City of Benson Railroad Crossing Grade Separation Study

Draft Report

Prepared for: Benson, Minnesota

Prepared by: Stantec Consulting Services Inc.

January 28, 2015
Sign-off Sheet

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Prepared by ________________________________

(signature)

Peggy Harter, P.E.

Reviewed by ________________________________

(signature)

Kevin Hoglund, P.E., Senior Associate
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# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNSF</td>
<td>Burlington Northern Santa Fe</td>
</tr>
<tr>
<td>FRA</td>
<td>Federal Railroad Administration</td>
</tr>
<tr>
<td>AADT</td>
<td>Annual Average Daily Traffic</td>
</tr>
<tr>
<td>VPD</td>
<td>Vehicles Per Day</td>
</tr>
<tr>
<td>CBD</td>
<td>Central Business District</td>
</tr>
</tbody>
</table>
1.0 INTRODUCTION

The City of Benson has been dealing with an issue related to its railroad at-grade crossings for many years. Blocked crossings are a common occurrence which hinders the movement of vehicles and pedestrians within the City. This is mostly due to the three closely spaced at-grade crossings in downtown Benson at 12th, 13th and 14th Street. In addition, the nearest at-grade crossings to the northwest and southeast are also sometimes blocked and the emergency service vehicles are not able to know which crossings are blocked or open when the downtown ones are not open. The greatest concern for the blocked crossings is related to emergency services and their ability to serve the City of Benson and surrounding communities. The City of Benson has contracted with Stantec to perform a study to review alternatives that can mitigate the issues the City currently faces. As part of this study, we will also identify funding sources and work with the City to move forward with grant applications to implement an improvement project.
CITY OF BENSON RAILROAD CROSSING GRADE SEPARATION STUDY

Existing Conditions
January 28, 2015

2.0 EXISTING CONDITIONS

The study area for this project includes the entire City limits for the City of Benson and portions outside of the City of Benson within Swift County. In specific, the study will analyze the Morris Subdivision of the BNSF Rail Line that bisects east/west through the City of Benson including all at-grade crossings of the Rail line between 25th Street NW and 20th Avenue SE. The study area also includes alternative routes to the nearest crossings outside of downtown Benson. This Chapter analyzes the existing conditions for study including existing land use and properties, the BNSF Railroad, affected roadways, related projects and studies, and input from the City of Benson. A summary of the existing conditions is identified in Figure 1.

2.1 EXISTING LAND USE, PROPERTIES & SERVICES

2.1.1 Existing/Planned Land Use

The City of Benson completed their Comprehensive Plan in 2000 and an Update to their Comprehensive Plan in 2010. The Land Use Plan included within the Comprehensive Plan identifies Limited Industrial and Park/Open Space Land Use along the BNSF Rail corridor with the exception of the Central Business District (CBD) identified adjacent to the Rail corridor between 12th Street and 15th Street and between Wisconsin Avenue and Idaho Avenue.

2.1.2 Existing Properties within the Central Business District

The properties located within the CBD are most affected when the three downtown at-grade crossings are closed and have the greatest potential for impacts (both positive and negative) depending on a future implemented alternative. Businesses and offices located within the CBD include but are not limited to:

South side of BNSF Rail line
- Benson City Hall
- Family Dollar
- New Holland
- Mi Mexico
- First Security Bank
- Police and Fire Station
- Benson Family Dental Care
- Hawley’s
- Benson Bakery
- Zösel’s True Value Hardware

North side of BNSF Rail line
- Post Office
- Burger King
- Swift County Courthouse
- Bask Street Media
- Eco Watersystems
- Congregational Church
- Lange Associates
- De Marce Theater
- Reuss Bookkeeping
- Benson Area Chamber

Stantec
2.1.3 Location of Emergency Services

The Benson Fire and Police Department are both located within the Central Business District on the south side of the BNSF Rail line at 1410 Kansas Avenue in Benson. The Swift County Benson Hospital is also located on the south side of the BNSF Rail line at 1805 Wisconsin Avenue in Benson. All of these emergency services cover a service area both north and south of the BNSF Rail line for the City of Benson and into Swift County.

The existing helipad to Life Link patients to Benson's Hospital is currently located by the airport, west of the City of Benson. Life Link usually brings patients into the hospital an average of 2 or 3 times a month. Due to impacts with at-grade crossings being blocked by train traffic, the ambulance has been unable to travel without delay between the existing helipad and the hospital. The City is currently in the process of relocating the helipad into town at the northwest quadrant of the intersection of 21st Street South and Tatges Avenue. The new helipad will be a private permission facility with two approaches and will no longer be affected by blocked railroad crossings, due to its proximity to the hospital.

2.1.4 Location and Operations of Industrial Facilities

Several of the nearby industrial facilities located within or near the Benson city limits are either affected by blocked crossings or add to the issue of increased times in which at-grade crossings are blocked. Below is a summary of industrial facilities that were identified during a site visit to the City of Benson in August of 2014.

**Elevator Operations** - The elevator located just to the east of the CBD has its own siding and does not add to the issue of blocked crossings within the downtown as it only takes a few box cars.

**Ethanol Plant** - The ethanol plant is located along the north side of CR 20, just west of the BNSF main line. The ethanol plant has its own spur line. The spur line for the ethanol plant often back up onto the BNSF mainline blocking the CR 20 at-grade crossing.

**Tank Farm** - The flow of two 36-inch pipelines has recently been reversed from New Orleans to Canada. The tank farm became obsolete when they reversed the flow of the propane. Trains can now bring propane to the terminal, which will increase CR 3 at-grade crossing being blocked.

**Elevator West of CBD** - is not currently operational.

**New Business Growth** - There is a major potential for continue industrial growth to the west and northwest of Benson. Additional business growth near the existing tank farm location will only increase train traffic on the Appleton Subdivision line and will in turn increase the amount of time the CR 3 at-grade crossing is currently blocked.
CITY OF BENSON RAILROAD CROSSING GRADE SEPARATION STUDY

Existing Conditions
January 28, 2015

2.2 EXISTING RAILROAD FACILITIES

2.2.1 Railroad Main Line

The Burlington Northern Santa Fe (BNSF) Rail Line (Twin Cities Division, Morris Subdivision) bisects the City of Benson from the northwest to the southeast. The BNSF Rail Line has a single set of tracks at the CSAH 20 at-grade crossing northwest of the City of Benson, the Appleton Subdivision Line has a “wye” that ties into the Morris Subdivision Line just west of the Chippewa River where one main line and one siding continue through the City of Benson.

2.2.2 Existing At-grade Crossings

This study analyzes a total of six existing at-grade crossings; five with the BNSF Morris Subdivision Line and one with the BNSF Appleton Subdivision Line. Each of the six at-grade crossings is summarized in Table 1 below based on information from the Federal Rail Administration (FRA) grade crossing inventory forms. Three of the five existing at-grade crossings of the Morris Subdivision Line are located each one block apart at 14th Street (also US 12 and MN 29), 13th Street and 12th Street. The other two crossing of this line are located approximately 1.6 miles to the northwest (CR 20) and 1.1 miles to the southeast (20th Avenue SE). These distances are measured along the rail line itself and do not include the full travel route through town to get to the external crossings. The full FRA inventory forms are attached in Appendix A.

Table 1 Existing At-grade Crossings within the Project Study Area

<table>
<thead>
<tr>
<th>Crossing Name</th>
<th>USDOT Crossing No.</th>
<th>Sub Division Line</th>
<th>Mile Post No.</th>
<th>No. of Tracks Main/Other</th>
<th>Average Daily Trains</th>
<th>Max Speed (mph)</th>
<th>Activated Gates</th>
<th>Annual Average Daily Traffic (AADT)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>25th Ave NW (CR 3)</td>
<td>075348Y</td>
<td>Appleton</td>
<td>00.84</td>
<td>0/1</td>
<td>6</td>
<td>10</td>
<td>2</td>
<td>1,250</td>
</tr>
<tr>
<td>CR 20</td>
<td>067925Y</td>
<td>Morris</td>
<td>134.30</td>
<td>1/0</td>
<td>13</td>
<td>40</td>
<td>2</td>
<td>1,600</td>
</tr>
<tr>
<td>14th St. (US 12)</td>
<td>067927M</td>
<td>Morris</td>
<td>132.70</td>
<td>1/1</td>
<td>13</td>
<td>40</td>
<td>2</td>
<td>8,200</td>
</tr>
<tr>
<td>13th St.</td>
<td>067928U</td>
<td>Morris</td>
<td>132.63</td>
<td>1/1</td>
<td>13</td>
<td>40</td>
<td>2</td>
<td>415</td>
</tr>
<tr>
<td>12th St.</td>
<td>067929B</td>
<td>Morris</td>
<td>132.56</td>
<td>1/2</td>
<td>13</td>
<td>40</td>
<td>2</td>
<td>415</td>
</tr>
<tr>
<td>20th Ave SE</td>
<td>067912X</td>
<td>Morris</td>
<td>131.62</td>
<td>1/1</td>
<td>13</td>
<td>40</td>
<td>0</td>
<td>200</td>
</tr>
</tbody>
</table>

*All AADT taken from FRA Inventories shown as year 2009

2.2.3 Pedestrian Facilities at the Existing At-Grade Crossings

Pedestrian crossing facilities currently exist at all three downtown at-grade crossings in the CBD. The pedestrian crossings are outside of the crossing arms and do not have protected pedestrian crossing gates. No other pedestrian crossings are located throughout the City or at any of the
existing conditions included in this study. It was estimated by City staff that during the day, approximately 10-15 people cross the railroad per hour by foot or bike within the City of Benson.

An existing signed on-road bicycle route for MN Highway 29 is currently in place and provides a way for bicyclists to get from the central portion of town to the Northside Recreation area. On-road bicyclists are to act as and follow the same rules as motor vehicles and therefore would be required to stop at the rail crossing when the gates are down.

There is currently a concern for pedestrians trespassing across the BNSF mainline between the residential area south of the tracks and the City swimming pool located north of the tracks and just east of the Chippewa River.

### 2.2.4 Highway-Rail Grade Crossing Accident Reports

Highway-rail grade crossing accident reports were collected for each of the six at-grade crossings. A total of ten accidents were reported at the six at-grade rail crossings, with five of the accidents occurring at 14th Street (US Highway 12). Two of the accidents resulted in a fatality, two resulted in injury while the remaining six were property damage only. One of the fatal crashes involved a pedestrian crossing near the 14th Street (US Highway 12) crossing. Table 2 summarizes the history of accidents that occurred at each of the at-grade highway-rail crossings. The detailed accident reports are attached in Appendix B.

#### Table 2 Existing At-grade Crossings Accident History

<table>
<thead>
<tr>
<th>Crossing Name</th>
<th>USDOT Crossing No.</th>
<th>Sub Division Line</th>
<th>Number of Accidents</th>
<th>Year(s) Accident Occurred</th>
<th>Type of Accident</th>
<th>Severity of Accident</th>
</tr>
</thead>
<tbody>
<tr>
<td>25th Ave NW</td>
<td>075348Y</td>
<td>Appleton</td>
<td>2</td>
<td>1983</td>
<td>Train Struck Vehicle</td>
<td>Fatal</td>
</tr>
<tr>
<td>(CSAH 3)</td>
<td></td>
<td></td>
<td></td>
<td>1985</td>
<td>Vehicle Struck Train</td>
<td>Property Damage</td>
</tr>
<tr>
<td>CSAH 20</td>
<td>067925Y</td>
<td>Morris</td>
<td>1</td>
<td>1980</td>
<td>Vehicle Struck Train</td>
<td>Property Damage</td>
</tr>
<tr>
<td>14th St.</td>
<td>067927M</td>
<td>Morris</td>
<td>5</td>
<td>1976</td>
<td>Train Struck Vehicle</td>
<td>Injury</td>
</tr>
<tr>
<td>(US 12)</td>
<td></td>
<td></td>
<td></td>
<td>1977</td>
<td>Vehicle Struck Train</td>
<td>Property Damage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1979</td>
<td>Vehicle Struck Train</td>
<td>Property Damage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2001</td>
<td>Train Struck Pedestrian</td>
<td>Fatal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Vehicle Struck Train</td>
<td>Property Damage</td>
</tr>
<tr>
<td>13th St.</td>
<td>067928U</td>
<td>Morris</td>
<td>0</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>12th St.</td>
<td>067929B</td>
<td>Morris</td>
<td>0</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>20th Ave SE</td>
<td>067912X</td>
<td>Morris</td>
<td>2</td>
<td>1995</td>
<td>Train Struck Vehicle</td>
<td>Property Damage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1996</td>
<td>Train Struck Vehicle</td>
<td>Injury</td>
</tr>
</tbody>
</table>
2.3 EXISTING ROADWAY FACILITIES

The roadways being analyzed as part of the study are roads that have existing at-grade highway-rail crossings, roads that run parallel to the BNSF Rail Line, roads that serve as an alternate route to access existing at-grade highway-rail crossings outside of Benson’s downtown and roads that may serve as future routes for improved highway-rail at-grade or grade separated crossings. Each roadway analyzed within this study is listed in Table 3 including functional classification, most recent AADT volumes and its specific relationship to the study. The project roadways are all also identified in Figure 1.

2.3.1 US & State Highways

US Highway 12 - is classified as a principal arterial roadway. It travels east/west along Minnesota Avenue along the south side of the City of Benson, turns north and crosses the BNSF Rail line along 14th Street and finally turns east along Atlantic Avenue as it travels outside of the Benson City limits.

State Highway 29 - is classified as a minor arterial roadway. It travels north/south along 14th Street south of the City limits and continues to cross the BNSF Rail line at 14th Street. The Highway then turns west along Nevada Avenue and curves back to the north along approximately 17th Street as it travels outside of the Benson City limits.

State Highway 9 - is classified as a minor arterial roadway. It travels east/west along Atlantic Avenue and turns north at 13th Street where it continues to travel to the east and outside of the Benson City limits. Highway 9 does not have an at-grade crossing with the railroad in Benson.

2.3.2 County Highways

County Road 3 (CR 3) - is classified as a rural minor collector. It runs north/south along the west edge of the City of Benson between US Highway 12 and County Road 20.

County Road 20 (CR 20) - is classified as a rural major collector. It runs east/west from west of the City limits and continues east until it crosses the BNSF rail line and then connects into the Atlantic Avenue (State Highway 9) intersection.

County Road 57 (CR 57) - is classified as a rural minor collector. It runs north/south just east of the City limits. It connects to Pacific Avenue on the south side of the BNSF rail line, crosses the tracks intersecting with Atlantic Avenue and continues north to State Highway 9.

2.3.3 City Roadways

14th Street - is classified as a principal arterial roadway along its US 12 designation from Minnesota Avenue to Atlantic Avenue, a minor arterial roadway along its State Highway 29 designation from Atlantic Avenue to Nevada Avenue and a collector roadway between
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Nevada Avenue to its northern limit at Montana Avenue. 14th Street is one of the existing downtown at-grade crossings with the BNSF rail line located in Benson’s CBD.

13th Street – is classified as a local roadway south of Wisconsin Avenue, as a collector roadway between Wisconsin Avenue and Atlantic Avenue and a minor arterial roadway along its State Highway 9 designation from Atlantic Avenue to the north outside of the City limits. 13th Street is one of the existing downtown at-grade crossings with the BNSF rail line located in Benson’s CBD.

12th Street – is classified as a local roadway south of Wisconsin Avenue, as a collector roadway between Wisconsin Avenue and Atlantic Avenue and again as a local roadway north of Atlantic Avenue. 12th Street is one of the existing downtown at-grade crossings with the BNSF rail line located in Benson’s CBD.

Pacific Avenue – is classified as a local roadway and runs parallel along the south side of the BNSF rail line between 22nd Street and 20th Ave SE (CR 57).

Atlantic Avenue – is classified as a minor arterial roadway along its State Highway 9 designation from west of the City limits up to 14th Street and a principal arterial roadway along its US Highway 12 designation from 14th Street as it continues east outside of the City limits. Atlantic Avenue runs parallel along the north side of the BNSF Rail line.

Minnesota Avenue – is a principal arterial roadway along its US Highway 12 designation from west of the City limits up to 14th Street and a local roadway from 14th Street as it continues east of 9th Street. Minnesota Avenue is an east/west roadway south of the BNSF rail line that would likely be used to re-route traffic to alternate at-grade crossings outside of the City limits when the three downtown CBD crossings are blocked when trains are present.

2.3.4 Vehicle/Rail Exposures

The daily vehicle/rail exposure rate is the product of the number of average daily trains multiplied by the number of average daily vehicles at existing at-grade rail crossings. Typically if the daily vehicle/rail exposure is greater than 500,000 at an at-grade crossing, it then meets the Federal Threshold indicating that a grade separation with the rail should be considered. Currently, the existing vehicle/rail exposure rate, available in Table 3, does not meet the Federal Threshold of 500,000 or greater at any of the existing at-grade crossings analyzed as part of this study. The total daily vehicle/rail exposures at all six of the existing at-grade crossings combined is calculated at 148,290 which is still much lower that the Federal Threshold for considering grade separation.
**Table 3 Existing Daily Vehicle/Rail Exposures**

<table>
<thead>
<tr>
<th>Crossing Name</th>
<th>USDOT Crossing No.</th>
<th>Average Daily Trains</th>
<th>AADT Volumes (vpd)</th>
<th>Daily Vehicle/Rail Exposure Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25th Ave NW (CR 3)</td>
<td>075348Y</td>
<td>6</td>
<td>1,250</td>
<td>7,500</td>
</tr>
<tr>
<td>CR 20</td>
<td>067925Y</td>
<td>13</td>
<td>1,600</td>
<td>20,800</td>
</tr>
<tr>
<td>14th St. (US 12)</td>
<td>067927M</td>
<td>13</td>
<td>8,200</td>
<td>106,600</td>
</tr>
<tr>
<td>13th St.</td>
<td>067928U</td>
<td>13</td>
<td>415</td>
<td>5,395</td>
</tr>
<tr>
<td>12th St.</td>
<td>067929B</td>
<td>13</td>
<td>415</td>
<td>5,395</td>
</tr>
<tr>
<td>20th Ave SE</td>
<td>067912X</td>
<td>13</td>
<td>200</td>
<td>2,600</td>
</tr>
<tr>
<td><strong>Total for all Six Existing At-grade Rail Crossings</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>148,290</strong></td>
</tr>
</tbody>
</table>
EXISTING AT-GRADE RAIL CROSSINGS WITH HISTORY OF TRAINS BLOCKING CROSSINGS

EMERGENCY SERVICES BENSON FIRE AND POLICE DEPARTMENT - 1410 KANSAS AVENUE

INDUSTRIAL AREA NORTHWEST OF TOWN WITH EXISTING INDUSTRIAL AND ANTICIPATED INDUSTRIAL GROWTH - OFTEN ISOLATED DUE TO AT-GRADE CROSSINGS BLOCKED

HOSPITAL LOCATION - CITY POOL

PEDESTRIAN TRESPASSING HISTORY CROSSING THE TRACKS TO GO BETWEEN RESIDENTIAL AREA AND CITY POOL

PEDESTRIAN CRASH HISTORY WITH TRAINS

POTENTIAL FUTURE LOCATION FOR LIFELINK HELIPAD AS THE EXISTING ONE NORTHWEST OF TOWN HAS ISSUES WITH AMBULANCE TRANSPORTATION PATIENTS OR ORGANS ARE OFTEN CUT OFF FROM THE HOSPITAL DUE TO BLOCKED AT-GRADE RAIL CROSSINGS.

EXISTING AIRPORT AND LIFELINK HELIPAD IS LOCATED WEST OF THE ETHANOL PLANT ON COUNTY ROAD 20.

PREVIOUS RECOMMENDED IMPROVEMENTS TO THIS ROADWAY TO OFFER AN ALTERNATE ROUTE FOR EMERGENCY VEHICLES WHEN DOWNTOWN CROSSINGS ARE BLOCKED.

CENTRAL BUSINESS DISTRICT

INDUSTRIAL

EXISTING CONDITIONS

CITY OF BENSON, MN

RAILROAD CROSSING STUDY

DATE: 11/4/2014

PROJ. NO.: 193802891
CITY OF BENSON RAILROAD CROSSING GRADE SEPARATION STUDY

Existing Conditions
January 28, 2015

2.4 RELATED PROJECTS/STUDIES & PROJECT HISTORY

The City of Benson and MnDOT have developed past planning efforts and projects that address vehicle and rail operations within the City.

2.4.1 City of Benson 2000 Comprehensive Plan and 2010 Update

The City of Benson completed a full Comprehensive Plan in 2000 with an update to the Plan in 2010. Recommendations and goals from the comprehensive plan that may affect the goals of this study include but are not limited to the following:

- Preserve and strengthen the Central Business District and Establish a cohesive, unified image for the CBD;
- Protect the traveling public for both motorized and non-motorized modes of transportation; and
- Lessen the noise, congestion and safety concerns of truck and train traffic.

2.4.2 City of Benson 2000 Transportation Study

As part of the 2000 Transportation Study completed for the City of Benson, a specific analysis was completed for the downtown railroad operations. During that study it was determined that the average daily number of trains was 15 per day with a peak weekday number of trains at 25. Train speeds varied from 25 to 40 mph with lengths varying from 500-feet minimum; 5,500-feet on average and 7,800-feet for the longest. During that analysis it was noted that the railroad was stopping trains outside of the city and having an employee travel downtown to do any necessary switching. This allowed the street crossings to remain open while the trains were waiting. Recommendations from the analysis included the following:

- BNSF pursue electronic automatic switching to reduce blocked crossings within the CBD and
- Long-range consideration for constructing a railroad bypass around the City

2.4.3 City of Benson 2007 East Pacific Avenue Preliminary Engineering Report

A preliminary engineering report was completed in 2007 for the improvements of East Pacific Ave between 9th Street East and 20th Avenue SE. Pacific Avenue, which parallels the BNSF Rail line on the south, provides a route for emergency vehicles to use when all three crossings in Benson’s downtown are blocked by train traffic. However, East Pacific Avenue is currently a gravel roadway with very poor subgrade soils and is often impassible in the spring. This eliminates this route from being an emergency reliever route all year long. The proposed engineering report recommended improvements to the roadway that would allow it to carry the weight of heavy emergency vehicles during any season of the year. The project cost estimate
Existing Conditions
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in 2007 dollars was $793,305.25. The challenge with implementing this project has been how to pay for it since the north side of the road is bordered by BNSF and the south side of the roadway is sparsely populated rural property and is not feasible for assessment to the small number of abutting properties.

2.4.4 State of Minnesota v. BNSF Railway Company Regarding Blocked Crossing Citations

In 2014, the City of Benson issued four citations to BNSF Railroad for trains blocking rail crossings longer than Minnesota State Statue 219.383 permits. The citations resulted in a legal case in which BNSF Railway Company pleaded not guilty to the citations and submitted a “Memorandum of Law in support of its Motion to Dismiss” the citations issued by the City of Benson, MN, for violations of Minn. Stat. 219.383. The final order of the case found that the charges against BNSF were dismissed since the Federal Railroad Safety Act preempted the Minnesota State Statue.

However, BNSF’s motion helped to identify the reasoning for long periods of at-grade crossings being blocked by trains. A synopsis of the reasoning for periods of greater than 10 minutes where at-grade crossings are blocked is summarized below and is taken directly from the “Memorandum of Law” as submitted by BNSF:

- “When a train approaches Benson on the Appleton Subdivision and is directed to go east toward Willmar, a member of the train crew needs to disembark the train and manually throw several switches to line the tracks properly to allow the train to go in the direction intended. The same is true for a train coming through Benson that needs to go down the Appleton Subdivision. At this wye there are security measures in place to prevent tampering with the switches. As a train approaches, it automatically triggers a device that unlocks the switch and allows it to be thrown. The switches can only be operated after a delay of 7-8 minutes. The crew member, usually the conductor, can then throw the switch to allow the train to go where required.”

- “The locomotive of the train needs to be in the vicinity of the switch before the anti-locking mechanism can function and the train cannot move through the switch until the lock is released and the switch thrown. Because it is almost impossible to perform this switching maneuver in less than 10 minutes, the trailing ends of lengthy westbound trains at times necessarily block the crossings in downtown Benson for more than 10 minutes.”

- Other factors noted in the Memorandum of Law submitted by BNSF include harsh winter conditions in 2013-2014 and increased number of trains due to economic recovery since 2009, a successful grain harvest in 2013 and the increase in crude oil shipments.

This memorandum clearly identifies that the manual switching operations and increased train traffic are contributing factors to the more frequent occurrence and increased time of blocked at-grade crossings in Benson, MN.

Stantec
2.4.5 **BNSF Planned Improvements**

The City of Benson received a letter dated July 11, 2014, indicating the BNSF Railway is proposing to construct an approximately 50-foot monopole communications pole in/near Benson, Swift County, Minnesota within the existing railroad right-of-way at M.P. 130.2. This improvement will be constructed outside of the study limits - east of the City of Benson.

At this time, the City of Benson is unsure if BNSF is currently upgrading their manual switching operations to automatic switching. The study is waiting for confirmation from BNSF on current and short-term improvements for their rail operations through the City of Benson.

2.4.6 **MnDOT December 2014 Report on the Improvements to the Highway-Rail Grade Crossings and Rail Safety**

In December 2014, the Minnesota Department of Transportation (MnDOT) published a detailed report on Improvements to the Highway-Rail Grade Crossings and Rail Safety in Minnesota. The report included on the following:

- Evaluated the impacts of additional rail traffic, primarily Bakken crude oil unit trains, on local Minnesotan communities;
- Presented a list of 102 high priority highway-rail grade crossings; and
- Promoted optional safety improvements recognized by the FRA to reduce risk.

The highway-rail grade crossings within the City of Benson at 14th St (US 12), 13th St, and 12th St were all analyzed as part of the report in the report, with the 14th St (US 12) highway-rail grade crossing recommended as the site for a long term future grade separation.

MnDOT calculated priority of each highway-rail grade crossing via a point system, in which weighted scores were assessed in three primary categories: Risk, Safety, and Condition. Table 4 provides some of the factors considered within these three primary categories. Within the report, each at-grade crossing and surrounding ½ mile radius was individually evaluated for the presence and severity of these factors. These locations were then ranked assigning priority to highway-rail grade crossings of greater risk.
Table 4 Select MnDOT Highway-Rail Grade Crossing Evaluation Criteria

<table>
<thead>
<tr>
<th>Risk</th>
<th>Conditions at Crossing</th>
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<tbody>
<tr>
<td>General Population Density</td>
<td>Traffic Volumes</td>
</tr>
<tr>
<td>Vulnerable Fixed Population</td>
<td>Type of Protection</td>
</tr>
<tr>
<td>Hospitals, Nursing Homes, Prisons</td>
<td>Active or Passive</td>
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<tr>
<td>Vulnerable Temporary Population</td>
<td>Physical Conditions</td>
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<tr>
<td>Schools, Public Buildings</td>
<td>Crossing Geometry, Sight, Multiple Tracks</td>
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<td>Emergency Services</td>
<td>Special Highway Status</td>
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<tr>
<td>Police Stations, Fire Departments</td>
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<tr>
<td>USDOT Crash Prediction Model</td>
<td>Safety Records / Accident History</td>
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<tr>
<td>Safety Records / Accident History</td>
<td>Near Miss Reports</td>
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</tbody>
</table>

The results of the analysis from the report ranked the three crossings in Benson as follows:

- 14th Street (US 12) ranked 1st of all 102 crossings and recommended long term consideration for a grade separated crossing;
- 13th Street ranked 8th of all 102 crossings; and
- 12th Street ranked 15th of all 102 crossings.

The MnDOT report goes on to promote awareness of safety improvement strategies and features currently being employed. These safety improvements range from inexpensive short-term alternatives to capital intensive long-term solutions.
3.0 ISSUES IDENTIFICATION

Based on the existing conditions identified in relation to vehicle and rail operations in the City of Benson, the following issues have been developed that will help to support the purpose and need for this project as well as help to recognize potential solutions to mitigate the identified issues.

3.1 EXISTING AT-GRADE CROSSINGS BLOCKED BY TRAINS

The BNSF railroad performs a switching operation between the main and branch lines which often causes the trains on the main line to block the crossings at 12th, 13th and 14th Streets in Benson’s downtown CBD. Section 2.4.4 of this report explains in detail the mechanisms responsible for the blocked crossings in downtown Benson.

In addition to the blocked downtown crossings, the following blocked crossing issues were discussed at the August 2014 site visit meeting:

**Industrial Area west of Benson** - Currently the industrial area bound by CR3 to the west, the BNSF main line to the east, CR 20 to the north and the subdivision line to the south; often becomes isolated with both the CR 20 and CR 3 at-grade crossings being blocked at the same time. This creates an issue for access to the electrical sub stations, Swift County Solid Waste Recycling Plant, Power Plant and American Fertilizer. Due to the potential for injuries in industrial areas, it is not only a concern of how these blocked crossings impact business operations, but also the ability for emergency service vehicles to access the area when needed.

**Recent Impacts to 20th Avenue SE Crossing** – During the August 2014 site visit, it was noted that recently the downtown crossings have not had as many issues with stopped trains blocking the downtown at-grade crossings. Instead, the 20th Avenue SE crossing has been blocked for long periods of time, in some cases for up to 72 hours at a time. During the site visit, the 20th Avenue SE crossing was blocked by parked rail cars.

3.1.1 Travel Delays and Routes/Times to Nearest Unblocked Crossings

An analysis was completed as part of this study to determine the travel time to the nearest at-grade crossing when all three downtown crossings are blocked. Two travel routes were analyzed to determine the amount of time to travel to the nearest crossings which are identified below and shown in Figure 2.

**Travel Route “A” – Nearest At-Grade Crossing to the Southeast**

- 14th Street on the south side of the downtown crossings takes Pacific Avenue to the east, crosses the tracks to the north at 20th Avenue SE, and travels west on Atlantic Ave (US 12), arriving on north side of the crossing at 14th Street.
Travel time analysis includes the mileage for the route and the posted speed limit, but does not account for intersection control or traffic delays as a field travel time study was not completed. The estimated travel time for Route “A” =\[(1.72 \text{ miles}/30 \text{ mph}) + (0.32 \text{ miles}/50 \text{ mph})\] * 60 min/hour = 3.82 minutes.

Travel Route “B” – Nearest At-Grade Crossing to the Northwest

14th Street on the south side of the downtown crossing follows MN 29 (or 14th Street) south to US 12 (or Minnesota Avenue) where the route travels west along US 12 to go north on CR 3 (one at-grade crossing at CR 3). The route then turns east on CR 20 (one at-grade crossing at CR 20) to MN 9 (or Atlantic Avenue) where the route continues to the southeast and parallels the tracks to the north side of the crossing at 14th Street.

Travel time analysis includes the mileage for the route and the posted speed limit, but does not account for intersection control or traffic delays as a field travel time study was not completed. The estimated travel time for Route “B” =\[(1.39 \text{ miles}/30 \text{ mph}) + (2.12 \text{ miles}/55 \text{ mph}) + (0.30 \text{ miles}/45 \text{ mph}) + (0.86 \text{ miles}/40 \text{ mph})\] * 60 min/hour = 6.78 minutes.

It is important to note that this analysis does not include traffic delays, intersection control delays or the potential for the alternative route at-grade crossings to also be blocked by train traffic.

3.1.2 Impacts to Emergency Services

When the existing at-grade crossings are blocked by trains, it greatly inhibits the response of emergency services. As noted in the existing conditions section of this report, most of the City’s emergency services including fire, police and the hospital are all located on the south side of the BNSF Rail Line that bisects the City of Benson. The Benson Public School Campus along with many businesses, City and County residents that are served by these emergency services are located on the north side of the BNSF Rail Line. Long periods of blocked crossings in Benson’s downtown, coupled with limited awareness of other potentially blocked crossings to the northwest and southeast of the downtown, pose a major impairment to response times for the emergency service vehicles. The City of Benson has identified improving the mobility and safety of emergency response vehicles as the highest priority outcome of the recommended improvements of this study.
ALTERNATE TRAVEL ROUTES OUTSIDE OF THE CBD

CITY OF BENSON, MN
RAILROAD CROSSING STUDY

DATE: 11/6/2014
PRJN. NO.: 19360891

TRADEMARK OF STANTEC CORPORATION

DESIGNATED SPEED LIMITS
- 55 MPH
- 40 MPH
- 30 MPH

TRAVEL ROUTE "B"
ADDITIONAL TRAVEL TIME
6 MIN 47 SEC

TRAVEL ROUTE "A"
ADDITIONAL TRAVEL TIME
3 MIN 49 SEC

DESIGNATED SPEED LIMITS
- 50 MPH
- 30 MPH
CITY OF BENSON RAILROAD CROSSING GRADE SEPARATION STUDY

Issues Identification
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3.2 PEDESTRIAN MOBILITY & SAFETY

The City of Benson is almost equally bisected by the BNSF Rail Line coupled with a limited number of passively protected pedestrian rail crossing facilities located exclusively within the CBD. This restricts protected pedestrian mobility across the BNSF Rail Line to the three crossings within the CBD. As no other pedestrian crossing facilities exist, these crossings within the CBD experience high volumes of pedestrian traffic. Pedestrian functions vary from; travelling to and from the Benson public school campus located north on 14th St, utilizing the CBD during normal shopping and leisure activities, as well as accessing the golf course and public pool facilities on the northwest side of town. A fatal accident occurred in 2001 when a pedestrian was struck by a train at the 14th St (US 12) crossing. The combination of high pedestrian activity and accident history at the 14th St (US 12) crossing demonstrates the need for pedestrian safety improvements.

During the site visit, concern was expressed for the safety of pedestrians outside of the downtown CBD. The single pedestrian routes located solely within the CBD is impacting pedestrian mobility within the City of Benson and has created unsafe pedestrian-rail interactions at the BNSF tracks south of the City pool between 22nd St and 21st St, shown in Figure 1. Rather than lengthen their route by travelling through the CBD, pedestrians are crossing the tracks completely unprotected.

3.3 SOCIAL AND ECONOMIC IMPACTS

Residents of the City of Benson are regularly impacted by the increased BNSF rail traffic and subsequent delays being experienced at blocked crossings, during what can normally be defined as everyday activities such as; dropping children off at school, picking up groceries, going to the post office, etc... The equal presence of residential housing and desired destinations on both sides of the BNSF Rail Line ensures this inconvenience is shared by all of Benson.

Growing a prosperous Central Business District (CBD) has been and will continue to be a primary goal in Benson. Local business is adversely affected by the delays resulting from blocked crossings. These inconvenient delays may deter customers from their intended trips to businesses located within the CBD. Logistics become more difficult for businesses receiving shipments or making deliveries, especially when the CBD crossings are blocked during peak hour traffic resulting in substantial backups and queuing.

3.4 PURPOSE & NEED STATEMENT

This study has developed a “Purpose and Need Statement” based on the existing conditions and issues that will assist in the future pursuit of Federal Funding sources for implementation of proposed projects. The Purpose and Needs Statement below may seem like a reiteration of information already provided within the report, but is set up according to Federal guidelines and will be able to be directly input into Federal documents or grant applications.
3.4.1 Purpose for the Proposed Project

The proposed improvements will provide: emergency personnel with the ability to detect blocked crossings allowing for effective alternate route planning; the motoring public with an enhanced level of safety during rail-vehicle interactions at the crossings of 14th St (US 12), 13th St, and 12th St; improved mobility to all of the traveling public; improved pedestrian safety with protected CBD crossing facilities; and improved pedestrian mobility outside of the CBD.

The intent of the proposed project is to accomplish the following objectives:

1. Improve mobility and response times for emergency services;
2. Create a higher level of safety at the highway-rail grade crossings of 14th St (US 12), 13th St, 12th St, and 20th Ave SE;
3. Improve mobility through the City of Benson for all of the traveling public;
4. Improve safety for pedestrians utilizing the existing facilities within Benson’s CBD; and
5. Increased mobility for pedestrian access across the BNSF Main Line outside of the CBD.

3.4.2 Need for the Proposed Project

As identified earlier in the study, the City of Benson continues to be adversely affected by increased rail activity on the BNSF Rail Line that bisects the City. In addition, existing problems are compounded by the close proximity of the Appleton Branch Line Wye and manual switches located within western City Limits. Trains often block the highway-rail grade crossings of 14th St (US 12), 13th St, and 12th St during a required stop to perform switching operations, effectively prohibiting north/south mobility within the City. This while, an inconvenience to the travelling public, is a severe detriment to emergency service crews responding to calls within not only the City of Benson but the surrounding community of Swift County. Operational constraints within the switching process can produce scenarios where trains block all three CBD crossings for periods greater than ten minutes, which can be detrimental when considering emergency response times. The residents of the City of Benson and surrounding Swift County should be allowed the comfort of prompt emergency services in their time of need.

A recent December 2014 MnDOT report, “Improvements to Highway-Rail Grade Crossings and Rail Safety” published a list of 102 high priority highway-rail grade crossings recommended for safety improvements, ranking 14th St (US 12), 13th St, and 12th St respectively at, 1st, 8th, and 15th. The report further delivers a long-term recommendation of a grade separation for the 14th St (US 12) highway-rail grade crossing, recognizing it as a priority project in the future. Additional information pertaining to the MnDOT report can be referenced in Section 2.4.6. Given the accident history of the three CBD crossings, safety improvements creating full width highway-rail grade crossing protection are warranted by the latent possibility of a vehicle initiated catastrophic derailment.
Pedestrian mobility and safety has been similarly impacted by the increased rail activity. The current pedestrian-rail crossing facilities within the CBD do not restrict pedestrian movements while the crossing is active, allowing for unsafe situations where pedestrians “hurry across” before the train arrives. A pedestrian-train accident in 2001 resulted in the death of a pedestrian crossing at/near the 12th Street crossing. In addition pedestrian mobility is needed outside of the CBD with a history of reported “pedestrian trespassing” crossing the tracks where pedestrian crossings are not available. The lack of pedestrian mobility or pedestrian crossings outside of the CBD is closely tied to pedestrian safety as it is very unsafe for pedestrians to cross the tracks outside of pedestrian crossings.
4.0 ALTERNATIVE DEVELOPMENT AND EVALUATION

A series of both short-term and long-term alternatives have been developed and evaluated with consideration toward mitigating identified issues being experienced within the City of Benson. The proposed alternatives below are to be assessed as conceptual solutions analyzed through preliminary engineering practices for feasibility.

4.1 FUTURE GRADE SEPARATION

Part of the scope for completing this study was to determine the feasibility of a future grade separation (overpass or underpass) of the BNSF Rail Line within Benson’s CBD. While developing the existing conditions for this study, it was determined that none of the existing at-grade crossings come close to meeting the recommended rail-vehicle threshold of 500,000 daily vehicle-train exposures that typically warrant consideration of a rail-vehicle grade separation. However, the results of the 2014 MnDOT Safety report recommended 14th Street (US 12) as the number one location within the state to consider a long-term rail grade separation. A grade separation of the crossings would also mitigate most of the issues identified within this report including mobility for emergency services, better mobility for both motor vehicles and non-motor vehicles (i.e. pedestrians) and improved safety for motor vehicles and pedestrians.

Preliminary alignments and profiles of the proposed overpass grade separation at 14th St (US 12) are shown in Figures 3 and 4. Figures 3 shows an overpass with a 4.9% maximum grade resulting in a required length of 1,384’ to achieve 24’ of vertical clearance over the BNSF rail line, 18’ of clearance over tracks plus an allowance of 6’ for the bridge superstructure. Figure 4 depicts the overpass structure footprint creating negative impacts within the CBD at a minimum, between Wisconsin Ave and Idaho Ave. A second overpass option has a steeper 8.0% maximum grade and results in a required length of 1131’. The smaller overpass impact area, shown in Figures 5 and 6, has a southern limit at the midblock of Wisconsin Ave and Kansas Ave and a north termini midblock of Utah Ave and Idaho Ave. These limits do not account for the any impacts associated with a need for the realignment of US Highway 12 and State Highway 9.

This option proposes the construction of a grade separation within the CBD at either the 14th St (US12) or 13th St rail crossing. In an effort to minimize impacts to the CBD, both grade separation configurations of overpass and underpass were considered with an overpass selected for preliminary layout, as an underpass was deemed unfeasible due to drainage concerns arising from the close proximity of the Chippewa River and known high water tables. An overpass would provide the City of Benson with an unrestricted route over the BNSF rail line. To ensure pedestrian mobility within the CBD, an at-grade pedestrian rail crossing facility is proposed between 14th St (US 12) and 12th St, in addition to a separated path on the overpass.

The proposed overpass along either 14th St (US 12) or 13th St will require the intersecting minor roadways of Wisconsin, Kansas, Utah, and Idaho Avenues to be closed impeding vehicle mobility within the CBD. It may be possible keep Pacific Ave and Atlantic Ave open to local CBD
CITY OF BENSON RAILROAD CROSSING GRADE SEPARATION STUDY

Alternative Development and Evaluation
January 28, 2015

Traffic under the overpass, US Highway 12 and State Highway 9 will require continuity to be restored by shifting the alignments to the north past the northern termini of the overpass into a new intersection located along Nevada Ave. The southern termini of the proposed 14th St overpass will match into the existing alignment of US Highway 12.

Preliminary Opinion of Probable Cost

The preliminary opinion of probable cost is based on a per square foot cost to construct an overpass 38-feet in width which includes two 12-foot travel lanes, 4-foot shoulder and one 6-foot wide path. The cost does not account for costs associated with right of way acquisition, business relocations and the realignment needs for the state highway routes. The opinion of probable costs ranges between $7.9 M and $10.5 M depending on the recommended grade of the structure.

Table 5 Opinion of Probable Cost Estimates for Future Grade Separation in CBD

<table>
<thead>
<tr>
<th></th>
<th>4.9% Max Grade</th>
<th>8.0% Max Grade</th>
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<tbody>
<tr>
<td>Lower Cost ($150 Per SF)</td>
<td>$7.9 M</td>
<td>$6.4 M</td>
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<tr>
<td>Higher Cost ($200 Per SF)</td>
<td>$10.5 M</td>
<td>$8.6 M</td>
</tr>
</tbody>
</table>

4.1.1 Mitigation of Identified Issues

The proposed grade separation is an immensely complex, capital intensive, long range alternative. However, a grade separation is the only option capable of alleviating all of the identified issues currently affecting the City of Benson, via the elimination of the highway-rail interaction. This alternative provides the highest possible level of safety while allowing unrestricted access and mobility for both motorized and non-motorized travelers, effectively achieving the desired objectives in Section 3.5.1.

4.1.2 New Issues Created

Adverse impacts arising from the proposed alternative are described below;

Social Impacts: The proposed overpass grade separation within the CBD will impact social interactions. The overpass will span the entire CBD reducing traffic volumes within the downtown area and possibly altering the location of public gathering places.
PRELIMINARY PROFILES - 4.9% MAX GRADES

CITY OF BENSON, MN
RAILROAD CROSSING STUDY

DATE: 8-11-2014 PROJ. NO.: 193802891
PLAN VIEW - 8.0% MAX GRADES

CITY OF BENSON, MN
RAILROAD CROSSING STUDY

DATE: 8-11-2014  PROJ. NO.: 193802891

FIGURE 5

Preliminary Impacts

0 200 400

Stantec
0 45° 90°
Environmental Impacts: The preliminary development of the footprint of an overpass in the CBD identifies major impacts to right of way and the likelihood for relocation of many businesses located within the CBD. A large overpass structure will visually impact the CBD’s skyline and restrict sunlight to neighboring buildings. Potential for discovering contaminated soils during construction is higher in older downtown districts. Air quality may be affected during construction of the structure.

Economic Impacts: The large proposed footprint and new travel way over the CBD rather than through it will; ultimately lower property values adjacent the overpass, require a number of “in the way” local businesses to be relocated, restrict vehicle mobility within the downtown area, impair shopping activities, and reduce outside exposure to local businesses.

4.1.3 Summary

It can be concluded from the alternative evaluation that an overpass grade separation in the CBD has many negative impacts to existing properties within the CBD. The alternative would be high cost and likely not receive public support.

A future grade separation could be the City of Benson’s most compatible long-term solution, but should be further investigated at a location outside of the CBD where fewer right of way and relocation impacts would occur. Further investigations are warranted as this long-term project has received recommendation by MnDOT as a priority grade separation, in addition to its capability of alleviating the identified issues impacting the City of Benson.

4.2 Emergency Services Mobility

The current limited operational state of the emergency services necessitates corrective action in the perspective short-term. A proposed twofold strategy of; creating a reliable emergency reliever route to the southeast down Pacific Ave, particularly between 9th St and 20th Ave SE, and giving emergency services personnel geospatial awareness of Benson’s current crossing conditions through the application of an Intelligent Transportation System (ITS). In the event of an emergency, personnel will be able to promptly acquire current access conditions of crossings, enabling selection of the fastest direct route.

The proposed ITS will through either a direct cable connection or wireless modem, communicate the current operational status of the active protection devices to a predetermined central location. Rail crossings are considered blocked when the active protection is engaged. BNSF has offered to provide the City of Benson with cable for making connections to the active protection devices, significantly reducing the cost of the proposed ITS. The remaining costs would be limited to acquiring or assembling a central control board depicting the presence of activity or lack thereof at each rail crossing. A system like this is estimated to cost from $2,500 to $5,000 at each location.
Of the study’s at-grade crossings, only the one at 20th Ave SE is not currently equipped with active protection devices. The implementation of this ITS configuration will require upgrading the 20th Ave SE crossing with active protection features. BNSF has been contacted about this proposed improvement, stating the City of Benson is required to attend/coordinate a diagnostics meeting with BNSF before any formal cost estimates can be obtained. For evaluation purposes, the 20th Ave SE crossing upgrade has an estimated probable cost of approximately $350,000.

For the proposed ITS to bear fruit, reliable secondary routes to both the east and west must exist to circumvent potentially blocked crossings. A route exists to the northwest, but not to the southeast. Proposed improvements to Pacific Ave from 9th St to 20th Ave SE will stabilize this occasionally impassable road, during spring thaw or after heavy rains, allowing for reliable use by emergency vehicles as a secondary route. The alternative route to utilize the 20th Avenue SE crossing when the downtown crossings are blocked is also a much shorter route than traveling to utilize the at-grade crossings northwest of the downtown.

The proposed Pacific Ave improvements are conceptualized from previous design recommendations made in the City of Benson’s 2007 Preliminary Engineering Report concerning Improvements to East Pacific Ave. Two perspective improvement methods are detailed below:

**Option 1** – Pacific Ave is completely reconstructed by removing the poor quality in-situ soils and replacing them with a better performing subgrade material such as, a select granular borrow soil. The 38’ graded roadbed is reinforced with woven geotextile fabric and surfaced with 15 – 18” of aggregate material, similar to a MnDOT Class 5 or Class 1, to produce a 32’ wide road top. The proposed option includes the installation of new storm sewer infrastructure, clearing and grubbing, as well as regrading of the roadside ditches to alleviate existing drainage issues.

The proposed Pacific Ave - Reconstruction total project cost is estimated, in 2017 dollars, to be near $1.1 M. The proposed improvements largely follow those listed in the 2007 East Pacific Avenue Preliminary Engineering Report, (Appendix C) with exception any improvements relating to the watermain which was not included in the proposed work. The 2007 bid prices were extrapolated to 2017 figures by applying 10 years of inflation at a 4% annual rate. **Option 2** – The proposed scope of work is significantly reduced, in comparison to Option 1, resulting in a lower expected cost. Pacific Ave will undergo minor grading to allow for the placement of 15 – 18” of new aggregate and maintain a 32’ wide road top. Stabilization of the existing roadway will be accomplished by the application of a biaxial geogrid within a 4” layer of crushed rock, which will be surfaced with 10 – 14” of aggregate material, similar to a MnDOT Class 5 or Class 1. Clearing and grubbing will be performed to enhance safety and increase exposure to direct sunlight during the transition seasons of Spring and Fall.
Table 6 Opinion of Probable Cost - Pacific Ave Stabilization

<table>
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<tr>
<th>ITEM</th>
<th>UNITS</th>
<th>QUANTITY</th>
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<th>TOTAL UNIT PRICE</th>
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SUBTOTAL                                            $280,375.00

ENGINEERING SERVICES (EST)                        $55,000.00
CONTINGENCIES (EST)                               $15,000.00

ESTIMATED PROJECT COST                            $350,375.00

4.2.1 Mitigation of Identified Issues

The proposed strategy is focused toward reestablishing the full operational ability of Benson’s emergency services. This goal is accomplished through the provided additional reliable secondary route coupled with intelligent route planning to eliminate delays at blocked crossings. The at-grade crossing of 20th Ave SE will offer a greater level of safety as the result of the upgrade from passive protection to active protection.

The identified issues concerning the safety of vehicles and pedestrians at the CBD crossings will remain unaffected.

4.2.2 New Issues Created

Plausible adverse impacts of pursuing the proposed alternative are listed below;

Social: Minimal as area is sparsely populated and no major right of way or relocation impacts are anticipated.

Environmental: This option involves clearing a mature row of box elder trees south of Pacific Ave. A wetland inventory will need to be performed to evaluate if any negative impacts will occur.

Economic: No exposure to local business is expected. The costs of improving Pacific Ave are too great to be borne solely by the limited number of adjacent property owners. The City of Benson
before proceeding with the 20th Ave SE at-grade crossing upgrade will be required to coordinate and plan a diagnostics meeting with BNSF.

4.2.3 Summary

The proposed improvement plan is a viable, short-term solution capable of significantly reducing, if not eliminating, the delays being caused by blocked crossings. The ITS/secondary route option offers a large savings in cost when compared to the only other alternative resolving this issue of a grade separation. The option will remain purposeful until a permanent solution, like that of a grade separation or rail bypass around the City, can provide an unrestricted route for emergency services.

4.3 SAFETY IMPROVEMENTS WITHIN THE CENTRAL BUSINESS DISTRICT

A recent MnDOT report identified the at-grade rail crossings of 14th St (US 12), 13th St, and 12th St within the City of Benson’s CBD, as priority locations for risk reducing upgrades. The proposed supplemental improvements to the current CBD crossing’s active protection will incorporate “state of the art” strategies to deliver a level of access, safety, and crossing protection only exceeded by a grade separation.

A series of proposed supplemental modifications to the existing at-grade rail crossings follows;

14th St (US 12) - The busiest at-grade rail crossing within the City of Benson was listed number one of 102 priority crossings by MnDOT. The existing standard active protection will be modernized, to reflect the “state of the art” in crossing protection, with set of Quadrant “Quad” Gates interconnected to the traffic signals at the adjacent intersections of Pacific Ave and Atlantic Ave. The proposed pedestrian crossing facilities will protect the active crossing, by physically restricting unsafe pedestrian movements through the use of pedestrian automatic gates and/or swing gates. The strategic placement of obstacles; low walls, raised garden beds, hedge fauna, benches, etc, near these gates can deter pedestrian bypassing.

A preliminary opinion of cost for the proposed crossing improvements of 14th St (US 12) was approximated by BNSF to be $1M. Characteristics at 14th St (US 12) crossing such as a multiple set of tracks, one thru and two turn lanes broken/intersected mid-length by the rail crossing, and close proximity to traffic signals requiring an interconnect are responsible for the above average cost. Once again, a full diagnostic meeting with BNSF, FRA and the roadway authorities will be required to request an actual cost estimate from BNSF.

13th St & 12th St - These two at-grade rail crossings simply do not justify the costs required to upgrade both crossings with Quad Gates as much lower traffic volumes are experienced and three at-grade rail crossings currently exist over a span of three blocks. Pedestrian rail crossing facilities could be improved in a manner similar to the 14th St (US 12) crossing. The following configuration is proposed to improve safety in a cost effective manner:
Paired One-Ways – 13th St and 12th St are re-designated as paired one-ways either within the CBD or between Pacific Ave and Atlantic Ave. In this configuration, traffic will only approach from one direction, allowing for the opposing standard automatic gate to be relocated across the tracks creating the full width protection of a Quad Gate.

BNSF estimated a probable cost of $70k - $80k per crossing or $140k - $160k total, to create the proposed automatic gate arrangement through the relocation the existing active protection devices. These estimated costs do not include any costs such as; signal reprogramming, traffic striping or signage, associated with the re-designation of 13th St and 12th St as paired one-ways.

4.3.1 Mitigation of Identified Issues

The proposed modernization of Benson’s CBD at-grade crossings will; create a higher level of safety and protection for the travelling public, substantially reduce the risk of a vehicle initiated derailment, as well as deliver enhanced pedestrian safety and mobility.

The identified issue of improving emergency service’s mobility and response times will remain unaffected.

4.3.2 New Issues Created

Undesirable effects resulting from the proposed alternative are provided below;

Social Impacts: Minor disruptions could result during the implementation of either proposed option; Closing of the 12th St Crossing or Paired One-Ways.

Environmental Impacts: Construction activities within the CBD may temporarily impact local air quality and create marginal levels of noise pollution.

Economic Impacts: The closure of the 12th St crossing could marginally impact a select few local businesses at the eastern edges of the CBD.

4.3.3 Summary

The proposed alternative is well balanced, realizing the full potential of benefits, minimizing the negative side-effects, remaining cost effective, embracing the City of Benson’s growth of the CBD, as well as maintaining the ability to be accomplished in the short to medium term future. This alternative is a feasible mid to long-term solution capable of managing risk at the CBD crossings.

4.4 ADDITIONAL POTENTIAL IMPROVEMENTS

During the study, several new developments arose with significant relevance to the identified issues or proposed alternatives, allowing further discussion of their importance. Although these
issues were outside of the original scope of the study, they are still relevant issues with train interactions in the City of Benson.

### 4.4.1 BNSF Rail Improvements

Section 2.4.5 briefly addresses BNSF’s planned improvements near the City of Benson, in particular the potential for upgrading of the existing manual switches to automatic switches. It should be noted that an upgrade to automatic switches will perform in a similar fashion to the manual switches, requiring the train to stop in the nearby vicinity before becoming active. The required stop and subsequent start is a majority of the delay. Automatic switches are manually inoperable by the train’s engineer, requiring communications with a dispatcher to remotely toggle the switch; occasionally resulting in delays as the train waits for an available dispatcher.

### 4.4.2 Pedestrian Safety Outside of the CBD

During the site visit, concern was expressed for the safety of pedestrians outside of the Benson’s downtown area. The single pedestrian route through the CBD is limiting pedestrian mobility within the City of Benson and has prompted unsafe pedestrian-rail interactions on the BNSF tracks south of the public pool between 21st St and 22nd St, shown in Figure 1. Rather than lengthen their route by travelling through the CBD, pedestrians are crossing the tracks completely unprotected. This area would benefit from a future pedestrian-rail grade separated crossing facility which safely, increases access and mobility.
5.0 RECOMMENDATIONS AND IMPLEMENTATION PLAN

The implementation plan of this study summarizes the recommended short- and mid-term improvements that mitigate the original issues identified within the scope of work for the study. Each recommended improvement includes the opinion of probable cost and an implementation plan with potential funding sources and timelines to make steps toward implementing a future project.

5.1 RECOMMENDED IMPROVEMENTS

5.1.1 Emergency Services Mobility Improvements

The recommended projects to improve the mobility and response time for emergency service vehicles in the City of Benson in regards to their interactions with rail traffic include a combination of ITS communications from each crossing to notify emergency responders of open crossings at the time of an emergency and improvements to Pacific Avenue to ensure that the roadway is available for the use by emergency responder vehicles all year round. The projects are individually summarized below:

- ITS Communication Improvements at four at-grade crossings - CR 3, CR 20, 14th Street (US 12) and 20th Avenue SE - $5,000 per location = $20,000 (Cost does not include design).
- Upgrades for active gates, signals and constant warning time at 20th Avenue SE = $350,000 (Cost is high level and needs diagnostic meeting)
- Improvements to Stabilize Pacific Avenue from 9th Street to 20th Avenue SE - Low Cost Option 2 = $350,000
- Total opinion of probable cost for all combined improvements = $720,000

5.1.1.1 Potential Funding Sources and Project Implementation

In order to implement the ITS Communication Improvements and the upgrades to the 20th Avenue SE at-grade crossing, the City of Benson would first need to schedule a diagnostic meeting with BNSF, FRA and appropriate roadway authority owners. The purpose of the diagnostic meeting is for all parties involved to review the crossings on site, discuss the project issues and potential solutions as well as request an official cost estimate from BNSF for the crossing improvements. The City of Benson would need to design the ITS required to transfer the communications of whether or not the crossings are open to their emergency service responders in addition to coordinating the connection into the communication cable furnished by BNSF.
The Highway Safety Improvement Program (HSIP) is a competitive grant program that is solicited annually to make safety improvements on roadways and intersections. This program allows for 90% of the project to apply for the Federal Funds with a 10% local match. The last funding application solicitation held a project maximum dollar amount of $350,000 per project. It is felt that the ITS Communication Improvements at the four at-grade crossings would be a great application for the competitive HSIP Funds.

The Railroad-Highway Grade Crossing Safety Improvement Program also has funds directly set aside each year for the State to select existing at-grade rail crossings in need of upgraded crossing improvements. This is typically put out on a request list to the State of Minnesota and can be funded at 100% of the cost with the Federal Funds. MnDOT’s Office of Freight and Commercial Vehicle Operations (OFCVO), Rail Administration Section typically works with the counties, cities, townships and railroads to improve the railroad-highway transportation infrastructure. It is felt that upgrades for active gates, signals and constant warning time at 20th Avenue SE could be 100% funded with this program.

The Local Road Improvement Program (LRIP) is a competitive grant program that provides funding assistance to local agencies on transportation projects. During the last project solicitation process, an applicant could apply for their full project amount up to $750,000 (not including the costs for right of way acquisition, engineering costs or enhancement projects).

Improvements to Pacific Avenue from 9th Street to 20th Avenue SE - Low Cost Option 2 - $350,000 would be eligible for LRIP grant funds based on the definition of eligible projects. The City would still need to account for engineering costs for the project.

### 5.1.2 Safety Improvements within the CBD

The recommended projects to improve safety at the existing three at-grade crossings within Benson’s CBD is primarily based on the results of the December 2014 MnDOT report for Improvements to the Highway-Rail Grade Crossings and Rail Safety in Minnesota. The recommended projects are individually summarized below:

- **14th St (US 12)** - Installation of four quadrant gates in all quadrants of the at-grade crossing that will be interconnected to the traffic signals at the adjacent intersections of Pacific Ave and Atlantic Ave. The proposed pedestrian crossing facilities will protect the active crossing, by physically restricting unsafe pedestrian movements through the use of pedestrian automatic gates and/or swing gates = $1,000,000.

- **13th St & 12th St** - Convert 13th and 12th Street to a paired one-way system within the CBD between Pacific and Atlantic Avenue. In this configuration, traffic will only approach from one direction, allowing for the opposing standard automatic gate to be relocated across the tracks creating the full width protection of a Quad Gate = $160,000

- Total opinion of probable cost for all combined improvements = $1,160,000.
5.1.2.1 Potential Funding Sources and Project Implementation

The main purpose for recommending the at-grade safety improvements at the three downtown crossings is based on the recommendations from the December 2014 MnDOT report for Improvements to the Highway-Rail Grade Crossings and Rail Safety in Minnesota. Within the study, the state was allocated $2,000,000 for short term improvements. Although none of the Benson crossings were recommended as part of the $2,000,000 short term improvements, we feel that the City of Benson could meet with their state representatives to discuss making improvements to the three downtown at-grade crossings with the next round of funds. Given that the three crossings ranked number 1, 8 and 15 of all 102 crossings studied by MnDOT and the now completed recommended safety improvements; the estimated cost of $1,160,000 to make major safety improvements to the three crossings should be considered by the state.

As noted previously that if funds are identified for these improvements, the City of Benson will need to work with BNSF, FRA and other roadway authorities to hold a diagnostic meeting to discuss the full potential of safety options and request more detailed cost estimates for the improvements from BNSF.

5.1.3 Long-Term Rail Grade Separation

Although the December 2014 MnDOT report for Improvements to the Highway-Rail Grade Crossings and Rail Safety in Minnesota recommends a future long-term rail grade separation at the at-grade crossing in Benson at 14th Street (US 12) as the number one future grade crossing for consideration; the findings of this study determined that a future grade separated crossing in downtown Benson at either the 14th or 13th Street at-grade crossings is not a feasible option for the City based on the physical impacts that it would have to the businesses located within their CBD. This study has recommended that a long term grade separation should be considered at an alternate location (outside of the CBD) and would likely need to be paired with the relocation or realignment of the state highway system to ensure that the major traffic volumes that currently exist at the 14th Street (US 12) at-grade crossing would relocate to the future grade separation. It is recommended that a full feasibility study be completed to looking into potential alternatives for this future grade separation and relocation of the US 12 alignment outside of the Benson CBD.

5.1.3.1 Potential Funding Sources and Project Implementation

Since the future grade separation will likely include the relocation of the State Highway, it is recommended that the City of Benson partner with MnDOT in conducting a feasibility study to determine if there are feasible locations to plan for a long-term grade separation. This study may be eligible through planning grant funds or through a funding source dedicated by the state to support the number one recommendation from their December 2014 Study.
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 7/24/2014

Crossing No.: 067929B  Update Reason: Changed Crossing  Effective Begin-Date of Record: 06/29/12
Railroad: BNSF BNSF Rwy Co. [BNSF]  End-Date of Record:
Initiating Agency Railroad  Type and Position: Public At Grade

Part I Location and Classification of Crossing

Division: TWIN CITIES  State: MN
Subdivision: MORRIS  County: SWIFT
Branch or Line Name: CP 98-E BRECK  City: In BENSON
Railroad Milepost: 0132.56  Street or Road Name: 12TH ST.
RailRoad I.D. No.: 0022  Highway Type & No.: CITY
Nearest RR Timetable Stn: BENSON  HSR Corridor ID:
Parent Railroad:
Crossing Owner:
ENS Sign Installed: Yes
Passenger Service: None
Avg Passenger Train Count: 0
Adjacent Crossing with Separate Number: No

Private Crossing Information:
Category: 
Specify Signs: 
Specify Signals: 
ST/RR A  ST/RR B  ST/RR C  ST/RR D

Railroad Use:
State Use: F0474

Narrative:

Emergency Contact: (800)632-5452  Railroad Contact: (817)352-1549  State Contact: (651)366-3667

Part II Railroad Information

Number of Daily Train Movements:  
Less Than One Movement Per Day: No
Total Trains: 13  Total Switching: 0  Day Thru: 7
Typical Speed Range Over Crossing: From 1 to 40 mph  Maximum Time Table Speed: 40
Type and Number of Tracks: Main: 1  Other: 2  Specify: PASS & IND

Does Another RR Operate a Separate Track at Crossing? No
Does Another RR Operate Over Your Track at Crossing? No
Part III: Traffic Control Device Information

Signs:
- Crossbucks: 0
- Advanced Warning: Yes
- Pavement Markings: Stop Lines
- Highway Stop Signs: 0
- Hump Stop Signs: No
- Other Signs: 2
- Specify: R15-2

Train Activated Devices:
- Gates: 2
- Mast Mounted FL: 4
- Cantilevered FL (Over): 2
- Other Flashing Lights: 0
- Highway Traffic Signals: 0
- Special Warning Devices Not Train Activated:
  - Type of Train Detection: Constant Warning Time
  - Bells: 1

Part IV: Physical Characteristics

Type of Development: Commercial
- Smallest Crossing Angle: 60 to 90 Degrees
- Are Truck Pullout Lanes Present?: No
- Is Highway Paved?: Yes
- Crossing Surface: Timber
- If Other:

Nearby Intersecting Highway?: Less than 75 feet
- Is it Signalized?: No
- Does Track Run Down a Street?: No
- Is Crossing Illuminated?: Yes
- Is Commercial Power Available?: Yes

Part V: Highway Information

Highway System: Non-Federal-aid
- Functional Classification of Road at Crossing: Rural Local
- Is Crossing on State Highway System?: No

Annual Average Daily Traffic (AADT):
- 000415
- AADT Year: 2009
- Avg. No of School Buses per Day: 2
- Estimated Percent Trucks: 05
- Posted Highway Speed: 30
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 7/24/2014

Crossing No.: 067928U  Update Reason: Changed Crossing  Effective Begin-Date of Record: 06/29/12
Railroad: BNSF BNSF Rwy Co. [BNSF]  End-Date of Record: 
Initiating Agency Railroad Type and Position: Public At Grade

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<td>Subdivision:</td>
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<tr>
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Part II Railroad Information

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U.S. DOT - CROSSING INVENTORY INFORMATION

Part III: Traffic Control Device Information

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Train Activated Devices:

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Part IV: Physical Characteristics

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Part V: Highway Information

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### Part I Location and Classification of Crossing

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<td>Subdivision</td>
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<tr>
<td>Emergency Contact</td>
<td>(800)832-5452</td>
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<td>Railroad Contact</td>
<td>(817)352-1549</td>
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<tr>
<td>State Contact</td>
<td>(651)366-3667</td>
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### Part II Railroad Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Daily Train Movements</td>
<td>Less Than One Movement Per Day: No</td>
</tr>
<tr>
<td>Total Trains</td>
<td>13</td>
</tr>
<tr>
<td>Total Switching</td>
<td>0</td>
</tr>
<tr>
<td>Day Thru</td>
<td>7</td>
</tr>
<tr>
<td>Typical Speed Range Over Crossing</td>
<td>From 1 to 40 mph</td>
</tr>
<tr>
<td>Maximum Time Table Speed</td>
<td>40</td>
</tr>
<tr>
<td>Type and Number of Tracks</td>
<td>Main: 1 Other: 1</td>
</tr>
<tr>
<td>Specify</td>
<td>PASSING</td>
</tr>
<tr>
<td>Does Another RR Operate a Separate Track at Crossing?</td>
<td>No</td>
</tr>
<tr>
<td>Does Another RR Operate Over Your Track at Crossing?</td>
<td>No</td>
</tr>
</tbody>
</table>
U.S. DOT - CROSSING INVENTORY INFORMATION

Part III: Traffic Control Device Information

Signs:
- Crossbucks: 0
- Advanced Warning: Yes
- Pavement Markings: Stop Lines
- Highway Stop Signs: 0
- Hump Crossing Sign: No
- Other Signs: 2 Specify: R15-2

Train Activated Devices:
- Gates: 2
- Mast Mounted FL: 3
- Cantilevered FL (Over): 1
- Other Flashing Lights: 0
- Highway Traffic Signals: 0
- Special Warning Devices Not Train Activated:
  - Channelization: None
  - Track Equipped with Train Signals? Yes

Type of Train Detection: Constant Warning Time
- Advance Preemption

Part IV: Physical Characteristics

Type of Development: Commercial
- Smallest Crossing Angle: 60 to 90 Degrees
- Are Truck Pullout Lanes Present? No

Number of Traffic Lanes: 4
- Is Highway Paved? Yes
- Crossing Surface: Concrete
- If Other:
  - Nearby Intersecting Highway? 76 to 200 feet
  - Does Track Run Down a Street? No
  - Is Crossing Illuminated? Yes
  - Is Commercial Power Available? Yes

Part V: Highway Information

Highway System: Other National Highway
- Functional Classification of Road at Crossing: Rural Minor Arterial
- Is Crossing on State Highway System: Yes
- Annual Average Daily Traffic (AADT): 008200
- AADT Year: 2009
- Estimated Percent Trucks: 22
- Avg. No of School Buses per Day: 16
- Posted Highway Speed: 30
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 7/24/2014

Crossing No.: 067912X  Update Reason: Changed Crossing  Effective Begin-Date of Record: 09/20/10
Railroad: BNSF BNSF Rwy Co. [BNSF]  End-Date of Record:  
Initiating Agency State Type and Position: Public At Grade

Part I Location and Classification of Crossing

Division: TWIN CITIES  State: MN
Subdivision: MORRIS  County: SWIFT
Branch or Line Name: CP 98-E BRECK  City: In BENSON
Railroad Milepost: 0131.62  Street or Road Name: 20TH AVE SE
RailRoad I.D. No.: 0022  Highway Type & No.: TWN 192
Nearest RR Timetable Stn: BENSON  HSR Corridor ID:
Parent Railroad:  County Map Ref. No.: 25
Crossing Owner:  
ENS Sign Installed: Yes  
Passenger Service: None  
Avg Passenger Train Count: 0  
Adjacent Crossing with Separate Number: No

Private Crossing Information:

Category:  
Specify Signs:  
Public Access: Unknown  
Specify Signals:  

Railroad Use:
State Use:

Narrative:

Emergency Contact: (800)832-5452  Railroad Contact: (817)352-1549  State Contact: (651)366-3667

Part II Railroad Information

Number of Daily Train Movements:  
Less Than One Movement Per Day: No
Total Trains: 13  Total Switching: 0  Day Thru: 7
Typical Speed Range Over Crossing: From 1 to 40 mph  Maximum Time Table Speed: 40
Type and Number of Tracks: Main: 1  Other: 1  Specify: PASSING

Does Another RR Operate a Separate Track at Crossing? No
Does Another RR Operate Over Your Track at Crossing? No
Part III: Traffic Control Device Information

Signs:
- Crossbucks: 2
- Advanced Warning: Yes
- Pavement Markings: No Markings
- Highway Stop Signs: 0
- Hump Crossing Sign: No
- Other Signs: 2
  - Specify: R1-2

Train Activated Devices:
- Gates: 0
- Mast Mounted FL: 0
- Cantilevered FL (Over): 0
- Other Flashing Lights: 0
- Highway Traffic Signals: 0
- Special Warning Devices Not Train Activated:
- Type of Train Detection: None
- Traffic Light Interconnection/Preemption: N/A

Part IV: Physical Characteristics

Type of Development: Open Space
- Smallest Crossing Angle: 30 to 59 Degrees
- Are Truck Pullout Lanes Present?: No
- Number of Traffic Lanes: 2
- Crossing Railroad: No
- Is Highway Paved?: Yes
- Crossing Surface: Timber
- If Other:
- Nearby Intersecting Highway?: Less than 75 feet
- Is it Signalized?: No
- Does Track Run Down a Street?: No
- Is Crossing Illuminated?: No
- Is Commercial Power Available?: Yes

Is Commercial Power Available? Yes

Part V: Highway Information

Highway System: Non-Federal-aid
- Functional Classification of Road at Crossing: Rural Local
- Is Crossing on State Highway System: No
- Annual Average Daily Traffic (AADT): 000200
- AADT Year: 2009
- Estimated Percent Trucks: 10
- Avg. No of School Buses per Day: 2
- Posted Highway Speed: 55
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 7/24/2014

Crossing No.: 075348Y  Update Reason: Changed Crossing  Effective Begin-Date of Record: 01/06/14
Railroad: BNSF BNSF Rwy Co. [BNSF]  End-Date of Record: 
Initiating Agency Railroad  Type and Position: Public At Grade

Part I Location and Classification of Crossing

Division: TWIN CITIES  State: MN
Subdivision: APPLETON  County: SWIFT
Branch or Line Name: BENDON-ABERDEEN  City: Near BENSON
Railroad Milepost: 0000.84  Street or Road Name: 25TH AVE NW
RailRoad I.D. No.: 0200  Highway Type & No.: CSAH 3
Nearest RR Timetable Stn: BENSON  HSR Corridor ID: 
Parent Railroad: 
Crossing Owner: BNSF Rwy Co. [BNSF]  County Map Ref. No.: 36
ENS Sign Installed: 
Passenger Service: None  Lat/Long Source: Actual
Avg Passenger Train Count: 0  Quiet Zone: No
Adjacent Crossing with Separate Number: No

Private Crossing Information:

Category:  Public Access: Unknown
Specify Signs: Specify Signals:
ST/RR A ST/RR B ST/RR C ST/RR D

Railroad Use:
State Use: F1483

Narrative:

Emergency Contact: (800)832-5452  Railroad Contact: (817)352-1549  State Contact: (651)366-3667

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: No
Total Trains: 6  Total Switching: 0  Day Thru: 3
Typical Speed Range Over Crossing: From 1 to 10 mph  Maximum Time Table Speed: 10
Type and Number of Tracks: Main: 0  Other 1  Specify: Other Non

Does Another RR Operate a Separate Track at Crossing? No
Does Another RR Operate Over Your Track at Crossing? No
Part III: Traffic Control Device Information

- **Crossbucks:** 2
- **Advanced Warning:** Yes
- **Pavement Markings:** Stop Lines and RR Xing Symbols
- **Train Activated Devices:**
  - Gates: 2
  - Mast Mounted FL: 2
  - Cantilevered FL (Over): 0
  - Other Flashing Lights: 0
  - Highway Traffic Signals: 0
  - Other Train Activated Warning Devices: None
- **Signs:**
  - Highway Stop Signs: 0
  - Hump Crossing Sign: No
  - Other Signs: 2
  - Specify: W14-3
- **Special Warning Devices Not Train Activated:**
  - Type of Train Detection: Constant Warning Time
  - Traffic Light
  - Interconnection/Preemption: N/A

Part IV: Physical Characteristics

- **Type of Development:** Open Space
- **Smallest Crossing Angle:** 60 to 90 Degrees
- **Number of Traffic Lanes:** 2
- **Are Truck Pullout Lanes Present?** No
- **Is Highway Paved?** Yes
- **Crossing Surface:** Concrete
- **If Other:**
- **Nearby Intersecting Highway?** N/A
- **Is it Signalized?** No
- **Does Track Run Down a Street?** No
- **Is Crossing Illuminated?** No
- **Is Commercial Power Available?** Yes

Part V: Highway Information

- **Highway System:** Non-Federal-aid
- **Functional Classification of Road at Crossing:** Rural Local
- **Is Crossing on State Highway System:** No
- **Annual Average Daily Traffic (AADT):** 001250
- **AADT Year:** 2009
- **Estimated Percent Trucks:** 05
- **Avg. No of School Buses per Day:** 0
- **Posted Highway Speed:** 55
U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 7/24/2014

Crossing No.: 067925Y  Update Reason: Changed Crossing  Effective Begin-Date of Record: 03/01/14
Railroad: BNSF BNSF Rwy Co. [BNSF]  End-Date of Record:
Initiating Agency Railroad  Type and Position: Public At Grade

Part I Location and Classification of Crossing

<table>
<thead>
<tr>
<th>Division: TWIN CITIES</th>
<th>State: MN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subdivision: MORRIS</td>
<td>County: SWIFT</td>
</tr>
<tr>
<td>Branch or Line Name: CP 98-E BRECK</td>
<td>City: Near BENSON</td>
</tr>
<tr>
<td>Railroad Milepost: 0134.30</td>
<td>Street or Road Name: 20TH ST NW</td>
</tr>
<tr>
<td>RailRoad I.D. No.: 0022</td>
<td>Highway Type &amp; No.: CSAH 20</td>
</tr>
<tr>
<td>Nearest RR Timetable Stn: BENSON</td>
<td>HSR Corridor ID:</td>
</tr>
<tr>
<td>Parent Railroad:</td>
<td>County Map Ref. No.: 29</td>
</tr>
</tbody>
</table>

Crossing Owner:

- ENS Sign Installed: Yes
- Passenger Service: None
- Avg Passenger Train Count: 0
- Adjacent Crossing with Separate Number: No

Private Crossing Information:

- Specify Signs: ST/RR A
- Public Access: Unknown

Railroad Use:

- State Use: F0749

State Contact: (651)366-3667

Emergency Contact: (800)832-5452  Railroad Contact: (817)352-1549

Narrative:

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: No

- Total Trains: 13
- Total Switching: 0
- Day Thru: 7
- Maximum Time Table Speed: 40

Typical Speed Range Over Crossing: From 1 to 40 mph

Type and Number of Tracks: Main: 1  Other: 0

Does Another RR Operate a Separate Track at Crossing? No

Does Another RR Operate Over Your Track at Crossing? No
U.S. DOT - CROSSING INVENTORY INFORMATION

Crossing 067925Y

Part III: Traffic Control Device Information

<table>
<thead>
<tr>
<th>Signs:</th>
<th></th>
<th>Highway Stop Signs:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossbucks:</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Advanced Warning:</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Pavement Markings:</td>
<td>No Markings</td>
<td>Other Signs:</td>
<td>2 Specify: W10-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

| Train Activated Devices: |       | 4 Quad or Full Barrier: |       |
| Gates:                  | 0     |                     | No    |
| Mast Mounted FL:        | 2     |                     | 4     |
| Cantilevered FL (Over): | 0     |                     | 0     |
| Other Flashing Lights:  | 0     |                     |       |
| Highway Traffic Signals: | 0      | Wigwags: | 0 Bells: | 1 |
| Other Train Activated Warning Devices: | | Special Warning Devices Not Train Activated: |
| Channelization:         | None  |                     |       |
| Track Equipped with Train Signals? | Yes | Traffic Light | N/A |

Part IV: Physical Characteristics

| Type of Development: | Commercial | Smallest Crossing Angle: | 60 to 90 Degrees |
| Number of Traffic Lanes | 2          | Are Truck Pullout Lanes Present? | No |
| Crossing Railroad:    |            | If Other:                 |                  |
| Is Highway Paved?:    | Yes        | Is it Signalized?:        | No |
| Crossing Surface:     | Concrete   | Is Crossing Illuminated?  | No |
| Nearby Intersecting Highway?: | Less than 75 feet | If Other:        |                  |
| Does Track Run Down a Street?: | No | Is Signalized?: | No |
| Is Commercial Power Available?: Yes | | | |

Part V: Highway Information

| Highway System: | Other FA Highway - Not NHS |
| Is Crossing on State Highway System: | No |
| Annual Average Daily Traffic (AADT): | 001600 |
| Estimated Percent Trucks: | 05 |
| Posted Highway Speed: | 55 |
| Functional Classification of Road at Crossing: | Rural Minor Collector |
| AADT Year: | 2009 |
| Avg. No of School Buses per Day: | 2 |
Appendix B
January 28, 2015

Appendix B  RAIL CROSSING ACCIDENT REPORTS
**HIGHWAY-RAIL GRADE CROSSING
ACCIDENT/INCIDENT REPORT**

**Name Of**

<table>
<thead>
<tr>
<th>1. Reporting Railroad</th>
<th>2. Other Railroad Involved in Train Accident/Incident</th>
<th>3. Railroad Responsible for Track Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>BNSF Rwy Co. [BNSF]</td>
<td></td>
<td>BNSF Rwy Co. [BNSF]</td>
</tr>
</tbody>
</table>

**FRA Grade Crossing ID No.**

067927M

**Date of Accident/Incident**

07/31/01

**Alphabetic Code**

DK0701201

**County**

SWIFT

**State**

MN

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]

**City**

BENSON

**Street**

14TH STREET

**Reporting Railroad**

BNSF Rwy Co. [BNSF]

**Other Railroad Involved**

None

**Railway Responsible**

BNSF Rwy Co. [BNSF]
**HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT**

**Name Of**

- Reporting Railroad: BNSF Ry Co. [BNSF]  
- Other Railroad Involved in Train Accident/Incident:  
- Railroad Responsible for Track Maintenance: BNSF Ry Co. [BNSF]  
- U.S. DOT-AAR Grade Crossing ID No.: 067927M

**Date of Accident/Incident:** 06/14/01  
**Time of Accident/Incident:** 10:05 PM

**Nearest Railroad Station:** BENSON  
**Division:** DAKOTA  
**County:** SWIFT  
**State:** MN  
**Abbr.:** 27  
**Public/Private:** Public

**Highway User Involved**

- **Type:**
  - C. Truck-trailer  
  - F. Bus  
  - J. Other Motor Vehicle  
- **Code:**
  - Truck-trailer: 20  
  - Bus: 22  
  - Other: 23

**Rail Equipment Involved**

- **Type:**
  - 17. Equipment: 1  
  - 4. Car(s) (moving): 2  
  - 8. Other (specify): 3  
- **Code:**
  - Equipment: 1  
  - Car(s) (moving): 2  
  - Other: 3

**Date of Accident/Incident:** 06/14/01

**Notes:**  
- **DMB:**  
- **Location:**
  - 1. Yes  
  - **Railway/Freeway:**
  - 2. No  
- **State the name and quantity of the hazardous material released, if any:**
  - **Number of Units:**
  - **Locomotive Code:**
  - **Units:**
  - **Car(s):**

**Meteorological Conditions:**

- **Weather:**
  - 1. Clear  
  - **Visibility:**
  - 1. Day  
  - **Crossing Warning:**
  - 1. Signs  
  - **Code(s):**
  - **Crossing Warning:**
  - **Crossing Warning Lights:**
  - **Code:**
  - **Signal:**
  - **Code:**

**Fatalities:**

- **Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train:**
  - **Driver:**
  - **Code:**

**Casualties:**

- **Killed:**
  - 1  
  - **Injured:**
  - 2  
  - **Uninjured:**
  - 3

**Highway-Rail Crossing Users:**

- **Highway-Rail Crossing Users:**
  - **Code:**

**Railroad Employees:**

- **Total Number of People on Train:**
  - **Code:**

**Passengers on Train:**

- **Code:**

**Special Study Block:**

- **Code:**

**Narrative Description:**

**Notes:**

- **NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A**
**HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT**

**Name Of Reporting Railroad:** Burlington Northern RR Co. [BN ]

**Name Of Railroad Employees:**

**City (if in a city):** BENSON

**Railway Line Involved:**

<table>
<thead>
<tr>
<th>1. Reporting Railroad</th>
<th>2. Other Railroad Involved in Train Accident/Incident</th>
<th>3. Railroad Responsible for Track Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burlington Northern RR Co. [BN ]</td>
<td>2a.</td>
<td>3a.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>067927M</td>
<td>09/04/79</td>
<td>05:43 PM</td>
</tr>
</tbody>
</table>

**Nearest Railroad Station:**

**Location of Warning (geographical):**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SWIFT</td>
<td>27</td>
</tr>
</tbody>
</table>

**Date of Accident/Incident:** 09/04/79

**Time of Accident/Incident:** 05:43 PM

**City:** BENSON

**Highway Name or No.:** 14TH ST

**Highway Vehicle Involved:**

<table>
<thead>
<tr>
<th>11. City (if in a city)</th>
<th>12. Highway Name or No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENSON</td>
<td>14TH ST</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. Type</th>
<th>14. Vehicle Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Auto</td>
<td>(est. mph at impact) 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15. Direction (geographical)</th>
<th>16. Position of Car Unit in Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. North</td>
<td>18. Position of Car Unit in Train</td>
</tr>
</tbody>
</table>

**Railway Equipment Involved:**

<table>
<thead>
<tr>
<th>17. Equipment</th>
<th>18. Position of Car Unit in Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Train (units pulling)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>19. Circumstance</th>
<th>20. Was there a hazardous materials release by the impact transporting hazardous materials?</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>21. Temperature (specify if minus)</th>
<th>22. Visibility (single entry)</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 °F</td>
<td>1. Dawn</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>23. Weather (single entry)</th>
<th>24. Type of Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clear</td>
<td>A. Spec. MoW Equip</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>25. Track Type Used by Rail Equipment Involved</th>
<th>26. Track Number or Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Main</td>
<td>SINGLE MAIN TRACK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>27. FRA Track Class</th>
<th>28. Number of Locomotive Units</th>
<th>29. Number of Cars</th>
<th>30. Consist Speed (Recorded if available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>38</td>
<td>E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>31. Time Table Direction</th>
<th>32. Type of Crossing Warning</th>
<th>33. Signaled Crossing</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mph</td>
<td>4. Wig wag</td>
<td>1. Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>34. Whistle Banner</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>35. Location of Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>36. Crossing Warning Interconnected with Highway Signals</th>
<th>37. Crossing Illuminated by Street Lights or Special Lights</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>38. Driver's Age</th>
<th>39. Driver's Gender</th>
<th>40. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>41. Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Stopped on crossing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>42. Driver Passed Standing Highway Vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>43. View of Track Obscured by (primary obstruction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Permanent Structure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>44. Driver was</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Uninjured</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>45. Was Driver in the Vehicle?</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>46. Highway-Rail Crossing Users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>47. Highway Vehicle Property Damage (est. dollar damage)</th>
<th>48. Total Number of Highway-Rail Crossing Users (include driver)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>49. Railroad Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
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</table>

<table>
<thead>
<tr>
<th>50. Total Number of People on Train (include passengers and crew) (primary obstruction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>51. Is a Rail Equipment Accident / Incident Report Being Filed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>52. Passengers on Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>53. Special Study Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>53b. Special Study Block</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>55. Typed Name and Title</th>
<th>56. Signature</th>
</tr>
</thead>
</table>
| | }

**NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A**
**HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT**

**Name Of**
- Burlington Northern RR Co. [BN ]

<table>
<thead>
<tr>
<th><strong>1. Reporting Railroad</strong></th>
<th><strong>2. Other Railroad Involved in Train Accident/Incident</strong></th>
<th><strong>3. Railroad Responsible for Track Maintenance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Burlington Northern RR Co. [BN ]</td>
<td>2a.</td>
<td>3a.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>4. U.S. DOT-AAR Grade Crossing ID No.</strong></th>
<th><strong>5. Date of Accident/Incident</strong></th>
<th><strong>6. Time of Accident/Incident</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>067927M</td>
<td>11/23/77</td>
<td>11:10 AM</td>
</tr>
</tbody>
</table>

**7. Nearest Railroad Station**
- BENSON

**8. Division**
- 8

**9. County**
- SWIFT

**10. State Abbr.**
- MN

**11. City (if in a city)**
- BENSON

**12. Highway Name or No.**
- 14TH STREET

**13. Type of Equipment Involved**
- C. Truck-trailer
- F. Bus
- J. Other Motor Vehicle

**14. Vehicle Speed**
- (est. mph at impact)
- 2

**15. Direction**
- Code: 2

**16. Position**
- 2. Stopped on Crossing

**17. Equipment Involved**
- 1. Equipment
  - Train (units pulling)
  - Train (units pushing)
  - Light loco(s)
  - Light loco(s) (moving)
  - Light loco(s) (standing)

**18. Position of Car Unit in Train**
- Code: 1

**19. Circumstance**
- 1. Circumstance
  - Rail equipment struck highway user
  - Rail equipment struck by highway user

**20. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?**
- 1. Highway User
  - 2. Rail Equipment
  - Both
  - Neither

**21. Temperature (specify if minus)**
- 25 °F

**22. Visibility (single entry)**
- Code: 1

**23. Weather (single entry)**
- Code: 1

**24. Type of Equipment Consist**
- A. Spec. MoW Equip
  - 1. Freight train
  - 4. Work train
  - 7. Yard/ Switching

**25. Track Type Used by Rail Equipment Involved**
- Code: 1

**26. Track Number or Name**
- SINGLE MAIN

**27. FRA Track Class**
- Code: 5

**28. Number of Locomotive Units**
- Code: 0

**29. Number of Cars**
- Code: 1

**30. Consist Speed (Recorded if available)**
- Code: E

**31. Time Table Direction**
- Code: E

**32. Type of Crossing**
- 1. Gates
  - 4. Wig wags
  - 7. Crossbucks
  - 10. Flagged by crew

**33. Signaled Crossing Warning**
- Code: 3

**34. Whistle Ban**
- Code: 1

**35. Location of Warning**
- Code: 1

**36. Crossing Warning Interconnected with Highway Signals**
- Code: 1

**37. Crossing Illuminated by Street Lights or Special Lights**
- Code: 1

**38. Driver's Age**
- Gender
  - Male
  - Female

**39. Driver's Code**
- 40. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train
  - Code: 2

**41. Driver**
- 1. Drove around or thru the gate
  - 4. Stopped on crossing
  - 5. Other (specify)

**42. Driver Passed Standing Highway Vehicle**
- Code: 2

**43. View of Track Obscured by (primary obstruction)**
- 1. Permanent Structure
  - 2. Standing railroad equipment
  - 4. Topography
  - 6. Highway Vehicles
  - 8. Not Obscured

**44. Driver was**
- 1. Killed
  - 2. Injured
  - 3. Uninjured

**45. Was Driver in the Vehicle?**
- Code: 1

**46. Highway-Rail Crossing Users**
- Code: 1

**47. Highway Vehicle Property Damage (est. dollar damage)**
- $25

**48. Total Number of Highway-Rail Crossing Users (include driver)**
- Code: 1

**49. Railroad Employees**
- Code: 0

**50. Total Number of People on Train (include passengers and crew)**
- Code: 0

**51. Is a Rail Equipment Accident / Incident Report Being Filed**
- Code: 1

**52. Passengers on Train**
- Code: 0

**53a. Special Study Block**
- Code: 0

**53b. Special Study Block**
- Code: 0

**54. Narrative Description**

**55. Typed Name and Title**

**56. Signature**

**57. Date**

**NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A**
**Highway-Rail Grade Crossing Accident/Incident Report**

**Name Of Reporting Railroad:** Burlington Northern RR Co. [BN]  
**RR Accident/Incident No.:** BN

**City (if in a city):** BENSON  
**Highway Name or No.:** 14TH STREET

**1. Reporting Railroad:** Burlington Northern RR Co. [BN]

**2. Other Railroad Involved in Train Accident/Incident:**

**3. U.S. DOT-AAR Grade Crossing ID No.:** 067927M

**4. Nearest Railroad Station:** BENSON  
**5. Date of Accident/Incident:** 04/19/96  
**6. Time of Accident/Incident:** 08:45 AM

**7. City (if in a city):** BENSON  
**8. Division:** SWIFT

**9. County: 14TH STREET**  
**10. State Abbr.: MN**  
**11. Code:** Public

**12. Railroad Responsible for Track Maintenance:** Burlington Northern RR Co. [BN]

**13. Type of Highway User Involved:**

- Auto  
- Pick-up truck  
- Bus  
- School Bus  
- Pedestrian

**14. Vehicle Speed (est. mph at impact):**

- 15 Code 1: Position of Car Unit in Train

**15. Direction (geographical):** North

**16. Position:**

- 1. Stalled on crossing  
- 2. Moving over crossing  
- 4. Neither

**17. Equipment:**

- 1. Freight train  
- 4. Car(s) (moving)  
- 2. Train (units pulling)  
- 5. Car(s) (standing)  
- 3. Train (standing)

**18. Position of Car Unit in Train:**

- 4 Code

**19. Circumstance:**

- 1. Rail equipment struck highway user  
- 2. Rail equipment struck by highway user

**20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?**

- 1. Yes  
- 2. No

**20b. Was there a hazardous materials release by the railroad?**

- 1. Yes  
- 2. No  
- 3. Unknown

**21. Temperature (specify if minus):** 35°F

**22. Visibility (single entry):**

- 1. Dawn  
- 2. Day  
- 3. Dusk  
- 4. Dark

**23. Weather (single entry):**

- 1. Clear  
- 2. Cloudy  
- 3. Rain  
- 4. Fog  
- 5. Sleet  
- 6. Snow

**24. Type of Equipment Consist:**

- 1. Freight train  
- 4. Work train  
- 7. Yard/switching  
- 2. Passenger train  
- 5. Single car  
- 8. Light loco(s)

**25. Track Number or Name:**

- 1. Main  
- 2. Yard  
- 3. Siding

**26. Track Number or Name:**

- 1 Code

**27. FRA Track Class:**

- 1 Code

**28. Number of Locomotive Units:**

- 1 Code

**29. Number of Cars:**

- 3 Code

**30. Consist Speed (Recorded if available):**

- 1. North  
- 2. South  
- 3. East  
- 4. West

**31. Time Table Direction:**

- 1 Code

**32. Type of Crossing:**

- 1. Gates  
- 4. Wig wags  
- 7. Crossbucks  
- 10. Flagged by crew

**33. Signaled Crossing Warning:**

- 1 Code

**34. Whistle Ban Warning:**

- 1. Yes  
- 2. No  
- 3. Unknown

**35. Location of Warning:**

- 1 Code

**36. Crossing Warning Interconnected with Highway Signals:**

- 1. Yes  
- 2. No  
- 3. Unknown

**37. Crossing Illuminated by Street Lights or Special Lights:**

- 1 Code

**38. Driver's Age:**

- 1 Code

**39. Driver's Gender:**

- 1 Male  
- 2 Female

**40. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train:**

- 1. Yes  
- 2. No  
- 3. Unknown

**41. Driver:**

- 1 Code

**42. Driver Passed Standing Highway Vehicle:**

- 1 Yes  
- 2 No  
- 3 Unknown

**43. View of Track Obscured by Primary Obstruction:**

- 1 Code

**44. Driver was Killed:**

- 1. Yes  
- 2. No  
- 3. Unknown

**45. Was Driver in the Vehicle?**

- 1. Yes  
- 2. No

**46. Total Number of Highway-Rail Crossing Users:**

- 1 Code

**47. Highway Vehicle Property Damage:**

- 1 Code

**48. Total Number of Highway-Rail Crossing Users (Include Driver):**

- 1 Code

**49. Railroad Employees:**

- 1 Code

**50. Total Number of People on Train:**

- 1 Code

**51. Is a Rail Equipment Accident Incident Report Being Filed:**

- 1 Code

**52. Passengers on Train:**

- 1 Code

**53a. Special Study Block:**

- 1 Code

**54. Narrative Description:**

**55. Typed Name and Title:**

**56. Signature:**

**57. Date:**
<table>
<thead>
<tr>
<th>Name Of</th>
<th>RR Accident/Incident No.</th>
<th>Alphabetic Code</th>
<th>OMB Approval No. 2130-0500</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reporting Railroad</td>
<td>Burlington Northern RR Co. [BN ]</td>
<td>1a. BN 1b. SD0052</td>
<td>2130-0500</td>
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<tr>
<td>2. Other Railroad Involved in Train Accident/Incident</td>
<td>2a. 2b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Railroad Responsible for Track Maintenance</td>
<td>Burlington Northern RR Co. [BN ]</td>
<td>3a. BN 3b. SD0052</td>
<td></td>
</tr>
<tr>
<td>5. Date of Accident/Incident</td>
<td>02/28/96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Time of Accident/Incident</td>
<td>10:42 AM</td>
<td></td>
<td></td>
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<tr>
<td>7. Nearest Railroad Station</td>
<td>HURON LINE JUNCTION</td>
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<td></td>
</tr>
<tr>
<td>8. Division</td>
<td>SWIFT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. County</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. State</td>
<td></td>
<td>Code 27</td>
<td>MN</td>
</tr>
<tr>
<td>11. City (if in a city)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Highway Name or No.</td>
<td>COUNTY ROAD</td>
<td>Code Public Private</td>
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<tr>
<td><strong>Highway User Involved</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Type</td>
<td>C. Truck-trailer  F. Bus  J. Other Motor Vehicle</td>
<td>Code A</td>
<td></td>
</tr>
<tr>
<td>A. Auto  D. Pick-up truck  G. School Bus  K. Pedestrian</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Truck  E. Van  H. Motorcycle  M. Other (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Vehicle Speed</td>
<td>(est. mph at impact) 0</td>
<td>Code</td>
<td></td>
</tr>
<tr>
<td>2. Stopped on Crossing  4. Trapped</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Equipment</td>
<td>1. Train (units pulling)  2. Train (units pushing)</td>
<td>Code A</td>
<td></td>
</tr>
<tr>
<td>3. Train (standing)  4. Car(s) (moving)  5. Car(s) (standing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Light loco(s) (moving)  7. Light loco(s) (standing)  8. Other (specify)</td>
<td></td>
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<td></td>
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<tr>
<td>9. Equipment involved</td>
<td>A. Train pulling- RCL  B. Train pulling- RCL  C. Train pulling- RCL</td>
<td>Code 1</td>
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<tr>
<td><strong>Rail Equipment Involved</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>A. Track Type Used by Rail Equipment Involved</td>
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<td></td>
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<tr>
<td>26. Track Number or Name</td>
<td>SINGLE MAIN TRACK</td>
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<td></td>
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<tr>
<td>27. FRA Track Class</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. Number of Locomotive Units</td>
<td>2 93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. Number of Cars</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. Consist Speed (Recorded if available)</td>
<td>E. Recorded  R. Recorded  E. Estimated</td>
<td>Code 88 mph</td>
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<td><strong>Location of Warning</strong></td>
<td>Code 07</td>
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<td>2. Cantilever FLS  5. Hwy. traffic signals  8. Stop signs  11. Other (specify)</td>
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<td></td>
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<tr>
<td>33. Signaled Crossing Warning</td>
<td>1. Yes  2. No  3. Unknown</td>
<td>Code 1</td>
<td></td>
</tr>
<tr>
<td>34. Whistle Ban</td>
<td>3. Unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Driver's Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39. Driver's Code</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>1. Male  2. Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41. Driver</td>
<td>1. Drove around or thru the gate  2. Stopped and then proceeded  4. Stopped on crossing</td>
<td>Code 5</td>
<td></td>
</tr>
<tr>
<td>3. Did not stop  Other (specify)</td>
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<tr>
<td><strong>Casualties to:</strong></td>
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<td></td>
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</tr>
<tr>
<td>42. Driver Passed Standing Highway Vehicle</td>
<td>Code 2</td>
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<tr>
<td>43. View of Track Obscured by (primary obstruction)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1. Permanent Structure  2. Standing railroad equipment  4. Topography</td>
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<tr>
<td>3. Passing Train  5. Vegetation  7. Other (specify)</td>
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</tr>
<tr>
<td>44. Driver was 1. Killed  2. Injured  3. Unknown</td>
<td>Code 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46. Highway-Rail Crossing Users</td>
<td>0 1</td>
<td>Code 1</td>
<td></td>
</tr>
<tr>
<td>47. Highway Vehicle Property Damage (est. dollar damage)</td>
<td>$2,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48. Total Number of Highway-Rail Crossing Users (include driver)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Railway Employees</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>49. Railroad Employees</td>
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<td></td>
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</tr>
<tr>
<td><strong>Passengers on Train</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52. Passengers on Train</td>
<td>0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Special Study Block</strong></td>
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<td></td>
</tr>
<tr>
<td>53a. Special Study Block</td>
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<td></td>
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</tr>
<tr>
<td>53b. Special Study Block</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>54. Narrative Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>55. Typed Name and Title</td>
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<td></td>
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</tr>
<tr>
<td>56. Signature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>57. Date</td>
<td></td>
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</tr>
</tbody>
</table>
### HIGHWAY-RAIL GRADE CROSSING
#### ACCIDENT/INCIDENT REPORT

<table>
<thead>
<tr>
<th>Name Of</th>
<th>RR Accident/Incident No.</th>
<th>Alphabetic Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reporting Railroad</td>
<td>Burlington Northern RR Co. [BN ]</td>
<td>1a. BN</td>
</tr>
<tr>
<td>2. Other Railroad Involved in Train Accident/Incident</td>
<td></td>
<td>2a. BN</td>
</tr>
<tr>
<td>3. Railroad Responsible for Track Maintenance</td>
<td>Burlington Northern RR Co. [BN ]</td>
<td>3a. BN</td>
</tr>
<tr>
<td>5. Date of Accident/Incident</td>
<td>10/29/95</td>
<td></td>
</tr>
<tr>
<td>6. Time of Accident/Incident</td>
<td>04:25 AM</td>
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</tr>
<tr>
<td>7. Nearest Railroad Station</td>
<td>BENSON</td>
<td></td>
</tr>
<tr>
<td>8. Division</td>
<td>SWIFT</td>
<td></td>
</tr>
<tr>
<td>9. County</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. State Abbr.</td>
<td>MN</td>
<td></td>
</tr>
<tr>
<td>11. City (if in a city)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Highway Name or No.</td>
<td>SWIFT CO RD 25</td>
<td></td>
</tr>
<tr>
<td>13. Type of Highway User Involved</td>
<td>Code</td>
<td></td>
</tr>
<tr>
<td>A. Auto</td>
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<tr>
<td>B. Truck</td>
<td></td>
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</tr>
<tr>
<td>C. Truck-trailer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Pick-up truck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Van</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. Bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. School Bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Motorcycle</td>
<td></td>
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<tr>
<td>I. Other Motor Vehicle</td>
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<td></td>
</tr>
<tr>
<td>14. Vehicle Speed (est. mph at impact)</td>
<td>Code</td>
<td></td>
</tr>
<tr>
<td>0.</td>
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<td></td>
</tr>
<tr>
<td>1. North</td>
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</tr>
<tr>
<td>2. South</td>
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<td>3. East</td>
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<tr>
<td>4. West</td>
<td>4</td>
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</tr>
<tr>
<td>15. Direction (geographical)</td>
<td>Code</td>
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<tr>
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<tr>
<td>2.</td>
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* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A
**HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT**

**Name Of**: Burlington Northern RR Co. [BN ]

**Reporting Railroad**: Burlington Northern RR Co. [BN ]

**Other Railroad Involved in Train Accident/Incident**: Burlington Northern RR Co. [BN ]

**U.S. DOT-AAR Grade Crossing ID No.**: 075348Y

**Date of Accident/Incident**: 01/23/85

**Time of Accident**: 11:35 PM

**Nearest Railroad Station**: BENSON

**Division**: SWIFT

**County**: Code 27 MN

**Public/Private**: Public

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<th>Highway User Involved</th>
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<td>B. Truck-trailer</td>
<td>B. Train pulling- RCL</td>
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<td>C. Pick-up truck</td>
<td>C. Train (units pushing)</td>
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<td>D. Bus</td>
<td>D. Light loco(s)</td>
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<td>E. Motorcycle</td>
<td>E. Estimated mph</td>
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<td>F. School Bus</td>
<td>F. Recorded</td>
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<td>G. Other Motor Vehicle</td>
<td>G. R. Recorded</td>
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<td>H. Pedestrian</td>
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**Temperature (specify if minus)**: 20 °F


**Type of Equipment Consist**:
- 1. Freight train
- 2. Work train
- 3. Yard/Switching
- 4. Passenger train
- 5. Single car
- 6. Light loco(s)
- 7. Main./inspect. car
- 8. Consistent Speed

**FRA Track Class**: Code 2

**Number of Locomotive Units**: Code 1

**Number of Cars**: Code 26

**Consist Speed (Recorded if available)**: Code 75

**Track Type Used by Rail Equipment Involved**:
- 1. Main
- 2. Yard
- 3. Siding
- 4. Industry

**Track Number or Name**: Code SINGLE MAIN

**Location of Warning**:
- 1. Both Sides
- 2. Side of Vehicle Approach
- 3. Opposite Side of Vehicle Approach

**Driver's Age**: Code 39

**Driver's Gender**: Code Male

**Driver Passed Standing Highway Vehicle**: Code 2

**Casualties to**: Killed Injured

**Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train**: Code 1

**Driver**:
- 1. Drove around or thru the gate
- 2. Stopped and then proceeded
- 3. Did not stop

**Was Driver in the Vehicle?**: Code 1

**Was Driver in the Vehicle?**:
- 1. Yes
- 2. No

**View of Track Obscured by (primary obstruction)**:
- 1. Permanent Structure
- 2. Passing Train
- 3. Vegetation
- 4. Topography
- 5. Highway Vehicles
- 6. Other

**Highway-Rail Crossing Users**:
- 1. Highway User
- 2. Rail Equipment
- 3. Both
- 4. Neither

**Passengers on Train**:
- 1. Killed
- 2. Injured
- 3. Uninjured

**Was Driver in the Vehicle?**:
- 1. Yes
- 2. No

**Total Number of Highway-Rail Crossing Users (include driver)**: Code 1

**Total Number of People on Train (include passengers and crew)**: Code 2

**Is a Rail Equipment Accident / Incident Report Being Filed**:
- 1. Yes
- 2. No

**Signature**: 56

**Date**: 57

---

*NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A*
### Highway-Rail Grade Crossing Accident/Incident Report

**Name Of Reporting Railroad**
- Burlington Northern RR Co. [BN ]

**Nearest Railroad Station**
- BENSON

**Date of Accident/Incident**
- 09/10/83

**Time of Accident/Incident**
- 01:20 AM

**State of Accident/Incident**
- MN

**City (if in a city)**
- BENSON

**Highway Name or No.**
- COUNTY RD 5

**Type of Equipment Involved**
- 1. Train
- 2. Locomotive
- 3. Car(s)
- 4. Rolling Stock
- 5. Rolling Stock(s)
- 6. Other

**Rail Equipment Involved**
- 1. Freight train
- 2. Passenger train
- 3. Work train
- 4. Maintenance train

**Vehicle Speed (Est. mph at impact)**
- 1. North
- 2. South
- 3. East
- 4. West

**Position of Car Unit in Train**
- 1. First
- 2. Second
- 3. Third
- 4. Fourth

**Time of Accident/Incident**
- 01:20 AM

**Weather (single entry)**
- Dawn

**Roadway User Involved**
- 1. Passenger
- 2. Pedestrian
- 3. Bicycle
- 4. Motorcycle
- 5. Motor vehicle
- 6. Highway vehicle
- 7. School bus
- 8. Bus
- 9. Other motor vehicle
- 10. Other

**Railway Equipment Involved**
- 1. Permanent Structure
- 2. Temporary Structure
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Location of Warning**
- 1. Permanent
- 2. Temporary
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Crossing Warning Interconnected**
- 1. Yes
- 2. No

**Type of Warning**
- 1. Crossbucks
- 2. Signs
- 3. Signals
- 4. Other

**Weather**
- Clear

**Roadway User Involved**
- 1. Passenger
- 2. Pedestrian
- 3. Bicycle
- 4. Motorcycle
- 5. Motor vehicle
- 6. Highway vehicle
- 7. School bus
- 8. Bus
- 9. Other motor vehicle
- 10. Other

**Railway Equipment Involved**
- 1. Permanent Structure
- 2. Temporary Structure
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Location of Warning**
- 1. Permanent
- 2. Temporary
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Crossing Warning Interconnected**
- 1. Yes
- 2. No

**Weather**
- Clear

**Roadway User Involved**
- 1. Passenger
- 2. Pedestrian
- 3. Bicycle
- 4. Motorcycle
- 5. Motor vehicle
- 6. Highway vehicle
- 7. School bus
- 8. Bus
- 9. Other motor vehicle
- 10. Other

**Railway Equipment Involved**
- 1. Permanent Structure
- 2. Temporary Structure
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Location of Warning**
- 1. Permanent
- 2. Temporary
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Crossing Warning Interconnected**
- 1. Yes
- 2. No

**Weather**
- Clear

**Roadway User Involved**
- 1. Passenger
- 2. Pedestrian
- 3. Bicycle
- 4. Motorcycle
- 5. Motor vehicle
- 6. Highway vehicle
- 7. School bus
- 8. Bus
- 9. Other motor vehicle
- 10. Other

**Railway Equipment Involved**
- 1. Permanent Structure
- 2. Temporary Structure
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Location of Warning**
- 1. Permanent
- 2. Temporary
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Crossing Warning Interconnected**
- 1. Yes
- 2. No

**Weather**
- Clear

**Roadway User Involved**
- 1. Passenger
- 2. Pedestrian
- 3. Bicycle
- 4. Motorcycle
- 5. Motor vehicle
- 6. Highway vehicle
- 7. School bus
- 8. Bus
- 9. Other motor vehicle
- 10. Other

**Railway Equipment Involved**
- 1. Permanent Structure
- 2. Temporary Structure
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Location of Warning**
- 1. Permanent
- 2. Temporary
- 3. Passing Train
- 4. Standing Train
- 5. Moving Train
- 6. Other

**Crossing Warning Interconnected**
- 1. Yes
- 2. No

**Weather**
- Clear
HIGHWAY-RAIL GRADE CROSSING
ACCIDENT/INCIDENT REPORT

Name Of Reporting Railroad: Burlington Northern RR Co. [BN]

Highway User Involved

13. Type
   A. Auto
   B. Truck
   C. Truck-trailer
   D. Pick-up truck
   E. Van
   F. Bus
   G. School Bus
   H. Motorcycle
   J. Other Motor Vehicle
   Code
   1. Auto
   2. Truck
   3. Truck-trailer
   4. Pick-up truck
   5. Van
   6. Bus
   7. School Bus
   8. Motorcycle
   9. Other

14. Vehicle Speed
   (est. mph at impact)
   Code
   1. 0-20
   2. 21-40
   3. 41-60
   4. 61-80
   5. 81-100
   6. Over 100

15. Direction (geographical)
   Code
   1. North
   2. South
   3. East
   4. West

16. Position
   1. Stalled on crossing
   2. Moving over crossing
   3. Stopped on crossing
   4. Trapped

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?
   1. Yes
   2. No

20b. Was there a hazardous materials release by
   1. Railroad User
   2. Highway User
   3. Both
   4. Neither

20c. State the name and quantity of the hazardous material released, if any

Rail Equipment Involved

17. Equipment
   1. Train
   2. Rail equipment
   3. Car(s)
   4. Cargo(s)
   5. Car(s) (standing)
   6. Light loco(s)
   7. Light loco(s) (standing)
   8. Other (specify)
   Code
   1. Train
   2. Rail equipment
   3. Car(s)
   4. Cargo(s)
   5. Car(s) (standing)
   6. Light loco(s)
   7. Light loco(s) (standing)
   8. Other

25. Track Type Used by Rail Equipment Involved
   1. Main
   2. Yard
   3. Siding
   4. Industry
   Code
   1. Main
   2. Yard
   3. Siding
   4. Industry

26. Track Number or Name
   Code
   SINGLE MAIN TRACK

27. FRA Track Class
   Code
   1

28. Number of Locomotive Units
   Code
   3

29. Number of CARS
   Code
   108

30. Consist Speed
   Code
   E
   75 mph

33. Signaled Crossing Warning
   Code
   1
   2
   3

34. Whistle Ban
   Code
   1
   2
   3

35. Location of Warning
   Code
   1
   2
   3

36. Crossing Warning Interconnected with Highway Signals
   Code
   1
   2
   3

37. Crossing Illuminated by Street Lights or Special Lights
   Code
   1
   2
   3

38. Driver's Age
   Code
   1
   2
   3

39. Driver's Gender
   Code
   1
   2

40. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train
   Code
   1
   2
   3

41. Driver
   1. Drove around or thru the gate
   2. Stopped and then proceeded
   3. Did not stop

42. Driver Passed Standing Highway Vehicle
   Code
   1
   2

43. View of Track Obscured by (primary obstruction)
   Code
   1
   2
   3

44. Driver was
   1. Killed
   2. Injured
   3. Uninjured
   Code
   1
   2
   3

45. Was Driver in the Vehicle?
   1. Yes
   2. No

46. Highway-Rail Crossing Users
   Code
   1
   2
   3

47. Highway Vehicle Property Damage (est. dollar damage)
   Code
   $500

48. Total Number of Highway-Rail Crossing Users (include driver)
   Code
   1

49. Railroad Employees
   Code
   1
   2

50. Total Number of People on Train (include passengers and crew)
   Code
   1
   2

51. Is a Rail Equipment Accident / Incident Report Being Filed
   1. Yes
   2. No

52. Passengers on Train
   Code
   1
   2

53a. Special Study Block

53b. Special Study Block

54. Narrative Description

55. Typed Name and Title

56. Signature

57. Date

* NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A
Preliminary Engineering Report

East Pacific Avenue
City of Benson
February 2007
Project Number: 000037-06113-0
PRELIMINARY ENGINEERING REPORT
FOR
EAST PACIFIC AVENUE IMPROVEMENTS
BENSON, MINNESOTA

FEBRUARY 2007

MAYOR:
PAUL KITTELSON

COUNCIL MEMBERS:
BOB CLAUSSEN
SUE FITZ
GARY LANDMARK
LEE WESTRUM

CITY ADMINISTRATOR:
ROB WOLFINGTON

PUBLIC WORKS DIRECTOR:
ELLIO T NELSON

I hereby certify that this Report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Dale L. Swanson, P.E.
Minnesota Registration No. 12466

Bonestroo
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1. INTRODUCTION

The City of Benson has directed our firm, Bonestroo, to conduct a feasibility study and prepare a Preliminary Engineering Report on the improvement of East Pacific Avenue. This Preliminary Engineering Report is being prepared pursuant to Minnesota Statute 429, which provides the city the option to assess a portion of the costs of these improvements against benefiting properties, if deemed appropriate.

The East Pacific Avenue Improvement is of extreme importance to the city for safety reasons. There are numerous trains that travel through the city each day. They often travel very slowly through the downtown area or stop, blocking all access in the city center between the north and south side of town. During those times, East Pacific Avenue provides the only prompt route for emergency vehicles to access the portion of the city on the other side of the tracks.

East Pacific Avenue is underlain by very poor soils and is subject to frost boils and heaves. Often, in the Spring, these conditions cause the road to be impassable, thereby blocking this emergency route for days or even weeks.

The road needs to be constructed to carry the weight of heavy emergency vehicles during any season of the year and since it is bordered by the BNSF Railroad on the north side and sparsely populated rural property on the other it is not feasible to assess more than a small portion against abutting properties.

2. SCOPE

The proposed project is located adjacent to and along the south side of the BNSF Railroad from approximately 9th Street east to 20th Avenue SE. The project includes the reconstruction of the existing
bituminous street in the vicinity of 9th Street and of the existing gravel road from east of 9th Street to 20th Avenue SE. This project will also address the drainage and underlying soil problems that exist along most of the length of the road.

3. DESIGN CONSIDERATIONS

A. Wastewater

Only repair work, if necessary, will be done with this project.

B. Watermain

An 8” watermain is proposed to be installed from the intersection of 9th Street to the east approximately 650 feet for future system looping.

C. Street Construction

East Pacific Avenue will be reconstructed beginning just west of the intersection of 9th Street and continuing east to the intersection of 20th Avenue SE. The 9th Street intersection is proposed to be urban design with the street transitioning to a rural section just east of the 9th Street intersection. It is proposed to pave the street with a bituminous surface to a point approximately 600 feet east of 9th Street. The remainder will have a gravel surface. The gravel section can be paved at any time in the future.

The road will have a 32-foot road surface which allows for 12-foot driving lanes and 4-foot shoulders.

The soil boring information indicates that the soils beneath the road surface exhibit poor drainage, poor stability and poor strength characteristics. Removal of the top portion of the existing road to allow for 3.5 feet of appropriate granular materials is recommended in the geotechnical report.

D. Storm Water Management System

A storm water run-off drainage system is required for the proper construction and maintenance of this street. The storm water system will include road ditch drainage and storm water piping.
Road ditches will be graded to various low spots where the surface water will be transferred to the storm sewer piping. Plastic drain tile will be installed to assure the granular road bed is properly drained.

E. Other Utilities

Both public and private utilities may want to participate in the project or conduct improvement projects of their own in conjunction with the city’s project.

F. Right-of-Way

Nine (9) feet of permanent additional right of way will need to be obtained, either by easement or title, along the south side of the roadway from the north-south quarter line of Section 5 east to 20th Avenue SE. This will provide a uniform right of way in both the urban and rural areas. It will also assure that the ditch bottom will be within the permanent right of way for maintenance purposes.

Temporary construction easements will be required from the property owners along the south side of the road for constructing proper back slopes on the ditch. These temporary easements will be 15 feet in width and expire upon completion of the construction.

The north right of way line of Pacific Avenue is the property line of the BNSF Railroad. The north ditch of the road will impact BNSF property. Discussions with BNSF will need to occur prior to or during design to determine if the work on their property can be accomplished by agreement or if a permit is necessary.

G. Tree Removal

The row of large cottonwood trees along the south side of Pacific Avenue is within the present road right of way. They will all be removed as a part of this project. Some of the brush along the south right of way will also be removed along the eastern portion of the road.

H. Wetland Impact

A wetland inventory and impact will need to be completed prior to project design to determine if any mitigation is necessary.
4. PROJECT COST ESTIMATE

The following pages provide our best estimates of the costs associated with this project. These estimates are the results of our experience and our exposure to many of these types of projects. However, these estimates should not be considered as the final cost of the project as the items, unit costs, and quantities will change in the course of development, design, and bidding of the final project. The current market for construction costs (primarily material and fuel costs) fluctuates and it is difficult to predict accurate construction costs. For the purpose of this estimate, construction costs have been estimated based on prices at the time of the preparation of this report.
## COST ESTIMATE

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<td>LB</td>
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\( \text{Total} = 31,348.25 \)
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ESTIMATED CONSTRUCTION COST: $462,305.25

2007 PROJECT COST • 10% INFLATION @ 4% Yr

\[761,957.00 \times (1 + 0.04)^{10} = \#1,187,882.\]

DEIGN

- Construction Administration (est) $10,000.00
- Construction Staking & Observation (est) $52,000.00
- Wetland Assessment & Record Drawings (est) $10,000.00
- Admin, Fiscal & Legal (est) $20,000.00
- Contingencies (est) $30,000.00

TOTAL ESTIMATED PROJECT COST: $793,305.25

\[\# 761,957.00 \]
5. CONCLUSION

An adequate street and storm water run-off containment system is necessary to protect the wellbeing of the property owners adjacent to the project as well as ensuring the general public that a safe and integrated transportation system is provided.

It is my professional opinion that the benefits derived from this project exceeds the cost associated with it; and that the project is feasible as proposed. Construction costs are based on estimates of the construction industry standards. Costs can and will vary as the project proceeds to bidding and construction.

Quantity estimates for this report are based on topography provided by a survey completed by this firm, the Report of Geotechnical Explorations conducted by Independent Testing technologies and the information obtained from the City of Benson. If the topography is determined to have changed or is different by the time the project goes to design, quantities and planning may be altered.