

# Technical Memorandum 3

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## US 52 Safety, Access, and Interchange Location Study Project Issues and Needs

South Limits of Cannon Falls to Hader  
Goodhue County, Minnesota  
S.P. 2506-66

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**Prepared For:**



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## Introduction

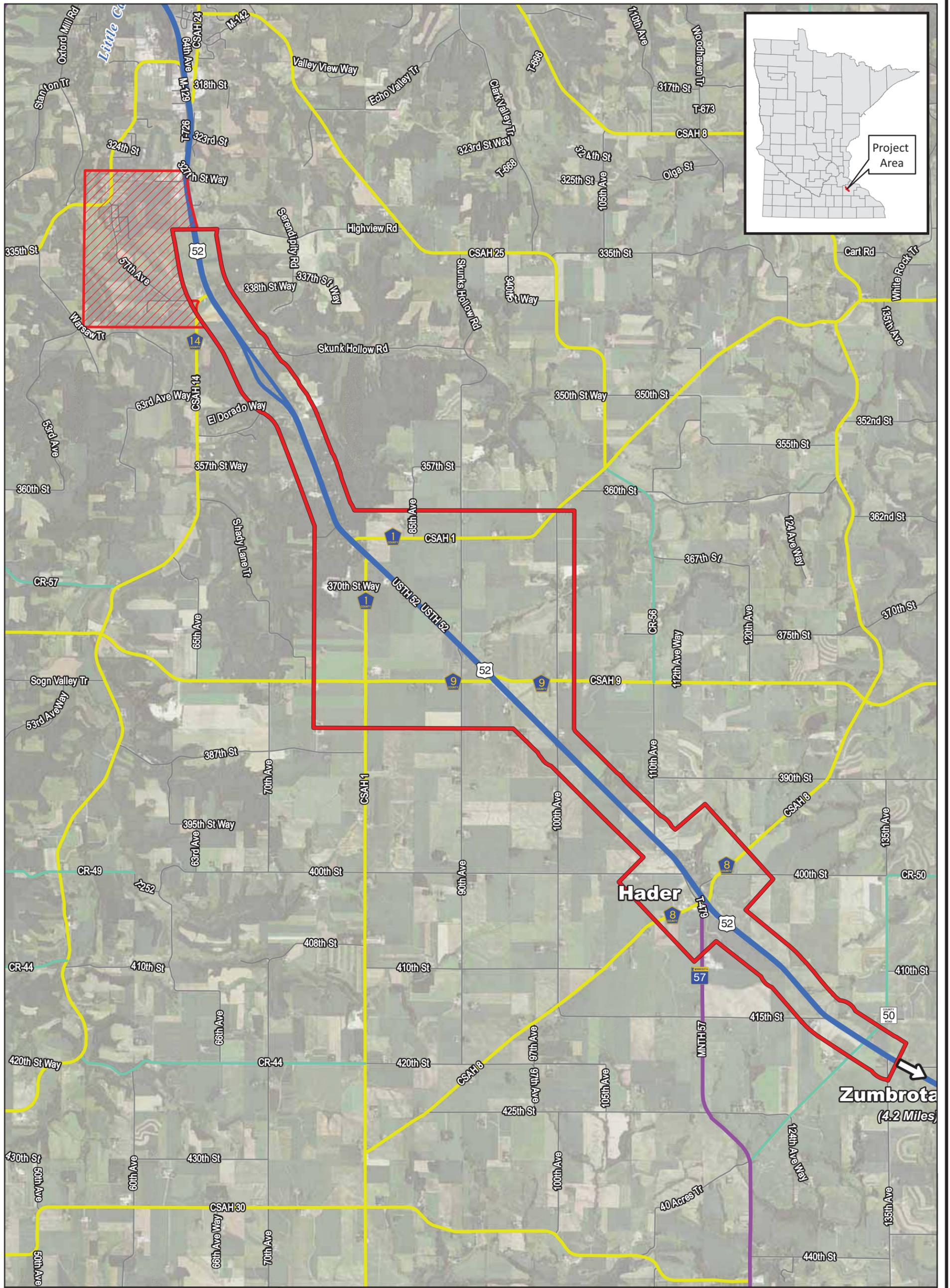
The purpose of this memorandum is to summarize the US 52 Safety, Access, and Interchange Location Study goals and objectives, as well as summarize key project issues and constraints as documented in Technical Memorandum 1 (May 4, 2012) and Technical Memorandum 2 (May 4 2012). This information will provide an outline for a Purpose and Need Statement for the project. The Purpose and Need Statement will be used as a framework to develop the initial screening criteria which will serve as the basis for the development and evaluation of improvement alternatives. It will also be incorporated into the environmental documentation process needed to meet the project's National Environmental Policy Act (NEPA) requirements.

The one-mile wide project area is a 10-mile corridor along US 52. It extends from the southern limits of Cannon Falls in Goodhue County at the junction of Highview Road and US 52, to south of County Road (CR) 50 (near Hader). The project area is shown Figure 1.

### *Issues and Constraints*

In order to develop meaningful transportation solutions, it is important to understand the existing characteristics of the study area. As described in Technical Memorandum 2, a review of the existing planning context, development patterns and future land use plans, demographic trends, existing roadway network, traffic operations, and crash history was conducted to identify issues and constraints that could have an impact on the project development process. The key issues identified as part of this review are illustrated in Figure 2 and summarized below:

- *Land Use* – The majority of the land surrounding the US 52 Safety, Access and Interchange Location Study area is used for agriculture. There are also several residential uses and some commercial/industrial uses along the project segment of US 52. Many of the land uses along the corridor rely on US 52 to provide roadway access and mobility. The existing land uses within the study area are not expected to significantly change in the foreseeable future.
- *Demographic Trends* – Despite a moderate decline in population over the past two decades, the population of the study area is expected to grow by as much as 40 percent (830 people) by the year 2025. This population growth within the study area, in addition to the growth anticipated for the Minneapolis/St. Paul and Rochester Metropolitan areas, will have an impact on future travel demand along the project segment of US 52.
- *Existing Roadway Network* – The existing roadway network within the study area includes US 52 as well as a supporting roadway system of state, county, and township roads. US 52 is a four-lane divided facility which serves as the primary roadway connection between the Minneapolis/St. Paul and Rochester Metropolitan areas. Numerous at-grade access points and skewed intersections along US 52 detract from its ability to provide safe and reliable mobility. In addition, there is an uneven grade along southbound US 52 between CSAH 1 and CSAH 9, which causes sight line issues.
- *Traffic Operations* – Based on a planning level traffic operations analysis, it was determined that existing and forecast future traffic volumes along US 52 and the major cross streets are not capacity deficient (i.e., existing traffic volumes do not exceed roadway capacities). As a result roadway congestion is not a major concern within the study area.
- *Safety Analysis* – There are recognized safety issues along the project segment of US 52 with multiple locations exhibiting both high crash frequency and severity rates.

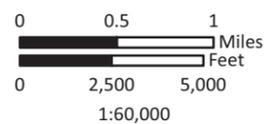


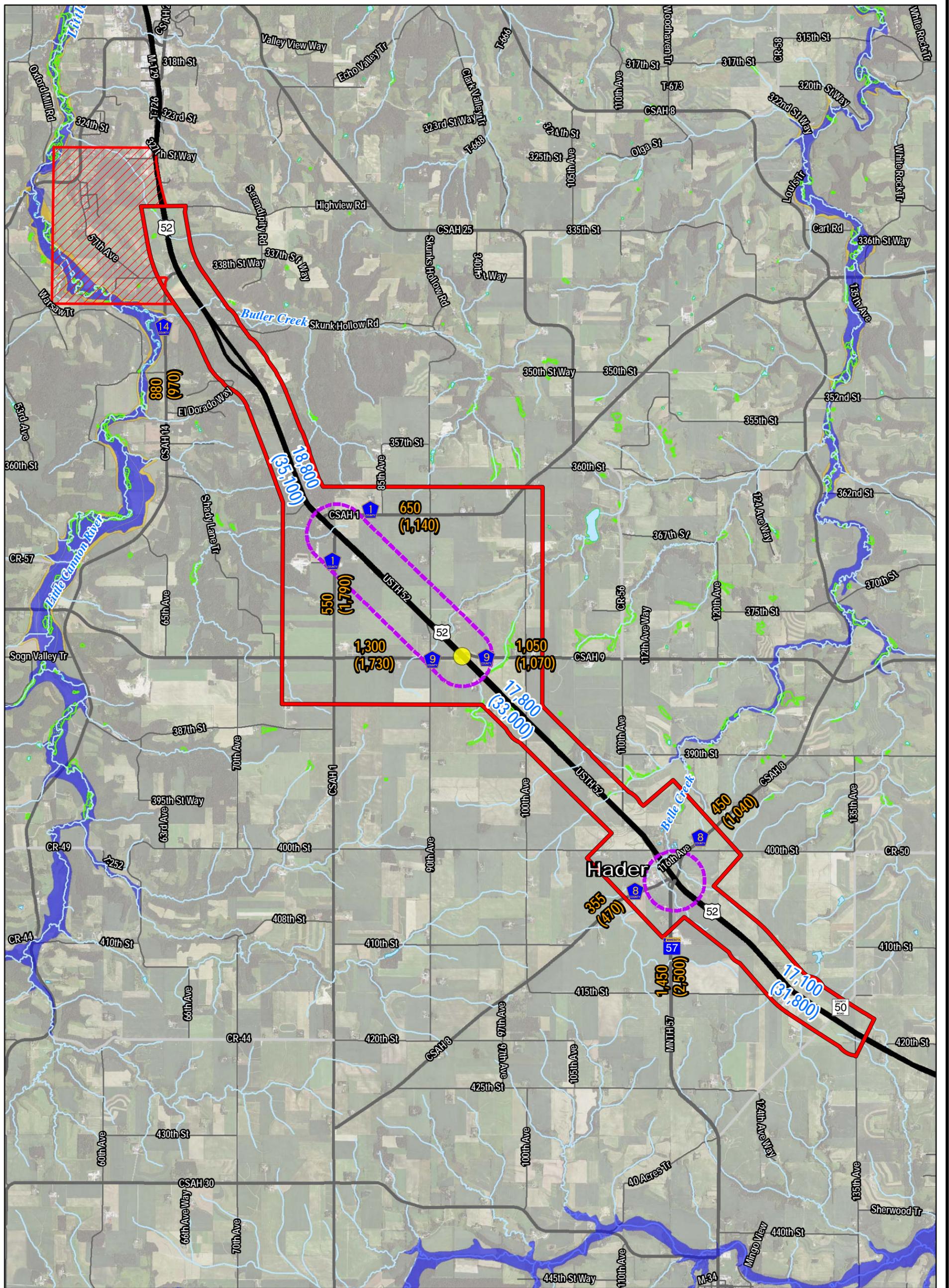
**FIGURE 1  
PROJECT AREA MAP**

**US 52 Safety, Access, and  
Interchange Location Study**

**Goodhue County, Minnesota**

- US 52 Project Study Area
- CSAH 14 Subarea
- Corporate Boundaries
- US Highway
- Minnesota Highway
- County State Aid Highway
- County Road



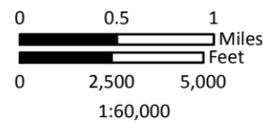


**FIGURE 2  
ISSUES MAP**

**US 52 Safety, Access, and  
Interchange Location Study**

**Goodhue County, Minnesota**

- Project Study Area
  - CSAH 14 Subarea
  - High Crash/Severity Intersection
  - Potential Interchange Study Area
  - Lakes/Ponds
  - Streams
  - Wetlands (NWI)
  - 100-Year Floodplain
  - 500-Year Floodplain
  - Corporate Boundaries
- |          |                                     |
|----------|-------------------------------------|
| XX,XXX   | 2009 Traffic Volume (AADT)          |
| (YY,YYY) | 2025 Forecast Traffic Volume (AADT) |
| XXXX     | 2007 Traffic Volume (AADT)          |
| (YYYY)   | 2025 Forecast Traffic Volume (AADT) |



- *Social, Economic, and Environmental (SEE) Concerns* – Potential issues include farmland impacts, wetlands, Karst (sinkhole) conditions, stream crossings, woodlands, and socio-economic concerns associated with access management (travel time impacts, emergency vehicle impacts, etc.). Rare, threatened, and endangered species are also present in the study area. Potential cultural resources impacts are expected but unknown at this time. Potential SEE issues will be addressed in greater detail during the formal environmental documentation or Planning and Environmental Linkages (PEL) study for the proposed US 52 Safety, Access and Interchange Location Study improvements.

## A. Study Goals and Objectives

Goals and objectives were established by the study’s Project Management Team (PMT) to guide the proposed project and to ensure proposed recommendations address the critical transportation system issues and needs of the project. These goals and objectives provide the framework for the development of a Purpose and Need Statement. The project goals and objectives are summarized in Table 1 below. Refer to Technical Memorandum 1 for additional detail.

**Table 1: Summary of Project Goals and Objectives**

Goals	Objectives
<b>Safety</b>	<ul style="list-style-type: none"> <li>• Reduce the crash rate and severity.</li> <li>• Improve roadway geometry and /or sight distance.</li> <li>• Reduce variations in traffic speed.</li> </ul>
<b>Access Management</b>	<ul style="list-style-type: none"> <li>• Eliminate at-grade along US 52.</li> <li>• Provide efficient replacement access.</li> </ul>
<b>Mobility and Connectivity</b>	<ul style="list-style-type: none"> <li>• Maintain/enhance mobility on US 52.</li> <li>• Provide efficient regional roadway connections.</li> <li>• Provide efficient local and neighborhood roadway connections.</li> <li>• Allow low impact intersection to remain.</li> </ul>
<b>Social, Economic, and Environmental (SEE)</b>	<ul style="list-style-type: none"> <li>• Minimize adverse impacts to the social environment.</li> <li>• Minimize impacts to the natural environment.</li> </ul>
<b>Cost Effectiveness</b>	<ul style="list-style-type: none"> <li>• Implement cost effective solutions.</li> <li>• Provide beneficial returns on investment.</li> <li>• Allow interim improvements.</li> </ul>

## B. Purpose and Need Framework

The following is a draft purpose and need framework for the proposed project. This framework entails a draft purpose statement, followed by several need statements, as well as a brief summary of the supporting data and analysis, as and documented in Technical Memorandum 2. It is intended to provide the analysis and documentation needed to support the project goals and objectives. The framework aids in establishing measureable criteria for the development and evaluation of improvement alternatives which will lead to the selection of recommended alternatives. The purpose and need statements will be continually reviewed, expanded, and revised as part of the project development and environmental documentation process.

## ***Purpose***

The purpose of the project is to identify recommended locations for US 52 transportation system improvements that improve safety and access, enhance regional connectivity and mobility, and respect the environmental context of the area.

## ***Needs***

### **Improve Safety**

One of the primary driving factors behind this project is the urgent need to improve safety along the project segment of US 52. As documented in Technical Memorandum 2, safety improvements along US 52 and intersecting roadways within the study area are needed. According to the most recent crash data from MnDOT District 6, there were a total of 311 crashes within the study area from 2006 through 2011. Of these six involved fatalities, nine involved incapacitating injuries, 92 involved personal injury or possible injury, and 204 involved property damage only. Of the six fatalities recorded, two occurred within the last year (2011). The recent fatal crashes within the project area underscore the immediate need for safety improvements within the area.

A corridor crash analysis was performed to evaluate the potential safety problems within the study area. Based on this analysis one intersection and two segments along US 52 within the study area were identified as safety deficient, as they exhibit a high crash frequency and a high crash severity rate. These include the following:

- US 52 intersection with CSAH 9
- US 52 segment from CSAH 9 to CSAH 8/TH 57
- US 52 segment from CSAH 8/TH 57 to the southern terminus of the study area (CR 50)

In addition, although not a high crash frequency location, the intersection of US 52 and TH 57/CSAH 8 was identified as a high crash severity location and therefore merits consideration for future safety improvements.

### **Improve Access Management**

Management of roadway access, both in terms of cross-street spacing and driveway placement, is a critical means of preserving and enhancing a roadway's functional classification and its efficient operation. Providing access management in some form, whether through grade-separated crossings, frontage and backage roads or right-in/right-out access, reduces the number of vehicle conflict points resulting in improved safety.

Both MnDOT and Goodhue County have established access management policies and guidelines in order to ensure sound access management on their respective roadways. According to *MnDOT's Access Management Manual (January 2, 2008)* access along the study segment of US 52 (High-Priority Interregional Corridor) should be permitted by interchange only, with no traffic signals or private access points. Further, primary full movement intersections (e.g., CSAH 1 and CSAH 9) should be spaced at a minimum distance of one-mile apart, to ensure safe and efficient mobility. Secondary or partial movement intersections should be spaced at 1/2-mile. The supporting access management guidelines for Goodhue County are presented in the *Goodhue County Transportation Plan (2004)*, which recognizes MnDOT's access management policy for US 52 within the study area. These policies and guidelines support the previously established vision to convert US 52 to a fully access controlled (i.e., access by interchange only) freeway facility.

The study segment of US 52 does not currently meet MnDOT's access spacing guidelines due to multiple at-grade intersections and direct access driveways. As shown in Table 2, there are currently 43 at-grade access points along the project segment of US 52. This includes intersections with public roadways

(county highways, township roads, etc.), residential driveways, farm and field accesses, and commercial/industrial entrances all with direct US 52 highway access. In addition, the off-set intersection at CSAH 1 does not meet the intersection spacing guidelines (1-mile) as the north and south junctions are spaced at approximately 1,200 feet apart.

**Table 2: US 52 Access Point Inventory**

Type	Number of Accesses
Public Roadway	14
Residential/Farm	18
Private (Non-Residential)	3
Field/Agricultural	8
<b>TOTAL</b>	<b>43</b>

Source: Desktop Review of Aerial Photography

The high number of access points along US 52 detracts from its ability to provide safe and reliable mobility. Consolidation and/or closure of access points should be considered as part of any improvement project, in order to ensure the safe and efficient operations of this corridor. However, any access modifications must be accompanied by related regional and local roadway network improvements in order to replace any access points which are closed, and to ensure an adequate level of regional and local mobility.

#### Improve System Connectivity and Mobility

The existing roadway network within the study area is served by US 52, as well as supporting regional and local roadway networks. US 52 is classified by MnDOT as a High Priority IRC and a Rural Principal Arterial Expressway (1A-F), and as such is intended to provide a high degree of mobility. Currently, US 52 is a high-speed, access controlled expressway (four-lane divided) with several at-grade intersections and access points throughout the project area (see Figure 1), which have the potential to limit mobility on this route.

As discussed Technical Memorandum 2, several previous planning studies have established goals, set a vision, and identified proposed improvements along the project segment of US 52. The following is a summary of the relevant outcomes from the key planning efforts related to the corridor;

- *Statewide IRC Study (1999)* – As part of this study, a performance goal of 61 to 65 miles per hour was established for the project segment of US 52 (High Priority IRC Performance Goal).
- *Highway 52 Corridor Study and Management Plan (2000)* – This effort concluded that US 52 is at-risk of not meeting its performance goals (High Priority IRC) if improvements for mobility and connectivity are not made. This study also established a long-term vision for a fully access controlled US 52, with no at-grade intersections, in order to maintain and enhance mobility and connectivity.
- *Highway 52 IRC Management Plan (2002)* – This study identified the need for an interchange on US 52 within the vicinity of CSAH 1 and/or CSAH 9, in order to improve safety and maintain a high level of mobility. The study also recommended closure of all at-grade access points along US 52.

As safety, access management, and mobility improvements along US 52 occur, the supporting roadway network will become increasingly important in terms of providing an adequate level of local and regional connectivity. The primary regional roadways within the study area are CSAH 1, CSAH 9, and CSAH 14, all of which are Goodhue County routes. These routes provide regional connectivity between the study area and the surrounding county and state roadway networks. In addition, these routes provide

accessibility to regional activity centers such as Cannon Falls and Wanamingo for the individual properties within the study area.

Given the critical importance of these routes, any improvements to US 52 need to be planned and designed in a manner which provides efficient regional connections and replacement access for any county road, township road, or private driveway modifications. This includes ensuring adequate local roadway connections to the City of Cannon Falls, Hader (unincorporated community), and Wanamingo, as well as connections to any existing and/or planned interchanges along US 52 (including the planned interchange at CSAH 24 in Cannon Falls) within the project area, in order to replace any access points along US 52 which are closed.

#### Respect Social, Economic, and Environmental Context

As improvements to address the safety, access, and mobility needs along the study segment of US 52 are evaluated, there is a need to give consideration to environmental and regulatory constraints which may be present. Potential improvements need to be designed to minimize or mitigate impacts to the social, economic, and natural environments. Potential social and economic considerations include adverse travel time resulting from transportation system modifications, residential or commercial relocations, and property acquisition. Natural environment considerations include minimizing adverse impacts to areas of special concern such as wetlands, streams, and floodplains, woodlands, etc., in order to protect the natural environment and to ensure compliance with state and federal regulations.

#### Provide a Cost Effective Solution

As improvement alternatives are developed and evaluated, there is a need to consider overall cost effectiveness, in recognition of the limited resources available for project implementation. Proposed improvements should seek to maximize the cost effectiveness of the overall system vision, as well as its flexibility to be implemented over time. This includes consideration for both capital and operating costs.

In addition, to recognizing fiscal constraints, planned improvements must consider the potential trade-offs in cost effectiveness and return on investment between providing improved access to impacted properties versus property acquisition.

### **C. PMT Approval of Project Issues and Needs**

Technical Memorandum No. 3 – Project Issues and Needs, was presented to the PMT on January 6, 2012 for discussion and comments. After review and comment, the memorandum was amended and reissued for PMT approval on March 16, 2012. Final approval of Technical Memorandum 3 was received on August 21, 2012.