



Greater Minnesota Access Study



Minnesota Department of Transportation



June 2004

Acknowledgements

The Greater Minnesota Access Study Project Management Team (PMT) provided management, guidance, and decision-making oversight throughout the study process. The PMT members included:

- Peggy Reichert, Mn/DOT
- Cindy Carlsson, Mn/DOT
- Brian Gage, Mn/DOT
- Chris Hiniker, SEH

In addition, the following Mn/DOT district staff provided information on the development history of, along with general observations about, the documented case sites:

- District 3 – Gary Dirlam and Terry Humbert
- District 4 – Janelle Fowlds
- District 7 – Marc Flygare and Mark Scheidel
- Metro District – Tod Sherman



Table of Contents

	Page
1.0 Study Purpose and Process	1
1.1 Study Purpose	1
1.2 Case Site Identification and Documentation	2
1.3 General Observations	4
2.0 Baxter: TH 371	6
3.0 Cambridge: TH 95	16
4.0 Courtland: TH 14	23
5.0 Foley: TH 23/TH 25	26
6.0 Hawley: US 10	32
7.0 Mankato: TH 22	38
8.0 Moorhead: US 10	45
9.0 Mora: TH 23/TH 65	52
10.0 Morris: TH 28	58
11.0 New Prague: TH 19	64
12.0 New Prague East: TH 19	70
13.0 Sartell: TH 15	73
14.0 St. Clair: TH 83	79
15.0 US 169/TH 18	82
16.0 Waseca: TH 13	85

Table of Contents (Continued)

List of Figures

Figure A.1 – Baxter Site Location Map	9
Figure A.2N – Baxter (North Section) Land Use Information	10
Figure A.2S – Baxter (South Section) Land Use Information.....	11
Figure A.3N – Baxter (North Section) Access Configuration	12
Figure A.3S – Baxter (South Section) Access Configuration	13
Figure A.4N – Baxter (North Section) Site Photos	14
Figure A.4S – Baxter (South Section) Site Photos.....	15
Figure B.1 – Cambridge Site Location Map	19
Figure B.2 – Cambridge Land Use Information.....	20
Figure B.3 – Cambridge Access Configuration	21
Figure B.4 – Cambridge Site Photos.....	22
Figure C.1 – TH 14 (Courtland).....	25
Figure D.1 – Foley Site Location Map.....	28
Figure D.2 – Foley Land Use Information	29
Figure D.3 – Foley Access Configuration.....	30
Figure D.4 – Foley Site Photos	31
Figure E.1 – Hawley Site Location Map	34
Figure E.2 – Hawley Land Use Information	35
Figure E.3 – Hawley Access Configuration.....	36
Figure E.4 – Hawley Site Photos	37
Figure F.1 – Mankato Site Location Map	41
Figure F.2 – Mankato Land Use Information.....	42
Figure F.3 – Mankato Access Configuration	43
Figure F.4 – Mankato Site Photos.....	44
Figure G.1 – Moorhead Site Location Map	48
Figure G.2 – Moorhead Land Use Information.....	49
Figure G.3 – Moorhead Access Configuration	50
Figure G.4 – Moorhead Site Photos.....	51
Figure H.1 – Mora Site Location Map	54
Figure H.2 – Mora Land Use Information.....	55
Figure H.3 – Mora Access Configuration	56
Figure H.4 – Mora Site Photos.....	57
Figure I.1 – Morris Site Location Map	60
Figure I.2 – Morris Land Use Information.....	61
Figure I.3 – Morris Access Configuration	62
Figure I.4 – Morris Site Photos.....	63
Figure J.1 – New Prague Site Location Map.....	66
Figure J.2 – New Prague Land Use Information	67
Figure J.3 – New Prague Access Configuration	68

Table of Contents (Continued)

Figure J.4 – New Prague Site Photos	69
Figure K.1 – TH 19/Chalupsky Avenue (New Prague).....	72
Figure L.1 – Sartell Site Location Map	75
Figure L.2 – Sartell Land Use Information	76
Figure L.3 – Sartell Access Configuration.....	77
Figure L.4 – Sartell Site Photos	78
Figure M.1 – TH 83 (St. Clair).....	81
Figure N.1 – TH 169/TH 18 East (Aitkin County).....	84
Figure O.1 – TH 13 (Waseca).....	87

Greater Minnesota Access Study

Prepared for Minnesota Department of Transportation

1.0 Study Purpose and Process

1.1 Study Purpose

For businesses throughout Minnesota, visibility and access to the highway system is considered essential for success. Every business wants convenient access to its site for customers, employees, deliveries, and shipping. Years ago, access to the highway system usually meant a direct driveway connection from the business to an adjacent two-lane road. As traffic volumes and speeds have increased over time, Minnesota's highway system has been upgraded to include freeways, expressways, and multi-lane urban arterials. Safety on two-lane rural roadways has been improved with the addition of wider shoulders and turn lanes. In this setting, direct driveways to each adjacent business are no longer a safe way to provide access to the highway. Grade-separated interchanges and overpasses, signalized intersections, medians, turn lanes, frontage roads, and local access roads are now necessary for safe and convenient access.

The need to plan and manage access to the highway system is fairly well established and accepted by businesses in the Twin Cities metropolitan area and other major cities around Minnesota. However, in some smaller communities and rural areas of the state where commercial development is less intense, this need not as well be understood nor accepted. Business owners and developers in Greater Minnesota still express concerns about needing one or more direct driveway accesses to the adjacent highway to be economically viable.

This Greater Minnesota Access Study was initiated to address these concerns. Its primary purpose is to provide examples of good access management within commercial areas adjacent to state highways. These examples can be used by District staff and local government officials to illustrate the application of access management concepts within a variety of roadway types and commercial settings around the state.

It is understood that businesses in Greater Minnesota face different market conditions from the Twin Cities. Therefore, this study provides case studies that reflect non-metropolitan conditions. Each case study documents existing

land use, roadway, traffic, and access conditions with associated aerial photo based graphics. A brief history of the site development is provided along with comments highlighting the “best practices” in access management that have been applied to the site.

For this study, good access management is defined as conditions that meet or conform closely to Mn/DOT’s policy and guidelines for the spacing and allowance of access to the state highway system adopted in 2002 (Technical Memorandum No. 02-10-IM-01).

1.2 Case Site Identification and Documentation

The process for identifying the sites to be documented included multiple iterations and involved OIM staff, District staff, and consultant staff.

The basic criteria applied included:

- Access to trunk highway must meet, or be close to, Mn/DOT access guidelines
- Preferably no individual private drives onto trunk highway
- Preferably a minimal number of shared private driveways onto trunk highway
- No recent improvements to trunk highway (within last three years)
- No trunk highway improvements imminent
- No interstate highways
- No Twin Cities locations (urban or suburban)

Another important factor was practical application of the resources available. In order to maximize efficiency, the sites were organized geographically to reduce fieldwork efforts. Finally, they were divided into four-lane highway and two-lane highway groups.

Four-Lane Highway

- TH 371 – Baxter
- US 10 – Hawley
- TH 22 – Mankato
- US 10 – Moorhead
- TH 15 – Sartell

Two-Lane Highway

- TH 95 – Cambridge
- US 14 – Courtland
- TH 23/TH 25 – Foley
- TH 65/TH 23 – Mora
- TH 28 – Morris
- TH 19 – New Prague
- TH 19 east – New Prague
- TH 83 – St. Clair

-
- US 169/TH 18 east – Aitkin County
 - TH 13 – Waseca

With the identification of the sites complete, field documentation was conducted using the following methodology.

- An aerial map of each site was assembled. This map was the main source for collecting field notes including identifying new development, land use types, business names, access conditions and locations, signage, building orientation, roadway geometrics, etc.
- A comprehensive digital photo log was assembled including individual land uses, general visibility perspectives, and access conditions.
- General field notes were recorded including observations of visibility, unique signage/advertising, and accessibility.

Though many of the sites included numerous, different land use types, six different land uses that typically are associated with a greater dependency on highway access and visibility were identified as the focal point for this study. They include:

- Fast food restaurant
- Sit-down restaurant
- Convenience store/gas station
- Hotel/lodging
- Auto dealer
- Big-box retail

After completing the fieldwork, detailed mapping and summary reports were assembled. For the smaller sites, a single-page graphic was prepared that includes a regional location reference, site photos, business name(s), speed limits, and AADT. For the larger sites, four graphics were completed:

- Site location
- Land use information
- Access configuration
- Site photos

The summary text includes information regarding community, land use, and road network characteristics, as well as access conditions and site development history. A key element of the summary reports is documentation of the history that led to the access and site circulation conditions that currently exist. District staff and local officials were contacted to gather any available information relative to who initiated and led the local road planning and implementation efforts and who financed the activities. In conducting the research, it became evident that with the passage of time and turnover in staff, some of the site history information was sketchy and somewhat incomplete.

1.3 General Observations

After identifying and analyzing these case studies, the Study Management Team, comprised of Mn/DOT's Access Management staff in the Office of Investment Management and their consultants, offers these observations.

1. There are many examples of commercial developments in Greater Minnesota that are operating within a context of “good access management”, that is, the location and design of their access to the highway reflects an appropriate balance between the needs of the business for convenient access and the needs of the traveling public for safety and mobility.
2. Access to businesses and commercial developments via service roads, side streets, shared driveways, and cross-access easements between properties is not uncommon in Greater Minnesota. Drivers in Greater Minnesota understand how to navigate these systems of indirect access to reach their desired destinations.
3. Mn/DOT staff in Greater Minnesota districts have been applying the best practices of access management to the design and development of highways for many years. Many of the sites included as case studies were developed or improved 20 years ago.
4. Our definition of “best practices” in access management has also been evolving over the years as we have developed a better understanding of the impacts of access on highway safety and mobility, as well as on business operations and economic vitality. The access management “tool box” has expanded. Years ago, acquisition of access rights and the construction of service roads across the front of adjacent properties were generally understood as the only option to manage access. In recent years, coordinated land use and transportation planning involving Mn/DOT, the local government, and the affected properties as properties develop is much more common and results in less disruptive and more cost effective solutions for all parties.
5. The property owner's right to “reasonably convenient and suitable” access must still be analyzed and defined within the context of the very specific conditions of each individual property. Nevertheless, there is a greater understanding and appreciation by property owners, businesses, local government officials, Mn/DOT staff, and the courts that this right of access may not require provision of a direct driveway connection to the highway; “reasonably convenient and suitable” access may involve access to a local street that intersects with the highway or access to a shared driveway from a shared parking lot. Mn/DOT and local planners and engineers now work together with the affected businesses to ensure that convenient and suitable, as well as safe and functionally appropriate access is designed and provided. This process now occurs within the context of land use planning and regulation as often as within context highway design and construction.

Three CDs were produced to document the results of the study efforts. The CDs include:

- CD 1 – Contains a single .pdf file of the entire study report (text and graphics).
- CD 2 – Includes Microsoft Word and .jpg files of the text and graphics by each site. The CD also contains individual .jpg format files of the digital photo used in the report graphics.
- CD 3 – This CD contains the complete set of digital photos taken during the field work activities.

2.0 **Baxter: TH 371 – Four-Lane Divided Highway** **Regional Commercial District**

Community Characteristics: Baxter (population 5,550) is part of the greater Brainerd/Baxter area; a Level 2 Trade Center located 60 miles north of St. Cloud and 130 miles northwest of the Twin Cities (Figure A.1).

Site Location

- Extends from TH 210 on the south to just beyond Woida Road on the north (Figures A.2S and A.2N)

Land Use Characteristics

- Land use is a mix of commercial, service, and office including several big-box retailers, fast-food and sit-down restaurants, offices, and auto-related businesses. Development in the area has expanded dramatically over the past several years. The Brainerd-Baxter area serves as the primary commercial center for a large portion of north-central Minnesota.
- This area represents the largest concentration of commercial retail development between St. Cloud, Fargo-Moorhead, Bemidji, and Duluth.
- This area is fully-developed except for open land along the east side of TH 371 south of Woida Road.
- Flat terrain and straight highway alignment provide high level of visibility between the highway and adjacent land uses.

Road Network Characteristics

- Four-lane divided highway
- Cross-section includes two through lanes in each direction with right and left turn lanes at all intersections (Figures A.3S and A.3N).
- Traffic signals at TH 210, Excelsior Road, and Woida Road
- All approach roadway intersections include right and left turn lanes.
- Continuous parallel frontage roads connect to TH 371 via Excelsior Road, Design Drive, Clearwater Road, and Woida Road.
- Design Drive and Clearwater Road are $\frac{3}{4}$ access intersections (these intersections prevent the left-out and crossover movement from the minor street).
- Traffic Volumes (year 2002 AADT)
 - South of TH 210: 12,100
 - Between TH 210 and Woida Road: 25,200
 - North of Woida Road: 17,800

Site Development History

The access conditions and frontage road system along TH 371 between TH 210 and Woida Road evolved incrementally as land development was

proposed and constructed. East and west side frontage roads were constructed from Excelsior Road to Clearwater Road in the early 1970s. At that time, very little room was reserved between the highway and the frontage road at the Design Drive and Clearwater Road intersections. Following the original construction, some privately funded improvements occurred in the Excelsior Road area with the Cub Foods and Wal-Mart developments. Mn/DOT followed with reconstruction of the frontage road intersections at Clearwater Road to create 150-foot separation from the highway. Then in the early 1990s, Target developed and the Clearwater Road intersection was configured for future signalization.

Later in the 1990s, a frontage road project was initiated to protect the TH 371 corridor north of Clearwater Road to Woida Road. Mn/DOT requested the City of Baxter initiate the project to develop the project sooner than what Mn/DOT could program. In return, the City of Baxter requested Mn/DOT contribute to the design and right-of-way expenditures of the project. This project extended the existing frontage system north to Woida Road, eliminated two to three crossovers, including conversion of Design Drive from a full to $\frac{3}{4}$ access intersection, and moved the signal proposed for Clearwater Road to Woida Road.

In the early 2000s, Mn/DOT initiated a comprehensive access management plan for TH 371. The plan established 1-mile full access intersection spacing with traffic signals and intermediate limited access intersections. The new Menards site north of Woida Road followed and provided an opportunity to extend the eastern frontage road, close an access point, and remove a crossover on the east side of TH 371. This work was completed and paid for by state aid and local funding.

Throughout the development of this frontage road system, Mn/DOT participated in construction and right-of-way costs because the improvements provided congestion relief and improved safety along the trunk highway.

Representative photos of the study area are presented in Figures A.4S and A.4N.

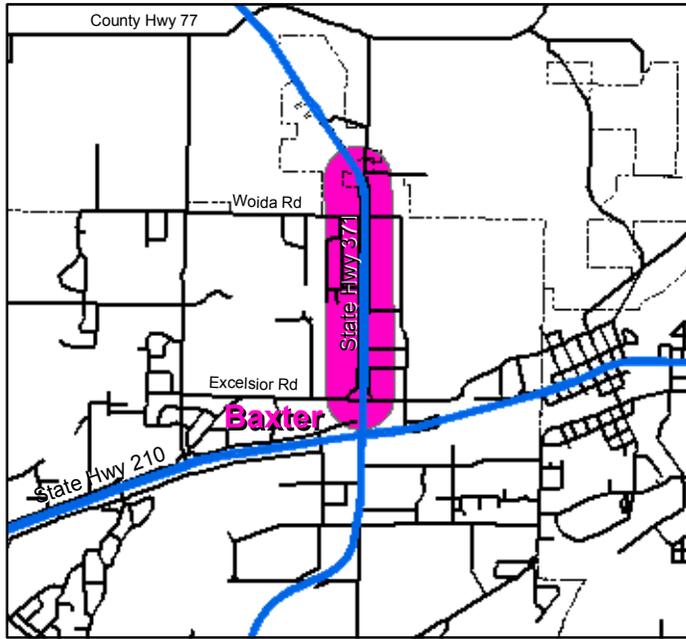
Comment and Observation

- TH 371 is categorized as a divided High Priority Interregional Corridor – Urbanizing (Category 2B). The recommended intersection spacing is $\frac{1}{2}$ -mile for primary intersections and $\frac{1}{4}$ -mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- Based on gap analysis (per the Mn/DOT Access Management Policy), the current and future traffic volumes north of TH 210 limits secondary intersections to right-in/right-out only or right-in/right-out/left-in only.
- Prior to the implementation of the Mn/DOT Access Management Policy, District staff worked with the local government to establish an access management plan for this segment of highway. Similar to the guidance in the Access Management Policy, the access management plan established primary intersection spacing (1-mile), secondary intersection spacing ($\frac{1}{2}$ -

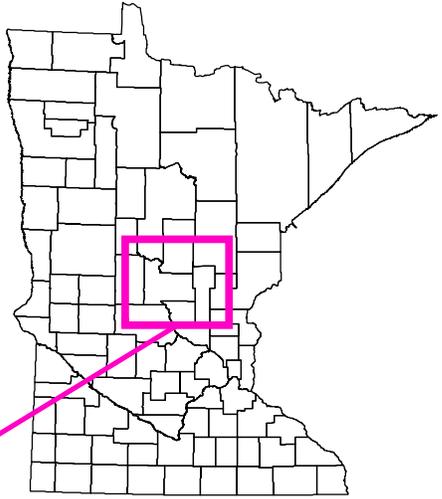
mile or so) and alternatives to direct private entrances (frontage roads and a system of local cross streets).

- The access management plan emphasizes through movements along TH 371, but potentially limits cross street traffic and local traffic.
- Clearwater Road, designated as a secondary intersection, is located half way between the two signals and could be signalized if additional access is needed to facilitate cross street traffic movements and to alleviate overloading at other signalized intersections. At this location, a traffic signal could be coordinated with other signals on TH 371 for two-way traffic flow.
- No private entrances directly connect to TH 371. Frontage roads both east and west of TH 371 and local cross streets provide access to all adjacent properties. The local street system east of TH 371 also provides a parallel supporting road network for local trips.
- The lack of parallel street network or backage roads west of TH 371 forces all traffic onto the frontage road or TH 371.
- Right-in/right-out/left-in only secondary public intersections are used to distribute turning traffic along the highway corridor, thereby reducing the risk of overloading at the signalized primary intersections.
- In most cases, some separation is provided between the frontage roads and TH 371 at primary intersections. This separation allows for the development of back-to-back left turn lanes serving both TH 371 and the frontage roads.

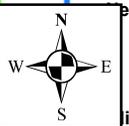
Figure A.1 Baxter Site Location Map

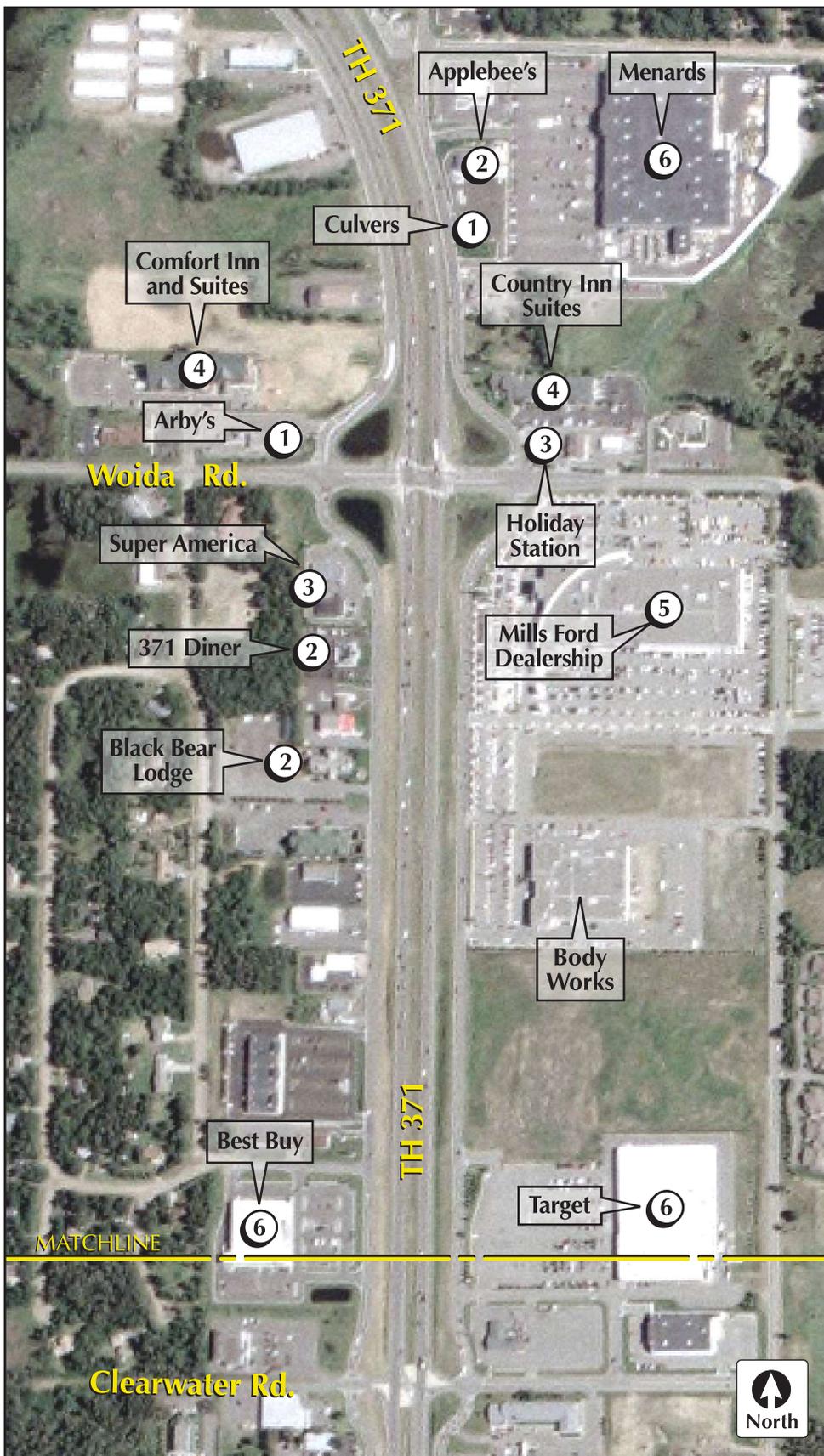


Greater Minnesota Access Study



Map Document: (C:\Projects\Access_Studies\Location_Baxter_SiteDetail.mxd)
6/1/2004 -- 2:37:56 PM

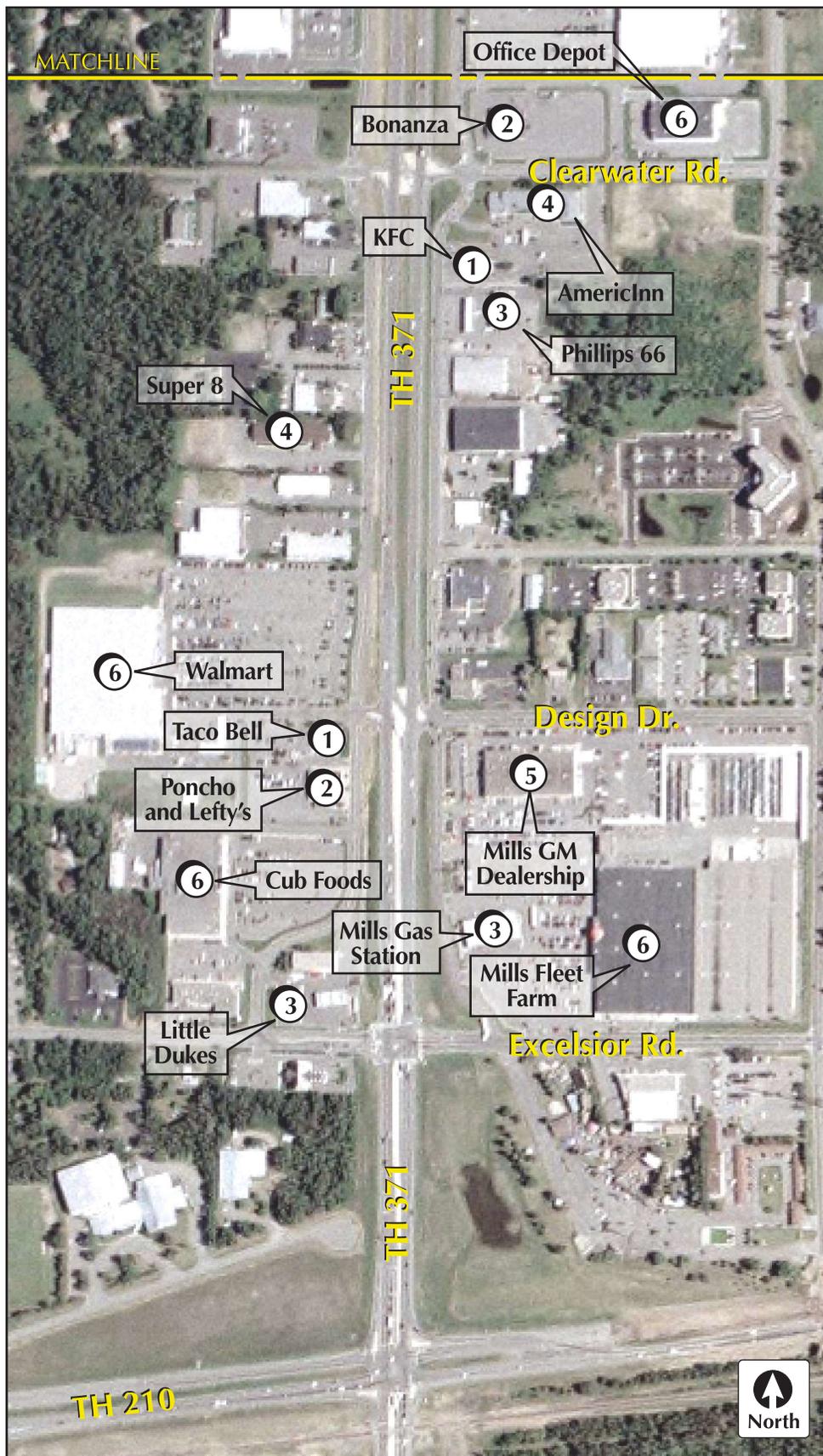




Land Use Type Categories

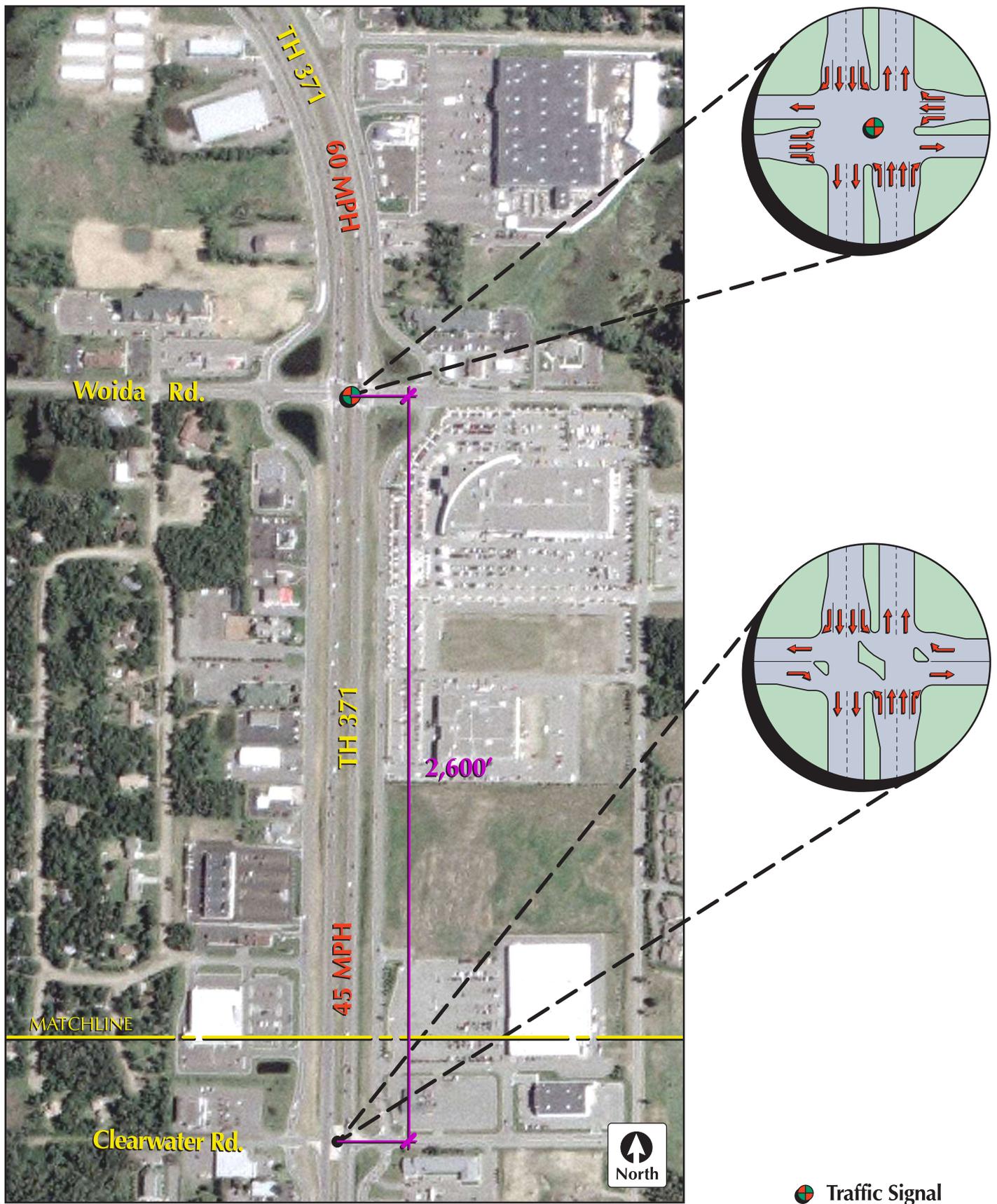
- ① Fast Food Restaurant
- ② Sit-Down Restaurant
- ③ Convenience Store/ Gas Station
- ④ Hotel/Lodging
- ⑤ Auto Dealer
- ⑥ Big Box Retail





Land Use Type Categories	
①	Fast Food Restaurant
②	Sit-Down Restaurant
③	Convenience Store/ Gas Station
④	Hotel/Lodging
⑤	Auto Dealer
⑥	Big Box Retail





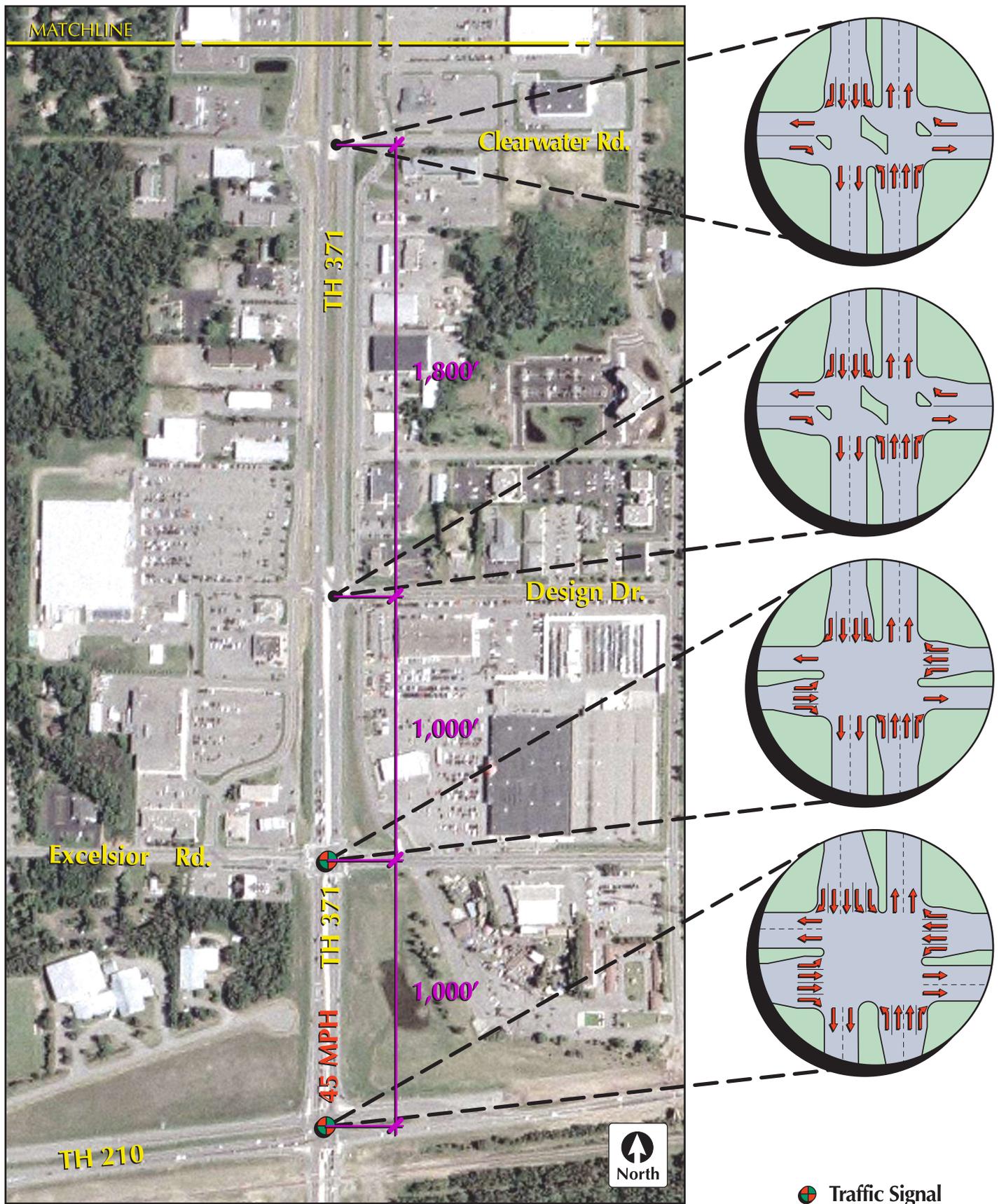


Figure A.3S



1



2



3



4



5



6



7



8



9

Figure A.4N
Baxter (North Section) Site Photos



1



2



3



4



5



6



7



8



9

Figure A.4S
Baxter (South Section) Site Photos

3.0 Cambridge: TH 95 – Two-Lane Divided Highway Regional Center Commercial Corridor

Community Characteristics: Cambridge (population 5,520) is a Level 3 (Shopping) Trade Center, located approximately 45 miles east of St. Cloud and 40 miles north of the Twin Cities (Figure B.1).

Site Location

- East edge of Cambridge
- Extends along TH 95 between TH 65 and Flanders Street (Figures B.1 and B.2)

Land Use Characteristics

- Approximately a 1-mile strip of mixed commercial retail uses.
- Commercial retail development in the area has expanded dramatically over the past several years. Cambridge now serves as a primary commercial center for a broad area of east-central Minnesota
- Little additional land remains for further development.
- Generally, the flat terrain and straight highway alignment provide a high level of visibility between the highway and adjacent land uses. In some instances, buildings are partially screened by other development.
- TH 65, bordering the west edge of the area, is elevated over TH 95 providing a broad view of the area.
- Several businesses are advertised on the blue Mn/DOT informational signage on TH 65.

Roadway Network Characteristics

- Two-lane divided highway
- Traffic signals at TH 65 interchange ramps, Xylite Street, and Flanders Street
- Left and right turn lanes on TH 95 at each intersection (Figure B.3)
- There is a frontage/backage road system in place that connects to TH 95 via the Xylite Street and Flanders Street signalized intersections.
- There are no private driveways between Xylite Street and Flanders Street
- Balsam Street is a $\frac{3}{4}$ access intersection (these intersections prevent the left-out movement and cross-over from the minor street).
- There is a mix of consolidated private entrances and public intersections between TH 65 and Xylite Street.
- Traffic Volumes (2002 AADT)
 - West of TH 65: 12,700
 - Between TH 65 and Xylite Street: 18,600

-
- Between Xylite Street and Flanders Street: 11,500
 - East of Flanders Street: 7,800

Site Development History

In the 1970s, Mn/DOT developed a layout for improvements to TH 95. The project was again considered in the early 1990s. As development pressure increased for the open land between Xylite Street and Flanders Street, the City worked with Mn/DOT to establish backage/frontage roads as an alternative to direct highway access, establish a framework for traffic signals, and promote orderly development. These discussions, and in some cases, negotiations took place between the City, Mn/DOT, and developers over the span of several months. Mn/DOT decided to drop the idea of buying controlled access because the City took the lead to plat the area securing access control and establishing the right-of-way required for frontage/backage roads.

The frontage road system on the north side of TH 95 was not complete when development of the County Market Grocery was pursued. Mn/DOT agreed to a temporary direct access to TH 95 from the frontage road in front of the grocery store with the understanding the access would be removed either when the frontage road system was complete or within 5 years from the time the temporary access opened, whichever occurred first. A temporary access also existed on the south side of TH 95 near Flanders Street. This access was removed with the completion of the south frontage road.

The access at Balsam Street between Xylite Street and Flanders Street was originally a full movement intersection until safety problems occurred with new development in the area. The intersection was modified to prevent left-out and straight across movements ($\frac{3}{4}$ access). The area between the TH 65 ramps and Xylite Street was developed with numerous businesses when TH 95 was reconstructed. As a result, an access consolidation plan was developed with the City and affected businesses to retrofit access conditions along TH 95.

Representative photos of the study area are presented in Figure B.4.

Comments and Observations

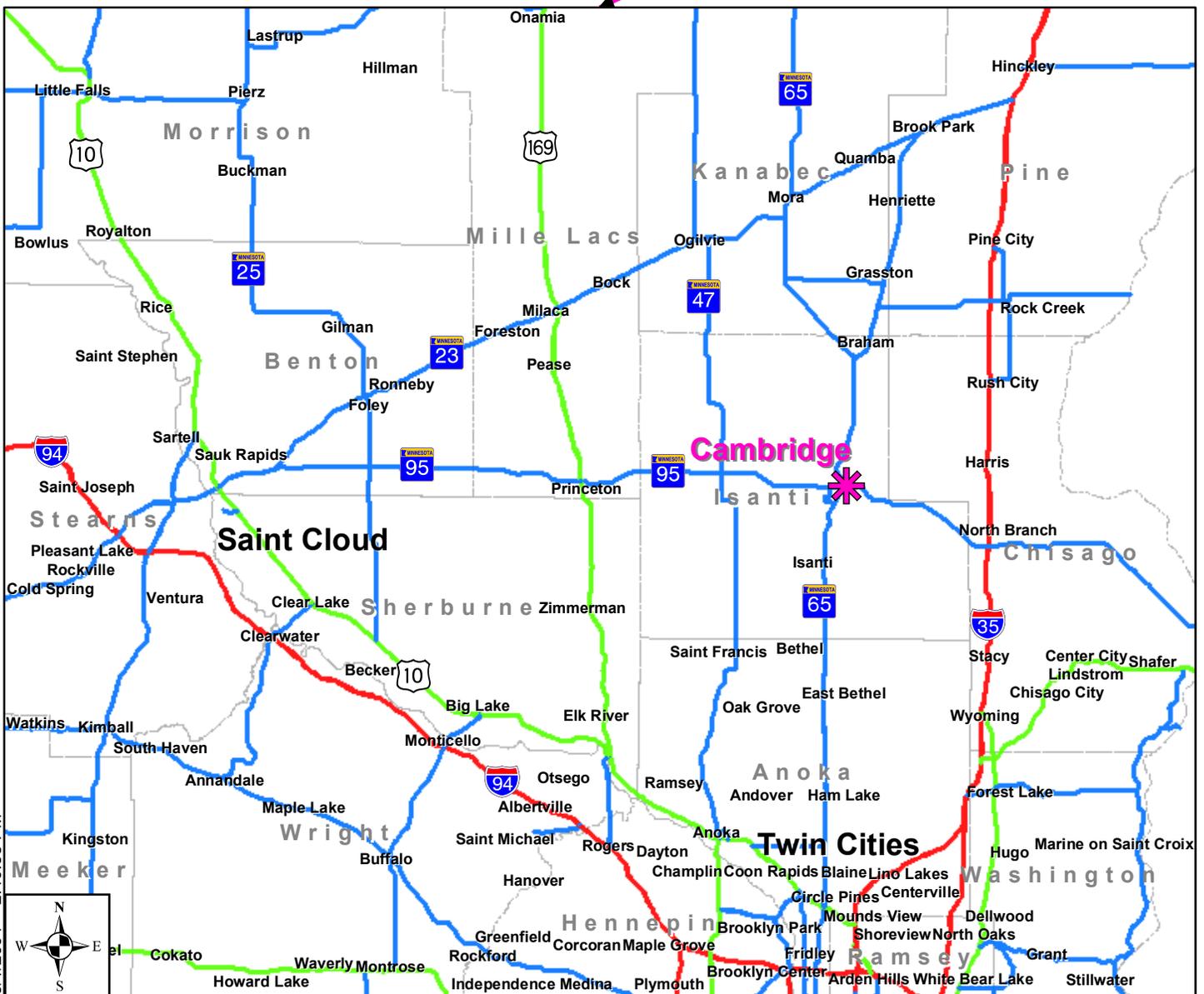
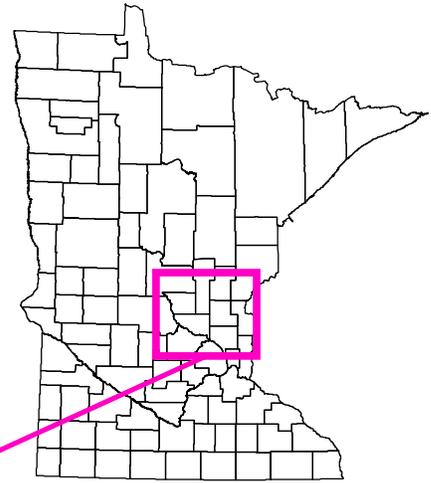
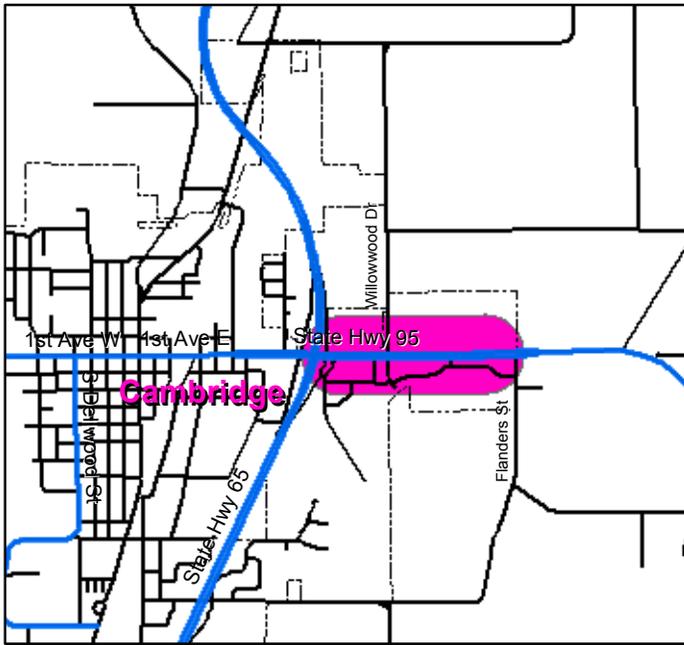
- TH 95 is categorized as a divided Minor Arterial – Urbanizing (Category 5B). The recommended intersection spacing is $\frac{1}{4}$ -mile for primary intersections and $\frac{1}{8}$ -mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- The current and future traffic volumes on TH 95 limit secondary intersections to right-in/right-out only. The intersection 700 feet east of the TH 65 ramp should be considered a secondary intersection and should be limited to right-in/right-out only.
- The intersection spacing was developed before the implementation of the Mn/DOT Access Management Policy. Nonetheless, the public intersection spacing is generally consistent with the guidelines. Primary intersections have been identified at approximately $\frac{1}{4}$ -mile spacing (TH 65 ramp, Xylite Street, Balsam Street, and Flanders Street). As

primary intersections, these locations should be full movement intersections and potential signal locations.

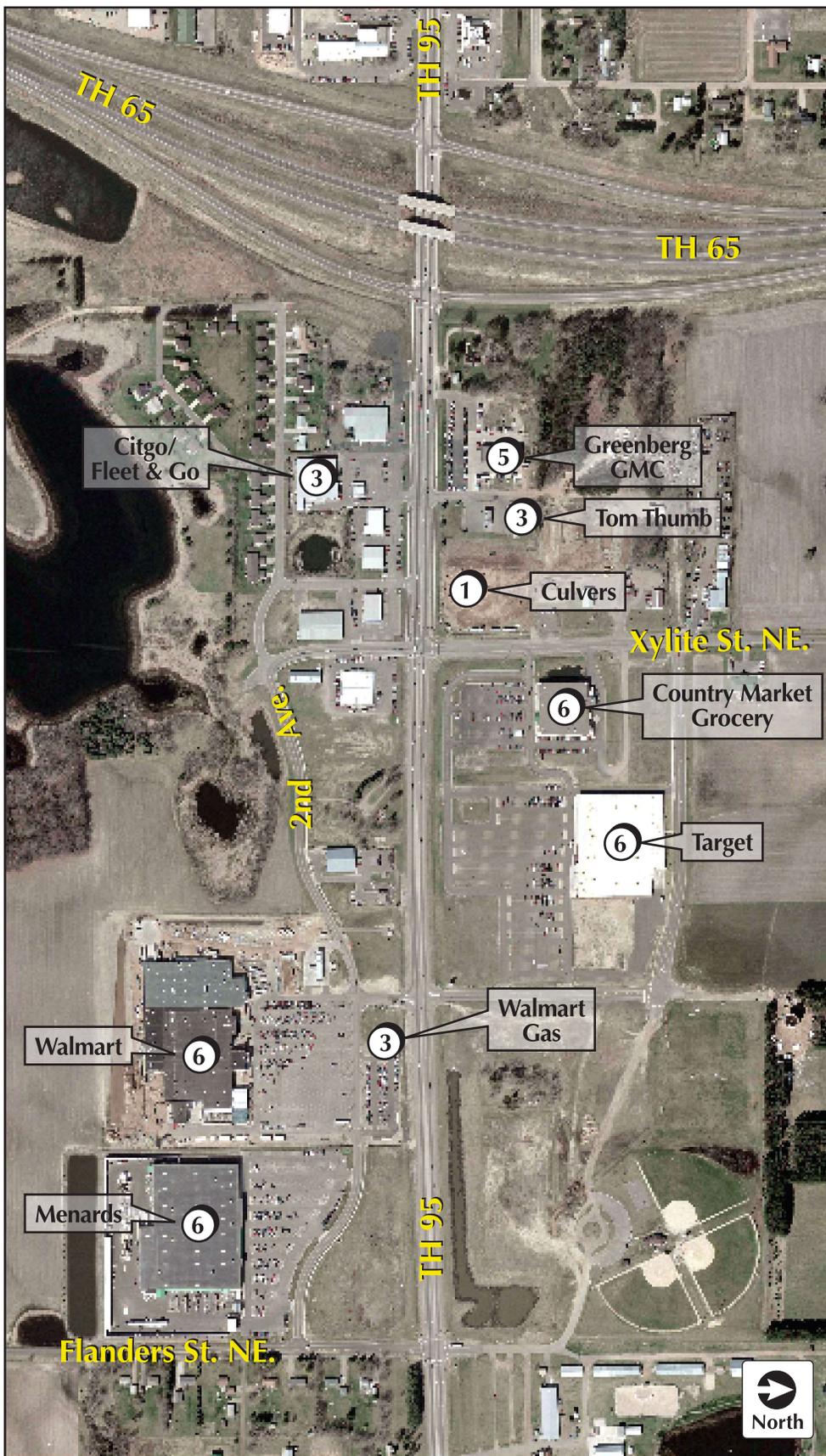
- As discussed in the “Site History Development”, the control of access and construction of a service road system was a City of Cambridge and Mn/DOT joint venture using existing regulatory authority. The service roads were built as part of the developments. This approach places the cost of the frontage road on the developer instead of on Mn/DOT or the City.
- The service road system on both north and south sides of TH 95 allows visibility for adjacent property owners while providing a parallel street network.
- In some cases, isolated parcels cannot be accessed from the service road system. Right-in/right-out only intersections and private entrances are used to provide necessary access to these isolated properties in the northeast and southeast quadrants of TH 65/TH 95.
- Continuation of the parallel street system is under development. The City continues to expand a parallel street system to redirect access away from TH 95 and to provide an alternative route for short local trips and to provide access to future developable land. This expansion of the parallel street system is funded by the City and by developers.
- Cross easement agreements and shared entrances are used as frontage roads on both sides of TH 95.

Figure B.1 Cambridge Site Location Map

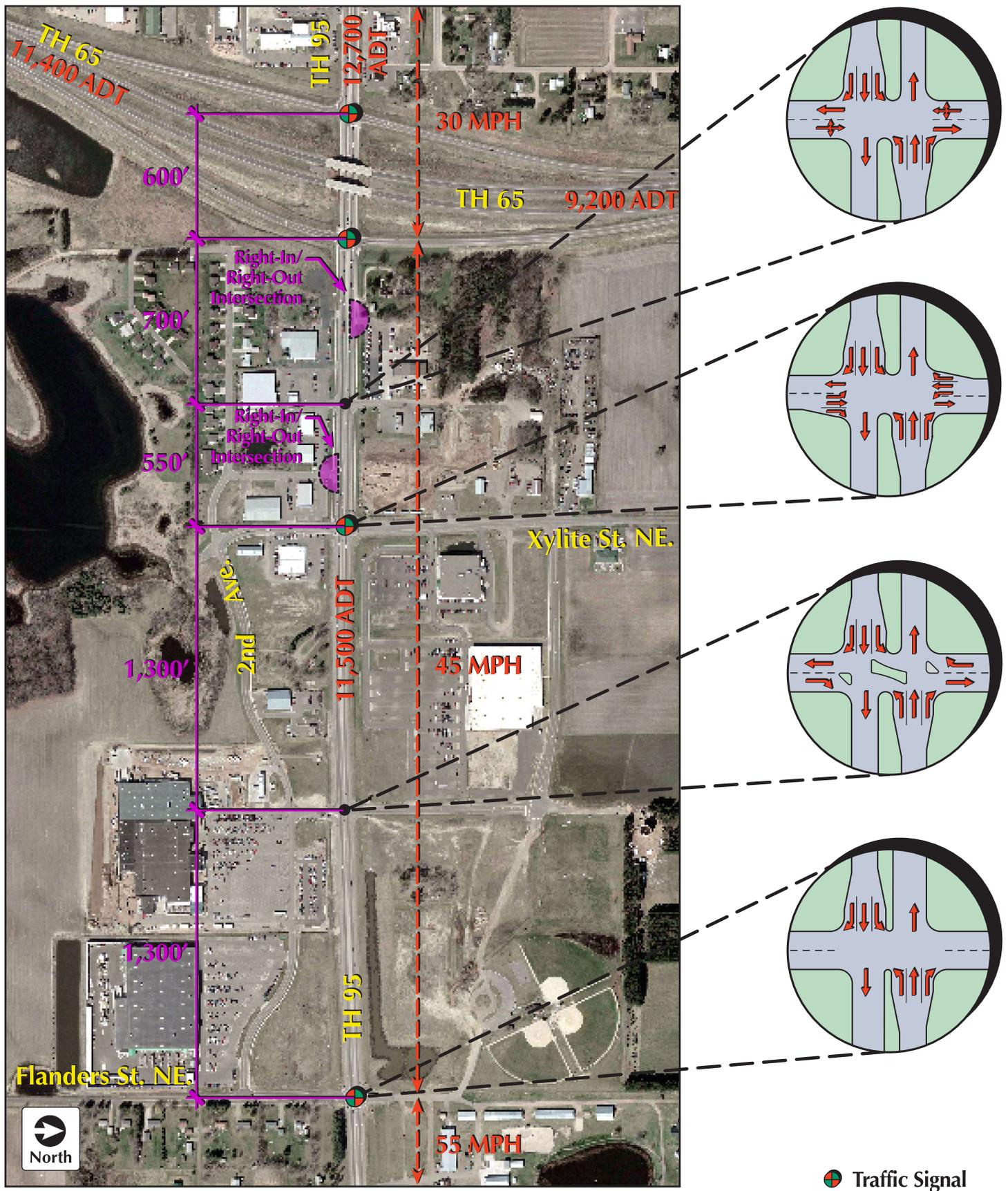
Greater Minnesota Access Study



Map Document: (C:\Projects\Access_Studies\Location_Cambridge_SiteDetail.mxd)
6/1/2004 -- 2:40:38 PM



- ### Land Use Type Categories
- ① Fast Food Restaurant
 - ② Sit-Down Restaurant
 - ③ Convenience Store/ Gas Station
 - ④ Hotel/Lodging
 - ⑤ Auto Dealer
 - ⑥ Big Box Retail





1



2



3



4



5



6



7



8



9

Figure B.4
Cambridge Site Photos

4.0 Courtland: TH 14 – Two-Lane Highway Rural Free-Standing Auto Dealership

Community Characteristics: Courtland (population 538) is a Level 7 Trade Center, located in Nicollet County approximately 20 miles northwest of Mankato and 90 miles southwest of the Twin Cities (Figure C.1).

Site Location

- South side of US 14 on the west edge of Courtland

Land Use Characteristics

- Used auto dealer (S & S Auto Sales)
- Agricultural fields surround the area. No other development is proximate to the site.
- The developed area of Courtland is approximately 1-mile to the east.
- Flat terrain and straight highway alignment provide high level of site visibility.

Road Network Characteristics

- US 14 is a rural two-lane undivided highway.
- Access is provided via Township Road 156.
- US 14 includes one through lane in each direction and a right turn lane for eastbound traffic, and the township road includes a through lane in each direction with no turn lanes.
- Traffic Volumes (year 2002 AADT)
 - TH 14: 4,950 AADT

Site Development History

In the late 1990s, S & S Auto Sales requested an access onto US 14 from a parcel of land located just east of their current location. As part of the permit process, Mn/DOT notified the business owners that permit approval was contingent upon the business constructing turn lanes on US 14 at the entrance/access. The business owners elected to locate adjacent to a low volume, gravel township road that already had direct access onto US 14, thereby avoiding the need for an access permit. As a result of no permit being required, turn lanes for the township road were not constructed.

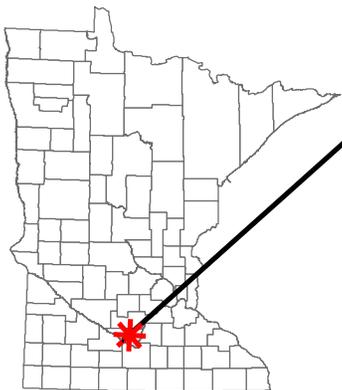
Representative photos of the study area are presented on Figure C.1.

Comments and Observations

- US 14 is categorized as an undivided Medium Priority Interregional Corridor – Rural (Category 2A). The recommended intersection spacing is 1-mile for primary intersections and ½-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.

-
- Under Mn/DOT's regulatory authority, this access may have been denied if the township road provided a reasonably convenient and suitable alternative to direct access to US 14. In some cases, a local street may not be suitable for the type of vehicles using it. Gravel roads may not have the structural capacity to carry delivery trucks. In this case, the gravel township road apparently was adequate for the development.
 - Under Mn/DOT's regulatory authority, the construction of a right turn lane was a condition of the permit. The developer chose not to continue the permitting process due to the expense of the right turn lane. The requirement for the right turn lane should be based on Mn/DOT's Road Design Manual and consistent with the treatment of similar access points (both public and private) along the corridor. The turn lane requirement should not be used to discourage the access.
 - Mn/DOT should work with the local government even when no access is being requested. In this case, Mn/DOT staff determined the need for a turn lane was justified, but when the entrance shifted to the township road, the same conditions that warranted a turn lane shifted to the township road, yet Mn/DOT had no authority to require a turn lane at the township road. The local government and local road authority may have been able to require the developer to construct a right turn lane from US 14 to the township road.
 - The use of the township road to access the development is consistent with Mn/DOT's Access Management Policy. This road has been paved and can be used to provide reasonably convenient and suitable access for future developments in the area.

Figure C.1 - TH 14 (Courtland)



5.0 Foley: TH 23/TH 25 – Two-Lane Highways Highway Crossroads Commercial District

Community Characteristics: Foley (population 2,150) is the Benton County Seat and is classified a Level 4 Trade Center. It is located approximately 15 miles northeast of St. Cloud and 70 miles northwest of the Twin Cities (Figure D.1).

Site Location

- TH 23/TH 25 intersection area on the west edge of Foley.

Land Use Characteristics

- A mix of freestanding commercial and light industrial uses, including gas stations, auto dealers, and a grocery store, extending approximately 300 feet to ¼-mile along each approach to the TH 23/TH 25 intersection.
- The northwest quadrant of the intersection is undeveloped (Figure D.2).
- Flat terrain provides a high level of visibility between the highways and adjacent land uses.

Road Network Characteristics

- TH 23 and TH 25 are rural two-lane highways.
- The TH 23/TH 25 intersection is signalized and includes a through, left turn lane, and a right turn lane for all approaches (Figure D.3).
- Right turn lanes are also located at the frontage road intersections.
- Traffic Volumes (2002 AADT)
 - TH 25 north approach: 2,850
 - TH 25 south approach: 4,100
 - TH 23 east approach: 6,500
 - TH 23 west approach: 7,100

Site Development History

As the area developed, Mn/DOT District 3 Entrance Committee members reviewed plat and access change requests. The committee provided recommendations based on the need to limit access to accommodate planning for the traffic signal at the TH 23/TH 25 intersection. The City of Foley agreed and implemented the access requirements as part of their plat review process.

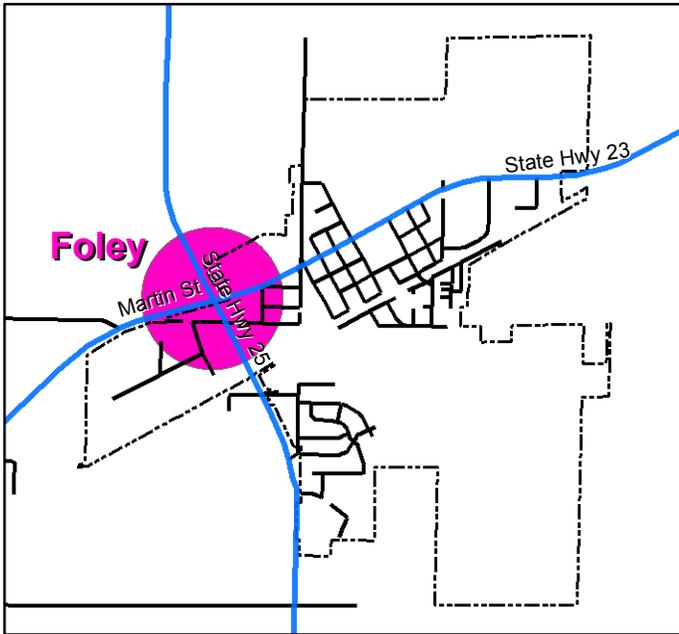
Representative photos of the study area are presented in Figure D.4.

Comments and Observations

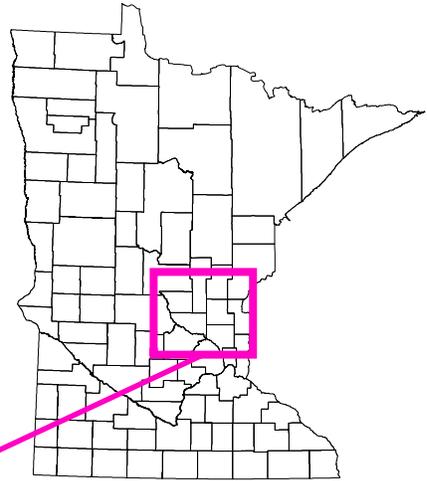
- TH 23 is categorized as an undivided Medium Priority Interregional Corridor – Urbanizing (Category 2B). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.

-
- TH 25 is categorized as an undivided Minor Arterial – Rural (Category 5A). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary intersections. Low volume private entrances (Access Types 1 and 2) are permitted in no reasonably convenient and suitable alternative access exists. High volume private entrances (Access Type 3) are not recommended and should be directed to the local street network.
 - This location is representative of many rural intersections between two state trunk highways. At these locations, a supporting street network may not be in place, and the primary development will be in the corner lots. Meeting the recommended intersection spacing in the immediate vicinity of these types of intersections is difficult. In these cases, the access management approach should be a balance between the access needs of isolated land uses and keeping the functional area of the intersections free of access points.
 - No public intersections or private entrances are located within the functional area of the TH 23/TH 25 intersection.
 - Each quadrant of the intersection demonstrates a different approach to providing access to corner businesses.
 - In the northeast quadrant, a frontage road is used to provide access. The frontage road has been designed to provide access to future developments as well. The entrance to the frontage road has been aligned with the local street network.
 - In the northwest quadrant, a private road provides access to TH 25 and a local street (115th Avenue NE). This private road also provides a shared access for an adjacent property owner.
 - In the southeast quadrant, the local street system is used to provide access to the corner businesses. A cross easement agreement between multiple businesses in this corner also reduces the number of entrances into the site.
 - In the southwest quadrant, the local street network was extended as a service road/backage road to provide access to multiple businesses in this corner. The service road aligns with other local streets to provide a parallel street network.
 - All the businesses have visibility from the trunk highway. Drivers passing the businesses also have the ability to access the businesses after passing them.
 - The businesses in each corner are treated equally.
 - The access management around this intersection demonstrates the cooperative approach using Mn/DOT and the City of Foley’s regulatory authority.

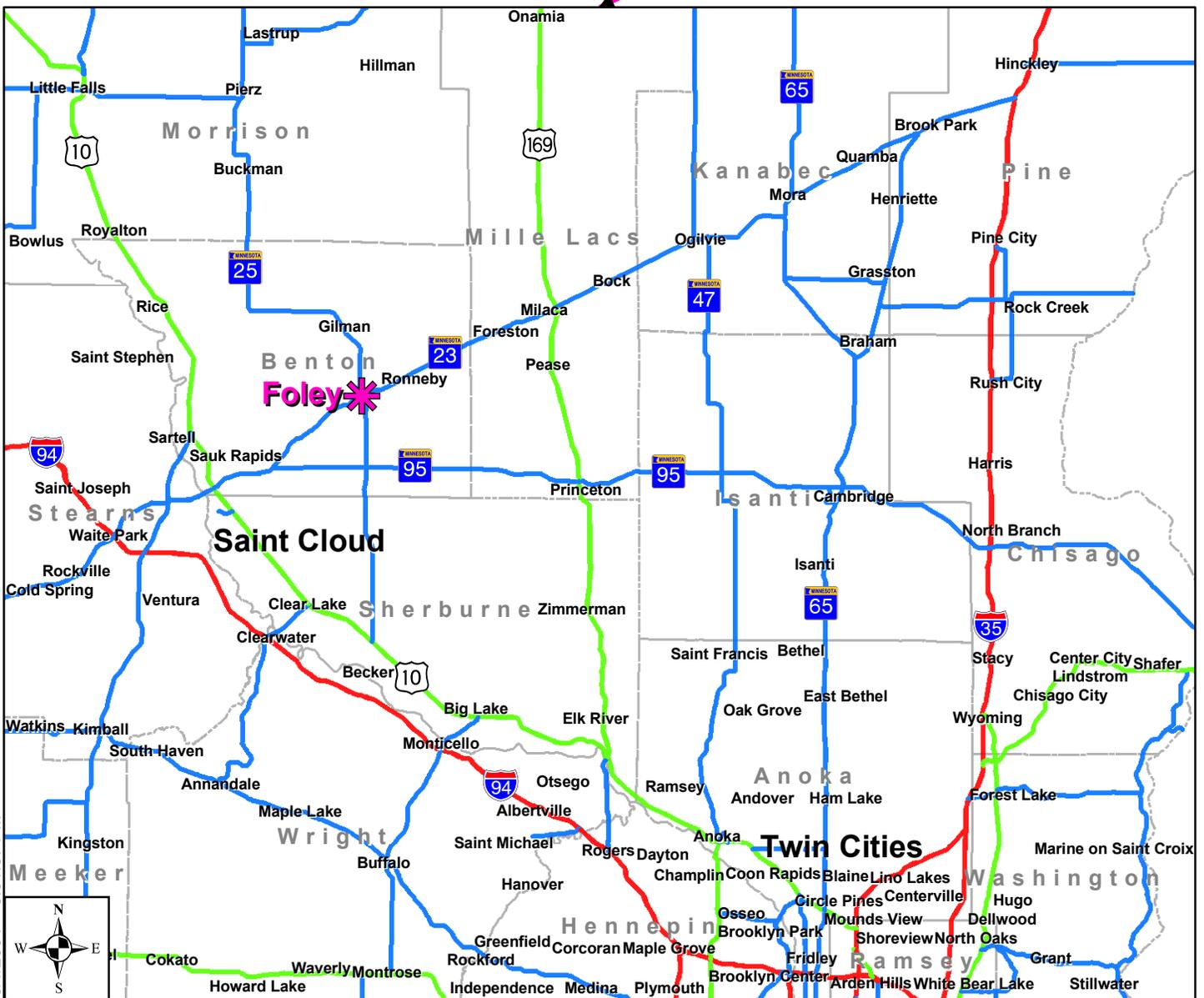
**Figure D.1
Foley Site Location Map**



Greater Minnesota Access Study



Map Document: (C:\Projects\Access_Studies\Location_Foley_SiteDetail.mxd)
6/1/2004 -- 3:01:37 PM



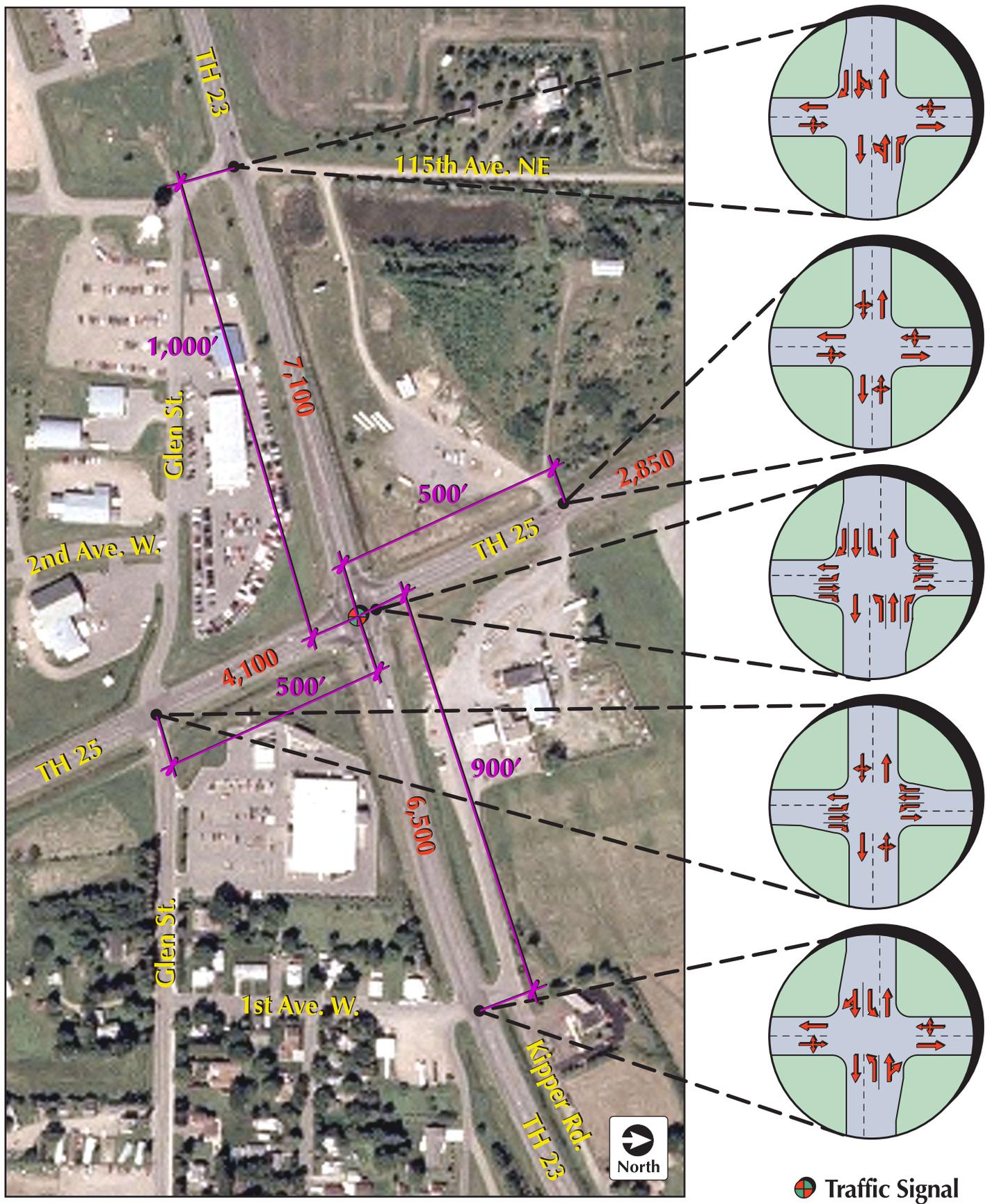


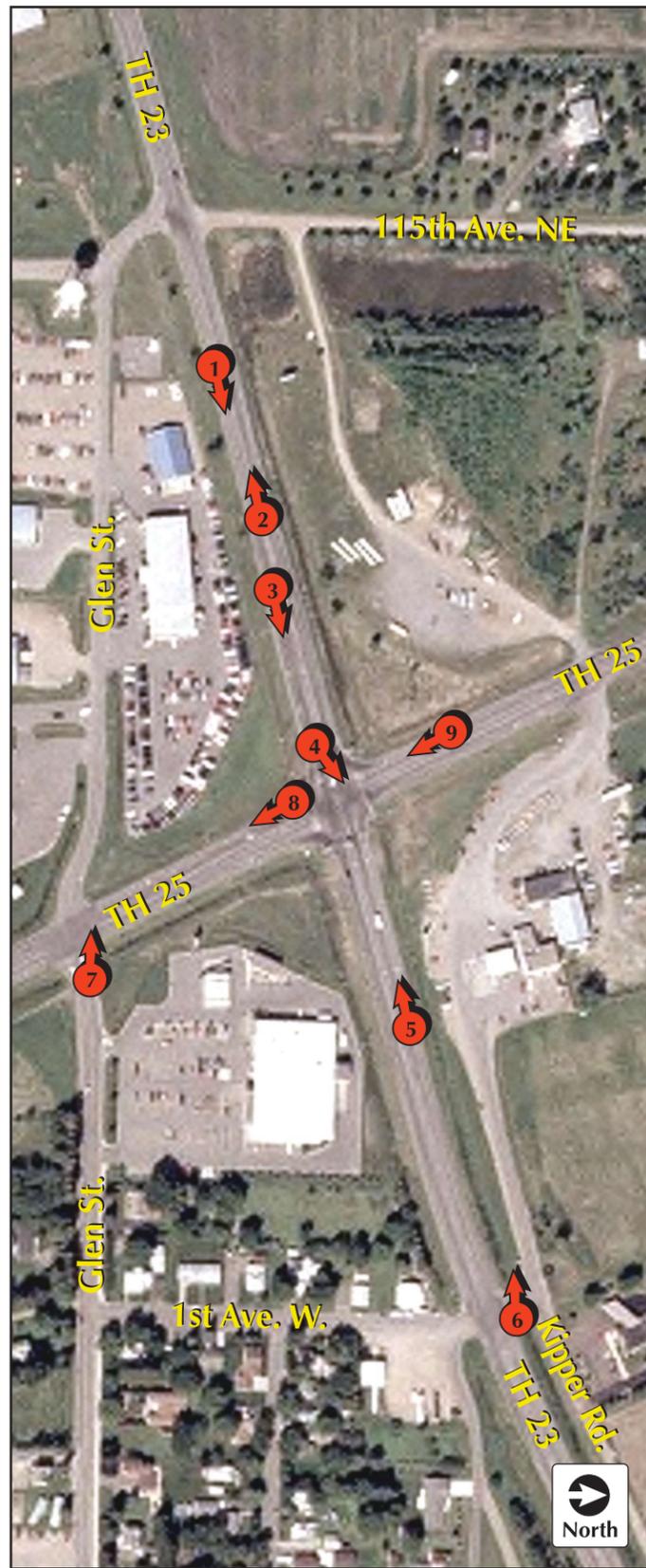
- ### Land Use Type Categories
- ① Fast Food Restaurant
 - ② Sit-Down Restaurant
 - ③ Convenience Store/ Gas Station
 - ④ Hotel/Lodging
 - ⑤ Auto Dealer
 - ⑥ Big Box Retail



Figure D.2
Foley Land Use Information







1



2



3



4



5



6



7



8



9

Figure D.4
Foley Site Photos

6.0 Hawley: US 10 – Four-Lane Divided Highway Commercial Strip along a Rural Expressway

Community Characteristics: Hawley (population 1,882) is a Level 5 Trade Center located 20 miles east of Fargo/Moorhead and 25 miles northwest of Detroit Lakes (Figure E.1).

Site Location

- West edge of Hawley
- North side of US 10 between 10th Street to west of Westgate Street

Land Use

- 0.4-mile strip of mixed commercial uses extending along the US 10 frontage road (Hobart Road) (Figure E.2)
- Serves as a midpoint stop for commuters between the Fargo-Moorhead area and Detroit Lakes
- High level of visibility to/from the highway

Roadway Network Characteristics

- Four-lane divided rural expressway
- Intersections along US 10 are at-grade and include right- and left turn lanes (Figure E.3).
- Access is provided via the frontage road that connects to three full access intersections with US 10.
- Traffic Volumes (2002 AADT)
 - TH 10: 10,700

Site Development History

In 1960, US 10 was widened from a two-lane undivided highway to a four-lane divided highway. Frontage roads on the north and south sides of US 10 through a portion of Hawley were constructed at that time and paid for by Mn/DOT. The frontage roads remained under Mn/DOT jurisdiction until 1991 when the subject frontage road was turned back to Clay County in exchange for County Road 11, which became TH 336.

Mn/DOT is currently working with Hawley to implement additional access management in the area. Proposed improvements include additional access closures and the extension and realignment of some frontage roads. The project is programmed for 2007.

Representative photos of the study area are presented in Figure E.4.

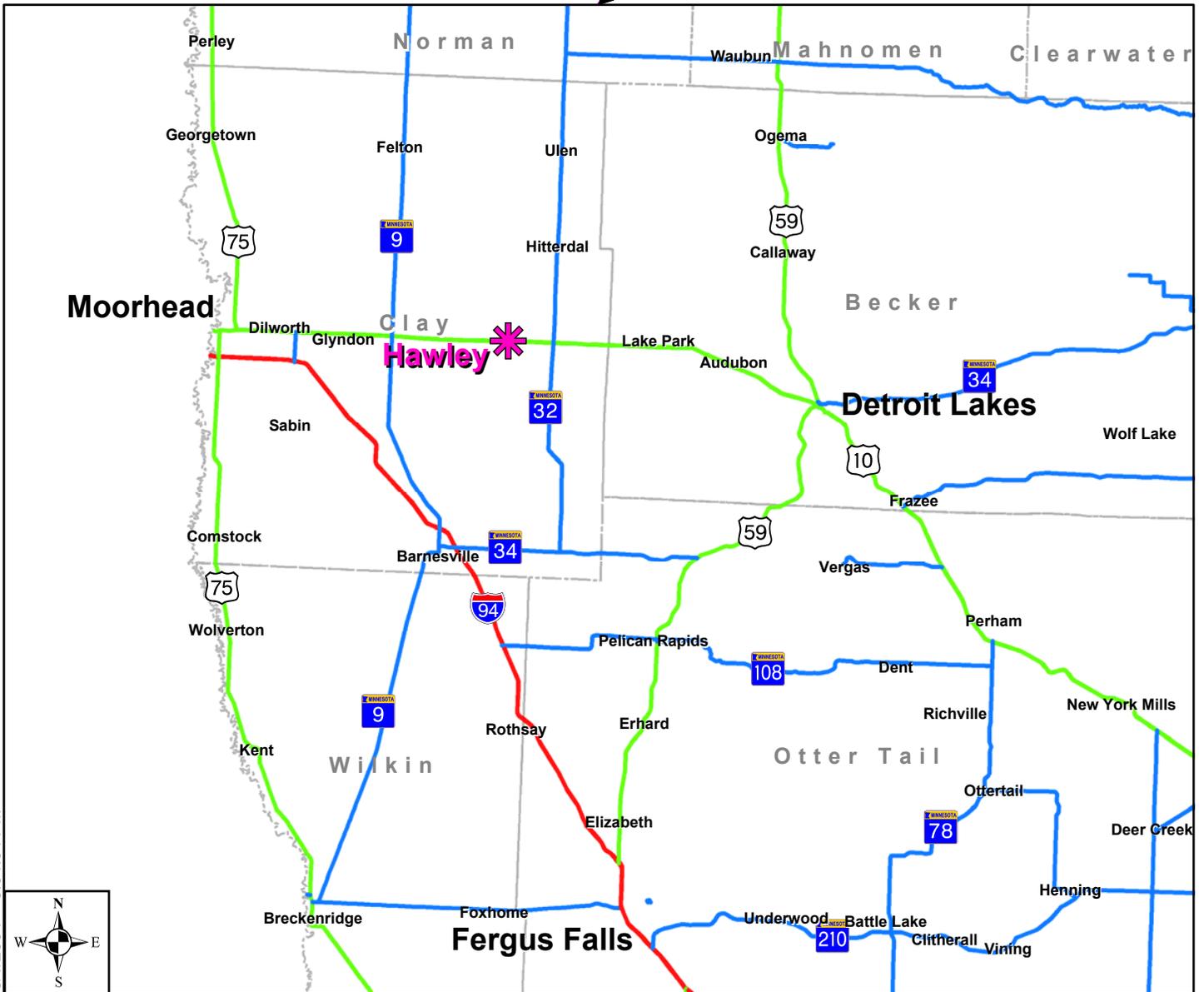
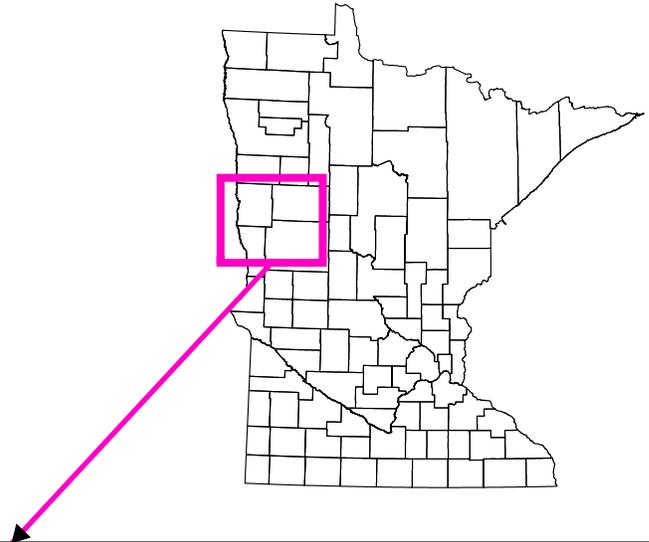
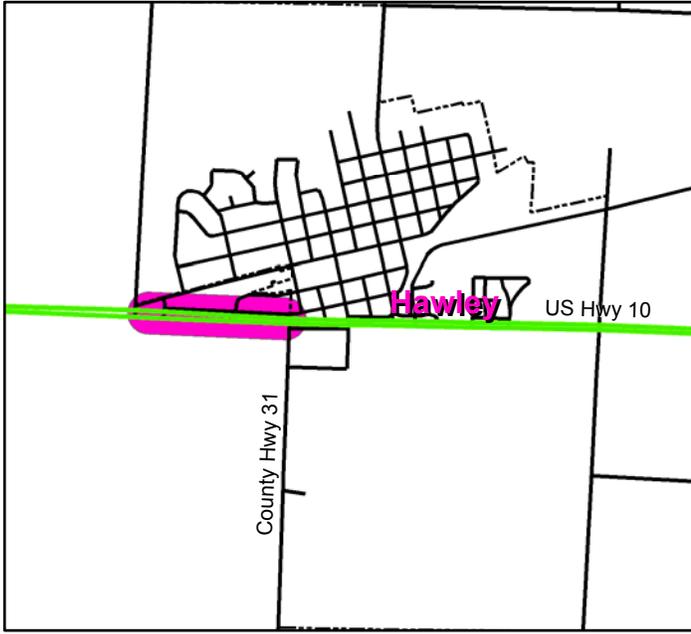
Comments and Observations

- US 10 is categorized as a divided Medium Priority Interregional Corridor – Rural (Category 2A). The recommended intersection spacing is 1-mile for primary intersections and ½-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.

-
- The current and future traffic volumes on US 10 would permit full movement secondary intersections.
 - The public intersection spacing currently does not meet the recommended spacing for primary or secondary intersections. Maintaining full movement intersections at CR 31 and at the west end of Main Street, and closing the other two frontage road connections would make this segment consistent with the Access Management Policy. Mn/DOT and the City of Hawley is current working on a plan to address the access on this segment.
 - Private entrances along the north side of US 10 have been directed to the frontage road. This is consistent with the private entrance allowance guidelines in the Access Management Policy.
 - A single private entrance along the south side of US 10 does not have reasonably convenient and suitable alternative access; therefore, it is permitted by exception. As this side of US 10 develops, a frontage road or service road system should be developed.
 - The frontage road is very close to US 10 and provides minimal vehicle storage. This lack of separation also results in wider intersections to accommodate turning movements.

**Figure E.1
Hawley Site Location Map**

Greater Minnesota Access Study



Map Document: (C:\Projects\Access_Studies\Location_Hawley_SiteDetail.mxd)
6/1/2004 -- 3:04:04 PM



- ### Land Use Type Categories
- ① Fast Food Restaurant
 - ② Sit-Down Restaurant
 - ③ Convenience Store/
Gas Station
 - ④ Hotel/Lodging
 - ⑤ Auto Dealer
 - ⑥ Big Box Retail



Figure E.2
Hawley Land Use Information



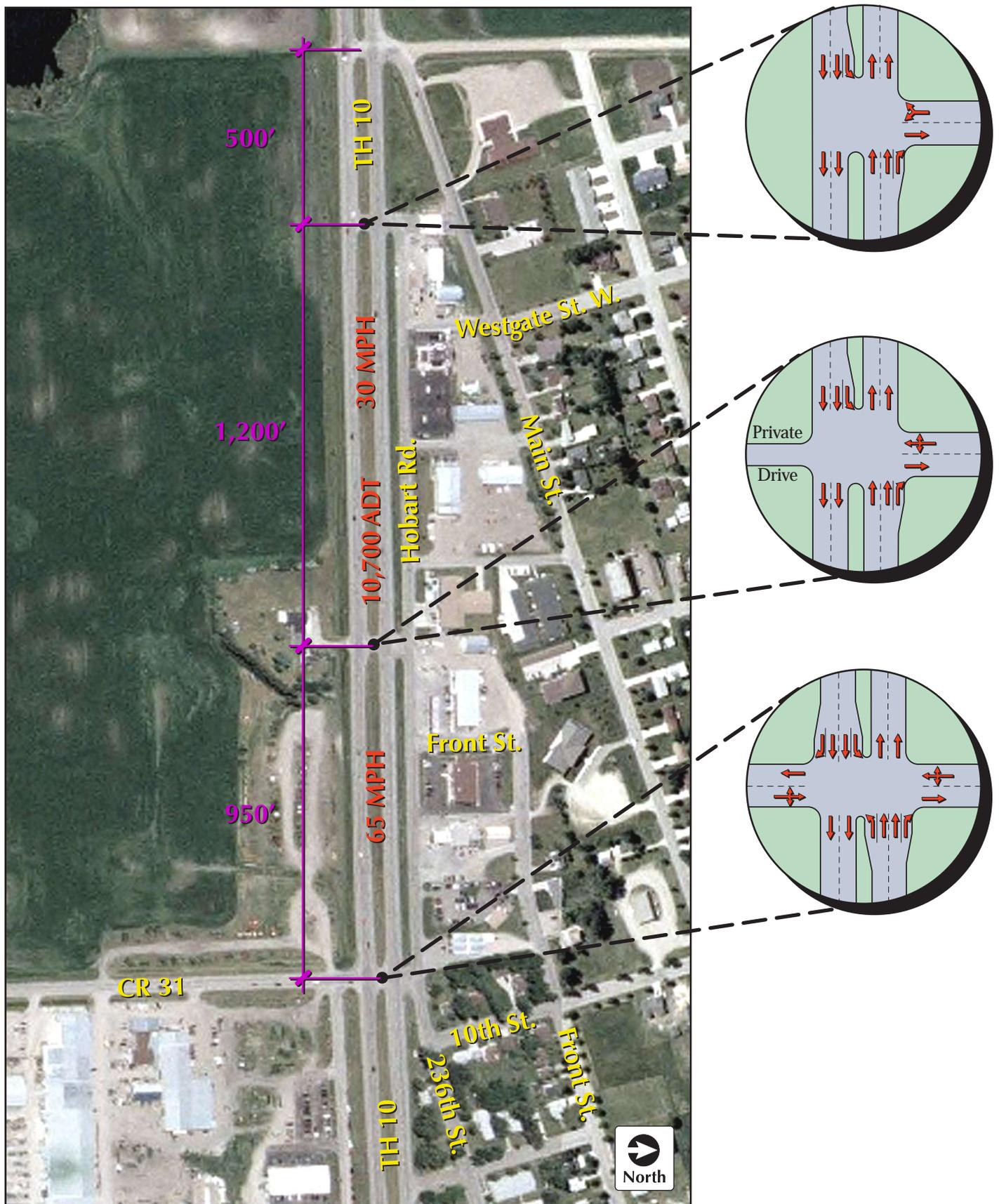


Figure E.3
Hawley Access Configuration



1



2



3



4



5



6



7



8



9

Figure E.4
Hawley Site Photos

7.0 Mankato: TH 22 – Four-Lane Divided Highway Regional Commercial District

Community Characteristics: Mankato (population 32,427) is a Level 2 Trade Center located approximately 75 miles southwest of the Twin Cities and 80 miles west of Rochester (Figure F.1).

Site Location

- East side of Mankato
- Extends south along TH 22 from the US 14 interchange to Bassett Drive (Figure F.2)

Land Use Characteristics

- One-mile segment of highway surrounded by a large mix of commercial, service, and office including several big-box retailers, fast-food and sit-down restaurants, offices, and auto-related businesses.
- The land uses are serviced by a mix of frontage roads, backage roads, and interior parking lot circulation roads.
- Primary regional commercial district for a large section of south-central Minnesota
- Most of the area is fully developed.
- Generally, the flat terrain and straight highway alignment provide a high level of visibility between the highway and adjacent land uses. However, there are multiple tiers of development, which limits site visibility for some land uses.
- US 14, bordering the north edge of the area, is elevated over TH 22 providing a broad view.

Road Network Characteristics

- Four-lane divided highway
- Cross-section includes two through lanes in each direction with right and left turn lanes at all intersections (Figure F.3).
- Traffic signals at US 14 interchange ramps, Adams Street, Madison Avenue, and Basset Drive
- All approaching roadway intersections include right- and left turn lanes.
- No private entrances directly access TH 22.
- Traffic Volumes (year 2002 AADT)
 - TH 22 between US 14 and Madison Avenue: 16,200
 - TH 22 south of Madison Avenue: 16,400
 - US 14 west of TH 22: 24,400
 - US 14 east of TH 22: 16,000

Site Development History

In the mid 1970s, US 14 was built as a bypass around Mankato. As part of the US 14 project, a 0.6-mile north-south roadway (presently TH 22) was built by Mn/DOT connecting the US 14 bypass with Madison Avenue. The connecting road was built as a divided highway with only one access point allowed (Adams Street), which was the principal access point to the River Hills Mall. All other access rights were acquired from adjacent property owners at the time the connecting roadway was built.

In the late 1980s, the City of Mankato, Blue Earth County, and Mn/DOT cooperated to construct a TH 22 bypass on new alignment. The bypass began on the north end at the intersection of Madison Avenue and what is now designated TH 22. The roadway was extended approximately 2 miles to the south of Madison Avenue. Right-of-way was acquired for the divided highway, with access control except at three locations designed for public road intersections. The City indicated a need to have access to TH 22 somewhere south of Madison Avenue, and Mn/DOT's preferred location was ½-mile south, which would have been an extension of Mankato's Main Street. However, local pressures (specifically regarding concern over increased traffic in residential areas and near an elementary school) made it unworkable to extend Main Street. As a result, one of the three intersections having direct access to TH 22 was the present location of Bassett Drive, located approximately ¼-mile south of Madison Avenue. Throughout the 1990s, Mn/DOT received numerous requests for additional access onto TH 22; all requests were denied in the interest of safety. Additional access points to TH 22 are present, but outside the limits of the case site.

Representative photos of the study area are presented in Figure F.4.

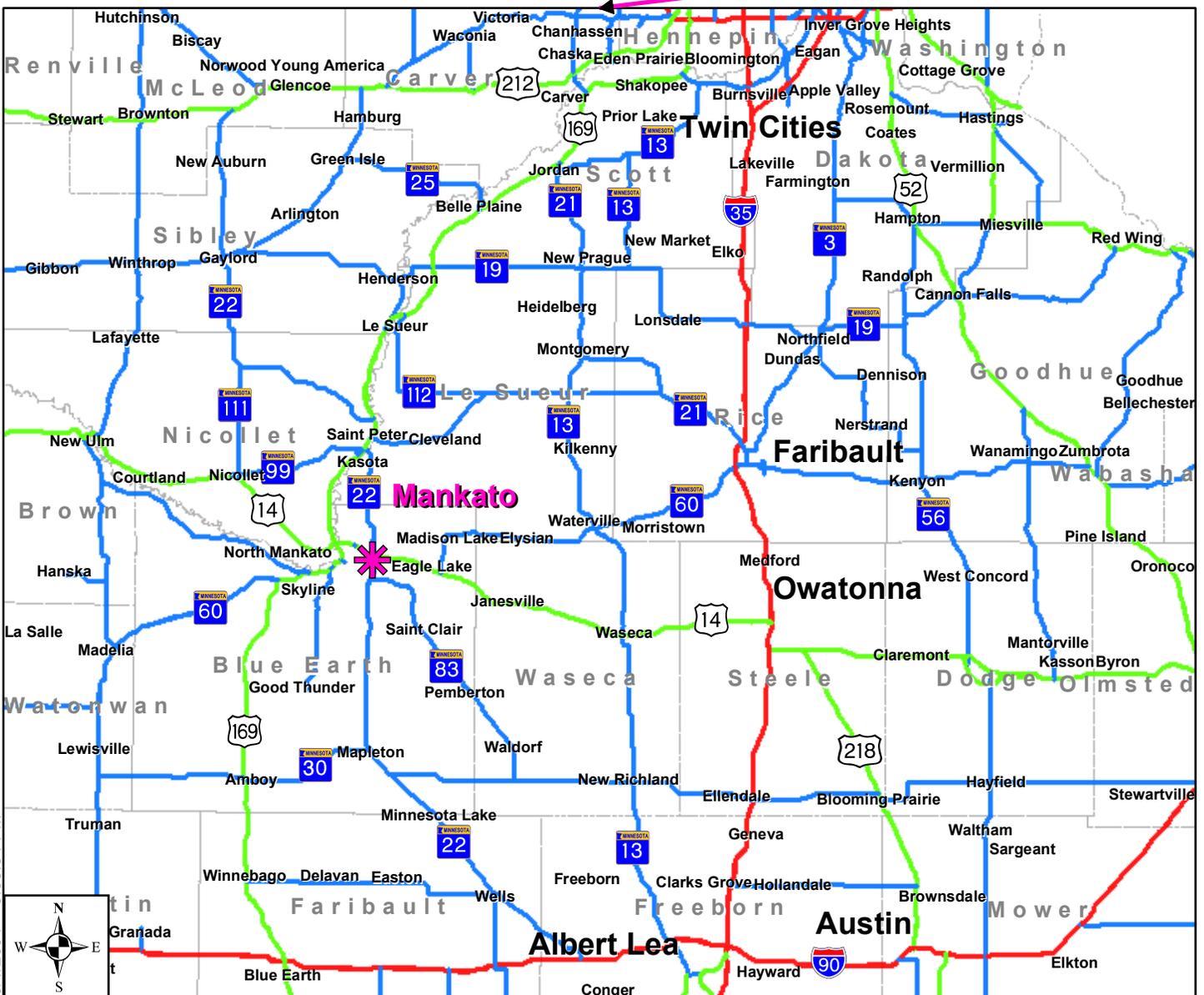
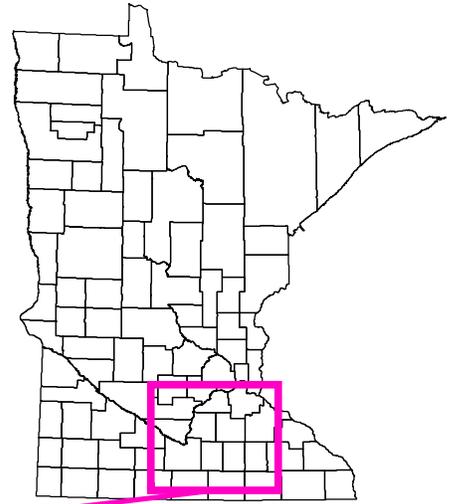
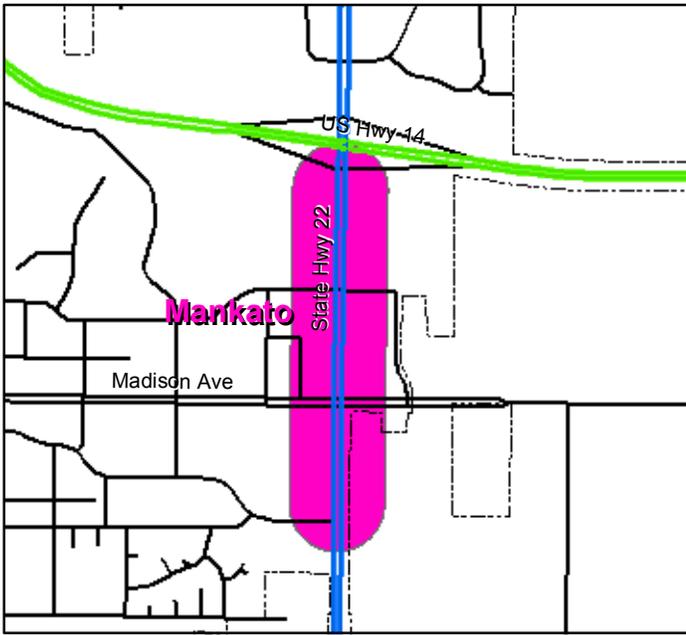
Comments and Observations

- TH 22 is categorized as a divided Minor Arterial – Urbanizing (Category 5B). The recommended intersection spacing is ¼-mile for primary intersections and ⅛-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street system.
- The current and future traffic volumes on TH 22 would preclude full movement secondary intersections. Right-in/right-out only secondary intersections would be permitted.
- TH 22 is consistent with the recommended intersection spacing. The uniform signal spacing allows for two-way coordinated traffic flow.
- There are no private entrances to TH 22. This is consistent with the guidance in the Access Management Policy. All private access is directed to the local street system.
- Private entrances along the cross streets have been located outside of the intersection functional areas or they are limited to right-in/right-out only. This reduces the conflicts within the intersection area. Indirect access to corner lots also is used to eliminate the need for private entrances within the functional areas of major intersections.

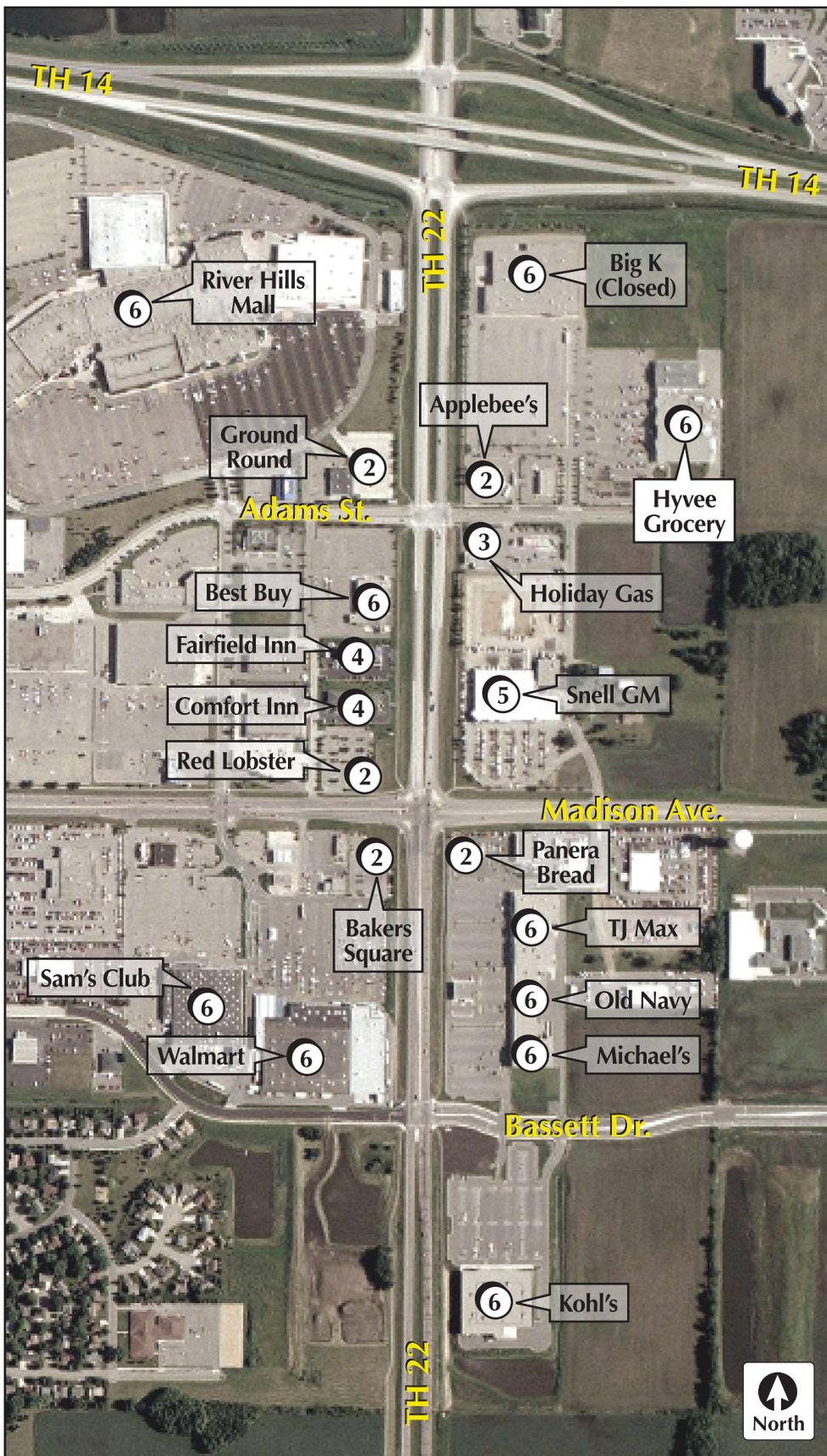
-
- Shared entrances and cross easement agreements are located both east and west of TH 22. Interconnecting commercial developments share entrances and allow for traffic flow between businesses without using TH 22 or the major cross streets.
 - The availability of reasonably convenient and suitable alternative access has allowed Mn/DOT to prevent private entrances using regulatory authority.

Figure F.1 Mankato Site Location Map

Greater Minnesota Access Study



Map Document: (C:\Projects\Access_Studies\Location_Mankato_SiteDetail.mxd)
6/1/2004 -- 3:05:34 PM



- ### Land Use Type Categories
- ① Fast Food Restaurant
 - ② Sit-Down Restaurant
 - ③ Convenience Store/ Gas Station
 - ④ Hotel/Lodging
 - ⑤ Auto Dealer
 - ⑥ Big Box Retail



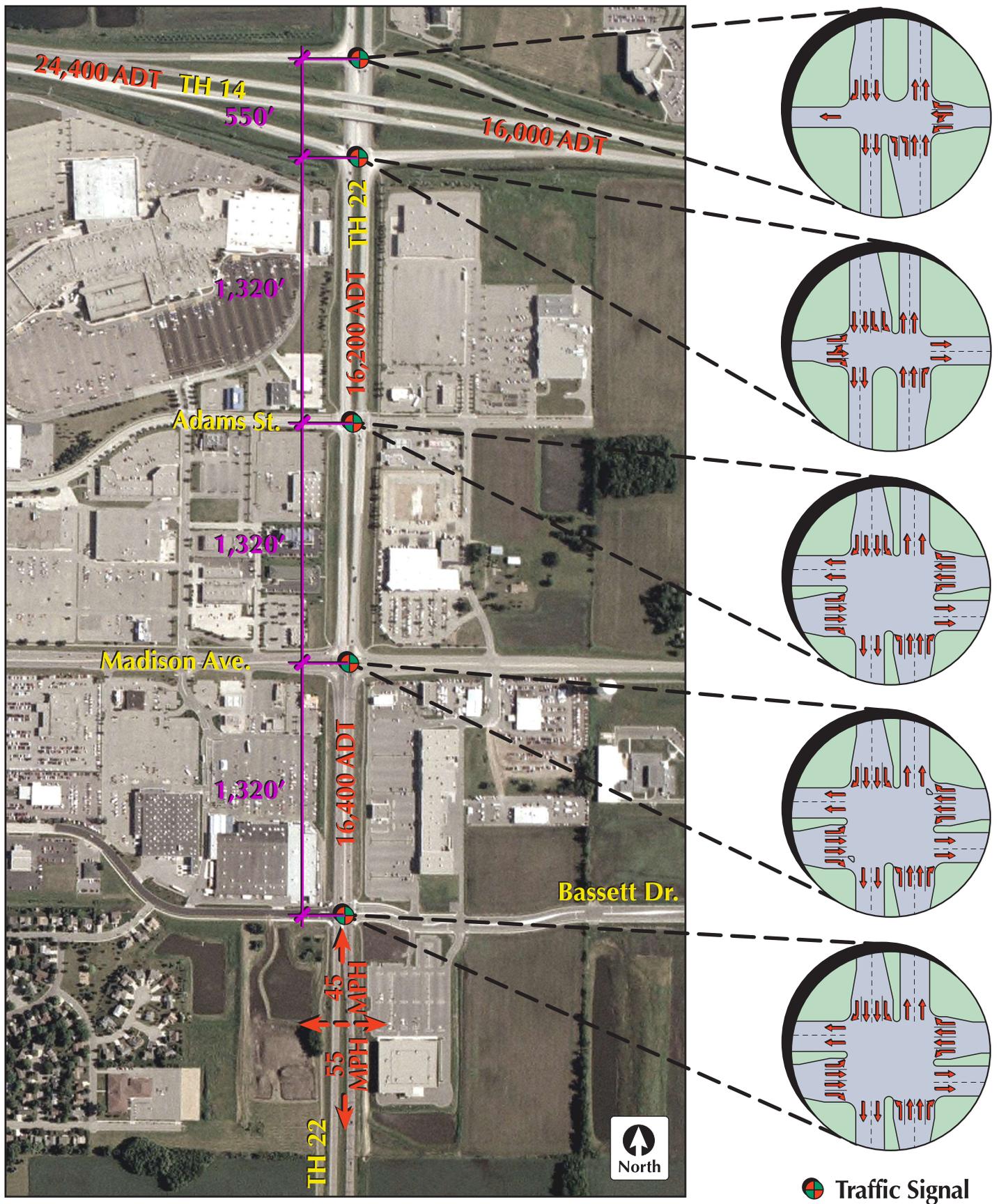


Figure E.3
Mankato Access Configuration



1



2



3



4



5



6



7



8



9

Figure F.4
Mankato Site Photos

8.0 Moorhead: US 10 – Four-Lane Divided Highway Regional Center Commercial Corridor

Community Characteristics: Moorhead (population 32,177) is part of the Fargo-Moorhead metropolitan area; a Level 1 Trade Center located approximately 45 miles west of Detroit Lakes and 60 miles northwest of Fergus Falls (Figure G.1).

Site Location

- East side of Moorhead
- Extends from just west of County Road 9 on the east to 30th Street on the west (Figure G.2)

Land Use Characteristics

- Approximately ½-mile of highway surrounded by mixed commercial and retail uses including big-box retailers, restaurants, and auto-related businesses.
- The land uses are serviced by frontage roads and interior parking lot circulation roads.
- Primary regional commercial district for the eastern Fargo-Moorhead metropolitan area
- Most of the area is fully developed.
- Generally, the flat terrain and straight highway alignment provide a high level of visibility between the highway and adjacent land uses.

Road Network Characteristics

- Four-lane divided highway
- Cross-section includes two through lanes in each direction with right and left turn lanes at all intersections (Figure G.3).
- Traffic signals at 30th Street, 32nd Street, and 34th Street
- 34th Street includes two through lanes with left and right turn lanes in each direction.
- Remaining cross-street intersections include a separate right turn lane and a shared through/left turn lane.
- No private entrances directly access US 10.
- Traffic Volumes (year 2002 AADT)
 - US 10: 17,500

Site Development History

In 1977, several developers requested direct access to US 10 in the area to accommodate a proposed shopping center on the north side of US 10. Mn/DOT District 4 worked with the developers and the City of Moorhead

through cooperative agreements to build frontage roads and acquire access control.

In 1990, additional development was proposed on the south side of US 10. Again, Mn/DOT worked through cooperative agreements with the City to build frontage roads and acquire access control. Commercial developments have continued to be built along both the north and south sides of US 10. In the mid-1990s, traffic signals were installed at 34th Street and 32nd Street. The frontage roads have been or will be turned back to the City of Moorhead (as part of the agreement process). An access study completed by the Fargo-Moorhead Council of Governments (FMCOG) in 1989 recommended frontage road improvements that included creating additional separation at the intersections with US 10 (bulb-outs). These improvements were constructed and funded by Mn/DOT. Ongoing maintenance of the frontage roads is being performed by the City of Moorhead.

Representative photos of the study area are presented in Figure G.4.

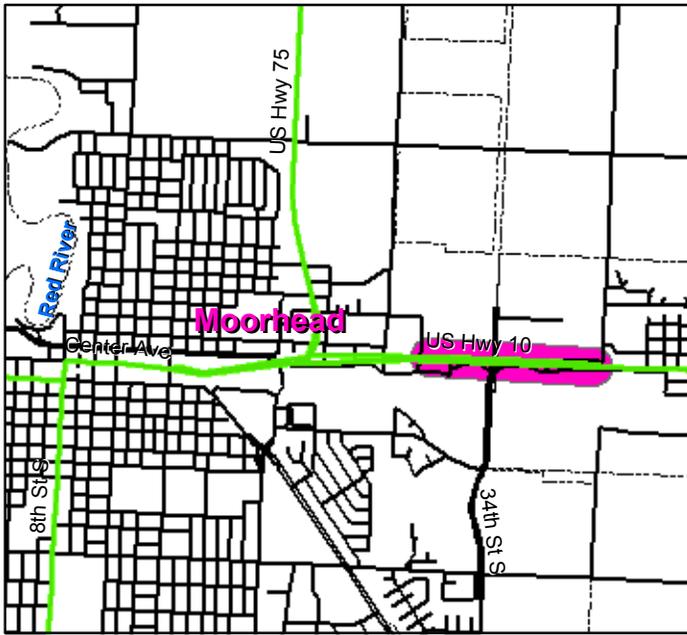
Comments and Observations

- US 10 is categorized as a divided High Priority Regional Corridor – Urbanized (Category 3B). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- The public intersection spacing is not consistent with the guidelines for primary and secondary intersection spacing in the Access Management Policy. Most of this area was developed before the implementation of the Access Management Policy. This case presents the difficulty of achieving the recommended intersection spacing in a developed area. The inconsistency and shortness of spacing for signalized intersections will make two-way coordinated signal timing difficult.
- The frontage road system constructed by Mn/DOT and the City of Moorhead provides reasonably convenient and suitable access without directly accessing US 10.
- Shared entrances and cross easement agreements are used along the north side of US 10 to provide access to multiple developments. This type of internal circulation allows drivers to move between businesses without having to use the highway.
- Frontage roads and private entrances are located within the functional areas of the cross streets; thereby limiting the available storage on the cross streets at intersections. The FMCOG has previously recognized this problem and worked with Mn/DOT to provide additional storage space by bulbing-out the frontage roads.
- Mn/DOT and the City of Moorhead have constructed future public intersections and frontage roads in anticipation of development. This approach defines the supporting street system before too many constraints exist. This approach also establishes future public

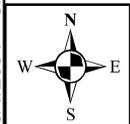
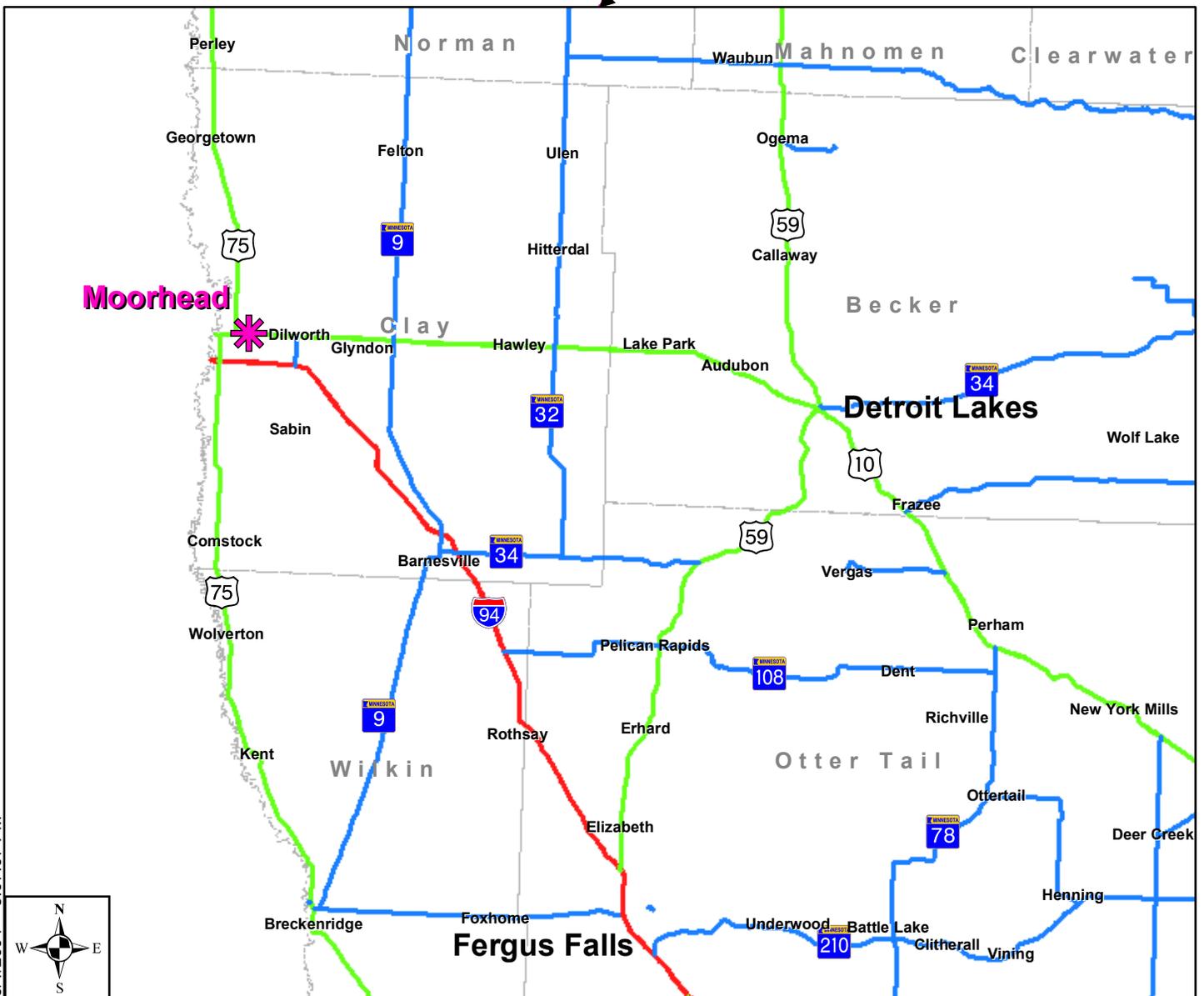
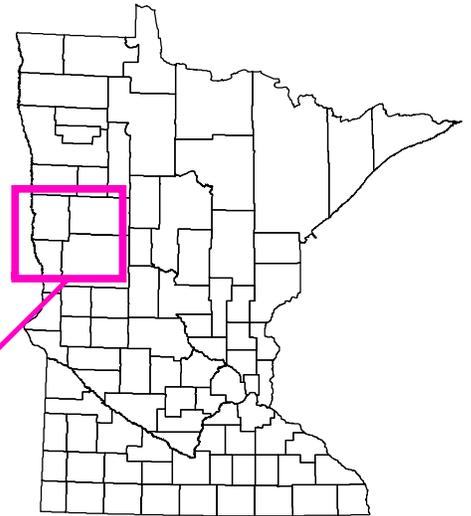
intersections (capable of serving multiple properties) before private entrances “claim” the location (generally serving only a single property).

- In the “Site Development History” above, it was indicated that Mn/DOT worked with the City to construct frontage roads and to acquire access control. The acquisition of access control would not have been necessary because the frontage road system and cross streets apparently provide reasonably convenient and suitable alternative access.

Figure G.1 Moorhead Site Location Map



Greater Minnesota Access Study



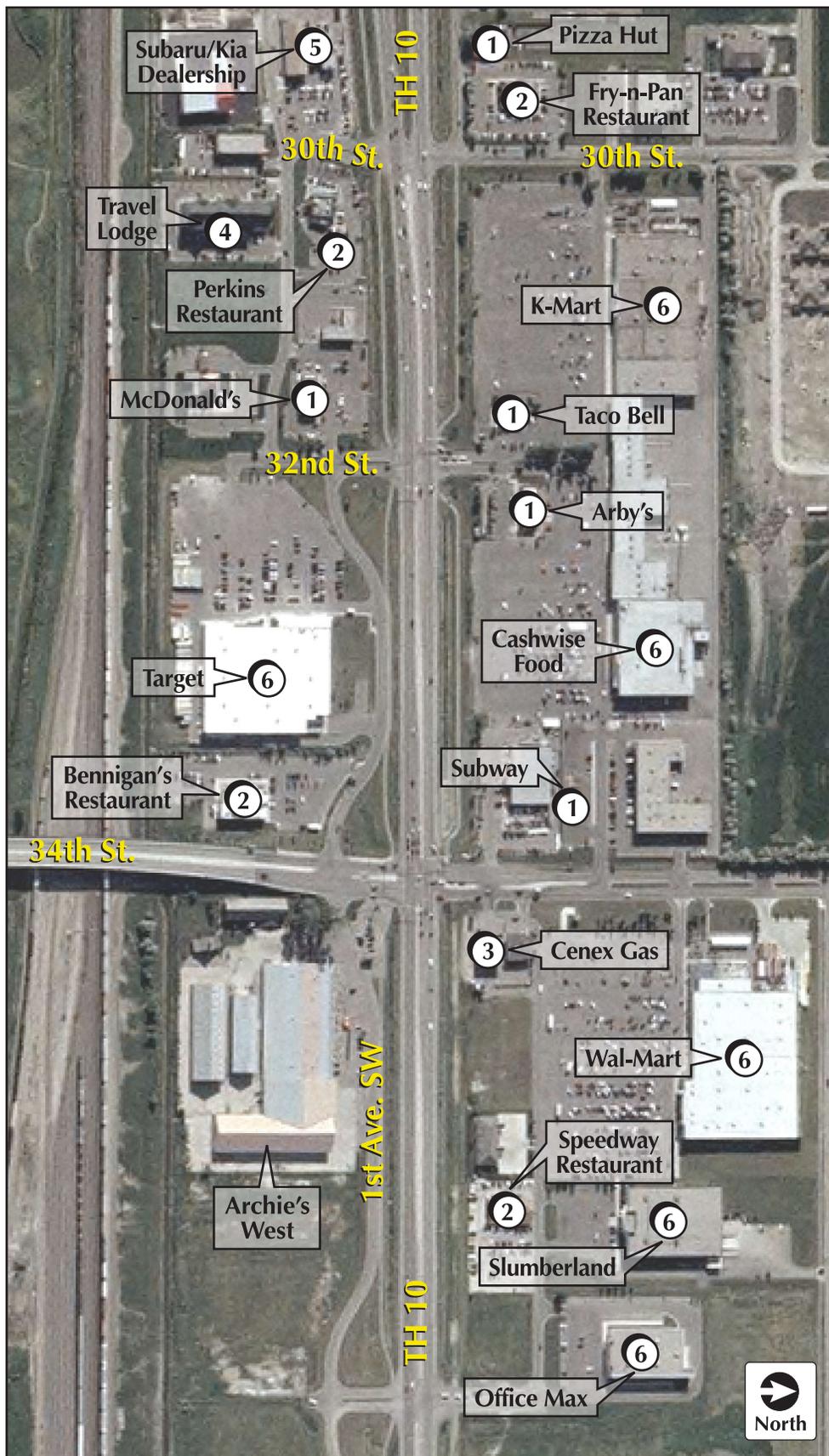
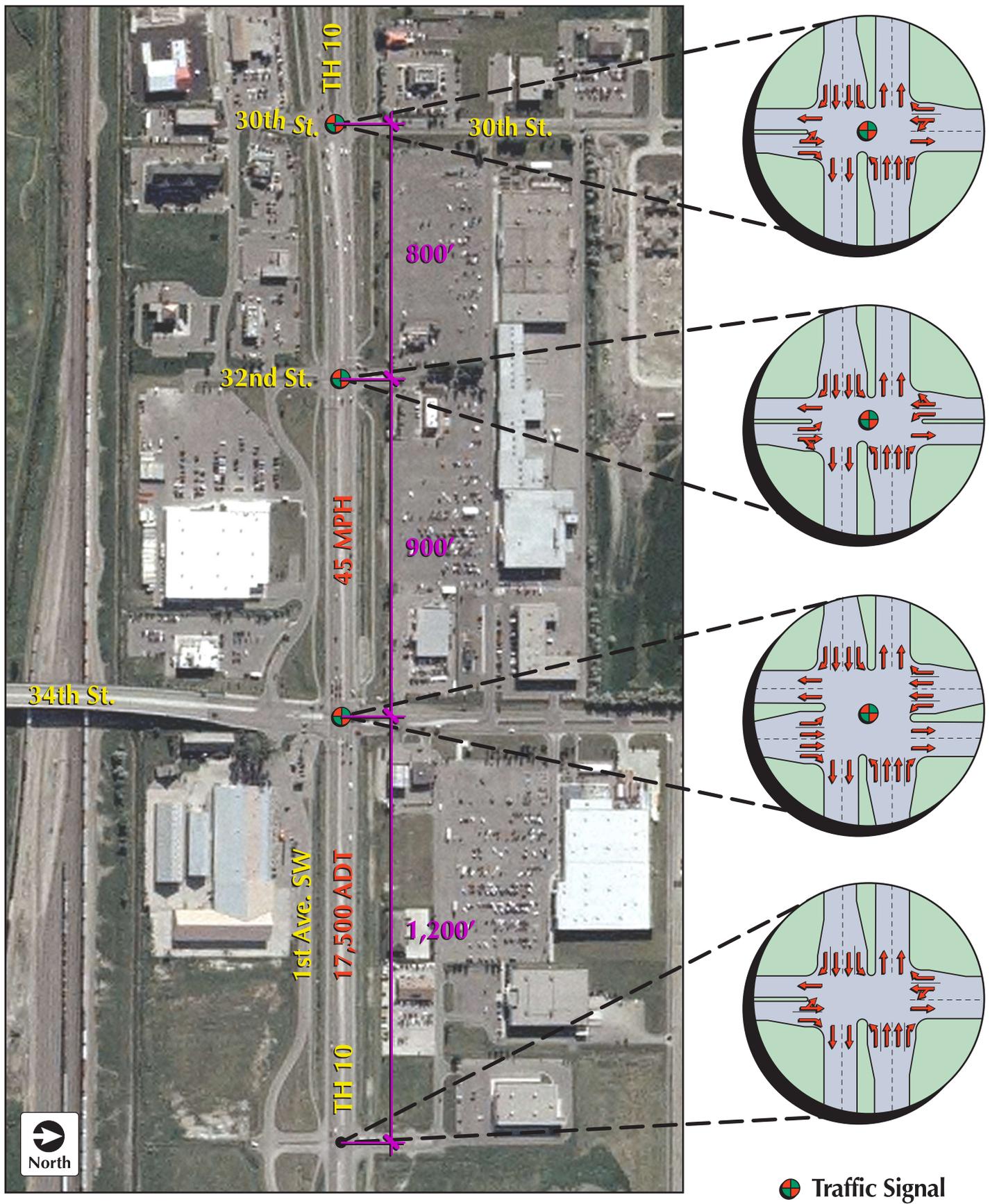


Figure G.2
Moorhead Land Use Information



 Traffic Signal





1



2



3



4



5



6



7



8



9

Figure G.4
Moorhead Site Photos

9.0 Mora: TH 23/TH 65 – Two-Lane Highways

Commercial Corridor on Edge of Small Trade Center

Community Characteristics: Mora (population 3,200) is a Level 3 Trade Center located in Kanabec County approximately 70 miles north of the Twin Cities and 50 miles northeast of St. Cloud (Figure H.1).

Site Location

- West side of TH 23/65 on the south edge of Mora, in Arthur Township (Figure H.2)

Land Use Characteristics

- Approximately a ½-mile strip of mixed commercial retail, service, and warehouse uses serviced by a parallel north-south frontage road.
- The majority of the land adjacent to the frontage road is fully developed.
- The Snake River separates the site from the downtown Mora area.

Road Network Characteristics

- TH 23, TH 65, and the common alignment of TH 23/65 are two-lane undivided rural highways.
- The TH 23 and TH 65 intersection is signalized and includes turn lanes at all approaches (Figure H.3).
- There are no private driveways servicing the commercial uses onto TH 23 or TH 65.
- Traffic Volumes (2002 AADT)
 - TH 23/65 common alignment: 11,100
 - TH 65 south of TH 23: 8,100
 - TH 23 west of TH 65: 5,700

Site Development History

A short portion of the frontage road was constructed in 1962 from TH 23 to the north. As the area developed, the frontage road was extended northward to its current terminus. Extension of the frontage road occurred through the plat review process and based on recommendations from the Mn/DOT District 3 Entrance Committee.

With the installation of the traffic signal at TH 23/TH 65, an access point near the intersection was closed because crashes were occurring as a result of conflicts between frontage road traffic entering TH 23/65 and southbound TH 23/65 traffic turning to westbound TH 23.

Representative photos of the study area are presented in Figure H.4.

Comments and Observations

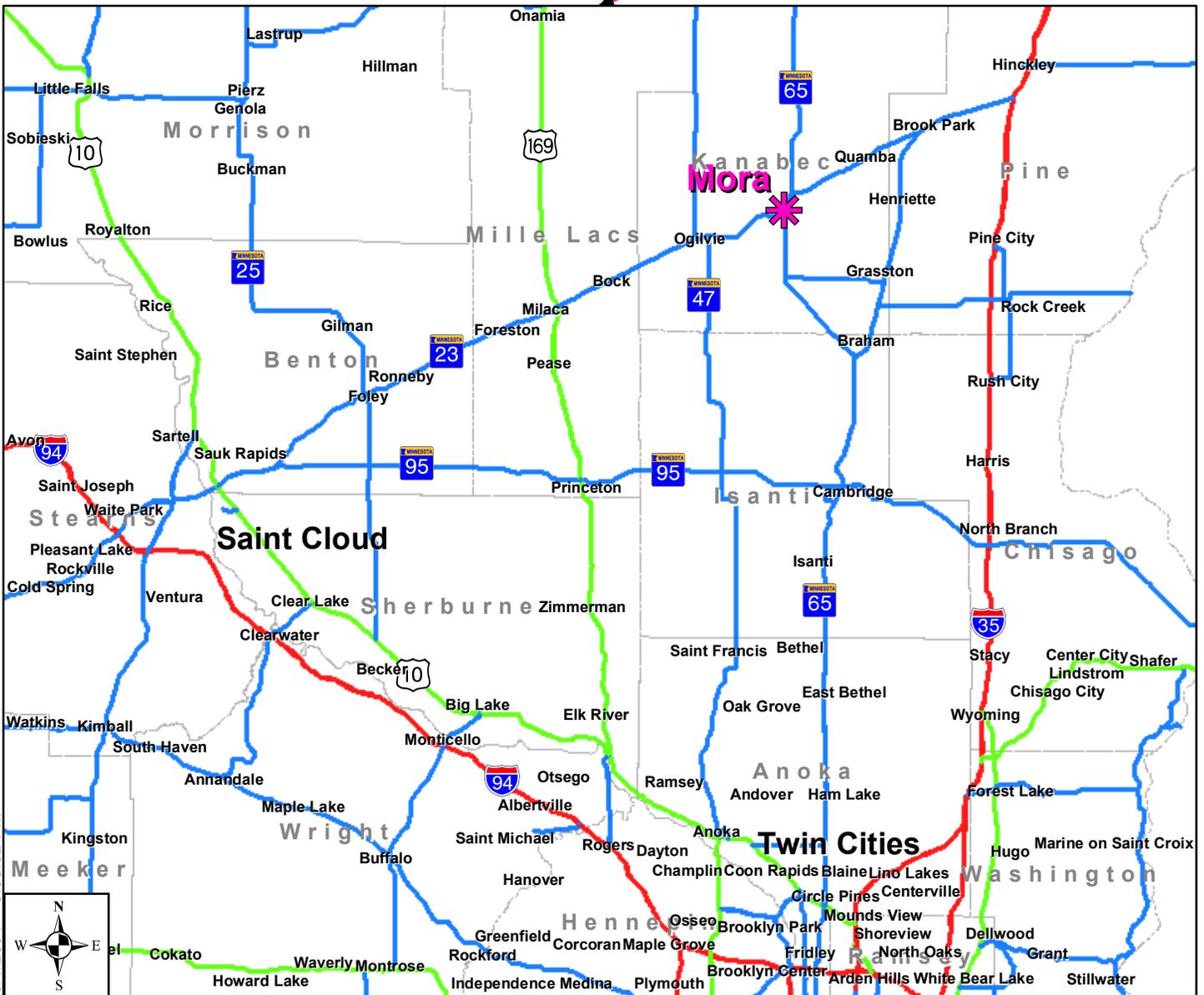
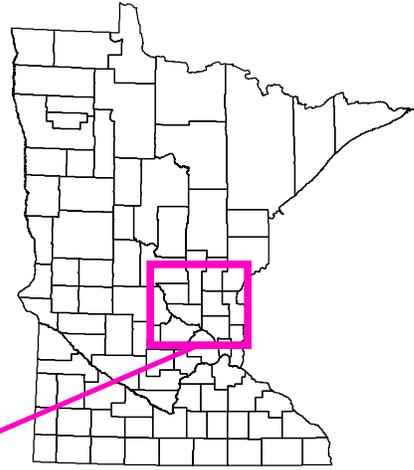
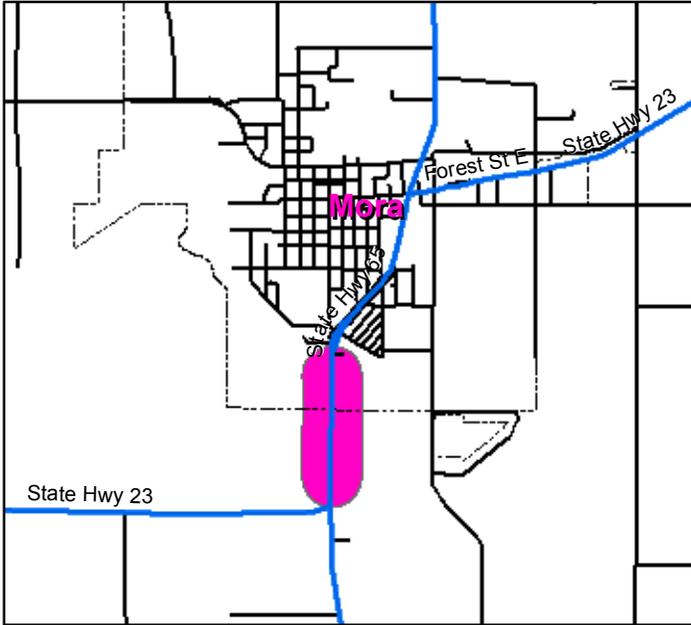
- TH 23/65 is categorized as an undivided Medium Priority Interregional Corridor – Urbanized (Category 2B). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary

intersections. Private entrances are not recommended and should be directed to the local street network.

- TH 23 is categorized as an undivided Medium Priority Interregional Corridor – Rural (Category 2A). The recommended intersection spacing is 1-mile for primary intersections and ½-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- The spacing of public intersections along TH 23/65 is consistent with the guideline for primary intersection spacing.
- All private entrances along the west side of TH 23/65 are served by frontage road. This is consistent with the private entrance allowance guidelines in the Access Management Policy.
- Private entrances along the east side of TH 23/65 do not reasonably convenient and suitable alternatives; therefore, direct access is permitted by exception to the highway. A frontage road similar to the west frontage road should be considered if this side of the highway redevelops.
- Access to the frontage road is directed to TH 23 to provide reasonably convenient and suitable access to area. The spacing between the TH 23/TH 65 intersection and the TH 23/frontage road intersection is less than the public intersection spacing recommended in the guidelines. Even though TH 23 is a Category 2A with 1-mile spacing and TH 23/65 is a Category 2B with ½-mile spacing, access is directed to TH 23 because it has a lower traffic volume.
- As discussed in the “Site Development History” above, the frontage road has been constructed over several years. As the area developed, the City of Mora has used its regulatory powers to expand their street system.

Figure H.1 Mora Site Location Map

Greater Minnesota Access Study

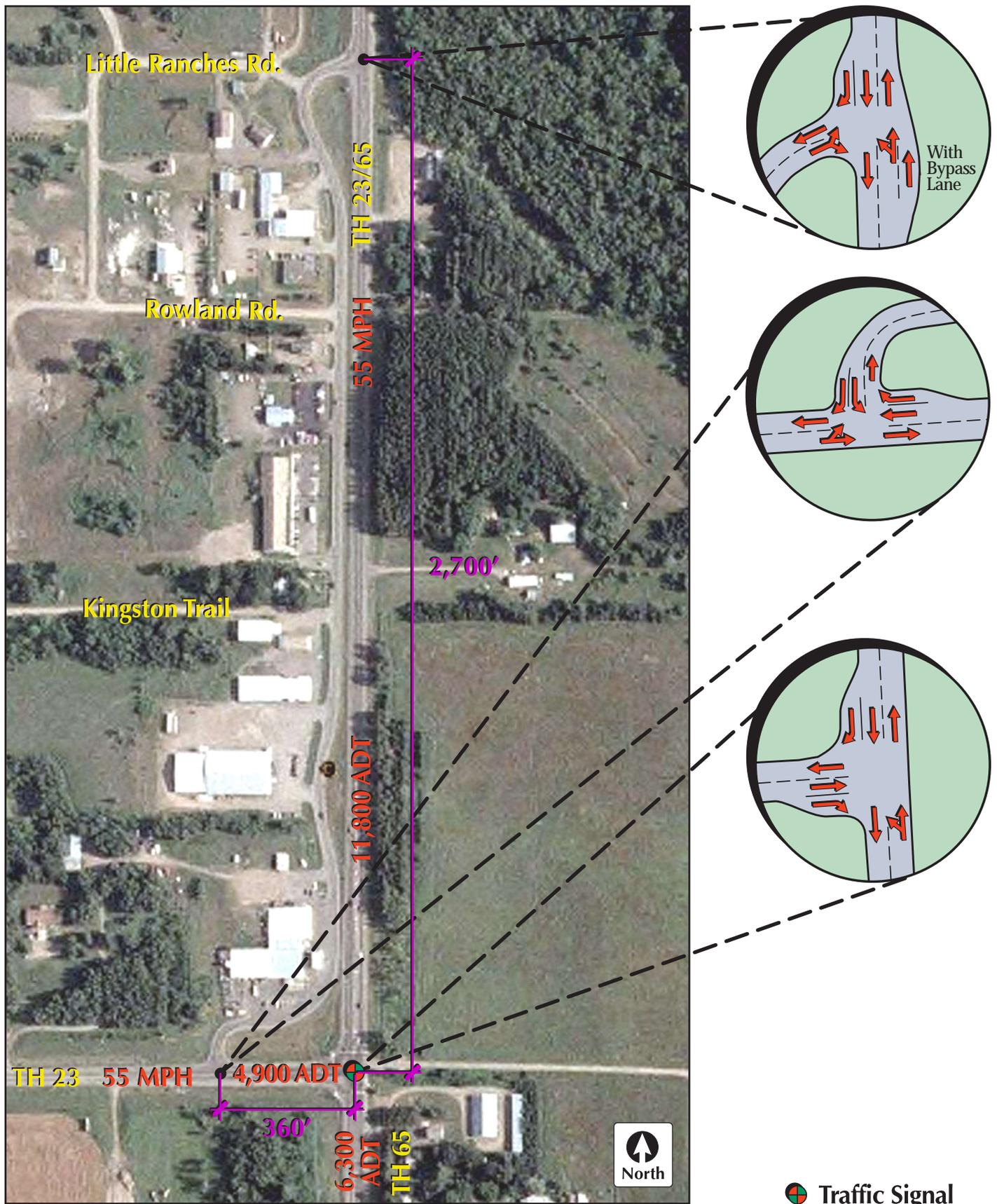


Map Document: (C:\Projects\Access_Studies\Location_Mora_SiteDetail.mxd)
6/1/2004 -- 3:08:32 PM



- ### Land Use Type Categories
- ① Fast Food Restaurant
 - ② Sit-Down Restaurant
 - ③ Convenience Store/ Gas Station
 - ④ Hotel/Lodging
 - ⑤ Auto Dealer
 - ⑥ Big Box Retail







1



2



3



4



5



6



7



8



9

Figure H.4
Mora Site Photos

10.0 Morris: TH 28 – Two-Lane Highway

Commercial Corridor on Edge of Small Trade Center

Community Characteristics: Morris (population 5,068) is a Level 4 Trade Center located approximately 45 miles southwest of Alexandria and 55 miles northwest of Willmar (Figure I.1).

Site Location

- North edge of Morris
- Extends along the south side of TH 28 between TH 9 and Iowa Avenue (Figure I.2)

Land Use Characteristics

- 0.9-mile strip of mixed commercial land uses including gas stations, restaurants, and a grocery store
- The majority of the land adjacent to the frontage road is developed.
- Generally, the flat terrain and straight highway alignment provide a high level of visibility between the highway and adjacent land uses.

Road Network Characteristics

- TH 28 is a rural two-lane undivided highway.
- TH 28 includes right turn lanes for eastbound traffic and short bypass lanes for westbound traffic at the College Avenue and Columbia Avenue intersections (Figure I.3).
- Traffic Volumes (2002 AADT)
 - TH 28: 3,550

Site Development History

Detailed information on this site was not available. Mn/DOT District 4 construction logs indicate a grading project in 1961. It is assumed the frontage road was built at that time. The City of Morris maintains the frontage road.

Representative photos of the study area are presented in Figure I.4.

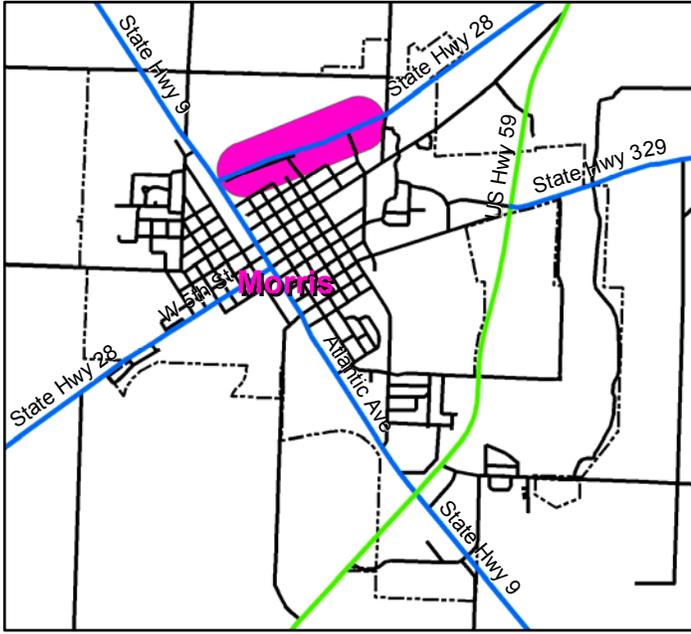
Comments and Observations

- TH 28 is categorized as an undivided High Priority Regional Corridor – Urbanizing (Category 3B). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- The location of the frontage road and public intersections were established long before the introduction of the Access Management Policy. The intersection spacing has been established on the local street system. The spacing of public intersections is generally consistent with the guidelines for primary and secondary intersections. The low traffic

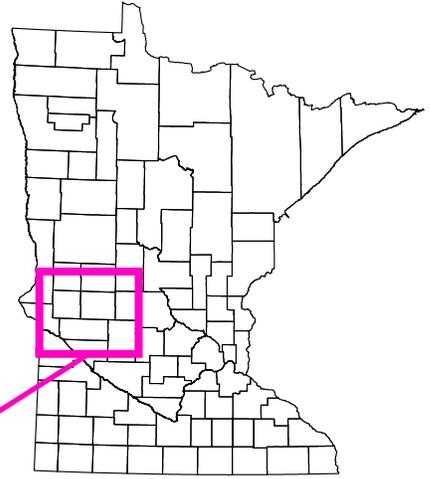
volumes on TH 28 allow for secondary intersections at ¼-mile (1,320 feet).

- Private entrances on the south side of TH 28 are served by the frontage road and are consistent with the Access Management Policy.
- Shared entrances and cross access agreements in the southeast corner of TH 28/TH 9 provide reasonably convenient and suitable access to several businesses without placing private entrances within the functional area of the intersection. These businesses retain visibility with out direct access to TH 28.
- Depending on the type and density of future development on the north side of TH 28, a local street system should be planned. Future private entrances should be directed towards the planned local street system.

Figure I-1 Morris Site Location Map



Greater Minnesota Access Study



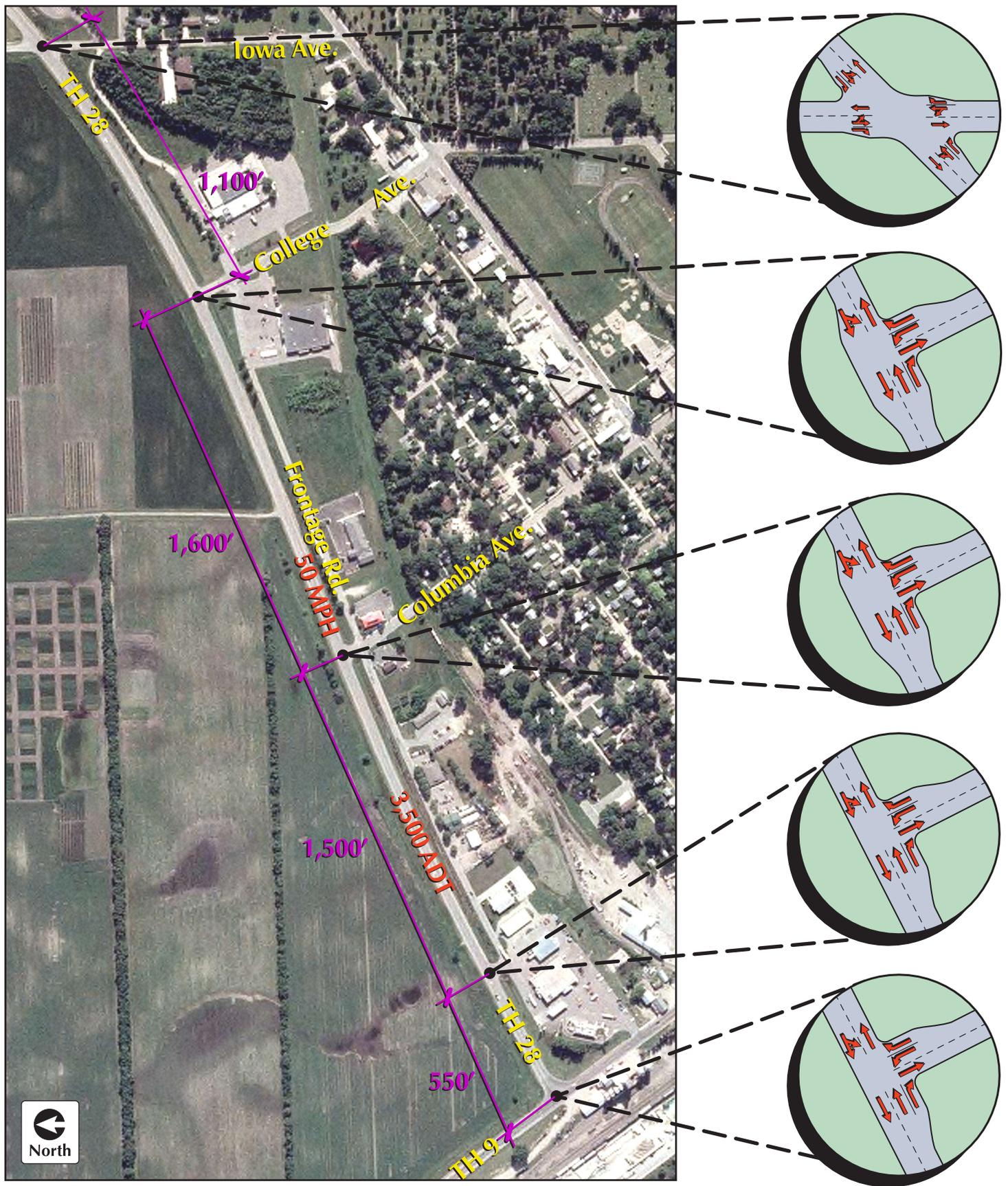
Map Document: (C:\Projects\Access_Studies\Location_Morris_SiteDetail.mxd) 6/1/2004 -- 3:09:53 PM





- ### Land Use Type Categories
- ① Fast Food Restaurant
 - ② Sit-Down Restaurant
 - ③ Convenience Store/ Gas Station
 - ④ Hotel/Lodging
 - ⑤ Auto Dealer
 - ⑥ Big Box Retail







1



2



3



4



5



6



7



8



9

Figure I.4
Morris Site Photos

11.0 New Prague: TH 19 – Two-Lane Highway

New Commercial District on Edge of Small Trade Center

Community Characteristics: New Prague (population 4,559) is a Level 6 Trade Center, located in Scott and Le Sueur Counties approximately 30 miles south of the Twin Cities (Figure J.1).

Site Location

- East edge of New Prague
- Centered on of the TH 19/CSAH 37 intersection

Land Use Characteristics

- New commercial/retail district including restaurants, a gas station, and a motel servicing a rapidly developing exurban community (Figure J.2).
- Flat terrain and straight highway alignment provides a high level of visibility between the highway and adjacent land uses.

Road Network Characteristics

- Two-lane undivided highway
- The TH 19/CSAH 37 intersection includes one shared through/left turn lane and a right turn lane in each direction on TH 19. CSAH 37 includes a shared through/left turn lane and a right turn lane on both the north and south approaches (Figure J.3).
- Traffic Volumes (2002 AADT)
 - TH 19: 8,700

Site Development History

Changes in access conditions in the case site area have occurred over time. In 2000, the City's Comprehensive Plan identified a frontage/backage road (1st Street NE) that would provide access to several existing and future commercial developments. In 2000, a developer requested a permit to improve a direct access to TH 19 west of CSAH 37. Mn/DOT denied this request and informed the property owner that the existing access would be closed and the development would be provided adequate access via the new frontage road. The City of New Prague has indicated, through site planning, other developments in close proximity to the intersection have been required to obtain access from the local street system. The City is currently revising their Comprehensive Plan and intends on incorporating a substantial transportation element that will include access management standards.

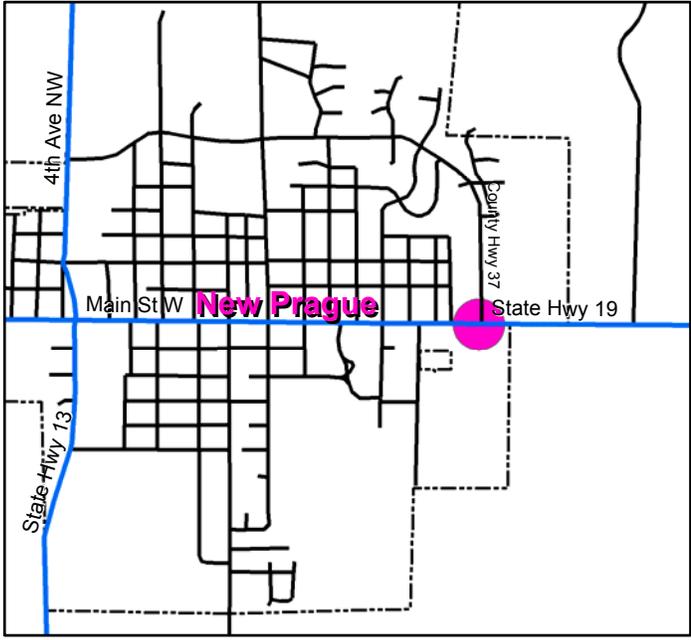
In 2004, Mn/DOT returned to reconstruct and signalized the TH 19/CSAH 37 intersection. Preliminary plans showed the existing gas station entrance in the northwest quadrant would now be located within the functional area of the intersection. The relocation of the entrance would have limited the movement of delivery trucks and effectively prevented the gas station from operating. Mn/DOT revised the plan and minimized changes to CSAH 37, thereby reducing the impact on the gas station.

Representative photos of the study area are presented in Figure J.4.

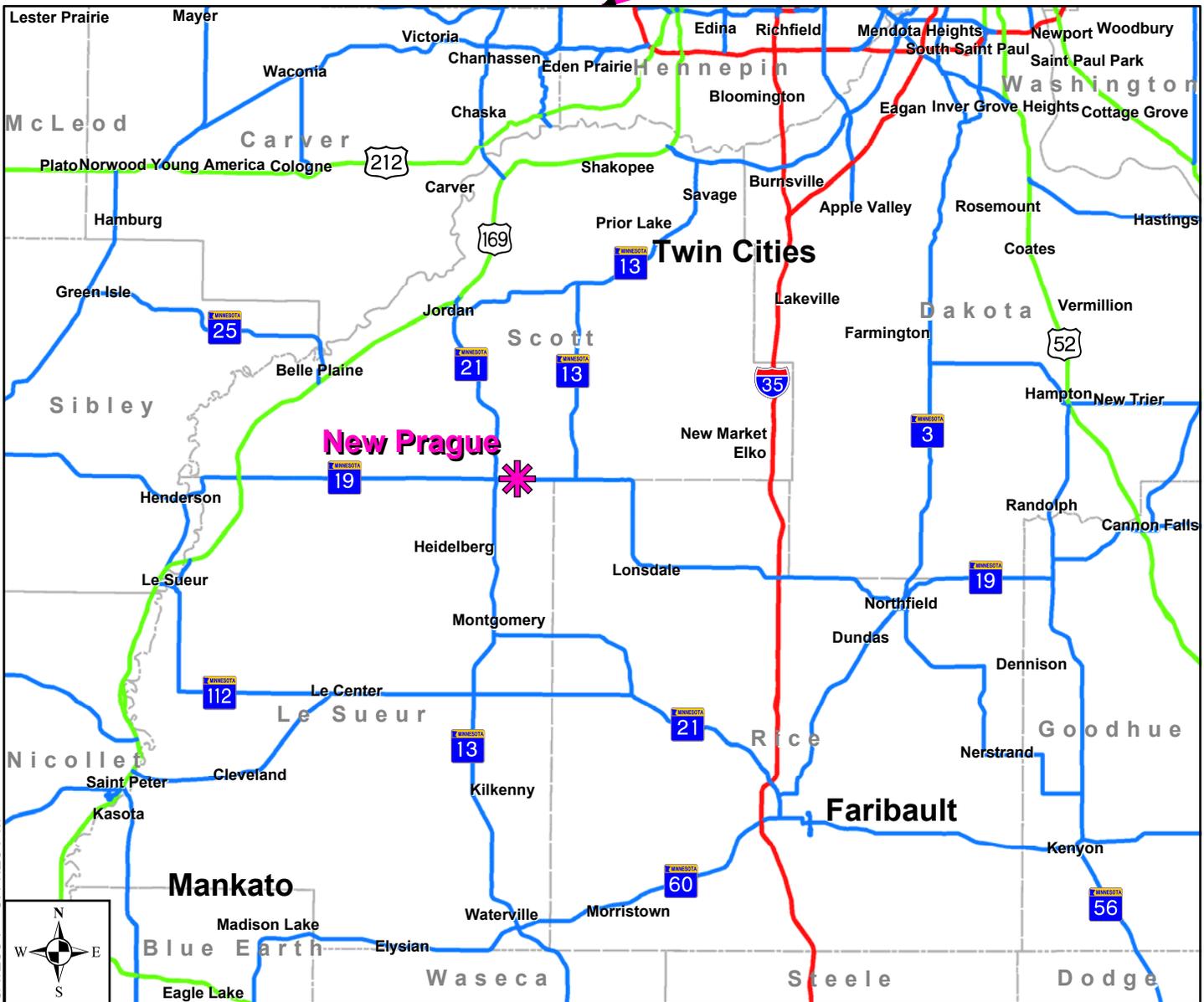
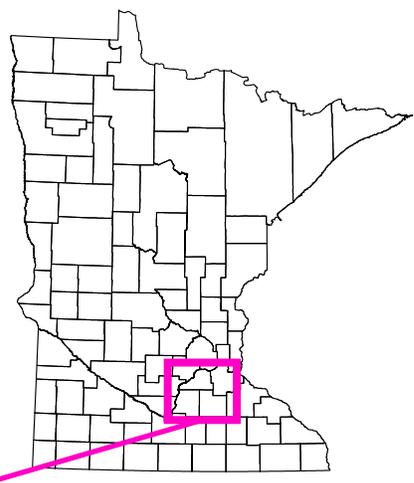
Comments and Observations

- TH 19 is categorized as an undivided Minor Arterial – Urbanizing (Category 5B). The recommended intersection spacing is ¼-mile for primary intersections and ⅛-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- This location is consistent with the intersection spacing and private entrance allowance guidelines in the Access Management Policy.
- Mn/DOT, along with the City of New Prague, used their regulatory authority to redirect private entrances to the local street network.
- The City of New Prague has developed a parallel street network that serves as the primary access road for property adjacent to TH 19.
- The gas station in the northwest quadrant of the TH 19/CSAH 37 intersection was designed with single entrance on the county road. As discussed above, this design became a critical issue when Mn/DOT returned to reconstruct the intersection. During the permitting process, Mn/DOT staff should consider the long-range implications of entrance locations.
- The gas station in the northwest quadrant of the TH 19/CSAH 37 intersection is an example of overdevelopment on a small corner lot. This type of development is common place in older urban areas where the traditional corner gas station has now developed into a convenience store (including services such as a car wash). As these types of properties redevelop, Mn/DOT should work with local governments to review the functionality of these developments (such as the ability to receive deliveries and provide internal circulation of vehicles).
- Cross easement agreements and shared entrances on CSAH 37 and the local streets provide access to corner parcels without having private entrances located within the functional areas of adjacent intersections.

Figure J.1 New Prague Site Location Map



Greater Minnesota Access Study



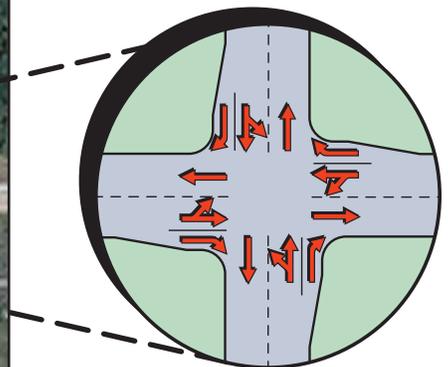
Map Document: (C:\Projects\Access_Studies\Location_NewPrague_SiteDetail.mxd)
6/1/2004 -- 3:11:26 PM





- ### Land Use Type Categories
- ① Fast Food Restaurant
 - ② Sit-Down Restaurant
 - ③ Convenience Store/ Gas Station
 - ④ Hotel/Lodging
 - ⑤ Auto Dealer
 - ⑥ Big Box Retail





**Greater Minnesota
Access Study**

Figure J.3
New Prague Access Configuration



May 2004



1



2



3



4



5



6



7



8



9

Figure J.4
New Prague Site Photos

12.0 New Prague East: TH 19 – Two-Lane Highway Free-Standing Business/Retail Node

Community Characteristics: New Prague (population 4,559) is a Level 6 Trade Center, located in Scott and Le Sueur Counties approximately 30 miles south of the Twin Cities (Figure K.1).

Site Location

- East edge of New Prague

Land Use Characteristics

- One retail and one office/warehouse business located in same quadrant of a trunk highway intersection.
- Flat terrain and straight highway alignment provides a high level of visibility between the highway and adjacent land uses.

Road Network Characteristics

- Two-lane undivided highway
- The TH 19/Chalupsky Avenue intersection includes a shared through/left turn lane and a right turn lane on TH 19 and a shared through/left-/right turn lane on Chalupsky Avenue.
- Traffic Volumes (2002 AADT)
 - TH 19: 4,800

Site Development History

The site was originally developed with access from Chalupsky Avenue. The City of New Prague has been aggressive in requiring alternative access via the local road network. The City will be extending 1st Street, which is located immediately north of the case site, to the west where it will connect with an existing backage road for several commercial establishments to the west on TH 19.

Comments and Observations

- TH 19 is categorized as an undivided Minor Arterial – Rural (Category 5A). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary intersections. Low volume private entrances (Access Types 1 and 2) are permitted if alternative access is not available. High volume private entrances (Access Type 3) are not recommended and should be directed to the local street network.
- This location is consistent with the intersection spacing and private entrance allowance guidelines in the Access Management Policy.
- Local governments have more authority to regulate access through zoning and building permits that Mn/DOT does. It is always essential to work with the local government on access issues. In this case, the City of New Prague directed access away from the trunk highway and from the cross street (Chalupsky Avenue) to a service/backage road.

-
- The City of New Prague has developed a parallel street network to provide alternative access to property adjacent to TH 19. Future expansion of this street system has been stubbed out and will likely be expanded as additional property develops or redevelops.
 - Even on the local street system, cross easement agreements and shared entrances are used to reduce the number of commercial entrances and provide clear guidance to drivers.

Figure K.1 - TH 19/Chalupsky Avenue (New Prague)



13.0 Sartell: TH 15 – Four-Lane Divided Highway Commercial Node in a Developing Suburban Area

Community Characteristics: Sartell (population 9,641) is part of the greater St. Cloud Area, which is a Level 1 Trade Center, located approximately 70 miles northwest of the Twin Cities (Figure L.1).

Site Location

- Southeast Sartell near the Mississippi River (Figures L.1 and L.2)

Land Use Characteristics

- Commercial and office uses, including a gas station, restaurants, motel, office space, and banks in the southwest quadrant of the TH 15/CSAH 1 intersection
- Generally flat terrain, however, development area is elevated slightly, which limits visibility between the highway and adjacent land uses, especially the second-tier development.

Roadway Network Characteristics

- TH 15 is a four-lane divided highway.
- Right- and left turn lanes are provided at each approach to the TH 15/CSAH 1 intersection (Figure L.3).
- Traffic Volumes (2002 AADT)
 - TH 15: 24,900

Site Development History

Land for an interchange at this location was purchased in 1959. In the late 1980s, a state law was passed ordering the sale of the interchange land with the proceeds to be used to build the Bridge of Hope (TH 15 over the Mississippi River).

Mn/DOT constructed the west frontage road from CR 137 to CSAH 1 because the cost associated with land locking the parcels west of TH 15 was estimated to be greater than the cost to build the road. The right-of-way for this frontage road was part of the original TH 15 freeway design.

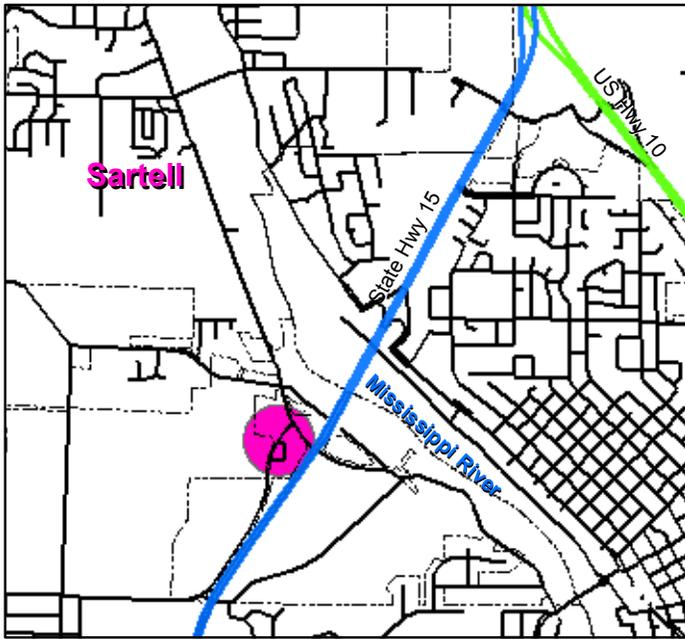
Representative photos of the study area are presented in Figure L.4.

Comments and Observations

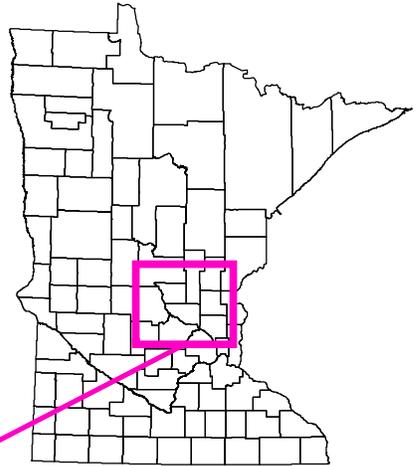
- TH 15 is categorized as a divided High Priority Regional Corridor – Urbanizing (Category 3B). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- The development at this intersection is consistent with the intersection spacing and private entrance allowance guidelines in the Access Management Policy. In this case, the development occurred after access management had been established.

-
- Development occurred at this location, despite the lack of direct access to TH 15 and despite great visibility. A large berm separates TH 15 from the development.
 - This segment of TH 15 was constructed on a new alignment before the development occurred; therefore, it was possible to achieve consistency with the Access Management Policy without having to address existing access issues. At the same time, some parcels became landlocked. When Mn/DOT land locks a parcel of land, the options include: buying the parcel, paying damages for the loss of use/access, constructing an access point, or constructing an alternative access point. In this case, an alternative access was provided via a new frontage road.
 - The frontage road (LeSauk Drive) intersection was constructed outside of the functional area of the TH 15/CSAH 1 intersection to provide adequate distance for back-to-back left turn lanes between the two intersections.

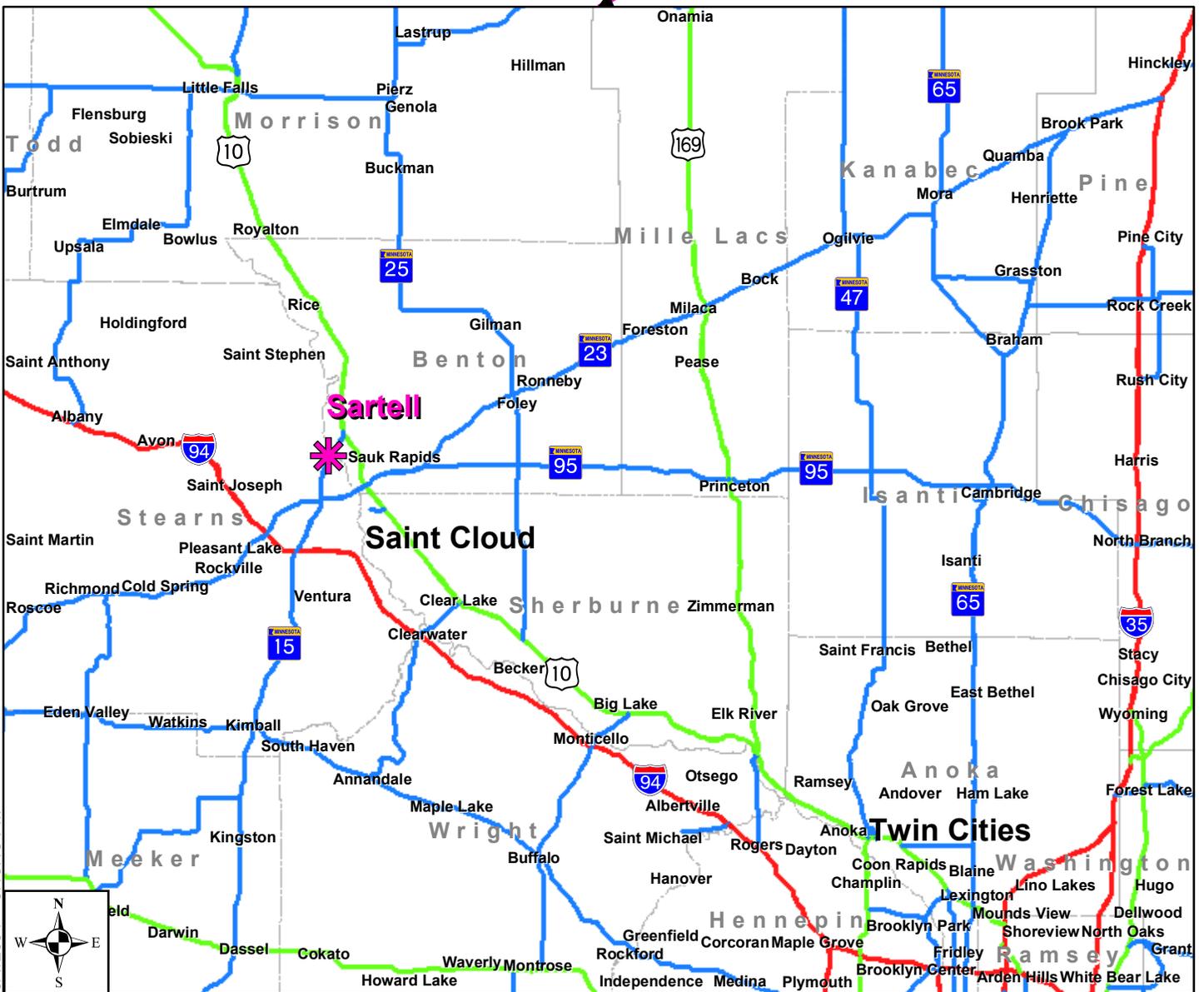
Figure L.1 Sartell Site Location Map

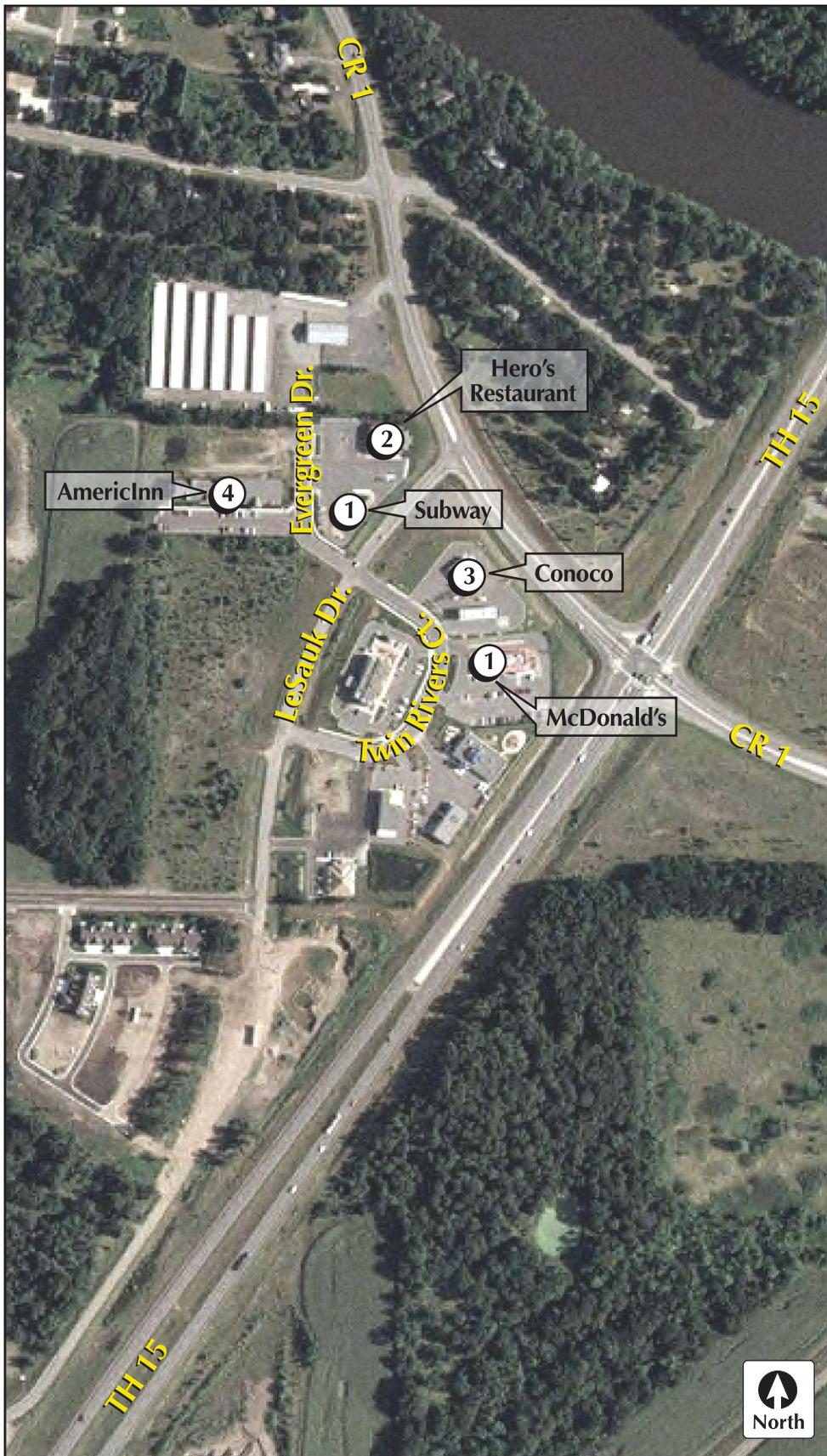


Greater Minnesota Access Study



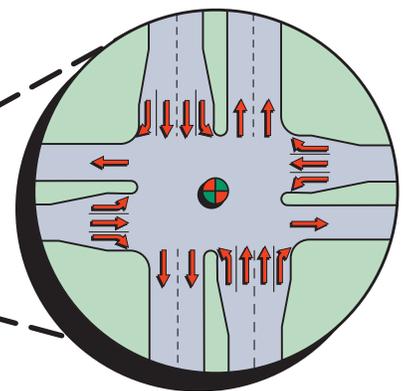
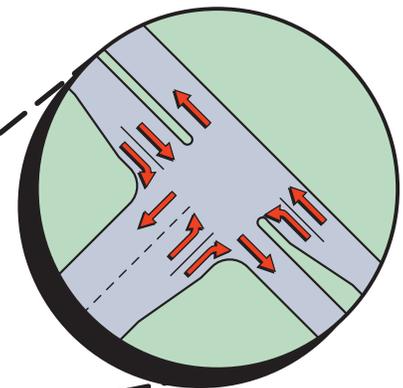
Map Document: (C:\Projects\Access_Studies\Location_Sartell_SiteDetail.mxd)
6/1/2004 -- 3:13:18 PM





- ### Land Use Type Categories
- ① Fast Food Restaurant
 - ② Sit-Down Restaurant
 - ③ Convenience Store/ Gas Station
 - ④ Hotel/Lodging
 - ⑤ Auto Dealer
 - ⑥ Big Box Retail





 Traffic Signal



**Greater Minnesota
Access Study**

Figure L.3
 Sartell Access Configuration



May 2004



1



2



3



4



5



6



7



8



9

Figure L.4
Sartell Site Photos

14.0 St. Clair: TH 83 – Two-Lane Highway

Small Town Convenience Store/Gas Station

Community Characteristics: St. Clair (population 827) is a Level 7 Trade Center located approximately 10 miles southeast of Mankato in Blue Earth County (Figure M.1).

Site Location

- South side of St. Clair along TH 83

Land Use Characteristics

- Convenience store/gas station
- Residential development to the east, church and open space to the north, and agricultural to the west and south
- Zoning – General Residential (R-1). The City indicated the property should be rezoned to reflect the current use and that the site was developed at a time when planning and zoning and code enforcement was not strongly regulated.
- High level of visibility from the highway including on-site signage along TH 83.

Road Network Characteristics

- TH 83 is a rural two-lane undivided highway.
- The TH 83/CR 28 intersection includes one through lane in each direction, a right turn for northbound traffic, and a left turn lane for southbound traffic. The county road includes shared through/left/right turn lanes at both the north and south approaches.
- Traffic Volumes (2002 AADT)
 - TH 83: 3,250

Site Development History

In 1955, Mn/DOT acquired right-of-way and controlled access along TH 83. Access openings were allowed for local street access only. In 1992, the City of St Clair requested an access break on TH 83, which was part of a development proposal for a new gas station and convenience store. Mn/DOT met with the City Council, developer, County Commissioner, and others to discuss the request. The historical crash rate in the area was 3.7 compared to a state average of 1.1. Therefore, Mn/DOT did not want to further compromise safety by allowing direct property access for the proposed development. The City Council instructed the developer to modify their site plan, and the gas station/convenience store was built with access provided via CR 28.

Comments and Observations

- TH 83 is categorized as an undivided Minor Arterial – Rural (Category 5A). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary intersections. Low volume private entrances (Access Types 1 and 2) are permitted if

alternative access is not available. High volume private entrances (Access Type 3) are not recommended and should be directed to the local street network.

- Though the Access Management Policy was not in place at the time the Cenex gas station requested access to TH 83, the process followed exemplified the goals and process of the policy. The gas station would be considered a high volume private entrance (Access Type 3), and according to the Access Management Policy, the entrance is not recommended and should be directed to the local street network. Mn/DOT staff worked with the local government in this effort.
- In this case, access control had been previously established along TH 83, thereby reinforcing the right to deny direct access to the highway. Even without access control, Mn/DOT's regulatory powers would allow the denial of access to the highway, since alternative access was available from the county road.
- The request from the developer and the City of St. Clair to break access control was denied. Typically, existing access control is not broken for private entrances. If the request to break access control had been for a public street, and the public street was consistent with the spacing guidelines in the Access Management Policy, the break should be considered.
- Mn/DOT does not have the authority to regulate the location of an entrance when it is located on a non-trunk highway, even though the location may affect the operations of an adjacent public intersection. In this case, working with the local government and local road authority, the private entrance to Cenex was located outside of the functional area of the TH 83/CR 28 intersection.

Figure M.1 - TH 83 (St. Clair)



15.0 US 169/TH 18 – Two-Lane Highways Freestanding Gas Station in Rural Area

Community Characteristics: Not Applicable

Site Location

- Intersection of US 169 and TH 18 east between Garrison and Aitkin in Hazelton Township (Figure N.1).

Land Use Characteristics

- Freestanding gas station/convenience store
- Extensive woodlands and scattered rural residences
- High level of visibility from both highways

Road Network Characteristics

- US 169 and TH 18 are rural two-lane undivided highways.
- Turn lanes are provided at the US 169/TH 18 intersection, and right turn lanes are included at the intersections servicing the commercial development.
- Traffic Volumes (2002 AADT)
 - US 169: 3,300
 - TH 18: 1,350

Site Development History

Mn/DOT purchased access control along TH 18 for 1,400 feet east of the US 169/TH 18 intersection. This segment of TH 18 was reconstructed as part of a US 169 project in the 1990s. Prior to the gas station development, the first access point (residential) was located approximately 1,100 feet east of US 169. The applicant for the Conoco Station agreed to an entrance approximately 450 feet east of the intersection, which would be a shared entrance for the residential property and the business. The applicant was also required to construct a right turn lane along TH 18.

Prior to this commercial development, a field access was located in the existing northbound right turn lane to TH 18. Through the access permit process, Mn/DOT required the applicant to relocate the access point approximately 150 feet further south to move the access south of the right turn lane. Furthermore, the applicant was required to build a separate right turn lane on US 169 for the new access point to the business.

Comments and Observations

- US 169 is categorized as an undivided Medium Priority Interregional Corridor – Rural (Category 2A). The recommended intersection spacing is 1-mile for primary intersections and ½-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- TH 18 is categorized as an undivided Minor Arterial – Rural (Category 5A). The recommended intersection spacing is ½-mile for primary intersections and ¼-mile for secondary intersections. Low volume

private entrances (Access Types 1 and 2) are permitted if alternative access is not available. High volume private entrances (Access Type 3) are not recommended and should be directed to the local street network.

- Prior to the implementation of the Access Management Policy, the acquisition of access rights was considered the standard approach used to protect the functional areas of intersections. As discussed above, even though access control had been established, the location of the gas station entrances was determined during the permitting process. The permitting process can be used to determine the location of a private entrance.
- This location is an example of a corner lot along two rural trunk highways. In rural areas, it is unlikely that a local street network would be available to provide alternative access. In these areas, the trunk highway system will serve as the primary access road. Through regulation, as demonstrated in this example, the private entrances can be located at the best possible location. In this case, the location of the private entrances on both US 169 and TH 18 address several issues:
 - Provides adequate sight distance between the public intersection and the entrance
 - Prevents the entrance from being located in the turn lanes for the public intersection
 - Creates the potential for shared entrances with future development
- It may have been possible to limit the gas station to a single entrance on TH 18 if the single entrance was shown to be reasonably convenient and suitable. One of key considerations in determining if an alternative access is reasonably convenient and suitable is whether delivery trucks can adequately service business.

Figure N.1 - TH 169/TH 18 East (Aitkin County)



16.0 Waseca: TH 13 – Two-Lane Highway

Freestanding Commercial/Industrial Node

Community Characteristics: Waseca (population 8,493) is a Level 3 Trade Center, located approximately 30 miles east of Mankato and 60 miles west of Rochester (Figure O.1).

Site Location

- Northern edge of Waseca

Land Use Characteristics

- Freestanding hotel and a manufacturing business
- Excellent visibility between highway and the land uses

Road Network Characteristics

- TH 13 is a rural two-lane undivided highway.
- The frontage road intersection includes a through lane, left turn lane, and a right turn lane on TH 13, and the side street approaches include shared through/left-/right turn lanes.
- Traffic Volumes (2002 AADT)
 - TH 13: 5,000

Site Development History

TH 13 was constructed in 1952 to accommodate and provide access to existing residential developments on the north end of Waseca. In 1993, Itron Manufacturing, Inc., proposed a manufacturing development along TH 13. The original site plan proposed access directly onto TH 13 at a location with restricted sight distance. Mn/DOT District 7 insisted that access to the development be provided via a frontage road connected to 22nd Avenue. The City and developer objected to Mn/DOT's position because of the \$300,000 cost for constructing the frontage road. Ultimately, the frontage road was built by the City and developer in accordance with Mn/DOT's requirements. Since that time, the Waseca Inn & Suites has been developed, which also obtains access to TH 13 via the frontage road and the 22nd Avenue intersection.

Comments and Observations

- TH 13 is categorized as an undivided Minor Arterial – Urbanizing (Category 5B). The recommended intersection spacing is ¼-mile for primary intersections and ⅛-mile for secondary intersections. Private entrances are not recommended and should be directed to the local street network.
- The entrances to Itron Manufacturing and the Waseca Inn & Suites are consistent with the Access Management Policy. In both cases, access has been directed to the frontage roads.
- Though the Access Management Policy was not in place at the time of development, this example demonstrates how Mn/DOT's regulatory

approach to access control, along with working with the local government lead to the construction of a frontage road.

- In anticipation of future development, the City of Waseca has stubbed out future street connections. Stubbing out future connections helps a community establish street corridors while providing alternative access as adjacent properties develop or redevelop. This practice also establishes and preserves the location of public intersections along a trunk highway. As future development occurs, these locations will become public streets instead of private entrances.

Figure O.1 - TH 13 (Waseca)

