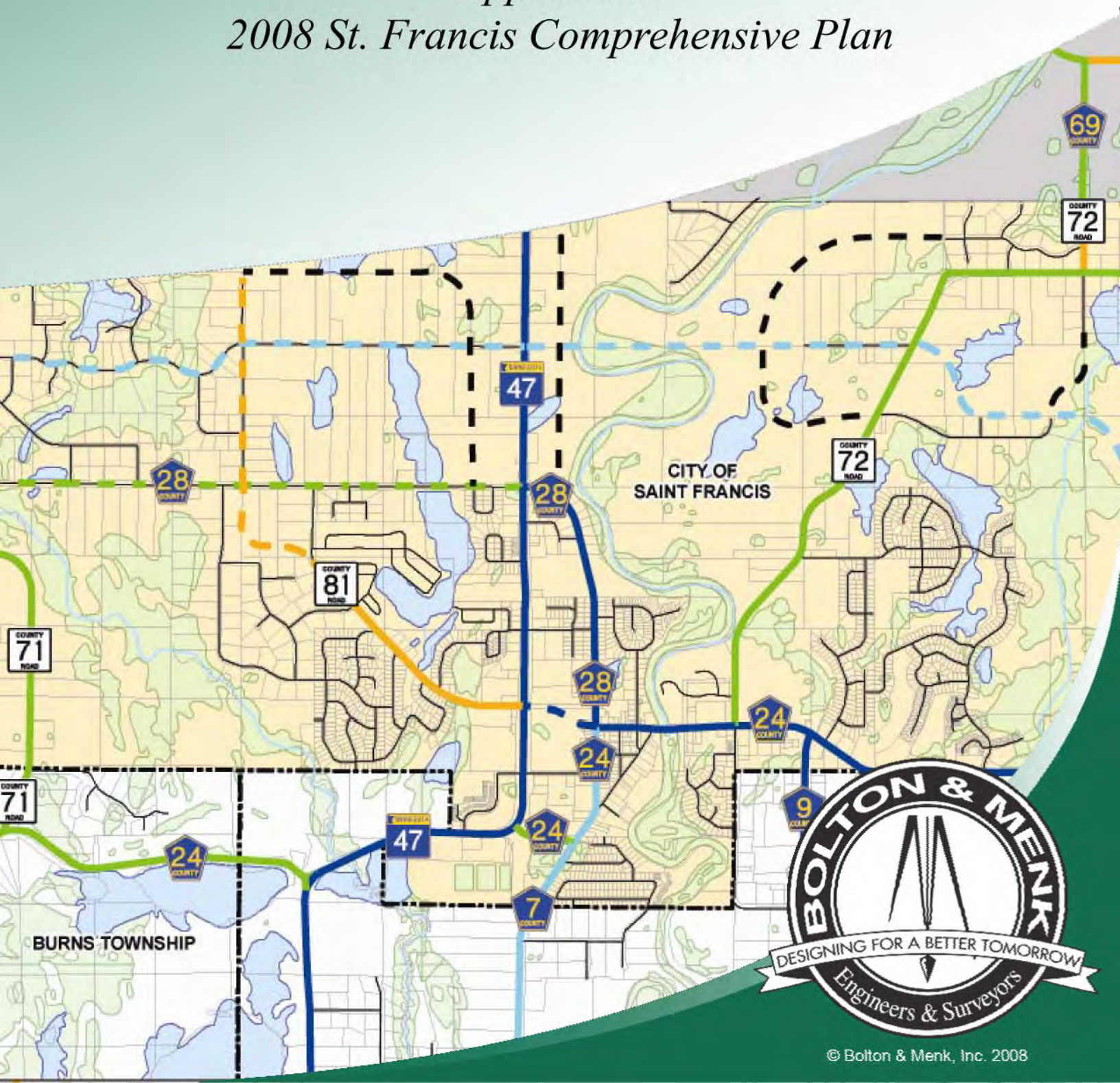
APPENDIX A

City of St. Francis

2030 Transportation Plan

Appendix A
2008 St. Francis Comprehensive Plan



BOLTON & MENK
DESIGNING FOR A BETTER TOMORROW
Engineers & Surveyors

City of St. Francis – Comprehensive Transportation Plan

TABLE OF CONTENTS **Page**

LIST OF TABLES Page

LIST OF FIGURES

APPENDICES

1.0 Purpose of the Transportation Plan

This Transportation Plan is an appendix of the City of St. Francis 2008 Comprehensive Plan (Comprehensive Plan). The purpose of this Transportation Plan is to provide guidance to the City of St. Francis, as well as existing and future landowners in preparing for future growth and development. 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. 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 St. Francis. To accomplish these objectives, the Transportation Plan provides information about:

- The functional hierarchy of streets and roads related to access and capacity requirements.
- Identification of existing and potential deficiencies of the existing arterial-collector street system.
- Recommended alternatives to alleviate roadway deficiencies including a future arterial-collector street system capable of accommodating traffic volumes to 2030 and beyond.
- Access management policies and intersection controls.

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, speed, and intersection control.

The functional classification system typically consists of four major classes of roadways: Principal Arterials, Minor Arterials, Major Collectors, and Minor Collectors. The existing roadways are described below and illustrated in Figure 2.1 – Existing Roadway Functional Classification.

2.1.1 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. There are no Principal Arterial roadways in the City of St. Francis. Trunk Highway (TH) 65, located approximately 2 miles east of St. Francis' eastern city limits, is the nearest north–south Principal Arterial. It provides connectivity between Minneapolis and Little Fork located southeast of International Falls.

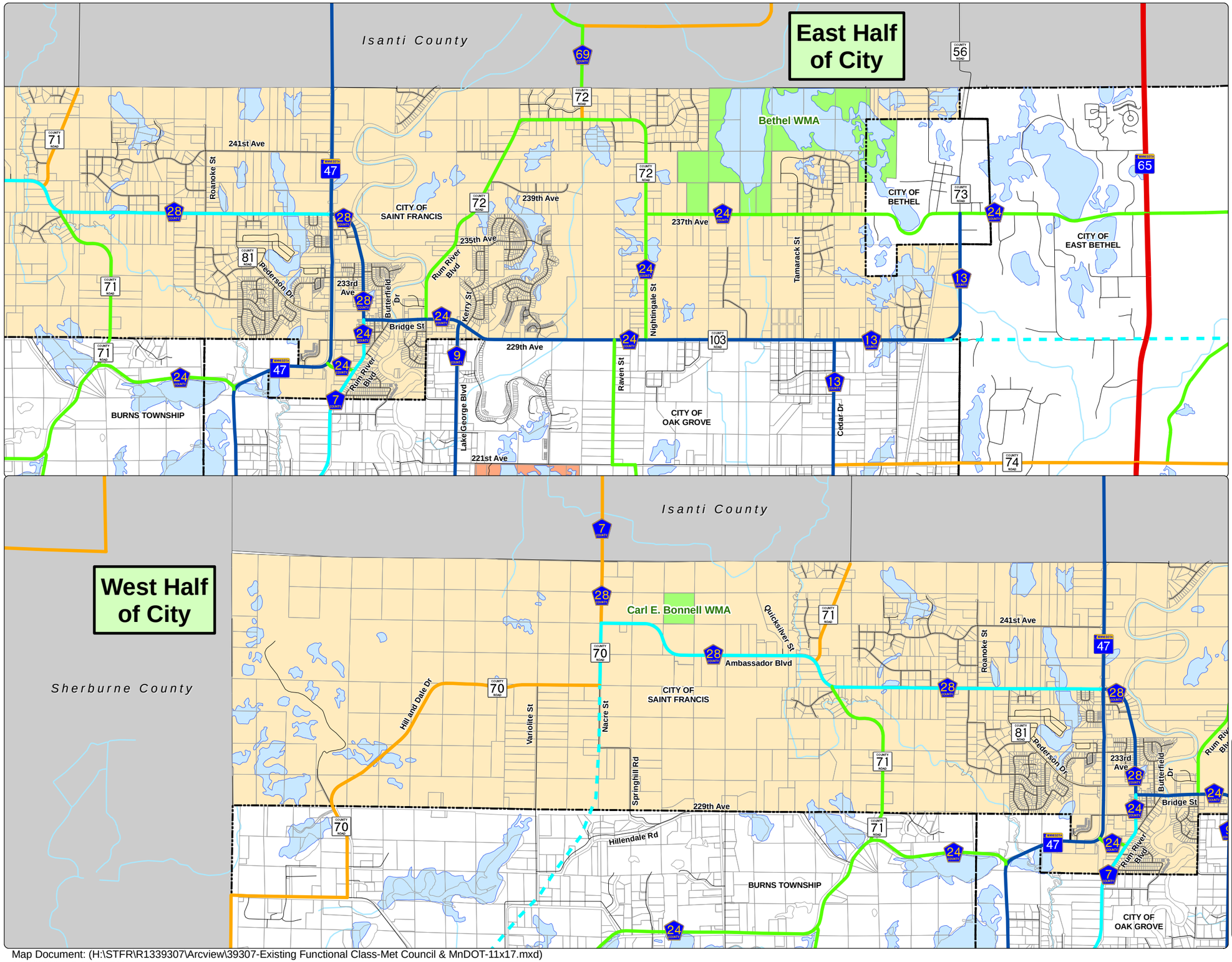
2.1.2 Minor Arterials

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 should be avoided if possible. Minor Arterials are responsible for accommodating thru-trips, as well as trips beginning or ending outside the St. Francis area. Minor Arterial roadways are typically spaced approximately 1 – 2 miles apart in developing communities similar to St. Francis. TH 47, County State Aid Highway (CSAH) 7, CSAH 9, CSAH 13, CSAH 28, most of CSAH 24, and a small portion of County Road (CR) 70 south of CSAH 28 are identified as Minor Arterial roadways.

In the Twin Cities Metropolitan Area, there is a further breakdown of Minor Arterial roadways to establish federal funding priorities, "A Minor" and "B Minor." The classifications include Relievers, Expanders, Connectors, and Augmenters. As defined by the Twin Cities Metropolitan Council, Relievers serve as an alternate route to Metropolitan Highway Principal Arterials. Augmenters supplement the Principal Arterials within the beltway. Expanders provide connection between developing areas outside the beltway, and connect Principal Arterials. Connectors provide links between rural town centers in the urban reserve and rural area.

CITY OF ST. FRANCIS
2030 TRANSPORTATION PLAN
EXISTING ROADWAY FUNCTIONAL CLASSIFICATION

FIGURE NO. 2.1
2008



Legend

Existing Functional Classification

- Principal Arterial
- A Minor Arterial-Connector/Mn/DOT Minor Arterial
- B Minor Arterial
- Proposed B Minor Arterial
- Major Collector
- Minor Collector
- Local Roads
- Protected Waters
- Watercourses & Drainageways
- Regional Recreation Open Space Features
- Wildlife Management Areas
- St Francis City Limits

Source: Anoka County, MNDNR, MNDOT

Functional Classification - Metropolitan Council and The Lawrence Group (TLG) Date: 10-5-2007
- MNDOT Date: 10-19-2007

N
W E
S

0.75 0 0.75 Miles

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
www.bolton-menk.com

Map Document: (H:\STFR\R1339307\Arcview\39307-Existing Functional Class-Met Council & MnDOT-11x17.mxd)
12/9/2008 -- 3:19:56 PM

TH 47 is a north/south route that is an A-Minor Arterial Connector providing important connectivity through the north half of the Twin Cities Metropolitan Area. In downtown Minneapolis, the roadway it is known as University Avenue. As it extends northward, it links to Interstate (I) 694 in Fridley, TH 10 and TH 610 in Coon Rapids, and TH 169 in Anoka. Through Anoka County, TH 47 intersects with the important cross-county routes of CSAH 116 and CSAH 22. TH 47 extends north of St. Francis to the City of Aitkin where it terminates at TH 169.

CSAH 9 and CSAH 13 are north/south A-Minor Arterial Connector roadways that begin east of the Rum River. CSAH 9 provides connectivity between St. Francis and Coon Rapids where the route terminates south of TH 10. CSAH 13 begins at CSAH 24 in the City of Bethel and extends south to Oak Grove where it terminates at CSAH 22.

CSAH 24/County Road (CR) 103 provides east/west continuity between TH 47 and CSAH 13 along the south City limits. South of Bridge Street the corridor is designated as a B-Minor Arterial (north-south segment) and as a Major Collector (east-west segment). The balance of the corridor along the southern border of the City is designated as an A-Minor Arterial Connector. At the east city limits the corridor is envisioned to extend east into the City of East Bethel to TH 65 and across Cedar Creek to CSAH 26. This route is designated as a Proposed B-Minor Arterial. Upon completion of this missing 4-mile segment, a continuous route from TH 47 to CR 85 in Linwood Township would be completed.

Between TH 47 and CSAH 24, CSAH 28 is identified as an A-Minor Arterial Connector. CSAH 28, west of TH 47, and a ½ mile of Nacre Street (CR 70) are designated as B-Minor Arterial roadways. It is envisioned that a new B-Minor Arterial corridor would extend south approximately 2 miles from Nacre Street to connect with CSAH 5. Upon completion, this route would provide continuity between St. Francis and the City of Ramsey on the west side of Anoka County. East of TH 47, CSAH 7 is a north/south B–Minor Arterial route providing connectivity between St. Francis and Anoka where the route terminates at CSAH 1 just north of the Mississippi River.

2.1.3 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. 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 avoided. Generally, Major Collector streets are predominantly responsible for providing circulation within a city. However, the natural features associated with the Rum River and its only bridge crossing at CSAH 24, wetland and drainage complexes, and parks and wildlife management areas result in circulation within St. Francis being reliant on the Minor Arterial roadways. Major Collectors are typically spaced approximately ½ to 1 mile apart in urbanizing areas. CSAH 24 north of 229th Avenue, CR 72, and CR 71 south of CSAH 28 are functionally classified as Major Collector roadways in the St. Francis area.

2.1.4 Minor Collector Streets

Roadways of this classification typically include city streets and rural township roadways, which facilitate the collection of local traffic and convey it to Major Collectors and Minor Arterials. Minor Collector streets 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). CR 70 west of Nacre Street, CSAH 28 north of Ambassador Boulevard, and CR 71 north of Ambassador Boulevard are designated as Minor Collector roadways in St. Francis.

2.1.5 Local Streets

Roadways of this classification typically include city streets and rural township roadways, which facilitate the collection of local traffic and convey it to collectors and Minor Arterials. Their emphasis is to provide direct property access, and mobility is not promoted.

2.2 Roadway Capacity

Capacities of roadway systems vary based on the roadway's functional classification. From the Metropolitan Council Local Planning Handbook, roadway capacity per lane for divided arterials is 700 to 1,000 vehicles per hour and 600 to 900 vehicles per hour for undivided arterials. These values tend to be around 10% of the daily physical roadway capacity.

Principal and Minor Arterials

Based on the above figures, a two-lane arterial roadway has a daily capacity of 12,000 to 18,000 vehicles per day, a four-lane divided arterial street has a daily capacity of 28,000 to 40,000 vehicles per day, and a four-lane freeway has a daily capacity of approximately 70,000 vehicles per day. The variability in capacities are directly related to many roadway characteristics including access spacing, traffic control, adjacent land uses, as well as traffic flow characteristics, such as percentage of trucks and number of turning vehicles. Therefore, it is important that the peak hour conditions are reviewed to determine the actual volume-to-capacity on roadway segments with average daily traffic volumes approaching these capacity values.

Major Collectors and Minor Collector Streets

Major Collector and Minor Collector streets have physical capacities similar to those of a two-lane arterial street, however the acceptable level of traffic on a residential street is typically significantly less than the street's physical capacity. The acceptable level of traffic volumes on Major Collectors and Minor Collector streets vary based on housing densities and setbacks, locations of parks and schools, and overall resident perceptions. Typically, traffic levels on Major Collector streets in residential/educational areas are acceptable when they are at or below 50% of the roadway's physical capacity, resulting in an acceptable capacity of 6,000 to 9,000 vehicles per day. Acceptable traffic levels on Minor Collector streets are considerably less. Typically, a daily traffic volume of 1,000 to 1,500 vehicles per day is acceptable on Minor Collector streets in residential areas.

Table 2.1 – Roadway Types and Capacities, identifies various roadway types and the estimated daily capacities that the given roadway can accommodate.

Table 2.1 – Roadway Types and Capacity	
Roadway Type	**Daily Capacities**
Gravel Roadway	Up to 500
Minor Collector Street	Up to 1,000
Urban 2-Lane	7,500 – 12,000
Urban 3-Lane or 2-Lane Divided	12,000 – 18,000
Urban 4-Lane Undivided	Up to 20,000
Urban 4-Lane Divided	28,000 to 40,000
4-Lane Freeway	Up to 70,000

The capacity of a gravel road is physically greater than 500 vehicles per day, but based on studies conducted by Minnesota counties, it has been determined that an ADT over 500 justifies paving the roadway. This is justified due to the maintenance costs of keeping a gravel road in working condition when ADT is over 500, and balancing this against the pavement costs, pavement life, and maintenance costs of a paved roadway with the same volumes.

The capacity of a transportation facility reflects its ability to accommodate a moving stream of people or vehicles. It is a measure of a supply side of transportation facilities. Level of Service (LOS) is a measure of the quality of flow. The concept of LOS uses qualitative measures that characterize operational conditions with a traffic stream and their perception by motorists. Six LOS are defined for roadways. They are LOS A, B, C, D, E, and F. LOS A represents the best operating conditions and LOS F represents the worst. The LOS of a multilane roadway can be dictated by its volume-to-capacity (v/c) ratio. The LOS of a two-lane roadway is defined in terms of both percent time-spent-following and average travel speed. LOS F is determined when v/c ratio is over 1.00. The criteria for LOS and general v/c ratio for multilane highways and speed for two-lane highways are provided in Table 2.2 below:

Table 2.2 – Highway Level of Service		
LOS	**Multilane**	**Two-Lane**
	v/c Ratio	**Avg. Travel Speed (mph)**
A	<0.28	>55
B	>0.28 – 0.45	>50-55
C	>0.45 – 0.65	>45-50
D	>0.65 – 0.86	>40-45
E	>0.86 – 1.00	≤40
F	> 1.00	v/c >1.00

For roadways in urban sections, the urban street class and average travel speed determine the LOS. This is generally similar to the LOS for two-lane highways but takes into account the free flow speed of the facility (average speed achieved with no other vehicles present on roadway) and the addition of traffic control. This criteria is established in Table 2.3 below:

Table 2.3 – Urban Street Level of Service

Range of Free-Flow Speed	**55 to 45**	**45 to 35**	**35 to 30**	**35 to 25**
LOS	**Average Travel Speed (mph)**			
A	>42	>35	>30	>25
B	>34-42	>28-35	>24-30	>19-25
C	>27-34	>22-28	>18-24	>13-19
D	>21-27	>17-22	>14-18	>9-13
E	>16-21	>13-17	>10-14	>7-9
F	≤16	≤13	≤10	≤7

Generally, the City of St. Francis should consider capacity improvements on roadways with a LOS D or worse and volume-to-capacity ratios over 0.75 during the peak hours.

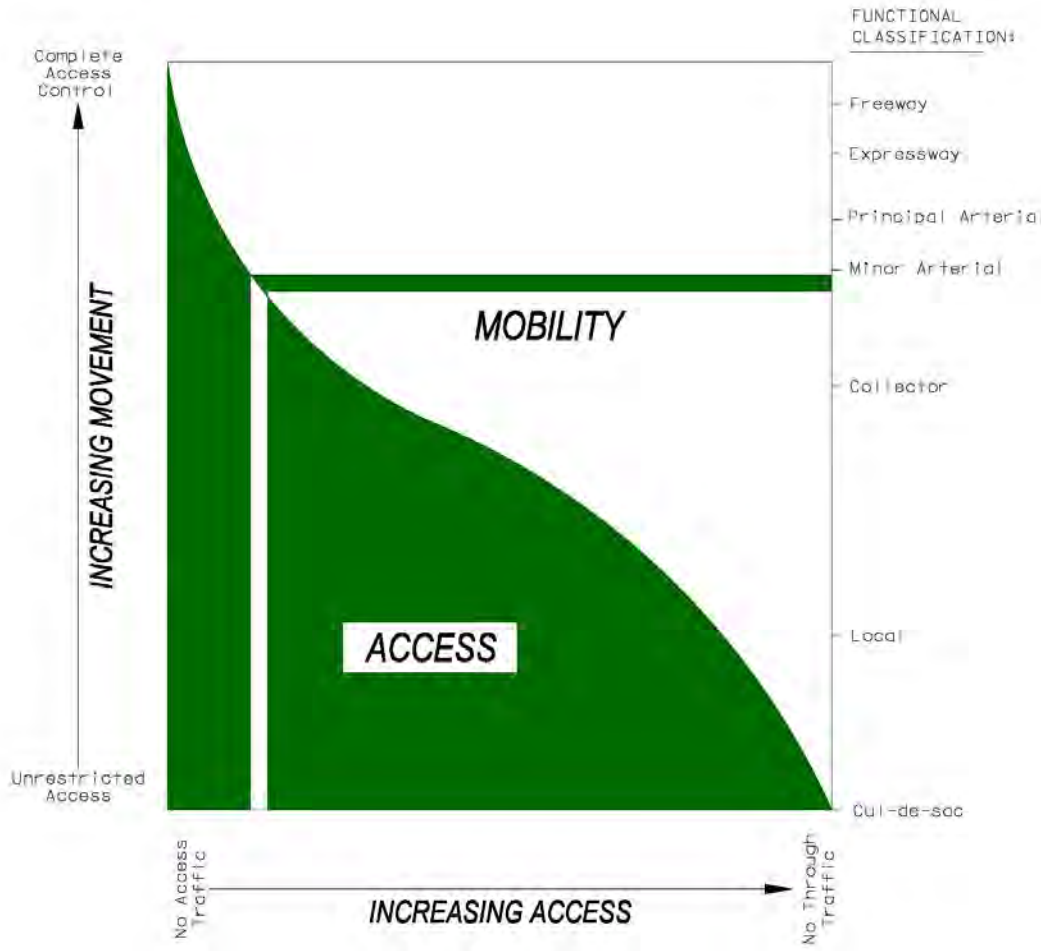
2.3 Access Management Guidelines

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 St. Francis, 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.

In St. Francis, 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. It should be noted that the City of St. Francis has access authority for those roadways under their jurisdiction. Likewise, Anoka County and Mn/DOT have access authority for roadways under their jurisdiction. To further the relationship of access and mobility throughout the St. Francis area, the City supports managing access consistent with the roadway mobility and access relationship figure above and supports the access spacing guidelines of other roadway jurisdictions. Tables 2.4 and 2.5 below present the proposed access standards and access spacing for the St. Francis roadway network based on the Recommended Future Roadway Functional Classification vision illustrated in Figure 4.1. Please refer to Anoka County's minimum access spacing guidelines identified in their current Transportation Plan.

Table 2.4 – 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 2.5 – Access Spacing Guidelines for Collector Roadways in St. Francis (1)

Type of Access by Land Use Type	Major Collector	Minor Collector
Low & Medium Density Residential		
Private Access	Not Permitted (2)	As Needed (3)
Minimum Corner Clearance from a Collector Street	660’	300’
Commercial, Industrial or High Density Residential		
Private Access	Not Permitted (2)	As Needed (3)
Minimum Corner Clearance from a Collector Street	660’	660’

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

(2) Access to Major Collectors is limited to public street access. Steps should be taken to redirect private accesses on Major Collectors to other local streets. New private access to Major Collectors is not permitted unless deemed necessary.

(3) Private access to Minor Collectors is to be evaluated by other factors. Whenever possible, residential access should be directed to non-continuous streets rather than Minor Collector roadways. Commercial/Industrial properties are encouraged to provide common accesses with adjacent properties when access is located on the Minor Collector system. Cross-traffic between adjacent compatible properties is to be accommodated when feasible. A minimum spacing between accesses of 660’ in commercial, industrial, or high density residential areas is encouraged for the development of turn lanes and driver decision reaction areas.

2.4 Geometric Design Standards

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 St. Francis, 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.

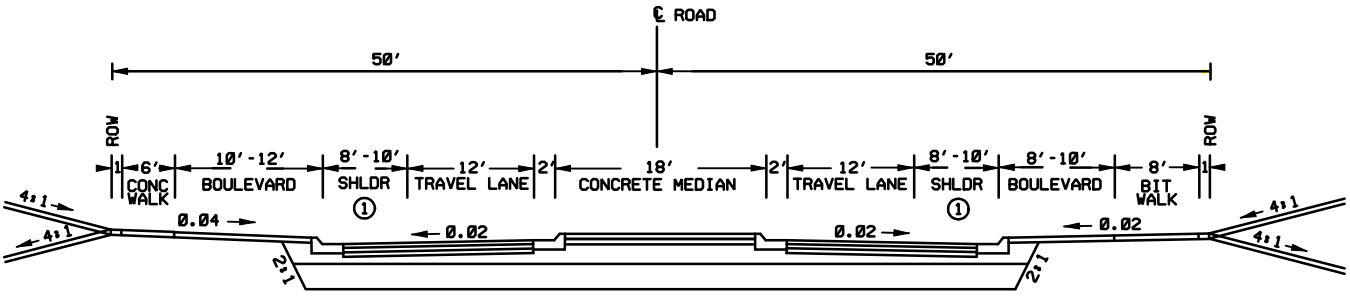
Sidewalk/Trail – Sidewalks and/or trails are recommended to be adjacent to all Minor Collector, Major Collector, and Minor Arterial roadways within St. Francis to accommodate pedestrian, bicycle, and other non-motorized travel in a safe and comfortable manner. These roadways are expected to carry a significant 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.

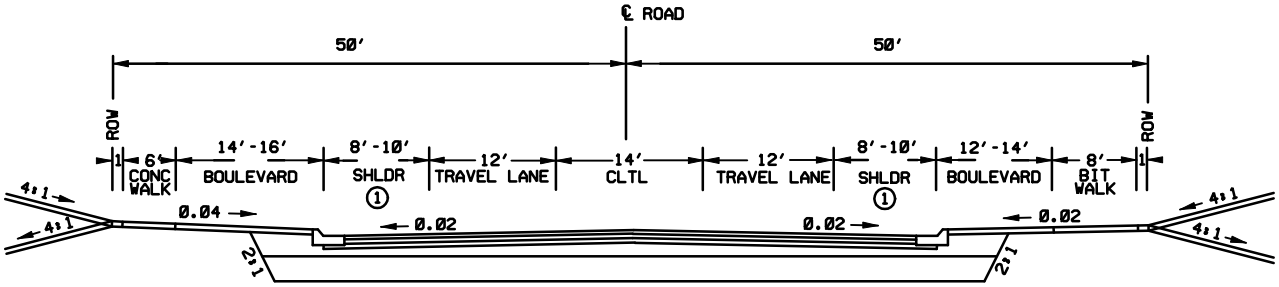
Along Major Collector roadways, an 8' bituminous trail and 6' concrete walk is recommended on either side of the roadway to accommodate local pedestrian and bicycle travel. The pedestrian facilities on both sides of these roadways allow for pedestrian travel within the corridor without introducing excessive 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.

TYPICAL SECTION OF MAJOR COLLECTOR WITH MEDIAN



TYPICAL SECTION OF MAJOR COLLECTOR



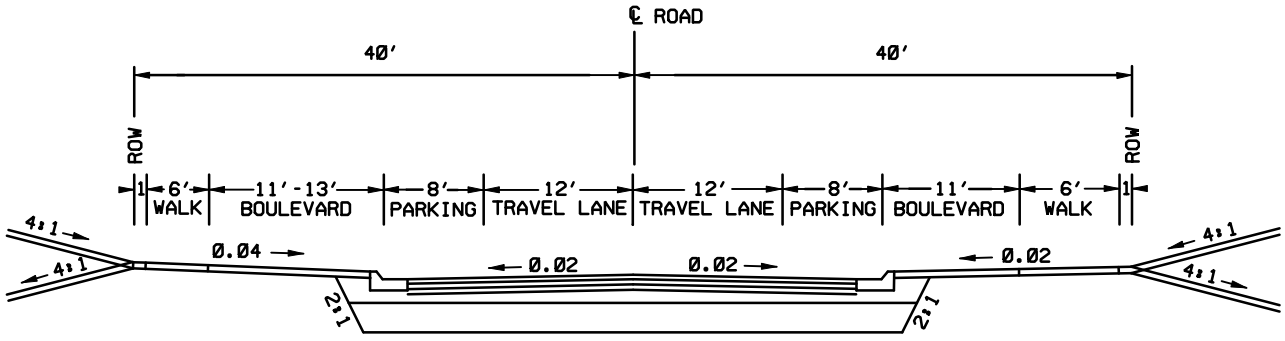
① 10' WHEN PARKING PERMITTED

1. Design standards for Minor Arterials shall be under the jurisdiction of Mn/Dot and Anoka County.
2. Additional ROW will be needed at intersections to accommodate turn lanes, at the discretion of the City Engineer.

FIGURE 2.2

GEOMETRIC DESIGN STANDARDS FOR MAJOR COLLECTORS

TYPICAL SECTION OF MINOR COLLECTOR WITH PARKING



TYPICAL SECTION OF MINOR COLLECTOR WITHOUT PARKING

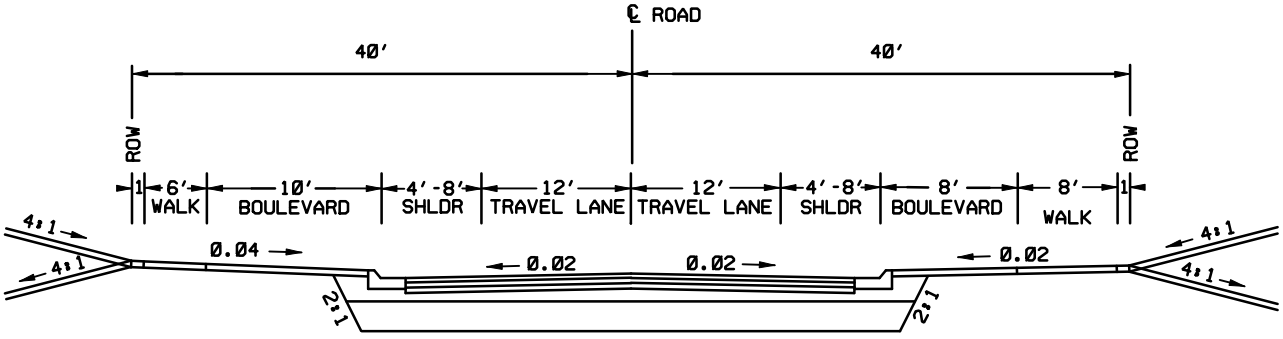


FIGURE 2.3

GEOMETRIC DESIGN STANDARDS FOR MINOR COLLECTORS

BOLTON & MENK, INC.
Consulting Engineers & Surveyors

h:\STFR\R1339307\Cad\Minor Collector.dgn

Medians – Medians are recommended on several Major Collector roadways under the jurisdiction of the City. Medians on Major Collector roadways assist in accommodating significant vehicular volumes at acceptable travel speeds for adjacent land uses. While maintaining the travel lane widths required for traffic, the total pavement width is reduced, creating a more appealing and acceptable travel corridor. Trees and other landscaping can be included within medians on city Major Collector roadways, provided they do not compromise minimum clear zone requirements and do not interfere with traffic control devices. Medians also allow for more comfortable pedestrian crossings of Major Collector roadways by providing a safe haven for pedestrians to assess crossing opportunities one direction of vehicular travel at a time.

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 2.6 below presents the recommended design speed for the City of St. Francis' roadway network.

Table 2.6 – Roadway Design Speed Guidelines

Functional Classification	Design Speed [(1)]
Minor Collector Street	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, with approval by the City Council.

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 within the City's jurisdiction, respectively. For Minor Collector streets in residential areas, a minimum right-of-way width of 80' 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 greater than 100' will be required on Major Collector roadways within commercial areas 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, with approval by the City Council.

2.5 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 St. Francis.

As roadway segments are considered for turn-back to the City, efforts will be taken to evaluate the roadway features for conformance to current standards, structural integrity, and safety. This effort will help the City develop short and long-range programs to assume the responsibilities of jurisdictional authority.

2.6 Transit

It is recognized that various methods of travel impact the economic vitality of a city, county, or broader region. The term *transit* applies to all forms of sharing rides, regardless of whether the service is provided by a public or private operator, organization, or individual vehicle owner, or whether the ridesharing arrangements are formal or informal. Most transit rides, however, are provided by formal transit systems, at least during the morning and afternoon peak travel periods. Based on the needs of a community, transit systems may be established to accommodate trips that are internal within the city (internal to internal), trips that begin in the city and end somewhere outside of the city (internal to external), and/or trips that begin outside of the city and end within the city (external to internal). An example of an internal to internal trip may be a trip that begins at a home in St. Francis and ends at a place of employment such as the St. Francis High School. An internal to external trip may be a trip that begins at a home in St. Francis and ends at the Anoka County License Center in Ramsey. A trip that begins at a home in Andover and ends at Northland Screw Products is an example of an external to internal trip.

Dial-a-ride, fixed route service by means of bus, bus rapid transit, and/or commuter rail, are just some of the transit system examples that are or could be provided within a city such as St. Francis upon the completion of further detailed studies. Transit studies can evaluate current transit service performance and analyze the market to identify any unmet needs and to look for opportunities to enhance transit service. Generally, communities with dial-a-ride as an initial service explore the feasibility of providing a fixed route schedule to connect residents with businesses, schools, places to shop, and employment centers.

3.0 Existing Transportation System Evaluation

The initial settlement of the City of St. Francis occurred adjacent to the Rum River. This area is considered the downtown area of the community. Newer development that has occurred is in a curvilinear street pattern, and TH 47, CSAH 28, and CSAH 24 are still relied upon for the movement of local traffic. As population and business attractions grow, increases in traffic volumes have the potential to negatively impact the downtown area by reducing pedestrian mobility, increasing traffic congestion, and increasing parking problems. The City's ability to develop adequate Major Collector roadways and Local roadway connections is critical to maintain a satisfactory roadway system in the St. Francis area and preserve the downtown area of St. Francis.

3.1 Existing Traffic Volumes & Capacity

The existing traffic volumes within the area were collected from Mn/DOT and are represented in Figure 3.1 – Existing Average Daily Traffic Volumes & Levels of Congestion. This figure also illustrates the existing lanes on arterial roadways. Analysis of these volumes, together with the roadway segment capacity characteristics (i.e. segment design type and capacity) indicates that the system operates well for most roadways within St. Francis. The roadway segments within the City of St. Francis noted below and illustrated in Figure 3.1 are currently operating at a periodically congested or near congested level. Additional data regarding segment design type and capacity is available within Appendix A.

Level of Service C – Periodically Congested

- TH 47 north of CSAH 28
- CSAH 7 between CSAH 24 and the southern City limits
- CSAH 9 between CSAH 24 and the southern City limits
- CSAH 24 between CSAH 28 and Butterfield Drive NW
- CSAH 24 between CR 72 and CSAH 9

Level of Service D & E – Near Congested

- TH 47 between CSAH 28 and CR 81
- CSAH 24 between Butterfield Drive NW and CR 72

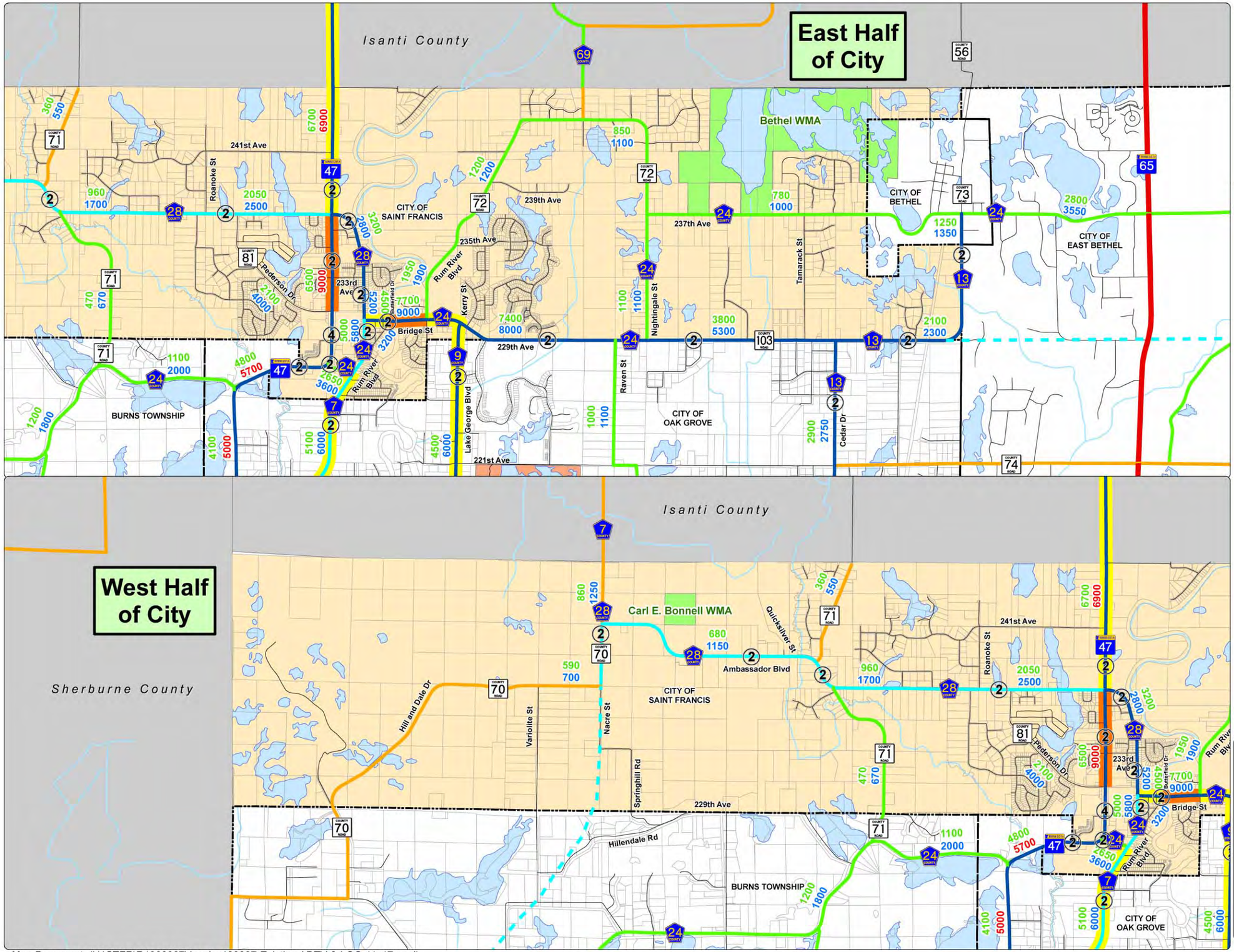
Capacity improvements are recommended on any roadway with a future level of service of D, E, or F, as defined in the roadway capacity discussion within the Transportation System Principals and Standards section. Roadways identified above as near congested (having a volume to capacity ratio between 0.75 and 1) or congested (having a volume to capacity ratio greater than 1) are recommended to be monitored and programmed for capacity improvements when necessary. Roadways that are periodically congested (having a volume to capacity ratio between 0.5 and 0.75) are generally identified as providing an acceptable level of service.

3.2 Continuity Deficiencies

The City of St. Francis is bisected by the Rum River running north-south through the City. In addition to the river, there are numerous wetlands throughout the City that preclude opportunities for good continuity across the community. As a result, there are limited connections between neighborhoods and a lack of continuous roadway corridors. In addition, Minor Arterial roadways in St. Francis play multiple roles in providing land access, as well as serving longer trips by providing connectivity to other cities.

CITY OF ST. FRANCIS
2030 TRANSPORTATION PLAN
EXISTING AVERAGE DAILY TRAFFIC VOLUMES AND LEVELS OF CONGESTION

FIGURE NO. 3.1
2008



Legend

- (2) Existing Travel Lanes

Levels of Congestion

- Periodically Congested-LOS C (V/C=0.50 - 0.74)
- Near Congested-LOS D/E (V/C-0.75 - 1.00)
- Congested-LOS F (V/C>1.00 with 2-Lane Road)

Average Daily Traffic Volumes

- XXXX 2000 AADT
- XXXX 2005 AADT
- XXXX 2006 AADT

Existing Functional Classification

- Principal Arterial
- A Minor Arterial-Connector/Mn/DOT Minor Arterial
- B Minor Arterial
- Proposed B Minor Arterial
- Major Collector
- Minor Collector
- Local Roads
- Protected Waters
- Watercourses & Drainageways
- Regional Recreation Open Space Features
- Wildlife Management Areas
- St Francis City Limits

Source: Anoka County, MNDNR, MNDOT

Functional Classification - Metropolitan Council and The Lawrence Group (TLG) Date: 10-5-2007
- MNDOT Date: 10-19-2007

N W E S

0.75 0 0.75 Miles

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
www.bolton-menk.com

Map Document: (H:\STFR\R1339307\Arcview\39307-Existing ADTV & LOC-11x17.mxd)
12/9/2008 -- 3:50:08 PM

3.3 Safety Issues

A planning-level analysis of the existing transportation system in St. Francis was completed and included evaluating crash records for the types of accidents most commonly occurring and where accident trends may exist. In the five year time period from January 1, 2002 through December 31, 2006 there were 269 crashes on the roadways within the City of St. Francis. Locations with the highest accident frequency are at the intersections of TH 47 with CSAH 28, TH 47 with 233rd Avenue NW, TH 47 with Pederson Drive NW, and CSAH 24 with CSAH 9. It should be noted that the intersection of TH 47 with Pederson Drive NW has a crash rate that is double the state average for similar intersections. Of the 269 crashes, 62 included injuries, 36 had possible injuries, and 171 involved property damage only. Rear end crashes represented 20% of the crashes, and 21% were right angle crashes.

3.4 Jurisdictional Issues

CR 81 is an approximate 1 mile long roadway located west of TH 47 and south of CSAH 28. This route primarily serves local traffic. It is identified in Anoka County's 2015 Transportation Plan as a potential jurisdictional transfer route (turn-back route) from the Anoka County to the City of St. Francis. The County's draft 2030 Transportation Plan also identifies CR 70 from the west county border in the City of Nowthen to CSAH 28 in the City of St. Francis as a jurisdictional transfer candidate from the County to the City. Turnback of this route would have to be coordinated with the extension or joining of CSAH 28 and CSAH 5 in the Cities of Nowthen and St. Francis.

3.5 Relevant Area Transportation Studies

An analysis associated with the Federal Surface Transportation Program (STP) funding for proposed CSAH 9/24 reconstruction was completed. The proposed project was not selected for funding. It would have implemented a number of necessary structural, mobility, geometric and safety improvements on the segments of CSAH 9 (Lake George Blvd NW) from 221st Avenue NW to the CSAH 24 (Bridge Street) intersection and CSAH 24 from the CR 72 (Rum River Blvd NW) intersection to just east of the CSAH 9 intersection near Kerry Street (approximately 1.8 miles). The reconstruction project would have brought the roads up to a 10-ton standard. Other improvements would have included: the construction of turn lanes at public streets, construction of shoulders along both sides of the corridors, consolidation of access at selected locations, intersection control improvements, improving drainage and construction of trails.

3.6 Multimodal Transportation Opportunities

It is recognized that various methods of travel impact the economic vitality of a city, county, or broader region.

Transit Service

The City of St. Francis is located outside of the Metropolitan Transit Taxing District in Market Area IV, and there is no regular route transit service existing or planned in the City. The Anoka County Traveler Dial-a-Ride service is the only service currently available within the City of St. Francis. It provides curb to curb transportation service in Anoka County. Anyone can use the service as long as they are able to travel independently or with a personal care attendant. Dial-a-Ride coordinates with the Anoka County Traveler's fixed-route service to ensure customers the most efficient and affordable way to travel. Rides may be scheduled up to four days in advance. Same-day requests are available when capacity and schedule allow. The closest park and ride lot is located in the City of East Bethel at the ice arena located on TH 65 between Josh Avenue and 209th Avenue. There is no bus service available at this park and ride lot. Anoka County provides some rideshare coordination activities through their Transportation Management Organization.

Sidewalks and Trails

The St. Francis Park and Trail System Plan, approved in 2005, identifies the existing bikeway, sidewalk and trail locations.

Aviation Plans/Facilities

There are no existing or planned aviation facilities within St. Francis. However, the City is required to include standards for airspace protection in its Comprehensive Plan and local controls.

4.0 Future Transportation System

The transportation system in the St. Francis area is in a rural to urban transition in response to the rapid growth experienced in the past 5 years and the anticipated growth for this area. As growth continues to occur, 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.

4.1 Future Roadway Corridors

The Future Land Use Plan Map illustrates the projected future land uses within the 2030 urban growth boundary. A supporting future road network has been developed in consideration of long-term growth in the area and is illustrated in Figure 4.1 – Recommended Future Roadway Functional Classification. This network has been developed in consideration of the proposed land uses, the Anoka County Transportation Plan, and the limitations of the natural environment.

A suitable arterial-collector system to accommodate future development and traffic patterns is necessary in the growing community of St. Francis. The existing county and state highways have historically provided much of the local circulation and connectivity; however these roadways will not be capable of 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 the Principal Arterial and Minor Arterial roadways to serve longer, regional travel. It is not anticipated that all of the proposed collector streets will be constructed by 2030; rather, collector streets should be constructed as development occurs.

The roadway corridors identified are conceptual, based on network needs, and should be used as a guide for development of the City's roadway system. In most cases, the actual roadway alignments are flexible to meet the needs of future development, at the discretion of the City Engineer. Careful consideration will be necessary to guide development and redevelopment plans towards the creation of full access locations meeting the City and Anoka County's access spacing guidelines. These improvements will increase the safety and mobility of the travel public, as well as increase accessibility to adjacent land uses. New or re-designated roadways necessary to support the land uses identified in Future Land Use Plan Map and future traffic growth are mentioned below.

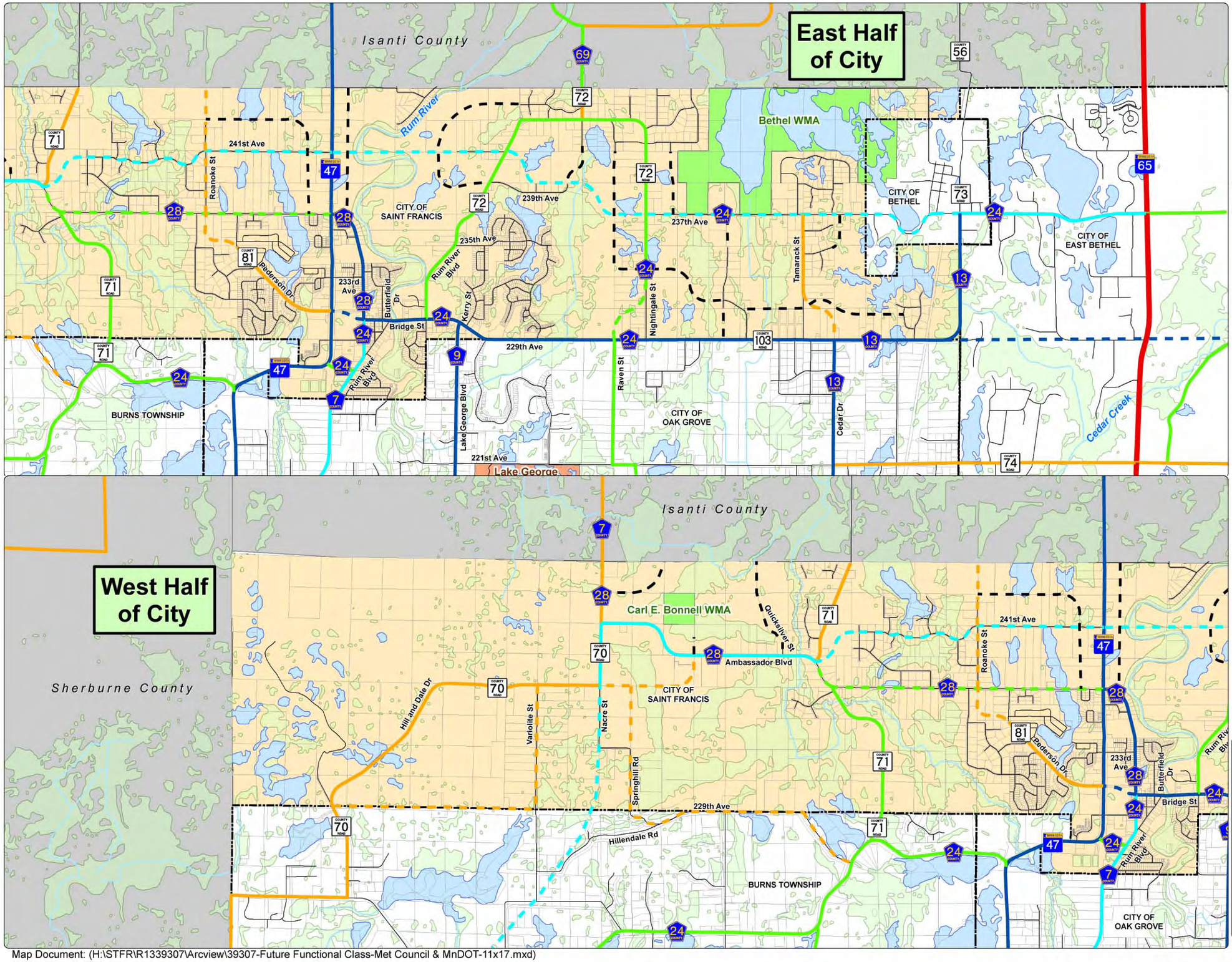
4.1.1 Minor Arterials

Section 2.1.2 identifies two existing functionally classed proposed B-Minor Arterial routes. One is the extension of CR 103 in the southeast city limits extending east to CSAH 26. Anoka County and this plan identify CR 103's future functional classification as an A-Minor Arterial Connector. The second is the southerly extension of CR 70 from Nacre Street to connect with CSAH 5. Both of these corridors are located outside of the City of St. Francis' 2030 urban growth boundary.

The City of St. Francis also recognizes the need for a second Rum River crossing to meet regional mobility needs through northwestern Anoka County. The illustrated proposed B-Minor Arterial route extends from CSAH 28 across TH 47 through a Minnesota Department of Natural Resources wild and scenic designated area to CSAH 24/237th Avenue. The future route would provide a continuous east-west route from TH 65 to CSAH 28/CR 70. A study should be initiated with Anoka County to evaluate the merits of a new corridor in this location versus expansion of Bridge Street prior to additional development occurring in the area of the proposed crossing. The study would determine whether the alignment illustrated provides the best benefit to the area by analyzing the opportunities and limitations of a new corridor, a corridor in a different alignment, or expansion of the current Bridge Street corridor.

CITY OF ST. FRANCIS
2030 TRANSPORTATION PLAN
RECOMMENDED FUTURE ROADWAY FUNCTIONAL CLASSIFICATION

FIGURE NO. 4.1
2008



Legend

Future Functional Classification

- Principal Arterial
- A Minor Arterial-Connector/MNDOT Minor Arterial
- Proposed A Minor Arterial-Connector/MNDOT Minor Arterial
- B Minor Arterial
- Proposed B Minor Arterial
- Major Collector
- Proposed Major Collector
- Minor Collector
- Proposed Minor Collector
- Local Roads
- Future Local Roads
- Wetlands
- Protected Waters
- Watercourses & Drainageways
- Regional Recreation Open Space Features
- Wildlife Management Areas
- St Francis City Limits

Source: Anoka County, MNDNR, MNDOT

Functional Classification - Metropolitan Council and The Lawrence Group (TLG) Date: 10-5-2007
- MNDOT Date: 10-19-2007

N W E S

0.75 0 0.75 Miles

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
www.bolton-menk.com

Map Document: (H:\STFR\R1339307\Arcview\39307-Future Functional Class-Met Council & MnDOT-11x17.mxd)
12/9/2008 -- 3:46:02 PM

The City desires to plan for the potential opportunity to extend CSAH 24 west of CSAH 28 to connect to TH 47. The City anticipates this extension could be considered if school activities were to terminate and land use changes were to occur through redevelopment initiatives.

4.1.2 Collector Roads

No new Major Collector roadways are planned in St. Francis. This is due to the location of existing collector and arterial roadways, natural features abundant in the area, and the roadway functional classification spacing guidelines identified in Section 2.1.

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 are designed to carry traffic to higher-level roadways. They typically do not carry trips through an area; rather they connect non-continuous local streets and provide individual property access.

One of the primary issues facing developing communities around the Twin Cities Metropolitan area 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. Minor 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 Minor 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 Minor Collector connections to the Major Collector network. If evenly distributed, these connections will ensure the Minor Collector streets will not be required to carry an unacceptable level of traffic. These Minor Collector streets should be continuous through multiple developments, but not necessarily continuous between Major Collectors. Direct, continuous Minor 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. As stated in Section 3.0, there is lack of collector roadways in the St. Francis area, resulting in an over reliance on the Minor Arterials for local circulation and connectivity. The long-term roadway network vision in the St. Francis area addresses these deficiencies. Following is an overview of specific corridors.

CSAH 28 is identified as a long-term Major Collector roadway. It is recommended that this corridor be preserved (i.e. maintain access spacing, etc.) as a Minor Arterial until such time as a Rum River crossing is realized. At that time, this roadway would function as a Major Collector roadway providing an option for local traffic circulation.

Raven Street NW is a north-south Major Collector roadway. This roadway is identified to be realigned with Nightingale Street to create a continuous route across the southern City limits. Similarly, a continuous north-south route is planned between CSAH 13/Cedar Drive NW and Tamarack Street NW.

The extension of CR 81 northwest across CSAH 28 along Roanoke Street to the north City limits is identified. This route will help collect local traffic and provide an alternate route to TH 47 to access land uses in the area.

West of CR 71, new Minor Collector roadways are planned to accommodate the collection of local traffic. Since these roads are not located within the 2030 growth boundary, it is anticipated that development driven activities will not drive these improvements.

- CR 70/Hill and Dale Drive extension east to CSAH 28/Ambassador Boulevard NW
- Springhill Road NW extension to future CR 70/ Hill and Dale Drive
- 229th Avenue NW extension between CR 70 and Varolite Street NW
- Verolite Street NW between CR 70 and the south City limits

4.1.3 Local Roads

Figure 4.1 illustrates several future local roads. The purpose of illustrating these roads is to call attention to important connections that should be evaluated when new or redevelopment activities are proposed. These routes provide connections between neighborhoods. They also allow local traffic to reach their destinations without having to access busier arterial and collector roadways, preserving them for longer, regional trips. The alignments identified also consider access spacing on the higher functionally classified roadways.

4.2 Forecasted Traffic Volumes

Average annual daily traffic volumes were forecasted for collector and arterial roadways based on the future land use vision within the urban growth boundary identified in the Land Use Plan Map. Two scenarios were evaluated, one with the new B-Minor Arterial roadways as described in Section 4.1.1, and a second scenario without these future corridors. Existing traffic volumes were obtained from Mn/DOT, and assumed traffic growth rates were also factored.

Household, population, and employment projections were developed for the geographic area identified as within the 2030 urban growth boundary and were based on the land use assumptions (i.e. dwelling units, persons per household, and employees per net acre) provided for in the Land Use Plan. The 2030 socioeconomic allocations by transportation analysis zone are provided in Appendix A.

The forecasted 2030 traffic volumes are illustrated in Figure 4.2 (with new arterials) and Figure 4.3 (without new arterials). Figures 4.2 and 4.3 identify the average annual daily traffic volumes forecasted for collector and arterial roadways. This information will serve as the basis for the City of St. Francis to make decisions on roadway design features to accommodate long-term planned growth.

4.2.1 Roadway Safety & Capacity Needs

Figures 4.2 and 4.3 identify the existing roadway segments where capacity improvements will be needed with and without new arterial roadways to accommodate 2030 forecasted traffic volumes. Figure 4.4 illustrates the anticipated future lane needs on arterial roadways with and without a new river crossing. It is evident based on traffic forecasts that without a new arterial roadway crossing of the Rum River, average annual daily travel demands will approach or exceed daily capacities on portions of CSAH 24, CSAH 28, and TH 47 in downtown St. Francis. The existing built and natural environment will present challenges in improving mobility in these areas. With a new river crossing, congestion on portions of these corridors will be reduced. In both scenarios, TH 47 is anticipated to carry large volumes of traffic through the City and approach or exceed daily capacities on several segments. Forecasts indicate that a new crossing would attract additional traffic from Isanti County. The new crossing is projected to reduce traffic volumes on TH 47 and redirect the traffic to TH 65 via CSAH 24 through the Cities of Bethel and East Bethel.

CITY OF ST. FRANCIS
2030 TRANSPORTATION PLAN
2030 AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF CONGESTION (WITH NEW ARTERIALS)

FIGURE NO. 4.2
2008

East Half of City

West Half of City

Isanti County

Sherburne County

CITY OF SAINT FRANCIS

CITY OF BETHEL

CITY OF EAST BETHEL

CITY OF OAK GROVE

BURNS TOWNSHIP

Bethel WMA

Carl E. Bonnell WMA

Rum River

Cedar Creek

241st Ave

239th Ave

237th Ave

235th Ave

233rd Ave

229th Ave

221st Ave

Roanoke St

Rum River Blvd

Butterfield Dr

Pederson Dr

Bridge St

Kerry St

Nightingale St

Tamarack St

Raven St

Cedar Dr

Lake George Blvd

Quicksilver St

Ambassador Blvd

Nacre St

Variolite St

Springhill Rd

Hill and Dale Dr

Hillendale Rd

Legend

XXXX 2030 Projected ADT Volumes

Potential Intersection Control Evaluation

Levels of Congestion

- Periodically Congested V/C=0.50 - 0.75
- Near Congested V/C-0.75 - 1.00
- Congested V/C>1.00

Future Functional Classification

- Principal Arterial
- A Minor Arterial-Connector/MNDOT Minor Arterial
- Proposed A Minor Arterial-Connector/MNDOT Minor Arterial
- B Minor Arterial
- Proposed B Minor Arterial
- Major Collector
- Proposed Major Collector
- Minor Collector
- Proposed Minor Collector
- Local Roads
- Protected Waters
- Watercourses & Drainageways
- Regional Recreation Open Space Features
- Wildlife Management Areas
- St Francis City Limits

Notes:
Traffic volumes rounded as follows:
<1000, Nearest 10
>1000, Nearest 100

Forecast numbers depicted have a confidence range of plus or minus 15%.

Forecasts follow procedures as documented in the Twin City Travel Demand Forecasts Prepared for MNDOT Metro: Model and Parameters for Adjustments to Model Inputs (Revised January 5, 2006).

Forecasted traffic volumes that have been developed are based on the full build-out of the urban growth boundary identified in the Comprehensive Plan. It should be noted that this yield is greater than the Twin Cities Metropolitan Council 2030 forecasts for households, population, and employment. Due to the uncertainty of where development will actually occur, it is not possible to remove the resulting "overages" from specific segments of roadway and is an important consideration to be aware of when reviewing the forecasted traffic volumes.

N W E S

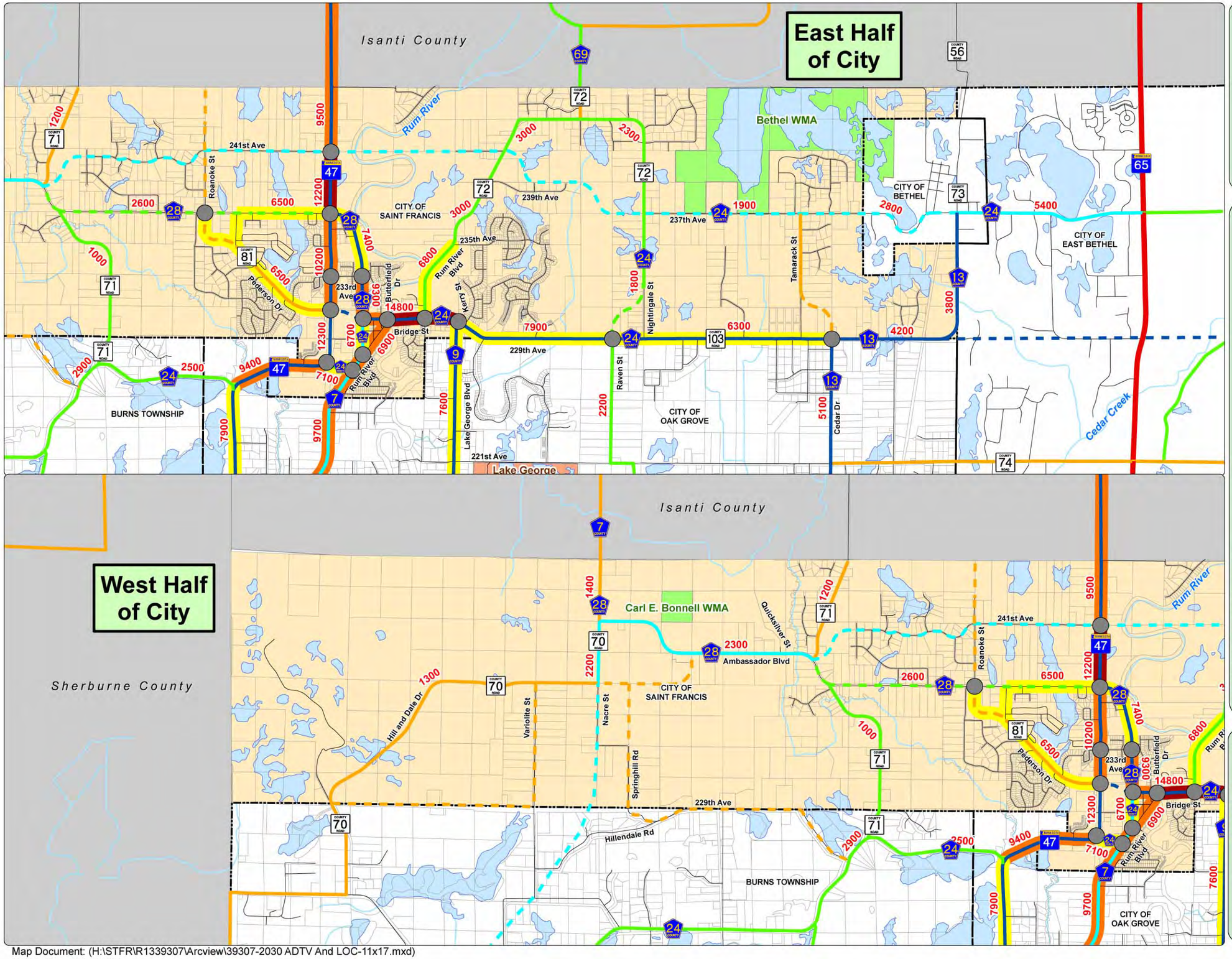
0.75 0 0.75 Miles

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
www.bolton-menk.com

Map Document: (H:\STFR\R1339307\Arcview\39307-2030 ADTV And LOC With New Arterials-11x17.mxd)
12/9/2008 -- 3:27:56 PM

CITY OF ST. FRANCIS
2030 TRANSPORTATION PLAN
2030 AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF CONGESTION (WITHOUT NEW ARTERIALS)

FIGURE NO. 4.3
2008



Notes:
Traffic volumes rounded as follows:
<1000, Nearest 10
>1000, Nearest 100

Forecast numbers depicted have a confidence range of plus or minus 15%.

Forecasts follow procedures as documented in the Twin City Travel Demand Forecasts Prepared for MNDOT Metro: Model and Parameters for Adjustments to Model Inputs (Revised January 5, 2006).

Forecasted traffic volumes that have been developed are based on the full build-out of the urban growth boundary identified in the Comprehensive Plan. It should be noted that this yield is greater than the Twin Cities Metropolitan Council 2030 forecasts for households, population, and employment. Due to the uncertainty of where development will actually occur, it is not possible to remove the resulting "overages" from specific segments of roadway and is an important consideration to be aware of when reviewing the forecasted traffic volumes.

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
www.bolton-menk.com

Map Document: (H:\STFR\R1339307\Arcview\39307-2030 ADTV And LOC-11x17.mxd)
12/9/2008 -- 3:25:47 PM

CITY OF ST. FRANCIS
2030 TRANSPORTATION PLAN
ANTICIPATED FUTURE
ARTERIAL LANE NEEDS

FIGURE NO. 4.4
2008

East Half of City

West Half of City

Isanti County

Sherburne County

CITY OF SAINT FRANCIS

CITY OF BETHEL

CITY OF EAST BETHEL

CITY OF OAK GROVE

BURNS TOWNSHIP

Bethel WMA

Carl E. Bonnell WMA

Lake George

Rum River

Cedar Creek

241st Ave
239th Ave
237th Ave
235th Ave
233rd Ave
229th Ave
221st Ave

Roanoke St
Rum River Blvd
Pederson Dr
Butterfield Dr
Bridge St
Kerry St
Nightingale St
Tamarack St
Raven St
Lake George Blvd
Cedar Dr
Quicksilver St
Ambassador Blvd
Hill and Dale Dr
Variolite St
Nacre St
Springhill Rd
Hillendale Rd

Legend

- Proposed Lanes With New Arterials
- Proposed Lanes Without New Arterials
  If Not Shown (2 Lanes)

Future Functional Classification

- Principal Arterial
- A Minor Arterial-Connector/MNDOT Minor Arterial
- Proposed A Minor Arterial-Connector/MNDOT Minor Arterial
- B Minor Arterial
- Proposed B Minor Arterial
- Major Collector
- Proposed Major Collector
- Minor Collector
- Proposed Minor Collector
- Local Roads
- Wetlands
- Protected Waters
- Watercourses & Drainageways
- Regional Recreation Open Space Features
- Wildlife Management Areas
- St Francis City Limits

Source: Anoka County, MNDNR, MNDOT

Functional Classification - Metropolitan Council and The Lawrence Group (TLG) Date: 10-5-2007
- MNDOT Date: 10-19-2007

N W E S

0.75 0 0.75 Miles

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
www.bolton-menk.com

Map Document: (H:\STFR\R1339307\Arcview\39307-Anticipated Future Arterial Lane Needs-11x17.mxd)
12/9/2008 -- 3:43:31 PM

The recommended Geometric Design Standards and associated right-of-way width requirements illustrated in Section 2.4 – Geometric Design Standards will provide sufficient capacity to accommodate the forecasted traffic volumes on the City's roadways. Table 2.1 – Roadway Types and Capacities identifies various roadway types and the daily capacities that the given roadway can accommodate.

Appendix B further describes historical and 2030 traffic volumes and capacities. Capacity improvements are recommended on any roadway with a future level of service of D, E, or F, as defined in Section 2.2. The development of the future roadway network illustrated in Figure 4.1 is necessary to provide alternatives to the routes recommended for capacity improvements. Corridors and associated strategies recommended for capacity improvements are summarized for each deficient roadway below.

State Roadways

Based on current travel trends, congestion on TH 47 is anticipated to increase. As described above, without a new Rum River crossing, the highway is expected to become congested through most of St. Francis. The City should initiate discussions and partner with Mn/DOT and Anoka County to determine and implement the appropriate capacity and safety improvements.

County Roadways

Several County roadways are forecasted to be periodically congested, near congested, or congested during the peak travel hours as development increases and travelers seek alternative routes to move through St. Francis. The City will need to work with Anoka County to preserve right-of-way, review and monitor traffic volumes and intersection operations, obtain additional right-of-way, as well as stage and fund improvements that will become necessary as development occurs.

CSAH 24 – Without a new river crossing, traffic volumes on CSAH 24 are expected to increase significantly from 9,000 in 2005 to 14,800 in 2030 near the Rum River crossing. This is due to the lack of east-west corridors through northern Anoka County across the river. Segments of CSAH 24 are forecasted to be

- Congested – between Butterfield Drive and CSAH 9
- Near Congested –between CSAH 28 and Butterfield Drive and between CSAH 9 and Raven Street
- Periodically Congested – between TH 47 and CSAH 7, between River Drive and Bridge Street, and between CSAH 9 and Nightingale Street.

Challenges to improve capacity along this corridor include the river itself, historic or potentially historic properties/sites, Rum River North County Park, close access/intersection spacing, and the proximity of structures to the right-of-way.

Several corridors leading to TH 47 and to and from the CSAH 24 river crossing will experience varying levels of congestion. Also contributing to congestion levels are drivers' desire to access the downtown area, future commercial areas, and schools in this area. Following is an overview of the congestion levels anticipated with and without a new river crossing and other new Minor Arterial corridors constructed by 2030.

- CSAH 28 between CR 81 and 233rd Avenue is forecasted to be periodically congested, between 233rd Avenue and CSAH 24 – near congested. With new Minor Arterial corridors, CSAH 28 should operate within acceptable levels.

- CR 81 between CSAH 28 and TH 47 is anticipated to be periodically congested. Congestion on this road would remain about the same in 2030 with new Minor Arterial corridors.

- CSAH 7 from south of St. Francis City limits to CSAH 24 would likely be near congested in 2030. With new Minor Arterials, congestion would be reduced.

- CR 72 south from 235th Avenue to Bridge Street is forecasted to be periodically congested. Congestion is not anticipated with new Minor Arterial corridors.

- CSAH 9 from CSAH 24 south into the City of Oak Grove is anticipated to be periodically congested. Congestion on this road is anticipated to remain about the same as 2005 levels in 2030 with new Minor Arterial corridors.

- CR 103 – from Raven Street to CSAH 13/Cedar Drive is anticipated to be periodically congested. With new Minor Arterial corridors, CSAH 28 should operate within acceptable levels.

Local Roadways

Similar to the many of the County roadways, Rum River Boulevard south of Bridge Street is anticipated to be near congested. Traffic on this route is forecasted to more than double 2005 volumes of 3,200 to 6,900 in 2030. This is due to drivers' desire to avoid other adjacent congested County roads to access the Rum River Crossing.

Intersections

Existing and proposed intersection locations may have inadequate sight distances. Sight lines at these locations may be obstructed due to horizontal and/or vertical curvature of the roadways, as well as other roadside obstructions. As future intersections are established or new land use developments route additional traffic to existing intersections, an engineering study will be required to determine the appropriate measures needed to achieve adequate intersection sight distances. These may include reconstruction of a portion of the existing through roadway, relocating the intersection, or other means to remove the sight obstruction. To accommodate necessary turn lanes, additional right-of-way may be required at the intersection.

Figures 4.2 and 4.3 identify several potential locations that may require an intersection control evaluation. The intersection control evaluation will identify the traffic control option (e.g. all way stop, roundabout, possible signalization) and capacity improvements (e.g. turn lanes) necessary to accommodate the traffic volumes in a safe and efficient manner. Intersections along TH 47, CSAH 28, and CSAH 24 should be designed to properly handle the anticipated traffic through the use of turn lanes and/or alternate traffic control (e.g. all way stop, roundabout, possible signalization) at all intersections and limiting Local and Minor Collector roadway access along the roadway as consistent with the standards in Section II. Direct driveway access should not be allowed. Access management, as outlined in Section II–C, will be an important tool in maintaining mobility on these roadways. Right-of-way should be acquired as properties in the area develop or redevelop.

4.3 Multimodal

Given St. Francis is located in Market Area IV and no regular route transit service is planned, the City should continue to work with Anoka County Transit to determine long term needs for additional service and opportunities to integrate with services provided in other cities and adjacent counties. The City should also consider reviewing pedestrian facilities and school routings to determine their adequacy as traffic conditions change. Sidewalks and trails, providing pedestrians a route to future controlled intersections, should be incorporated into road projects and land developments to safely accommodate pedestrian and traffic growth in the City. Improvements identified in the City's Park and Trail System Plan should also be completed. Section 2.4 also recommends for each of the county highways within St. Francis a 10' bituminous trail be constructed on both sides of the roadway to accommodate pedestrian, bicycle, and other non-motorized travel. A 10' bituminous trail is also recommended on both sides of TH 47.

On a regional basis, the Metropolitan Council Regional Parks Policy Plan has identified the need for a new park reserve in northwestern St. Francis based on forecasted 2030 needs and the existence of a very high quality natural resource area unique in Anoka County. Trail connectivity to Rum River North County Park and Lake George Regional Park should also be considered.

Aviation Plans/Facilities

As noted in the discussion of the existing transportation system, the City of St. Francis is required to include standards for airspace protection in its Comprehensive Plan and local controls.

Federal Regulation Title 14, Part 77 establishes standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for evaluating the effect of the construction or alteration on operating procedures, determining the potential hazardous effect of the proposed construction on air navigation, identifying mitigation measures to enhance safe air navigation, and charting of new objects. Notification allows the Federal Aviation Administration (FAA) to identify potential aeronautical hazards in advance, thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace.

Title 14, Part 77.13 requires any person/organization who intends to sponsor any of the following construction or alterations to notify the Administrator of the FAA when:

- Any construction or alteration exceeding 200 feet above ground level;
- Any construction or alteration:
    - Within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet
    - Within 10,000 feet of a public use or military airport which exceeds 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet
    - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface;
- Any highway, railroad or other traverse way whose prescribed adjusted height would exceed that above noted standards;
- When requested by FAA; and,
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

Persons/organizations intending to sponsor construction/alterations which require notification to the FAA under Title 14, Part 77.13 shall notify the FAA using FAA form 7460–1 as may be amended. The City's Zoning Ordinance should be amended to require persons/organizations intending to sponsor construction/alterations which require notification to the FAA under Title 14, Part 77.13 to notify the FAA using FAA form 7460–1 as may be amended.

5.0 Goals & Implementation

The following goals and strategies outline the City of St. Francis's plan for ensuring adequate infrastructure is available to support the growth anticipated within the urban growth boundary.

5.1 Goals

The transportation goals and implementation strategies identified have been developed to meet the needs of the land uses associated with the build-out of the urban growth boundary.

1. Comprehensive Transportation Planning – Approach transportation in a comprehensive manner by giving attention to all modes and related facilities through linking transit and land use and by combining or concentrating various land use activities to reduce the need for transportation facilities.

2. Transportation System – Create/provide a safe, cost effective, and efficient transportation system that is adequate for vehicular, pedestrian, bicycle, and truck transportation for the movement of people and goods and services in the community.

3. Arterial Roadway Crossings – The City should promote safe pedestrian crossings of arterial roadways.

4. Transportation & Economic Development – Create or encourage a transportation system that contributes to the economic vitality of the community by connecting people to work, shopping, and other activity generators/attractions and supports growth of commercial and industrial uses.

5. Regional Transportation Planning – Cooperate on a regional level in planning and development of a transportation system, including coordination among multiple jurisdictions, public and private transit providers and agencies at all government levels, while serving the functional needs of all.

6. Regional Traffic Management – Work on a local, state, and regional level to reduce traffic congestion and safety concerns on transportation corridors.

7. Collector Streets – The location of collector streets promotes orderly development. As development plans are presented to the City, future collector streets should be designed to provide continuity and prudent access to other collector streets and arterials and adhere to the recommended access management guidelines and locations identified in Figure 4.1 – Recommended Future Roadway Functional Classification.

8. Local Streets – Local streets should be aligned to permit efficient plat layout while being compatible with the area's topography, adjacent roadways, municipal utility plans and environmental constraints.

9. Transportation Improvement & Expansion – Improve and expand the existing transportation system as necessary to meet current and future transportation needs.

10. Maintain Existing Infrastructure – Preserve and maintain the existing transportation infrastructure to protect the significant investment, to increase its efficiency, and delay the need for improvement or expansion by use of a Capital Improvement Plan.

11. Municipal Services – As the street system continues to expand, street maintenance such as snowplowing, grading rural roadways, dust coating, routine maintenance, etc. will become increasingly important issues. Additional street construction will either increase contracted labor expenses or necessitate an expansion of the City's services provided by the municipal public works department. Prior to approving proposed subdivisions, consideration should be given to the City's ability to provide municipal services, facilities and equipment for snowplowing, street grading, minor street repair, dust-coating, etc. on either a contracted or staff basis.

12. Transit/Alternative Modes of Transportation – To diminish/prevent congestion, the City should encourage alternate and/or integrated transportation methods that are less dependent on motor vehicles. The City could promote and encourage walking and biking as alternate transportation methods. The City should strive to provide park and ride facilities as a means of encouraging car-pooling and ride sharing. As the population ages and diversifies, bus service will become an important amenity in the community and should be further studied with Anoka County Transit. Special attention should be given to improving pedestrian access, movement and crossings to provide both convenience and safety. Additionally, the City of St. Francis will work with the Metropolitan Council or an opt out transit service provider to determine transit services consistent with the City's market service area and its related service standards and strategies.

13. County Capital Improvement Plan – The City should continue to work with the County elected and appointed officials to include County Road reconstruction projects on the County's Capital Improvement Plan to address needed reconstruction and potential trails along the roadways when improved.

14. Regional Transportation Funding – Pursue a balanced approach to financing transportation and other community needs at the local level based on current availability of services and facilities and maintenance of existing infrastructure.

15. Roadway Project Coordination – Continue to coordinate future road construction and reconstruction projects with all utility service providers and Anoka County to ensure efficient repair/replacement and avoid duplicate costs.

16. Capital Improvement Plan – Develop a Capital Improvement Plan that contains elements for new construction and reconstruction of the roadway system, with scheduled maintenance included in annual budgets. Street maintenance should include routine patching, crack filling, and storm sewer cleaning. Implement a schedule for roadway maintenance and reconstruction (e.g. complete reconstruction or mill/overlay every 15 to 20 years), street widening/realignment, etc.

17. Zoning and Subdivision Ordinance Update – Update the Zoning and Subdivision Ordinances consistent with the Transportation Plan.

18. Right-of-Way Dedication – Require right-of-way dedication along state, county, and local roads to meet future capacity needs.

19. Development Driven Improvements – Work with developers to construct needed improvements prior to development.

20. Non-Development Driven Improvements – Non-development driven improvements should be prioritized and programmed in the Capital Improvement Program.

21. Minor Collector Review – review concept plans for plat and development proposals to evaluate the distribution of Minor Collector roadways so as to not overburden local streets.

22. Assessment Policy – Develop an assessment policy for Major Collector and Minor Arterial roadways to establish expectations and ensure consistent application.

23. Developer Agreements – Utilize developer agreements as a tool to ensure improvements are constructed as agreed upon in the platting or development process.

24. Traffic Impact Study Policy – Establish a policy outlining when a traffic impact study should be conducted, including acceptable information to be contained within the study.

5.2 Strategies

Various strategies can be utilized to ensure proper transportation improvements are made to provide and protect the infrastructure investment. Astute land use planning and subdivision plat review are key to ensuring the long-term roadway network vision is developed and future traffic issues are avoided. To accomplish this, each development proposal (e.g. redevelopment of a single parcel, plat review, change of use, expansion of a business or operation, etc.) should be evaluated for consistency with the following policies/standards.

1. Work with property owners and developers to remove and/or relocate existing driveway and field approaches off non-local roads.

2. Provide road and trail connectivity between adjacent parcels.

3. Review/require access spacing that is consistent with the transportation plan.

4. Connect residential and non-residential areas.

5. Review developments for the accommodation of transit opportunities as part of the development review process.

6. Require turn and bypass lanes on non-local roads impacted by new development, including those that are not immediately adjacent.

7. Require off-site improvements, including those in other jurisdictions, where the existing transportation network will be directly impacted by new development, including where the development is not immediately adjacent. This could include but is not limited to paving roads, repairing surfaces, fixing sub-standard drainage, improving sight distances, etc.

8. Require the dedication of rights-of-way for all required future transportation improvements identified in the transportation plan including trails, roads, bridges, transit facilities, drainage, utilities, and any other related improvement requiring use of a corridor/location.

9. Require the equitable participation in the construction of collector and arterial roads.

10. Review probable neighborhood traffic patterns, areas where excessive speed is possible, and the potential for pedestrian conflicts.

11. Require all local roads to be constructed to property lines, or the corresponding amounts of money be escrowed, where stub streets are proposed to adjacent properties, but are not immediately warranted.

12. Require fees, construction participation, and/or cost participation proportionately to future required infrastructure such as overpasses, interchanges, and other Local/County responsibilities as afforded by law and justifiable.

13. Require traffic impact studies, including the analysis of intersections to determine the need for and contribution to intersection improvements.

14. Consider the use of an official mapping process as a way to preserve right-of-way on key corridors in areas with significant growth pressures. This process will allow the City to control proposed development within an identified area and influence development on adjacent parcels.

5.3 Improvements

In addition to the review of specific development driven improvements, short-term and mid to long-term improvements have been identified for capital improvement planning (CIP) purposes as follows.

5.3.1 Short-Term Improvements (2008 – 2013 years)

As required by state law, it is necessary to update the City zoning and subdivision ordinances to comply with and implement the transportation chapter of the 2008 Comprehensive Plan. A planning level cost estimate in 2008 dollars for a study is estimated at $2,500 to $7,500.

It is recommended that the City of St. Francis conduct a study to estimate funding contributions to complete identified improvements. This information could be used for capital improvement planning or assigning a development's proportionate fair share of roadway infrastructure improvement costs through an annexation agreement and/or development agreement. A planning level cost estimate in 2008 dollars for this study is estimated at $10,000.

It is recommended that the City of St. Francis and Anoka County work together to initiate a corridor preservation study to determine an alignment option for further planning, preservation, and environmental analysis for a Rum River crossing. A planning level cost estimate in 2008 dollars for a study of this magnitude may cost in the range of $100,000 to $125,000, with potential funding partnerships between developers, City and County.

As traffic volumes approach 12,000 vehicles a day on CSAH 24, it is recommended that the City of St. Francis and Anoka County study roadway capacity improvement options for the corridors. A planning level cost estimate in 2008 dollars is estimated at $50,000. Funding for the study is anticipated to be provided by the City and County.

As traffic volumes increase, it is recommended that the City of St. Francis, Anoka County, and/or Mn/DOT initiate capacity and intersection control needs studies for the intersections along CSAH 24 between TH 47 and CSAH 9 and TH 47 at CR 81 and 233rd Street as identified in Figure 4.3 to determine safety, capacity, and traffic control needs. A planning level cost estimate in 2008 dollars for a study is estimated at $5,000 to $10,000 per intersection.

5.3.2 Mid to Long-Term Improvements (2014 – 2030)

Intersections not evaluated in 2008–2013 should be programmed for capacity and intersection control needs studies to determine safety, capacity, and traffic control needs as traffic volumes increase to levels forecasted. A planning level cost estimate in 2008 dollars for a study is estimated at $5,000 to $10,000 per intersection.

In the long-term it will be necessary to seek funding sources for construction of the future Rum River crossing. Planning level cost estimates for construction should be identified during the corridor planning study.

5.4 Potential Transportation Funding Sources

There are a number of various funding mechanisms available to support transportation projects these include the following.

Federal Funding

St. Francis may apply for federal funds for highways through the Surface Transportation Program of the Federal Highway Trust Fund, through Mn/DOT's Area Transportation Partnership (ATP). Solicitation occurs approximately every two years, with federal funding covering 80% of a project's cost. Types of projects funded include highway reconstruction, safety projects, trails which are part of projects, transit and park-and-ride projects.

MSAS System

The State of Minnesota, through the gas tax and license fees, collects funds to be used to construct and maintain the State's transportation system. Most of the funds collected are distributed for use on the State's Trunk Highway (TH) system, the County State Aid Highway (CSAH) system and the Municipal State Aid Street (MSAS) system. Of the funds available they are distributed 62% TH, 29% CSAH and 9% MSAS.

Mn/DOT Cooperative Funds

The State of Minnesota has funds available to assist with cooperative projects that increase safety and mobility. Solicitations are due in October each year for construction the following year.

MN Department of Natural Resources Grants

Various federal and state grants are available for the development or reconstruction of trails. Typically grants require a 50% match and illustration that the trail is not only of local importance but also of regional significance. Grant programs through the DNR for trail projects include the Federal Recreational Trail Grant Program, Regional Trail Grant Program, Outdoor Recreation Grant Program, and Local Trail Connections Program.

Collector and Local Streets

Developers may be required to fund the entire cost of Minor and Major Collector Roadways, as well as local streets as a part of their development fees.

6.0 Traffic Forecast Modeling

The following describes the general approach to traffic forecasting efforts and resulting outputs for this Transportation Plan. Developers will use the traffic volume forecast data to include in the individual development traffic study.

6.1 Model Used

The Twin Cities Regional Model was used. The Existing Model is year 2000. The Future Model is year 2030. The demographics, metropolitan highway system, and metropolitan transit system are consistent with current Regional Transportation Policy Plan adopted by the Metropolitan Council

The Existing Model provides the basis of the roadway connections and existing capacity, speed, and functional class. The Future Model uses the existing model parameters to set-up a no-build scenario. New roadways are added to provide additional connections throughout the city. Planned improvements are also included for existing roadways. These improvements and new roadways provide for the anticipated future roadway network to handle the citywide growth.

6.2 Model Methodology

The general approach to forecasting the traffic volumes consisted of the following.

- Utilize the Twin Cities regional travel demand model and model parameters, maintained by Metropolitan Council, as the primary instrument for forecasting the volumes.
- Collect year 2000 and current year traffic count data and basic roadway attribute information in the study area for the purpose of validating the regional model, run for the base year (2000).
- Collect year 2000 census data from the U.S. Census Bureau.
- Determine Traffic Analysis Zones based on roadways, land use data, and land features.
- Split regional model Traffic Analysis Zones into smaller zones for basis of projections.
- Add additional county and other major local roadways to the roadway network in the regional model.
- Apply the regional model for the base year and validate its projections against the observed traffic count information; make appropriate adjustments as necessary to reach an acceptable validation.
- Apply the regional model for the forecast year (2030), taking into account the adjustments made to the 2000 model run, to generate the projected volumes.
- Analyze traffic patterns that ultimately comprise the elements themselves, through a series of special selected link analyses; use this information as a basis for adjusting the forecasted volumes if determined to be necessary.
- Prepare the final set of forecast volumes.

CITY OF ST. FRANCIS
2030 TRANSPORTATION PLAN
TRANSPORTATION ANALYSIS ZONES

FIGURE NO. 6.1
2008

East Half of City

West Half of City

Isanti County

Sherburne County

1700
1701-A
1701-B
1702-A
1702-B
1702-C
1702-D
1703-A
1703-B
1704-A
1704-B
1705
1706-A
1706-B
1706-C
1706-D
1706-E
1707
1708-A
1708-B
1709-A
1709-B
1710

CITY OF SAINT FRANCIS
CITY OF BETHEL
CITY OF EAST BETHEL
CITY OF OAK GROVE
BURNS TOWNSHIP
Bethel WMA
Carl E. Bonnell WMA
Lake George
Rum River
Cedar Creek

241st Ave
239th Ave
237th Ave
235th Ave
233rd Ave
229th Ave
221st Ave
Bridge St
Ambassador Blvd
Hillendale Rd
Springhill Rd
Hill and Dale Dr
Variolite St
Nacre St
Quicksilver St
Roanoke St
Pederson Dr
Butterfield Dr
Rum River Blvd
Lake George Blvd
Kerry St
Nightingale St
Raven St
Tamarack St
Cedar Dr

Legend

- Transportation Analysis Zones

Future Functional Classification

- Principal Arterial
- A Minor Arterial-Connector/MNDOT Minor Arterial
- Proposed A Minor Arterial-Connector/MNDOT Minor Arterial
- B Minor Arterial
- Proposed B Minor Arterial
- Major Collector
- Proposed Major Collector
- Minor Collector
- Proposed Minor Collector
- Local Roads
- Future Local Roads
- Wetlands
- Protected Waters
- Watercourses & Drainageways
- Regional Recreation Open Space Features
- Wildlife Management Areas
- St Francis City Limits

Source: Anoka County, MNDNR, MNDOT

Functional Classification - Metropolitan Council and The Lawrence Group (TLG) Date: 10-5-2007
- MNDOT Date: 10-19-2007

N
W E
S

0.75 0 0.75 Miles

BOLTON & MENK, INC.
Consulting Engineers & Surveyors
www.bolton-menk.com

Map Document: (H:\STFR\R1339307\Arcview\39307-Transportation Analysis Zones-11x17.mxd)
12/9/2008 -- 3:44:40 PM

6.3 Details

Additional details concerning the methodology follow.

Regional Model – The regional model provides a systematic procedure for forecasting volumes, taking into account the projected changes in regional land use/socioeconomic data and the regional transportation network. The regional model was obtained from Metropolitan Council for 2000 and 2030 conditions.

Historical and Current Year Traffic Count Data – Traffic count data in the study area was collected from the Minnesota Department of Transportation (Mn/DOT) and recent traffic studies in the area. This included A.M. and P.M. peak hour, as well as average daily traffic volumes.

Current Roadway Attribute Information – The regional model highway network was reviewed in detail for conformity to current conditions. A thorough check of roadway functional classification, speed, number of through lanes, and roadway capacity was completed. Several roadways were added to the network to assist in the future network analysis. These roadways were populated with the appropriate attributes based on regional model documentation, so as to be consistent with the regional model parameters.

Census Data – Year 2000 census data was collected from the U.S. Census Bureau. This data includes population and households by census block.

Employment Data – Employment figures were obtained from the City of St. Francis to identify trip attractions within the City.

Traffic Analysis Zones (TAZs) – Based on the census blocks, land use, roadway network, and land features (including railroads, waterways, and bluffs), zones were identified for traffic to enter and exit from the roadway network. These zones include both traffic productions and attractions. These zones were split from the regional model traffic analysis zones, which cover a much larger area and were broken apart to allow for additional roadway traffic volume projections, which would not have been available in the base regional model. These zones and their relevant information were added to the regional model.

Socioeconomic Data – Land Use data for year 2030 was received from the land use consultant. The projected population, households, and employment data was aggregated into the TAZs.

Base Model Validation – The 2000 model was validated using many resources, including: 2000 traffic count data, Anoka County Transportation Plan, aerial photos, and field observations. The assigned volumes from the 2000 regional model were then compared to the 2000 traffic counts. Adjustments were made to centroid locations and additional centroid connectors were added to help smooth volumes along individual roadways and more closely match ground counts. Additionally, because of the “regional” nature of the regional model, roadways are categorized into a select number of functional classifications. Thus, roadways that have minor differences may have the same functional classification. Some roadways in the study area were refined to reflect these minor differences. Specifically, local gravel roadways were defined as minor collectors but were adjusted with a lower capacity and speed than a typical paved minor collector.

Future Model Forecasts – The 2030 model was updated to include the existing roadways and the additional TAZ's as used in the 2000 model. Future roadways within the urban growth boundary were added and centroid connectors were adjusted as required to connect with the newly proposed roadways. Additionally, functional classifications, speed, and capacities were adjusted based on the expected future roadway attributes.

Review of Forecasts – The traffic forecasts were reviewed for reasonableness. As with any travel demand model, it would be inappropriate to rely solely on direct model output for design volumes. The modeled volumes were reviewed and adjusted based on existing and historic travel patterns and also through some additional selected link analysis of model output. A series of selected link assignments were performed and the model estimated volumes were adjusted to more accurately reflect future traffic patterns within the study area. The checks for reasonableness of the projected volumes follow the procedures as outlined in the Mn/DOT Metro: Model Output Checks for Reasonableness and Post Processing Adjustments (Revised 5 January, 2006). These include

- Peak Hour Percentage of Daily Traffic: The peak hour percentages of daily traffic produced by the model for the forecast year were compared to existing/observed peak hour percentages within the project limits and on other routes nearby with the same functional classification.

- Directional Split of Peak Hour Traffic: The directional splits of peak hour traffic forecasts produced by the model for the forecast year were compared to existing/observed directional splits within the project limits and on other routes nearby with the same functional classification.

- Capacity of Road Segments Beyond Limits of Project: Peak hour traffic forecast volumes assigned to road segments beyond the limits of the study area were reviewed to determine if the projected growth from the area affects the capacities of those road segments. On roadways outside of the study area with volume to capacity ratios over 1.00, the model results were compared to the regional model results from Met Council and Mn/DOT. The capacities of feeder roadways were not exceeded near the study area.

- Daily Traffic Growth Factors: The daily traffic forecasts from the model on the state roadways were compared with the last 20 years record of daily volumes and with the regional model results from Met Council and Mn/DOT. The projections are consistent with the general expectation that the model should yield forecast values which are lower than those based on an extrapolation of the last 20 years of increases in daily traffic.

Appendix A: Socioeconomic Forecasts

Transportation Analysis Zones (TAZs) for St.Francis (Based off of Anoka County Zones)

		Year 2000 (Pop. And HH from Year 2000 Census Blocks)					Year 2010			Year 2020			Year 2030				
Zone	Sub-Zone	Population	Households	Employment	Retail-Employment	Non-Retail Employment	Population	Households	Employment	Population	Households	Employment	Population	Households	Employment	Retail-Employment	Non-Retail Employment
1700		15	5	75	0	75	17	6	75	20	8	75	26	10	75	0	75
1701	A	75	24	0	0	0	85	31	0	110	42	0	127	50	0	0	0
	B	164	45	3	0	3	200	73	0	240	92	0	280	109	0	0	0
1702	A	90	15	0	0	0	110	40	0	250	96	0	400	156	0	0	0
	B	108	30	0	0	0	122	44	0	140	54	0	150	59	0	0	0
	C	28	6	0	0	0	50	18	0	80	31	0	120	47	0	0	0
	D	457	155	76	17	59	600	218	80	650	250	100	700	273	120	30	90
1703	A	1812	591	460	9	451	2000	726	470	2300	885	500	2600	1016	600	100	500
	B	634	218	257	8	249	635	231	270	635	244	280	635	248	300	52	248
1704	A	29	11	32	0	32	550	200	32	1670	643	60	2000	781	100	30	70
	B	48	14	80	1	79	1000	363	443	1400	539	605	1597	624	725	266	459
1705		63	20	0	0	0	70	25	0	80	31	0	90	35	0	0	0
1706	A	73	42	0	0	0	85	31	0	95	37	0	315	123	0	0	0
	B	22	8	0	0	0	25	9	0	30	12	0	320	125	0	0	0
	C	101	42	36	5	31	60	22	40	100	38	50	116	45	60	25	35
	D	671	242	213	6	207	1500	545	220	1900	731	230	2402	938	240	30	210
	E	92	30	0	0	0	105	38	0	150	58	0	300	117	0	0	0
1707		196	64	0	0	0	222	81	0	250	96	0	282	110	0	0	0
1708	A	31	10	2	0	2	35	13	0	40	15	0	45	18	0	0	0
	B (Bethel)	158	52	13	0	13	160	56	19	164	63	22	182	70	25	0	25
1709	A	56	18	13	0	13	64	23	0	75	29	0	85	33	0	0	0
	B (Bethel)	285	97	216	9	207	290	104	311	296	117	358	328	130	415	17	398
1710		145	48	0	0	0	165	63	0	185	69	0	210	83	0	0	0
Total		**5353**	**1787**	**1476**	**55**	**1421**	**8150**	**2960**	**1960**	**10860**	**4180**	**2280**	**13310**	**5200**	**2660**	**550**	**2110**

2030 Regional Development Framework - As of January 9, 2008

2000	St.Francis	Bethel	Total
Population	4910	443	5353
Households	1638	149	1787
Employment	1247	229	1476
2010			
Population	7700	450	8150
Households	2800	160	2960
Employment	1630	330	1960
2020			
Population	10400	460	10860
Households	4000	180	4180
Employment	1900	380	2280
2030			
Population	12800	510	13310
Households	5000	200	5200
Employment	2220	440	2660

Appendix B – City of Saint Francis Traffic Counts and Forecasts

Roadway			Existing Characteristics									2030 Projections			2030 Projections (With New Arterials)		
Route	Route Description	Future Func. Class	Design Type	Roadway Capacity	2000 Volume	2002 Volume	2003 Volume	2004 Volume	2005 Volume	2006 Volume	Existing V/C Ratio	Roadway Capacity	2030 Volume*	Future V/C Ratio	Roadway Capacity	2030 Volume*	Future V/C Ratio
TH 47	North of 241st Avenue	A-MiA-C	U2	12000	6,700	7,100		6,600		6,900	0.58	12000	9,500	0.79	12,000	12,300	1.03
	241st Avenue to CSAH 28	A-MiA-C	U2	12000	6,700	7,100		6,600		6,900	0.58	12000	12,200	1.02	12,000	8,100	0.68
	CSAH 28 to CR 81	A-MiA-C	U2	12000	6,500	8,000		7,600		9,000	0.75	12000	10,200	0.85	12,000	8,400	0.70
	CR 81 to CSAH 24	A-MiA-C	D4	40000	6,500	8,000		7,600		9,000	0.23	40000	12,300	0.31	40,000	10,500	0.26
	CSAH 24 to CSAH 24	A-MiA-C	U2	12000	4,800	5,200		5,300		5,700	0.48	12000	9,400	0.78	12,000	8,900	0.74
	South of CSAH 24	A-MiA-C	U2	12000	4,100	4,700		4,600		5,000	0.42	12000	7,900	0.66	12,000	7,600	0.63
CSAH 7	South of CSAH 24	A-MiA-C	U2	12000	5,100		6,500		6,000		0.50	12000	9,700	0.81	12,000	7,900	0.66
CSAH 9	South of CSAH 24	A-MiA-C	U2	12000	4,500		5,500		6,000		0.50	12000	7,600	0.63	12,000	8,700	0.73
CSAH 13	North of CR 103	A-MiA-C	U2	12000	2,100		2,200		2,300		0.19	12000	3,800	0.32	12,000	500	0.04
	CSAH 13 to CSAH 13	A-MiA-C	U3	12000	2,100		2,200		2,300		0.19	12000	4,200	0.35	12,000	3,300	0.28
	South of CR 103	A-MiA-C	U2	12000	2,900		3,200		2,750		0.23	12000	5,100	0.43	12,000	5,500	0.46
CSAH 24	East of CSAH 13/CR 73	MC	U2	12000	2,800		3,200		3,550		0.30	12000	5,400	0.45	12,000	6,700	0.56
	CSAH 13/CR 73 to West City Limits of Bethel	MC	U2	12000	1,250		1,300		1,350		0.11	12000	2,800	0.23	12,000	7,800	0.65
	West City Limits of Bethel to CR 72	MC	U2	12000	780		1,000		1,000		0.08	12000	1,900	0.16	12,000	6,500	0.54
	CR 72 to CR 103	MC	U2	12000	1,100		1,150		1,100		0.09	12000	1,800	0.15	12,000	9,300	0.78
	CR 103 to CSAH 9	A-MiA-C	U2	12000	4,050		4,200		4,100		0.34	12000	7,900	0.66	12,000	4,800	0.40
	CSAH 9 to CR 72	A-MiA-C	U2	12000	7,400		8,300		8,000		0.67	12000	13,600	1.13	12,000	8,900	0.74
	CR 72 to Rum River Blvd. NW	A-MiA-C	U2	12000	7,700		9,400		9,000		0.75	12000	14,800	1.23	12,000	9,000	0.75
	Rum River Blvd. NW to CSAH 28	A-MiA-C	U2	12000	5,500		8,000		7,500		0.63	12000	10,000	0.83	12,000	4,200	0.35
	CSAH 28 to Rum River Blvd. NW	B-MiA	U2	12000	2,500		3,200		3,000		0.25	12000	3,700	0.31	12,000	3,300	0.28
	Rum River Blvd. NW to 227th Ave. NW	B-MiA	U2	12000	5,000		6,000		5,800		0.48	12000	9,400	0.78	12,000	9,300	0.78
	227th Ave. NW to TH 47	MC	U2	12000	2,650		3,800		3,600		0.30	12000	7,100	0.59	12,000	6,000	0.50
	TH 47 to CR 71	MC	U2	12000	1,100		1,600		2,000		0.17	12000	2,500	0.21	12,000	2,200	0.18
	South of CR 71	MC	U2	12000	1,200		1,500		1,800		0.15	12000	2,900	0.24	12,000	2,400	0.20
CSAH 28	CSAH 24 to 233rd Ave. NW	A-MiA-C	U2	12000	4,500		5,400		5,200		0.43	12000	9,300	0.78	12,000	3,600	0.30
	233rd Ave. NW to TH 47	A-MiA-C	U2	12000	3,200		2,900		2,800		0.23	12000	7,400	0.62	12,000	2,400	0.20
	TH 47 to CR 81	B-MiA	U2	12000	2,050		2,450		2,500		0.21	12000	6,500	0.54	12,000	4,800	0.40
	CR 81 to CR 71	B-MiA	U2	12000	960		1,300		1,700		0.14	12000	2,600	0.22	12,000	1,000	0.08
	CR 71 to CR 71	B-MiA	U2	12000	950		1,400		1,700		0.14	12000	2,300	0.19	12,000	400	0.03
	CR 71 to CR 70	B-MiA	U2	12000	680		950		1,150		0.10	12000	2,300	0.19	12,000	3,600	0.30
	North of CR 70	MiC	U2	12000	860		1,050		1,250		0.10	12000	1,400	0.12	12,000	1,400	0.12
CR 70	CSAH 28 to CR 70	MiC	U2	12000	590		750		700		0.06	12000	2,200	0.18	12,000	3,400	0.28
	West of CR 70	MiC	U2	12000	590		750		700		0.06	12000	1,300	0.11	12,000	1,700	0.14
CR 71	North of CSAH 28	MiC	U2	12000	360		500		550		0.05	12000	1,200	0.10	12,000	1,300	0.11
	CSAH 28 to CSAH 24	MC	U2	12000	470		500		670		0.06	12000	1,000	0.08	12,000	1,000	0.08
CR 72	CSAH 24 to Verdin St. NW	MC	U2	12000	850		1,050		1,100		0.09	12000	2,300	0.19	12,000	1,200	0.10
	Verdin St. NW to 241st Ave. NW	MC	U2	12000	1,200		1,250		1,200		0.10	12000	3,000	0.25	12,000	3,400	0.28
	241st Ave. NW to 235th Ave. NW	MC	U2	12000	1,200		1,250		1,200		0.10	12000	3,000	0.25	12,000	5,200	0.43
	235th Ave. NW to CSAH 24	MC	U2	12000	1,950		1,950		1,900		0.16	12000	6,800	0.57	12,000	3,400	0.28
CR 81	CSAH 28 to TH 47	Local	U2	12000	2,100		4,000		4,000		0.33	12000	6,500	0.54	12,000	6,300	0.53
CR 103	CSAH 13 to CSAH 24	A-MiA-C	U2	12000	3,800		4,200		5,300		0.44	12000	6,300	0.53	12,000	5,000	0.42
Raven St. NW	South of CSAH 24	MC	U2	12000	1,000				1,100		0.09	12000	2,200	0.18	12,000	2,800	0.23
Rum River Blvd NW	CSAH 24 to CSAH 24	Local	MCS	8000					3,200		0.40	8000	6,900	0.86	8,000	6,900	0.86
New E/W B-MiA	CSAH 24/CR 72 to CR 72	New	U2	12000											12,000	9,000	0.75
	CR 72 to TH 47	New	U2	12000											12,000	11,500	0.96
	TH 47 to CSAH 28/CR 71	New	U2	12000											12,000	3,400	0.28
New N/S B-MiA	South of CR 70	New	U2	12000											12,000	1,800	0.15
New E/W B-MiA	CSAH 13 to TH 65	New	U2	12000											12,000	3,800	0.32

F# = 4 to 8-Lane Freeway
D4 = 4-Lane Divided
U4 = 4-Lane Undivided
U3 = 3-Lane Undivided or 2-Lane Divided
U2 = 2-Lane Undivided
MCS = Minor Collector Street
Source: 2000 to 2006 data from MnDOT

* The Forecast Numbers Have a Likely Confidence Range of Plus or Minus 15%.

Periodically Congested, V/C = 0.50 to 0.74, LOS C
Near Congested, V/C = 0.75 to 1.00, LOS D & E
Congested, V/C > 1.00, LOS F

PA: Principal Arterial
A-MiA-R: A - Minor Arterial Reliever
A-MiA-C: A - Minor Arterial Connector
A-MiA-E: A - Minor Arterial Expander
B-MiA: B - Minor Arterial
MC: Major Collector
MiC: Minor Collector
Local: Local Street