

**Minnesota Comprehensive Statewide  
Freight and Passenger Rail Plan**  
*Freight and Passenger Rail System Planning*

**draft technical  
memorandum 4**

*prepared for*

**Minnesota Department of Transportation**

*prepared by*

**Cambridge Systematics, Inc.**

*with*

**Kimley Horn & Associates**



---

*technical memorandum*

# **Minnesota Comprehensive Statewide Freight and Passenger Rail Plan**

*Freight and Passenger Rail System Planning  
Technical Memorandum*

*prepared for*

Minnesota Department of Transportation

*prepared by*

Cambridge Systematics, Inc.  
100 CambridgePark Drive, Suite 400  
Cambridge, Massachusetts 02140

*August 2009*

---



# Table of Contents

|  |             |
|--|-------------|
| <b>Executive Summary .....</b>                                   | <b>ES-1</b> |
| <b>1.0 Objective .....</b>                                       | <b>1-1</b>  |
| <b>2.0 Methodology .....</b>                                     | <b>2-1</b>  |
| <b>3.0 Existing and Projected Rail Demand.....</b>               | <b>3-1</b>  |
| <b>4.0 Freight/Passenger Rail Capacity and Constraints .....</b> | <b>4-1</b>  |
| <b>5.0 Conclusion .....</b>                                      | <b>5-1</b>  |
| <b>6.0 Sources.....</b>  | <b>6-1</b>  |
| <b>Appendix A</b>  |             |
| Detailed Track Condition Charts                                  |             |



# List of Tables

|   |      |
|---|------|
| ES.1 Tier I Existing and Proposed Passenger/Freight Corridors .....   | ES-3 |
| ES.2 Tier II Existing and Proposed Passenger/Freight Corridors.....   | ES-3 |
| ES.3 Tier III Existing and Proposed Passenger/Freight Corridors ..... | ES-4 |
| 2.1 Average Capacities of Typical Rail-Freight Corridors .....        | 2-3  |
| 2.2 Volume-to-Capacity Ratios and Level of Service (LOS) Grades ..... | 2-4  |
| 4.1 Summary of Existing and Proposed Passenger/Freight Corridors..... | 4-2  |
| 5.1 Tier I Existing and Proposed Passenger/Freight Corridors .....    | 5-2  |
| 5.2 Tier II Existing and Proposed Passenger/Freight Corridors.....    | 5-2  |
| 5.3 Tier III Existing and Proposed Passenger/Freight Corridor .....   | 5-3  |

# List of Figures

|                                   |     |
|-----------------------------------|-----|
| 3.1 Current Track Capacity.....   | 3-2 |
| 3.2 Current Level of Service..... | 3-4 |
| 3.3 Future Level of Service.....  | 3-5 |





# Executive Summary

Existing passenger rail service in the State of Minnesota, not including light rail, utilizes existing freight rail corridors. Many of the proposed passenger rail lines throughout the State also would utilize the existing freight rail corridors. This technical memorandum focuses on these corridors identifying existing demand and corridor characteristics, future demand, and necessary improvements to meet the needs for shared freight and passenger rail service.

This memorandum evaluates 23 city pairs with proposed passenger rail service over existing freight rail corridors. The 23 corridors are:

- BNSF: Minneapolis – Coon Rapids;
- BNSF: Coon Rapids – Big Lake;
- BNSF: Big Lake – St. Cloud;
- BNSF: St. Cloud – Fargo/Moorhead;
- BNSF: Coon Rapids – Cambridge;
- BNSF: Cambridge – Duluth;
- BNSF: Minneapolis – Willmar;
- BNSF: Willmar – Fargo/Moorhead;
- BNSF: Willmar – Sioux Falls, South Dakota;
- BNSF: Minneapolis – St. Paul;
- CP: Minneapolis – St. Paul;
- CP: St. Paul – Hastings;
- CP: Hastings – Winona;
- UP: St. Paul – Northfield;
- UP: Northfield – Albert Lea;
- UP: Minneapolis – Mankato;
- UP: Mankato – Worthington;
- UP: St. Paul – Eau Claire, Wisconsin;
- UP: St. Paul – Owatonna – Rochester;
- DME: Minneapolis – Owatonna – Rochester;
- DME: Rochester – Winona;

- TCWR: Minneapolis – Norwood/Young America; and
- TCWR: Norwood/Young America – Montevideo.

Based on existing track conditions (signaling and track ratio), capacity in trains per day were determined. The highest capacity corridors in the State are those with existing passenger rail service, which currently is only the Amtrak Empire Builder. The existing train counts and projected future train counts were compared to track capacity to determine the level of service for the corridor. From track conditions and capacity information, necessary improvements to accommodate additional freight and passenger service were summarized. Costs for these improvements will be determined in subsequent tasks.

The track conditions and capacity, along with ridership projections from previous tasks, were used to determine the most viable corridors for implementation of passenger service. The impact of high-speed rail opportunities will be addressed in subsequent tasks, as well as the impact of new alignments. Specifically, subsequent studies will cover:

- Twin Cities – Chicago (High Speed);
- Twin Cities – Duluth (High Speed); and
- Twin Cities – Rochester (High Speed).

Freight only corridors are not included in this memorandum, and will be summarized as part of subsequent tasks.

Based on the ridership forecasts from the passenger rail technical memorandum and corridor characteristics summarized in this memorandum, the corridors have been organized into three tiers. The first tier as shown in Table ES.1 appear to be the most viable corridors due to reasonably high ridership, and/or the track and signaling would require relatively few improvements to accommodate passenger rail traffic. Tiers two and three (Tables ES.2 and ES.3) project lower ridership than tier one and/or more necessary track and signaling improvements. These initial assessments are subject to change based on changes in assumptions related to passenger service frequency and speed.

**Table ES.1 Tier I Existing and Proposed Passenger/Freight Corridors**

| <b>Corridor</b>                       | <b>Potential Ridership</b> | <b>Track Condition</b> | <b>Available Capacity</b> |
|---------------------------------------|----------------------------|------------------------|---------------------------|
| Coon Rapids - Big Lake                | High                       | Good                   | Medium                    |
| Big Lake - St. Cloud                  | High                       | Good                   | Low                       |
| Minneapolis - Willmar                 | Medium                     | Fair                   | High                      |
| Minneapolis - St. Paul BNSF)          | High                       | Fair                   | Medium                    |
| Minneapolis - St. Paul (CP)           | High                       | Fair                   | Medium                    |
| St. Paul - Hastings                   | High                       | Fair                   | High                      |
| Hastings - Winona                     | High                       | Fair                   | High                      |
| St. Paul - Northfield                 | Medium                     | Fair                   | High                      |
| Northfield - Albert Lea (Kansas City) | Low                        | Good                   | High                      |
| Minneapolis - Mankato                 | Medium                     | Fair                   | High                      |
| St. Paul - Eau Claire, Wisconsin      | Medium                     | Fair                   | High                      |
| St. Paul - Owatonna - Rochester       | Medium                     | Fair                   | High                      |

**Table ES.2 Tier II Existing and Proposed Passenger/Freight Corridors**

| <b>Corridor</b>                     | <b>Potential Ridership</b> | <b>Track Condition</b> | <b>Available Capacity</b> |
|-------------------------------------|----------------------------|------------------------|---------------------------|
| Minneapolis - Coon Rapids           | High                       | Fair                   | Low                       |
| St. Cloud - Fargo/Moorhead          | Medium                     | Good                   | Low                       |
| Coon Rapids - Cambridge             | Medium                     | Good                   | Low                       |
| Willmar - Fargo/Moorhead            | Low                        | Fair                   | High                      |
| Willmar - Sioux Falls, South Dakota | Low                        | Good                   | Medium                    |
| Mankato - Worthington (Sioux City)  | Low                        | Fair                   | High                      |
| Minneapolis - Owatonna - Rochester  | Medium                     | Poor                   | High                      |

**Table ES.3 Tier III Existing and Proposed Passenger/Freight Corridors**

| <b>Corridor</b>                     | <b>Potential Ridership</b> | <b>Track Condition</b> | <b>Available Capacity</b> |
|-------------------------------------|----------------------------|------------------------|---------------------------|
| Cambridge - Duluth                  | Medium                     | Fair                   | Low                       |
| Rochester - Winona                  | Low                        | Poor                   | High                      |
| Minneapolis - Norwood/Young America | Low                        | Poor                   | High                      |
| Norwood/Young America - Montevideo  | Low                        | Poor                   | High                      |

# 1.0 Objective

The objective of Task 4 is to integrate projected freight and passenger system planning, identifying infrastructure improvements needed to provide better freight and passenger services and meet capacity, safety, efficiency, reliability, and mobility goals.



## 2.0 Methodology

Drawing from information compiled for previous tasks, this memorandum summarizes existing conditions on freight rail corridors with existing and proposed passenger rail service. In Section 3.0, we summarize existing and projected freight and passenger rail demand and compare those to the rail line capacity. In Section 4.0, we summarize the current rail line characteristics and capacity as well as highlight significant known issues and bottlenecks. We also will include the identification of rail line improvements that are necessary to meet the needs of rail users. In Section 5.0, we will draw initial conclusions as to the viability of shared passenger and freight rail service on corridors.

Capacity in Section 3.0 is determined using a technical approach built on the analytical techniques developed for the *National Rail Freight Infrastructure Capacity and Investment Study*, completed in 2007 for the Association of American Railroads (AAR). The analytical technique allows for rapid assessment of different levels of future freight and passenger services, levels and phasing of investment, and system configurations. Steps that were taken in this methodology included:

1. **Defined a network** of key freight and passenger rail lines, identifying current and planned rail corridors and lines of most interest to the study. This information was drawn from the results of Tasks 2 and 3. This study developed a track-to-siding ratio to determine the true capacity of a line. It was assumed that sidings 8,000 feet in length or longer would be used to calculate the track-to-siding ratio, as that is an average freight train length and, thus, the siding would be able to hold a freight train allowing passenger trains to pass.
2. **Estimated rail line capacity** based on the number of tracks and type of signal system. To determine whether a corridor is congested, current volume was compared to current capacity. Two variables were used to estimate the current capacity of the primary corridors: the number of tracks, and the type of control system.<sup>1</sup>
  - Tracks – Most sections of the Minnesota rail system are single-tracked with multiple sidings for trains to meet and pass each other, and a portion of the heaviest-volume corridors are double-tracked.

---

<sup>1</sup> The capacity of rail corridors is determined by a large number of factors, including the number of tracks, the frequency and length of sidings, the capacity of the yards and terminals along a corridor to receive the traffic, the type of control systems, the terrain, the mix of train types, the power of the locomotives, track speed, and individual railroad operating practices. Complete, consistent, and current information on all these factors was not available for the study, so the capacity of the primary corridors was estimated using only the two dominant factors or number of tracks and type of signal system.

- Control System - The type of control system affects capacity by maintaining a safe spacing between trains meeting and passing on the same track. There are three major types of signal systems:
  - > Automatic Block Signaling (ABS) is a signal system that controls when a train can advance into the next track block. A block is a section of track with traffic control signals at each end. The length of the block is based on the length of a typical train and the distance needed to stop the train in a safe manner. When a train exits a block, the signal changes to yellow, indicating to the engineer of a following train that the block is now empty, but that the following train should be prepared to stop before entering the next block (currently occupied by the train ahead). Automatic block signaling is governed by block occupancy and cannot be controlled by a railroad dispatcher from a remote location.
  - > Centralized Traffic Control (CTC) and Traffic Control System (TCS) are systems that use electrical circuits in the tracks to monitor the location of trains, allowing railroad dispatchers to control train movements from a remote location, typically a central dispatching office. CTC and TCS increase capacity by detecting track occupancy and allowing dispatchers to safely decrease the spacing between trains because the signal systems automatically prevent trains from entering sections of track already occupied by other trains.
  - > No Signal (N/S) and Track Warrant Control (TWC) are basic train control systems that require the train crew to obtain permission or warrants before entering a section of track. Crews receive track warrants by radio, phone, or electronic transmission from dispatcher. TWC is used on low-volume track instead of more expensive ABS or CTC/TCS systems.

The *National Rail Freight Infrastructure Capacity and Investment Study* determined there are eight combinations of number of tracks and type of signal system that are in common use across the primary corridors today. Table 2.1 lists the combinations along with several wide cross-sections of five and six tracks, which could be used in this study to accommodate future demand. The first column lists the number of tracks, and the second column lists the type of control system. For each combination of number of tracks and type of control system, the maximum number of trains that can typically be accommodated is determined by the mix of train types operating along the corridor. The third column in the table lists the maximum practical capacity in trains per day that can be accommodated if multiple train types (e.g., merchandise, bulk, and passenger trains) use the corridor. The rightmost column lists the maximum practical capacity in trains per day that can be accommodated if a single train type (e.g., all intermodal trains) uses the corridor.



**Table 2.1 Average Capacities of Typical Rail-Freight Corridors**  
*Trains per Day*

| Number of Tracks | Type of Control | Trains per Day  |   |
|------------------|-----------------|---|---|
|                  |                 | Practical Maximum If Multiple Train types Use Corridor <sup>a</sup> | Practical Maximum If Single Train Type Uses Corridor <sup>b</sup> |
| 1                | N/S or TWC      | 16  | 20  |
| 1                | ABS             | 18  | 25  |
| 2                | N/S or TWC      | 28  | 35  |
| 1                | CTC or TCS      | 30  | 48  |
| 2                | ABS             | 53  | 80  |
| 2                | CTC or TCS      | 75  | 100   |
| 3                | CTC or TCS      | 133   | 163   |
| 4                | CTC or TCS      | 173   | 230   |
| 5                | CTC or TCS      | 248   | 340   |
| 6                | CTC or TCS      | 360   | 415   |

Source: National Rail Freight Infrastructure Capacity and Investment Study, AAR, 2007. Class I railroad data aggregated by Cambridge Systematics, Inc.

<sup>a</sup> For example, a mix of merchandise, intermodal, and passenger trains.

<sup>b</sup> For example, all intermodal trains.

The table presents average capacities for typical rail freight corridors. The actual capacities of the corridors were estimated using railroad-specific capacity tables. At the request of the railroads, these detailed capacity tables were not included in this report to protect confidential railroad business information.

Key: N/S or TWC: No Signal/Track Warrant Control.

ABS: Automatic Block Signaling.

CTC or TCS: Centralized Traffic Control/Traffic Control System.

3. **Calculated current levels of service (LOS)** by comparing current freight and passenger train volumes to current line capacities. This was done by calculating a volume-to-capacity ratio expressed as a LOS grade. The LOS grades, listed in Table 2.2, were approved by Class I railroads as part of the *National Rail Freight Infrastructure Capacity and Investment Study*. The LOS maps presented in this technical memorandum show green to indicate rail corridors operating below capacity and yellow, orange, and red to indicate increasing levels of congestion. Freight train volumes for the base year were drawn from information collected in Task 2 from a variety of sources, including the Federal Railroad Administration, Mn/DOT sources, and interviews with railroads. Passenger train volumes were developed from published Amtrak schedules and planned service for the Northstar Corridor.

**Table 2.2 Volume-to-Capacity Ratios and Level of Service (LOS) Grades**

| LOS Grade | Description   | Volume/Capacity Ratio |
|-----------|---|-----------------------|
| A         | Below Capacity  | 0.0 to 0.2            |
| B         | Low to moderate train flows with capacity to accommodate maintenance and recover from incidents | 0.2 to 0.4            |
| C         |   | 0.4 to 0.7            |
| D         | Near Capacity   | 0.7 to 0.8            |
| E         | At Capacity   | 0.8 to 1.0            |
| F         | Above Capacity  | > 1.00                |

Sources: Cambridge Systematics, Inc.

National Rail Freight Infrastructure Capacity and Investment Study, AAR, 2007.

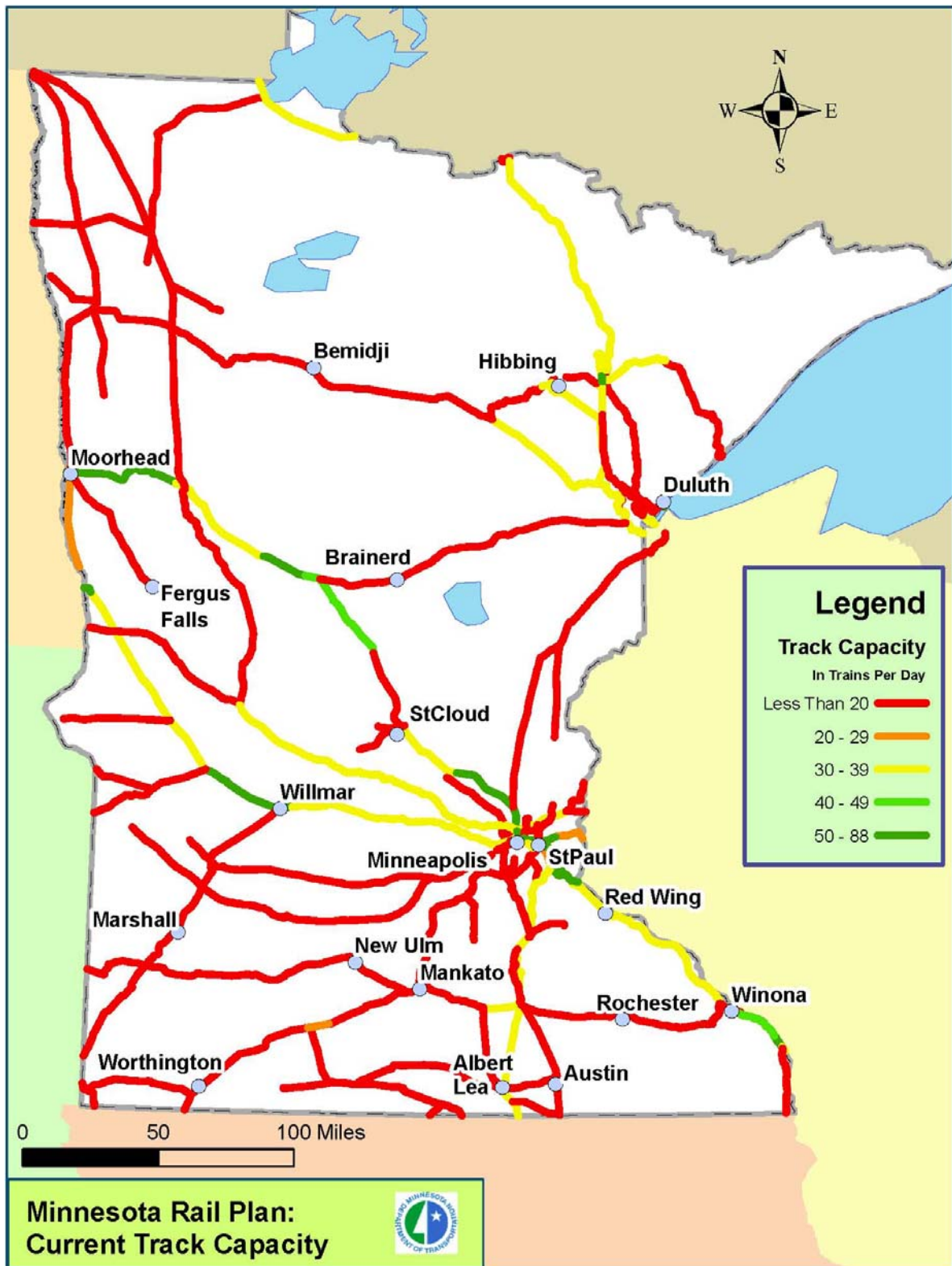
- 4. Developed future levels of service** (without the addition of rail improvements) maps to reflect projected 2030 freight and passenger train volumes to current line capacities. Future freight train volumes were estimated using national and Minnesota economic growth data provided in the IHS-Global Insight TRANSEARCH database, as shown in the conclusions of Task 2. Future passenger train volumes were developed from the conclusions of Task 3, which included interviews with Minnesota rail stakeholders, Mn/DOT commuter rail studies and plans, Amtrak, the Midwest Passenger Rail group.

## **3.0 Existing and Projected Rail Demand**

This memorandum focuses on existing freight rail corridors with existing passenger rail service, currently only Amtrak's Empire Builder, and those freight rail corridors with proposed passenger service. Proposed passenger service includes those corridors currently under construction, such as Northstar Commuter Rail, and those that have been recently proposed throughout the State.

Current track capacity is summarized for all rail lines in Figure 3.1.

Figure 3.1 Current Track Capacity



Most corridors have capacity to handle less than 20 trains per day based on existing signaling and track/sidings. The higher capacity corridors in the State include those with existing passenger service between Fargo/Moorhead and Winona. These corridors also are among the busiest freight corridors in the State.

Current LOS is summarized for all rail lines in Figure 3.2. There are existing deficiencies, denoted by LOS E or F, along the corridors between the Twin Cities and Fargo/Moorhead, between the Twin Cities and Duluth, and to the southwest of Willmar. The deficiencies are related to track capacity; track capacity can be improved with upgrades in signaling and track/sidings.

Projected rail demand, freight and passenger, further reduces the LOS for several rail lines. The projected LOS is summarized for all rail lines in Figure 3.3.

Figure 3.2 Current Level of Service

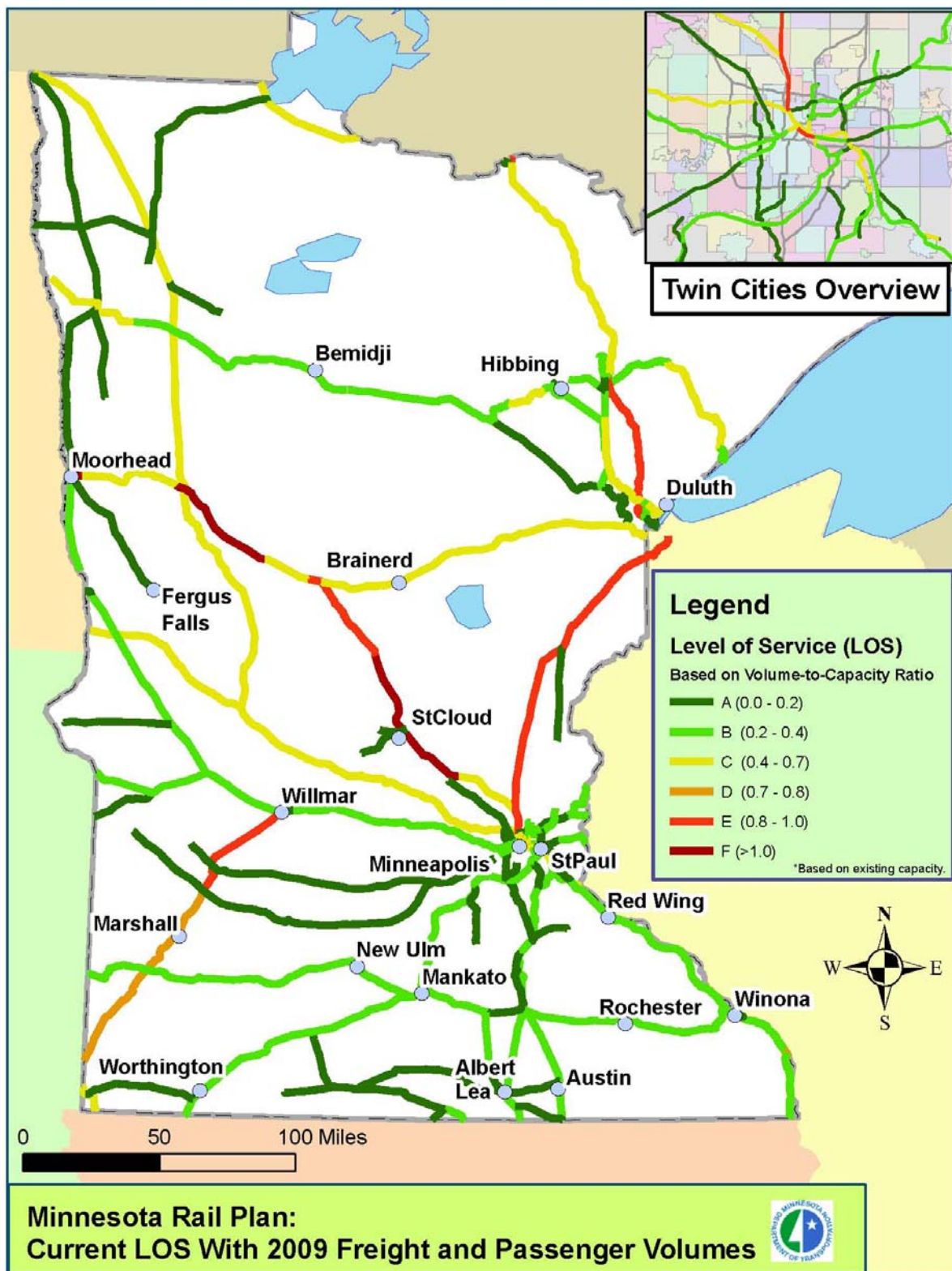
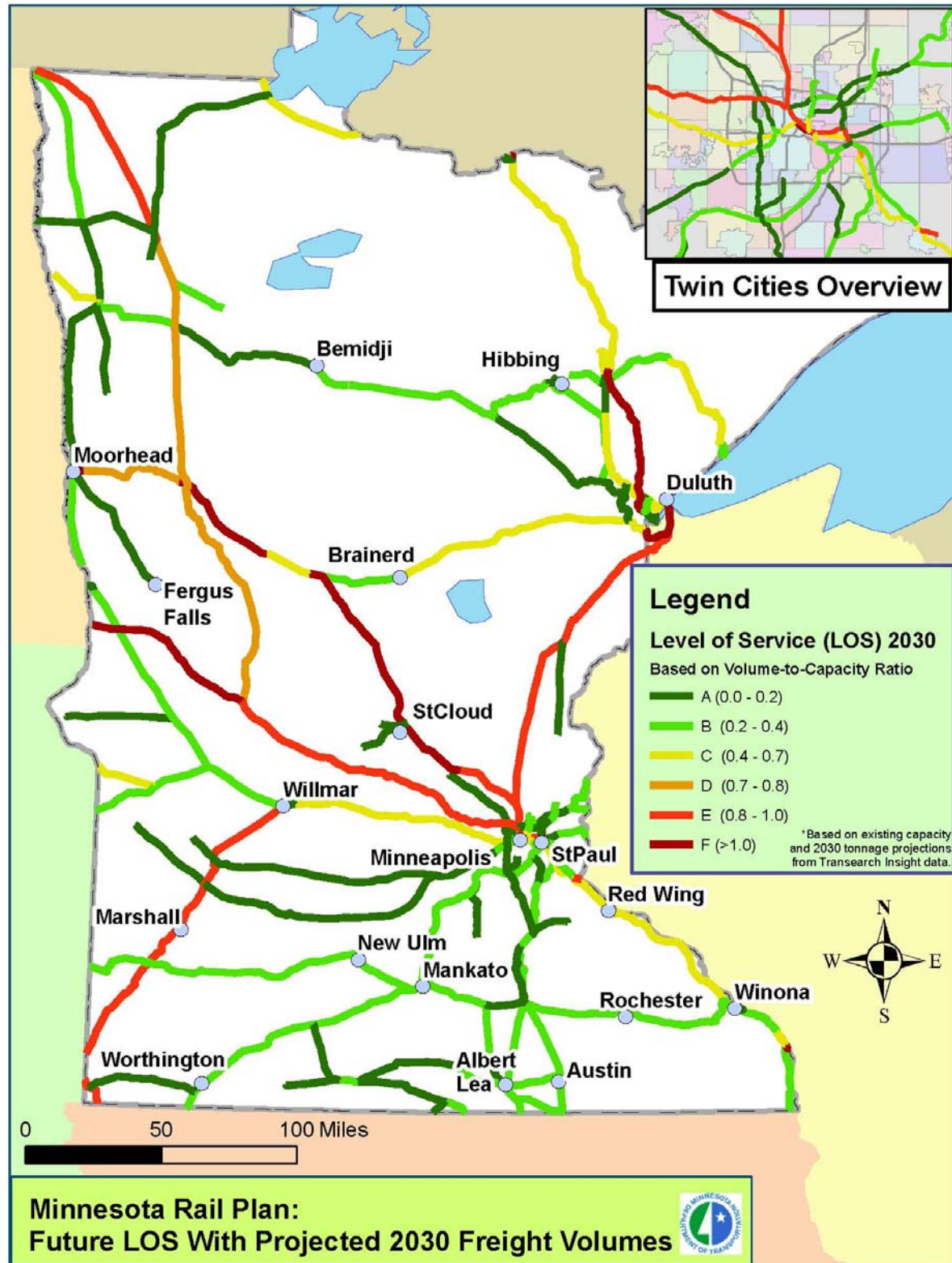


Figure 3.3 Future Level of Service







## **4.0 Freight/Passenger Rail Capacity and Constraints**

Rail corridors are summarized by city pair with some city pairs having multiple routing options. Information for each corridor is drawn from railroad subdivision information although corridor termini may differ from subdivision limits.

The information summarized includes length (shown in miles); track ratio; trains per day; Federal Railroad Administration (FRA) track class; the number of public and private grade crossings; primary signal system; and average freight and passenger speeds, if available. Track ratio is the total length of track, including sidings divided by the total length of the corridor. There are nine specific FRA classes of track (Class I through IX), plus a category for Excepted Track. Each class has increasing exacting standards for track structure, geometry, and inspection frequency. Most of the track of the proposed passenger rail corridors falls in Class II to Class IV. Classes VI through IX are for high-speed passenger rail. This information along with detailed tables for each corridor are included in the Appendix A. Table 4.1 provides a summary of corridor characteristics for the 21 city pairs with existing or proposed passenger service over existing freight lines.

**Table 4.1 Summary of Existing and Proposed Passenger/  
 Freight Corridors**

| Corridor                              | Length <sup>a</sup> | Track Ratio | Trains/Day | FRA Track Class | At-Grade Crossings | Primary Signal System | Track Speed <sup>b</sup> |
|---------------------------------------|---------------------|-------------|------------|-----------------|--------------------|-----------------------|--------------------------|
| Minneapolis - Coon Rapids             | 14                  | 1.88        | 49         | 3               | 10                 | CTC                   | 50*                      |
| Coon Rapids - Big Lake                | 26                  | 2           | 47         | 4               | 26                 | CTC                   | 75*                      |
| Big Lake - St. Cloud                  | 27                  | 1.61        | 47         | 4               | 36                 | CTC                   | 75*                      |
| St. Cloud - Fargo/Moorhead            | 175                 | 1.87        | 50         | 4               | 198                | CTC/ABS               | 75*                      |
| Coon Rapids - Cambridge               | 30                  | 1.14        | 14         | 4               | 38                 | ABS                   | 50                       |
| Cambridge - Duluth                    | 108                 | 1.19        | 15         | 4               | 116                | ABS                   | 45                       |
| Minneapolis - Willmar                 | 91                  | 1.19        | 14         | 3               | 108                | CTC/ABS               | 40                       |
| Willmar - Fargo/Moorhead              | 155                 | 1.15        | 11         | 3               | 208                | CTC/ABS               | 45                       |
| Willmar - Sioux Falls, South Dakota   | 146*                | 1.09        | 14         | 4               | 178                | TWC                   | 50                       |
| Minneapolis - St. Paul (BNSF)         | 14                  | 1.7         | 28         | 3               | 4                  | CTC                   | 30                       |
| Minneapolis - St. Paul CP)            | 13                  | 1.17        | 16         | 3               | 10                 | CTC                   | 30*                      |
| St. Paul - Hastings                   | 19                  | 1.96        | 26         | 4               | 9                  | CTC                   | 60*                      |
| Hastings - Winona                     | 108                 | 1.22        | 29         | 4               | 64                 | CTC                   | 65*                      |
| St. Paul - Northfield                 | 40                  | 1.08        | 11         | 4               | 52                 | CTC/ABS               | 35                       |
| Northfield - Albert Lea (Kansas City) | 432*                | 1.1         | 11         | 4               | 129                | CTC                   | 45                       |
| Minneapolis - Mankato                 | 84                  | 1.07        | 5          | 3               | 119                | TWC/ABS               | 35                       |
| Mankato - Worthington (Sioux City)    | 184*                | 1.04        | 5          | 4               | 134                | TWC                   | 45                       |
| St. Paul - Eau Claire, Wisconsin      | 100*                | 1.37        | 7          | 4               | 23                 | ABS                   | 30                       |
| St. Paul - Owatonna - Rochester       | 107                 | 1.07        | 9          | 3               | 176                | CTC/TWC               | 35                       |
| Minneapolis - Owatonna - Rochester    | 106                 | 1.04        | 6          | 2               | 170                | TWC/CTC               | 25                       |
| Rochester - Winona                    | 46                  | 1.01        | 4          | 2               | 87                 | TWC                   | 30                       |
| Minneapolis - Norwood/Young America   | 37                  | 1.05        | 4          | 2               | 32                 | TWC                   | 30                       |
| Norwood/Young America - Montevideo    | 147                 | 1.06        | 3          | 2               | 212                | TWC                   | 30                       |

<sup>a</sup> Listed length is entire corridor length, including out-of-state mileage for those corridors with a city pair located out of state (denoted by asterisk).

Other corridor characteristics are summarized only for in-state portions of the corridor.

<sup>b</sup> Track speed is passenger speed in miles per hour for corridors with existing passenger service (denoted by asterisk). Track speed for all other corridors is freight speed.

Necessary improvements for improved or added passenger service, in addition to improvements for expanded freight service are summarized for each city pair. One improvement will not be detailed for each city pair as it will affect all corridors with existing or proposed passenger service. The Rail Safety Improvement Act of 2008 requires widespread installation of Positive Train Control (PTC) systems by 2015 for all Class I railroads and those entities providing regularly scheduled intercity or commuter rail passenger service. PTC systems utilize integrated command, control, communications, and information systems technologies to prevent train-to-train collisions, casualties to roadway workers and damage to their equipment, and overspeed derailments. The systems can vary in complexity and sophistication. Therefore, all corridors implementing passenger service would require upgrades to a PTC system. Incremental signaling upgrades prior to the 2015 deadline as well as other necessary capacity improvements will be summarized by corridor.

The existing passenger rail service utilizes corridors operated by Canadian Pacific (CP) and BNSF Railway. Passenger rail service has been proposed on corridors of these same two railroads as well as corridors operated by Union Pacific (UP); Dakota, Minnesota and Eastern (DME), which is now part of CP; and Twin Cities and Western (TCWR). The Class I railroads' corridors will be covered first, in alphabetical order, followed by those corridors operated by DME and TCWR.

### **BNSF: Minneapolis - Coon Rapids**

The Minneapolis to Coon Rapids corridor utilizes the BNSF Wayzata, Midway, and Staples subdivisions. The Empire Builder currently utilizes the Midway and Staples segments of the corridor, and Northstar Commuter Rail will utilize this entire corridor starting later in 2009. This corridor also has been under consideration for the proposed Bethel commuter rail line although service currently is being proposed as the Northstar Commuter Rail Cambridge extension. The Northern Lights Express and proposed reinstatement of Amtrak North Coast Hiawatha service also are under consideration for this corridor.

The corridor is double tracked through the Midway and Staples subdivisions, Federal Railroad Administration (FRA) Class IV through the Staples subdivision, with CTC through the Midway and Staples subdivisions. It is a higher-speed corridor, as passenger trains can average over 50 miles per hour with few grade crossings (10) or structures (8) along its 14 miles. Additionally, the corridor currently is undergoing some upgrades by BNSF to accommodate the Northstar project.

Despite the above strengths of the corridor for passenger rail service, expanded passenger or freight rail service will be a challenge. This is a high-volume freight corridor with average counts of about 50 trains per day, prior to Northstar Commuter Rail service implementation which will add 12 trains each weekday and six trains each weekend day. Speeds are limited through the Northtown Yard, and any increase in volume will trigger the need for additional rail capacity. An expansion of freight or passenger service along this corridor will require a third main line. Additional improvements may be necessary to increase speeds through the Northtown Yard. The current estimate for the third main project is approximately \$110 million from Northtown Yard to Coon Creek Junction.

### **BNSF: Coon Rapids - Big Lake**

The Coon Rapids to Big Lake corridor utilizes the BNSF Staples subdivision. The Empire Builder currently utilizes this corridor and Northstar Commuter Rail will begin service along this corridor in late 2009. This corridor also is under consideration for the proposed reinstatement of North Coast Hiawatha service currently under study by Amtrak.

The corridor is double tracked, FRA Class IV, with CTC throughout. It is a high-speed corridor, with passenger speeds averaging over 75 miles per hour. Grade crossings (26) average about one per mile, and there are only three bridges along the 26-mile corridor. Additionally, the corridor currently is undergoing some upgrades by BNSF to accommodate the Northstar project.

This is a high-volume freight corridor with train counts averaging 47 per day. However, there is available capacity. There are not any necessary major improvements along this corridor for an expansion of passenger or freight service.

### **BNSF: Big Lake - St. Cloud**

The Big Lake to St. Cloud corridor utilizes the BNSF Staples subdivision. The Empire Builder utilizes this corridor. An extension of the Northstar Commuter Rail line is under consideration as well as the proposed reinstatement of Amtrak North Coast Hiawatha service.

The corridor is double tracked between Becker and St. Cloud; it is FRA Class IV with CTC along the entire corridor. The average passenger speed is almost 75 miles per hour. This is a high-volume freight corridor with train counts averaging 47 per day.

An expansion of freight or passenger service along this corridor will require a second main line between Big Lake and Becker. Although the track bed exists for a second track between Big Lake and Becker, the addition of a second main line will require siding relocations and grade crossing improvements as its addition would not meet current American Association of State Highway and Transportation Officials (AASHTO) guidance for spacing from Trunk Highway (TH) 10. Additionally, the corridor averages over one grade crossing per mile with 36 grade crossings over the 27-mile corridor. Nine of the grade crossings currently are unprotected. Additional improvements may be necessary to increase speeds through two short junctions/segments.

### **BNSF: St. Cloud - Fargo/Moorhead**

The St. Cloud to Fargo/Moorhead corridor utilizes the BNSF Staples, KO, and Prosper subdivisions. The Empire Builder currently utilizes this corridor. The proposed reinstatement of North Coast Hiawatha service currently is under study by Amtrak.

The corridor is mostly double tracked with passenger speeds averaging about 75 miles per hour. With the exception of the short section of KO subdivision at FRA Class III, the entire corridor is FRA Class IV. There currently are 198 grade crossings along the 175-mile corridor. This is a high-volume freight corridor with an average of 50 trains per day.

There is available capacity for expanded passenger and freight rail service along some segments of this corridor. There are several segments that require double tracking/siding improvements. Additionally, there are several lower speed segments that may require upgrades for expanded/improved passenger rail service.

## **BNSF: Coon Rapids – Cambridge**

The Coon Rapids to Cambridge corridor utilizes the BNSF Hinkley subdivision. The proposed Northern Lights Express and Northstar Commuter Rail Cambridge extension would use this route. The Northstar Commuter Rail Cambridge extension would serve what has previously been referred to as the Bethel commuter rail line.

The corridor is single track with some sidings, FRA Class IV, with ABS. The average freight speed is 50 miles per hour. There currently are 38 grade crossings and 5 bridges along the 30-mile corridor. The existing train counts are 14 per day.

The track currently is 133-pound welded rail. The introduction of passenger service along this corridor would require a signaling upgrade to CTC. Additionally, siding lengths would need to be extended along with switch upgrades. In order to achieve high-speed operation, new track would be necessary along much of the corridor to reduce curvature and reduce freight conflicts.

## **BNSF: Cambridge – Duluth**

The Cambridge to Duluth corridor extends into Wisconsin between Foxboro, Wisconsin and Superior, Wisconsin along the route. It utilizes the BNSF Hinkley subdivision between Cambridge and Boylston, Wisconsin and the Lakes subdivision and North Shore Scenic Railway railroad north of Boylston, Wisconsin. This corridor is under consideration for Northern Lights Express.

The corridor is single track with some sidings, FRA Class IV, with ABS. The freight speed is about 45 miles per hour. There currently are 116 grade crossings and 8 bridges along the Hinkley subdivision to Boylston. The corridor is 110 miles long with 96 of the miles on the Hinkley subdivision. The existing train counts average 15 per day.

The introduction of passenger service along this corridor would require a signaling upgrade to CTC. Additionally, siding lengths would need to be extended along with switch upgrades. In order to achieve high-speed operation, new track would be necessary along much of the corridor to reduce curvature and reduce freight conflicts. Track improvements near Superior would be necessary for both conventional passenger rail and high-speed passenger rail. Additionally, an alternative alignment may be preferable between Foxboro and Boylston due to poor subgrade conditions.

## **BNSF: Minneapolis – Willmar**

The Minneapolis to Willmar corridor utilizes the BNSF Wayzata subdivision. The proposed Little Crow Transit Way would use this route, and it is part of a route alternative for service between Minneapolis and Fargo/Moorhead. It also would be a component of a proposed Minneapolis to Sioux Falls, South Dakota route.

The corridor is single track with some sidings. It is FRA Class II for the eastern mile of the corridor, and has ABS. The rest of the corridor is FRA Class III with some ABS, but it is mostly a CTC system. The average freight speed is about 40 miles per hour. There currently are 108 grade crossings along the corridor's 91 miles. The existing train counts are 14 per day.

The track currently is welded rail. The addition of passenger service along this corridor would require some improvements to signaling and grade crossings. Limited improvements could increase speeds to 59 miles per hour, and speed would need to be improved along the corridor in order to be competitive with automobile travel times.

### **BNSF: Willmar - Fargo/Moorhead**

The Willmar to Fargo/Moorhead corridor utilizes the BNSF Morris, Moorhead, and Prosper subdivisions as well as the Red River Valley and Western Railroad's first subdivision. This is part of a route alternative for service between Minneapolis and Fargo/Moorhead.

The corridor is single track with limited sidings. It is FRA Class II, III, and IV, with CTC on the Morris subdivision and ABS along the Moorhead and Prosper subs. The average freight speed is about 45 miles per hour. There are 208 grade crossings along the 155-mile corridor. It is a low-volume corridor with average train counts of 11 per day.

The addition of passenger service along this corridor would require significant track improvements as well as signal upgrades to compete with the travel time along the Minneapolis - Coon Rapids - Big Lake - St. Cloud - Fargo/Moorhead corridor.

### **BNSF: Willmar - Sioux Falls, South Dakota**

The Willmar to Sioux Falls, South Dakota corridor utilizes the BNSF Marshall subdivision. It is a component of a proposed Minneapolis to Sioux Falls, South Dakota route.

The corridor currently is single track with limited sidings. It is FRA Class IV, with TWC. The average freight speed is almost 50 miles per hour. There are 178 grade crossings along Marshall subdivision to the Minnesota border. The corridor is 146 miles long with 126 of the miles on the Marshall subdivision in Minnesota. It is a low-volume corridor with an average train count of 14 per day.

The introduction of passenger service along this corridor would require a signal upgrade and some improvements to grade crossings. Siding improvements also are necessary to increase corridor capacity.

## **BNSF: Minneapolis – St. Paul**

This Minneapolis to St. Paul corridor utilizes the BNSF Wayzata, Midway, and St. Paul subdivisions as well as the CP Merriam Park subdivision. This corridor has been under consideration for the Red Rock commuter rail line.

The corridor is double tracked except for the western five miles; the rail line is single track for 2.5 miles near where it passes under TH 280. However, due to congestion, one main line track is often used as a siding in the double tracked sections. It is FRA Class II and III, with four grade crossings over the corridor's 14 miles. The average freight speed is almost 30 miles per hour, and the corridor averages 28 trains per day. Signals have been removed from the corridor.

The need to “back-out” at St. Paul Union Depot to travel from St. Paul to Minneapolis limits its capacity and speed along this corridor, and the track geometry at Raymond also limits speed. Track improvements also would be necessary in order to improve speeds along the corridor, and a second main may be necessary to accommodate additional volume near the Midway (Union) yard. The introduction of passenger service along this corridor also would require signaling improvements.

## **CP: Minneapolis – St. Paul**

The Minneapolis to St. Paul corridor utilizes the BNSF Wayzata and Midway subdivisions, the Minnesota Commercial Railway (MNNR), and the CP Merriam Park subdivision. The Empire Builder currently utilizes part of this corridor, and this corridor has been under consideration for the Red Rock commuter rail line.

The corridor is entirely single track, with the exception of the Wayzata subdivision which has a siding and the eastern mile of the 13-mile corridor which is double tracked. It varies in FRA Class from I to IV along the corridor. The average passenger speed is 30 miles per hour. There are 10 grade crossings, and the corridor averages 16 trains per day.

Significant track improvements would be necessary to increase speeds beyond the current 32 miles per hour average. The MNNR portion of the corridor severely limits the speed achievable. In order to improve the MNNR portion, property would need to be acquired. There is an underground steam line along the corridor which would require relocation and add additional cost for improvements along the corridor. As with the BNSF corridor between Minneapolis and St. Paul, the track geometry at Raymond limits speed. A second main line may be necessary to accommodate additional volume near the Midway (Union) yard.

## **CP: St. Paul – Hastings**

The St. Paul to Hastings corridor utilizes the CP Merriam Park and River subdivisions. The Empire Builder currently utilizes this corridor, and this corridor has been under consideration for the Red Rock commuter rail line. Additionally, high-speed passenger service has been proposed along this corridor as part of the Midwest Regional Rail Initiative (MWRRI).

The corridor operates double track through most of the River subdivision through a joint agreement with BNSF; near Hastings it is single track with sidings. The Merriam Park subdivision is FRA Class II, while the remainder of the corridor is FRA Class IV. The entire corridor has CTC. The average passenger speed is almost 60 miles per hour. There are nine grade crossings along the 19-mile corridor, and the corridor averages 26 trains per day.

There are multiple lower speed curves along the corridor, and there are significant speed and capacity limitations due to Hoffman junction and the potential bottleneck at the St. Paul Union Depot. Hoffman junction is where CP and BNSF lines converge to joint track. In addition, Union Pacific uses the Lafayette Bridge which conflicts with the CP/BNSF movement. Increased passenger and freight service along this corridor may require reconfigured or additional track. However, improvements along the corridor can greatly improve speed to 79 miles per hour or faster.

## **CP: Hastings – Winona**

The Hastings to Winona corridor utilizes the CP River and Tomah subdivisions. Amtrak's Empire Builder currently utilizes this corridor. High-speed passenger service has been proposed along this corridor as part of the MWRRI.

The corridor is single track with sidings. It is FRA Class IV with CTC. The average passenger speed is over 65 miles per hour along the 108-mile corridor. There are 64 grade crossings, and the corridor averages 28 trains per day.

Additional volume will require longer sidings at a minimum, if not a double track main line. The right-of-way is constrained north of Winona for double tracking. In addition, the existing single track bridge over the Mississippi River near la Crescent may need rehabilitation or replacement.

## **UP: St. Paul – Northfield**

The St. Paul to Northfield corridor utilizes the CP Merriam Park and UP Albert Lea subdivisions. It is part of a proposed north-south corridor linking the Twin Cities to Des Moines, Iowa and points south.



The corridor is entirely FRA Class IV single track with minimal sidings with the exception of the 1.2-mile section of Merriam Park subdivision; this subdivision is FRA Class II double track. The corridor primarily has CTC with some ABS at the northern end of the Albert Lea subdivision. The average freight speed is over 35 miles per hour along the 40-mile corridor. There are 52 grade crossings, and the corridor averages 11 trains per day.

The addition of passenger service along this corridor would require track improvements to increase average speeds. There are several lower speed curves that may require reconstruction. In addition, passing sidings would need to be added for the introduction of passenger service as well as a signal system upgrade.

### **UP: Northfield – Albert Lea**

The Northfield to Albert Lea corridor utilizes the UP Albert Lea subdivision. It is part of a proposed north-south corridor linking the Twin Cities to Iowa and points south such as Kansas City.

The 73-mile corridor is single track with minimal sidings, FRA Class IV, with CTC. There are 129 grade crossings, and the corridor averages 11 trains per day. The average freight speed is over 45 miles per hour.

The introduction of passenger rail along this corridor will require siding improvements. Minimal improvements could increase speed along much of the corridor.

### **UP: Minneapolis – Mankato**

The Minneapolis to Mankato corridor utilizes the BNSF Wayzata, CP MN&S, and UP Mankato subdivisions. It is part of proposed service to Sioux City, Iowa.

The Wayzata subdivision is FRA Class II and III, the MN&S is FRA Class I with freight speeds limited to 10 miles per hour, and the Mankato subdivision is FRA Class IV. There is a mix of ABS, TWC, and Block Register Territory (BRT) along the corridor. There are minimal sidings along the corridor and 119 grade crossings along its 84 miles. The average freight speed is over 35 miles per hour. The corridor averages five trains per day.

The introduction of passenger rail along this corridor will require significant track upgrades to achieve an acceptable speed, especially along the Wayzata and MN&S subdivisions. Signal improvements from the existing TWC/ABS system also would be necessary. However, this corridor would not likely require many capacity improvements given the low volume on the corridor. Additionally, the MN&S segment has a limited clearance envelope. A wye would need to be added to switch from the Wayzata to the MN&S.

## **UP: Mankato – Worthington**

The Mankato to Worthington corridor utilizes the UP Mankato and Worthington subdivisions. It is part of proposed service to Sioux City, Iowa.

The corridor is single track with very few sidings, FRA Class IV, with TWC. The grade crossings average over one per mile with 134 crossings over the 104-mile corridor. The average freight speed is almost 45 miles per hour, and the corridor averages five trains per day.

Although the track is in fair shape, it is jointed rather than continuous welded rail. The introduction of passenger service would require an upgrade or track and signaling. Sidings would likely need to be added along the Mankato subdivision despite the low volume on the corridor.

## **UP: St. Paul – Eau Claire, Wisconsin**

The St. Paul to Eau Claire, Wisconsin corridor utilizes the CP Merriam Park and St. Paul subdivisions and the UP Altoona subdivision to the Wisconsin border near Lakeland. It has been proposed as an alternate route for the MWRRI.

The corridor is a mix of single and double track to the Wisconsin border. The Merriam Park subdivision is FRA Class II, and the St. Paul and Altoona subs are FRA Class IV. There are 23 grade crossings along the 21 miles between St. Paul and Wisconsin. The corridor averages seven trains per day with an average freight speed of 30 miles per hour.

The corridor is lower speed to the Wisconsin border; the signals and track are in poor condition. Track and signal improvements would be necessary for the introduction of passenger rail along this corridor. Additionally, the St. Croix River Bridge may require replacement necessary for any expansion in service. However, UP has been improving the corridor within Wisconsin.

## **UP: St. Paul – Owatonna – Rochester**

The St. Paul to Rochester corridor utilizes the CP Merriam Park, UP Albert Lea, and DME Waseca subdivisions. It is one possible route connecting Rochester to the Twin Cities on existing freight lines through Owatonna.

The corridor is mostly FRA Class IV single track with minimal sidings with the exception of the 1.2-mile section of Merriam Park subdivision and the Waseca subdivision. The Merriam, Park subdivision is FRA Class II double track and the Waseca subdivision is FRA Class II single track with minimal sidings. The corridor primarily has CTC with some ABS at the northern end of the Albert Lea subdivision and TWC on the Waseca subdivision. The average freight speed is about 35 miles per hour along the 107-mile corridor. There are 176 grade crossings, and the corridor averages nine trains per day.

The addition of passenger service along this corridor would require track improvements to increase average speeds. In addition, passing sidings would need to be added for the introduction of passenger service as well as a signal system upgrade for some of the corridor. Regardless of track upgrades to increase speed, the circuitousness of the route adds excessive time to the trip between the Twin Cities and Rochester and would not be competitive with automobile travel times.

### **DME: Minneapolis - Owatonna - Rochester**

The Minneapolis to Rochester corridor utilizes the BNSF Wayzata, CP MN&S, Progressive Rail (PGR) Savage, UP Albert Lea, and DME Waseca subdivisions. It is one possible route connecting Rochester to the Twin Cities on existing freight lines through Owatonna.

The corridor is a variety of FRA Class I, II, III, and IV. It is single track with minimal sidings. The corridor primarily has a mixture of TWC, CTC, ABS, and BRT. The average freight speed is over 25 miles per hour along the 106-mile corridor. There are 170 grade crossings, and the corridor averages six trains per day.

The addition of passenger service along this corridor would require significant track improvements to increase average speeds. In addition, passing sidings would need to be added for the introduction of passenger service as well as a signal system upgrade through most of the corridor. Regardless of track upgrades to increase speed, the circuitousness of the route adds excessive time to the trip between the Twin Cities and Rochester and would not be competitive with automobile travel times.

### **DME: Rochester - Winona**

The Rochester to Winona corridor utilizes the DME Waseca subdivision. This corridor has been proposed as part of an alternative to the MWRRI river route between La Crosse, Wisconsin and the Twin Cities.

The corridor is single track with minimal sidings. It is FRA Class II with TWC. There are 87 grade crossings along the 46-mile corridor, and the average freight speed is almost 30 miles per hour. The corridor averages four trains per day.

The geometry along the corridor is poor. The addition of passenger service along this corridor would require significant track and alignment improvements to increase average speeds. In addition, passing sidings would need to be added for the introduction of passenger service as well as a signal system upgrade.

### **TCWR: Minneapolis - Norwood/Young America**

The Minneapolis to Norwood/Young America corridor utilizes the BNSF Wayzata, CP Bass Lake Spur, and TC&W Glencoe subdivisions. This corridor has been proposed as part of the Twin Cities commuter rail system plan; it is a tier II corridor.

The corridor is single track with minimal sidings. It is FRA Class II with primarily TWC. There are 32 grade crossings along the 37-mile corridor, and the average freight speed is almost 30 miles per hour. The corridor averages four trains per day.

The corridor is low speed, and the track is in poor condition. The track will need to be replaced along the corridor in order to introduce passenger rail along this corridor along with a signal upgrade.

### **TCWR: Norwood/Young America - Montevideo**

The Norwood/Young America to Montevideo corridor utilizes the TCWR Glencoe subdivision. This corridor has been proposed as part of the public involvement effort for this Statewide Rail Plan.

The corridor is single track with very few sidings. It is FRA Class II with TWC. The average freight speed is almost 30 miles per hour. There are 212 grade crossings along the 147-mile corridor. The average train count is three.

The corridor is low speed, and the track is in poor condition. The track will need to be replaced along the corridor in order to introduce passenger rail along this corridor along with a signal upgrade. Speeds would need to be dramatically improved in order for this corridor to be competitive with automobile trips.

## 5.0 Conclusion

Based on the ridership forecasts from the passenger rail technical memorandum and corridor characteristics summarized in this memorandum, the corridors were scored and ranked. The impact of high-speed rail opportunities will be addressed in subsequent tasks as high-speed passenger rail service would likely not share the same track as freight service.

The scoring and ranking were conducted as follows. City pairs with comparatively high ridership projections were given three points. City pairs with comparatively low ridership projections were given one point, and the remaining city pairs were scored as medium and given two points. Good track conditions consisted of Class IV track with average passenger speeds of over 70 mph and were given three points. Passenger speeds for corridors without any existing passenger service were adjusted from the freight speeds based on class of track to yield and apples-to-apples speed comparison. The track conditions for remaining Class IV track and Class III track were recorded as fair and given two points. The remaining track was recorded as poor and given one point. Available capacity was recorded as high and given three points if the corridor currently was predominantly LOS A or B. Corridors that were predominantly LOS C or D were recorded as medium and given two points. The corridors that were predominantly LOS E or F were recorded as having low available capacity and given one point. The scoring for the three assessments were summed and the corridors were ranked and split into three tiers based on the total assessment.

The first tier as shown in Table 5.1 appear to be the most viable corridors due to reasonably high ridership, and/or the track and signaling would require relatively few improvements to accommodate passenger rail traffic. Tiers two and three (Tables 5.2 and 5.3) project lower ridership than tier one and/or more necessary track and signaling improvements. These initial assessments are subject to change based on changes in assumptions related to passenger service frequency and speed.

**Table 5.1 Tier I Existing and Proposed Passenger/Freight Corridors**

| Corridor                              | Potential Ridership | Track Condition | Available Capacity |
|---------------------------------------|---------------------|-----------------|--------------------|
| Coon Rapids - Big Lake                | High                | Good            | Medium             |
| Big Lake - St. Cloud                  | High                | Good            | Low                |
| Minneapolis - Willmar                 | Medium              | Fair            | High               |
| Minneapolis - St. Paul (BNSF)         | High                | Fair            | Medium             |
| Minneapolis - St. Paul (CP)           | High                | Fair            | Medium             |
| St. Paul - Hastings                   | High                | Fair            | High               |
| Hastings - Winona                     | High                | Fair            | High               |
| St. Paul - Northfield                 | Medium              | Fair            | High               |
| Northfield - Albert Lea (Kansas City) | Low                 | Good            | High               |
| Minneapolis - Mankato                 | Medium              | Fair            | High               |
| St. Paul- Eau Claire, Wisconsin       | Medium              | Fair            | High               |
| St. Paul - Owatonna - Rochester       | Medium              | Fair            | High               |

**Table 5.2 Tier II Existing and Proposed Passenger/Freight Corridors**

| Corridor                            | Potential Ridership | Track Condition | Available Capacity |
|-------------------------------------|---------------------|-----------------|--------------------|
| Minneapolis - Coon Rapids           | High                | Fair            | Low                |
| St. Cloud - Fargo/Moorhead          | Medium              | Good            | Low                |
| Coon Rapids - Cambridge             | Medium              | Good            | Low                |
| Willmar - Fargo/Moorhead            | Low                 | Fair            | High               |
| Willmar - Sioux Falls, South Dakota | Low                 | Good            | Medium             |
| Mankato - Worthington (Sioux City)  | Low                 | Fair            | High               |
| Minneapolis - Owatonna - Rochester  | Medium              | Poor            | High               |

**Table 5.3 Tier III Existing and Proposed Passenger/Freight Corridors**

| <b>Corridor</b>                     | <b>Potential Ridership</b> | <b>Track Condition</b> | <b>Available Capacity</b> |
|-------------------------------------|----------------------------|------------------------|---------------------------|
| Cambridge - Duluth                  | Medium                     | Fair                   | Low                       |
| Rochester - Winona                  | Low                        | Poor                   | High                      |
| Minneapolis - Norwood/Young America | Low                        | Poor                   | High                      |
| Norwood/Young America - Montevideo  | Low                        | Poor                   | High                      |





## **6.0 Sources**

Cambridge Systematics, Inc. 2007. National Rail Freight Infrastructure Capacity and Investment Study. Submitted to Association of American Railroads (AAR), September 2007.



---

# Appendix A

*Detailed Track Condition Charts*



# Appendix A

## BNSF: Minneapolis - Coon Rapids

Train Travel Time: 17  
 Auto Travel Time: 23

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Wayzata     | 12.28     | 9.95   | 2.33   | 1.39        | 14           | 2               | 2               | ABS       | 25      | 25        |
| Wayzata     | 9.95      | 9.9    | 0.05   | 1.39        | 14           | 2               | 0               | CTC       | 25      | 25        |
| Wayzata     | 9.9       | 9.54   | 0.36   | 1.39        | 14           | 2               | 1               | CTC       | 10      | 10        |
| Midway      | 9.45      | 10.3   | 0.85   | 2.00        | 32           | 3               | 0               | CTC       |         | 30        |
| Midway      | 10.3      | 11.4   | 1.1    | 2.00        | 32           | 3               | 2               | CTC       |         | 45        |
| Staples     | 11.4      | 12.5   | 1.1    | 2.00        | 63           | 4               | 0               | CTC       |         | 25        |
| Staples     | 12.5      | 13.8   | 1.3    | 2.00        | 63           | 4               | 0               | CTC       |         | 45        |
| Staples     | 13.8      | 15.5   | 1.7    | 2.00        | 63           | 4               | 1               | CTC       |         | 45        |
| Staples     | 15.5      | 21.05  | 5.55   | 2.00        | 63           | 4               | 4               | CTC       |         | 79        |
| Total:      |           |        | 14.34  |             |              |                 | 10              |           |         |           |
| Min:        |           |        |        | 1.39        | 14           | 2               |                 |           | 10      | 10        |
| Max:        |           |        |        | 2.00        | 63           | 4               |                 |           | 25      | 79        |
| Mean:       |           |        |        | 1.88        | 49           | 3.48            |                 |           | 4.40    | 51.54     |

## BNSF: Coon Rapids - Big Lake

Train Travel Time: 20  
 Auto Travel Time: 36

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Staples     | 21.05     | 21.1   | 0.05   | 2.00        | 47           | 4               | 0               | CTC       |         | 79        |
| Staples     | 21.1      | 28.2   | 7.1    | 2.00        | 47           | 4               | 7               | CTC       |         | 75        |
| Staples     | 28.2      | 37.3   | 9.1    | 2.00        | 47           | 4               | 8               | CTC       |         | 79        |
| Staples     | 37.3      | 46.9   | 9.6    | 2.00        | 47           | 4               | 11              | CTC       |         | 75        |
| Staples     | 46.9      | 47     | 0.1    | 2.00        | 47           | 4               | 0               | CTC       |         | 79        |
| Total:      |           |        | 25.95  |             |              |                 | 26              |           |         |           |
| Min:        |           |        |        | 2.00        | 47           | 4               |                 |           |         | 75        |
| Max:        |           |        |        | 2.00        | 47           | 4               |                 |           |         | 79        |
| Mean:       |           |        |        | 2.00        | 47           | 4.00            |                 |           |         | 76.43     |

## BNSF: Big Lake - St. Cloud

Train Travel Time: 22

Auto Travel Time: 30

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Staples     | 47        | 57.3   | 10.3   | 1.61        | 47           | 4               | 16              | CTC       |         | 75        |
| Staples     | 57.3      | 57.5   | 0.2    | 1.61        | 47           | 4               | 0               | CTC       |         | 45        |
| Staples     | 57.5      | 62.2   | 4.7    | 1.61        | 47           | 4               | 5               | CTC       |         | 75        |
| Staples     | 62.2      | 62.7   | 0.5    | 1.61        | 47           | 4               | 2               | CTC       |         | 70        |
| Staples     | 62.7      | 73     | 10.3   | 1.61        | 47           | 4               | 12              | CTC       |         | 75        |
| Staples     | 73        | 73.5   | 0.5    | 1.61        | 47           | 4               | 1               | CTC       |         | 60        |
| Staples     | 73.5      | 73.77  | 0.27   | 1.61        | 47           | 4               | 0               | CTC       |         | 70        |
| Total:      |           |        | 26.77  |             |              |                 | 36              |           |         |           |
| Min:        |           |        |        | 1.61        | 47           | 4               |                 |           |         | 45        |
| Max:        |           |        |        | 1.61        | 47           | 4               |                 |           |         | 75        |
| Mean:       |           |        |        | 1.61        | 47           | 4.00            |                 |           |         | 74.35     |

## BNSF: St. Cloud - Fargo/Moorhead

Train Travel Time: 139

Auto Travel Time: 172

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Staples     | 73.77     | 78.5   | 4.73   | 1.89        | 47           | 4               | 9               | ABS       |         | 70        |
| Staples     | 78.5      | 103.05 | 24.55  | 1.89        | 47           | 4               | 28              | ABS       |         | 79        |
| Staples     | 103.05    | 103.15 | 0.1    | 1.89        | 47           | 4               | 0               | TWC/ABS   |         | 35        |
| Staples     | 103.05    | 105.3  | 2.25   | 1.89        | 47           | 4               | 2               | CTC       |         | 79        |
| Staples     | 105.3     | 106.3  | 1      | 1.89        | 47           | 4               | 3               | CTC       |         | 30        |
| Staples     | 106.3     | 106.63 | 0.33   | 1.89        | 47           | 4               | 1               | CTC       |         | 50        |
| Staples     | 106.63    | 107    | 0.37   | 1.44        | 47           | 4               | 0               | CTC       |         | 50        |
| Staples     | 107       | 128.4  | 21.4   | 1.44        | 47           | 4               | 19              | CTC       |         | 75        |
| Staples     | 128.4     | 133.92 | 5.52   | 1.44        | 47           | 4               | 5               | CTC       |         | 79        |
| Staples     | 133.92    | 134.02 | 0.1    | 1.44        | 47           | 4               | 1               | CTC       |         | 35        |
| Staples     | 134.02    | 139.7  | 5.68   | 1.44        | 47           | 4               | 8               | CTC       |         | 79        |
| Staples     | 139.7     | 140.02 | 0.32   | 1.44        | 47           | 4               | 0               | CTC       |         | 25        |
| Staples     | 147.78    | 148.1  | 0.32   | 2.00        | 47           | 4               | 3               | CTC       |         | 25        |
| Staples     | 148.1     | 165.4  | 17.3   | 2.00        | 47           | 4               | 17              | CTC       |         | 75        |
| Staples     | 165.4     | 187.2  | 21.8   | 2.00        | 53           | 4               | 31              | TWC/ABS   |         | 75        |
| Staples     | 187.2     | 187.4  | 0.2    | 2.00        | 53           | 4               | 1               | TWC/ABS   |         | 60        |
| Staples     | 187.4     | 199.5  | 12.1   | 2.00        | 53           | 4               | 20              | TWC/ABS   |         | 75        |
| Staples     | 199.5     | 201.1  | 1.6    | 2.00        | 53           | 4               | 3               | ABS       |         | 60        |
| Staples     | 201.1     | 208    | 6.9    | 2.00        | 53           | 4               | 6               | ABS       |         | 75        |
| Staples     | 208       | 208.4  | 0.4    | 2.00        | 53           | 4               | 0               | ABS       |         | 60        |
| Staples     | 208.4     | 210    | 1.6    | 2.00        | 53           | 4               | 2               | ABS       |         | 75        |
| Staples     | 210       | 210.1  | 0.1    | 2.00        | 53           | 4               | 2               | ABS       |         | 50        |
| Staples     | 210.1     | 210.59 | 0.49   | 2.00        | 53           | 4               | 0               | ABS       |         | 75        |
| Staples     | 210.59    | 210.9  | 0.31   | 2.00        | 53           | 4               | 0               | ABS       |         | 75        |
| Staples     | 210.9     | 211    | 0.1    | 2.00        | 53           | 4               | 0               | ABS       |         | 40        |
| Staples     | 211       | 221.6  | 10.6   | 2.00        | 53           | 4               | 12              | CTC       |         | 79        |
| Staples     | 221.6     | 224.4  | 2.8    | 2.00        | 53           | 4               | 0               | CTC       |         | 60        |
| Staples     | 224.4     | 228.1  | 3.7    | 2.00        | 53           | 4               | 3               | CTC       |         | 75        |
| Staples     | 228.1     | 229.7  | 1.6    | 2.00        | 53           | 4               | 2               | CTC       |         | 70        |
| Staples     | 229.7     | 230.59 | 0.89   | 2.00        | 53           | 4               | 1               | CTC       |         | 75        |
| Staples     | 230.59    | 234    | 3.41   | 2.00        | 53           | 4               | 2               | CTC       |         | 75        |
| Staples     | 234       | 234.5  | 0.5    | 2.00        | 53           | 4               | 0               | CTC       |         | 75        |
| Staples     | 234.5     | 236.1  | 1.6    | 2.00        | 53           | 4               | 1               | CTC       |         | 75        |
| Staples     | 236.1     | 248.1  | 12     | 2.00        | 53           | 4               | 2               | CTC       |         | 79        |
| Staples     | 248.1     | 250.3  | 2.2    | 2.00        | 53           | 4               | 4               | CTC       |         | 75        |
| Staples     | 250.3     | 251.1  | 0.8    | 2.00        | 53           | 4               | 0               | ABS       |         | 75        |
| KO          | 250.3     | 246    | 4.3    | 2.00        | 67           | 4               | 4               | ABS       |         | 79        |
| Prosper     | 42.16     | 42.69  | 0.53   | 1.53        | 57           | 3               | 6               | ABS       |         | 49        |
| Total:      |           |        | 174.50 |             |              |                 | 198             |           |         |           |
| Min:        |           |        |        | 1.44        | 47           | 3               |                 |           |         | 25        |
| Max:        |           |        |        | 2.00        | 67           | 4               |                 |           |         | 79        |
| Mean:       |           |        |        | 1.87        | 50           | 4.00            |                 |           |         | 75.18     |

## BNSF: Coon Rapids - Cambridge

Train Travel Time: 35  
 Auto Travel Time: 42

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Hinkley     | 136.9     | 107.4  | 29.5   | 1.14        | 14           | 4               | 38              | ABS       | 50      |           |
| Total:      |           |        | 29.50  |             |              |                 | 38              |           |         |           |
| Min:        |           |        |        | 1.14        | 14           | 4               |                 |           | 50      |           |
| Max:        |           |        |        | 1.14        | 14           | 4               |                 |           | 50      |           |
| Mean:       |           |        |        | 1.14        | 14           | 4.00            |                 |           | 50.00   |           |

## BNSF: Cambridge - Duluth

Train Travel Time: 145  
 Auto Travel Time: 114

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Hinkley     | 107.4     | 72.26  | 35.14  | 1.14        | 14           | 4               | 43              | ABS       | 50      |           |
| Hinkley     | 72.26     | 72     | 0.26   | 1.08        | 15           | 4               | 3               | ABS       | 40      |           |
| Hinkley     | 72        | 63     | 9      | 1.08        | 15           | 4               | 4               | ABS       | 50      |           |
| Hinkley     | 63        | 62.6   | 0.4    | 1.08        | 15           | 4               | 1               | ABS       | 40      |           |
| Hinkley     | 62.6      | 24.82  | 37.78  | 1.08        | 15           | 4               | 38              | ABS       | 50      |           |
| Hinkley     | 24.82     | 24.5   | 0.32   | 1.10        | 15           | 4               | 10              | ABS       | 40      |           |
| Hinkley     | 24.5      | 15.7   | 8.8    | 1.10        | 15           | 4               | 10              | ABS       | 35      |           |
| Hinkley     | 15.7      | 12     | 3.7    | 1.10        | 15           | 4               | 6               | ABS       | 35      |           |
| Hinkley     | 12        | 11.8   | 0.2    | 1.10        | 15           | 4               | 1               | CTC       | 35      |           |
| Lakes       | 12.688    | 7.6    | 5.088  | 1.90        | 26           | 3               |                 |           | 40      |           |
| Lakes       | 7.6       | 4.66   | 2.94   | 1.90        | 26           | 3               |                 |           | 10      |           |
|             | 4.66      | 0      | 4.66   | 1.67        | 14           | 4               |                 |           | 10      |           |
| Total:      |           |        | 108.29 |             |              |                 | 116             |           |         |           |
| Min:        |           |        |        | 1.08        | 14.00        | 3.00            |                 |           | 10      |           |
| Max:        |           |        |        | 1.90        | 26.00        | 4.00            |                 |           | 50      |           |
| Mean:       |           |        |        | 1.19        | 15           | 3.93            |                 |           | 44.87   |           |



### BNSF: Minneapolis - Willmar

Train Travel Time: 137

Auto Travel Time: 132

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Wayzata     | 12.28     | 13.21  | 0.93   | 1.00        | 14           | 2               | 0               | ABS       | 25      |           |
| Wayzata     | 13.21     | 13.31  | 0.1    | 1.00        | 14           | 2               | 0               | ABS       | 40      |           |
| Wayzata     | 13.31     | 23.6   | 10.29  | 1.15        | 14           | 3               | 3               | ABS       | 40      |           |
| Wayzata     | 23.6      | 24.9   | 1.3    | 1.15        | 14           | 3               | 3               | ABS/CTC   | 30      |           |
| Wayzata     | 24.9      | 98     | 73.1   | 1.15        | 14           | 3               | 94              | CTC       | 40      |           |
| Morris      | 98        | 102.8  | 4.8    | 2.00        | 13           | 3               | 8               | CTC       | 40      |           |
| Total:      |           |        | 90.52  |             |              |                 | 108             |           |         |           |
| Min:        |           |        |        | 1.00        | 13           | 2               |                 |           | 25      |           |
| Max:        |           |        |        | 2.00        | 14           | 3               |                 |           | 40      |           |
| Mean:       |           |        |        | 1.19        | 14           | 2.99            |                 |           | 39.70   |           |

### BNSF: Willmar - Fargo/Moorhead

Train Travel Time: 207

Auto Travel Time: 175

| Subdivision     | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-----------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|                 | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Morris          | 102.8     | 133.67 | 30.87  | 1.24        | 13           | 3               | 50              | CTC       | 40      |           |
| Morris          | 133.67    | 157.41 | 23.74  | 1.00        | 12           | 3               | 32              | CTC       | 40      |           |
| Morris          | 157.41    | 194.9  | 37.49  | 1.17        | 12           | 3               | 54              | CTC       | 40      |           |
| Morris          | 194.9     | 195    | 0.1    | 1.17        | 12           | 3               |                 | CTC       | 25      |           |
| Morris          | 195       | 195.53 | 0.53   | 1.17        | 12           | 3               |                 | CTC       | 40      |           |
| Morris          | 195.53    | 212.32 | 16.79  | 1.18        | 12           | 3               | 21              | CTC       | 40      |           |
| 1 <sup>st</sup> | 212.32    | 215.2  | 2.88   | 2.00        | 10           | 2               | 4               |           | 25      |           |
| Moorhead        | 0         | 21.3   | 21.3   | 1.08        | 7            | 4               | 39              | ABS       | 60      |           |
| Moorhead        | 21.3      | 21.9   | 0.6    | 1.08        | 7            | 4               |                 | ABS       | 40      |           |
| Moorhead        | 21.9      | 40.7   | 18.8   | 1.08        | 7            | 4               |                 | ABS       | 60      |           |
| Moorhead        | 40.7      | 41.11  | 0.41   | 1.08        | 7            | 4               |                 | ABS       | 25      |           |
| Prosper         | 41.3      | 42.16  | 0.86   | 1.39        | 8            | 3               | 2               | ABS       | 40      |           |
| Prosper         | 42.16     | 42.3   | 0.14   | 1.53        | 57           | 3               | 6               | ABS       | 40      |           |
| Prosper         | 42.3      | 42.69  | 0.39   | 1.53        | 57           | 3               |                 | ABS       | 25      |           |
| Total:          |           |        | 154.90 |             |              |                 | 208             |           |         |           |
| Min:            |           |        |        | 1.00        | 7            | 2               |                 |           | 25      |           |
| Max:            |           |        |        | 2.00        | 57           | 4               |                 |           | 60      |           |
| Mean:           |           |        |        | 1.15        | 11           | 3.25            |                 |           | 44.81   |           |

### BNSF: Willmar – Sioux Falls, South Dakota

Train Travel Time: 179

Auto Travel Time: 197

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Marshall    | 0         | 0.2    | 0.2    | 1.09        | 15           | 4               | 70              | TWC       | 10      |           |
| Marshall    | 0.2       | 32.7   | 32.5   | 1.09        | 15           | 4               |                 | TWC       | 49      |           |
| Marshall    | 32.7      | 32.8   | 0.1    | 1.09        | 15           | 4               |                 | TWC       | 30      |           |
| Marshall    | 32.8      | 44.54  | 11.74  | 1.09        | 15           | 4               |                 | TWC       | 49      |           |
| Marshall    | 44.54     | 80.28  | 35.74  | 1.08        | 14           | 4               | 39              | TWC       | 49      |           |
| Marshall    | 80.28     | 104.4  | 24.12  | 1.08        | 13           | 4               | 69              | TWC       | 49      |           |
| Marshall    | 104.4     | 104.8  | 0.4    | 1.08        | 13           | 4               |                 | TWC       | 45      |           |
| Marshall    | 104.8     | 122.6  | 17.8   | 1.08        | 13           | 4               |                 | TWC       | 49      |           |
|             | 0         | 23.36  | 23.36  |             |              |                 |                 |           |         |           |
| Total:      |           |        | 145.96 |             |              |                 | 178             |           |         |           |
| Min:        |           |        |        | 1.08        | 13           | 4               |                 |           | 10      |           |
| Max:        |           |        |        | 1.09        | 15           | 4               |                 |           | 49      |           |
| Mean:       |           |        |        | 1.09        | 14           | 4.00            |                 |           | 48.91   |           |

### BNSF: Minneapolis – St. Paul

Train Travel Time: 29

Auto Travel Time: 18

| Subdivision  | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|--------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|              | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Wayzata      | 12.28     | 9.95   | 2.33   | 1.39        | 14           | 2               | 2               | ABS       | 25      | 25        |
| Wayzata      | 9.95      | 9.9    | 0.05   | 1.39        | 14           | 2               | 0               | CTC       | 25      | 25        |
| Wayzata      | 9.9       | 9.54   | 0.36   | 1.39        | 14           | 2               | 1               | CTC       | 10      | 10        |
| Midway       | 9.45      | 6.99   | 2.46   | 1.00        | 32           | 3               | 1               | CTC       | 30      | 30        |
| Midway       | 6.99      | 0.5    | 6.49   | 2.00        | 32           | 3               | 0               | CTC       | 30      | 30        |
| St. Paul     | 0         | 0.9    | 0.9    | 2.00        | 52           | 4               | 0               | CTC       | 35      |           |
| Merriam Park | 408.9     | 410.1  | 1.2    | 2.00        | 12           | 2               | 0               | CTC       | 30      |           |
| Total:       |           |        | 13.79  |             |              |                 | 4               |           |         |           |
| Min:         |           |        |        | 1.00        | 12           | 2               |                 |           | 10      | 10        |
| Max:         |           |        |        | 2.00        | 52           | 4               |                 |           | 35      | 30        |
| Mean:        |           |        |        | 1.70        | 28           | 2.78            |                 |           | 28.94   | 28.37     |

### CP: Minneapolis - St. Paul

Train Travel Time: 26  
 Auto Travel Time: 18

| Subdivision  | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|--------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|              | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Wayzata      | 12.28     | 9.95   | 2.33   | 1.39        | 14           | 2               | 2               | ABS       | 25      | 25        |
| Wayzata      | 9.95      | 9.9    | 0.05   | 1.39        | 14           | 2               | 0               | CTC       | 25      | 25        |
| Wayzata      | 9.9       | 9.54   | 0.36   | 1.39        | 14           | 2               | 1               | CTC       | 10      | 10        |
| Midway       | 9.45      | 6.99   | 2.46   | 1.00        | 32           | 3               | 1               | CTC       |         | 30        |
| MNNR         | 0         | 1.6    | 1.6    | 1.00        | 10           | 1               | 1               |           |         | 15        |
| Merriam Park | 416.2     | 412    | 4.2    | 1.00        | 12           | 4               | 2               | CTC       |         | 40        |
| Merriam Park | 412       | 411.3  | 0.7    | 1.00        | 12           | 4               | 1               | CTC       |         | 40        |
| Merriam Park | 411.3     | 411.2  | 0.1    | 1.00        | 12           | 4               |                 | CTC       |         | 30        |
| Merriam Park | 411.2     | 410.6  | 0.6    | 2.00        | 12           | 2               | 2               | CTC       |         | 30        |
| Merriam Park | 410.6     | 410.5  | 0.1    | 2.00        | 12           | 2               |                 | CTC       |         | 15        |
| Merriam Park | 410.5     | 410.1  | 0.4    | 2.00        | 12           | 2               |                 | CTC       |         | 30        |
| Total:       |           |        | 12.90  |             |              |                 | 10              |           |         |           |
| Min:         |           |        |        | 1.00        | 10           | 1               |                 |           | 10      | 10        |
| Max:         |           |        |        | 2.00        | 32           | 4               |                 |           | 25      | 40        |
| Mean:        |           |        |        | 1.17        | 16           | 2.84            |                 |           | 4.89    | 30.34     |

### CP: St. Paul - Hastings

Train Travel Time: 19  
 Auto Travel Time: 25

| Subdivision  | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|--------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|              | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Merriam Park | 408.9     | 410.1  | 1.2    | 2.00        | 12           | 2               | 2               | CTC       |         | 30        |
| Merriam Park | 408.3     | 408.9  | 0.6    | 2.00        | 12           | 2               | 1               | CTC       |         | 30        |
| Merriam Park | 407.4     | 408.3  | 0.9    | 2.00        | 12           | 2               |                 | CTC       |         | 70        |
| River        | 402.5     | 407.4  | 4.9    | 2.00        | 28           | 4               | 1               | CTC       |         | 70        |
| River        | 396.1     | 402.5  | 6.4    | 2.00        | 28           | 4               | 5               | CTC       |         | 70        |
| River        | 392.5     | 396.1  | 3.6    | 2.00        | 28           | 4               |                 | CTC       |         | 45        |
| River        | 392.2     | 392.5  | 0.3    | 2.00        | 28           | 4               |                 | CTC       |         | 25        |
| River        | 392.1     | 392.2  | 0.1    | 2.00        | 28           | 4               |                 | CTC       |         | 35        |
| River        | 391.5     | 392.1  | 0.6    | 1.20        | 28           | 4               |                 | CTC       |         | 35        |
| River        | 391.1     | 391.5  | 0.4    | 1.20        | 28           | 4               |                 | CTC       |         | 25        |
| Total:       |           |        | 19.00  |             |              |                 | 9               |           |         |           |
| Min:         |           |        |        | 1.20        | 12           | 2               |                 |           |         | 25        |
| Max:         |           |        |        | 2.00        | 28           | 4               |                 |           |         | 70        |
| Mean:        |           |        |        | 1.96        | 26           | 3.72            |                 |           |         | 58.53     |

**CP: Hastings - Winona**

Train Travel Time: 97  
 Auto Travel Time: 121

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| River       | 391       | 391.1  | 0.1    | 1.20        | 28           | 4               | 47              | CTC       |         | 25        |
| River       | 390.4     | 391    | 0.6    | 1.20        | 28           | 4               |                 | CTC       |         | 50        |
| River       | 389.6     | 390.4  | 0.8    | 1.20        | 28           | 4               |                 | CTC       |         | 60        |
| River       | 389.1     | 389.6  | 0.5    | 1.20        | 28           | 4               |                 | CTC       |         | 70        |
| River       | 385.9     | 389.1  | 3.2    | 1.20        | 28           | 4               |                 | CTC       |         | 79        |
| River       | 373.3     | 385.9  | 12.6   | 1.20        | 28           | 4               |                 | CTC       |         | 79        |
| River       | 371.8     | 373.3  | 1.5    | 1.20        | 28           | 4               |                 | CTC       |         | 65        |
| River       | 369.2     | 371.8  | 2.6    | 1.20        | 28           | 4               |                 | CTC       |         | 40        |
| River       | 364.8     | 369.2  | 4.4    | 1.20        | 28           | 4               |                 | CTC       |         | 65        |
| River       | 364.1     | 364.8  | 0.7    | 1.20        | 28           | 4               |                 | CTC       |         | 60        |
| River       | 362.3     | 364.1  | 1.8    | 1.20        | 28           | 4               |                 | CTC       |         | 65        |
| River       | 354.5     | 362.3  | 7.8    | 1.20        | 28           | 4               |                 | CTC       |         | 79        |
| River       | 338.3     | 354.5  | 16.2   | 1.20        | 28           | 4               |                 | CTC       |         | 65        |
| River       | 329.9     | 338.3  | 8.4    | 1.20        | 28           | 4               |                 | CTC       |         | 75        |
| River       | 327.2     | 329.9  | 2.7    | 1.20        | 28           | 4               |                 | CTC       |         | 65        |
| River       | 326.6     | 327.2  | 0.6    | 1.20        | 28           | 4               |                 | CTC       |         | 60        |
| River       | 310.2     | 326.6  | 16.4   | 1.20        | 28           | 4               |                 | CTC       |         | 65        |
| River       | 310.1     | 310.2  | 0.1    | 1.20        | 28           | 4               |                 | CTC       |         | 30        |
| River       | 306.6     | 310.1  | 3.5    | 1.21        | 32           | 4               | 17              | CTC       |         | 30        |
| River       | 304.8     | 306.6  | 1.8    | 1.21        | 32           | 4               |                 | CTC       |         | 60        |
| River       | 288       | 304.8  | 16.8   | 1.21        | 32           | 4               |                 | CTC       |         | 65        |
| Tomah       | 285       | 288    | 3      | 2.00        | 28           | 4               |                 | CTC       |         | 50        |
| Tomah       | 283.6     | 285    | 1.4    | 1.21        | 28           | 4               |                 | CTC       |         | 50        |
| Total:      |           |        | 107.50 |             |              |                 | 64              |           |         |           |
| Min:        |           |        |        | 1.20        | 28           | 4               |                 |           |         | 25        |
| Max:        |           |        |        | 2.00        | 32           | 4               |                 |           |         | 79        |
| Mean:       |           |        |        | 1.22        | 29           | 4.00            |                 |           |         | 66.19     |

**UP: St. Paul - Northfield**

Train Travel Time: 67  
 Auto Travel Time: 52

| Subdivision  | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|--------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|              | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Merriam Park | 408.9     | 410.1  | 1.2    | 2.00        | 12           | 2               | 2               | CTC       | 30      |           |
| Albert Lea   | 349.4     | 352.3  | 2.9    | 1.00        | 11           | 4               | 4               |           | 20      |           |
| Albert Lea   | 348.3     | 349.4  | 1.1    | 1.00        | 11           | 4               | 8               | ABS       | 20      |           |
| Albert Lea   | 346.3     | 348.3  | 2      | 1.00        | 11           | 4               |                 | ABS       | 25      |           |
| Albert Lea   | 343.9     | 346.3  | 2.4    | 1.00        | 11           | 4               |                 | ABS       | 30      |           |
| Albert Lea   | 343.77    | 343.9  | 0.13   | 1.00        | 11           | 4               |                 | ABS       | 40      |           |
| Albert Lea   | 333.5     | 343.77 | 10.27  | 1.00        | 11           | 4               | 14              | CTC       | 40      |           |
| Albert Lea   | 333.4     | 333.5  | 0.1    | 1.10        | 11           | 4               | 24              | CTC       | 25      |           |
| Albert Lea   | 313.8     | 333.4  | 19.6   | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea   | 313.5     | 313.8  | 0.3    | 1.10        | 11           | 4               |                 | CTC       | 25      |           |
| Albert Lea   | 313.3     | 313.5  | 0.2    | 1.13        | 11           | 4               |                 | CTC       | 25      |           |
| Total:       |           |        | 40.20  |             |              |                 | 52              |           |         |           |
| Min:         |           |        |        | 1.00        | 11           | 2               |                 |           | 20      |           |
| Max:         |           |        |        | 2.00        | 12           | 4               |                 |           | 40      |           |
| Mean:        |           |        |        | 1.08        | 11           | 3.94            |                 |           | 36.14   |           |

**UP: Northfield – Albert Lea**

Train Travel Time: 548

Auto Travel Time: 364

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Albert Lea  | 313.2     | 313.3  | 0.1    | 1.13        | 11           | 4               | 15              | CTC       | 25      |           |
| Albert Lea  | 306.44    | 313.2  | 6.76   | 1.13        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 306.1     | 306.44 | 0.34   | 1.10        | 11           | 4               | 96              | CTC       | 40      |           |
| Albert Lea  | 306       | 306.1  | 0.1    | 1.10        | 11           | 4               |                 | CTC       | 25      |           |
| Albert Lea  | 303.4     | 306    | 2.6    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 300       | 303.4  | 3.4    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 296.4     | 300    | 3.6    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 296.3     | 296.4  | 0.1    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 288       | 296.3  | 8.3    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 287.7     | 288    | 0.3    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 284.7     | 287.7  | 3      | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 281.6     | 284.7  | 3.1    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 254       | 281.6  | 27.6   | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 252.4     | 254    | 1.6    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 251.7     | 252.4  | 0.7    | 1.10        | 11           | 4               |                 | CTC       | 30      |           |
| Albert Lea  | 251.64    | 251.7  | 0.06   | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 249.9     | 251.64 | 1.74   | 1.00        | 11           | 4               | 10              | CTC       | 40      |           |
| Albert Lea  | 245.87    | 249.9  | 4.03   | 1.00        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 240       | 245.87 | 5.87   | 1.19        | 11           | 4               | 8               | CTC       | 50      |           |
|             | 0         | 359    | 359    |             |              |                 |                 |           |         |           |
| Total:      |           |        | 432.30 |             |              |                 | 129             |           |         |           |
| Min:        |           |        |        | 1.00        | 11           | 4               |                 |           | 25      |           |
| Max:        |           |        |        | 1.19        | 11           | 4               |                 |           | 50      |           |
| Mean:       |           |        |        | 1.10        | 11           | 4.00            |                 |           | 47.37   |           |

**UP: Minneapolis – Mankato**

Train Travel Time: 138

Auto Travel Time: 92

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Wayzata     | 12.28     | 13.21  | 0.93   | 1.00        | 14           | 2               | 0               | ABS       | 25      |           |
| Wayzata     | 13.21     | 13.31  | 0.1    | 1.00        | 14           | 2               | 0               | ABS       | 40      |           |
| Wayzata     | 13.31     | 16.5   | 3.19   | 1.15        | 14           | 3               | 1               | ABS       | 40      |           |
| MN&S        | 14        | 16.3   | 2.3    | 1.00        | 2            | 1               | 7               | BRT       | 10      |           |
| MN&S        | 16.3      | 27.8   | 11.5   | 1.00        | 2            | 1               | 18              | BRT       | 10      |           |
| Mankato     | 18.67     | 27.3   | 8.63   | 1.00        | 5            | 4               | 36              | TWC       | 40      |           |
| Mankato     | 27.3      | 28.3   | 1      | 1.00        | 5            | 4               |                 | TWC       | 10      |           |
| Mankato     | 28.3      | 34     | 5.7    | 1.00        | 5            | 4               |                 | TWC       | 49      |           |
| Mankato     | 34        | 46.3   | 12.3   | 1.11        | 5            | 4               | 48              | TWC/ABS   | 49      |           |
| Mankato     | 46.3      | 46.6   | 0.3    | 1.11        | 5            | 4               |                 | TWC/ABS   | 40      |           |
| Mankato     | 46.6      | 50.7   | 4.1    | 1.11        | 5            | 4               |                 | TWC/ABS   | 49      |           |
| Mankato     | 50.7      | 51     | 0.3    | 1.11        | 5            | 4               |                 | TWC/ABS   | 40      |           |
| Mankato     | 51        | 63     | 12     | 1.11        | 5            | 4               |                 | TWC/ABS   | 49      |           |
| Mankato     | 63        | 67     | 4      | 1.11        | 5            | 4               |                 | TWC/ABS   | 45      |           |
| Mankato     | 67        | 82.6   | 15.6   | 1.11        | 5            | 4               |                 | TWC/ABS   | 30      |           |
| Mankato     | 82.6      | 84     | 1.4    | 1.00        | 5            | 4               | 9               |           | 30      |           |
| Mankato     | 84        | 84.2   | 0.2    | 1.00        | 5            | 4               |                 |           | 25      |           |
| Total:      |           |        | 83.55  |             |              |                 | 119             |           |         |           |
| Min:        |           |        |        | 1.00        | 2            | 1               |                 |           | 10      |           |
| Max:        |           |        |        | 1.15        | 14           | 4               |                 |           | 49      |           |
| Mean:       |           |        |        | 1.07        | 5            | 3.44            |                 |           | 36.36   |           |

## UP: Mankato - Worthington

Train Travel Time: 256

Auto Travel Time: 221

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Mankato     | 84.2      | 85.5   | 1.3    | 1.00        | 5            | 4               | 11              |           | 25      |           |
| Mankato     | 85.5      | 86     | 0.5    | 1.00        | 5            | 4               |                 | TWC       | 20      |           |
| Mankato     | 86        | 87.2   | 1.2    | 1.00        | 5            | 4               |                 | TWC       | 25      |           |
| Mankato     | 87.2      | 87.3   | 0.1    | 1.00        | 5            | 4               |                 | TWC       | 20      |           |
| Mankato     | 87.3      | 88.27  | 0.97   | 1.00        | 5            | 4               |                 | TWC       | 25      |           |
| Mankato     | 88.27     | 88.3   | 0.03   | 1.00        | 5            | 4               | 40              | TWC       | 25      |           |
| Mankato     | 88.3      | 99.7   | 11.4   | 1.00        | 5            | 4               |                 | TWC       | 49      |           |
| Mankato     | 99.7      | 104    | 4.3    | 1.00        | 5            | 4               |                 | TWC       | 30      |           |
| Mankato     | 104       | 120    | 16     | 1.00        | 5            | 4               |                 | TWC       | 49      |           |
| Mankato     | 120       | 120.9  | 0.9    | 1.00        | 5            | 4               |                 | TWC       | 20      |           |
| Worthington | 120.9     | 122.6  | 1.7    | 1.22        | 5            | 4               | 10              | TWC       | 20      |           |
| Worthington | 122.6     | 128.75 | 6.15   | 1.22        | 5            | 4               |                 | TWC       | 49      |           |
| Worthington | 128.75    | 149.3  | 20.55  | 1.03        | 5            | 4               | 66              | TWC       | 49      |           |
| Worthington | 149.3     | 160.3  | 11     | 1.03        | 5            | 4               |                 | TWC       | 30      |           |
| Worthington | 160.3     | 175.8  | 15.5   | 1.03        | 5            | 4               |                 | TWC       | 49      |           |
| Worthington | 175.8     | 178    | 2.2    | 1.03        | 5            | 4               |                 | TWC       | 30      |           |
| Worthington | 178       | 188    | 10     | 1.03        | 5            | 4               |                 | TWC       | 40      |           |
| Worthington | 188       | 188.06 | 0.06   | 1.03        | 5            | 4               |                 | TWC       | 49      |           |
| Worthington | 188.06    | 188.1  | 0.04   | 1           | 5            | 4               | 7               | TWC       | 49      |           |
|             | 0         | 80.3   | 80.3   |             |              |                 |                 |           |         |           |
| Total:      |           |        | 184.20 |             |              |                 | 134             |           |         |           |
| Min:        |           |        |        | 1.00        | 5            | 4               |                 |           | 20      |           |
| Max:        |           |        |        | 1.22        | 5            | 4               |                 |           | 49      |           |
| Mean:       |           |        |        | 1.04        | 5            | 4.00            |                 |           | 43.23   |           |



**UP: St. Paul – Eau Claire, Wisconsin**

Train Travel Time: 200

Auto Travel Time: 90

| Subdivision  | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|--------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|              | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Merriam Park | 408.9     | 410.1  | 1.2    | 2.00        | 12           | 2               | 0               | CTC       | 30      |           |
| St. Paul     | 0         | 0.9    | 0.9    | 1.00        | 52           | 4               | 0               | CTC       | 35      |           |
| Altoona      | 0.6       | 1.3    | 0.7    | 2.00        | 5            | 4               | 4               | ABS       | 25      |           |
| Altoona      | 1.3       | 7      | 5.7    | 2.00        | 5            | 4               |                 | ABS       | 30      |           |
| Altoona      | 7         | 18.5   | 11.5   | 1.00        | 5            | 4               | 19              | ABS       | 30      |           |
| Altoona      | 18.5      | 18.6   | 0.1    | 1.00        | 5            | 4               |                 | ABS       | 20      |           |
| Altoona      | 18.6      | 19     | 0.4    | 1.00        | 5            | 4               |                 | ABS       |         |           |
|              | 0         | 79.46  | 79.46  |             |              |                 |                 |           |         |           |
| Total:       |           |        | 99.96  |             |              |                 | 23              |           |         |           |
| Min:         |           |        |        | 1.00        | 5            | 2               |                 |           | 20      |           |
| Max:         |           |        |        | 2.00        | 52           | 4               |                 |           | 35      |           |
| Mean:        |           |        |        | 1.37        | 7            | 3.88            |                 |           | 30.00   |           |

## UP: Minneapolis – Rochester

Train Travel Time: 184

Auto Travel Time: 81

| Subdivision  | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|--------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|              | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Merriam Park | 408.9     | 410.1  | 1.2    | 2.00        | 12           | 2               | 2               | CTC       | 30      |           |
| Albert Lea   | 349.4     | 352.3  | 2.9    | 1.00        | 11           | 4               | 4               |           | 20      |           |
| Albert Lea   | 348.3     | 349.4  | 1.1    | 1.00        | 11           | 4               | 8               | ABS       | 20      |           |
| Albert Lea   | 346.3     | 348.3  | 2      | 1.00        | 11           | 4               |                 | ABS       | 25      |           |
| Albert Lea   | 343.9     | 346.3  | 2.4    | 1.00        | 11           | 4               |                 | ABS       | 30      |           |
| Albert Lea   | 343.77    | 343.9  | 0.13   | 1.00        | 11           | 4               |                 | ABS       | 40      |           |
| Albert Lea   | 333.5     | 343.77 | 10.27  | 1.00        | 11           | 4               | 14              | CTC       | 40      |           |
| Albert Lea   | 333.4     | 333.5  | 0.1    | 1.10        | 11           | 4               | 24              | CTC       | 25      |           |
| Albert Lea   | 313.8     | 333.4  | 19.6   | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea   | 313.5     | 313.8  | 0.3    | 1.10        | 11           | 4               |                 | CTC       | 25      |           |
| Albert Lea   | 313.2     | 313.5  | 0.3    | 1.13        | 11           | 4               | 15              | CTC       | 25      |           |
| Albert Lea   | 306.44    | 313.2  | 6.76   | 1.13        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea   | 306.1     | 306.44 | 0.34   | 1.10        | 11           | 4               | 50              | CTC       | 40      |           |
| Albert Lea   | 306       | 306.1  | 0.1    | 1.10        | 11           | 4               |                 | CTC       | 25      |           |
| Albert Lea   | 303.4     | 306    | 2.6    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea   | 300       | 303.4  | 3.4    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea   | 296.4     | 300    | 3.6    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea   | 296.3     | 296.4  | 0.1    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea   | 288       | 296.3  | 8.3    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea   | 287.7     | 288    | 0.3    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea   | 284.7     | 287.7  | 3      | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea   | 284.4     | 284.7  | 0.3    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea   | 87.8      | 88.8   | 1      | 1.00        | 4            | 2               | 0               | TWC       | 25      |           |
| Waseca       | 87.6      | 87.8   | 0.2    | 1.00        | 4            | 2               |                 | TWC       | 30      |           |
| Waseca       | 87.5      | 87.6   | 0.1    | 1.03        | 4            | 2               | 59              | TWC       | 30      |           |
| Waseca       | 51        | 87.5   | 36.5   | 1.03        | 4            | 2               |                 | TWC       | 25      |           |
| Waseca       | 50.8      | 51     | 0.2    | 1.03        | 4            | 2               |                 | TWC       | 30      |           |
| Total:       |           |        | 107.10 |             |              |                 | 176             |           |         |           |
| Min:         |           |        |        | 1.00        | 4            | 2               |                 |           | 20      |           |
| Max:         |           |        |        | 2.00        | 12           | 4               |                 |           | 50      |           |
| Mean:        |           |        |        | 1.07        | 9            | 3.27            |                 |           | 34.86   |           |

## DME: Minneapolis - Rochester

Train Travel Time: 242

Auto Travel Time: 94

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Wayzata     | 12.28     | 13.21  | 0.93   | 1.00        | 14           | 2               | 0               | ABS       | 25      |           |
| Wayzata     | 13.21     | 13.31  | 0.1    | 1.15        | 14           | 3               | 1               | ABS       | 40      |           |
| Wayzata     | 13.31     | 16.5   | 3.19   | 1.15        | 14           | 3               |                 | ABS       | 40      |           |
| MN&S        | 14        | 16.3   | 2.3    | 1.00        | 2            | 1               | 7               | BRT       | 10      |           |
| MN&S        | 16.3      | 27.8   | 11.5   | 1.00        | 2            | 1               | 18              | BRT       | 10      |           |
| Savage      | 32.9      | 40.4   | 7.5    | 1.00        | 0            | 1               | 6               |           | 10      |           |
| Savage      | 40.4      | 53     | 12.6   | 1.01        | 2            | 1               | 14              |           | 10      |           |
| Savage      | 53        | 53.8   | 0.8    | 1.00        | 2            | 1               | 0               |           | 10      |           |
| Albert Lea  | 313.2     | 313.5  | 0.3    | 1.13        | 11           | 4               | 15              | CTC       | 25      |           |
| Albert Lea  | 306.44    | 313.2  | 6.76   | 1.13        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 306.1     | 306.44 | 0.34   | 1.10        | 11           | 4               | 50              | CTC       | 40      |           |
| Albert Lea  | 306       | 306.1  | 0.1    | 1.10        | 11           | 4               |                 | CTC       | 25      |           |
| Albert Lea  | 303.4     | 306    | 2.6    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 300       | 303.4  | 3.4    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 296.4     | 300    | 3.6    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 296.3     | 296.4  | 0.1    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 288       | 296.3  | 8.3    | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 287.7     | 288    | 0.3    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Albert Lea  | 284.7     | 287.7  | 3      | 1.10        | 11           | 4               |                 | CTC       | 50      |           |
| Albert Lea  | 284.4     | 284.7  | 0.3    | 1.10        | 11           | 4               |                 | CTC       | 40      |           |
| Waseca      | 87.8      | 88.8   | 1      | 1.00        | 4            | 2               | 0               | TWC       | 25      |           |
| Waseca      | 87.6      | 87.8   | 0.2    | 1.00        | 4            | 2               |                 | TWC       | 30      |           |
| Waseca      | 87.5      | 87.6   | 0.1    | 1.03        | 4            | 2               | 59              | TWC       | 30      |           |
| Waseca      | 51        | 87.5   | 36.5   | 1.03        | 4            | 2               |                 | TWC       | 25      |           |
| Waseca      | 50.8      | 51     | 0.2    | 1.03        | 4            | 2               |                 | TWC       | 30      |           |
| Total:      |           |        | 106.02 |             |              |                 | 170             |           |         |           |
| Min:        |           |        |        | 1.00        | 0            | 1               |                 |           | 10      |           |
| Max:        |           |        |        | 1.15        | 14           | 4               |                 |           | 50      |           |
| Mean:       |           |        |        | 1.04        | 6            | 2.25            |                 |           | 26.29   |           |

### DME: Rochester - Winona

Train Travel Time: 98  
 Auto Travel Time: 30

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Waseca      | 4.4       | 20.5   | 16.1   | 1.01        | 4            | 2               | 87              | TWC       | 25      |           |
| Waseca      | 20.5      | 50.8   | 30.3   | 1.01        | 4            | 2               |                 | TWC       | 30      |           |
| Total:      |           |        | 46.40  |             |              |                 | 87              |           |         |           |
| Min:        |           |        |        | 1.01        | 4            | 2               |                 |           | 25      |           |
| Max:        |           |        |        | 1.01        | 4            | 2               |                 |           | 30      |           |
| Mean:       |           |        |        | 1.01        | 4.00         | 2.00            |                 |           | 28.27   |           |

### TCWR: Minneapolis - Norwood/Young America

Train Travel Time: 77  
 Auto Travel Time: 50

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Wayzata     | 12.28     | 13.21  | 0.93   | 1.00        | 14           | 2               | 0               | ABS       | 25      |           |
| Wayzata     | 13.21     | 13.31  | 0.1    | 1.00        | 14           | 2               | 0               | ABS       | 40      |           |
| Bass Lake   | 428.3     | 429.4  | 1.1    | 1.00        | 5            | 2               | 4               | BRT       | 25      |           |
| Bass Lake   | 429.4     | 435.1  | 5.7    | 1.00        | 5            | 2               | 4               | TWC       | 25      |           |
| Glencoe     | 431.8     | 461    | 29.2   | 1.06        | 3            | 2               | 24              | TWC       | 30      |           |
| Total:      |           |        | 37.03  |             |              |                 | 32              |           |         |           |
| Min:        |           |        |        | 1.00        | 3            | 2               |                 |           | 25      |           |
| Max:        |           |        |        | 1.06        | 14           | 2               |                 |           | 40      |           |
| Mean:       |           |        |        | 1.05        | 4            | 2.00            |                 |           | 28.98   |           |

## TCWR: Norwood/Young America - Montevideo

Train Travel Time: 300  
 Auto Travel Time: 183

| Subdivision | Mile Post |        | Length | Track Ratio | Train Counts | FRA Track Class | Grade Crossings | Signaling | Speed   |           |
|-------------|-----------|--------|--------|-------------|--------------|-----------------|-----------------|-----------|---------|-----------|
|             | Beginning | Ending |        |             |              |                 |                 |           | Freight | Passenger |
| Glencoe     | 461       | 543.4  | 111.6  | 1.06        | 3            | 2               | 212             | TWC       | 30      |           |
| Glencoe     | 543.4     | 543.5  | 0.1    | 1.06        | 3            | 2               |                 | TWC       | 20      |           |
| Glencoe     | 543.5     | 552    | 8.5    | 1.06        | 3            | 2               |                 | TWC       | 30      |           |
| Glencoe     | 552       | 556    | 4      | 1.06        | 3            | 2               |                 | TWC       | 10      |           |
| Glencoe     | 556       | 578.9  | 22.9   | 1.06        | 3            | 2               |                 | TWC       | 30      |           |
| Total:      |           |        | 147.10 |             |              |                 | 212             |           |         |           |
| Min:        |           |        |        | 1.06        | 3            | 2               |                 |           | 10      |           |
| Max:        |           |        |        | 1.06        | 3            | 2               |                 |           | 30      |           |
| Mean:       |           |        |        | 1.06        | 3            | 2.00            |                 |           | 29.45   |           |