<sup>th</sup> Street interchange improvements.
- The City of Rosemount will take responsibility for the local roadway improvements.

The memorandum of understanding (MOU) between Mn/DOT and the City of Rosemount regarding the Highway 52 railroad overpass is included in Appendix F. Key commitments by Mn/DOT and the City of Rosemount of this MOU are as follows.

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## Mn/DOT

1. As part of the Highway 52/117<sup>th</sup> Street interchange and railroad grade separation project, scheduled for construction in 2002-2004, Mn/DOT will extend the span on the Highway 52 bridges over the railroad to provide local street system continuity by providing a corridor for 138<sup>th</sup>/140<sup>th</sup> Street under the Highway 52 bridges. Mn/DOT will design, fund, and maintain a bridge that accommodates the typical section as shown in Exhibit 1 (revised on 12/20/01).
2. This will be the only local street grade separation with Highway 52 that Mn/DOT will financially participate in between Highway 42 and 117<sup>th</sup> Street.
3. Mn/DOT will continue to work within the State's project development and cooperative agreement processes to develop a frontage road system as identified in the Highway 52/42/55 IRC Partnership Study with the City.

## City of Rosemount

4. The City will design, construct, and fund all costs for the 138<sup>th</sup>/140<sup>th</sup> Street connection including acquiring the necessary right-of-way.
5. The City will work to develop a frontage road system in accordance with the Highway 52/42/55 IRC Partnership Study that will permit future closure of at-grade access points north of 138<sup>th</sup> Street and will not request additional at-grade access intersections on Highway 52.
6. The City agrees to close the existing at-grade access on Highway 52 at 140<sup>th</sup> Street when the new 138<sup>th</sup>/140<sup>th</sup> Street connection is completed.
7. In conformance with the Mn/DOT access guidelines for High Priority Regional Corridors and the Highway 42 Corridor Study, the City will include within their transportation plan the recommendations from the Highway 52/42/55 Partnership Study. This includes providing right-of-way where possible through platting, constructing a supporting local street system and working with Mn/DOT through the State's project development and cooperative agreement program in the development of the Highway 52/42 interchange to:
  - Move Connolly Road approximately ½-mile east of the east Highway 52/42 (Highway 55) interchange ramp with right-in/right-out access.
  - Plan for a full access intersection approximately 1-mile east of the east Highway 52/42 (Highway 55) interchange ramp.