

**BRIDGE AVENUE  
CORRIDOR STUDY**

For  
**Freeborn County  
City of Albert Lea  
Minnesota Department of Transportation**

November 2005

By  
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## I. INTRODUCTION

Bridge Avenue serves as one of the primary conduits between Albert Lea's downtown area and its commercial/residential areas to the north and access to I-90. Physical constraints and historic development patterns have led to the absence of parallel alternate routes, which means this corridor plays an important role in the County's and City's transportation system. The Bridge Avenue corridor serves a wide variety of land uses, including the Albert Lea Airport, Riverland Community College, High School, County Fairgrounds, single-family and high-density residential, and significant commercial and industrial developments. The one-mile segment between Hammer Road and I-90 is subject to significant new growth in commercial, industrial and residential land uses. Industrial land uses, such as Northaire Industrial Park, also impact the corridor with their generation of heavy commercial vehicles.

As many communities have grown, changing development patterns have resulted in roadways serving a mix of functions. Presently, Bridge Avenue faces the challenge of safely providing for the movement of traffic, including pedestrians and bicycles, while balancing the need for mobility and access to current residents, businesses and industries. As growth and development occur, local and regional agencies have become increasingly concerned with long-term operational, safety and access needs along the corridor.

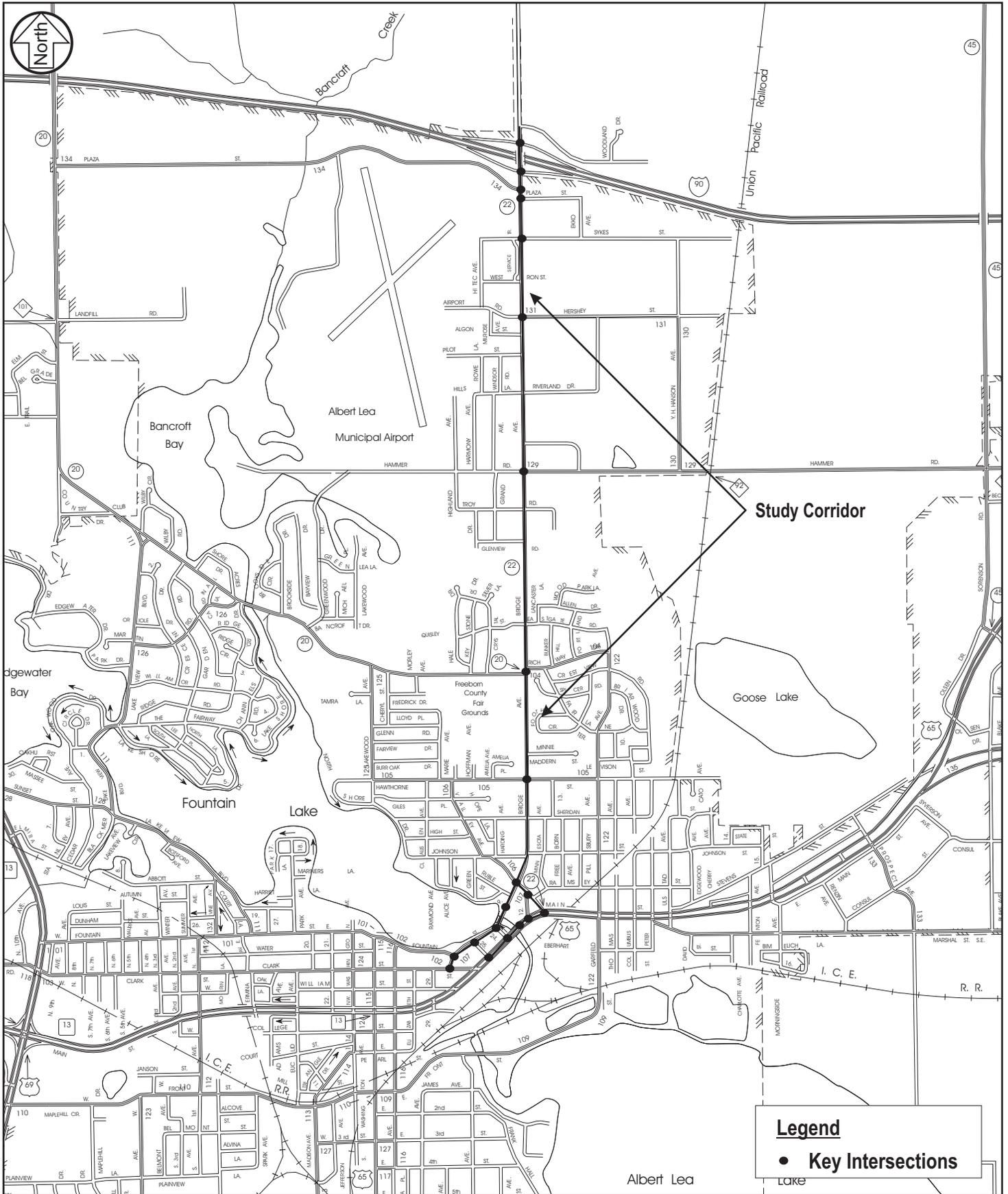
### **Study Objectives**

The Bridge Avenue Corridor Study was undertaken to identify and evaluate safety and operations issues, as well as a system-level review to assess its current and future role as a major north-south arterial in the County's and City's transportation system. The study area, as shown in Figure 1, focuses on the segment of Bridge Avenue between I-90 and Clark Street.

The primary study objectives are to:

- Evaluate existing intersection/roadway operations, speeds, access and safety
- Determine the future roadway design
- Identify short-term, intermediate and long-term improvements
- Develop an access management plan

As a result of this study, a long-term corridor plan will be developed to provide the framework for how Bridge Avenue will need to change over time to safely accommodate planned growth in the area.



**STUDY CORRIDOR**  
 BRIDGE AVENUE CORRIDOR STUDY  
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**Figure 1**

## **II. EXISTING CONDITIONS**

Analyzing and assessing existing conditions in the study area establishes a baseline to project future traffic and development trends. In doing so, existing issues and conditions can be placed in context with future local and agency needs. In addition, potential solutions can be developed to address short-term, intermediate and long-term needs.

The evaluation of existing conditions includes the following:

- Major concerns and issues
- Intersection operations analysis
- Daily traffic volumes
- Speed analysis
- Crash analysis
- Access
- Design characteristics

### **Study Issues**

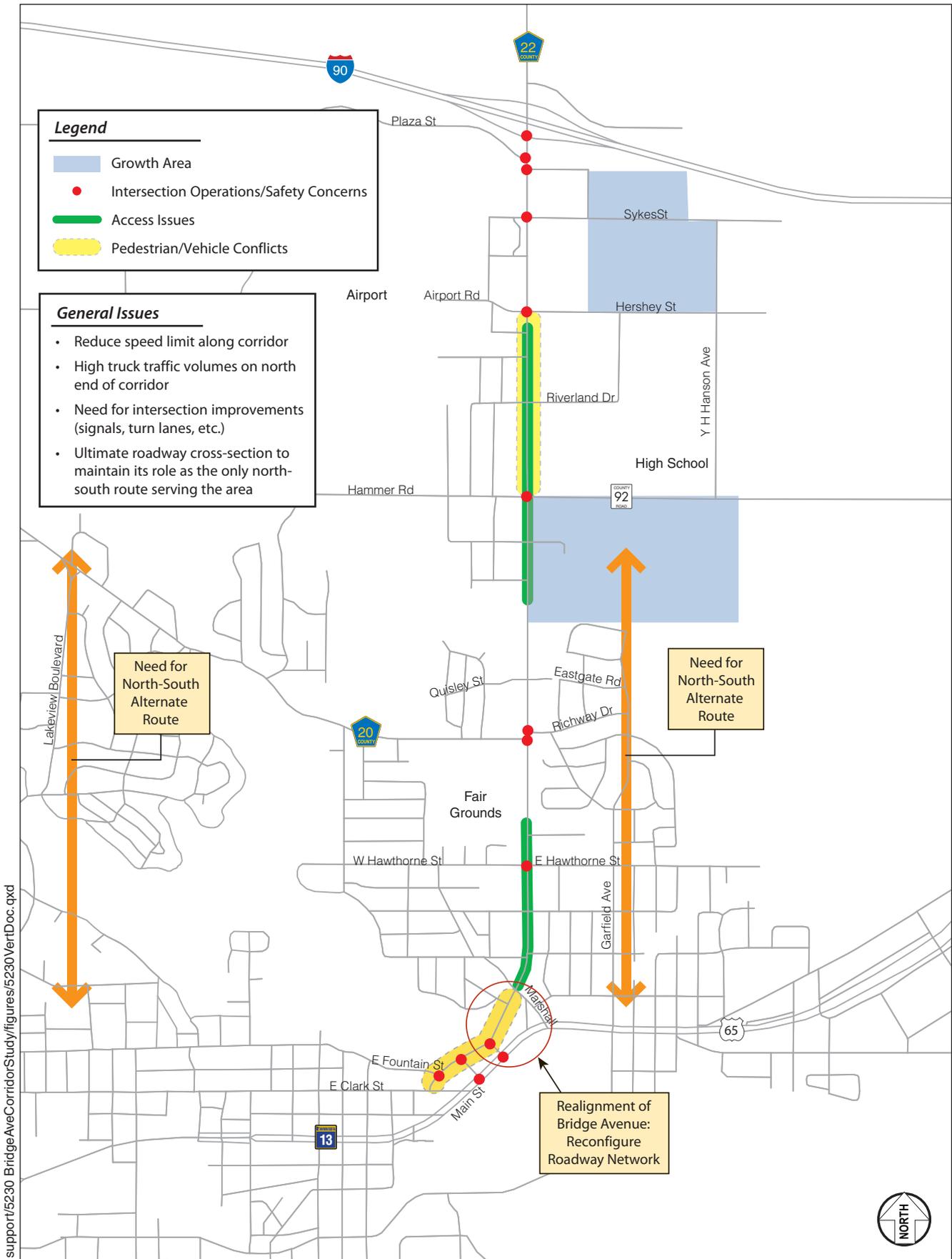
Public and agency participation are central to developing transportation solutions that are supported by stakeholders with potentially different interests. During the study process, two Open House and two Public Advisory Committee (PAC) meetings were held. The open house meetings were strategically integrated into our study process to solicit input from the public on study area issues, needs, and transportation alternatives and impacts. The role of the PAC was to guide and direct the study process, and review all study materials, analyses, results, and recommendations.

On January 27, 2005, the first Open House was held for the Bridge Avenue Corridor Study to provide an opportunity for public input prior to the beginning of the study. A summary of the comments and issues identified at the Open House are illustrated in Figure 2 and included in the Appendix.

### **Intersection Operations**

The City of Albert Lea and Freeborn County provided a.m. and p.m. turning movement counts at the following key intersections to analyze how the corridor currently operates.

- Bridge Avenue and I-90 North Ramps
- Bridge Avenue and I-90 South Ramps
- Bridge Avenue and Plaza Street (North)



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**ISSUES MAP**  
 BRIDGE AVENUE CORRIDOR STUDY  
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**Figure 2**

- Bridge Avenue and Plaza Street (South)
- Bridge Avenue and Sykes Street
- Bridge Avenue and Hershey Street
- Bridge Avenue and Hammer Road
- Bridge Avenue and Richway Drive
- Bridge Avenue and Hawthorne Street
- Bridge Avenue and Marshall Street
- Bridge Avenue and Wilson Street
- Bridge Avenue and Shellrock Street
- Bridge Avenue and Katherine Street
- Bridge Avenue and Fountain Street
- Bridge Avenue and Clark Street
- Marshall Street and Sibley Street
- Main Street and Marshall Street
- Main Street and Sibley Street
- Main Street and Wilson Street
- Main Street and Shellrock Street
- Main Street and Katherine Street

Synchro/SimTraffic and Highway Capacity Software were used to analyze the traffic operations along Bridge Avenue. Capacity analysis results identify a Level of Service (LOS), which indicates the quality of traffic flow through an intersection. Intersections are given a ranking from LOS A through LOS F. LOS A indicates the best traffic operation, with vehicles experiencing minimal delays. LOS F indicates an intersection where demand exceeds capacity, or a breakdown of traffic flow. LOS A through D is generally considered acceptable by drivers. LOS E indicates that an intersection is operating at, or very near its capacity and that vehicles experience substantial delays. Delay threshold values are shown in Table A-1 in the Appendix.

For side-street stop controlled intersections, special emphasis is given to providing an estimate for the level of service of the side-street approach. The traffic operations at an unsignalized intersection with side-street stop control can be described in two ways. First, consideration is given to the overall intersection level of service. This takes into account the total entering volume into the intersection and the capability of the intersection to support these volumes. Second, it is also important to consider the level of service on the side-street approach. Since the mainline does not have to stop at an unsignalized intersection that has side-street stop control, the majority of the intersection delay can be attributed to the side-street approaches. It is typical of intersections with high mainline traffic volumes to experience high levels of delay (poor level of service) on the side-street approaches, but an acceptable overall intersection level of service during peak periods.

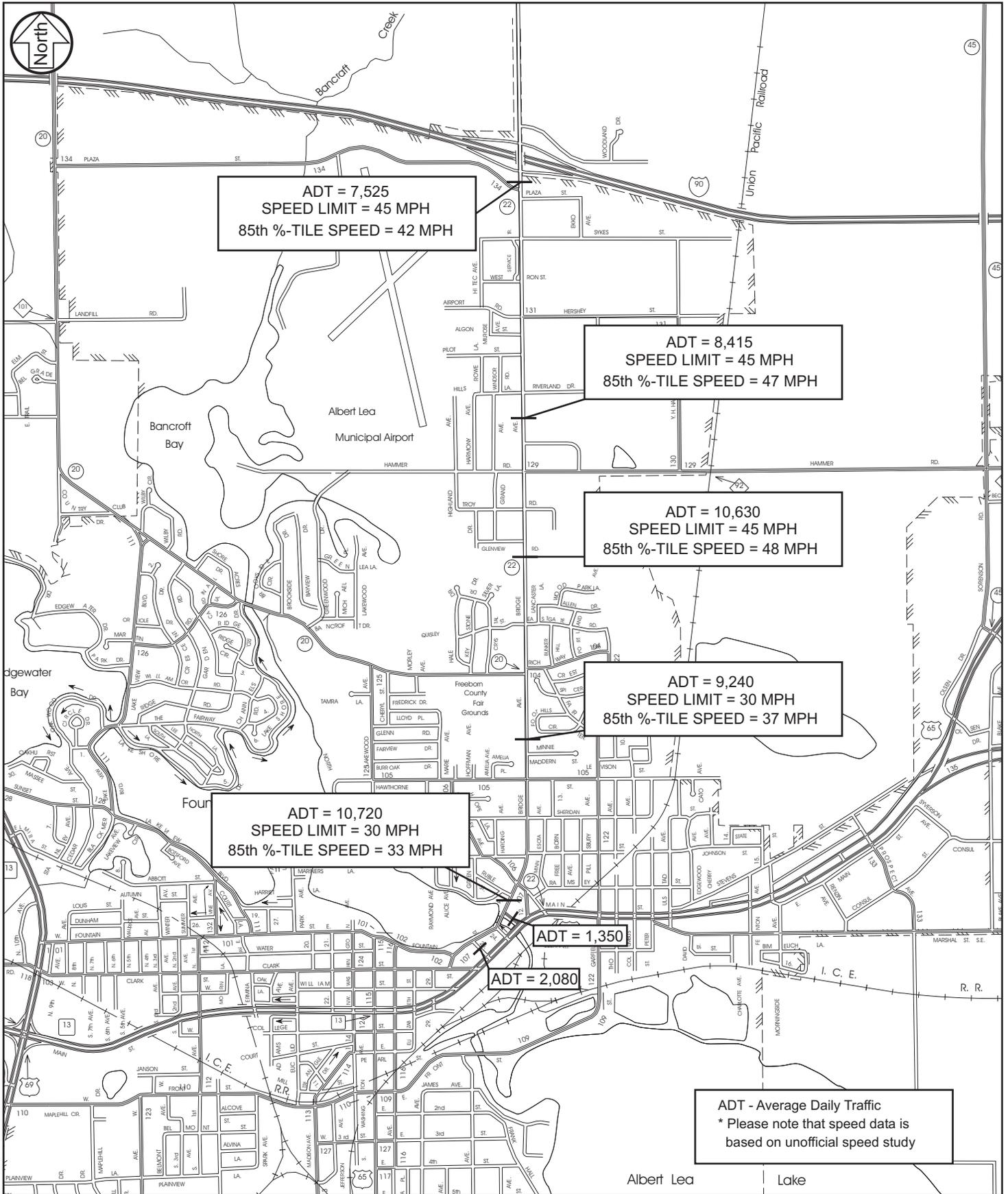
Based on the operations analysis results, all key intersections along the corridor currently operate at an acceptable LOS C (overall intersection) or better during the a.m. and p.m. peak hours. The peak hour turning movement counts and detailed level of service results are included in the Appendix. The level of service results for the intersections and side-street approaches indicate delays within normal ranges. However, there are currently a significant number of direct access points along the study corridor. Due to the number of access points dispersed along the corridor, volumes on the side-street approaches of the intersections are lower. Therefore, the intersections themselves operate at a better level of service, while the overall corridor operations may be affected.

### **Daily Traffic Volumes**

The City conducted daily tube counts at the following locations along the study corridor:

- South of Marshall Street
- South of Richway Drive
- North and South of Hammer Road
- South of I-90
- On Wilson Street and Katherine Street between Bridge Avenue and Main Street

The data was collected using tube counters, in order to obtain data for a full 24-hour period. As shown in Figure 3, daily traffic volumes along the Bridge Avenue corridor range from approximately 7,500 to 10,700 vehicles per day. Heaviest volumes are south of Hammer Road and south of Marshall Street. A review of the current daily traffic volumes can identify capacity deficiencies in the corridor.



**EXISTING AVERAGE DAILY TRAFFIC VOLUMES AND SPEEDS**

BRIDGE AVENUE CORRIDOR STUDY  
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**Figure 3**

Based on the current volumes and planning-level capacities, all two-lane segments of Bridge Avenue (areas south of Hammer Road) are theoretically operating near its capacity. This suggests the need to plan for future corridor upgrades to adequately meet future transportation demands.

## **Speed**

The posted speed limit along Bridge Avenue is 45 miles per hour (mph) north of and 30 mph south of Eastgate Road. One of the main concerns voiced by residents at the open house meeting is that traffic speeds exceed the posted speed limits and the posted speed limit on the north end should be lowered. Due to the concerns expressed by residents, speed data was collected along the corridor to determine the extent of the speeding problem.

Several different statistical measures are used when evaluating speed data. The 85th percentile speed is the speed at which 85 percent of the drivers are traveling at or below. This measure is used due to the fact that a majority of drivers (85 percent) select a speed that they feel is reasonable and prudent.<sup>1</sup> As a result, the 85th percentile speed is typically used to evaluate the posted speed limit.

Speed data collected using tube counters are shown in Figure 3. It is important to note that the speeds represent all vehicles during a 24-hour period, including speeds of vehicles during peak-hour conditions (i.e. vehicles that may be hindered or following a slower driver). The results indicate that the 85th percentile speeds on the north end are fairly close to the posted 45 mph speed limit. For the south end, the 85th percentile speed (33 mph) south of Marshall Street indicates fairly good compliance; however, just south of Richway Drive the speed is measurably higher than the posted 30 mph speed limit. This area is a transition between the 30 mph and 45 mph zones.

Another question that commonly surfaces in speed discussions is the process and/or opportunity to lower the posted speed limit and the effect of the posted limit on vehicle speeds. The City and the County do not have the authority to change roadway speed limits. Speed limits are set by the State Commissioner of Transportation based on a speed study, which would be requested by the local agency. The Minnesota Department of Transportation (Mn/DOT) conducted an unofficial speed study for the north end of Bridge Avenue (included in the Appendix). The 85th percentile speeds indicate that motorists are generally traveling close to the posted speed limit of 45 mph. Based on the analysis of the speed information for Bridge Avenue and past experience with speed limit reduction requests, it is unlikely that Mn/DOT would consider lowering the speed limit in this area. Before and after studies have shown that drivers will travel what they consider to be a safe and reasonable speed regardless of posted limits. Even if a reduction were to be granted, it is not likely that motorists would comply with the reduced limit without constant enforcement by the City.

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<sup>1</sup> Pline, James L., editor. "*Traffic Engineering Handbook*". Institute of Transportation Engineers, 1999.

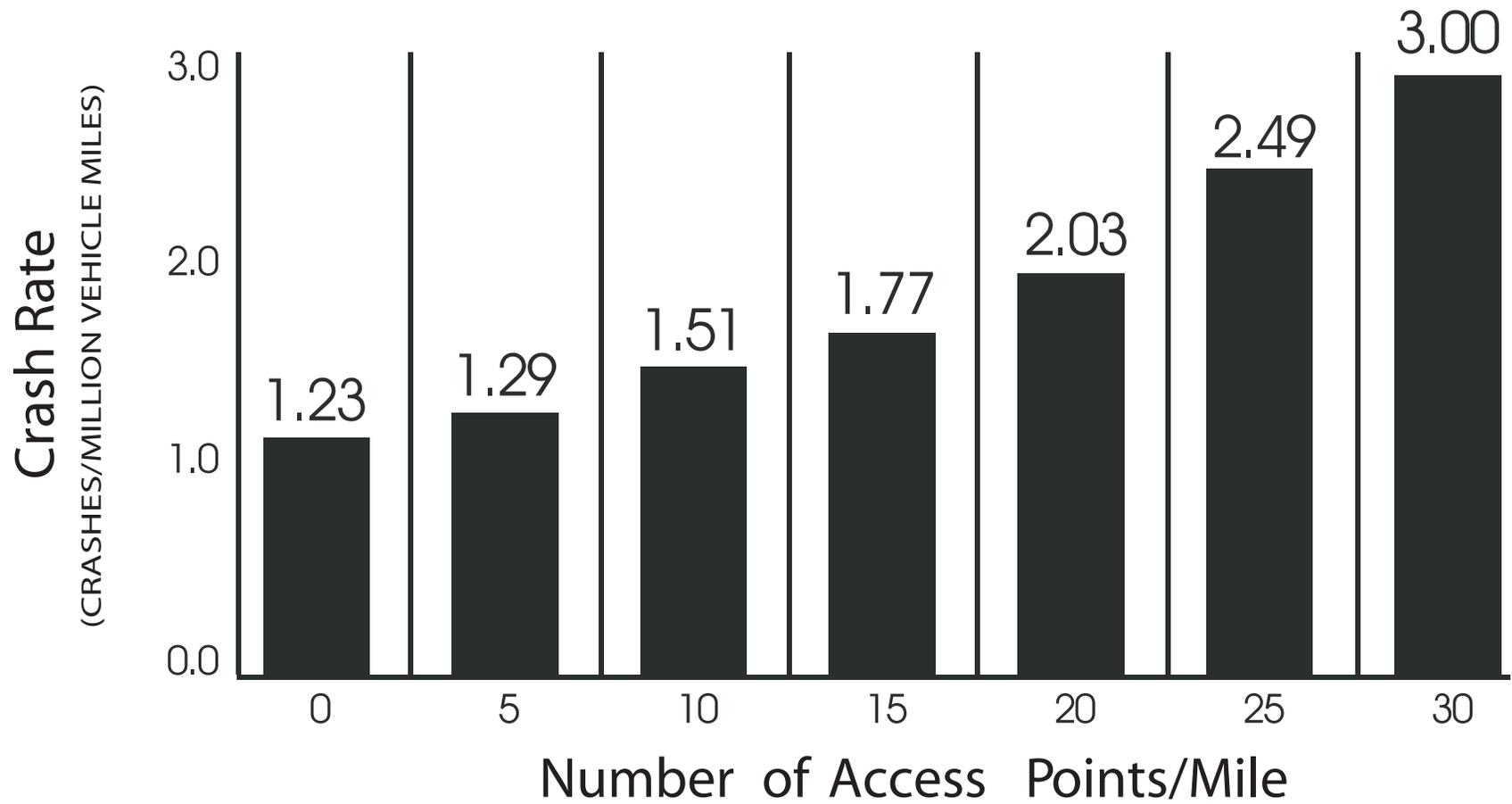
## **Safety**

Safety is important to both the general public and to those responsible for maintaining roadway facilities. To better understand the extent and severity of safety problems on Bridge Avenue, the City of Albert Lea performed an intersection crash analysis using crash records from January 1, 2001 through December 31, 2003 (*Bridge Avenue Corridor Crash Analysis Study dated June 15, 2005*). This analysis included all intersection crashes between Hoeger Lane and Clark Street. The study corridor includes four signalized intersections and 23 side-street stop controlled intersections. In addition, three non-street intersections (County Fairgrounds, Northbridge Mall and HyVee) were included.

Over the three-year period, there were 164 intersection crashes. Out of the 164 crashes, 59 (36 percent) occurred at a signalized intersection and 105 (64 percent) occurred at a side-street stop controlled intersection. The Bridge Avenue intersections at Hawthorne Street, Johnson Street, Hills Lane/Riverland Drive and Fountain Street are experiencing a crash rate higher than the critical crash rate. If the intersection crash rate is higher than the critical crash rate, the location is considered to exceed the average rate by a statistically significant amount. However, the severity of crashes has been low and no fatalities occurred during the study period. In addition, the Fountain Avenue intersection has been recently studied and proposed improvements related to this intersection will be discussed further in the report. The majority of the crashes at the remaining intersections are rear-end collisions and the main factor is an inattentive driver.

## **Access**

A comprehensive inventory was conducted for all access points along the corridor. Two basic types of access points were identified, public and private. The inventory shows 120 access points over the 2.85 mile corridor, or approximately 42 access points per mile. Access guidelines are important because they define a starting point for balancing property access, safety and mobility concerns. A number of studies have demonstrated a relationship between the number of access points and the number of crashes, including *FHWA Access Research Report No. FHWA-RD-91-044*. The results of this federal study are presented in Figure 4. Further discussion of access guidelines and practices will be discussed further in the Access Management Plan section.



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

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



**ACCESS/CRASH RELATIONSHIP**

BRIDGE AVENUE CORRIDOR STUDY  
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**Figure 4**

## **Design Characteristics**

A review of the existing roadway sections, including right-of-way, lane geometry and pedestrian/bicycle accommodations were considered. Bridge Avenue is currently a three-lane roadway between I-90 to Sykes Street and a two-lane roadway for the remaining corridor. Right-of-way along the corridor is 100 feet (44 feet of paved roadway) from I-90 to north of Minnie Maddern Street. From a point north of Minnie Maddern Street to Marshall Street, the right-of-way is limited to 66 feet (34 feet of paved roadway). The right-of-way for Bridge Avenue between Marshall Street and Clark Street is 66 feet (36 – 40 feet of paved roadway). There are currently sidewalks on both sides of the corridor between Minnie Maddern Street and Clark Street. In addition, there are sidewalks on the east side of the corridor between Hershey Street and Minnie Maddern Street.

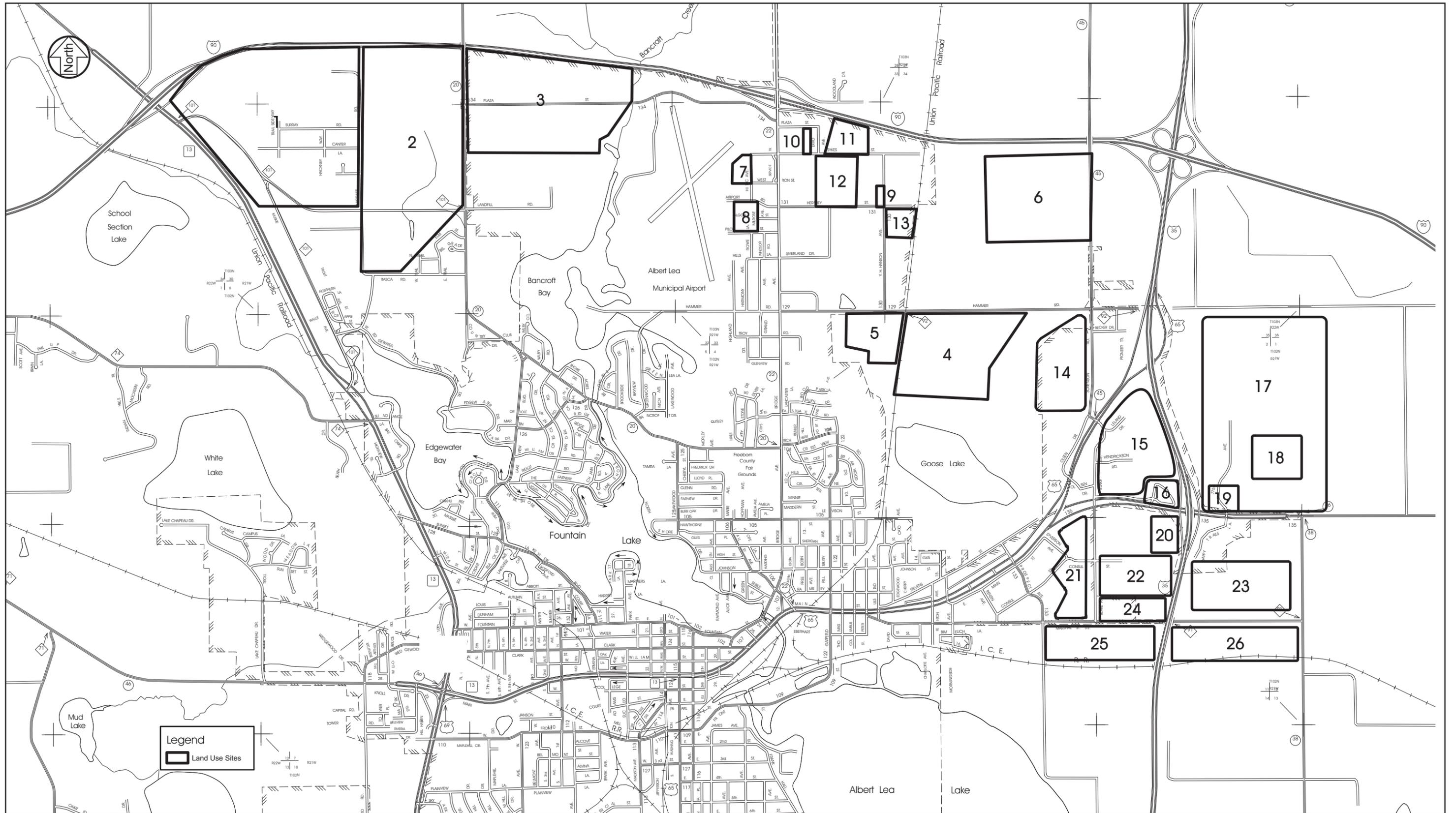
### **III. FUTURE CONDITIONS**

As indicated in the previous section, there are a number of factors that influence how a roadway and/or a system functions. Because these facilities take a long time to plan and construct, and are expected to serve future demands, it is important to evaluate them for future conditions (growth trends and other expected changes). Evaluating the corridor for these future conditions will enable the study partners to develop and work toward a plan that meets the long-term needs of the area. This section of the report highlights future conditions that will influence the function of Bridge Avenue.

#### **Traffic Forecasts**

In order to develop a long-term plan for the corridor, traffic forecasts for year 2025 were developed for the Bridge Avenue corridor. Working with City staff, future proposed/planned developments/redevelopments were identified, including land use type and size. These developments are expected to generate additional trips that will use the Bridge Avenue study corridor. Future land uses that will impact the corridor are illustrated in Figure 5 and summarized in the Appendix.

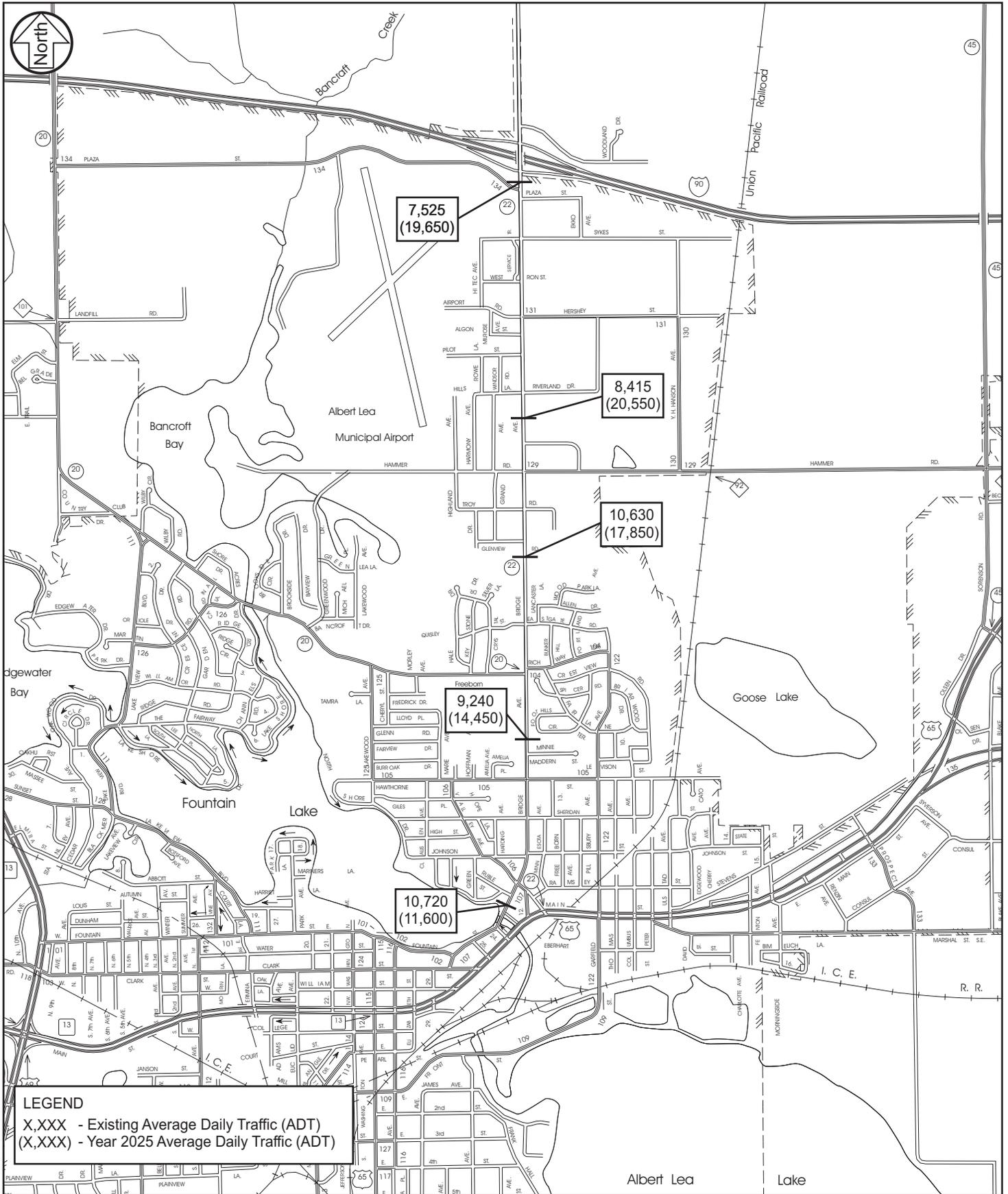
Trip generation estimates for the a.m. and p.m. peak hours and daily volumes were calculated for future 2025 conditions, based on land use type and size, and trip generation rates from the 2003 ITE Trip Generation Reports. These future trips were then distributed to the supporting roadway network, based on current travel patterns in the area. Using the combination of existing and future peak hour trips generated by target parcels, daily traffic volumes were developed for the study corridor. As shown in Figure 6, daily traffic volumes along the Bridge Avenue corridor are estimated to range from approximately 17,900 to 20,600 vehicles per day north of Eastgate Road. At the south end, volumes are estimated to range from approximately 11,600 to 14,500 vehicles per day. If the proposed land use changes are realized over the next 20 years, the increase in traffic volume that is projected to use the corridor suggests the need to plan for increased capacity in most segments of the corridor (i.e. most segments will need to be widened to four-lanes with turn lanes to adequately accommodate future traffic demands).



**PROPOSED LAND USE DEVELOPMENTS**

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**Figure 5**



**EXISTING AND FUTURE AVERAGE DAILY TRAFFIC VOLUMES**

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**Figure 6**

## IV. FUTURE CORRIDOR PLAN

The primary focus of the corridor study is to maintain the safe and efficient movement of people through the corridor, as well as to provide appropriate access to residents, businesses and other facilities. Limiting access has been demonstrated to have positive safety and traffic flow benefits. However, with the high volume of traffic projected in the corridor, it should be recognized that access modifications alone will not provide the necessary benefits to achieve the desired levels of safety and function (mobility). As a result, access strategies should focus not only on mitigating current safety issues but also support the development of future roadway improvements that are necessary to adequately meet corridor mobility needs.

In order to clarify the roadway improvements necessary to address safety and mobility issues in the study area, this chapter is broken into two sections. The first section identifies roadway improvements and their associated design characteristics. The recommended improvements are broken into short-term (i.e. lower costs and complexity and ease to implement); and intermediate/long-term (i.e. higher costs, complexity, right-of-way impacts). The recommended long-term roadway will reduce conflicts throughout the corridor and improve north-south traffic flow. The second section identifies access changes in the corridor that will improve safety and mobility. These access modifications area consistent with the long-range roadway improvements and can be phased-in as opportunities present themselves or as projects are developed.

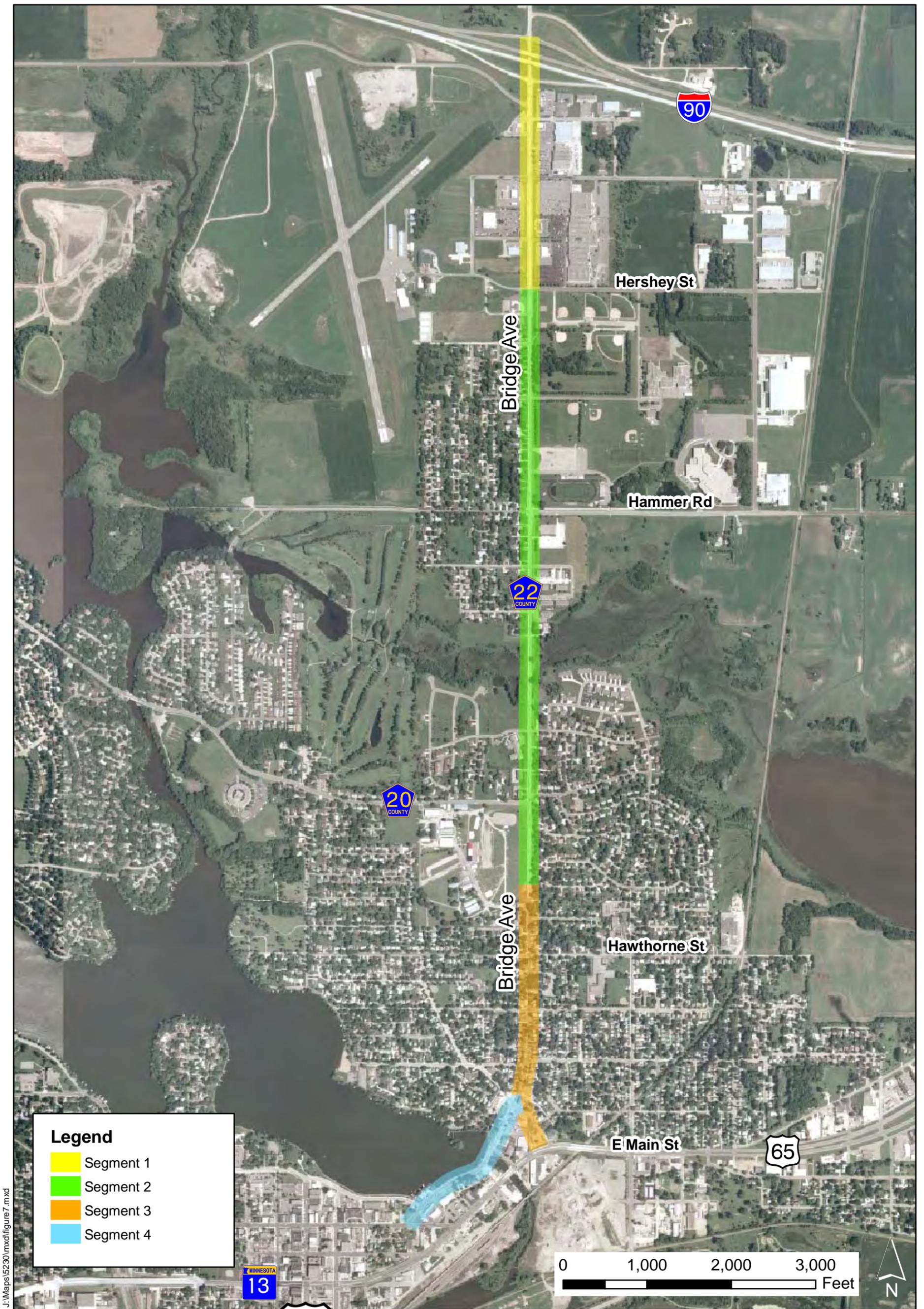
### **Roadway Improvements and Design Characteristics**

As shown in Figure 7, the corridor was divided into four segments:

- Segment 1 – I-90 to Hershey Street
- Segment 2 – Hershey Street to north of Minnie Maddern Street
- Segment 3 – Minnie Maddern Street to Main Street
- Segment 4 – Marshall Street to Clark Street

The following elements were considered while developing capacity improvements and design characteristics for each study segment and intersection areas:

- Existing roadway design (curb to curb width)
- Existing right-of-way width
- Existing and future adjacent developments
- Existing access
- Existing and forecast traffic volumes



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**ROADWAY DESIGN SEGMENTS**

**BRIDGE AVENUE CORRIDOR STUDY**

**Freeborn County / City of Albert Lea**

0045230  
September, 2005

**Figure 7**

## **Segment 1 Roadway Improvements – Figure 8**

This segment of Bridge Avenue is currently a three-lane roadway between I-90 and Sykes Street and a two-lane roadway between Sykes Street and Hershey Street. It currently carries approximately 7,500 vehicles per day (19,700 vehicles per day in 2025). Segment 1 has a 44-foot curb-to-curb paved width and 100-foot right-of-way.

### **Short-Term Improvements**

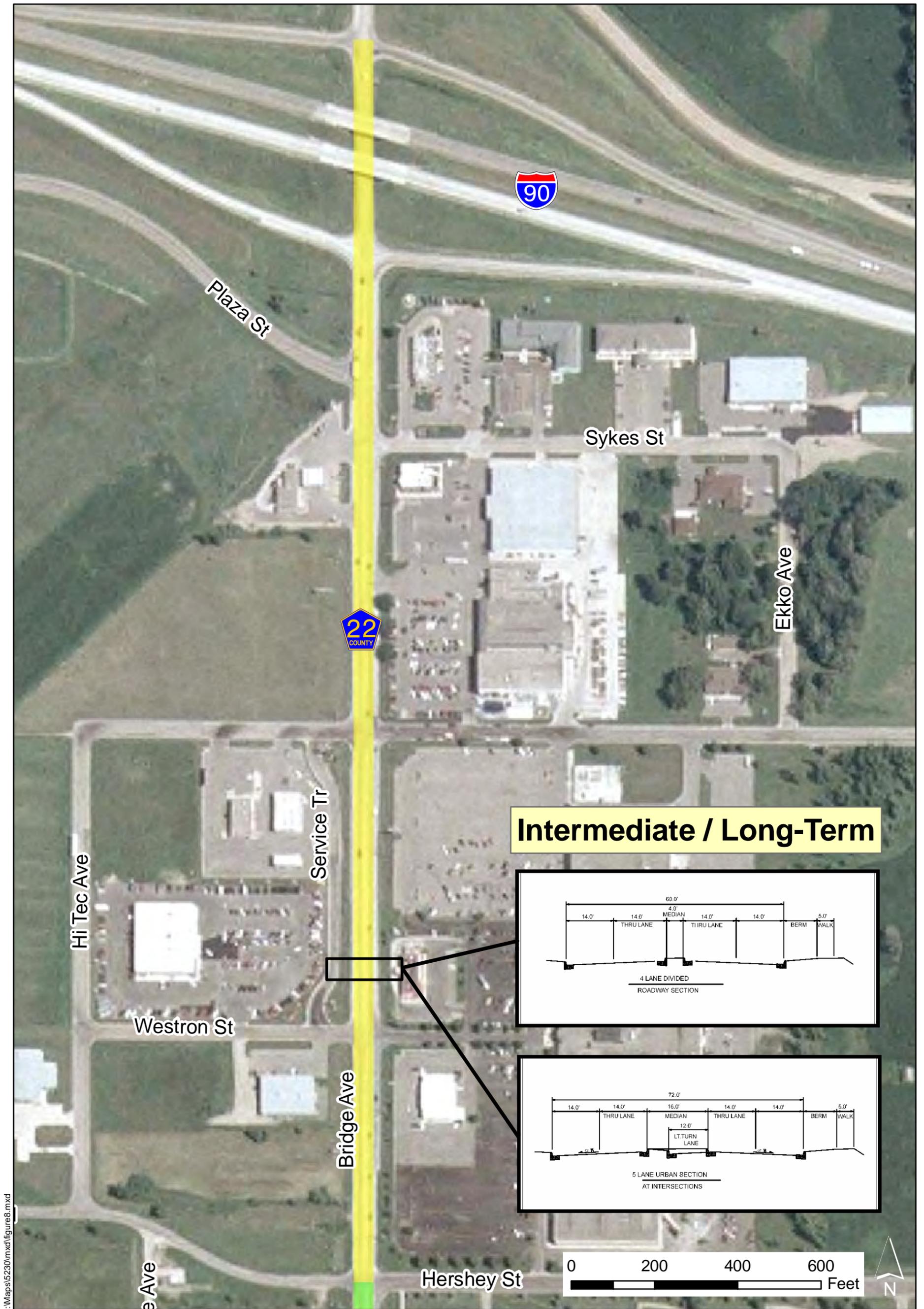
- Install northbound right-turn lane at I-90 South Ramps
- Improve overhead lighting at I-90 North and South Ramps
- Review directional sign locations to provide better sight distance at the ramp intersections (i.e. signs block sight lines)
- Restripe roadway segment with a durable epoxy paint
  - Clearly identifies lane assignments, reducing driver confusion
  - Clearly defines the roadway edge
- Define driveway access points along Bridge Avenue using bituminous curb
  - Clearly identifies the driveway locations and requires drivers to make a right-angle turn at the defined driveways, eliminating drivers from traveling across Bridge Avenue from one driveway to another in a diagonal alignment

### **Intermediate/Long-Term Improvements**

- Reconstruct roadway segment to a four-lane divided section (60-foot curb-to-curb paved width) with turn lanes at key intersections (72-foot curb-to-curb paved width)

## **Segment 2 Roadway Improvements – Figure 9**

This segment of Bridge Avenue is currently a two-lane roadway between Hershey Street and north of Minnie Maddern Street that carries approximately 10,600 vehicles per day north of Eastgate Road (20,600 vehicles per day in 2025 north of Hammer Road). Segment 2 has a 44-foot curb-to-curb paved width, 100-foot right-of-way and numerous residential driveways.



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**ROADWAY DESIGN SEGMENT 1 (I-90 to Hershey St)**

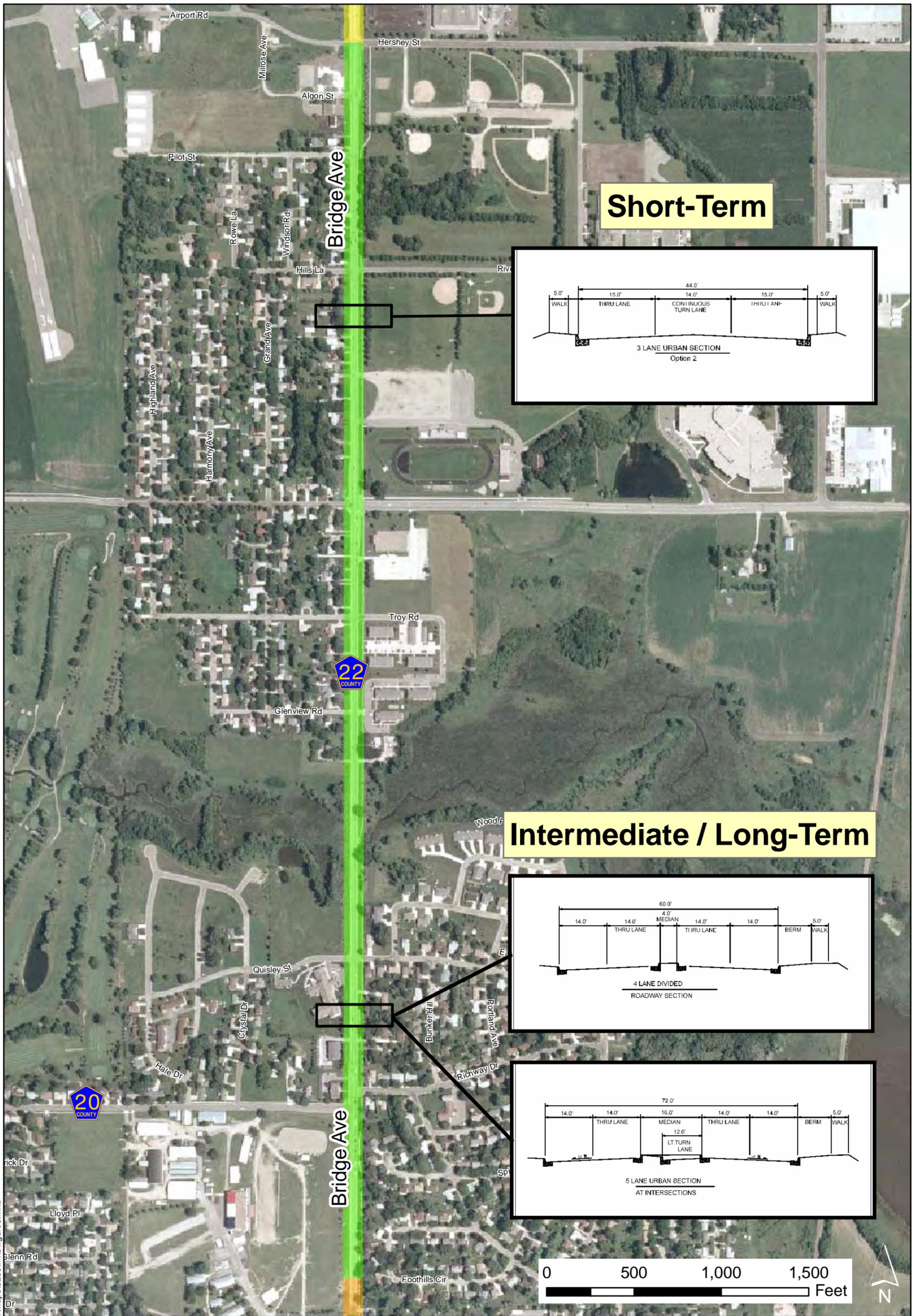
**Figure 8**

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**ROADWAY DESIGN SEGMENT 2 (Hershey St to Minnie Maddern St)**

**Figure 9**

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Freeborn County / City of Albert Lea

0045230

September, 2005

### Short-Term Improvements

- Construct driveway turnarounds (where feasible) for residents along Bridge Avenue. Where possible, modify corner lot access from Bridge Avenue to side-street access
  - This will minimize residential vehicles from backing out onto Bridge Avenue
- Modify existing two-lane roadway to a three-lane roadway section (44-foot curb-to-curb paved width)
- Eliminate parking on both sides of the corridor segment

### Intermediate/Long-Term Improvements

- Reconstruct roadway segment to a four-lane divided section (60-foot curb-to-curb paved width) with turn lanes at key intersections (72-foot curb-to-curb paved width)

### **Segment 3 Roadway Improvements – Figure 10**

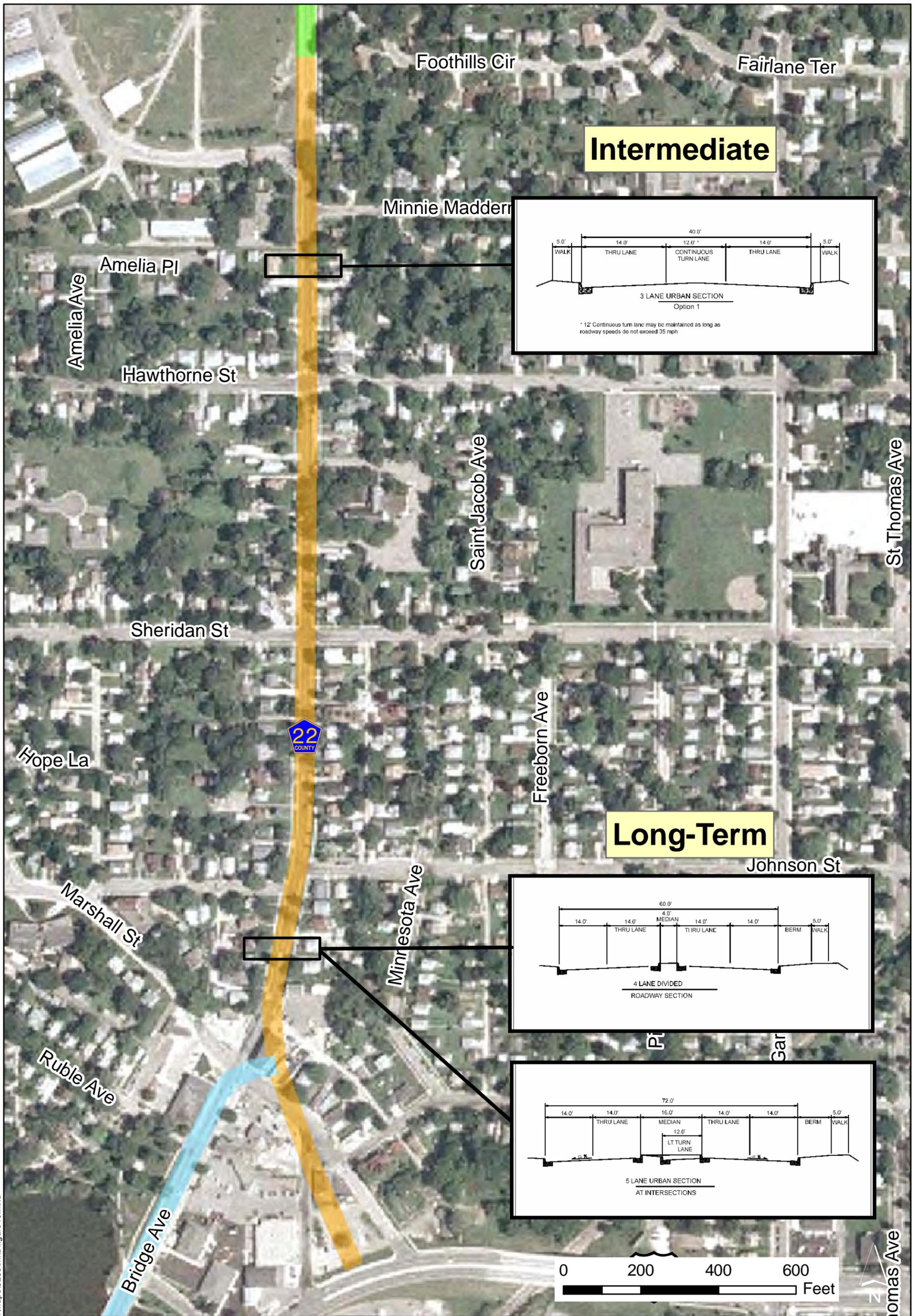
This segment of Bridge Avenue is a two-lane roadway north of Minnie Maddern Street to Marshall Street that currently carries approximately 9,200 vehicles per day (14,500 vehicles per day in 2025). Segment 3 has a 34-foot curb-to-curb paved width, 66-foot right-of-way and numerous residential driveways.

### Short-Term Improvements

- Conduct a feasibility study to determine alignment and future right-of-way needs, so that purchases can be made when opportunities occur
- Construct driveway turnarounds (where feasible) for residents along Bridge Avenue. Where possible, modify corner lot access from Bridge Avenue to side-street access
  - This will eliminate residential vehicles from backing out onto Bridge Avenue
- Eliminate parking on both sides of the corridor segment

### Intermediate Improvements

- Reconstruct roadway segment to a three-lane section (40-foot curb-to-curb paved width)



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**ROADWAY DESIGN SEGMENT 3 (Minnie Maddern St to Main St)**

**Figure 10**

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## Long-Term Improvements

- Reconstruct roadway segment to a four-lane divided section (60-foot curb-to-curb paved width) with turn lanes at key intersections

## **Segment 4 Roadway Improvements**

This segment of Bridge Avenue is a two-lane roadway between Marshall Street and Clark Street that currently carries approximately 10,700 vehicles per day (11,600 vehicles per day in 2025). Segment 4 ranges from 36-40 feet of curb-to-curb paved width and a 66-foot right-of-way. Based on existing and future traffic volumes, this segment of Bridge Avenue can operate adequately as a two-lane facility. Depending on how redevelopment occurs and how the vision for this area develops, this roadway segment between Marshall Street and Clark Street could be reconstructed as a parkway design to create a more pedestrian friendly environment, while complimenting Fountain Lake. A parkway concept for Bridge Avenue is shown in Figure 11.

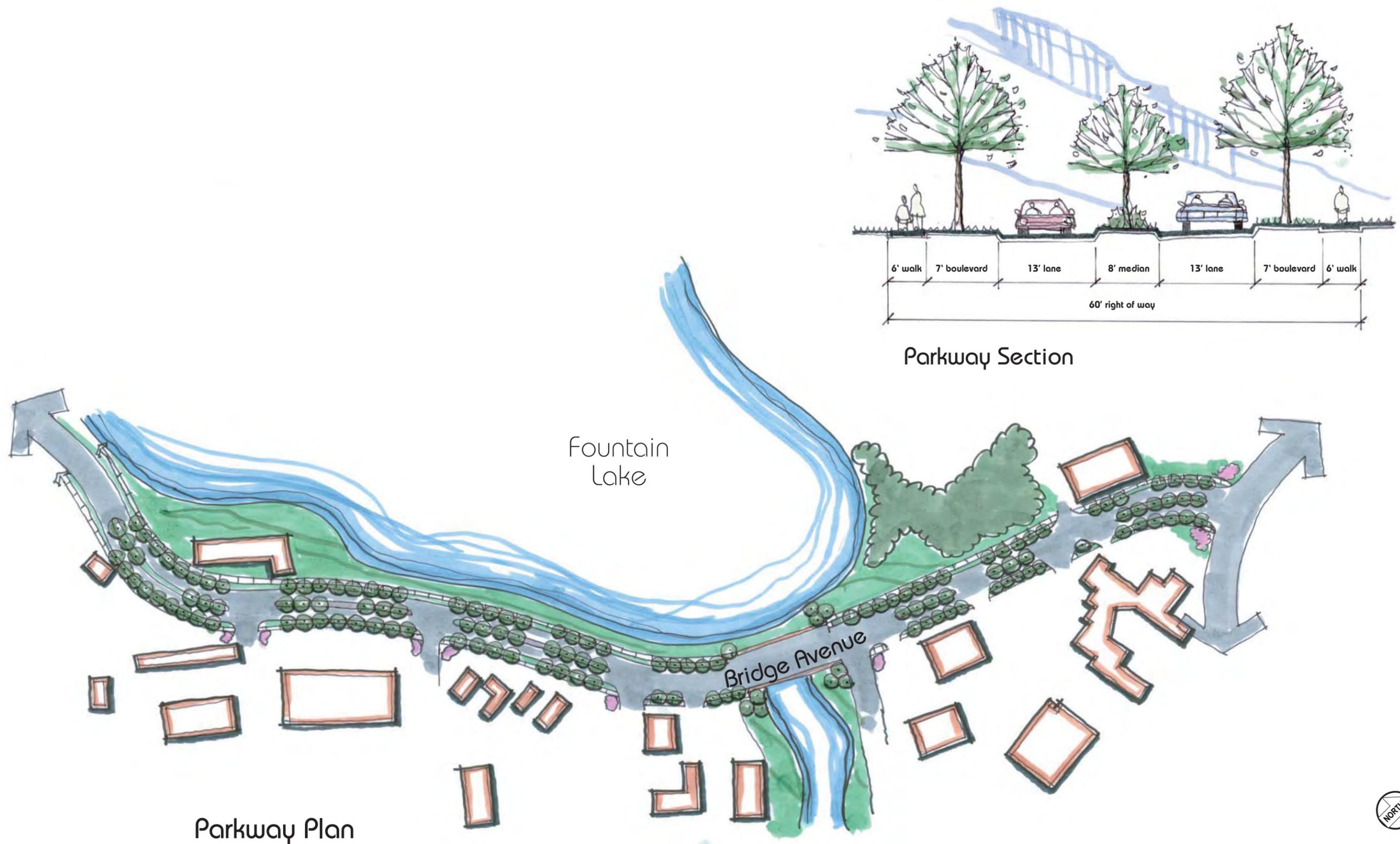
The recreational trail system around the lakes, into the intersection of Marshall Street and Main Street and continuation to the south and east to Blazing Star Trail is an important component of the Plan. Providing a complete recreational trail system supports the goal to maintain the safe and efficient movement of people through the corridor.

Other roadway alternatives that were studied for the segment of Bridge Avenue between Marshall Street and Clark Street are described below:

### Bridge Avenue/Marshall Street Realignment Alternative

As part of the study, the realignment of Bridge Avenue to improve its connection to Main Street was considered. As shown in Figure 12, a realignment concept for the intersection of Bridge Avenue and Marshall Street was developed. The realignment of Bridge Avenue to connect Main Street could reduce overall trips using Bridge Avenue to the downtown area. It would also improve intersection operations and safety at the intersection of Bridge Avenue and Marshall Street. With a supporting feasibility analysis, installation of a roundabout at this intersection should be considered. Additional analysis is required to provide adequate sight distance and address the need for a future traffic signal (with advance warnings) at the intersection of Bridge Avenue and Main Street.

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## Bridge Avenue/Fountain Street Realignment Alternatives

A concern that was often raised at the Open House was the need for improvements in the Bridge Avenue/Fountain Street area. Two realignment concepts from previous studies are shown in Figures 13 and 14. Concept 1 would require the vacation of Bridge Avenue between Fountain Street and Clark Street, providing possible redevelopment opportunities. Concept 2 would have significant impacts to the existing church and parking lot. Additional analysis under a separate study would be needed to review these and other alternatives and their related impacts, and include an extensive public involvement process.

### **Access Management Plan**

This section of the report identifies an access management plan for Bridge Avenue based on its intended function and anticipated volumes. The purpose of the access plan is to provide guidance to Freeborn County and the City of Albert Lea, landowners and developers with interests along the corridor. The Plan is intended as a long-term goal and should be used to guide new investments, development and planned transportation improvements.

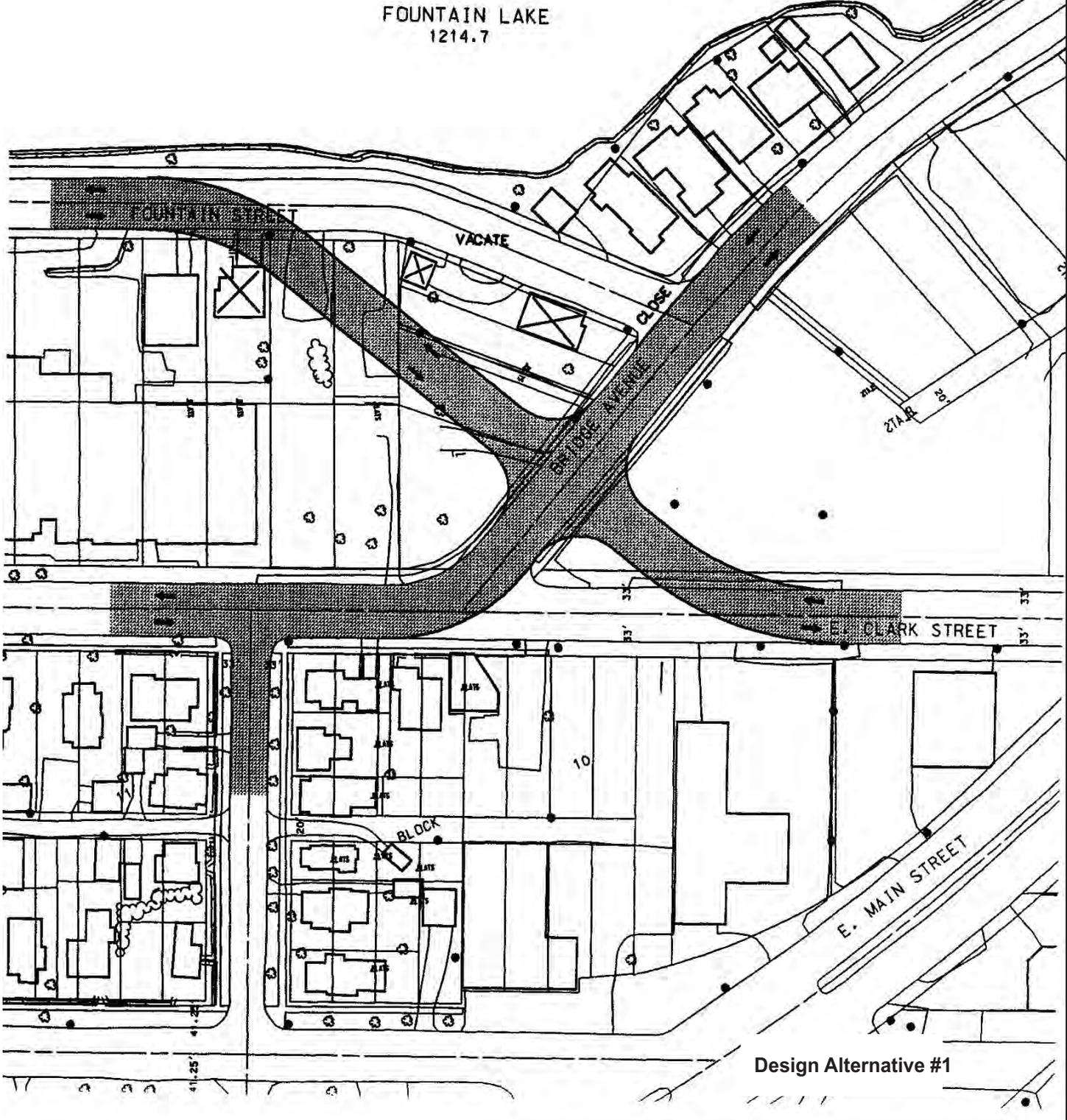
Over time the access management plan will increase mobility and enhance safety along the corridor, while uniformly addressing access. To increase mobility and safety, the access management plan suggests the consolidation and elimination of some existing access points, recommends developing frontage roads where feasible and proposes the conversion of some existing access points to right-in/right-out. The timing of these changes will depend upon development along the corridor and availability of construction and/or right-of-way funds.

The desired level of access on a facility is related to its functional classification and traffic volumes. Roadways essentially serve two competing interests, mobility and access. For instance, freeways have access control and only provide mobility; whereas local cul-de-sac streets provide 100 percent access with no through traffic. Because Bridge Avenue is classified as a Principal Arterial, the focus of the roadway should be heavily weighted towards mobility. However, there are no options to providing alternate access for residents with direct access along the corridor.

The implementation of the access management plan can be done through a number of different methods (e.g., land use regulations, subdivision regulations, access permit processes and access/transportation advisory committees, highway or street improvements). It is also important to develop decision processes and guidelines to deal with situations that either are outside the plan or are hardship cases. For Bridge Avenue, the number of existing access points far exceeds general access guidelines. Unless these areas are undergoing redevelopment, their access must be addressed or approached differently. The proposed access management strategy in these areas is to aggressively minimize any new accesses while consolidating/reducing existing access points as redevelopment occurs.



FOUNTAIN LAKE  
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Design Alternative #1



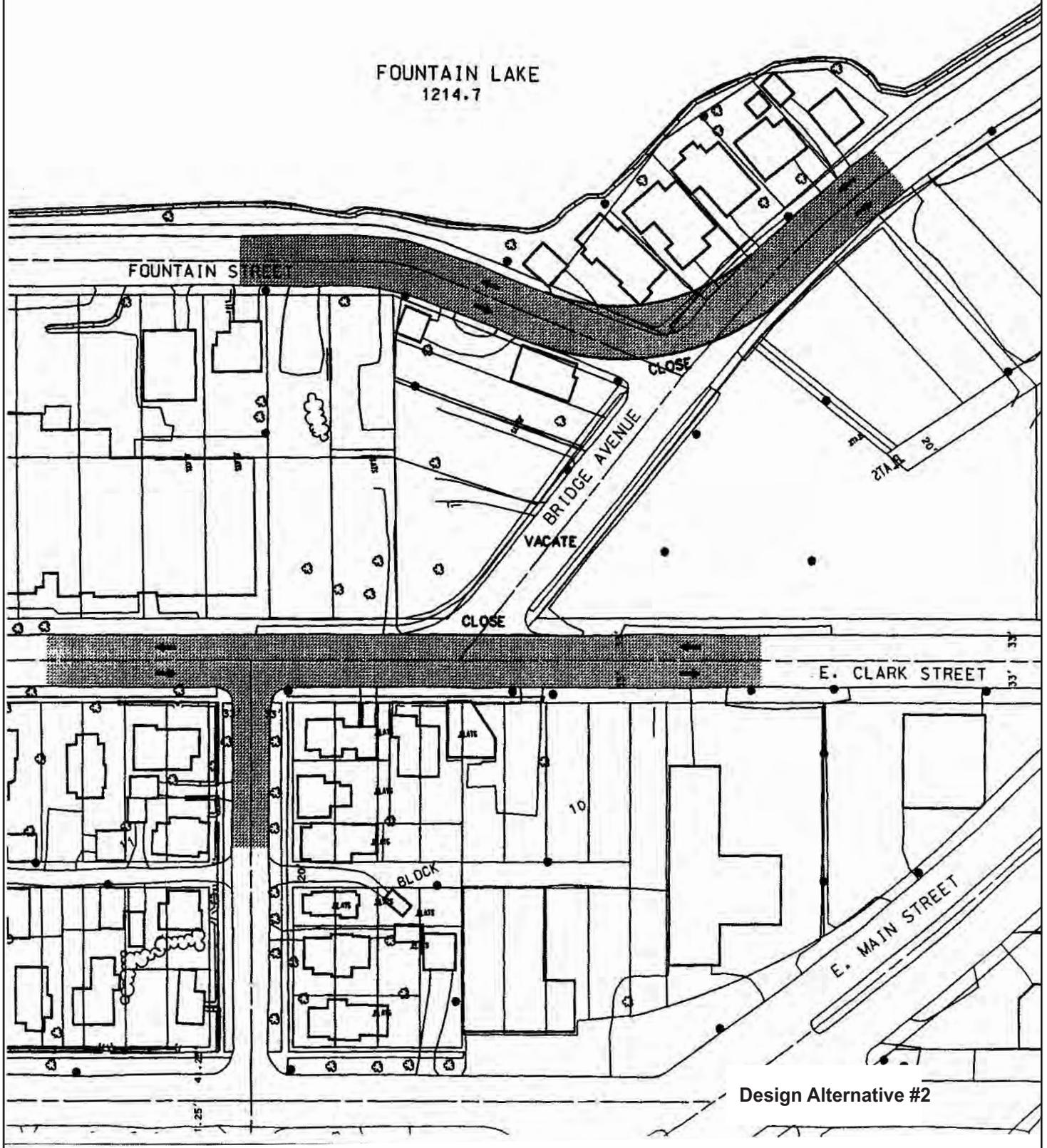
**BRIDGE AVENUE / FOUNTAIN STREET REALIGNMENT 1**

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**Figure 13**



FOUNTAIN LAKE  
1214.7



Design Alternative #2



**BRIDGE AVENUE / FOUNTAIN STREET REALIGNMENT 2**

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**Figure 14**

The following are best management practices that can help transition the corridor and provide guidance to staff.

- **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 only or right-in/right-out only) through installation of raised median or other channelization or signing. Eliminating a single turning movement can significantly reduce vehicle conflicts and potential crashes.
- **Develop proper setbacks for future backage roads:** If backage roads cannot be justified (benefits do not outweigh costs), make sure that proper building and parking lot setbacks are established so that future backage roads can be installed with minimal impacts. For side-street access points, adequate spacing from a signalized intersection is 330 feet.
- **Develop proper secondary street spacing:** When reviewing plats and new development proposals, be sure that they provide proper intersection spacing for future signals. As a guideline, signalized intersections should be limited depending upon the type of street. Collector streets should provide some continuity and connectivity with other street systems.

### **Detailed Access Plan**

To help guide agencies in the implementation of the access management plan, a set of detailed maps was prepared that to help communicate the proposed access changes in the corridor (Figures 15 and 16). The detailed maps show the location of potential full-access intersections, access restrictions and closures. In addition, the maps illustrate, on a conceptual basis, how backage roadways may be developed to reduce direct access along Bridge Avenue.

To implement these access changes both “passive” and “active” strategies will need to be used. These strategies are outlined as follows:

### **Passive Strategies**

Passive strategies promote access changes as opportunities arise through new plats, subdivisions, access requests and reconstruction projects. Access changes can be promoted through improved direction to local agencies, public officials, landowners and developers. Having established corridor objectives, a long-term vision or design and a detailed access plan will increase the ability of agencies to respond in a unified manner to access requests.





**ACCESS MANAGEMENT PLAN (SOUTH SEGMENT)**

**Figure 16**

CONSULTING GROUP, INC.

BRIDGE AVENUE CORRIDOR STUDY

0045230

Freeborn County / City of Albert Lea

September, 2005

J:\Maps\6230\mxd\figure16.mxd

An example of this strategy is for the County and City to educate the landowners and developers about access requirements at early stages in the planning process. These early interventions reduce the confusion, frustration and disagreements between agencies, developers and property owners.

Another example of this strategy is related to future traffic signals. Full-access intersections were identified to provide better spacing of major intersections along the corridor to accommodate future growth in the study area. As development and/or redevelopment occurs in the area, traffic volumes should be monitored at these intersections to determine when these intersections meet warrants for a traffic signal. With the installation of a traffic signal, the closure or restriction of adjacent direct access locations should be done; if alternate access to the signalized intersection can be provided.

Because the passive strategies rely on property owners requesting changes to their property, the changes will be primarily focused toward future development and redevelopment areas. Areas that have existing safety and/or access problems will be difficult to address through this process and may need to be addressed through more active management strategies.

### **Active Strategies**

In areas where existing safety problems are present and existing access does not conform to the identified Plan, active management strategies will likely need to be employed. The County and City should pursue the following active access management strategies in the corridor:

- Adopt the Bridge Avenue Corridor Study, including the access management plan, to ensure that access changes for the corridor are implemented in a uniform manner
- Identify and remove unneeded access points in the corridor over the next 12 months
- Pursue roadway improvement projects that focus on achieving long-term safety and mobility goals through implementation of the corridor design and access management plan.
- Meet periodically to identify the most important access issues and potential funding sources for addressing safety, traffic and access problems in the corridor (i.e., safety monies from HES or other sources)

## **Other Study Issues**

### **Garfield Road Extension**

Based on feedback from the Open House, many residents supported the extension of Garfield Road to provide an alternate north-south route, east of Bridge Avenue. A preliminary review has determined that the Garfield Road extension is not a feasible option as a north-south arterial based on the following:

- Residential neighborhood, including an elementary school, and senior care facility
- Vertical grades and horizontal curves
- Environmental impacts
- Construction cost of \$1.5 million dollars (assuming infill of the wetland and a culvert)
- Additional \$500,000 to \$700,000 dollars for the construction of a bridge

## V. FINDINGS AND RECOMMENDATIONS

The Bridge Avenue Corridor Study was undertaken to evaluate existing and future transportation and access needs along the corridor and to develop a plan that addresses those needs. This plan will also prepare for long-term growth and development that will continue to occur. The study findings and recommendations are summarized below.

### Study Findings

1. Bridge Avenue is an important north-south transportation facility within the City of Albert Lea and Freeborn County. As a principal arterial, it will continue to carry a significant volume of traffic and play an important role in the region.
2. There is a lack of parallel facilities to this corridor due to physical constraints and historic development patterns.
3. Traffic volumes on Bridge Avenue are currently 7,500 to 10,700 vehicles per day. All two-lane segments of Bridge Avenue are from a planning-level analysis operating at or over capacity. Daily traffic volumes for year 2025 are expected to increase to 11,000 to 21,000 vehicles per day.
4. Based on an operational analysis of both the a.m. and p.m. peak hours, the level of service results for the intersections and side-street approaches indicate delays within normal ranges. However, there are currently a significant number of direct access points along the study corridor. Due to the number of access points dispersed along the corridor, volumes on the side-street approaches of the intersections are lower. Therefore, the intersections themselves operate at a better level of service, while the overall corridor operations may be affected.
5. Speeds on the north end of Bridge Avenue were measured and found to be near the posted limits of 45 mph. This provides little evidence that a request for a speed reduction would be approved by the Minnesota Department of Transportation. Even if a reduction were granted, the City would need to provide significant enforcement to get and maintain compliance.
6. A comprehensive access inventory conducted for the corridor identified 120 access points over the 3.2 mile corridor, or approximately 38 access points per mile. The number of access points along the corridor far exceeds general access guidelines (one-half mile spacing for full-access intersections and signals along a principal arterial). The consolidation and elimination of some existing access points, developing frontage roads where feasible and proposing the conversion of some existing access points to right-in/right-out is needed to increase overall mobility and improve safety along the corridor. The timing of these changes will depend upon development along the corridor and availability of construction and/or right-of-way funds.

## **Study Recommendations**

1. Based on future growth projections and lack of alternative routes, this facility will continue to be heavily used. The County and City should consider developing Bridge Avenue to a four-lane divided roadway (ultimate design) with turn lanes at key intersections over time to address safety, operational and mobility issues.
2. The City and County should pursue short-term, intermediate and long-term improvements to corridor segments as funding and development allows.
3. To address larger picture system issues, the County should pursue development of a comprehensive Transportation Plan. This Plan should identify system deficiencies, as well as long-term improvement needs and funding strategies.
4. The City and County should continue to define the alignment and right-of-way needed on the south end of the corridor. This will enable them to be more proactive in obtaining future right-of-way.
5. The City and County should consider further analysis of the Bridge Avenue/Fountain Street/Clark Street area to develop and review roadway alternatives and their related impacts, including an extensive public involvement process.

## **APPENDIX**

- **Open House Comments and Issues**
- **Level of Service Criteria – Delay Threshold Values**
- **Existing Peak Hour Capacity Analysis – Level of Service Results**
- **Existing Peak Hour Turning Movement Counts**
- **Mn/DOT Speed Study**
- **Land Use/Trip Generation Estimates**

## **BRIDGE AVENUE CORRIDOR STUDY**

### **January 27, 2005 Open House Comments and Issues**

- **Do not like the three-lane section with the two-way left-turn lane.** Difficult to see the striping during winter conditions. No signing off of I-90 to let motorists know of the three-lane section. Install raised medians instead of painted medians south of I-90
- Need to consider a three-lane section for other segments
- Construct a four-lane facility to the fairgrounds
- **Need to construct a four-lane roadway now**
  - Safety is a concern with right-hand passing
- Do not support Bridge Avenue as a one-way street
- Residents along Bridge Avenue do not want a frontage road
- Install service road along west side by airport
- Remove parking along Bridge
- Don't want to lose any more parking along Marshall/Bridge
- **Need to extend:**
  - **Garfield Avenue to the north to Hammer Road to relieve traffic on Bridge Avenue**
  - Hammer Road further east over I-35
  - **Keystone Drive to the north**
  - Bridge to East Clark, East Clark to Broadway: to eliminate left-turns from Fountain onto Bridge
  - Hershey to the east
- Alternate north-south route Hershey Street to Main Street (TH 65) to Bridge Avenue. Another resident commented that route would be too far out of the way.
- Look for alternate route along railroad tracks
- Clark Street and Fountain Street should be a one-way pair with Clark Street extending to Main Street
- Realign Plaza east to west
- Fix Richway east to west
- Should realign Bridge Avenue to Shellrock Street with a signal at Main Street
- **Need to realign Bridge Avenue to Marshall Street to Main Street (TH 65)**
- Need to relocate driveways at gas station across from Fountain Street

- Need a traffic signals:
  - Sykes Street
  - Hershey Street
  - Tech Drive
- Synchronize the traffic signals along Bridge to allow better north/south movement
- Have protective/permissive left-turn phasing for Hammer/Bridge intersection
- Check Hammer for loops to be actuated by motorcyclists
- Install a roundabout at Richway
- Would like all-way stop at Bridge Avenue and Fountain Street
- Need turn lanes at many intersections
  - Need northbound right-turn lane at Richway Drive
  - Need northbound and southbound left-turn lanes and right-turn lanes at Hawthorne
  - Need northbound and southbound left-turn lanes at Sheridan
  - Need northbound and southbound left-turn lanes at Johnson
- Restrict turn moves during peak hours
- Crash problems:
  - At Hawthorne Street, mainly rear-end type crashes
  - At Fountain Street
  - Hammer
- **Safety concerns with the Fountain Street/Clark Street intersections at Bridge Avenue**
- Speeds are too fast north of Hammer Road
- **Need to lower the speed limit to 30-35 miles per hour**
  - Larger speed limit signs
  - 40 mph north of the fairgrounds
  - Need more enforcement of speed and noise laws
  - Pavement by lake should be black so people naturally slow down
- Difficult to get to sidewalk on the east side of Bridge Avenue
  - Concern about cars backing out
- Need pedestrian bridge/tunnel across Bridge Avenue to Channel area
- Pedestrian traffic along Bridge from Fountain to Marshall

- Need more bike trails
- Problems during school arrival and departure periods
  - Look at high school access
- Employees working at bank on Algon Street have difficulty entering Bridge Avenue
- Difficulty entering Bridge Avenue from the I-90 south ramp
- Difficulty entering Bridge Avenue from the I-90 north ramp due to sight distance problem
- Residents south of Hills Lane have difficulty entering Bridge Avenue
- Difficult to cross Bridge Avenue near the school
- Need to consider internal circulation for traffic in the mall area east of Bridge Avenue to travel from store to store without having to use Bridge Avenue
- Heavy traffic volumes from Ace Hardware and Herbergers
- Divert heavy flow to Main Street before Bridge reaches the lake
- YH Hanson is becoming too busy
- Heavy truck volumes at north end of corridor
  - Restrict truck traffic
- Problem with trucks at the I-90 ramps
- There are 4 to 5 emergency vehicles on Bridge Avenue every night
- Nursing home with Alzheimer patients
- More industrial development is being constructed east of Bridge Avenue
- Develop area by Fountains (Dane Park) for tourists
- Southeast quadrant of Bridge Avenue and Hammer Road will develop soon
- Keep in mind the “lock and dam” system allowing boat movement between the lakes
- Move fairgrounds
- Keep people informed during decision making
- Don’t close Bridge Avenue during construction
- Complete an EPA emissions study
- Drivers check turning signals at Clark and Fountain

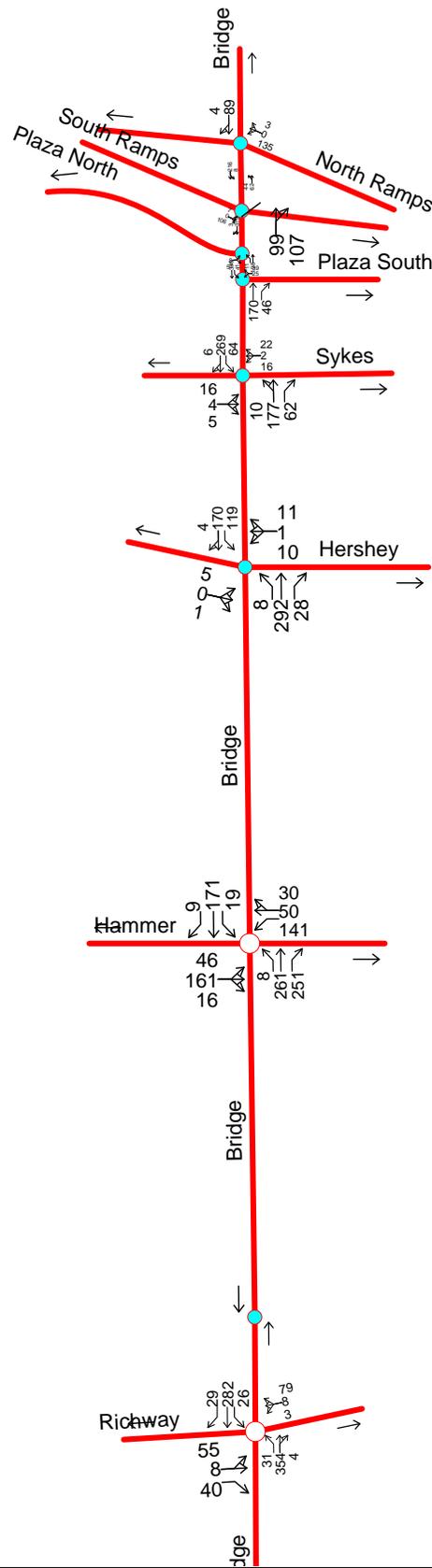
**Table A-1**  
**Level of Service Criteria for Signalized and Unsignalized Intersections**

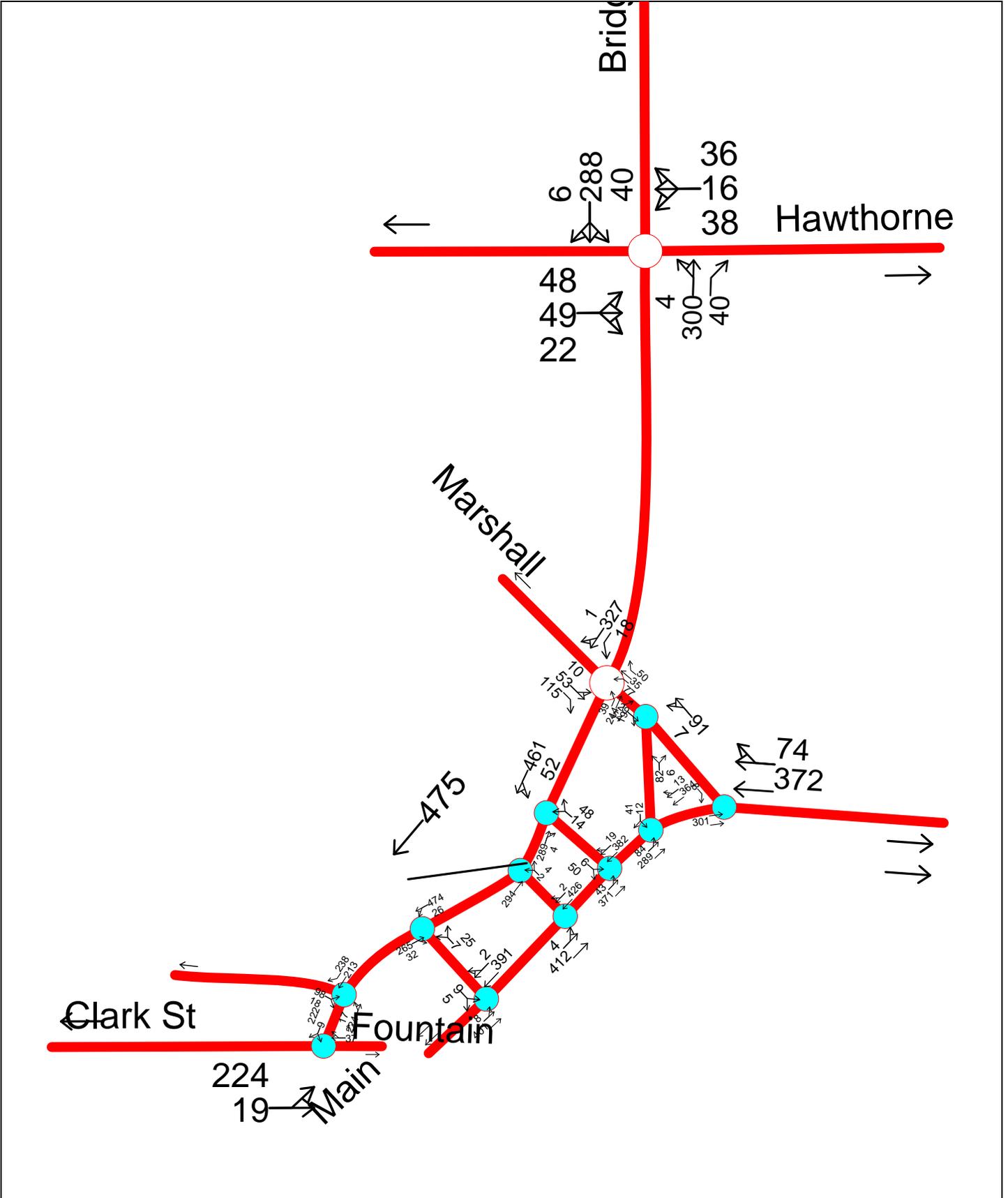
LOS Designation	Signalized Intersection Avg. Control Delay/Vehicle (seconds)	Unsignalized Intersection Avg. Control Delay/Vehicle (seconds)
A	<10	<10
B	10-20	10-15
C	20-35	15-25
D	35-55	25-35
E	55-80	35-50
F	80<	50<

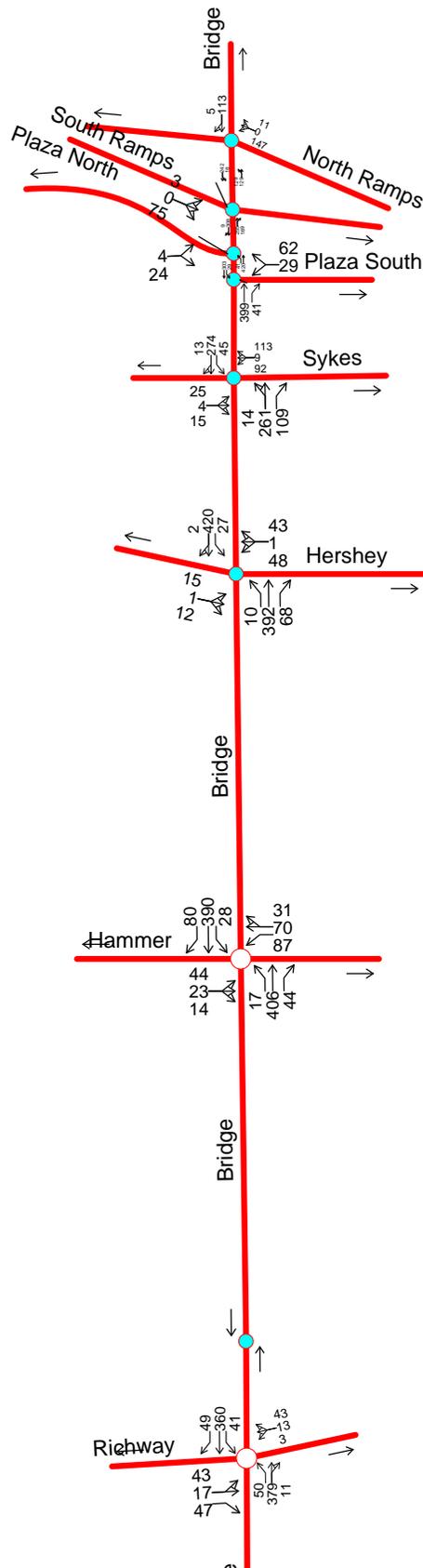
**Table A-2**  
**Existing A.M. and P.M. Peak Hour Capacity Analysis**  
**Level of Service Results**

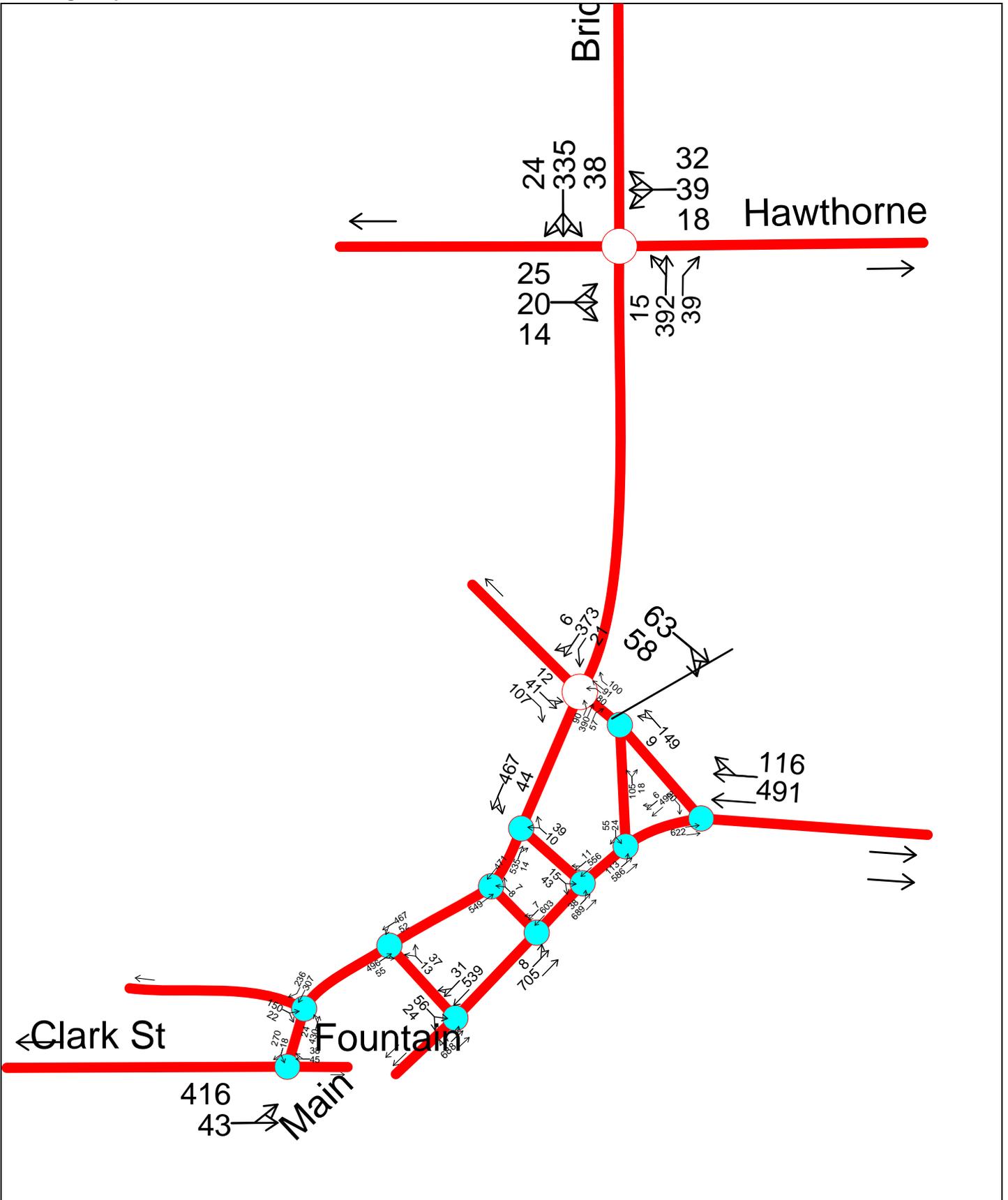
Intersection	Level of Service	
	A.M. Peak	P.M. Peak
Bridge Avenue and I-90 South Ramps*	A/B	A/C
Bridge Avenue and I-90 North Ramps*	A/B	A/B
Bridge Avenue and Plaza Street (North)*	A/B	A/B
Bridge Avenue and Plaza Street (South)*	A/B	A/B
Bridge Avenue and Sykes Street*	A/C	A/C
Bridge Avenue and Hershey Street*	A/C	A/C
Bridge Avenue and Hammer Road	C	B
Bridge Avenue and Richway Drive	B	B
Bridge Avenue and Hawthorne Street	B	B
Bridge Avenue and Marshall Street	B	B
Bridge Avenue and Wilson Street*	A/B	A/C
Bridge Avenue and Shellrock Street*	A/C	B/F
Bridge Avenue and Katherine Street*	A/B	A/C
Bridge Avenue and Fountain Street*	A/B	A/D
Bridge Avenue and Clark Street*	A/B	B/B
Marshall Street and Sibley Street*	A/A	A/B
Main Street and Marshall Street*	A/A	A/B
Main Street and Sibley Street*	A/B	A/C
Main Street and Wilson Street*	A/A	A/A
Main Street and Shellrock Street*	B/B	A/A
Main Street and Katherine Street*	A/B	A/D

\* Indicates an unsignalized intersection. The overall LOS is shown followed by the worst approach LOS.











Minnesota Department of Transportation

Minnesota Department of Transportation - District 6  
2900 48<sup>th</sup> Street N.W.  
Rochester, MN 55901-5848

Office Tel: 507-280-5085  
Fax: 507-285-7279  
E-mail: edward.vitse@dot.state.mn.us

**COPY**

March 31, 2005

Ms. Susan Miller  
Freeborn County Engineer  
P.O. Box 1147  
Albert Lea, MN 56007

Re: Information request for USTH 65 and Freeborn CSAH 22 in Albert Lea (CS 2481)

Dear Ms. Miller:

Recently you requested a crash history for a portion of USTH 65 for the years 2002 - 2004. The data supplied by the Department of Public Safety to the Transportation Information System data base is current only through 2003. Enclosed you will find a accident report for USTH 65 from Marshall Street to E. Clark Street in Albert Lea for the three year period from 2001 - 2003. A copy of reference point listings for this area and an updated accident report code list are also included for your convenience.

Speed samples were collected at three locations on CSAH 22 (Bridge Avenue) on March 29, 2005. A map detailing locations the samples were collected and summary results along with the detailed speed analysis sheets for each location are enclosed. I have also included a reference point listing for the study area as well as a five year crash history (1999 - 2003).

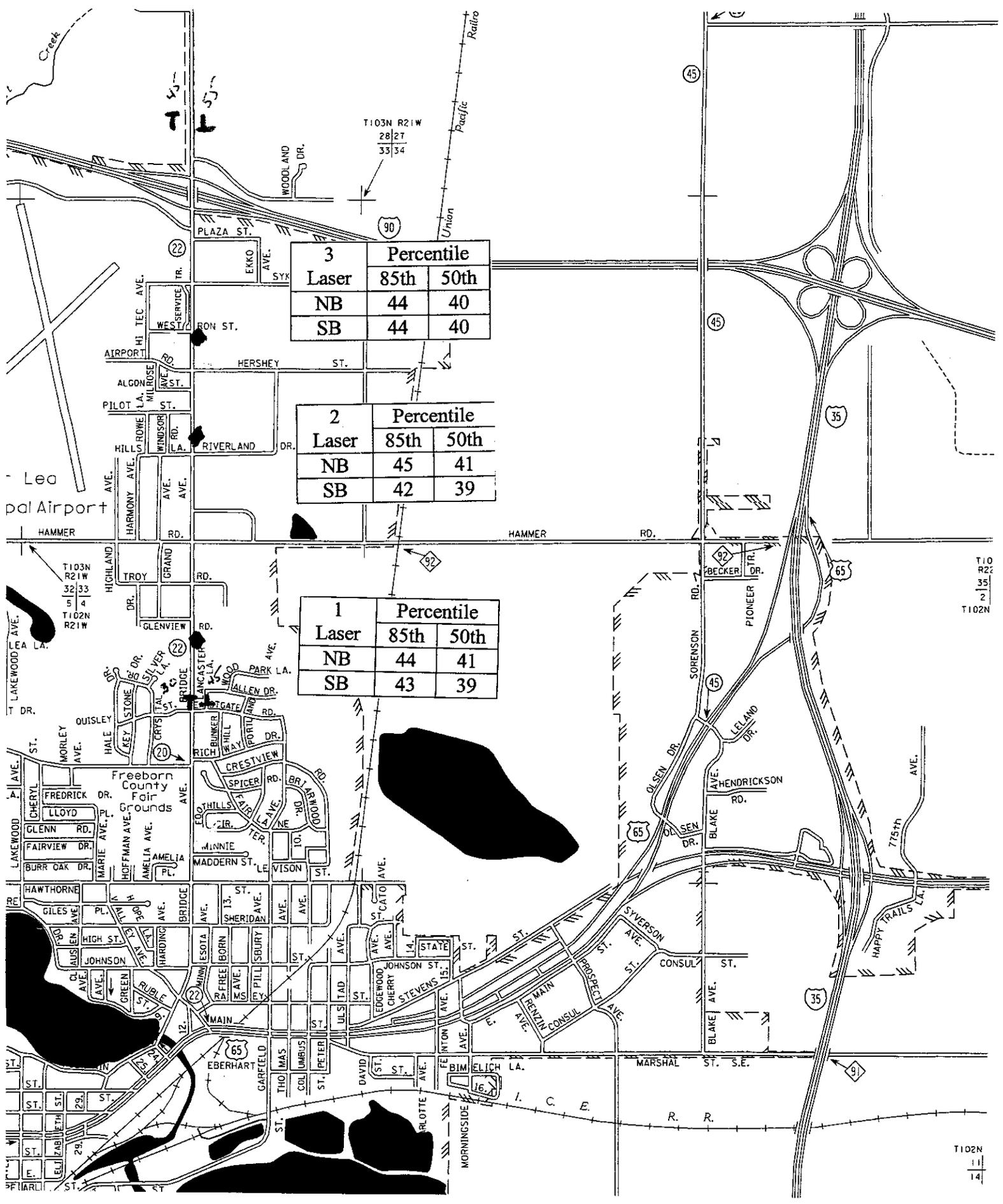
A little bit of history on CSAH 22, the current 45 mph zone was authorized in 1984. In 1992 a request was made by the Freeborn County Board of Commissioners for a speed study on CSAH 22 from CSAH 20 to ¼ miles north of I-90. The completed study, recommending a 40 mph speed limit, was forwarded to Mn/DOT's Central Office. Central Office denied the recommendation of a 40 mph zone, because the reduction was not justified, and the 45 mph zone was retained. Copies of speed samples (enclosed) taken in 1992 at three locations in close proximity to the three locations sampled now, show little change in the 15 year period.

If you have any questions or would like to further discuss the above, feel free to contact me.

Sincerely,  
*Edward Vitse*  
Ed Vitse  
District Six Traffic Office

Enclosures

cc: file  
Michael Schweyen - District Six Traffic Engineer



3 Laser	Percentile	
	85th	50th
NB	44	40
SB	44	40

2 Laser	Percentile	
	85th	50th
NB	45	41
SB	42	39

1 Laser	Percentile	
	85th	50th
NB	44	41
SB	43	39

T103N R21W  
32/33  
5/4  
T102N R21W

T10  
R22  
35  
2  
T102N

T102N  
11  
14

Bather Belrose Boje, Inc. SPEEDPLOT Program

STREET..... 1 Blk. Freeborn CSAH 22

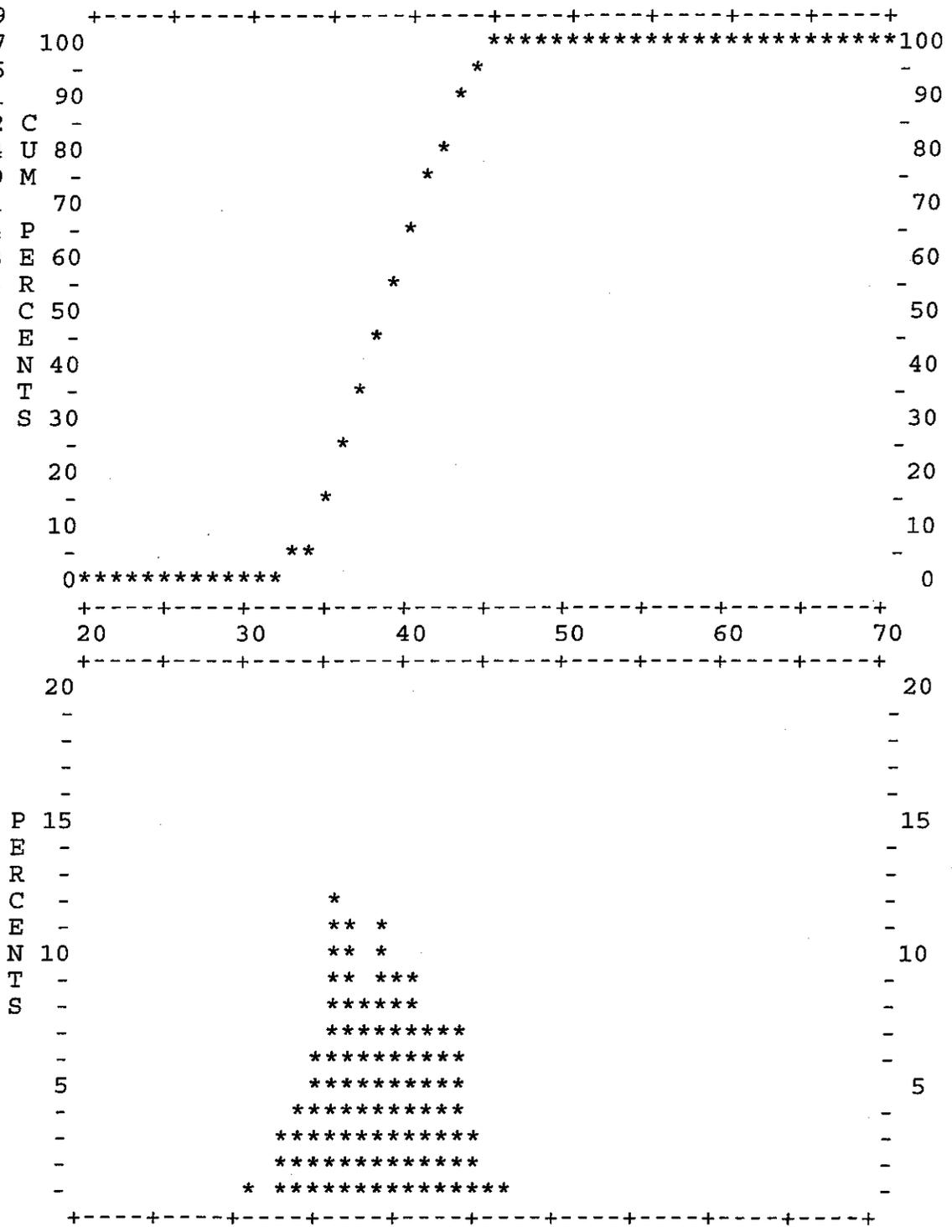
LIMITS..... 1250' s of Hammer to

DIRECTION(S).....South Bound  
 DATE.....03-29-2005  
 TIME.....09:45 - 10:30  
 POSTED SPEED LIMIT....45

50TH PERCENTILE SPEED.....39  
 85TH PERCENTILE SPEED.....43  
 10 MPH PACE SPEED.....35 through 44  
 PERCENT IN PACE SPEED..... 87.9  
 PERCENT OVER PACE SPEED..... 4.7  
 PERCENT UNDER PACE SPEED..... 7.5  
 RANGE OF SPEEDS.....31 to 47  
 VEHICLES OBSERVED..... 107  
 AVERAGE SPEED.....39.1

SPEED NO. PCT. CUM. PCT.

SPEED NO.	PCT.	CUM. PCT.
31	1 0.9	0.9
32	0 0.0	0.9
33	3 2.8	3.7
34	4 3.7	7.5
35	6 5.6	13.1
36	13 12.1	25.2
37	12 11.2	36.4
38	9 8.4	44.9
39	12 11.2	56.1
40	10 9.3	65.4
41	10 9.3	74.8
42	7 6.5	81.3
43	8 7.5	88.8
44	7 6.5	95.3
45	3 2.8	98.1
46	1 0.9	99.1
47	1 0.9	100.0



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Bather Belrose Boje, Inc. SPEEDPLOT Program

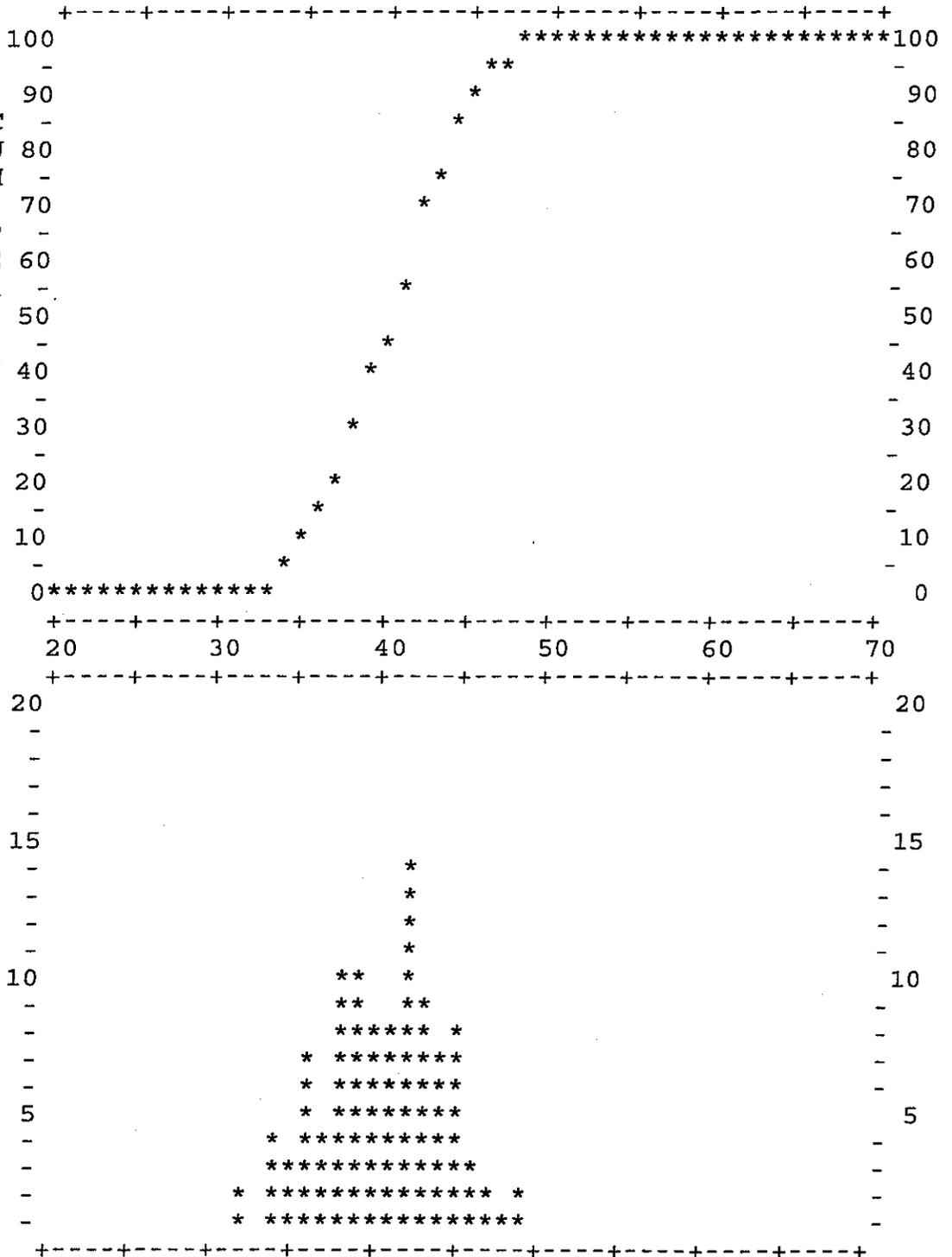
STREET..... 2 Blk. Freeborn CSAH 22

LIMITS..... 1400'N of Hammer to

DIRECTION(S).....North Bound  
 DATE.....03-29-2005  
 TIME.....10:40 - 11:30  
 POSTED SPEED LIMIT....45

50TH PERCENTILE SPEED.....41  
 85TH PERCENTILE SPEED.....45  
 10 MPH PACE SPEED.....36 through 45  
 PERCENT IN PACE SPEED..... 83.3  
 PERCENT OVER PACE SPEED..... 7.8  
 PERCENT UNDER PACE SPEED..... 8.8  
 RANGE OF SPEEDS.....32 to 49  
 VEHICLES OBSERVED..... 102  
 AVERAGE SPEED.....40.6

SPEED	NO.	PCT.	CUM. PCT.
32	2	2.0	2.0
33	0	0.0	2.0
34	4	3.9	5.9
35	3	2.9	8.8
36	7	6.9	15.7
37	4	3.9	19.6
38	10	9.8	29.4
39	10	9.8	39.2
40	8	7.8	47.1
41	8	7.8	54.9
42	14	13.7	68.6
43	9	8.8	77.5
44	7	6.9	84.3
45	8	7.8	92.2
46	3	2.9	95.1
47	2	2.0	97.1
48	1	1.0	98.0
49	2	2.0	100.0



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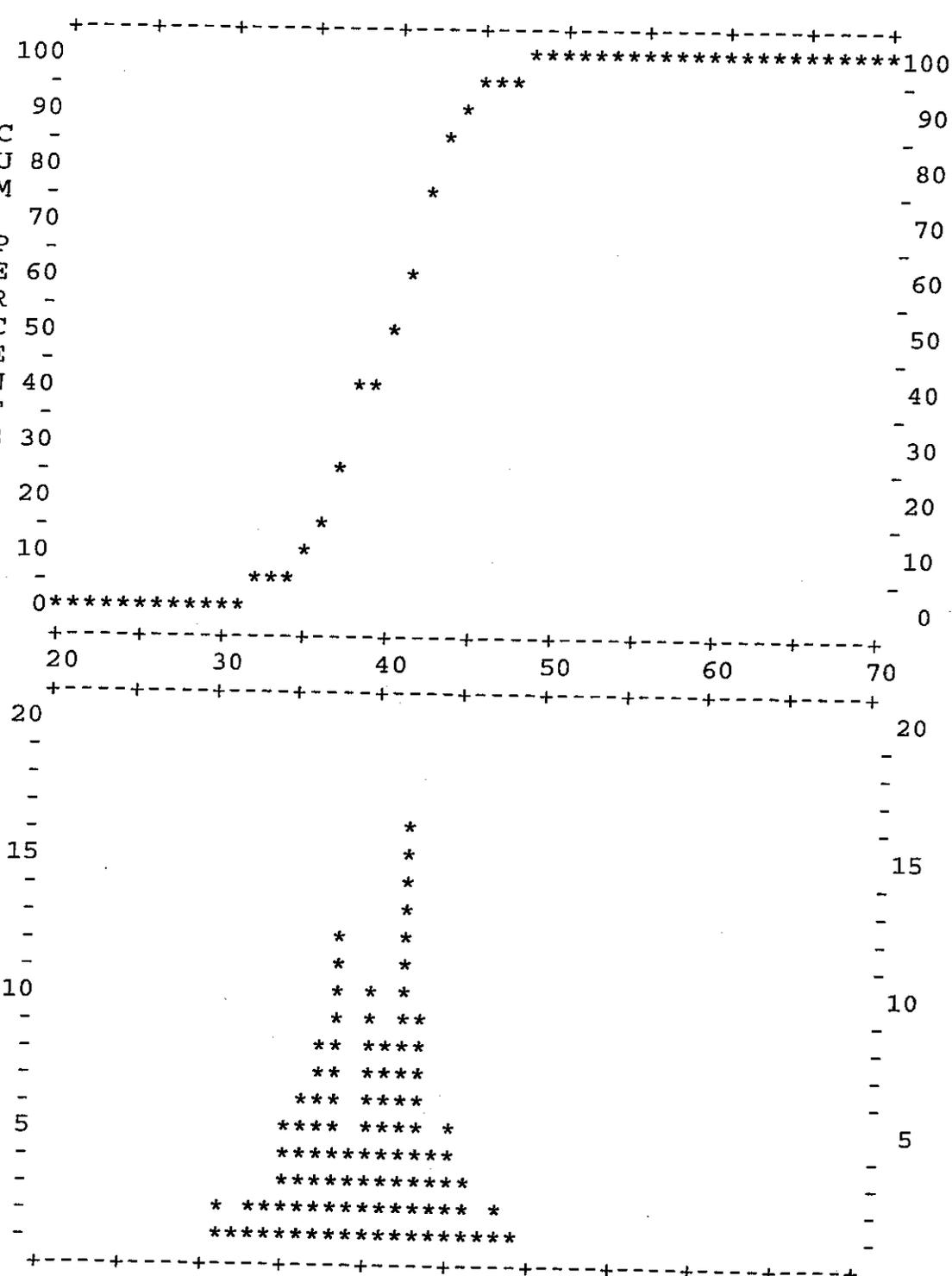
Bather Belrose Boje, Inc. SPEEDPLOT Program

STREET..... 3 Blk. Freeborn CSAH 22  
 LIMITS..... 3450' N of Hammer to

DIRECTION(S).....South Bound  
 DATE.....03-29-2005  
 TIME.....11:30 - 12:30  
 POSTED SPEED LIMIT....45

50TH PERCENTILE SPEED.....40  
 85TH PERCENTILE SPEED.....44  
 10 MPH PACE SPEED.....35 through 44  
 PERCENT IN PACE SPEED..... 82.1  
 PERCENT OVER PACE SPEED.....11.3  
 PERCENT UNDER PACE SPEED..... 6.6  
 RANGE OF SPEEDS.....31 to 49  
 VEHICLES OBSERVED..... 106  
 AVERAGE SPEED.....40.0

SPEED NO.	PCT.	CUM. PCT.
31	2	1.9
32	1	0.9
33	2	1.9
34	2	1.9
35	5	4.7
36	6	4.7
37	9	8.5
38	13	12.3
39	4	3.8
40	11	10.4
41	8	7.5
42	17	16.0
43	10	9.4
44	4	3.8
45	5	4.7
46	3	2.8
47	1	0.9
48	2	1.9
49	1	0.9



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**Table A-3 – Land Use/Trip Generation Estimates**

Area	Land Use	Size	Daily	AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
1	Residential – Single Family	900 units	7,849	160	480	488	287
2	Light Industrial/ Manufacturing/Warehousing	2,600 ksf	12,440	1,267	313	487	1,373
3	Motels/Light Industrial	1,865 ksf	10,513	941	315	402	983
4	Residential	360 units	3,379	65	196	214	126
5	Residential	100 units	957	19	56	64	37
6	Light Industrial/ Manufacturing/Warehousing	1,100 ksf	5,827	584	143	212	602
7	Industrial Park	60 ksf	418	41	9	11	41
8	Warehousing	85 ksf	422	31	7	10	30
9	Industrial Park	20 ksf	139	14	3	4	14
10	Office Park	15 ksf	171	23	3	3	19
11	Marine Sales Store (Boats, etc.)	30 ksf	1,000	46	16	31	48
12	Industrial Park or Commercial/Retail <sup>(1)</sup>	260 ksf	6,487	172	72	257	342
13	Manufacturing (Processing)	75 ksf	270	26	8	16	29
14	Retail/Commercial <sup>(1)</sup>	338 ksf	12,739	168	108	571	618
15	Retail/Commercial <sup>(1)</sup>	200 ksf	9,058	123	79	404	437
16	Retail/Commercial <sup>(1)</sup>	146 ksf	7,382	102	65	328	355
17	Industrial Park	2,450 ksf	12,900	993	218	405	1,524
18	Salvage Yard (Trucks) <sup>(3)</sup>	350 ksf	12	N/A	N/A	N/A	N/A
19	<u>Love’s Travel Center</u>						
	Service Station (Trucks) <sup>(4)</sup>	7 pumps	N/A	30	40	69	52
	Service Station (Cars) <sup>(4)</sup>	10 pumps	N/A	43	57	62	46
20	<u>Flying-J Travel Center</u>						
	Service Station (Trucks) <sup>(4)</sup>	7 pumps	N/A	36	48	69	52
	Service Station (Cars) <sup>(4)</sup>	12 pumps	N/A	52	68	73	56
	High-Turnover Restaurant <sup>(5)</sup>	24 ksf	2,136	104	96	112	72
	Truck Center <sup>(6)</sup>	15 ksf	N/A	N/A	N/A	N/A	N/A
21	Retail/Commercial <sup>(1)</sup>	653 ksf	19,546	250	160	881	955
22	Retail/Commercial <sup>(1)</sup>	150 ksf	7,513	104	66	334	362
23	Industrial Park	700 ksf	4,220	378	83	122	459
24	Business Park <sup>(2)</sup>	218 ksf	3,091	258	49	71	238
25	Business Park <sup>(2)</sup>	531 ksf	6,456	617	118	161	540
26	Business Park <sup>(2)</sup>	384 ksf	4,875	449	86	120	401
	<b>TOTAL:</b>	--	<b>139,800</b>	<b>7,096</b>	<b>2,962</b>	<b>5,981</b>	<b>10,098</b>

\* All size values have been reduced from actual acreage using the respective floor area ratio (0.2) or residential density (3 units per acre).

(1) Includes multi-purpose trip reduction within trip generation rate. Additional 15% reduction applied due to location.

(2) Business Park trip generation rate assumes approximately 25% office and 75% industrial/warehousing.

(3) Salvage yard will not generate peak hour trips. 12 trucks are anticipated every night during off-peak hours.

(4) Calculated based on historical turning movement count data at existing truck stops.

(5) Includes a 15% multi-purpose trip reduction and an additional 15% reduction due to location.

(6) Truck Center was assumed to not generate additional trips due to its Semi-truck use. Those trucks serviced were assumed on-site due to the service station trips