



City of Eagle Lake
Comprehensive Infrastructure Planning Study
March 2006

Section 2 – Transportation Plan



TABLE OF CONTENTS

1.0 Purpose of the Transportation Plan..... 1

2.0 Transportation System Principles and Standards..... 1

 2.1 Functional Classification 1

 2.2 Access Management Guidelines 4

 2.3 Geometric Design Standards – Major Collector and Minor Collector 8

 2.4 Roadway Jurisdiction..... 10

3.0 Existing Transportation System..... 11

 3.1 Traffic Volumes 11

 3.2 Existing Street Widths 12

 3.3 Continuity Deficiencies 12

 3.4 Development Areas..... 13

 3.5 Jurisdictional Issues 13

 3.6 Relevant Area Transportation Studies 13

 3.6.1 Mankato/North Mankato Area Transportation and Planning Study 13

 3.6.2 U. S. 14 Access Management Study 14

4.0 Future Transportation System..... 14

 4.1 Future Roadway Corridors..... 14

 4.2 Traffic Control Devices 17

 4.2.1 Regulatory Signs..... 18

 4.2.2 Warning Signs..... 19

 4.2.3 Guide Signs..... 20

5.0 Recommendations Future Studies..... 20

FIGURES

Figure 1.1: Location Map 1

Figure 2.1: Existing Roadway – Functional Classification 2

Figure 2.2: Geometric Design Standards for Major Collectors 8

Figure 2.3: Geometric Design Standards for Local Collectors..... 8

Figure 2.4: Geometric Design Standards for Minor Arterial Roadways 10

Figure 2.5: Geometric Design Standards for Minor Arterial Roadways 10

Figure 3.1: Existing Transportation System 11

Figure 3.2: Eagle Lake and Surrounding Area: Traffic Counts..... 11

Figure 3.3: Traffic Volume..... 12



Figure 3.4: Existing Street Widths..... 12

Figure 3.5 Comprehensive Infrastructure Plan, Existing and Future Developments 13

Figure 4.1 Surrounding Area: Future Road System and Classification..... 15

Figure 4.2: Street Sign Inventory..... 17

Figure 5.0: Existing and Preliminary Proposed Sidewalks and Trails..... 21

TABLES

Table 2.1: Roadway Access Standards..... 7

Table 2.2: Access Spacing Guidelines for Collector Roadways in Eagle lake 7

Table 2.3: Roadway Design Speed Guidelines 10



1.0 Purpose of the Transportation Plan

The purpose of this Transportation Plan is to provide guidance to the City of Eagle Lake, as well as existing and future landowners, in preparing for future growth and development as an element to be included in the City's Comprehensive Plan. As such, whether an existing roadway is proposed for upgrading or a land use change is proposed on a property, this Plan provides the framework for decisions regarding the nature of roadway infrastructure improvements necessary to achieve safety, adequate access, mobility, and performance of the existing and future roadway system. Figure 1.1 illustrates the location of Eagle Lake in the regional roadway system.

The primary goal of this Plan is to establish local policies, standards, and guidelines to implement the future roadway network vision that is coordinated with respect to county, regional, and state plans in such a way that the transportation system enhances quality economic and residential development within the City of Eagle Lake. To accomplish these objectives, the Transportation Plan provides information about:

- The functional hierarchy of streets and roads related to access requirements.
- Access management policies.
- Design standards for Minor and Major Collector roadways.
- A future arterial-collector street system capable of accommodating existing and future traffic volumes.

2.0 Transportation System Principles and Standards

The transportation system principles and standards included in this Plan create the foundation for developing the transportation system, evaluating its effectiveness, determining future system needs, and implementing strategies to fulfill the goals and objectives identified.

2.1 Functional Classification

It is recognized that individual roads and streets do not operate independently in any major way. Most travel involves movement through a network of roadways. It becomes necessary to determine how this travel can be channelized within the network in a logical and efficient manner. Functional classification defines the nature of this channelization process by defining the part that any particular road or street should play in serving the flow of trips through a roadway network. Functional classification is the process by



which streets and highways are grouped into classes according to the character of service they are intended to provide. Functional classification involves determining what functions each roadway should perform prior to determining its design features, such as street widths, design speed, and intersection control. Figure 2.1 illustrates the existing functional classification designations in the Eagle Lake Area.

The functional classification system typically consists of four major classes of roadways: Principal Arterials, Minor Arterials, Major Collectors, and Minor Collectors. The existing roadways located within and around Eagle Lake are described below.

Principal Arterials

Roadways of this classification typically connect large urban areas to other large urban areas or they connect metro centers to regional business concentrations via a continuous roadway without stub connections. They are designed to accommodate the longest trips. Their emphasis is focused on mobility rather than access. They connect only with other Principal Arterials, interstate freeways, and select Minor Arterials and Collector Streets. Principal Arterials are responsible for accommodating thru-trips, as well as trips beginning or ending outside of the Eagle Lake area.

T.H. 14 is a Principal Arterial roadway that traverses the Eagle Lake area in that it runs the length of the state of Minnesota from east to west. T.H. 14 connects across the southern portion of the State of Minnesota into South Dakota. Minnesota cities included along the corridor include Winona, Rochester, Owatonna, Waseca, Mankato, and New Ulm.

Minor Arterials

Roadways of this classification typically link urban areas and rural Principal Arterials to larger towns and other major traffic generators capable of attracting trips over similarly long distances. Minor Arterials service medium length trips, and their emphasis is on mobility as opposed to access in urban areas. They connect with Principal Arterials, other Minor Arterials, and Collector Streets. Connections to local streets and private



properties should be avoided if possible. Minor Arterials are responsible for accommodating thru-trips, as well as trips beginning or ending outside the Eagle Lake area. Minor Arterial roadways are typically spaced approximately 3 – 5 miles apart in rural areas and 1 – 2 miles apart in urban and urbanizing areas.

T.H. 60 is a Minor Arterial on a common alignment with T.H. 14 west through the Eagle Lake area. T.H. 60 extends in a southwesterly fashion and enters that state of Iowa near Worthington. This roadway also connects to I-35 at Faribault, east of Eagle Lake.

T.H. 22 in Mankato is the nearest north/south Minor Arterial to Eagle Lake. T.H. 22 connects with US 169 in the north to the Twin Cities. To the east of Eagle Lake is T.H. 13, which is another Minor Arterial, which travels north and south.

T.H. 83 is another Minor Arterial that runs just south of the City of Eagle Lake. T.H. 83 alignment starts in southeast Mankato and connects with T.H. 30 west of New Richland. This roadway travels in a northwest to southern direction.

Major Collectors

Roadways of this classification typically link neighborhoods together within a city or they link neighborhoods to business concentrations. In highly urban areas, they also provide connectivity between major traffic generators. A trip length of less than 5 miles is most common for Major Collector roadways in urban areas. A balance between mobility and access is desired. Major Collector street connections are predominately to Minor Arterials, but they can be connected to any of the other four roadway functional classes. Local access to Major Collectors should be provided via public streets and individual property access should be discouraged. Major Collector streets are predominantly responsible for providing circulation within a city such as Eagle Lake, and are typically spaced approximately ½ to 1 mile apart in urbanizing areas.

County State Aid Highway (CSAH) 17, CSAH 56, CSAH 55 and CSAH 86 are county roads classified as Major Collector roadways in the Eagle Lake area.



Minor Collectors

Roadways of this classification typically include city streets and rural county roadways, which facilitate the collection of local traffic and convey it to Major Collectors and Minor Arterials. Minor Collectors serve short trips at relatively low speeds. Their emphasis is focused on access rather than mobility. Minor Collectors are responsible for providing connections between neighborhoods and the Major Collector/Minor Arterial roadways. These roadways should be designed to discourage short-cut trips through the neighborhood by creating jogs in the roadway (i.e. not direct, through routes). Le Sueur Avenue is an example of an existing street serving as a Minor Collector roadway in Eagle Lake.

2.2 Access Management Guidelines

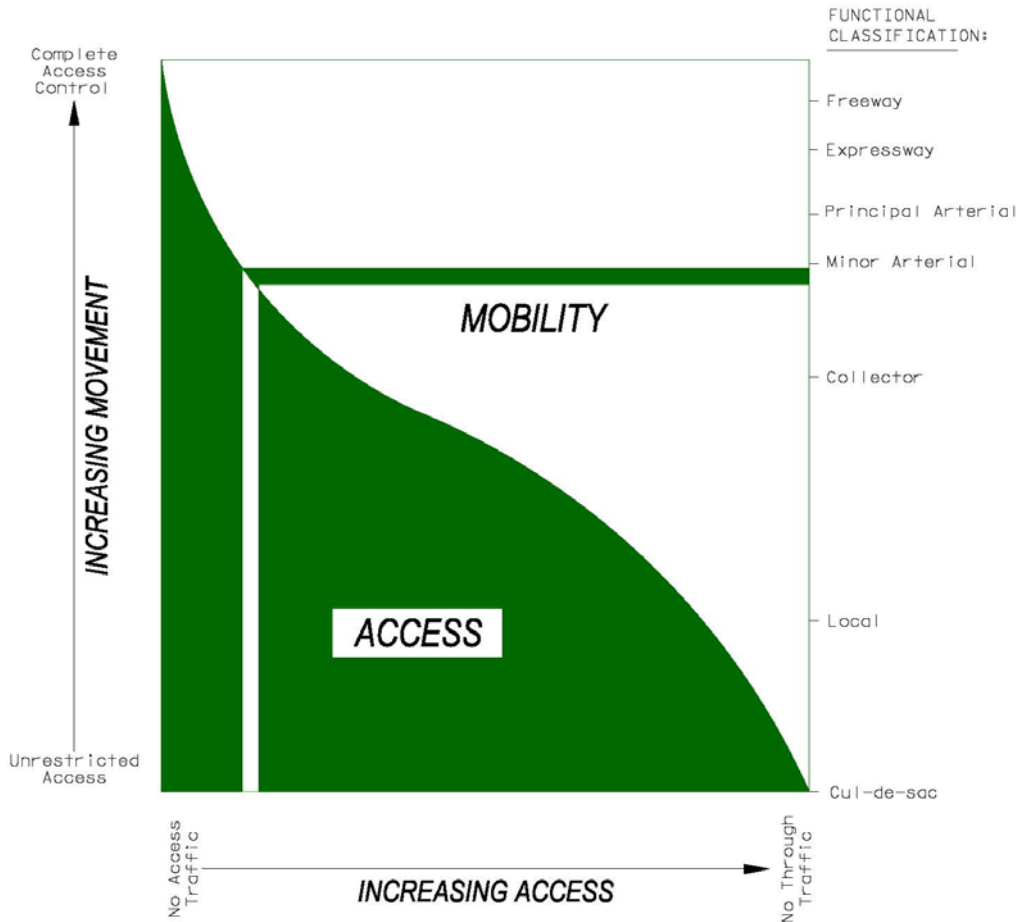
Access management guidelines are developed to maintain traffic flow on the network so each roadway can provide its functional duties, while providing adequate access for private properties to the transportation network. This harmonization of access and mobility is the keystone to effective access management.

Mobility, as defined for this Transportation Plan, is the ability to move people, goods, and services via a transportation system component from one place to another. The degree of mobility depends on a number of factors, including the ability of the roadway system to perform its functional duty, the capacity of the roadway, and the operational level of service on the roadway system.

Access, as applied to the roadway system in Eagle Lake, is the relationship between local land use and the transportation system. There is an inverse relationship between the amount of access provided and the ability to move through-traffic on a roadway. As higher levels of access are provided, the ability to move traffic is reduced. The graphic below illustrates the relationship between access and mobility.



Roadway Mobility/Access Relationship



Each access location (i.e. driveway and/or intersection) creates a potential point of conflict between vehicles moving through an area and vehicles entering and exiting the roadway. These conflicts can result from the slowing effects of merging and weaving that takes place as vehicles accelerate from a stop turning onto the roadway, or deceleration to make a turn to leave the roadway. At signalized intersections, the potential for conflicts between vehicles is increased, because through-vehicles are required to stop at the signals. If the amount of traffic moving through an area on the roadway is high and/or the speed of traffic on the roadway is high, the number and nature of vehicle conflicts are also increased.

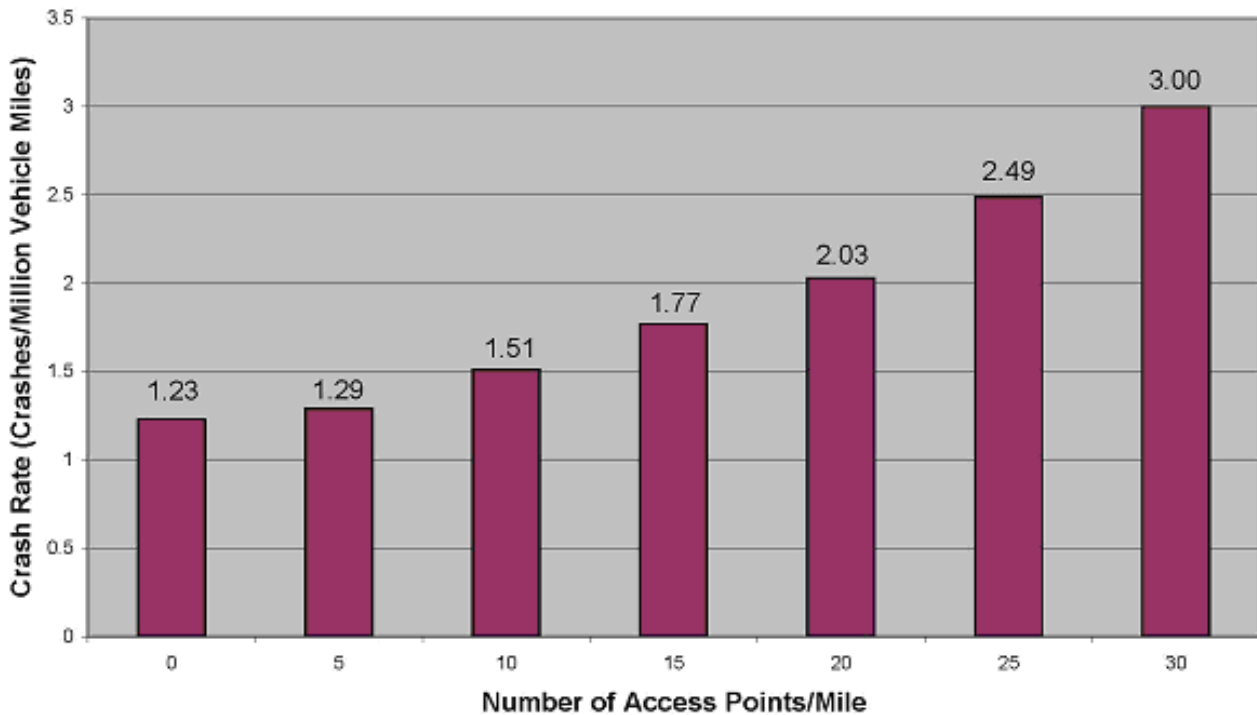
Accordingly, the safe speed of a road, the ability to move traffic on that road, and safe access to cross streets and properties adjacent to the roadway all diminish as the number of access points increase along a specific segment of roadway. Because of these effects,



there must be a balance between the level of access provided and the desired function of the roadway.

Various studies have demonstrated a direct relationship between the number of full access points and crash rates, including FHWA's Access Research Report No. FHWA-RD-91-044. The following graphic illustrates the safety benefits of access management.

Access Density/Crash Rate Relationship
2-Lane Highways in Minnesota



In Eagle Lake, access standards and spacing guidelines are recommended as a strategy to effectively manage existing ingress/egress onto City streets and to provide access controls for new development and redevelopment. The proposed access standards (driveway dimensions) are based on Minnesota Department of Transportation (Mn/DOT) State-Aid design standards. The access spacing guidelines for Eagle Lake are consistent with current practices of other cities. The hierarchy of the functional classification system should be maintained when applying the access spacing guidelines to the roadway network (i.e. a Collector Street should have priority access to a Minor Arterial roadway



over a Local Street or adjacent property). Tables 2.1 and 2.2 below present the proposed access standards and access spacing for the Eagle Lake roadway network:

| Table 2.1 – Roadway Access Standards | | |
|---|---------------------------|---------------------------------|
| Driveway Dimensions | Residential | Commercial or Industrial |
| Driveway Access Width | 11' – 22', 16' desired | 16' – 32', 32' desired |
| Minimum Distance Between Driveways | 20' | 20' |
| Minimum Corner Clearance from a Collector Street | 60' | 80' ⁽¹⁾ |

⁽¹⁾ At the discretion of the City Engineer, 80' minimum.

| Table 2.2 – Access Spacing Guidelines for Collector Roadways in Eagle Lake (1) | | |
|---|--------------------------------------|--------------------------------------|
| Type of Access | Major Collector⁽²⁾ | Minor Collector⁽³⁾ |
| Private Residential | Not Permitted | As Needed |
| Private Commercial/Industrial | Not Permitted | As Needed |
| Minimum Corner Clearance from a Collector Street | 660' | 300' |

⁽¹⁾ These guidelines apply to City streets only. Blue Earth County and Mn/DOT have access authority for roadways under their jurisdiction.

⁽²⁾ Access to Major Collectors shall be reserved for public street access. Steps should be taken to redirect private accesses on Major Collectors to other local streets. New private access to Major Collectors shall not be permitted unless deemed necessary by the City Engineer.

⁽³⁾ Private access to Minor Collectors shall be at the discretion of the City Engineer. Whenever possible, residential access should be directed to non-continuous streets rather than Minor Collector roadways. Commercial/Industrial properties shall provide common accesses with adjacent properties when access is located on the Minor Collector system.



2.3 Geometric Design Standards – Major Collector and Minor Collector

Geometric design standards are directly related to a roadway's functional classification and the amount of traffic that the roadway is designed to carry. For the City of Eagle Lake, geometric design standards were developed based on Mn/DOT State-Aid standards. The proposed geometric design standards for Major and Minor Collector roadways are illustrated in Figures 2.2 and 2.3 respectively.

The Geometric Design Standards illustrated in Figures 2.2 and 2.3 were developed to achieve adequate capacity within the roadway network, as well as a level of acceptance by adjacent land uses. Each component identified in the typical sections is essential to a particular roadway's ability to perform its function in the roadway network.

Roadway Width – Roadway and travel lane widths are directly associated with a roadway's ability to carry vehicular traffic. On Major Collector roadways and Minor Collector streets, a 12' lane is required for each direction of travel. The 24' total travel width is needed to accommodate anticipated two-way traffic volumes without delay. In addition to the travel width, minimum shoulder/parking lane widths are also required to accommodate parked or stalled vehicles. Roadway widths not meeting the Geometric Design Standards will result in decreased performance of the particular roadway and additional travel demand on the adjacent roadway network components. For example, a sub-standard Major Collector roadway may result in additional travel demand on an adjacent Minor Collector street resulting in an overburden for adjacent landowners. Similarly, additional local circulation may result on an adjacent Minor Arterial resulting in reduced mobility for regional trips.

Sidewalk/Trail – Sidewalks and/or trails are recommended to be adjacent to all Minor Collector, Major Collector, and Minor Arterial roadways within Eagle Lake to accommodate pedestrian, bicycle, and other non-motorized travel in a safe and comfortable manner. These roadways are expected to carry a significant amount of vehicular traffic and separation of travel modes is necessary. In



commercial and industrial areas, the requirements for trails and sidewalks may vary to accommodate additional pedestrian and bicycle traffic.

Along Minor Arterials, a minimum 8' bituminous trail is recommended on both sides of the roadway. Similar to the type of travel on the adjacent roadway, the trail will accommodate higher volume and longer pedestrian and bicycle trips. A 10' bituminous trail would be more desirable as the 10' width would better accommodate two-way travel safely.

Along Major Collector roadways, an 8' bituminous trail and 6' concrete walk is recommended on either side of the roadway to accommodate local pedestrian and bicycle travel. The pedestrian facilities on both sides of these roadways allow for pedestrian travel within the corridor without introducing excessive crossing demand on Major Collectors. A 6' concrete walk and 8' bituminous trail will accommodate pedestrian travel along the corridor, as well as provide a safe, comfortable link between lower volume residential streets and the other pedestrian facilities within the community.

Along Minor Collector roadways, a 6' concrete sidewalk is recommended on each side of the roadway. With the anticipated vehicular volumes on Minor Collector streets, pedestrians can safely cross the roadway, however, pedestrian travel along the roadway may become uncomfortable.

Design Speed – The design speed of a roadway is directly related to the roadway's function in the roadway system. The focus of Minor Arterial roadways is mobility, therefore these roadways should be designed to accommodate higher travel speeds. Likewise, Minor Collector roadways are more focused on accessibility and should be designed to accommodate lower travel speeds. The function of Major Collectors is balanced between mobility and accessibility; therefore these roadways should be designed accordingly. Table 2.3 below presents the recommended design speed for the Eagle Lake roadway network:



| Roadway Functional Classification | Design Speed ⁽¹⁾ |
|--|------------------------------------|
| Minor Collector Roadway | 30 mph |
| Major Collector Roadway | 35 – 40 mph |
| Minor Arterial Roadway | 45 – 55 mph |
| ⁽¹⁾ At the discretion of the City engineer for City roadways. | |

Right-of-Way Width – Right-of-way width is directly related to the roadway’s width and its ability to carry vehicular and pedestrian traffic in a safe and efficient manner. The roadway right-of-way widths identified in Figures 2.2 and 2.3 are the minimum required for Major and Minor Collector streets, respectively. For Minor Collector streets in residential areas, a minimum right-of-way width of 66’ is necessary for the added roadway width, as well as to provide added setback distance between the roadway and homes along the roadway. Right-of-way widths ranging from 80 – 100’ will be required on Major Collector roadways to accommodate the potential for higher traffic volumes and the need for additional lanes. All right-of-way requirements may be increased at the discretion of the City Engineer. The right-of-way widths for typical minor arterials range from 100 feet to 200 feet. (Figures 2.4 and 2.5) These figures depict 2-lane divided, 3-lane undivided, and 4-lane divided roadways.

2.4 Roadway Jurisdiction

Roadway jurisdiction directly relates to functional classification of roadways. Generally, roadways with higher mobility functions (such as arterials) should fall under the jurisdiction of a regional level of government. In recognizing these roadways serve greater areas resulting in longer trips and higher volumes, jurisdiction of Principal Arterial and Minor Arterial roadways should fall under the jurisdiction of the state and county, respectively. Similarly, roadways with more emphasis on local circulation and access (such as collectors) should fall under the jurisdiction of the local government unit.



These roadways serve more localized areas and result in shorter trip lengths and lower volumes. Major Collector and Minor Collector roadways should fall under the jurisdiction of the City of Eagle Lake.

3.0 Existing Transportation System

The existing transportation system in Eagle Lake, shown on Figure 3.1, has U. S. 14 on its northern border, while Blue Earth County Road 27 is the eastern most roadway. Blue Earth County Road 17 connects Eagle Lake with the City of Mankato. Blue Earth County Road 86 is the farthest west the long range planning affects and Minnesota Highway 83 is another connection south of the City of Eagle Lake to Mankato. Blue Earth County Road 55 is in the northern portion of the City connecting U.S. Highway 14 to Blue Earth County Road 56.

The City also has the D.M. & E. railroad tracks running west to east through the northern portion of the municipality. Most of the new residential development is in the south and western areas of the City. As population and business attractions grow, increases in traffic volumes have the potential to negatively impact the local collector streets in the residential areas. The city's ability to develop Major Collector roadways is critical to maintain a satisfactory roadway system in the Eagle Lake Area, and maintain the local collector streets in the residential areas with lower volumes of traffic.

The existing transportation system within the City of Eagle Lake currently provides sufficient transportation service to the City. Generally, the transportation system operates effectively, however system continuity deficiencies exist.

3.1 Traffic Volumes

The existing traffic volumes within the area were collected from Mn/DOT, Blue Earth County, and Bolton & Menk, are represented in Figure 3.2 - 2001 Existing Traffic Volumes and 2005 Traffic Counts. Roadway analysis indicates that the system operates well for most roadways within Eagle Lake. CSAH 27 depicts about 2600 ADT on the roadway near the CSAH 17 intersection and about 1400 daily traffic near the intersection of 211th Street. These numbers are well within the carrying capacity for a major collector route. CSAH 17 has about 1200 daily traffic on the east side of the city and about 3400



near Plainview Avenue in the center of downtown. West of the City, CSAH 17 is carrying over 6000 average daily traffic, which is starting to put a stress on the two-lane facility. The local minor collectors in Le Sueur Avenue and Plainview Street each carry around 1000 daily traffic, which is near the top level before the traffic starts to become an issue for the neighborhoods. Figure 3.3 illustrates the existing daily traffic volume levels in the City of Eagle Lake.

3.2 Existing Street Widths

Figure 3.4 illustrates the width of the existing roadways within the City of Eagle Lake.

3.3 Continuity Deficiencies

There is an over reliance on Le Sueur Avenue between Linda Drive and 598th Street. Plainview Street is another local collector carrying a heavy burden of the traffic flows. These above areas are the easiest and quickest routes for citizens to get to a highway street system but unfortunately, they both cut through city neighborhoods. Extension of Linda Drive to Blue Earth County Road 17 would alleviate over reliance on Plainview Street.

The completion of 211th Street between CSAH 27 and 598th Avenue would assist the east-west travel in the City. The completion of this street would help relieve traffic utilizing local minor collector streets to go west through the city.

The completion of 589th Avenue from CSAH 17 to the above-completed 211th Street would give another route for traffic to use, rather than traversing the neighborhoods to get to the southern portion of the city. This future major collector street needs to be designed as an urban collector to safely transport many vehicles each day. This collector along with the future major collector, 211th Street would create a ring road for the City of Eagle Lake. This system could transport high volumes of traffic north or west each day, and reduce the amount of through traffic in the neighborhoods.



3.4 Development Areas

The City of Eagle Lake anticipates increased development pressures. Figure 3.5 illustrates potential, short-term development areas that have been presented to the City for consideration.

3.5 Jurisdictional Issues

CSAH 55 has been identified as a potential turn back candidate to the City of Eagle Lake, however, no plans are in place to complete the transfer.

3.6 Relevant Area Transportation Studies

Two studies have been completed in recent years that have impact on the development of the City of Eagle Lake's roadway system.

3.6.1 Mankato/North Mankato Area Transportation and Planning Study

The Mankato Area Transportation And Planning Study 2003 (MATAPS 2003) was an update to the comprehensive regional transportation planning study completed in 1996 (MATAPS 1996). The 2003 update covered the Cities of Mankato and North Mankato, as well as the five township areas surrounding the Cities in Blue Earth, Nicollet and Le Sueur Counties. Recommendation from the MATAPS that impact the Eagle Lake Area includes:

- CSAH 12 should be extended south along 589th Ave, crossing TH 14 approximately 2 miles east of TH 22, and connect with CSAH 41 at TH 83,
- Hoffman Road should be extended east into Eagle Lake, connecting to 211th Street.
- Mn/DOT, Blue Earth County and the Cities of Eagle Lake and Mankato should undertake a long-term access study to identify potential interchange locations on T.H. 14 between T.H. 22 and Eagle Lake. Once interchange locations are identified, the study partners should implement land use and zoning tools to preserve the necessary right-of-way.



3.6.2 U. S. 14 Access Management Study

As a follow-up to the MATAPS recommendations in 2003, the study partners reviewed the long-term access needs for U. S. 14 from TH 22 in Mankato through the City of Eagle Lake. This study assessed the most appropriate long-term access for the corridor. Recommendations from this study include::

- Full Access Interchanges at Future CSAH 12 and at CSAH 27/17
- Partial Access Interchange at CSAH 56/598th Avenue
- Overpass at CSAH 86
- Restricted, At-Grade Access at CSAH 55 (LeRay Avenue)
- Closure of Remaining At-Grade Accesses

4.0 Future Transportation System

The existing transportation system in the Eagle Lake area is predominately rural. To plan for the transition to a more urban environment, it will be important for the city to develop a roadway system that is efficient and consistent with the transportation system principles and standards outlined in Section 2.0.

As population and business attractions grow, increases in traffic volumes have the potential to negatively impact the quality of life in Eagle Lake by reducing pedestrian mobility, increasing traffic congestion, and increasing parking problems. The city's ability to develop adequate Major Collector roadways is critical to maintain a satisfactory roadway system in the Eagle Lake area and preserve the quality of life and mobility of the region.

4.1 Future Roadway Corridors

The existing county and state highways have historically provided much of the local circulation and connectivity, however these roadways will have increasing problems in meeting both the future local and regional travel demands. A city collector system consisting of Major Collector roadways and Minor Collector streets is needed to provide acceptable local circulation and access to developing areas, as well as to enable T.H. 14, CSAH 17, and CSAH 27 to serve longer, regional travel.



A suitable arterial-collector system to accommodate future development and traffic patterns is necessary as Eagle Lake grows. The Eagle Lake Transportation Plan develops a transportation plan that is consistent with existing and future land uses as identified by the City's Comprehensive Plan. The recommended future roadwork network and functional classification of roadways are illustrated in Figure 4.1 - Recommended Future Roadway Functional Classification. It is not anticipated that all of the proposed collector streets will be constructed by 2025, rather, collector streets should be constructed as development occurs and/or connectors are necessary to accommodate traffic.

Minor Arterial – Two existing roadways are recommended to be reclassified as Minor Arterials as Eagle Lake develops into a more urbanized area:

- CSAH 17 is currently classified as a Major Collector, however will take on increased significance as urbanization occurs. CSAH 17 will continue to be one of the most important roadways for the City of Eagle Lake, as the gateway to the city and trips west – east. This proposed Minor Arterial is the connection to the City of Mankato in the west and to T.H. 14 in the east. While reclassification to a Minor Arterial may be sometime away, the City of Eagle and Blue Earth County should begin protecting sufficient right-of-way and access spacing to preserve its long-term function as a Minor Arterial.
- CSAH 27 (Agency Street) is also currently classified as a Major Collector. CSAH 27 will take on increased significance as urbanization occurs and TH 14 access recommendations are achieved. With a proposed realignment to the east and a future interchange on TH 14, this corridor will provide a direct connection between TH 83 and TH 14. Again, while reclassification to a Minor Arterial may be sometime away, the City of Eagle and Blue Earth County should work cooperatively to identify a new alignment for CSAH 27, begin protecting sufficient right-of-way, and identify access locations to preserve its long-term function as a Minor Arterial.

Major Collector – Several existing roadways and new roadway corridors are identified as future Major Collectors in the Eagle Lake Area.



- 598th Avenue is recommended to be developed and classified as a Major Collector connecting TH 14 with CSAH 17, with 211th Street, and finally to TH 83 via 597th Avenue in the south. This important roadway should be developed consistent with Major Collector design and right-of-way standards identified in Section 2.0 of this plan. Additional Right-Of-Way should also be protected at the intersections of CSAH 17 / 589th Street and 589th Street / 211th Street for future traffic control needs.
- Hoffman Drive/211th Street corridor is recommended to be developed and classified as a Major Collector. This will be an important connection for the City of Eagle Lake's roadway system as it provides motorists an opportunity to travel east-west without having to go through existing residential areas.
- Future roadway extension from CSAH 27/17 southeast ward to 211th Street and southward to CSAH 28/CR 184 is recommended to be developed and classified as a Major Collector. This will provide an important connection to serve the eastern portion of the Eagle Lake growth area, protect mobility on CSAH 27, and improve a secondary connection between the City of Eagle Lake and City of St. Clair.

Minor Collectors – Astute land use planning and subdivision plat review are key to ensuring an adequate local roadway network is developed and future local street traffic issues are avoided. Minor Collector streets, also referred to as Local Collectors, are designed to carry traffic to higher-level roadways. They typically do not carry through trips, rather they connect non-continuous local streets and provide individual property access.

One of the primary issues facing developing communities is a perception of excess traffic on “local” streets. The physical ability of these streets to carry traffic typically far exceeds the acceptable traffic levels for those property owners along the street. Local Collector streets in residential areas must be identified during the preliminary platting process and design measures taken to provide acceptable conditions for the future owners of the adjacent lots. As a rule of thumb, one Local Collector street connection to a Major Collector roadway is needed for each 100 housing units. For example, a developing area with a capacity of 400 homes should have at least four Local Collector connections to the



Major Collector network. If evenly distributed, these connections will ensure the Local Collector streets will not be required to carry an unacceptable level of traffic. These Local Collector streets should be continuous through multiple developments, but not necessarily continuous between Major Collectors. Direct, continuous Local Collectors that connect between Major Collectors should be discouraged, as they are often used as short cuts for travelers and tend to result in traffic volume levels unacceptable to the affected neighborhoods.

Several existing roadways are recommended to be re-classified as Minor Collectors.

- Le Sueur Avenue, Thomas Drive, and Plainview Street are existing local streets that is currently functioning as a Minor Collector in the roadway system. These roadways currently serve and will continue to serve as the primary connections between residential areas, the elementary school, and downtown. These roadways are recommended to be classified as Minor Collectors to acknowledge the roles they currently play in the roadway network.
- Leray Avenue (CSAH 55) is currently classified as a Major Collector in the City of Eagle Lake. This facility currently connects to CSAH 56 in the west and T.H. 14 to the east. The roadway disperses traffic in the northern part of the city, where most of the commercial / industrial uses are located to the high volume networks. The future of this roadway being a major collector is problematic, as it will be determined by the future improvements to T.H. 14. This roadway could be severed from T.H. 14 and may have to be realigned to connect with CSAH 17/Interchange location. As TH 14 access recommendations are achieved, this roadway will serve a diminished role in the roadway network.

4.2 Traffic Control Devices

The City of Eagle Lake as part of this Transportation Plan is examining their methodology of placing traffic control devices on public streets within the municipality. The City has developed a street sign inventory (figure 4.2), which depicts the placement of signs throughout its jurisdiction. This inventory map is the context within which traffic control devices are discussed in the following paragraphs, to form a policy and direction in which the City can better plan for unified standards related to street signs.



Eagle Lake will place and operate traffic control devices according to standards as stated in the Highway/Traffic Regulation Act (MS Chapter 169) and Minnesota Manual on Uniform Traffic Control Devices. Traffic devices are defined as signs, signals, markings, and other devices used to regulate, warn, or guide traffic, placed on, over, or adjacent to a street, highway, pedestrian facility, or bikeway by the authority of a public agency having jurisdiction. Minnesota Statute, Section 169.06, Subd. 2 and Subd. 3 (2004), empowers the Commissioner of Transportation and local road authorities to place and maintain traffic control devices on all roadways within their respective jurisdictions.

Signs should be defined by their function as follows:

- A. Regulatory signs that give notice of traffic laws or regulations.
- B. Warning signs give notice of a situation that might not be readily apparent.
- C. Guide signs show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, or cultural information.

Roadway geometric design and sign application should be coordinated so that signing can be effectively placed to give the road user any necessary regulatory, warning, guidance, and other information.

4.2.1 Regulatory Signs

Regulatory signs shall be used to inform road users of selected traffic laws or regulations and indicate the applicability of the legal requirements.

These signs shall be installed at or near where the regulations apply. The signs shall clearly indicate the requirements imposed by the regulations and shall be designed and installed to provide adequate visibility and legibility in order to obtain compliance.



Types of Regulatory Signs are: Stop, Yield, Speed Limit, Turn Prohibition, Parking Restriction and Intersection Lane Control Signs.

The City of Eagle Lake has slightly over 100 stop signs in the community, according to the City's street sign inventory. There are many stop signs located on low volume local streets in single-family residential neighborhoods, scattered throughout the City.

Signage locations should be reviewed, utilizing the Minnesota Manual on Uniform Traffic Control Devices (MUTCD) to ascertain if the location still warrants such signage.

4.2.2 Warning Signs

Warning signs call attention to unexpected conditions on or adjacent to a highway or street and to situations that might not be readily apparent to road users. Warning signs alert road users to conditions that might call for a reduction of speed or an action in the interest of safety and efficient traffic operations.

The use of warning signs should be kept to a minimum as the unnecessary use of warning signs tend to breed disrespect for all signs. In situations where the condition or activity is seasonal or temporary, the warning sign should be removed or covered when the condition or activity does not exist.

Types of Warning Signs are: Horizontal Alignment, Chevron, Hill, Road Narrows, Narrow Bridge, One-Lane Bridge, Divided Highway, Dead End, Low Clearance, Bump and Dip, Slippery When Wet, Added Lane, Two-Way Traffic, Vehicular Traffic, School Area, and Playground.

The City of Eagle Lake has almost 40 warning signs in the community, according to the City's street sign inventory. Many of these signs are "Children at Play",



"Playground Areas" or "Pedestrian Crossings", scattered around the City in urban and residential areas.

Signage locations should be reviewed, utilizing the Minnesota Manual on Uniform Traffic Control Devices (MUTCD) to ascertain if the location still warrants such signage.

4.2.3 Guide Signs

Guide Signs are essential to direct road users along streets and highways, to inform them of intersecting routes, to direct them to cities, towns, villages, or other important destinations, to identify nearby rivers and streams, parks, forests, and historical sites, and generally to give such information as will help them along their way in the most simple, direct manner possible.

Types of Guide Signs are: Arrows, Numbered Highway Systems, Junction, Cardinal Direction, Alternate, Business, Truck, To, Begin, Temporary, Advance Turn Arrow, Directional Arrow, Junction Assembly, Advance Route, Directional Assembly, Destination and Distance, Street Name, Park & Ride, Parking, Rest Area, General Service are a few examples of guide signs.

5.0 Recommendations Future Studies

The Eagle Lake Transportation plan has reviewed transportation system principles and standards, which include: 1) Functional Classification, 2) Access Management Guidelines, Geometric Standards, and Roadway classification. Also the Plan has reviewed Future Roadway Corridors. It is from this analysis, that it has become evident more review needs to take place to help guide the future for the City.

- Linda Drive Extension Feasibility Study - In-depth engineering review of the feasibility of a potential Linda Drive connection to CSAH 17. This extension may provide some relief to traffic issues on Plainview Street without causing unreasonable increasing in traffic volumes on Linda Drive. This study would analyze local traffic flow, CSAH 17 access management, and hydrology issues.
- CSAH 17 Corridor Study – A cooperative study with the City of Eagle Lake and the Blue



Earth County to review access needs and right-of-way needs for future road improvements. The study would identify a conceptual layout for short-term and long-term roadway improvements including right-of-way needs, intersection locations, and roadway geometry.

- CSAH 27 Alignment Study - – A cooperative study with the City of Eagle Lake and the Blue Earth County to identify a future alignment for CSAH 27 south of CSAH 17. The study would identify a preferred alignment that is consistent with the TH 14/CSAH 27/17 Interchange configuration, conceptual layout for short-term and long-term roadway improvements including right-of-way needs, intersection locations, and roadway geometry.
- Conduct an engineering study to review the traffic control devices and locations within the City. This study would utilize the principles set forth in the MUTCD to review the current traffic devices, with special emphasis on the multi-stop locations.
- Study of multimodal connections for the City. This analysis would review the potential for public transit, car pool, rideshare, and park and ride lots for the commuters of Eagle Lake.
- A sidewalk and trail study should be undertaken to determine the policies and procedures for placement of such facilities within the City of Eagle Lake. Figure 5.0 is a map of existing and preliminary proposed sidewalks and trails, as suggested by City Staff.
- An access management study should be undertaken with the cooperation of Blue Earth County to review current access, future access, trail issues, and Right of Way determination.