

Technical Memorandum 5

US 52 Safety, Access, and Interchange Location Study Access Management Overview

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

December 28, 2012

Prepared For:



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Introduction

The primary objective of the US 52 Safety, Access, and Interchange Location Study is to address the severe safety issues along US 52 within the project area and to implement the long-term vision for US 52, which includes conversion to a fully access-controlled freeway facility. The ultimate goal for the US 52 corridor is to remove all at-grade intersections and signals, which will include the construction of an interchange in the vicinity of County State Aid Highway (CSAH) 9 or CSAH 1.

As part of the alternative development and evaluation process for the US 52 Safety, Access, and Interchange Location Study, CSAH 9 was identified as the recommended location for a future interchange along US 52, as it will best accomplish the study goals. The closure of access to US 52 at CSAH 14 and extension of CSAH 14 to CSAH 24 on the north have also been identified as recommended improvements (refer to *Technical Memorandum 4: Evaluation of Alternatives*).

The purpose of this technical memorandum is to document the characteristics of the existing at-grade access points along the study segment of US 52, and to provide an overview of access management strategies which could be applied to move the corridor toward the ultimate vision of a fully access controlled freeway.

Study Area

The one-mile wide project area includes a 10-mile corridor along US 52, extending 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.

Access Management Principles

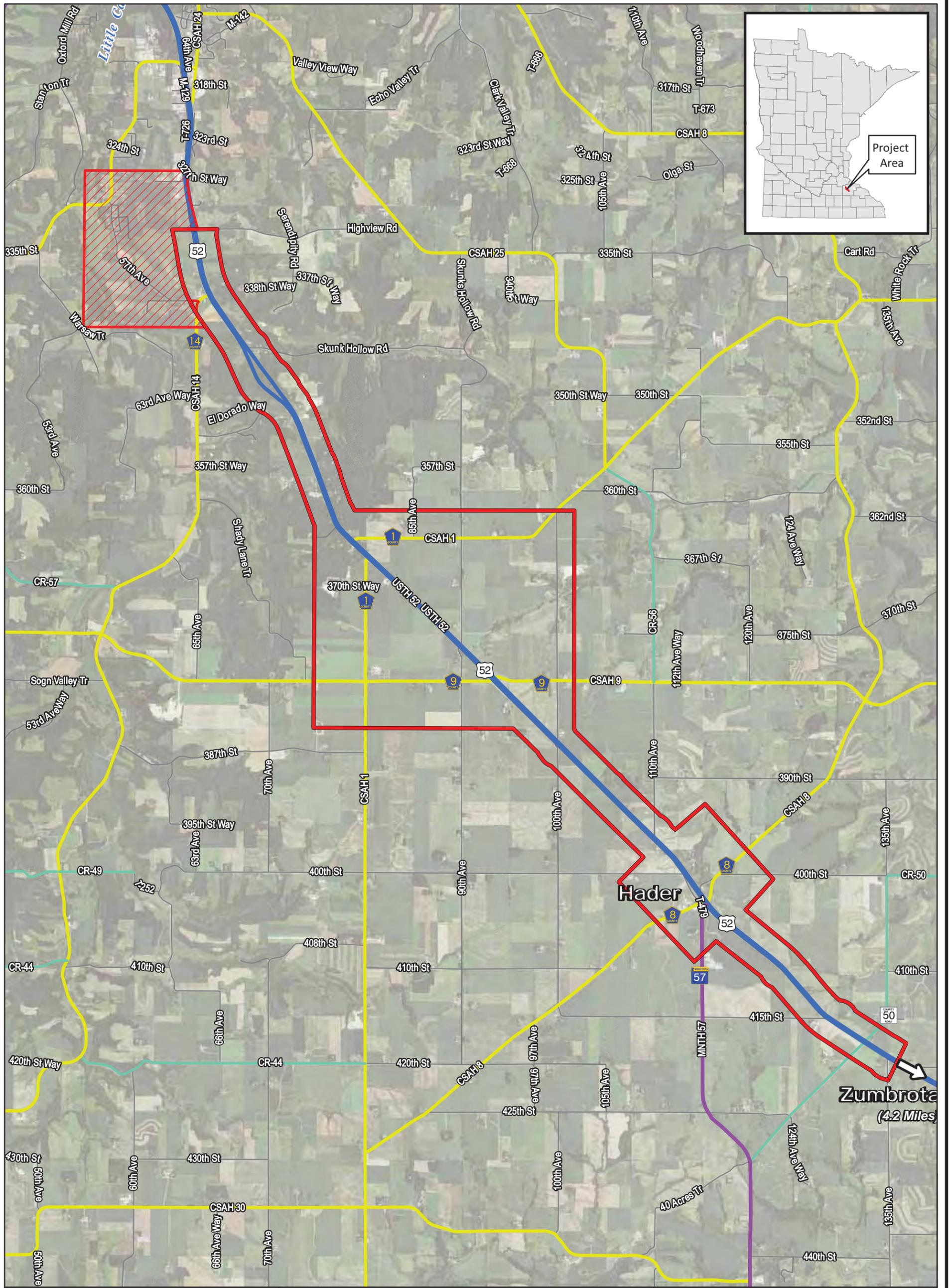
Access management is the planning, design and implementation of land use and transportation strategies in an effort to maintain a safe flow of traffic while accommodating the access needs of adjacent development.¹ In general, too many driveways, intersections, and closely spaced traffic signals along major roads cause safety, operational, and community problems, such as the following:

- Crashes increase as vehicles cross and turn along the road in an uncoordinated manner
- Stop and go conditions frustrate commuters and local residents
- Adjacent businesses suffer when customers have trouble turning into their sites
- Freight and delivery trucks lose time and money when stuck in traffic
- Pedestrians can't find a safe spot to cross the road
- Overall community livability suffers

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 intended function and its efficient operation. In addition, 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. A number of studies have demonstrated a direct relationship between the number of access points and the rate of crashes, showing a positive correlation between access density (access points per mile) and the frequency of crashes (crash rates).² Given this relationship, access management is an important roadway safety tool and can provide benefits to the roadway:

¹ MnDOT *Access Management Strategies and Resource Guidance* webpage. Accessed September 17, 2012. <http://www.dot.state.mn.us/accessmanagement/>.

² FHWA *Access Research Report No. FHWA-RD-91-044*

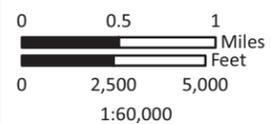


**FIGURE 1
PROJECT AREA MAP**

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

Goodhue County, Minnesota

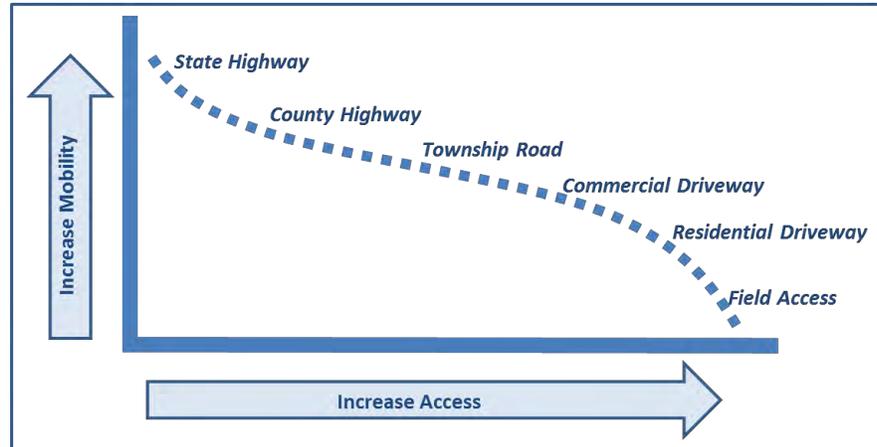
- US 52 Project Study Area
- CSAH 14 Subarea
- Corporate Boundaries
- US Highway
- Minnesota Highway
- County State Aid Highway
- County Road



- Reduce crashes and congestion
- Preserve road capacity and postpone the need for roadway widening or other improvements
- Improve travel times for the delivery of goods and services
- Ease movement between destinations
- Support local economic development

Figure 2: Access/Mobility Relationship

Access management tools must balance the public interest (mobility) with the interests of property owners (access). Figure 2 shows the relationship between access and mobility and illustrates the hierarchy of facility types along the study segment of US 52. Moving up the hierarchy from residential driveways to state highway intersections, greater emphasis



is placed on mobility as compared to property access, based on the function and volume of the roadway. For higher functioning roadways, such as state and county highways (i.e., CSAH 9), a greater degree of mobility is needed, requiring unrestricted access to US 52 (i.e., such as a grade separated interchange). For lower functioning routes such as township roads and private driveways (i.e., Skunk Hollow Road) a greater emphasis is placed on providing property access, with regional mobility served via connections to higher functioning roads (i.e., county highways). For these roads, direct access to US 52 can be limited (i.e., right-in/right-out only) or closed altogether if suitable replacement access is available.

A. Access Management Guidelines

As a state highway, MnDOT is the public agency with jurisdiction over US 52 and is responsible for ensuring sound access management. Access management policy for US 52 begins at the state level with MnDOT’s Access Management Strategies and Resource Guidance (*MnDOT Access Management Manual. January 2, 2008.*), which provides guidelines for access management on all state routes. Generally, access management guidelines are applied by category, with category assignments made based on a statewide classification network (i.e., interstate highway, interregional corridor, state highway, etc.). The access management guidelines identify recommended design criteria for intersection spacing based on a roadway’s category, including primary intersections (i.e., full movement), secondary intersections (i.e., mid-way between primary intersections), and private driveways. The guidelines also include recommendations for traffic signal and interchange spacing (refer to Appendix A).

According to the MnDOT Access Management category map for District 6, the study segment of US 52 is classified as category 1AF for a non-interstate freeway facility (see Figure 3). As shown in Table 1, the access management guidelines for Category 1AF call for access by interchange only, with at-grade intersections permitted by only by exception and on an interim basis.

Table 1: Access Management Guidelines – Category 1AF (non-interstate freeway)

Facility Type	Design Guideline
Public Streets (primary and secondary intersection)	Interchange Access Only
Driveways	Permitted by exception only
Traffic Signals	Permitted by exception only

Source: MnDOT Access Management Manual. January 2, 2008

**FIGURE 3
ACCESS MANAGEMENT
CATEGORIES**

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

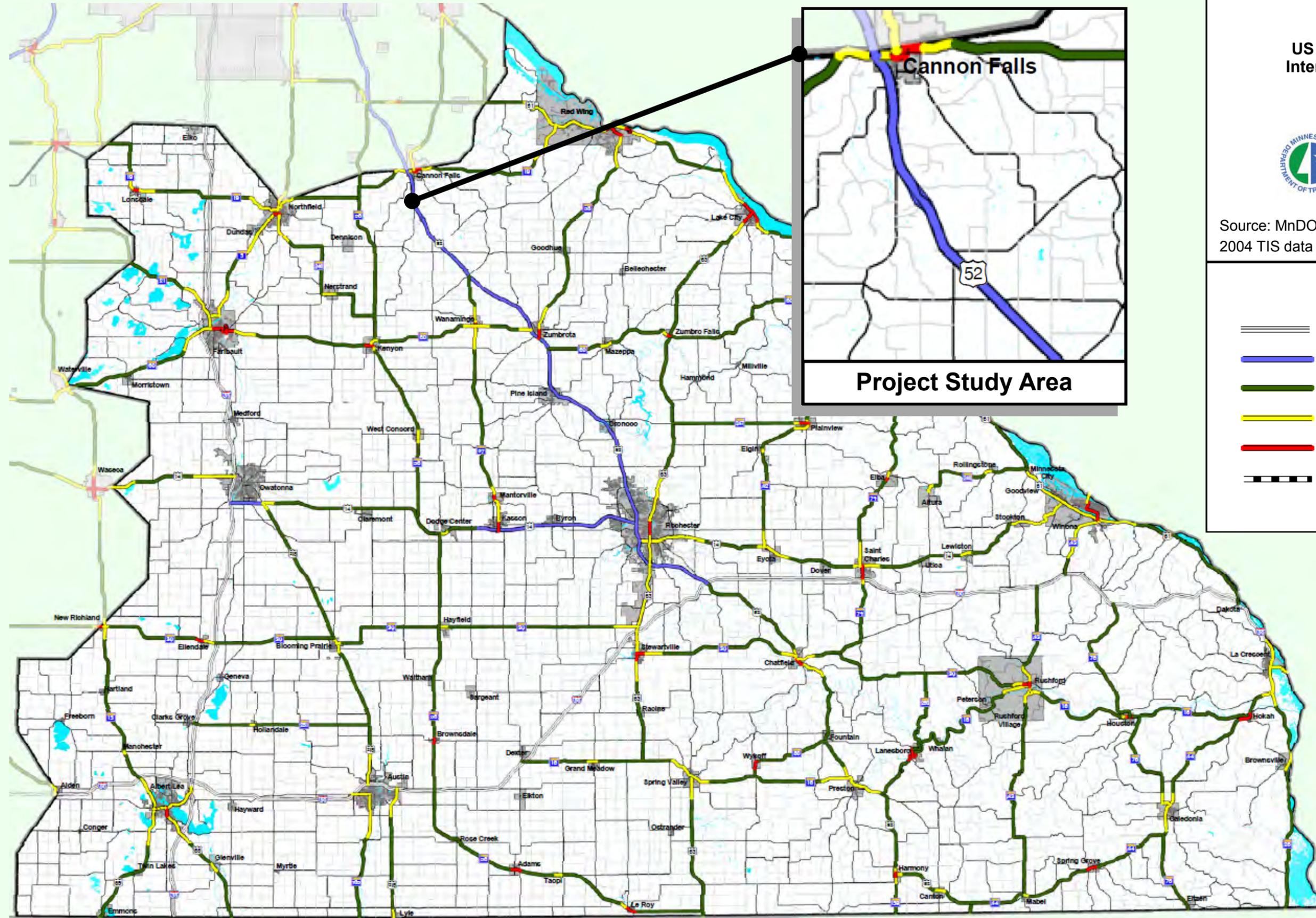
MnDOT District 6



Source: MnDOT Office of Investment Management
2004 TIS data and Access Management Database.

LEGEND

-  F [Interstate Freeway]
-  A-F [Full Grade Separation]
-  A [Rural]
-  B [Urban/Urbanizing]
-  C [Urban Core]
-  7 [Specific Access Plan]



The MnDOT Access Management Manual also includes provisions for Category 1AF highways which are transitioning to a freeway, such as US 52. These provisions acknowledge that it is likely that both at-grade intersections and interchanges will be present on such facilities. According to the MnDOT guidelines, all existing at-grade intersections should be considered interim. The following guidelines apply to the interim intersections along US 52 within the project area:

- The desirable spacing between an existing interim at-grade intersection and the merge point of the closest interchange ramp should be a minimum of one-half mile. The spacing between two at-grade, full-movement intersection spacing should be at least one mile.
- Driveways should not be permitted if reasonably convenient and suitable alternative access is available. Where reasonably convenient and suitable alternative access is not available, an interim driveway may be permitted, and if possible, should be designed so that traffic can be redirected to another road when the facility becomes fully access-controlled.
- New traffic signals should not be considered unless no other economically feasible alternative is available. The new traffic signal should be considered interim, and a plan for its future removal should be developed. Wherever possible, the new traffic signal should be located where a future interchange is planned.

As many of the existing high volume intersections along the study segment of US 52 are county highways (i.e., CSAH 14, CSAH 1, CSAH 9, CSAH 8, etc.), Goodhue County has a shared responsibility on implementing access management within the study area. The supporting access management guidelines for Goodhue County are presented in the *Goodhue County Transportation Plan (2004)*, which recognizes MnDOT's access management policy and guidelines for US 52 within the study area (refer to Appendix B).

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. As part of the *Highway 52 IRC Management Plan (2002)*, a long-term vision to convert US 52 to a fully access controlled freeway facility was approved. Under this vision, all access points along US 52 would be closed as safety and traffic needs dictate (see Appendix C).

B. Existing Access Inventory

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. Currently, there are 47 at-grade access points along the project segment of US 52 for an average of 4.7 access points per mile. This includes both full-access and partial-access intersections (i.e., right-in/right-out only) with public roadways (state highways, county highways, township roads, etc.), commercial/industrial property entrances, residential/farm driveways, and field accesses. In addition, the off-set intersections of CSAH 1 do not meet intersection access spacing guidelines for a primary intersection (one-mile) as the north and south junctions are spaced at approximately 1,200 feet apart.

At nearly half (49%), the most common type of existing at-grade access along the study segment of US 52 is residential and/or farm driveways. The next most common access type is field/agricultural access (19%), followed by township and county roadway intersections. Figure 4 presents the number of access points by type and illustrates the relative frequency of each access type compared to the total number of access points within the corridor.

Most (85%) of the at-grade access points identified above have full access, allowing for a full range of vehicle movements, including crossing, left turns, and right turns. A total of seven intersections (i.e., six residential and one field) have partial access under which there is no opening in the center median along US 52. This limits vehicle movements at these locations to right turns only (i.e., no crossing movements and no left turns). Table 2 shows the number of full- and partial-access points for each type of access. Figures 5A and 5B present a graphical inventory of the existing access points along the study segment of US 52.

Figure 4: Study Area Access Points by Function

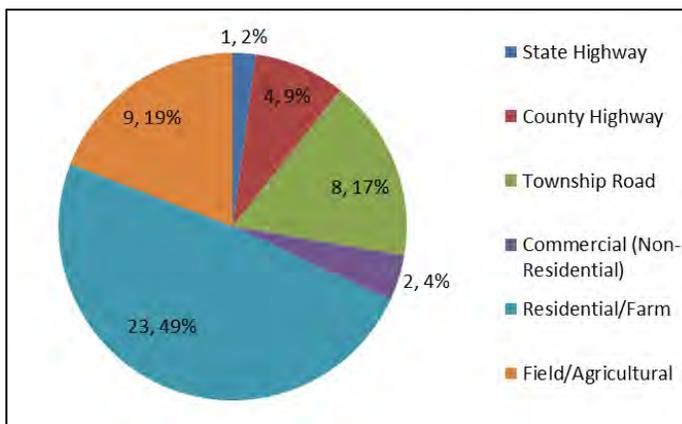


Table 2: US 52 Access Point Inventory

Function	Total Access Points	Number of Full Access	Number of Partial Access
State Highway	1	1	0
County Highway	4	4	0
Township Road	8	8	0
Commercial (Non-Residential)	2	2	0
Residential/Farm	23	17	6
Field/Agricultural	9	8	1
TOTAL	47	40	7

As discussed in the *Access Management Principles* section, research suggests that a high number of access points have a negative impact on safety on high volume roadways. The crash history along the study segment of US 52 is consistent with this trend, with one intersection and two segments identified as safety deficient and exhibiting a high crash frequency and a high crash severity rate (refer to Technical Memorandum 2: Project Background).

C. Interchange Influence Area

A key outcome of the US 52 Safety, Access, and Interchange Location Study is the recommendation of a future interchange on US 52 at CSAH 9. The construction of this interchange will have an immediate impact on the existing at-grade access points within close proximity. When entering or exiting an interchange, drivers must travel along an on- or off ramp, find acceptable gaps, change lanes and merge. To accommodate this merging and diverging traffic, a safe distance from the end of an on/off ramp to the first driveway, median opening, or intersection must be provided. The *MnDOT Access Management Manual* provides guidance for a 0.5 mile spacing between the end of an on/off ramp and the merge point for an intersecting access point (see Figure 6). This distance is known as the interchange influence area. The approximate interchange influence area for the proposed US 52 interchange at CSAH 9 is illustrated in Figure 5B, which represents a composite of the various interchange designs considered to date (refer to *Technical Memorandum 6: Interchange Design Evaluation*). As shown in Figure 5B, there are three at-grade access points within the interchange influence area, including two township roadways and one residential driveway. These access points would be closed upon construction of an interchange.

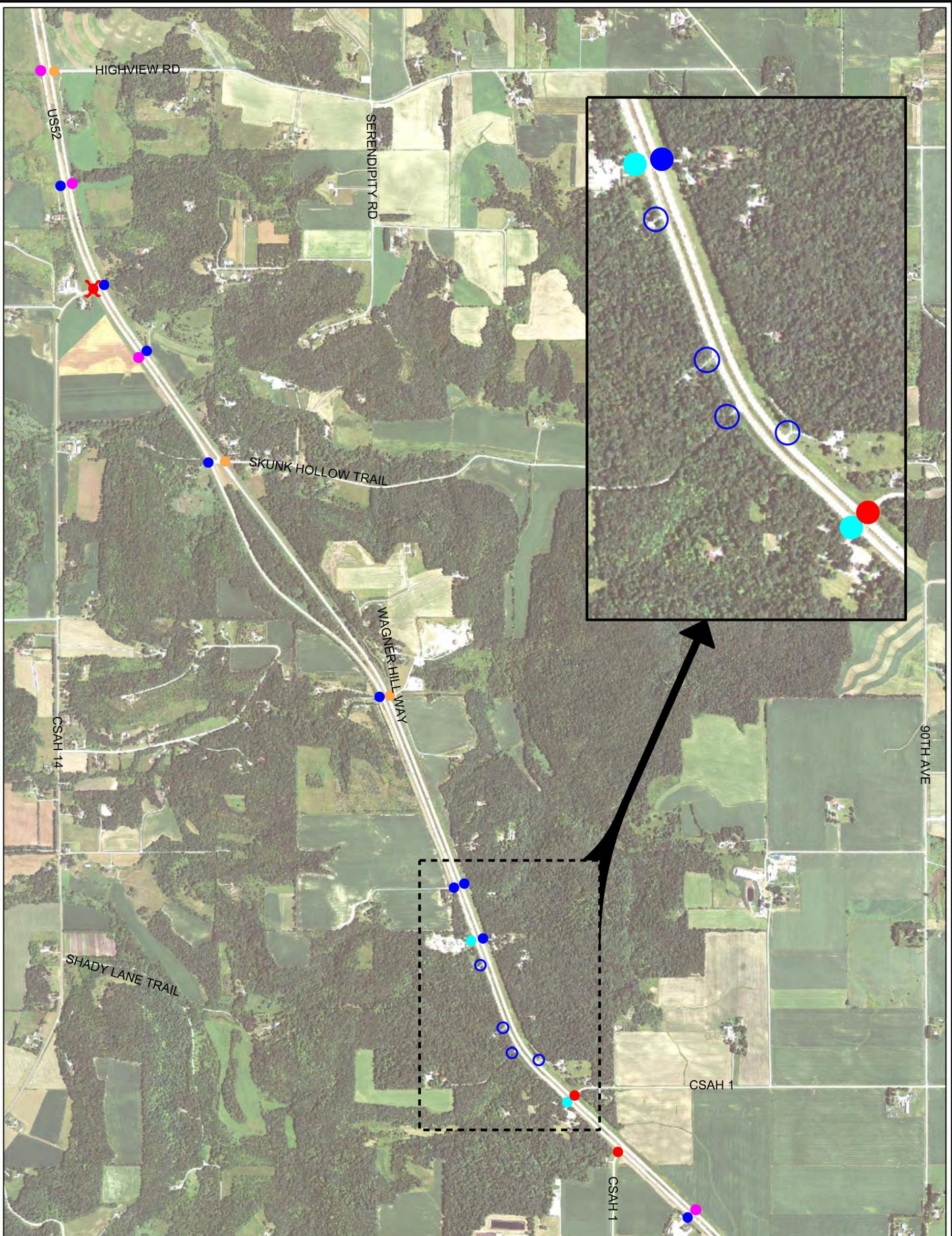


FIGURE 5A
ACCESS INVENTORY

US52 Safety, Access, and Interchange Location Study

Goodhue County, Minnesota



LEGEND

FULL ACCESS

-
-
-
-
-
-

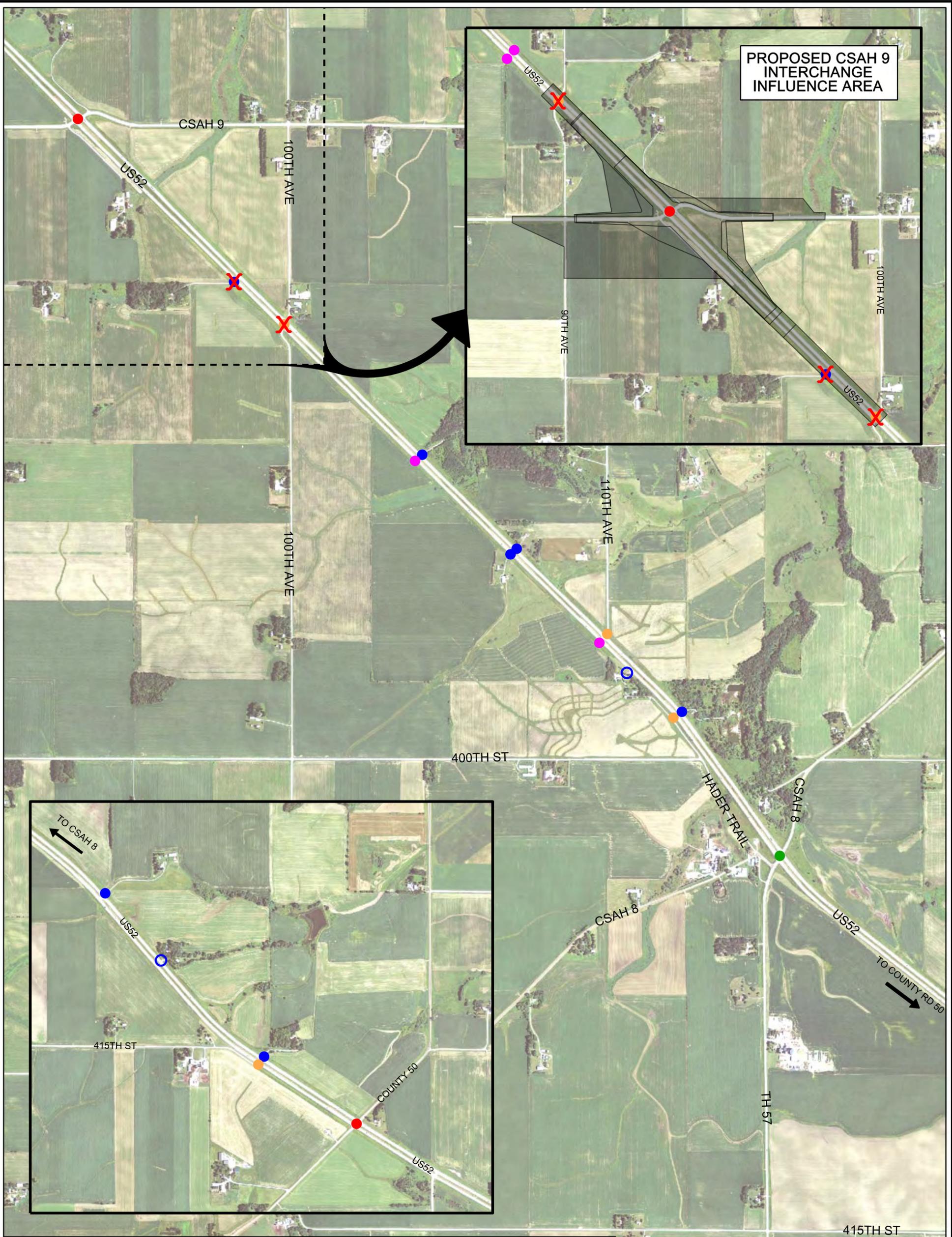
PARTIAL ACCESS

-
-
-
-
-
-



- State Highway
- County Highway
- Township Road
- Commercial (Non-Residential)
- Residential/Farm
- Field/Agricultural

Proposed Access Closure at CSAH 14



**FIGURE 5B
ACCESS INVENTORY**

US52 Safety, Access, and Interchange Location Study

Goodhue County, Minnesota

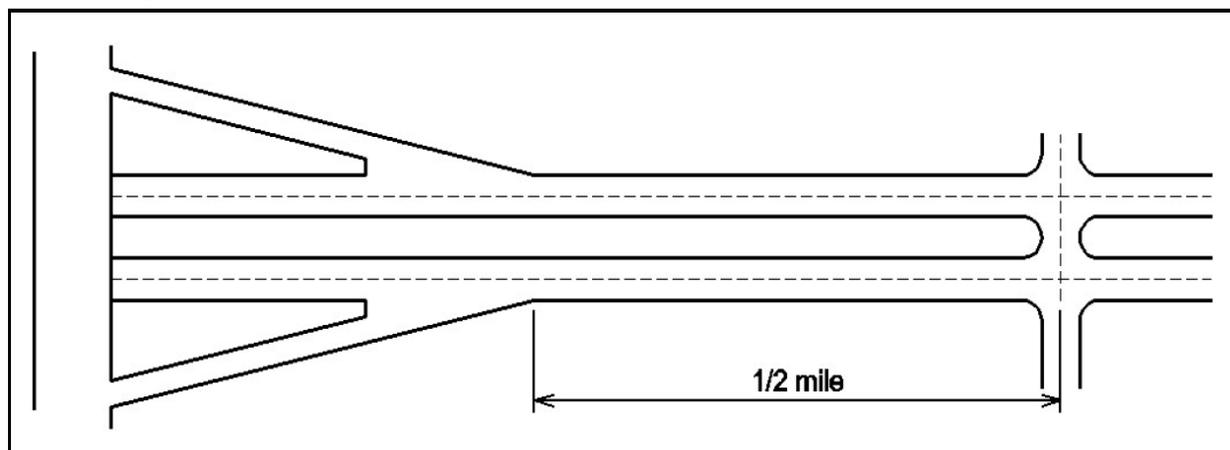


SCALE IN FEET
0 500 1000 2000

LEGEND

- | | | |
|--------------------|-----------------------|--|
| FULL ACCESS | PARTIAL ACCESS | |
| ● | ○ | State Highway |
| ● | ○ | County Highway |
| ● | ○ | Township Road |
| ● | ○ | Commercial (Non-Residential) |
| ● | ○ | Residential/Farm |
| ● | ○ | Field/Agricultural |
| X | | Proposed Access Closures within Interchange Influence Area |

Figure 6: Spacing from Interchange Merge Point



Source: MnDOT Access Management Manual. January 2, 2008

D. Access Management Toolbox

The high number of access points along the study segment of US 52 reduces safe and reliable mobility. In order to ensure safe and reliable operations, the ultimate vision is to convert US 52 to a fully access controlled freeway. This vision is supported by policy guidance from both MnDOT and Goodhue County, which promotes closure of existing at-grade access points within the project area.

Since funding is limited, US 52 access management improvements are being implemented over time on an “as needed” basis as safety problems require, operational issues arise, and funding becomes available. Access modifications along US 52 need to consider related improvements to the supporting regional and local roadway networks to ensure an adequate level of regional and local mobility. This includes providing adequate local roadway connections to replace any access points along US 52 which are closed. Key local destinations include the City of Cannon Falls, Hader (unincorporated community) and points to the south, as well as any existing and/or planned interchanges along US 52 within the study area.

The following section presents a range of general access management tools applicable to access closure and modification within the study area, including a description of each and a summary of its applicability to the different types of at-grade access types along US 52. This “access management toolbox” is intended to provide the basis for the identification of future access management improvements and assist in future planning efforts. A summary of the access management toolbox is included in Table 3 at the end of this section.

1. Interchange (grade-separation with on/off ramps)

A grade-separated interchange involves the replacement of at-grade roadway access with a bridge and on/off ramps to allow traffic to safely and efficiently cross or enter and exit a highway. Grade separated interchanges have been used at various locations throughout the US 52 corridor. The ultimate vision for the corridor is to allow access to US 52 by interchange only. Figure 7 illustrates an

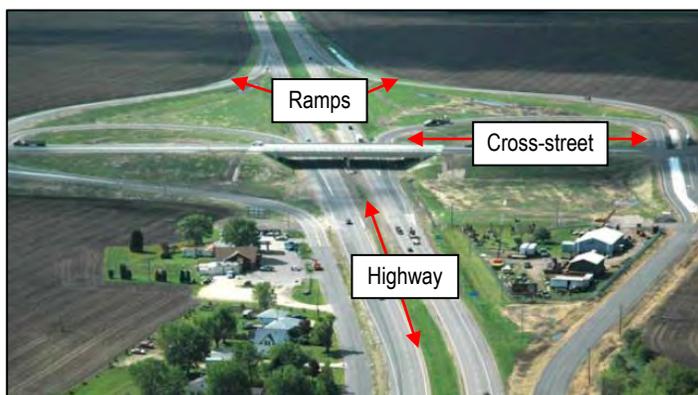


Figure 7: US 52 Interchange in Dakota County
(source: US 52 Freeway Partnership)

interchange along US 52 in Dakota County.

Implementation

This tool provides the highest level of mobility, emphasizing roadway operations over local property access. An interchange is recommended to replace the existing at-grade intersection at US 52 and CSAH 9. This tool would be applicable to other high volume intersections such as TH 57 in Hader.

2. Overpass (grade-separation without interchange)

This strategy involves closing at-grade access on a highway and constructing a bridge to allow a continuous crossing of the side street. This would eliminate the at-grade access while allowing the cross-highway to remain open (see Figure 8).



Figure 8: US 52 Overpass in Dakota County
(source: US 52 Freeway Partnership)

Implementation

This approach is an effective tool to limit at-grade access while maintaining local and regional connectivity. This tool could be applicable to state highways and county routes within the project area; however, none are recommended within the study area at this time.

3. Closure with Frontage/Backage Road

Under this strategy the existing at-grade access to a highway can be closed and a frontage road constructed to provide access to an alternative road, such as a parallel county or township route (see Figure 9).



Figure 9: Typical Frontage Road System
(source: Google Earth)

Implementation

This tool is applicable for roadways which emphasize serving local/county traffic over regional through traffic, such as county or local routes. Closure of access at US 52 and construction of a frontage road connecting to Cannon Falls on the north is a recommended treatment for CSAH 14.

4. Driveway Redirection

This tool is used to close driveway access to a highway and redirect the driveway to an existing county or township road to provide alternative access. This can include consolidation of driveways where there are multiple properties in close proximity (see Figure 10).



Figure 10: Example Driveway Redirection
(source: Google Earth)

Implementation

This tool could be applicable to commercial/industrial, residential/farm, and field/agricultural driveways with at-grade access to US 52.

5. Interim Access Modifications

This tool can be used to address safety and operational issues along the corridor as they arise on an interim basis. At-grade access points can be modified to limit vehicle movements such as left-turns. Limiting turning and crossing movements will improve safety by reducing the number of intersection conflict points and thereby reducing crash exposure.

Access modification options to consider include right-in/right-out and 3/4 access. Figures 11 and 12 show examples of these modifications. Right-in/Right-out access modifications typically entail closing the opening in the center median to eliminate all crossing movements and left turns. Under a 3/4 access, left turns and crossing movements from the side street onto the mainline roadway are prohibited via a combination of a raised concrete median islands or other channelization and signage. Figure 13 includes a diagram of typical full access intersections, as well as right-in/right-out and 3/4 access intersections, and shows the reduction in conflict points gained from access modifications.

Implementation

This tool could be applicable for most access types along the corridor, including county highways, township roads, commercial/industrial entrances, residential/farm driveways, and field access points.

As the ultimate vision for US 52 is to close all at-grade access, options for full closure should be fully evaluated prior to implementation, and access modifications should be considered as interim improvements as the direct access to US 52 would remain in place.

6. Property Acquisition

In the rare circumstance when provision of alternate driveway access is not feasible from an economic or engineering perspective, property acquisition may be considered.

Implementation

This tool could be considered for any private property access points, including commercial/industrial, residential, and field/agricultural access, where the cost of alternative access is greater than the cost to acquire the property.

E. PMT Approval of Access Management Overview

Technical Memorandum No. 5 – Corridor Access Management Plan, was presented to the PMT on September 24, 2012 for discussion and comments. After review and comment, the memorandum was amended and reissued for PMT approval. Final approval of Technical Memorandum 5 was received on December 14, 2012.



Figure 11: Typical Right-in/Right-Out
(source: Google Earth)

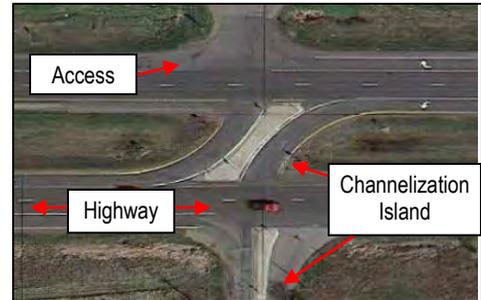
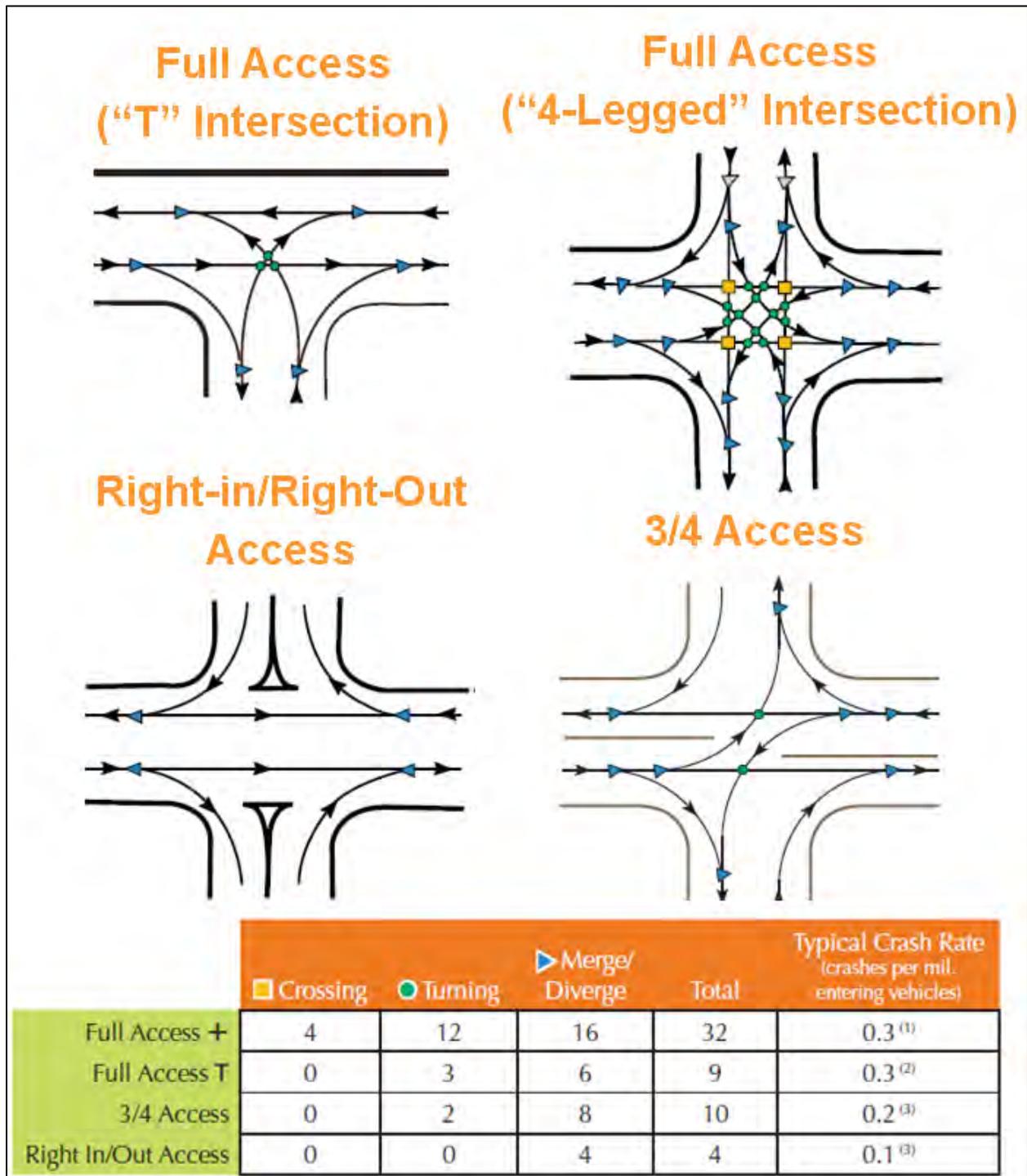


Figure 12: Typical 3/4 Access
(source: Google Earth)

Figure 13: Access Modification Diagram



Source: MnDOT Traffic Safety Fundamentals Handbook (2008)

Table 3: US 52 Access Management Plan Toolbox Summary

Tool	Description	Implementation
1. Grade-separation with Interchange	Replace at-grade access with a bridge and interchange ramps.	<ul style="list-style-type: none"> • State Highways • County Highways
2. Grade-separation without Interchange	Close at-grade access and replace with a bridge.	<ul style="list-style-type: none"> • State Highways • County Highways
3. Closure with Frontage/Backage Road	Close at-grade access and construct a frontage/backage road for alternative access.	<ul style="list-style-type: none"> • County Highways • County Roads • Township Roads
4. Driveway Redirection	Close at-grade driveway and redirect to an existing county or township road for alternative access.	<ul style="list-style-type: none"> • Commercial/Industrial • Residential • Field/Agricultural
5. Interim Access Modifications <ul style="list-style-type: none"> - Right-in/right-out - 3/4 Access (no side street to mainline lefts or crossing movements) 	Modify access to limit vehicle movement via a raised median or other channelization and signage.	<ul style="list-style-type: none"> • County Highways • Township Roads • Commercial/Industrial • Residential • Field/Agricultural
6. Property Acquisition	If alternate driveway access is not feasible from an economic or engineering perspective, property acquisition may be considered.	<ul style="list-style-type: none"> • Commercial/Industrial • Residential • Field/Agricultural

Appendix A: Appendix A: MnDOT Access Management Manual. January 2, 2008 (excerpt)

Access Management Sub-Categories

District 6 - Rochester

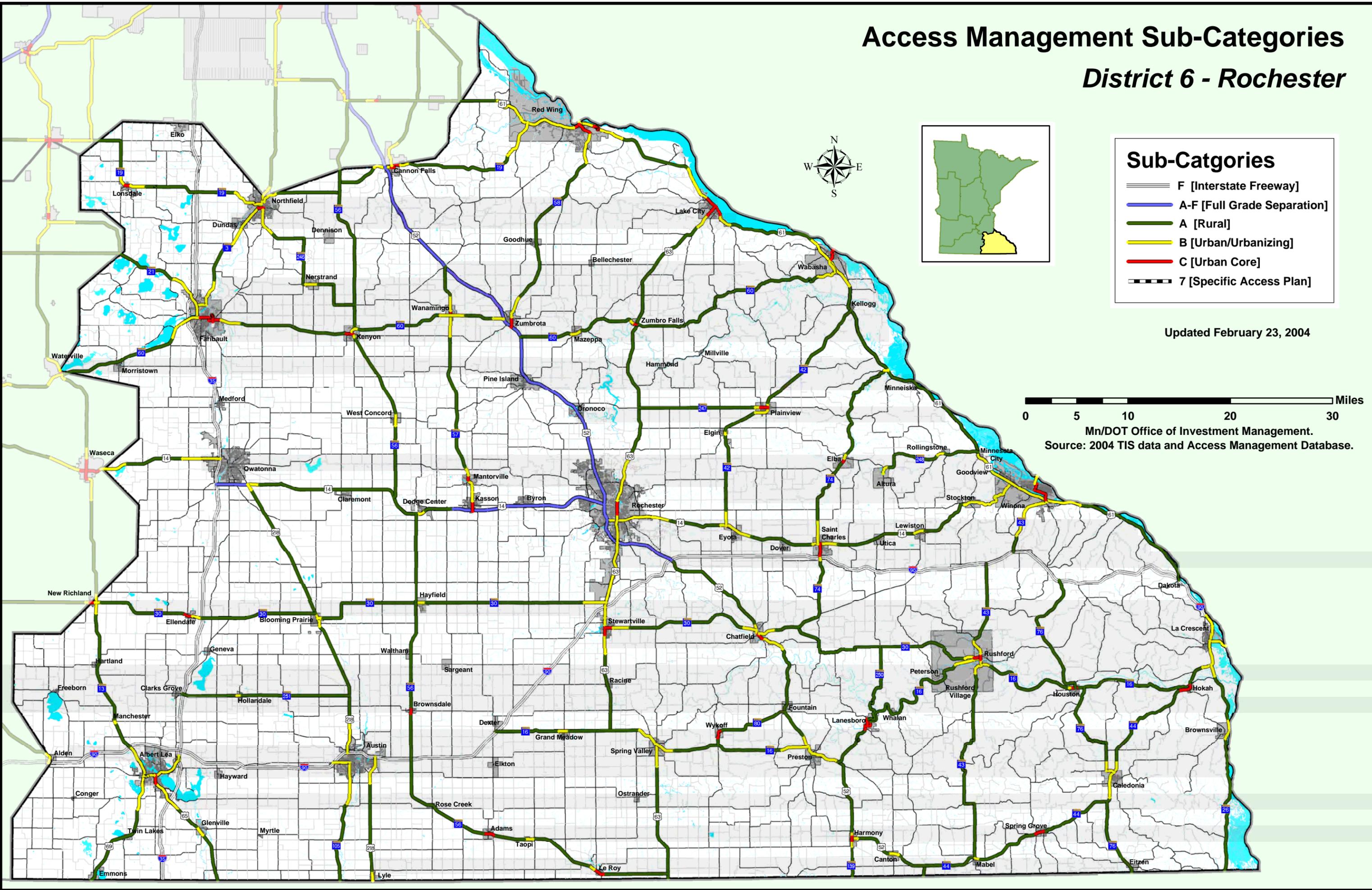


Figure 3.1 – Summary of Recommended Street Spacing for IRCs

Category	Area or Facility Type	Typical Functional Class	Public Street Spacing		Signal Spacing
			Primary Full-Movement Intersection	Secondary Intersection	
1 High-Priority Interregional Corridors & Interstate System (IRCs)					
1F	Interstate Freeway	Principal Arterials	Interchange Access Only		⊘
1AF	Non-Interstate Freeway		Interchange Access Only (see Section 3.2.7 for interim spacing)		See Section 3.2.5 for Signalization on Interregional Corridors
1A	Rural		1 mile	1/2 mile	
1B	Urban/Urbanizing		1/2 mile	1/4 mile	
1C	Urban Core		300-660 feet dependent upon block length		
2 Medium-Priority Interregional Corridors					
2AF	Non-Interstate Freeway	Principal Arterials	Interchange Access Only (see Section 3.2.7 for interim spacing)		See Section 3.2.5 for Signalization on Interregional Corridors
2A	Rural		1 mile	1/2 mile	
2B	Urban/Urbanizing		1/2 mile	1/4 mile	
2C	Urban Core		300-660 feet, dependent upon block length		
3 Regional Corridors					
3AF	Non-Interstate Freeway	Principal and Minor Arterials	Interchange Access Only (see Section 3.2.7 for interim spacing)		Interim
3A	Rural		1 mile	1/2 mile	See Section 3.2.5
3B	Urban/Urbanizing		1/2 mile	1/4 mile	1/2 mile
3C	Urban Core		300-660 feet, dependent upon block length		1/4 mile

Appendix B: Goodhue County Transportation Plan (2004), Access Management (excerpt)

- The requirements if a route are to revert to a township (i.e., the county must meet the requirements set forth in Minnesota Statutes, which require a public hearing, completion of repairs or improvements to meet standards for comparable roadways in the town and continued maintenance for a two-year period before date of revocation).
 - Further limitations on establishment, alteration, vacation or revocation of county highways as described in Minnesota Statutes Section 163.11.
3. Planning and Programming Issues
 - Any allocation of funds that will be made available from the transferring agency to the receiving agency.
 4. Project Development, Design and Construction Issues
 - The process for development of projects, studies, right-of-way acquisition, design and construction of transferred routes.
 - The design and construction standards to be used for projects.
 - The process and framework for cost-sharing agreements.
 5. Operational and Maintenance Issues
 - The responsibilities for utility permits, driveway access permits, changes to traffic controls and signing, and level of routine regular maintenance.

For jurisdictional transfers that also affect designation, the comprehensive approach taken by the Goodhue County Transportation Plan will greatly assist county staff in preparing for State Aid Screening Board review.

5.3 ACCESS MANAGEMENT

Access guidelines are important because they define a starting point for balancing property access, safety and mobility concerns. Transportation agencies regularly receive requests for additional access (e.g., new public street, commercial driveways, residential and field access). Because of the number of individuals and agencies often involved in reviews, access policies are sometimes applied inconsistently. This can result in confusion between agencies, developers and property owners, and can create long-term safety and mobility problems. Standard access guidelines can be used to improve communication, enhance safety and maintain the capacity and mobility of important transportation corridors. In addition, access guidelines may be used to respond to access requests and to promote good access practices such as:

- Aligning access with other existing access points
- Providing adequate spacing to separate and reduce conflicts
- Encouraging indirect access rather than direct access on high-speed, high-volume arterial routes



Whether it is accomplished through grade-separated crossings, frontage roads or right-in/right-out access, access management reduces the number of conflicts and results in improved safety. Various studies have demonstrated a direct relationship between the number of full access points and crash rates, including FHWA's Access Research Report No. FHWA-RD-91-044. Figure 17 shows this relationship.

The Minnesota State Statutes direct public road authorities to provide "reasonable, convenient, and suitable" access to property unless these access rights have been purchased. Courts have interpreted this to allow:

- Restrictions of access to right-in/right-out
- Redirection of access to another public roadway if the roadway is reasonable, convenient and suitable

In special circumstances, broader authority (police power) has been given to public agencies if the situation is deemed to jeopardize public safety. However, this is a very high standard to meet and is seldom used by public agencies.

In addition to the above, land use authorities may exercise additional authority in limiting access through development rules and regulations. Land use authorities can require:

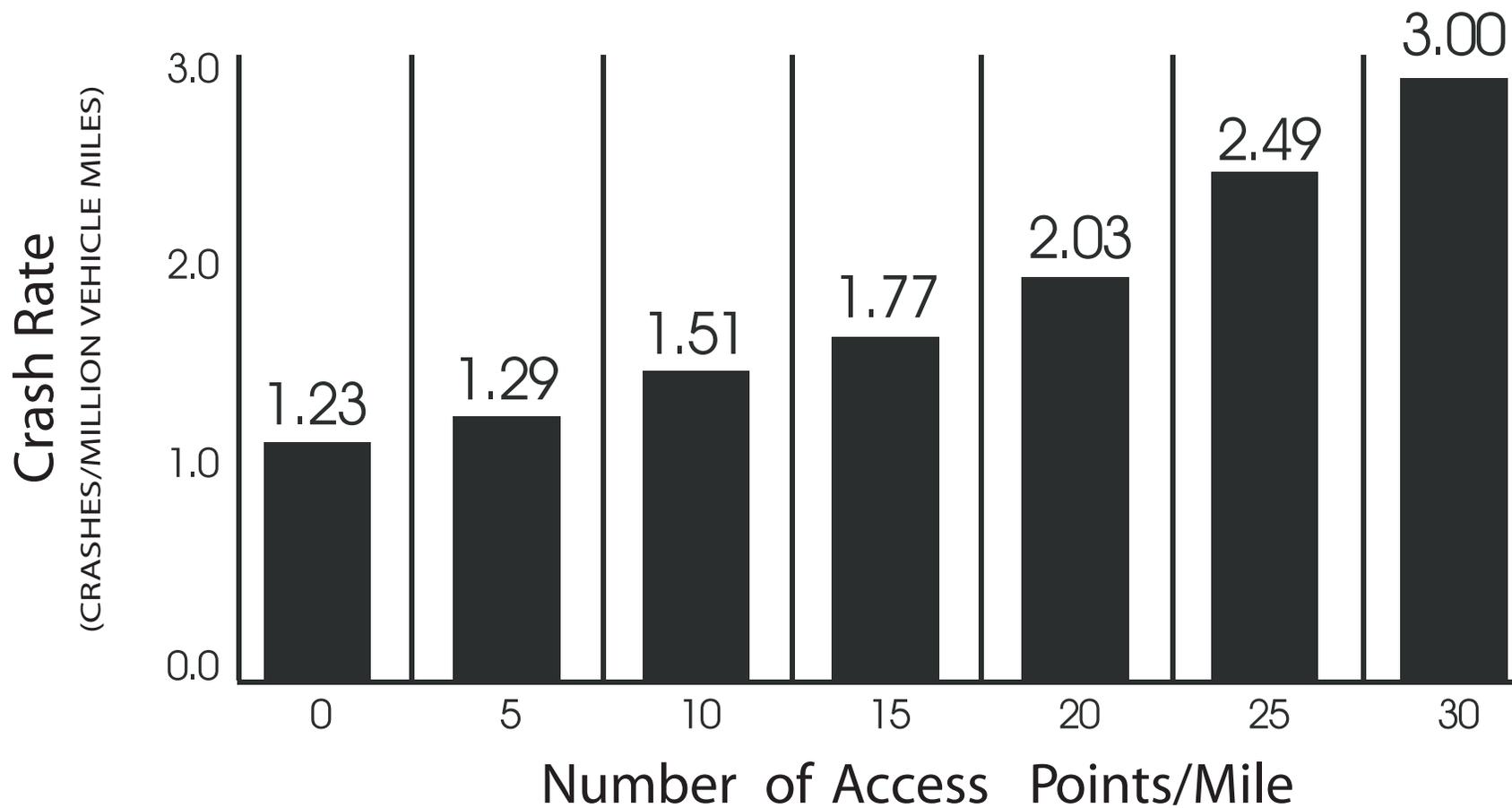
- Dedication of public rights-of-way
- Construction of public roadways
- Mitigation measures of traffic and/or other impacts
- Change in and/or development of new access points

These types of access controls are processed through local appointed and elected officials (e.g., planning commissions, town boards, City Councils and County Commissions).

Access guidelines and corridor management practices should be implemented at the county and city level because these units of government are usually involved at the planning stages of development proposals and because they have stronger land use and access controls. However, long-term benefits of access management require mutual support and effective communication at all governmental levels.

The rationale for managing access in rural areas differs from the rationale used in urban areas. Roadways in rural areas almost always serve low-density land uses and usually have volumes well below capacity thresholds. Managing rural access increases safety (e.g., sight distance, number of conflict areas, and severity of crashes when vehicles are run off the road) and minimizes operational/maintenance costs (e.g., snow removal, resurfacing and drainage).





Source: FHWA, Publication number FHWA-RD-91-044 (Nov. 1992)

Note: Study Data is from Two-Lane Highways in Minnesota



To address access in rural areas, Minnesota's Local Road Research Board (LRRB) developed the following best management practices:

- Establish an access policy – develop a formal policy that ensures that the agency has processes in place to determine the need for and evaluate the use, location, spacing and design characteristics of the requested access points.
- Encourage coordination during the zoning and platting process.
- Give access permits for specific use.
- Encourage adequate spacing of access points.
- Protect the functional area of intersections.
- Ensure adequate sight distance at entrances.
- Avoid offset or dogleg intersections and entrances.
- Encourage development of turn lanes and entrances.
- Consider consolidating access or relocating existing access.
- Encourage good driveway and intersection design characteristics such as:
 - Proper driveway width and turning radii
 - Proper corner clearance
 - Adequate approach grade
 - Alignment of intersections at right angles to maximize sight lines, minimize the time a vehicle is in the conflict area and facilitate turning movements
 - Proper grading of entrance inslopes and culvert openings
 - Keeping sight triangles and clear zones free of obstructions

These best practices should be considered and incorporated into any Goodhue County access management policy.

In addition to the LRRB's Best Practices for Rural Entrance Policy (2002), Mn/DOT completed a multi-year study in 2002 that developed access policies and access spacing guidelines for the Trunk Highway system. While Mn/DOT wrote the guidelines for the State Highway System, many of the recommendations can be applied to city and county systems. For example, access management guidelines promote coordination between land use and transportation strategies, and these issues affect decisions on the local city and county level. Establishing appropriate spacing between public streets and private driveways is an important step toward maintaining the safety and mobility of the traveling public without sacrificing the accessibility needs of local residents. Mn/DOT's Access Management Guidelines are shown in Table 9.

Based on a review of the LRRB and MnDOT access management guidelines, a set of comprehensive local access signal and private entrance standards were proposed by the Steering Committee. These are presented in Table 9.



TABLE 9
SUMMARY OF RECOMMENDED ACCESS SPACING

Category	Area or Facility Type	Typical Functional Class	Intersection Spacing		Signal Spacing	Private Entrances
			Primary Full Movement Intersection	Conditional Secondary Intersection		
1	High Priority Interregional Corridors (e.g. US 52)					
1F	Freeway	Principal Arterials	Interchange Access Only			
1A-F	Full Grade Separation		Interchange Access Only			
1A	Rural, Exurban & Bypass		1 mile	1/2 mile	INTERIM ONLY By Deviation Only ¹	By Deviation Only ¹
2	Medium Priority Interregional Corridors (e.g. TH 50, US 61 to Red Wing)					
2A-F	Full Grade Separation	Principal Arterials	Interchange Access Only			
2A	Rural, Exurban & Bypass		1 mile	1/2 mile	STRONGLY DISCOURAGED By Deviation Only ¹	By Exception or Deviation Only ¹
2B	Urban Urbanizing		1/2 mile	1/4 mile	STRONGLY DISCOURAGED By Deviation Only ¹	By Exception or Deviation Only ¹
2C	Urban Core		300 – 600 feet dependent upon block length		1/4 mile	Permitted Subject to Conditions
3	High Priority Regional Corridors (e.g. US 61 east of Red Wing)					
3A-F	Full Grade Separation	Principal and Minor Arterials	Interchange Access Only			
3A	Rural, Exurban & Bypass		1 mile	1/2 mile	1 mile	Permitted Subject to Conditions
3B	Urban Urbanizing		1/2 mile	1/4 mile	1/2 mile	By Exception or Deviation Only ¹
3C	Urban Core		300 – 600 feet dependent upon block length		1/4 mile	Permitted Subject to Conditions
4	Principal Arterials (see Functional Class Map)					
4A-F	Full Grade Separation	Principal Arterials	Interchange Access Only			
4A	Rural, Exurban & Bypass		1 mile	1/2 mile	1 mile	By Deviation Only ¹
4B	Urban Urbanizing		1/2 mile	1/4 mile	1/2 mile	By Exception or Deviation Only ¹
4C	Urban Core		300 – 600 feet dependent upon block length		1/4 mile	Permitted Subject to Conditions
5	Minor Arterials (see Functional Class Map)					
5A	Rural, Exurban & Bypass	Minor Arterials	1/2 mile	1/4 mile	1/2 mile	Permitted Subject to Conditions
5B	Urban Urbanizing		1/4 mile	1/8 mile	1/4 mile	By Exception or Deviation Only ¹
5C	Urban Core		300 – 600 feet dependent upon block length		1/4 mile	Permitted Subject to Conditions



Category	Area or Facility Type	Typical Functional Class	Intersection Spacing		Signal Spacing	Private Entrances
			Primary Full Movement Intersection	Conditional Secondary Intersection		
6	Collectors (see Functional Class Map)					
6A	Rural, Exurban & Bypass	Collectors	½ mile	1/4 mile	1/2 mile	Permitted Subject to Conditions
6B	Urban Urbanizing		1/8 mile	NA	1/4 mile	
6C	Urban Core		300 – 600 feet dependent upon block length		1/8 mile	
7	Local Roads/Streets	Township Roads, non-functionally classed City Streets	NA		NA	No closer than 200' with adequate site distance, per LRRB 2002 Study

¹ Mn/DOT allows temporary exceptions and deviations in an effort to accommodate existing access needs while transitioning to a future system of access spacing.

Goodhue County should adopt the Access Management Guidelines presented in Table 9 for the following reasons:

- The county does not currently have comprehensive access management policies. By establishing these policies, the county can plan, design and implement land use and transportation strategies that control the flow of traffic between roadways and surrounding land uses.
- Access management guidelines are based on functional classification and surrounding development; therefore, adopting guidelines will parallel the functional classification update of this plan and any future developments or land use changes resulting from the Comprehensive Land Use Plan update. Appropriate sections of the guidelines could be incorporated into county zoning and subdivision ordinances.
- The proposed Access Management Guidelines in Table 9 identify access spacing recommendations based on functional classification rather than traffic volumes. This method provides a long-term understanding of how each corridor will function and operate and enables the county to protect access on roadways before traffic volumes reach specific thresholds.

As noted above, access guidelines can be implemented using different methods (e.g., land use regulations, subdivision regulations, access permit processes and access/transportation advisory committees). Any processes should also deal with situations outside the guidelines, such as hardship cases. In existing corridors where significant development has occurred, the number of existing access points usually exceeds access guidelines. Unless these areas are undergoing redevelopment, access management must be approached differently. The access management strategy for such areas should entail aggressively minimizing new accesses, while consolidating/reducing existing access points as redevelopment occurs.



It is important to consider the following points when reviewing the guidelines and addressing access issues:

- The guidelines apply to routes with a functional classification of collector or above; however, the guidelines may occasionally be used on local streets.
- The guidelines are long-term goals, not absolute rules.
- Maintaining flexibility is important in promoting access consolidation.
- The approach to implementation is as important as the guidelines themselves.
- Existing physical barriers or constraints need to be considered.

The following access suggestions provide alternatives for minimizing access and for addressing access problems when the guidelines cannot be met:

- **Encourage shared driveways and internal circulation plans:** If indirect access cannot be achieved during plat reviews, promote internal site circulation using shared access points.
- **Restrict turning movements to reduce conflicts:** If access points cannot be eliminated, consider turning movement restrictions (e.g., left-in or right-in/right-out only) through installation of raised medians or other channelization or signing. Eliminating a single turning movement can significantly reduce vehicle conflicts and crashes.
- **Develop good parallel street systems for carrying local traffic:** Make sure that important arterial routes have parallel street systems that provide local access and carry shorter local trips.
- **Develop proper setbacks for future frontage roads:** If frontage roads cannot be immediately justified (benefits do not outweigh costs), make sure that proper building and parking lot setbacks are established to minimize the impacts of future frontage roads.
- **Develop proper secondary street spacing:** Ensure that plats and new development proposals provide proper intersection spacing for future signals. Signalized intersections should be limited depending upon the type of street. Collector streets should provide continuity and connectivity with other street systems.
- **Encourage proper lot layout to minimize access points:** Promote direct residential access points onto local routes, instead of onto arterials or major collectors. Direct residential access onto arterial or collector routes slows traffic flow and can result in complaints when traffic levels increase. In rural areas, where farms have one access point per 40-acre entitlement and where lots are clustered in one portion of the farmstead, access points should be placed on local roads, not on high-speed, high-volume state or county roads.
- **Encourage connectivity between developments:** Streets in individual developments should be aligned to provide access to other developments, and right-of-way should be provided for future connections to adjacent developments. This promotes neighborhood connectivity, and provides quick and efficient routes for emergency vehicles, mail, garbage services and street maintenance activities.



- **Consider Official Mapping process for important corridors:** Important arterial corridors, or future interchange areas that are located in development-prone areas, can be protected through an official mapping process. Local agencies should revise zoning ordinances and subdivision regulations to dedicate officially mapped corridors at the time of platting.

5.4 PROJECT DEVELOPMENT AND ENVIRONMENTAL PROCESSES

Depending on the size and type of project, implementing improvements identified in the Transportation Plan may require additional public participation and environmental review. Because of Goodhue County's close proximity to the Mississippi River, cultural, historical, and archeological resources, as well as critical wildlife habitats (i.e., bald eagle nesting habitats, trout streams and other protected wildlife) exist in the county. Protected sites and/or species require attention so possible environmental impacts can be addressed early in the project development process. Federal environmental documents must be prepared if federal funding is involved in the project, with the type of document depending on the size of the project. If no federal funding is involved, state environmental review requirements and local ordinances or guidelines may apply. Additional requirements depend on the size of the project. Further, a variety of local, state and federal permits that regulate wetlands, water quality, air quality, noise and other environmental resources may be needed. Early coordination with environmental agencies and the State Historic Preservation Office (SHPO) can reduce delays in the project development process and in acquiring applicable permits.

5.5 RIGHT-OF-WAY PRESERVATION

When future expansion or realignment of a roadway is proposed, but not immediately programmed, agencies should consider right-of-way (ROW) preservation strategies to reduce costs and maintain the feasibility of the proposed improvement. Several different strategies can be used to preserve ROW for future construction, including advance purchase, zoning and subdivision techniques and official mapping. Before implementing ROW preservation strategies, local agencies should weigh the risks of proceeding with ROW preservation without environmental documentation. (Note: Mn/DOT policy requires environmental documentation prior to purchase.) If environmental documentation has not been completed, agencies risk preserving a corridor or parcel that has associated environmental issues.

Direct Purchase

One of the best ways to preserve ROW is to purchase it. Unfortunately, agencies rarely have the necessary funds to purchase ROW, and the public benefit of purchasing ROW is not realized until a roadway or transportation facility is built. Many agencies use any advance funding to prepare the environmental documentation needed to proceed with larger projects.



Appendix C: Highway 52 IRC Management Plan (2002), Vision (excerpt)

Executive Summary

The purpose of the Highway 52 Interregional Corridor (IRC) Management Plan is to document the study process and key outcomes of the Highway 52 Interregional Corridor (IRC) Study.

This executive summary focuses on key elements of the study process including “Vision 52”, the public involvement process, and the recommended Highway 52 IRC Management Plan, including the shared strategies needed to initiate the Implementation Plan.

The Highway 52 Interregional Corridor (IRC) Management Plan provides a vision for future improvements to the highway, known as “Vision 52”, which will help protect and enhance the corridor to ensure that it provides for high speed, safe, and predictable travel conditions. It is only through the commitment of all responsible agencies that the recommendations and proposed improvements of this study can be realized.

The Highway 52 IRC Management Plan is one part of a broader statewide effort of identifying and assessing the needs of the most important highway corridors across the state. These critical Interregional Corridors (IRC) are the backbone of the statewide highway transportation network.

Interregional Corridors and the Moving Minnesota Plan

Moving Minnesota is a philosophy that recognizes that the key to meeting Minnesota’s transportation needs is a long-term, statewide and multimodal strategy. Moving Minnesota further recognizes that transportation is key to healthy and vital communities. Moving Minnesota is a 10-year investment strategy that focuses on three basic initiatives: **A**dvantages for transit, **B**ottleneck removal, and **C**orridor connections. A key component of the Moving Minnesota Plan is the improvement and protection of important highway connections between Minnesota’s regional trade centers (interregional corridors) to enhance competitiveness and the State’s economic vitality. Highway 52 was selected as one of the interregional corridors (IRCs) for study in the Moving Minnesota plan.

Highway 52 Corridor

The segment of Highway 52 being studied begins at the interchange with I-494 in the Twin Cities and ends at the interchange with I-90 south of Rochester, a total of 80 miles. The 80-mile Highway 52 corridor encompasses 10 cities and many townships with land use ranging from primarily agricultural with pockets of urban communities (residential, commercial/industrial) to primarily urban land uses.

Highway 52 is currently a four-lane divided facility from the Twin Cities to the interchange with I-90. The extreme northern section of the corridor between I-494 and County Road 56 in Inver Grove Heights, as well as the southern section of the corridor from 55th Street NW to I-90 through Rochester is a fully grade-separated freeway facility. In addition, there are several other freeway interchanges at various key locations along the corridor.

Highway 52 Vision

The Highway 52 Corridor Study and Management Plan was completed in March 2000. The study found that Highway 52 is at risk for developing performance problems in the future based on increasing traffic volumes and the potential for signal proliferation at cross streets. Traffic volumes

on Highway 52 have increased steadily and are projected to reach between 29,125 and 86,775 vehicles per day by 2025, up from 17,550 to 46,800 in 2000. Traffic has also increased on the cross streets, which creates problems on Highway 52 as it becomes more difficult to merge onto the highway and signals are installed at these intersections. Due to the large number of access points along the corridor (approximately 4.5 per mile average), the potential for numerous signal installations are high.

Based on these issues, the following vision was developed for the Highway 52 corridor and provides the basis for “Vision 52”:

- The ultimate vision for Highway 52 is to develop a fully access controlled, freeway facility. In this way, the corridor’s function as a high-speed, high mobility corridor will be maintained.
- In the interim between realizing the ultimate vision, Highway 52 will be managed to ensure it continues to serve as the safest, most direct route, and highest mobility link for moving people and goods between Rochester and the Twin Cities.

To work toward the vision, seven strategies were identified for maintaining mobility on Highway 52 while transitioning to a freeway facility, as listed below.

- Strategy 1: Convert selected at-grade intersections to grade-separated interchanges.
- Strategy 2: Maintain existing levels of safety and mobility before the transition to a freeway is completed by building turn lanes, acceleration lanes and making other improvements as necessary.
- Strategy 3: Create a supporting local road network, where necessary, to serve new and existing interchanges.
- Strategy 4: Severely limit the installation of any additional traffic signals.
- Strategy 5: Close existing at-grade access and highway medians as needs arise.
- Strategy 6: Implement local planning and land development strategies that support the Highway 52 vision.
- Strategy 7: Establish a Highway 52 Internal Management Team (IMT).

Public Involvement Process

A comprehensive approach was taken to create participation opportunities for project stakeholders and interested persons. The IMT, Policy Advisory Committee (PAC), and Technical Advisory Committee (TAC) met regularly to provide guidance, recommendations, and key decisions for the development of the plan. Three Working Groups were formed as subgroups of the TAC, one for each of three key subareas including Hampton, Cannon Falls, and Hader, to focus on and recommend solutions for issues and concerns specific to these three areas. Two open house public meetings were held to show the progression of the study, present findings, receive feedback, and coordinate and gather comments and responses from the public. Press releases and local newspaper and electronic media coverage were provided during the development of the plan and a project web site was created (<http://projects.dot.state.mn.us/seh/052>).