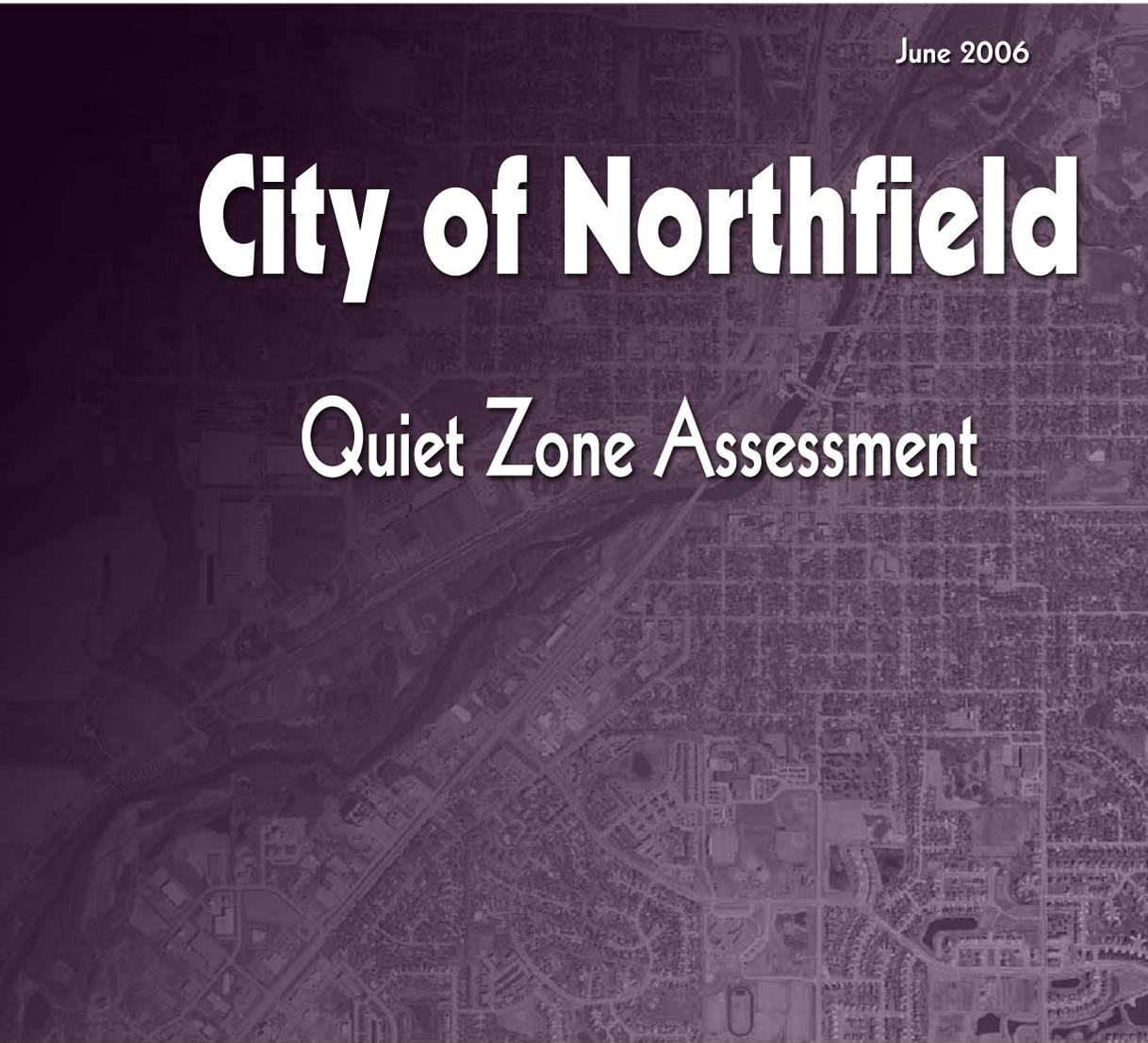


June 2006

City of Northfield

Quiet Zone Assessment



Prepared by



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CITY OF NORTHFIELD QUIET ZONE ASSESSMENT

INTRODUCTION AND BACKGROUND

Northfield, like many communities across the nation, is seeking to balance the negative impacts of train horn noise on neighborhoods with the need to maintain satisfactory auto/rail safety levels. The new Quiet Zone Rule, issued by the Federal Railroad Administration (FRA) in June 2005, offers an opportunity for cities to accomplish this objective. The Rule specifies the procedures and actions necessary to establish a whistle-free quiet zone for at-grade rail crossings.

To assist the City in preparing a quiet zone plan that would comply with the FRA Rule, Northfield retained the services of SRF Consulting Group, Inc. SRF, having completed multiple quiet zone studies and assessments, is familiar with the quiet zone development process and was available to assist the City of Northfield with their Quiet Zone Assessment.

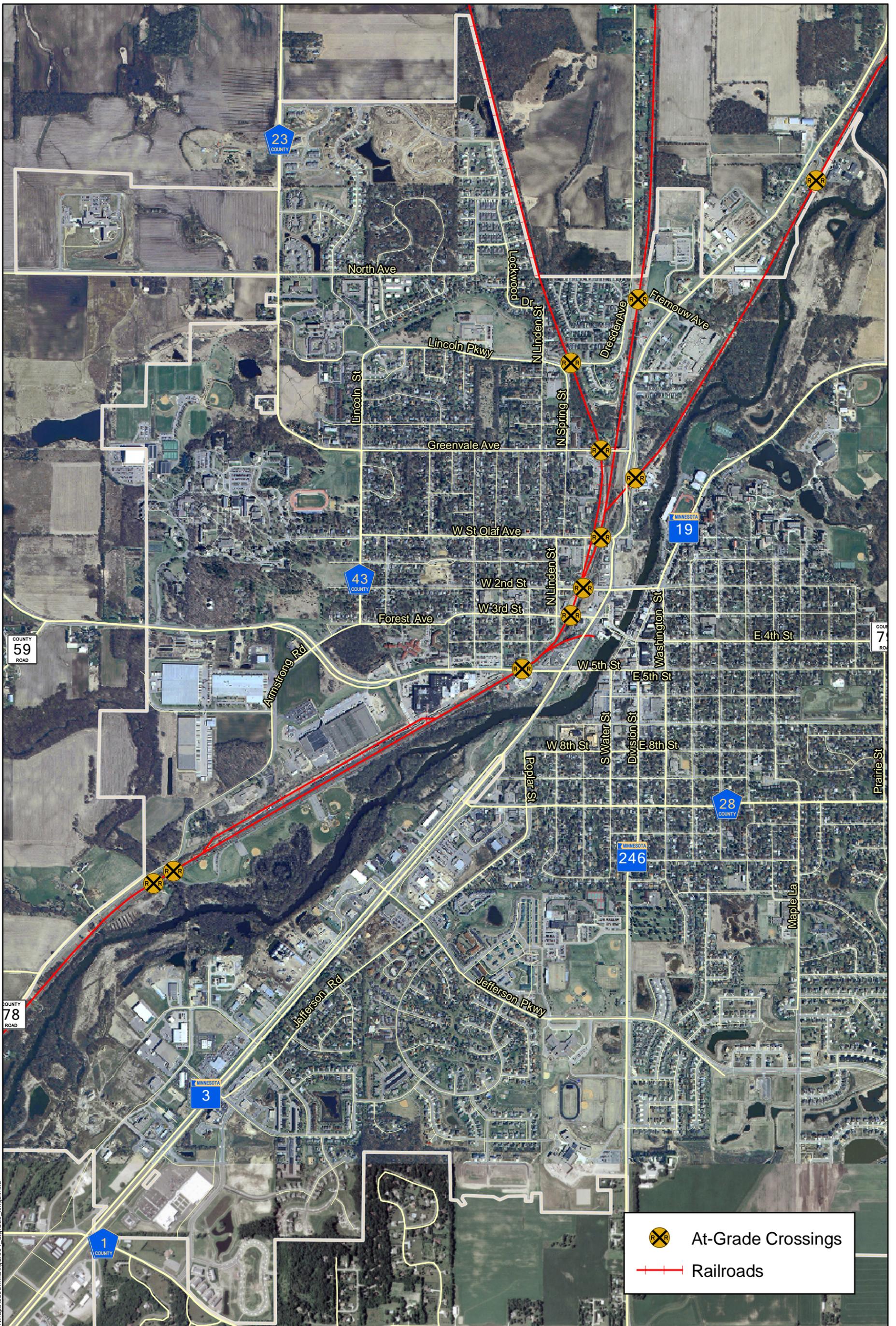
Following discussions with city staff, 11 at-grade rail crossings were identified for review as part of the Quiet Zone Assessment. The railroad trackage through Northfield splits into two tracks north of West Second Street, with a third track splitting off to the east, north of West St. Olaf Avenue. These three rail lines will be referred to throughout this report as the west line, central line (which also includes all the crossings south of West St. Olaf Avenue) and east line. Figure 1 on the following page highlights the three separate lines and the location of the 11 crossings.

The three railroads that own trackage and/or operate in Northfield are the Union Pacific (UP) Railroad, Canadian Pacific (CP) Railroad and Progressive Railroad. The UP Railroad owns the central line, which includes the crossings at the City Compost Site, Sechlar Park, Fifth Street/Trunk Highway (TH) 19, West Third Street, West Second Street, West St. Olaf Avenue and Fremouw Avenue. The CP Railroad owns the west and east lines; however, Progressive Railroad leases and maintains these two lines which include the crossings at Greenvale Avenue and Dresden Avenue (west line), and the crossings at Water Street and the Wastewater Treatment Plant (east line).

Pre-Rule Quiet Zone

On October 5th, 1992, prior to the FRA Final Quiet Zone Rule, the City of Northfield enacted a locomotive whistle ban ordinance. The ordinance stated that no locomotive whistles were to be sounded along three central line crossings from West Second Street to Fifth Street/TH 19 between the hours of 9:00 p.m. and 7:00 a.m. on weekdays and 9:00 p.m. and 10:00 a.m. on weekends and holidays (see Appendix A).

According to the FRA's Final Rule, because this ordinance had been previously established, Northfield believed it was eligible to continue their Partial Pre-Rule Quiet Zone without making any safety improvements at the above crossings, under the provisions in §222.41 of the Final Rule (see Appendix B). According to the FRA, a community's ordinance or agreement needed to be in place and enforced or observed as of October 9, 1996 and on December 18, 2003.



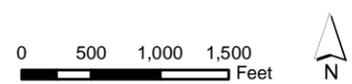
AT-GRADE RAILROAD CROSSING LOCATIONS MAP

Figure 1

NORTHFIELD QUIET ZONE

City of Northfield

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During the summer of 2005, the City Council submitted the necessary documentation to establish a Partial Pre-Rule Quiet Zone at the crossings included in the ordinance (Fifth Street/TH 19, West Third Street and West Second Street) per the FRA Final Rule. A Pre-Rule Partial Quiet Zone, which bans locomotive horn sounding between the hours of 10:00 p.m. and 7:00 a.m., is a nighttime only quiet zone. Under the anticipated Pre-Rule Quiet Zone, Northfield's Quiet Zone hours were expected to remain eligible as stated in the original city ordinance, even though such hours were longer than allowed in the Final Rule.

Upon receiving notice of the Pre-Rule Quiet Zone, and after inquiries by the city, UP, which currently owns the tracks at these crossings, stated that they did not have any record or agreement of the whistle ban ordinance in their files, and since they had not been observing the whistle ban, UP stated it would not honor the Pre-Rule Quiet Zone being sought by the city at these crossings. FRA representatives, after inquiries by the city and SRF, ruled in the UP's favor. In addition, due to the FRA decision, CP and Progressive Railroad, who were honoring the whistle ban, will now be sounding their whistles at these crossings.

Without the ability to establish a Pre-Rule Quiet Zone along these specific crossings (which would have required no additional improvements), the city must now install the required minimum quiet zone elements to make these Pre-Rule Quiet Zone crossings eligible. The minimum federal quiet zone crossing requirements include two-quadrant vehicle gates, mounted flashing lights and constant warning time train detection. Currently, the Fifth Street/TH 19 crossing meets the minimum quiet zone requirements, but the West Third Street and West Second Street crossings will require the addition of two-quadrant vehicle gates in order to make them quiet zone eligible.

EXISTING CONDITIONS

Prior to determining necessary improvements for the quiet zone, it was important to examine each crossing's characteristics and existing rail safety features. Aerial photographs of each crossing, showing the surrounding land use, intersecting cross streets and access issues near each crossing are provided in Appendix C. The United States Department of Transportation (U.S. DOT) maintains an inventory for all rail crossings throughout the United States. These inventory sheets document location, train movements/speeds, safety devices present, physical characteristics and highway/traffic information for each crossing. The U.S. DOT Grade Crossing Inventory sheets for the Northfield crossings are included in Appendix D. The following text provides a brief summary of each crossing along the three lines (central, west and east).

Central Line

Fremouw Avenue

The Fremouw Avenue crossing has seven trains per day, traveling at a maximum speed of 25 miles per hour. Based on 2005 data, the average daily traffic volume on Fremouw Avenue was 2,450. The crossing is currently equipped with two-quadrant vehicle gates, mounted flashing lights, crossbucks, advanced warning signs and pavement markings. The Fremouw Avenue crossing is the northernmost crossing on the UP-owned central line and is located just east of a manufactured residential housing development.

West St. Olaf Street

The West St. Olaf Street crossing also has seven trains per day, with a maximum speed of 40 miles per hour. In 2005, the average daily traffic volume on West St. Olaf Street was 3,150. The crossing is equipped with two-quadrant vehicle gates, mounted flashing lights, crossbucks, advanced warning signs and pavement markings. This crossing is also along the UP central line.

West Second Street

The West Second Street crossing has 12 trains per day, with maximum train speeds of 60 miles per hour. The 2005 average daily traffic volume on West Second Street was 2,600. The crossing is equipped with mounted flashing lights, cantilevers, constant warning time detection, crossbucks, advanced warning signs and pavement markings. The crossing is near the intersection of West Second Street and TH 3.

West Third Street

The West Third Street crossing has 12 trains per day, with a maximum speed of 60 miles per hour. The 2005 average daily traffic volume on West Third Street was 2,050. The crossing is equipped with mounted flashing lights, cantilevers, constant warning time detection, crossbucks, advanced warning signs and pavement markings. The West Third Street crossing is located among residential and commercial properties, near TH 3 along the UP central line.

Fifth Street/TH 19

The Fifth Street/TH 19 crossing has 12 trains per day, with maximum train speeds of 60 miles per hour. The 2004 average daily traffic volume on Fifth Street/TH 19 was 13,200, the highest traffic volume of all 11 crossings included in this study. The crossing is currently equipped with two-quadrant vehicle gates, mounted flashing lights, cantilevers, constant warning time detection, crossbucks, advanced warning signs and pavement markings. The Fifth Street/TH 19 crossing is along the UP central line and has both commercial and residential properties nearby.

Sechlar Park

The Sechlar Park crossing has a total of seven trains per day, with a maximum speed of 40 miles per hour. The 1988 average daily traffic volume on the park entrance road was 50 vehicles. The crossing is currently equipped with stop signs and crossbucks. The Sechlar Park crossing is located southwest of town along the UP central line, off of Armstrong Road.

City Compost Site

The Compost Site crossing is classified as a private crossing, and therefore the U.S. DOT Grade Crossing Inventory does not show any train or vehicle information. The crossing is currently equipped with stop signs and crossbucks. The Compost Site crossing is only open seasonally, between the months of April and November. This crossing is near the Sechlar Park crossing off Armstrong Road.

West Line

Dresden Avenue

The Dresden Avenue crossing has two trains per day, with maximum train speeds of 20 miles per hour. The 2005 average daily traffic volume on Dresden Avenue was 1,600. The crossing is currently equipped with two-quadrant vehicle gates, mounted flashing lights, crossbucks, advanced warning signs and pavement markings. This crossing is located in a residential area of the city and is maintained by Progressive Railroad.

Greenvale Avenue

The at-grade rail crossing on Greenvale Avenue also has two trains per day, with a maximum speed of 20 miles per hour. The 2005 average daily traffic volume on Greenvale Avenue was 5,600. The crossing is currently equipped with mounted flashing lights, crossbucks, advanced warning signs and pavement markings. This crossing is also within a residential area along the west line and is maintained by Progressive Railroad.

East Line

Water Street

The Water Street crossing has two trains per day according to the U.S. DOT Grade Crossing Inventory information. During the diagnostic meeting, the Progressive Railroad representative stated that this crossing has a total of two trains per week, with maximum train speeds of five miles per hour. The average daily traffic volume on Water Street was 100 vehicles in 1988. The crossing is currently equipped with stop signs and crossbucks. Water Street is situated below and parallel to TH 3. There are selected businesses and a limited number of residential properties close to this crossing.

Wastewater Treatment Plant

According to the U.S. DOT Grade Crossing Inventory information, the Wastewater Treatment Plant crossing has zero trains per day. However, during the diagnostic meeting, the Progressive Railroad representative reported that this crossing also has a total of two trains per week, with maximum speeds of five miles per hour. The average daily traffic volume on the treatment plant access road was 50 vehicles in 1988. The crossing is currently equipped with stop signs and crossbucks. The Wastewater Treatment Plant is located off of TH 3 and is the northernmost crossing on the east line which is operated by Progressive Railroad. The crossing is in close proximity to the plant's gated storage yard entrance.

QUIET ZONE ANALYSIS

As stated in the introduction, one main rail line enters Northfield from the south and then splits into three separate rail lines within the city. According to the FRA, quiet zones must be at least a half-mile long and be contiguous along a single designated rail line. For this reason, the quiet zone analysis was completed by separating the 11 crossings into three potential quiet zones: the west line quiet zone, central line quiet zone and east line quiet zone.

UP is the owner of the central line, which has the most crossings and the highest amount of daily train traffic. After discussion with city staff, the City Compost Site and Sechlar Park crossings were left out of the central quiet zone analysis. These two crossings are currently classified as private, which would allow them to be included in a quiet zone without meeting the minimum quiet zone requirements. However, city staff felt it was in the city's best interest not to include them in the central quiet zone because of the fluctuation in seasonal traffic and the potential safety concerns associated with the lack of vehicle gates.

As previously mentioned, the CP Railroad owns the east and west lines, but Progressive Railroad leases and maintains these two lines. The west quiet zone includes the crossings at Greenvale Avenue and Dresden Avenue. The east quiet zone includes the crossings at Water Street and the Wastewater Treatment Plant.

Following a project kickoff meeting with city staff, SRF conducted a site review of each crossing. During the site review, various measurements and notes on each crossing's characteristics were taken and documented. This information was recorded on the spreadsheet provided in Appendix E.

Diagnostic Meeting Results

A diagnostic team meeting was held on April 12, 2006. Representatives from the city, TKDA (representing the Union Pacific Railroad), Canadian Pacific Railroad, FRA, Minnesota Department of Transportation (Mn/DOT) Office of Freight and Commercial Vehicle Operations, Mn/DOT District 6 and SRF were in attendance.

The diagnostic team met at City Hall and were provided background information on the quiet zone assessment process and schedule by SRF. Following preliminary discussion on the crossings, the group completed a field inspection of each crossing and discussed possible Supplemental Safety Measure (SSM) options. The SSMs that have been approved by the FRA for quiet zone implementation include: non-traversable medians, four-quadrant vehicle gates, channelization delineators, street closure and one-way pairs. A short description of the SSMs deemed appropriate for use in the Northfield Quiet Zone and their associated cost estimates are included in Appendix F. However, it is important to remember these SSMs are meant to "supplement" the minimum federal quiet zone crossing requirements noted on page 3.

The following text summarizes the results and recommendations from the diagnostic meeting.

Central Quiet Zone

One of the five crossings in the central quiet zone (Fifth Street/TH 19 crossing) is equipped with the minimum quiet zone requirements. The four crossings along the central line that require installation of minimum safety measures to become eligible for a quiet zone are West Third Street, West Second Street, West St. Olaf Avenue and Fremouw Avenue. Provided below is a description of the diagnostic team's findings for each crossing in the central quiet zone.

The Fifth Street/TH19 crossing has the highest volume of daily traffic, making it the crossing with the highest risk index. Addressing this crossing with a SSM would drastically improve the risk level for the entire central quiet zone. Mn/DOT's 2006 improvement plans for the Fifth Street/TH 19 crossing area were discussed during the diagnostic meeting. Mn/DOT personnel stated that non-traversable medians were included in the improvement plans, along with making Poplar Street a cul-de-sac and improvements at the Laurel Court intersection. Non-traversable 100-foot medians are an FRA pre-approved SSM, and if constructed by Mn/DOT, would spare the city the time and money needed to lower the risk index at this crossing. However, after reviewing the Mn/DOT construction plans, it was discovered that the planned improvements actually called for a striped median at the Fifth Street/TH 19 rail crossing, instead of the 100-foot, non-traversable medians discussed at the diagnostic meeting. Following discussions with city staff, it was concluded that non-traversable medians were not feasible due to potential conflicts with the other planned area improvements. Therefore, it was decided that the only acceptable SSM that could be constructed at the Fifth Street/TH 19 crossing was four-quadrant vehicle gates.

The West Third Street crossing has the required mounted flashing lights and constant warning time detection, but lacks the required two-quadrant vehicle gates. Closing the West Third Street crossing was one option discussed by the diagnostic team. While this option was not favorably received by city staff, it would save the city the relatively high cost of adding the required two-quadrant vehicle gates (approximately \$170,000). This option was proposed because of the short distance between West Third Street and West Second Street.

The West Second Street crossing has the required mounted flashing lights and constant warning time detection, but also lacks the required two-quadrant vehicle gates. In light of the anticipated major risk-reducing improvement at the Fifth Street/TH 19 crossing, the diagnostic team recommended that only the minimum quiet zone equipment be installed at West Second Street (i.e. two-quadrant vehicle gates). In addition, the diagnostic team recommended closing Spring Street because the intersection with West Second Street is located very close to the crossing.

The West St. Olaf Avenue and Fremouw Avenue crossings are not equipped with constant warning time detection. So, in order to qualify these crossings for quiet zone eligibility, the diagnostic team recommended that constant warning time detection would have to be added.

West Quiet Zone

The Greenvale Avenue and Dresden Avenue crossings are not currently equipped with the minimum quiet zone devices, as required by the FRA. The Greenvale Avenue has mounted flashing lights, but does not have two-quadrant vehicle gates or constant warning time detection. The Dresden Avenue crossing has two-quadrant vehicle gates and mounted flashing lights, but lacks constant warning time detection. Both crossings would need these improvements to be part of a west quiet zone. If a SSM is needed at the Dresden Avenue crossing, the diagnostic team concluded that medians would be the preferred improvement. During the diagnostic team field inspection of the crossings, it was also recommended that cantilevers be included at the Greenvale Avenue crossing. The cantilevers were deemed necessary because of the potential sight line issues that exist at the railroad overpass for westbound traffic.

East Quiet Zone

Neither one of the east line crossings (Water Street or Wastewater Treatment Plant) have the minimum required quiet zone devices in place. To qualify the east line as a quiet zone, the diagnostic team recommended that two-quadrant vehicle gates, mounted flashing lights and constant warning time detection be added at each crossing.

Another option to qualify the east line as a quiet zone would be to install the minimum quiet zone requirements at the Wastewater Treatment Plant and close Water Street. Because of the low train volumes (two trains per week), the city could completely neglect improvements to this rail line, choosing not to make the costly investment necessary to qualify the east line as quiet zone eligible.

The diagnostic team's preferred and acceptable safety measure recommendations for each crossing are included within the table in Appendix G.

FRA Website Calculator

A critical step in the quiet zone analysis was the evaluation of the city's nine quiet zone crossings using FRA's website calculator (as agreed, the City Compost Site and Sechlar Park crossings were not included in the city's quiet zone analysis). The web calculator has been made available by FRA to determine the risk reduction benefits achieved by various Supplemental Safety Measures (SSMs).

In order for the SSM improvements to be considered effective, they must reduce the rail corridor's Quiet Zone Risk Index (QZRI) to below either the Risk Index With Horns (RIWH) or the Nationwide Significant Risk Threshold (NSRT). The QZRI is the risk to the motoring public after the corridor's risk-level is adjusted for the increased risk due to a lack of locomotive horn sounding and the reduced risk due to the implementation of

acceptable safety measures. The RIWH is the level of risk that would exist in the quiet zone if horns were sounded at every public crossing. The NSRT is a measure of risk, calculated on a nationwide basis, which reflects the average level of risk to the motoring public at public rail crossings equipped with vehicle gates and flashing lights and at which the locomotive horns are sounded. The NSRT, established by the FRA, is currently 17,030 for all crossings. Because the nine crossings fall on three separate rail lines, the Northfield Quiet Zone was evaluated as three individual quiet zones.

Using the website calculator, the risk reduction effectiveness of various SSM improvements was evaluated to determine feasible quiet zone scenarios. Each SSM has its most appropriate location, function and effectiveness rate. For example, four-quadrant vehicle gates are a very effective measure, but also have a high cost associated with them. Non-traversable medians generally have a low relative cost and are effective in reducing risk, but often are not feasible due to the related reductions or impacts to existing access.

Central Quiet Zone

As previously mentioned, the UP line (central line) quiet zone includes five crossings: Fifth Street/TH 19, West Third Street, West Second Street, West St. Olaf Avenue and Fremouw Avenue. The Fifth Street/TH 19 crossing currently meets the minimum quiet zone crossing requirements (i.e. two-quadrant vehicle gates, mounted flashing lights and constant warning time detection) and also has cantilevers. The West St. Olaf Avenue and Fremouw Avenue crossings need constant warning time detection. Presently, West Third Street and West Second Street are only equipped with mounted flashing lights, cantilevers, constant warning time detection and crossbucks. The existing QZRI for this line, assuming the minimum quiet zone safety devices were installed at West Third Street and West Second Street (i.e. constructing two-quadrant vehicle gates) is 21,253, and the RIWH is 12,742. To qualify as a quiet zone, the future QZRI must be below 17,030, the NSRT level. However, to avoid potential annual fluctuations in FRA's risk data, the QZRI for this quiet zone must be below the RIWH value of 12,742.

West Quiet Zone

The west line, operated by Progressive Railroad, includes the at-grade rail crossings at Greenvale Avenue and Dresden Avenue. According to the FRA website calculator, the existing QZRI for this line is 6,437, and the RIWH is at 3,859, assuming the Greenvale Avenue and Dresden Avenue crossings were upgraded to meet the minimum quiet zone standards (i.e. two-quadrant vehicle gates and constant warning time detection at Greenvale Avenue and constant warning time detection for the Dresden Avenue crossing). Since the NSRT is 17,030, this line would qualify as a quiet zone after the minimum quiet zone devices are installed, requiring no supplemental safety improvements. However, in order to avoid potential fluctuations in FRA's risk data, the QZRI would have to be lowered to below the RIWH value of 3,859.

East Quiet Zone

The east quiet zone includes the Water Street and Wastewater Treatment Plant crossings. The QZRI for this line is 418, and the RIWH is 250, assuming the required safety

measures were made. This line can qualify as a quiet zone by installing the required minimum safety devices (i.e. two-quadrant vehicle gates, mounted flashing lights and constant warning time detection), although these improvements may be excessive based on the current level of train activity.

PUBLIC INPUT

On April 12, 2006, a public open house meeting was held to obtain citizen input on the Northfield Quiet Zone project. Approximately 20 people attended the meeting; representing businesses, residents and the City Council. SRF staff provided information on the FRA Final Rule and the quiet zone development process. After the presentation, public comment was requested. The general consensus of the public input was supportive for the establishment of a quiet zone.

RECOMMENDATIONS

Following discussions with city staff, review of the diagnostic team's recommendations and consideration of the FRA website calculator analysis, SRF prepared the following quiet zone scenarios and cost estimates for each quiet zone. These scenarios give the City Council a wide variety of potential quiet zone improvements and cost options to evaluate.

SRF prepared the improvement scenarios with two objectives. The first objective was to reduce the QZRI to below the NSRT, which would qualify the rail line as a quiet zone and usually requires less public investment. However, meeting this less stringent standard involves annual reporting requirements to the FRA, and makes the quiet zone susceptible to future fluctuation in federal data. These potential fluctuations could require the quiet zone to be upgraded in the future at additional city cost. The second objective was to develop scenarios that reduced the QZRI below the risk level that existed when train horns were blown (i.e. the RIWH). This standard usually has a higher upfront capital cost, but reduces the amount of annual paperwork and ensures that the city would never have to upgrade the quiet zone due to changes in rail data.

The SSM cost estimates were obtained through input from the railroads that operate/maintain their respective rail lines (i.e. Union Pacific Railroad on the central line and Progressive Railroad on the west and east lines).

A comprehensive matrix which summarizes information for all the quiet zone scenarios is included in Table 1 on page 14.

Central Quiet Zone

As noted earlier, the baseline QZRI for the central quiet zone (which assumes the addition of two-quadrant vehicle gates at West Third Street and West Second Street, and constant warning time detection at West St. Olaf Avenue and Fremouw Avenue) is

21,253. The RIWH (which is the level of risk that would exist if horns were sounded) is 12,742. The central quiet zone is the most extensive and includes the majority of the Northfield at-grade rail crossings. The central line is also the most critical because it carries the highest volume of trains per day, has the highest volume of vehicle traffic at its crossings and is closest to the downtown area. All of the central quiet zone scenarios include the estimated base cost needed to meet minimum quiet zone requirements. The central quiet zone scenarios for City Council consideration include:

Central Scenario #1

- Upgrade the Fifth Street/TH 19 crossing to four-quadrant vehicle gates and install medians at West Second Street. These SSM improvements are in addition to the required two-quadrant vehicle gates needed at West Third Street and West Second Street, and constant warning time detection for West St. Olaf Avenue and Fremouw Avenue. This scenario reduces the QZRI to 12,654, which is below the RIWH of 12,742. This scenario also improves safety at the city's most dangerous crossing (Fifth Street/TH 19). The cost of this scenario is estimated to be approximately \$795,000.

Central Scenario #2

- Install four-quadrant vehicle gates at Fifth Street/TH 19, close West Third Street and construct medians at West Second Street. This scenario lowers the QZRI to 8,750, which is below the RIWH of 12,742. This scenario improves safety at the Fifth Street/TH 19 crossing. While closing West Third Street may cause potential access issues, it would save the city a considerable amount of money by not installing the required two-quadrant vehicle gates. The cost of this scenario, however, is still estimated to cost approximately \$650,000.

Central Scenario #3

- Install four-quadrant vehicle gates at the Fifth Street/TH 19 crossing. With this improvement, the QZRI is 16,158, which is not below the RIWH of 12,742. However, this scenario improves safety at the city's most critical crossing, and generates a QZRI that is below the NSRT, which would qualify the segment as a federally approved quiet zone. The cost of this scenario, approximately \$770,000, is relatively high for the minimal impact it has on the QZRI level.

Central Scenario #4

- Close the West Third Street crossing and construct medians at West Second Street and Fremouw Avenue. These improvements lower the QZRI to 11,667, which is below the RIWH of 12,742. This scenario may cause some potential access issues by reducing turning movements to right-in/right-out at West Third Street. In addition, this scenario does not address the high rail exposure at the Fifth Street/TH 19 crossing. However, the estimated cost is relatively low at \$305,000.

Central Scenario #5

- Close the West Third Street crossing and construct medians at West Second Street. These improvements lower the QZRI to 13,933, which is not below the RIWH of

12,742, but is below the NSRT, qualifying the segment as a federally approved quiet zone. This scenario also fails to improve the Fifth Street/TH 19 crossing and may cause access issues along West Third Street. This is the lowest cost central quiet zone scenario estimated at \$280,000.

Central Scenario #6

- Construct medians at West Second Street and Fremouw Avenue. These SSM improvements lower the QZRI to 15,484. This scenario is not below the RIWH of 12,742, but is below the NSRT and would qualify the segment as a quiet zone. This scenario keeps West Third Street open and eliminates possible access issues, but does not improve safety at the Fifth Street/TH 19 crossing. The cost of this scenario is estimated at \$450,000.

While the various central quiet zone scenarios utilize numerous SSM improvements, there is only one SSM appropriate for each of the identified crossings. A layout depicting the preferred SSM for the applicable central quiet zone crossings is shown in Appendix H.

West Quiet Zone

As noted earlier, the QZRI for the west line is 6,437 (which includes the installation of the required two-quadrant vehicle gates and constant warning time detection at Greenvale Avenue and installation of constant warning time detection at the Dresden Avenue crossing). The RIWH for the west quiet zone is 3,859. All of the west quiet zone scenarios include the estimated cost to meet minimum quiet zone requirements. The west quiet zone scenarios provided for City Council consideration include:

West Scenario #1

- Based on diagnostic team input, cantilevers would be needed at the Greenvale Avenue crossing in addition to the minimum quiet zone improvements. This scenario lowers the QZRI to 6,437. Since the QZRI is below the NSRT of 17,030, the west line would be quiet zone eligible with no further SSM improvements. However, this scenario does not get the QZRI below the RIWH of 3,859 and therefore it would be susceptible to fluctuations in the NSRT. The total estimated cost of this scenario is \$280,000.

West Scenario #2

- This scenario includes the installation of medians on Dresden Avenue, in addition to constructing the minimum requirements and the addition of cantilevers at the Greenvale Avenue crossing. Although the cost of this scenario is a little higher, it does lower the QZRI to 3,438, which is below the RIWH, thus protecting the city from fluctuations in the FRA's national risk level. The estimated cost of this scenario is \$305,000.

A layout illustrating the medians at the Dresden Avenue crossing is provided in Appendix I.

East Quiet Zone

As previously discussed, the baseline QZRI for the east quiet zone is 418 (which includes the installation the minimum quiet zone requirements at Water Street and the Wastewater Treatment Plant). The RIWH for the east line is 250. The east line is the least used of the three rail lines in Northfield, carrying an average of two trains per week. The east quiet zone scenarios provided for City Council consideration include:

East Scenario #1

- Since the Water Street crossing is located in close proximity to a very limited number of residential and business properties, the Wastewater Treatment Plant crossing is located on the outer edge of the city limits, and because current train horn noise impacts at these crossings are minimal, this scenario proposes that no quiet zone be implemented for the east line. This scenario would obviously have no costs associated with it. If future train volumes along this line increase, other scenarios (including east scenario #2 and #3) could be explored.

East Scenario #2

- This scenario would install the minimum quiet zone requirements (i.e. two-quadrant vehicle gates, mounted flashing lights and constant warning time detection) at both crossings. These improvements only lower the QZRI to 418, which is not below the RIWH of 250. This scenario would establish a quiet zone at both of the crossings along the east line, but is very costly. The estimated cost of this scenario is approximately \$400,000.

East Scenario #3

- This scenario involves closing Water Street and constructing the minimum quiet zone requirements (i.e. two-quadrant vehicle gates, mounted flashing lights and constant warning time detection) at the Wastewater Treatment Plant crossing. This scenario lowers the QZRI to 31, which is below the RIWH of 250. The closure of Water Street will present minimal access issues because it is not a high volume street. This scenario includes installing no Supplemental Safety Measures (SSMs) at the Wastewater Treatment Plant crossing because of its location on the outskirts of the city. The estimated cost of this scenario is \$225,000.

A layout depicting the closure at the Water Street crossing is shown in Appendix J.

The website calculator sheets for all of the central, west and east quiet zone scenarios considered are provided in Appendix K.

TABLE 1

**Quiet Zone Scenario Options
Northfield Quiet Zone Assessment**

	OPTION	NSRT	RIWH	QZRI	COST	STREET	TREATMENT/SSM	IMPACTS
WEST	# 1	17,030	3,859	6,437	\$280,000	Dresden Avenue Greenvale Avenue	CWT 2Q + CWT + cantilevers	This scenario requires that the minimum quiet zone requirements be installed at the Greenvale Avenue and Dresden Avenue crossings. In addition, cantilevers are also recommended at the Greenvale Avenue crossing due to potential sight line issues.
	# 2	17,030	3,859	3,438	\$305,000	Dresden Avenue Greenvale Avenue	CWT + medians 2Q + CWT + cantilevers	This scenario includes installing medians at Dresden Avenue in addition to the minimum quiet zone requirements for each of the crossings. This scenario lowers the QZRI below the RIWH.
CENTRAL	# 1	17,030	12,742	12,654	\$795,000	Fifth Street/Highway 19	4Q	This scenario leaves all of the crossings open and addresses the Fifth Street/Highway 19 crossing. This scenario gets the QZRI below the RIWH.
						West Third Street	2Q	
						West Second Street	2Q + medians	
						West St. Olaf Avenue	CWT	
	# 2	17,030	12,742	8,750	\$650,000	Fifth Street/Highway 19	4Q	This scenario closes West Third Street, but addresses the Fifth Street/Highway 19 crossing. This option also offers the city the lowest RIWH level for the cost.
						West Third Street	close	
						West Second Street	2Q + medians	
						West St. Olaf Avenue	CWT	
	# 3	17,030	12,742	16,158	\$770,000	Fifth Street/Highway 19	4Q	This scenario leaves all of the crossings open and addresses the Fifth Street/Highway 19 crossing. By excluding medians on West Second Street, this scenario results in the highest QZRI, which is not below the RIWH, but below the NSRT.
						West Third Street	2Q	
						West Second Street	2Q	
						West St. Olaf Avenue	CWT	
# 4	17,030	12,742	11,667	\$305,000	Fifth Street/Highway 19	none	This scenario closes West Third Street and does not address the Fifth Street/Highway 19 crossing. However, by constructing medians at West Second Street and Fremouw Avenue, this scenario is still able to lower the QZRI below the RIWH.	
					West Third Street	close		
					West Second Street	2Q + medians		
					West St. Olaf Avenue	CWT		
# 5	17,030	12,742	13,933	\$280,000	Fifth Street/Highway 19	none	This scenario closes West Third Street and does not address the Fifth Street/Highway 19 crossing. Constructing medians at West Second Street only does not lower the QZRI below the RIWH., however the QZRI is below the NSRT.	
					West Third Street	close		
					West Second Street	2Q + medians		
					West St. Olaf Avenue	CWT		
# 6	17,030	12,742	15,484	\$450,000	Fifth Street/Highway 19	none	This scenario leaves West Third Street open, but does not address the Fifth Street/Highway 19 crossing. Even with the construction of medians at West Second Street and Fremouw Avenue, the QZRI is still above the RIWH, but below the NSRT.	
					West Third Street	2Q		
					West Second Street	2Q + medians		
					West St. Olaf Avenue	CWT		
EAST	# 1	17,030	-	-	\$0	Water Street	none	This scenario involves doing nothing at either of the crossings and would not create a quiet zone, but because of the low train volumes and the fact that the train whistle noise in this area impacts a very small number of people, no improvements may be justified.
						Wastewater Treatment Plant	none	
	# 2	17,030	250	418	\$400,000	Water Street	2Q + CWT	This scenario leaves both of the east quiet zone crossings open. It does not lower the QZRI below the RIWH, but the QZRI is already well below the NSRT. Because neither of these crossings currently have the minimum requirements in place and they would have to be installed, this scenario has a high cost associated with it.
						Wastewater Treatment Plant	2Q + CWT	
	# 3	17,030	250	31	\$225,000	Water Street	close	This scenario closes Water Street and requires the minimum quiet zone elements be constructed at the Wastewater Treatment Plant crossing. This scenario lowers the QZRI well below the RIWH.
						Wastewater Treatment Plant	2Q + CWT	

RISK ABBREVIATIONS:

RIWH = Risk Index With Horns
 QZRI = Quiet Zone Risk Index
 (All Scenarios Listed Above Achieve the NSRT Objective)
 NSRT = National Significant Risk Threshold (17,030)

TREATMENT ABBREVIATIONS/COSTS:

SSM = Supplemental Safety Measure
 Medians = Two 100' medians - \$25,000
 2Q = Two Quadrant Gates - \$200,000
 4Q = Four Quadrant Gates - \$350,000
 CWT = Constant Warning Time - \$30,000 (included in new gate costs)
 Closure = Closing a railroad/public road crossing - \$25,000
 Channelization = Plastic delineators - \$6,000 per crossing

POTENTIAL FUNDING SOURCES

The total cost to implement the recommended quiet zone scenarios (i.e. the top priority scenarios for each quiet zone) will exceed one million dollars. It is probably unrealistic to expect the City Council to advance the entire quiet zone improvement program at one time. Therefore, it may be useful for the Council to implement the quiet zone program in segments.

Of the three Northfield Quiet Zones analyzed in this Assessment, the central quiet zone is the most comprehensive and costly. The central quiet zone scenarios range in construction cost from \$280,000 to \$795,000. A significant portion of the central quiet zone scenario costs are related to the fact that minimum rail safety measures, as mandated by the FRA, do not currently exist at some of these crossings. These minimum requirements must be installed as a prerequisite to quiet zone establishment.

As mentioned above, implementation of any of the three quiet zones in Northfield will require a substantial investment. Table 2 below lists potential funding sources that could assist Northfield implement its quiet zone. In addition to identifying potential funding sources, the applicability and the probability of securing or generating such funds is also noted.

TABLE 2

Potential Funding Sources for Recommended Northfield Quiet Zone Improvements		
Source	Applicability	Probability
Public Sources		
State Aid Funds (MSAS)	High	High
State Bonding	Low	Low
HSA Funds (Mn/DOT Rail)	Medium	Low
Municipal Agreements (Mn/DOT)	Low	Low
Section 130 Rail Safety Funds	Medium	Low
Hazard Elimination & Safety Funds	Low	Low
Congressional High Priority Projects	Low	Low
Surface Transportation Program Federal Funds (ATP)	Low	Low
Private Sources		
Negotiated Developer Agreements	Low	Low
Railroad Crossing Closure Program	High	High
Local Sources		
Ad Valorem Tax Levy	Medium	Medium
General Obligation Special Assessment Bonds	Medium	Low
General Obligation Bonds	Medium	Low
General Obligation Street Reconstruction Bonds	Medium	Low
Special Assessments	Medium	Medium
Tax Increment Financing	Low	Low
Special Transportation Fees	Low	Low

State-aid funds (MSAS) appear to be the most logical choice for funding the city's quiet zone improvements. State-aid funds are allocated to the city annually by Mn/DOT and the city has discretion to use these funds on any MSAS designated roadway. All of the crossings included in the central and west quiet zone scenarios are on MSAS routes.

Additionally, if the city is willing to close current at-grade crossings (i.e. the West Third Street crossing), funding assistance from the Union Pacific Railroad and Mn/DOT would be likely (up to \$15,000 per closure).

Other funding options as noted on Table 2 are available, but have only "medium" or "low" applicability or probability. Citizen interest would be required to support such financing options as ad valorem taxes (property tax) or special assessments. Certainly for some of the "low" ranked sources, opportunities may arise to elevate their probability or applicability. A concentrated persistent effort may result in such funding being secured.

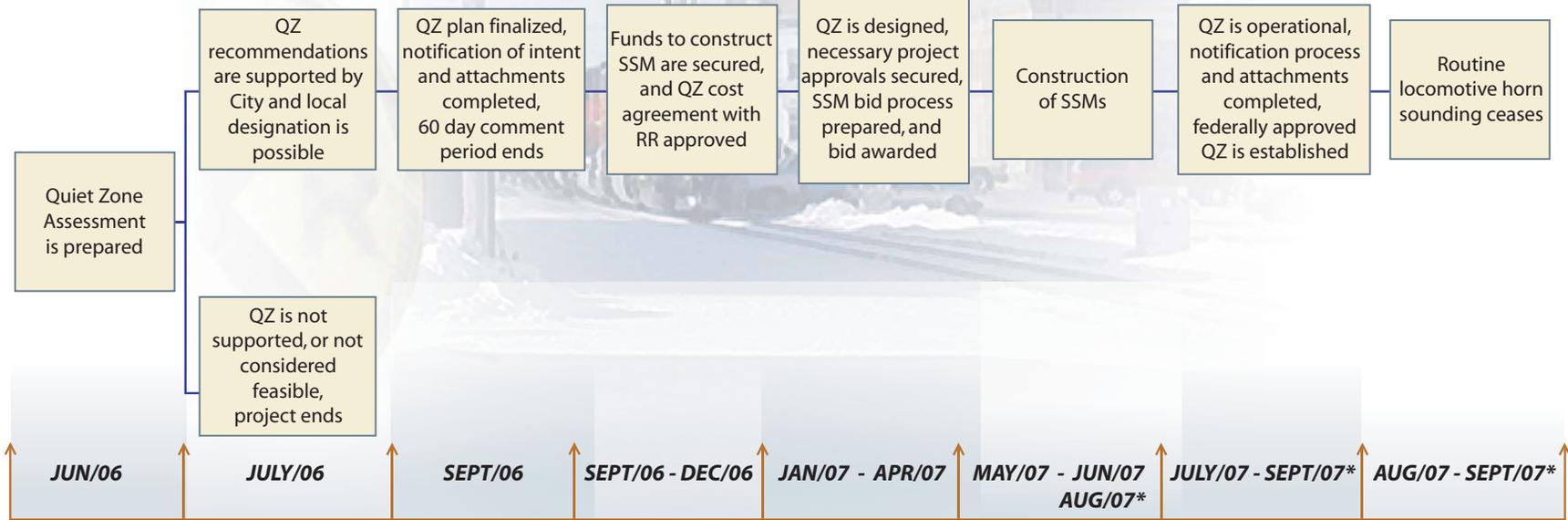
Project Development Timeline

It is anticipated that the Northfield Quiet Zone development process will require approximately fourteen or fifteen months to complete, assuming the recommendations from this Assessment are the basis for the quiet zone improvements. Therefore, if the City Council approved proceeding with the Central Quiet Zone in July 2006, it is expected that it would be operational by August or September 2007. Figure 2 on the following page illustrates key quiet zone development milestones and timeframes.

CONCLUSIONS

SRF recommends that the City Council consider the central quiet zone as its highest priority for quiet zone implementation. Further, for City Council consideration, SRF has ranked the possible central quiet zone options from 1 through 6 in Table 1 on page 14. This ranking attempts to balance cost with safety, quality of life, and risk reduction benefits. The central quiet zone has the highest number of crossings, and also includes the crossings with the highest traffic volumes. A central quiet zone would improve pedestrian and auto-rail safety, and benefit the greatest number of business and residential properties. Silencing train whistles along this line would improve the economic vitality and quality of life throughout the downtown area and adjacent neighborhoods. Moreover, constant warning time detection devices were recently added by the railroad to the Fifth Street/ TH 19, West Third Street and West Second Street crossings along this line. Constant warning time detection is a required quiet zone device, so these private sector improvements have already saved the city \$90,000 (\$30,000 per crossing) in implementation costs for the central quiet zone.

Ultimately, it is the City Council's decision as to what actions to take regarding a Northfield Quiet Zone. This Assessment has been provided to assist the City Council in evaluating its options.



* Anticipated completion date if the city decides to construct four-quadrant gates at the Fifth Street/TH 19 crossing

APPENDIX A

Northfield Locomotive Horn Ordinance

ORDINANCE NO. 591

THE CITY COUNCIL OF THE CITY OF NORTHFIELD DOES HEREBY ORDAIN:

That Section 1025:05, Sound Signals, as set forth in and under the 1986 Ordinance Code of the City of Northfield is hereby amended as follows:

Sound Signals. No person shall run a locomotive or train of cars or a single car in this municipality without ringing a bell of sufficient size at all times while in motion. No person shall ring the bell or sound blow the whistle from a locomotive between Second Street and a point one quarter mile south of and Fourth Fifth Streets, between the hours of 9:00 p.m. and 7:00 a.m. on weekdays and between 9:00 p.m. and 10:00 a.m. on weekends and holidays, except in the case of perceived danger.

Passed by the City Council of the City of Northfield this 5th day of October, 1992.

Neil G. Reese
Mayor

LaNell Olsen
Councilmember

ATTEST:

John H. Fisher Jr.
city clerk

DC Boydard
Councilmember

First Reading: September 8, 1992
Second Reading: October 5, 1992
Published: October 9, 1992

APPENDIX B

**Pre-Rule Quiet Zone Section from the
FRA Final Rule**

this section and may be reviewed as provided in §§ 222.57(b) and (d) of this part.

(c) Appendix C of this part contains guidance on how to create a quiet zone.

§ 222.41 How does this rule affect Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones?

(a) *Pre-Rule Quiet Zones that will be established by automatic approval.* (1) A Pre-Rule Quiet Zone may be established by automatic approval and remain in effect, subject to § 222.51, if the Pre-Rule Quiet Zone is in compliance with §§ 222.35 (minimum requirements for quiet zones) and 222.43 of this part (notice and information requirements) and the Pre-Rule Quiet Zone:

(i) Has at every public highway-rail grade crossing within the quiet zone one or more SSMs identified in appendix A of this part;

(ii) The Quiet Zone Risk Index as last published by FRA in the *Federal Register* is at, or below, the Nationwide Significant Risk Threshold; or

(iii) The Quiet Zone Risk Index as last published by FRA in the *Federal Register* is above the Nationwide Significant Risk Threshold but less than twice the Nationwide Significant Risk Threshold and there have been no relevant collisions at any public grade crossing within the quiet zone for the five years preceding April 27, 2005 or

(iv) The Quiet Zone Risk Index as last published by FRA in the *Federal Register* is at, or below, the Risk Index With Horns.

(2) The public authority shall provide Notice of Quiet Zone Establishment, in accordance with § 222.43 of this part, no later than December 24, 2005.

(b) *Pre-Rule Partial Quiet Zones that will be established by automatic approval.*

(1) A Pre-Rule Partial Quiet Zone may be established by automatic approval and remain in effect, subject to § 222.51 of this part, if the Pre-Rule Partial Quiet Zone is in compliance with §§ 222.35 (minimum requirements for quiet zones) and 222.43 (notice and information requirements) of this part and the Pre-Rule Partial Quiet Zone:

(i) Has at every public highway-rail grade crossing within the quiet zone one or more SSMs identified in appendix A of this part;

(ii) The Quiet Zone Risk Index as last published by FRA in the *Federal Register* is at, or below, the Nationwide Significant Risk Threshold; or

(iii) The Quiet Zone Risk Index as last published by FRA in the *Federal Register* is above the Nationwide Significant Risk Threshold but less than twice the Nationwide Significant Risk

Threshold and there have been no relevant collisions at any public grade crossing within the quiet zone for the five years preceding April 27, 2005. With respect to Pre-Rule Partial Quiet Zones, collisions that occurred during the time period within which the locomotive horn was routinely sounded shall not be considered "relevant collisions"; or

(iv) The Quiet Zone Risk Index as last published by FRA in the *Federal Register* is at, or below, the Risk Index With Horns.

(2) The public authority shall provide Notice of Quiet Zone Establishment, in accordance with § 222.43 of this part, no later than December 24, 2005.

(c) *Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones that will not be established by automatic approval.* (1) If a Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone will not be established by automatic approval under paragraph (a) or (b) of this section, existing restrictions may, at the public authority's discretion, remain in place on an interim basis under the provisions of this paragraph (c) and upon compliance with § 222.43 (notice and information requirements) of this part. Continuation of a quiet zone beyond the interim periods specified in this paragraph will require implementation of SSMs or ASMs in accordance with § 222.39 of this part and compliance with the requirements set forth in §§ 222.25(c), 222.27(d), and 222.35 of this part.

(2)(i) In order to provide time for the public authority to plan for and implement quiet zones that are in compliance with the requirements of this part, a public authority may continue locomotive horn restrictions at Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones for a period of five years from June 24, 2005, provided the public authority has, within three years of June 24, 2005, filed with the Associate Administrator a detailed plan for establishing a quiet zone under this part, including, in the case of a plan requiring approval under § 222.39(b) of this part, all of the required elements of filings under that paragraph together with a timetable for implementation of safety improvements.

(ii) If, during the three-year period after June 24, 2005, the Quiet Zone Risk Index for the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone has fallen to a level at or below the Nationwide Significant Risk Threshold, the Pre-Rule Quiet Zone or Pre-Rule Partial Quiet Zone may remain in effect, subject to § 222.51 of this part, provided the public authority provides notification of Pre-Rule Quiet Zone or Pre-Rule Partial

Quiet Zone establishment in accordance with § 222.43 and has complied with the requirements of §§ 222.25(c), 222.27(d), and 222.35 by June 24, 2008.

(3) Locomotive horn restrictions may continue for an additional three years beyond the five-year period permitted by paragraph (b)(2)(i) of this section, if:

(i) Prior to June 24, 2008, the appropriate State agency provides to the Associate Administrator: a comprehensive State-wide implementation plan and funding commitment for implementing improvements at Pre-Rule Quiet Zones and Pre-Rule Partial Quiet Zones which, when implemented, would enable them to qualify for a quiet zone under this part; and

(ii) Prior to June 24, 2009, either physical improvements are initiated at a portion of the crossings within the quiet zone, or the appropriate State agency has participated in quiet zone improvements in one or more jurisdictions elsewhere within the State.

(4) In the event that the safety improvements planned for the quiet zone require approval of FRA under § 222.39(b) of this part, the public authority should apply for such approval prior to December 24, 2007, to ensure that FRA has ample time in which to review such application prior to the end of the extension period.

(d) *Pre-Rule Partial Quiet Zones that will be converted to 24-hour Quiet Zones.* A Pre-Rule Partial Quiet Zone may be converted to a 24-hour quiet zone if the quiet zone is brought into compliance with the New Quiet Zone requirements set forth in §§ 222.25, 222.27, 222.35 and 222.39 of this part and notification of the establishment of a New 24-hour Quiet Zone is provided in accordance with § 222.43 of this part.

§ 222.42 How does this rule affect Intermediate Quiet Zones and Intermediate Partial Quiet Zones?

(a) Existing restrictions may, at the public authority's discretion, remain in place within the Intermediate Quiet Zone or Intermediate Partial Quiet Zone until June 24, 2006, provided the public authority complies with § 222.43 (notice and information requirements) of this part. Continuation of the quiet zone beyond June 24, 2006 will require implementation of SSMs or ASMs in accordance with § 222.39 of this part and compliance with the New Quiet Zone standards set forth in §§ 222.25, 222.27 and 222.35 of this part.

(b) *Conversion of Intermediate Partial Quiet Zones into 24-hour New Quiet Zones.* An Intermediate Partial Quiet Zone may be converted into a 24-hour New Quiet Zone when the quiet zone is

APPENDIX C

Rail Crossing Aerial Photographs



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FREMOW AVENUE, 384055X
NORTHFIELD QUIET ZONE
City of Northfield

Figure 1





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0055606 03/21/06

WEST SECOND STREET, 380371G

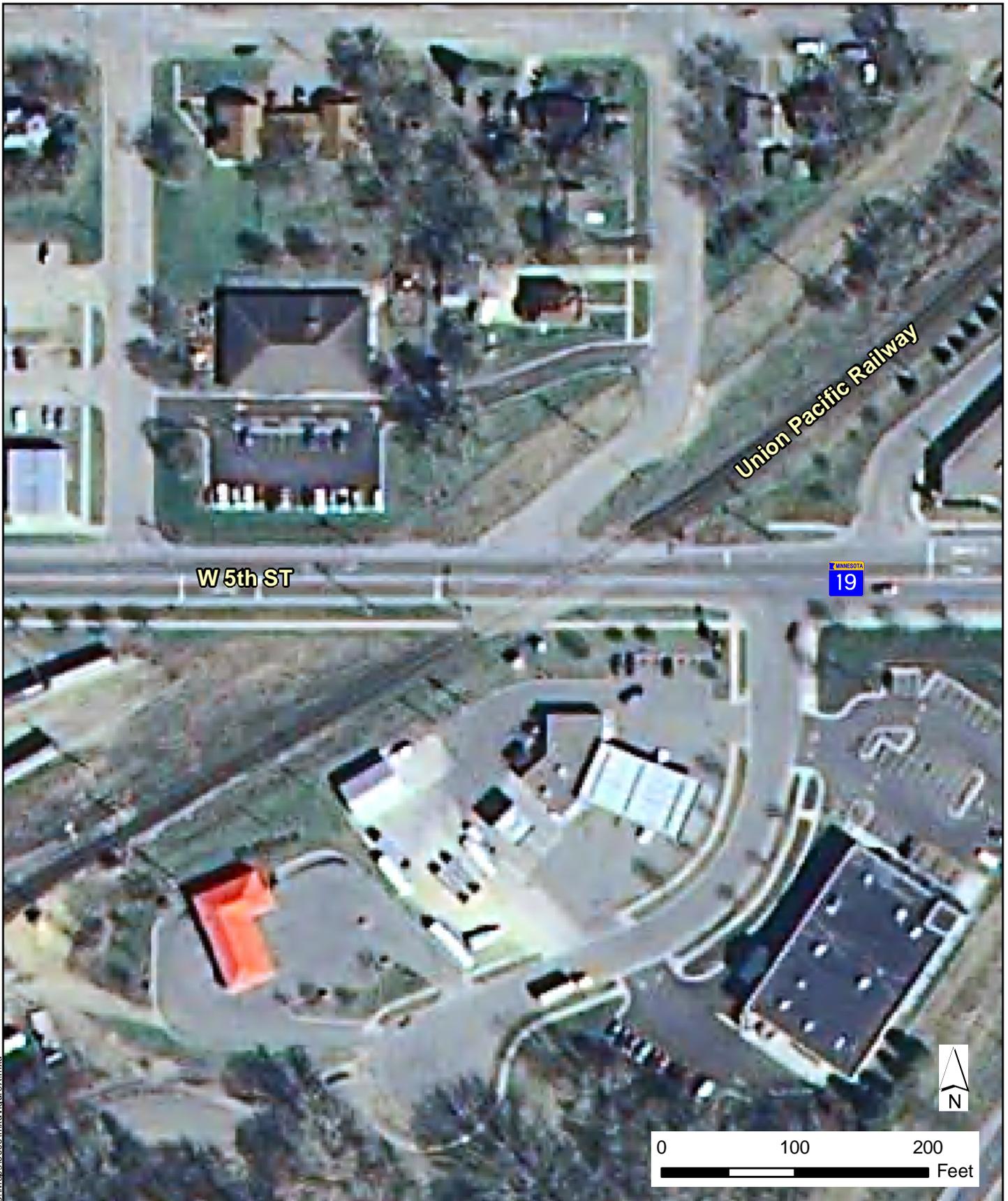
NORTHFIELD QUIET ZONE

City of Northfield

Figure 3



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CONSULTING GROUP, INC.

0055606 03/21/06

HIGHWAY 19/WEST FIFTH STREET, 380368Y

NORTHFIELD QUIET ZONE

City of Northfield

Figure 5



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Figure 6



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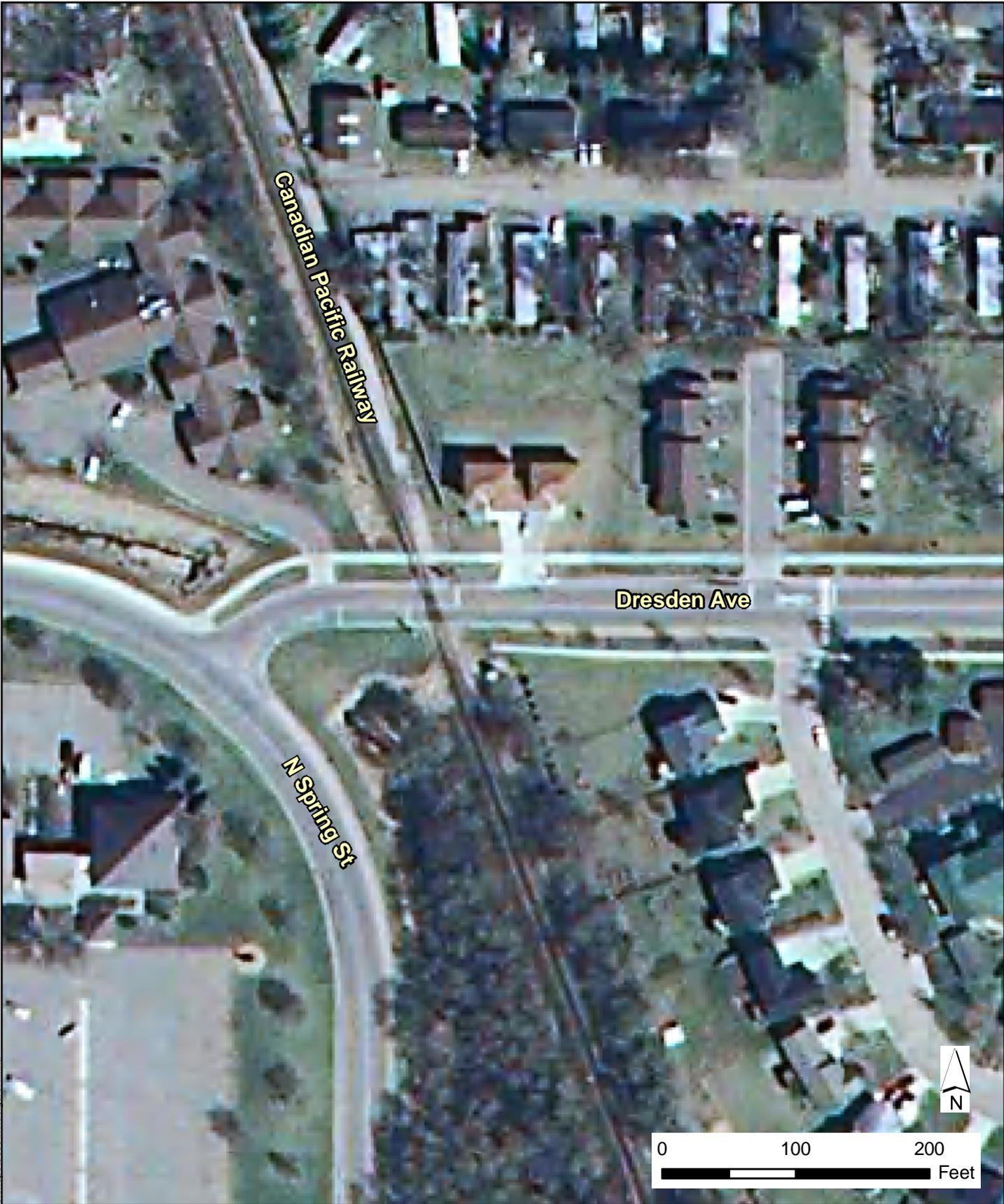


CITY COMPOST SITE, 380366K

NORTHFIELD QUIET ZONE

City of Northfield

Figure 7



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0055606 03/21/06

DRESDEN AVENUE, 694511B

NORTHFIELD QUIET ZONE

City of Northfield

Figure 8



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Figure 9





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CONSULTING GROUP, INC.

0055606 03/21/06

WASTEWATER TREATMENT PLANT, 185232B

NORTHFIELD QUIET ZONE

City of Northfield

Figure 11

APPENDIX D

Rail Crossing Inventory Sheets

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **384055X** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **12/07/05**
 Railroad: **UP Union Pacific RR Co. [UP]** **Current Record**
 Initiating Agency **Railroad** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	ALBERT LEA SUB	County:	RICE
Branch or Line Name:		City:	In NORTHFIELD
Railroad Milepost:	0314.30	Street or Road Name:	FREMONT AVENUE
RailRoad I.D. No.:		Highway Type & No.:	MSAS115
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	49C
Crossing Owner:		Latitude:	44.4702806
ENS Sign Installed:	Yes	Longitude:	-93.1601920
Passenger Service:	None	Lat/Long Source:	Actual
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:	No		

Private Crossing Information:

Category:	Public Access:		
Specify Signs:	Specify Signals:		
ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:			
State Use:			
Narrative:			

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:	Less Than One Movement Per Day:	No
Total Trains: 7 Total Switching: 0	Day Thru: 4	
Typical Speed Range Over Crossing: From 15 to 25 mph	Maximum Time Table Speed:	25
Type and Number of Tracks: Main: 1 Other: 0	Specify:	
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 **384055X**

Continued

Effective Begin-Date of Record: **12/07/05**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks: 0	Highway Stop Signs: 0
Advanced Warning: Yes	Hump Crossing Sign: No
Pavement Markings: Stop Lines and RR Xing Symbols	Other Signs: 0 Specify: 0

Train Activated Devices:

Gates: 2	4 Quad or Full Barrier:
Mast Mounted FL: 2	Total Number FL Pairs: 0
Cantilevered FL (Over): 0	Cantilevered FL (Not over): 0
Other Flashing Lights: 0	Specify Other Flashing Lights:
Highway Traffic Signals: 0	Wigwags: 0 Bells: 1
Other Train Activated Warning Devices:	Special Warning Devices Not Train Activated:
Channelization:	Type of Train Detection: DC/AFO
Track Equipped with Train Signals? Yes	Traffic Light Interconnection/Preemption:

Part IV: Physical Characteristics

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

Part V: Highway Information

Highway System: Non-Federal-aid	Functional Classification of Road at Crossing: Urban Local
Is Crossing on State Highway System: No	
Annual Average Daily Traffic (AADT): 00750 2450	AADT Year: 2001 2005
Estimated Percent Trucks: 05	Avg. No of School Buses per Day: 0
Posted Highway Speed: 0	

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **380372N** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **12/07/05**
 Railroad: **UP Union Pacific RR Co. [UP]** **Current Record**
 Initiating Agency **Railroad** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	ALBERT LEA SUB	County:	RICE
Branch or Line Name:		City:	In NORTHFIELD
Railroad Milepost:	0313.61	Street or Road Name:	ST OLAF ST
RailRoad I.D. No.:		Highway Type & No.:	MSAS101
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	49
Crossing Owner:		Latitude:	44.4685820
ENS Sign Installed:	Yes	Longitude:	-93.1641160
Passenger Service:	None	Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:	No		

Private Crossing Information:

Category:	Public Access:		
Specify Signs:	Specify Signals:		
ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:			
State Use:			
Narrative:			

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:	Less Than One Movement Per Day:	No
Total Trains: 7 Total Switching: 0	Day Thru: 4	
Typical Speed Range Over Crossing: From 1 to 34 mph	Maximum Time Table Speed: 40	
Type and Number of Tracks: Main: 1 Other: 1	Specify: CANNON FA	
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 **380372N**

Continued

Effective Begin-Date of Record: **12/07/05**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks:	2	Highway Stop Signs:	0
Advanced Warning:	Yes	Hump Crossing Sign:	No
Pavement Markings:	Stop Lines and RR Xing Symbols	Other Signs:	0 Specify: 0

Train Activated Devices:

Gates:	2	4 Quad or Full Barrier:	
Mast Mounted FL:	2	Total Number FL Pairs:	0
Cantilevered FL (Over):	0	Cantilevered FL (Not over):	0
Other Flashing Lights:	0	Specify Other Flashing Lights:	
Highway Traffic Signals:	0	Wigwags:	0 Bells: 1
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	DC/AFO
Track Equipped with Train Signals?	Yes	Traffic Light Interconnection/Preemption:	

Part IV: Physical Characteristics

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

Part V: Highway Information

Highway System:	Non-Federal-aid	Functional Classification of Road at Crossing:	Urban Minor Arterial
Is Crossing on State Highway System:	No	AADT Year:	2004 2005
Annual Average Daily Traffic (AADT):	002600 3150	Avg. No of School Buses per Day:	0
Estimated Percent Trucks:	05		
Posted Highway Speed:	0		

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **380371G** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **12/07/05**
 Railroad: **UP Union Pacific RR Co. [UP]** **Current Record**
 Initiating Agency **Railroad** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	ALBERT LEA SUB	County:	RICE
Branch or Line Name:		City:	In NORTHFIELD
Railroad Milepost:	0313.46	Street or Road Name:	2ND STREET
RailRoad I.D. No.:		Highway Type & No.:	MSAS103
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	48
Crossing Owner:		Latitude:	44.4280780
ENS Sign Installed:	Yes	Longitude:	-93.2104640
Passenger Service:	None	Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:	No		

Private Crossing Information:

Category:	Public Access:		
Specify Signs:	Specify Signals:		
ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:			
State Use:			
Narrative:			

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:	Less Than One Movement Per Day:	No
Total Trains: 12 Total Switching: 2	Day Thru: 5	
Typical Speed Range Over Crossing: From 1 to 60 mph	Maximum Time Table Speed: 60	
Type and Number of Tracks: Main: 1 Other: 0	Specify:	
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 **380371G**

Continued

Effective Begin-Date of Record: **12/07/05**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks: 0	Highway Stop Signs: 0
Advanced Warning: Yes	Hump Crossing Sign: No
Pavement Markings: Stop Lines and RR Xing Symbols	Other Signs: 0 Specify: 0

Train Activated Devices:

Gates: 0	4 Quad or Full Barrier:
Mast Mounted FL: 2	Total Number FL Pairs: 0
Cantilevered FL (Over): 2	Cantilevered FL (Not over): 0
Other Flashing Lights: 2	Specify Other Flashing Lights: SIDE
Highway Traffic Signals: 0	Wigwags: 0 Bells: 1
Other Train Activated Warning Devices:	Special Warning Devices Not Train Activated:
Channelization:	Type of Train Detection: CONSTANT
Track Equipped with Train Signals? Yes	Traffic Light Interconnection/Preemption: Not Interconnected DETECTION

Part IV: Physical Characteristics

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

Part V: Highway Information

Highway System: Other FA Highway - Not NHS	Functional Classification of Road at Crossing: Urban Minor Arterial
Is Crossing on State Highway System: No	
Annual Average Daily Traffic (AADT): 2002 2600	AADT Year: 2004 2005
Estimated Percent Trucks: 05	Avg. No of School Buses per Day: 0
Posted Highway Speed: 30	

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **380370A** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **12/07/05**
 Railroad: **UP Union Pacific RR Co. [UP]** **Current Record**
 Initiating Agency **Railroad** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	ALBERT LEA SUB	County:	RICE
Branch or Line Name:		City:	In NORTHFIELD
Railroad Milepost:	0313.37	Street or Road Name:	3RD ST.
RailRoad I.D. No.:		Highway Type & No.:	MSAS118
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	47
Crossing Owner:		Latitude:	44.4280780
ENS Sign Installed:	Yes	Longitude:	-93.2104640
Passenger Service:	None	Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:	No		

Private Crossing Information:

Category:	Public Access:		
Specify Signs:	Specify Signals:		
ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:			
State Use:			
Narrative:			

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:	Less Than One Movement Per Day:	No
Total Trains: 12 Total Switching: 2	Day Thru: 10	
Typical Speed Range Over Crossing: From 1 to 60 mph	Maximum Time Table Speed:	60
Type and Number of Tracks: Main: 1 Other: 1	Specify:	SIDE
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 **380370A**

Continued

Effective Begin-Date of Record: **12/07/05**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks: 0	Highway Stop Signs: 0
Advanced Warning: Yes	Hump Crossing Sign: No
Pavement Markings: Stop Lines and RR Xing Symbols	Other Signs: 2 Specify: 2 TRACKS
	0

Train Activated Devices:

Gates: 0	4 Quad or Full Barrier:
Mast Mounted FL: 2	Total Number FL Pairs: 0
Cantilevered FL (Over): 2	Cantilevered FL (Not over): 0
Other Flashing Lights: 2	Specify Other Flashing Lights: SIDE
Highway Traffic Signals: 0	Wigwags: 0 Bells: 1
Other Train Activated Warning Devices:	Special Warning Devices Not Train Activated: CONSTANT
Channelization:	Type of Train Detection: DC/FO WARNING TIME
Track Equipped with Train Signals? Yes	Traffic Light Interconnection/Preemption: Not Interconnected DETECTION

Part IV: Physical Characteristics

Type of Development: Commercial	Smallest Crossing Angle: 60 to 90 Degrees
Number of Traffic Lanes Crossing Railroad: 2	Are Truck Pullout Lanes Present? No
Is Highway Paved? Yes	
Crossing Surface: Concrete	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: Other FA Highway - Not NHS	Functional Classification of Road at Crossing: Urban Collector
Is Crossing on State Highway System: No	
Annual Average Daily Traffic (AADT): 2007 2050	AADT Year: 2007 2005
Estimated Percent Trucks: 10	Avg. No of School Buses per Day: 0
Posted Highway Speed: 30	

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **380368Y** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **12/07/05**
Railroad: **UP Union Pacific RR Co. [UP]** **Current Record**
Initiating Agency **Railroad** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	ALBERT LEA SUB	County:	RICE
Branch or Line Name:		City:	In NORTHFIELD
Railroad Milepost:	0313.16	Street or Road Name:	FIFTH STREET
RailRoad I.D. No.:		Highway Type & No.:	TH 19
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	44
Crossing Owner:		Latitude:	44.4798970
ENS Sign Installed:	Yes	Longitude:	-93.4337080
Passenger Service:	None	Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:	No		

Private Crossing Information:

Category:		Public Access:		
	Specify Signs:		Specify Signals:	
	ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:				
State Use:				
Narrative:				

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:		Less Than One Movement Per Day:	No
Total Trains: 12	Total Switching: 2	Day Thru: 4	
Typical Speed Range Over Crossing: From 1 to 60 mph		Maximum Time Table Speed: 60	
Type and Number of Tracks: Main: 1 Other: 0		Specify:	
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 **380368Y**

Continued

Effective Begin-Date of Record: **12/07/05**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks: 0	Highway Stop Signs: 0
Advanced Warning: Yes	Hump Crossing Sign: No
Pavement Markings: Stop Lines and RR Xing Symbols	Other Signs: 0 Specify: 0

Train Activated Devices:

Gates: 2	4 Quad or Full Barrier: No
Mast Mounted FL: 2	Total Number FL Pairs: 0
Cantilevered FL (Over): 2	Cantilevered FL (Not over): 0
Other Flashing Lights: 2	Specify Other Flashing Lights: SIDE
Highway Traffic Signals: 0	Wigwags: 0 Bells: 2
Other Train Activated Warning Devices:	Special Warning Devices Not Train Activated: CONSTANT
Channelization: None	Type of Train Detection: WDC WFO WARNING TIME
Track Equipped with Train Signals? Yes	Traffic Light Interconnection/Preemption: Not Interconnected DETECTION

Part IV: Physical Characteristics

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

Part V: Highway Information

Highway System: Other National Highway	Functional Classification of Road at Crossing: Urban Other Principal
Is Crossing on State Highway System: Yes	
Annual Average Daily Traffic (AADT): 013200	AADT Year: 2004
Estimated Percent Trucks: 05	Avg. No of School Buses per Day: 0
Posted Highway Speed: 0	

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **380367S** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **12/07/05**
 Railroad: **UP Union Pacific RR Co. [UP]** **Current Record**
 Initiating Agency **Railroad** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	ALBERT LEA SUB	County:	RICE
Branch or Line Name:		City:	In NORTHFIELD
Railroad Milepost:	0312.15	Street or Road Name:	SCHLER PARK
RailRoad I.D. No.:		Highway Type & No.:	
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	43
Crossing Owner:		Latitude:	44.4466963
ENS Sign Installed:	Yes	Longitude:	-93.1868620
Passenger Service:		Lat/Long Source:	Actual
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category:	Public Access:		
Specify Signs:	Specify Signals:		
ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:			
State Use:			
Narrative:			

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:	Less Than One Movement Per Day:	No
Total Trains: 7 Total Switching: 0	Day Thru: 4	
Typical Speed Range Over Crossing: From 1 to 40 mph	Maximum Time Table Speed: 40	
Type and Number of Tracks: Main: 1 Other: 0	Specify:	
Does Another RR Operate a Separate Track at Crossing? No		
Does Another RR Operate Over Your Track at Crossing? Yes: CNW		

U.S. DOT - CROSSING INVENTORY INFORMATION

Crossing **380367S**

Continued

Effective Begin-Date of Record: **12/07/05**

Current Record

Part III: Traffic Control Device Information

Signs:

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

Train Activated Devices:

Gates:	0	4 Quad or Full Barrier:	
Mast Mounted FL:	0	Total Number FL Pairs:	0
Cantilevered FL (Over):	0	Cantilevered FL (Not over):	0
Other Flashing Lights:	0	Specify Other Flashing Lights:	
Highway Traffic Signals:	0	Wigwags:	0 Bells: 0
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	None
Track Equipped with Train Signals?	Yes	Traffic Light Interconnection/Preemption:	

Part IV: Physical Characteristics

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

Part V: Highway Information

Highway System:	Non-Federal-aid	Functional Classification of Road at Crossing:	Urban Local
Is Crossing on State Highway System:	No	AADT Year:	1988
Annual Average Daily Traffic (AADT):	000050	Avg. No of School Buses per Day:	0
Estimated Percent Trucks:	05		
Posted Highway Speed:	0		

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **380366K** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **12/07/05**
 Railroad: **UP Union Pacific RR Co. [UP]** **Current Record**
 Initiating Agency **Railroad** Type and Position: **Private At Grade**

Part I Location and Classification of Crossing

(CITY COMPOST SITE)

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	ALBERT LEA SUB	County:	RICE
Branch or Line Name:		City:	Near NORTHFIELD
Railroad Milepost:	0312.05	Street or Road Name:	PRIVATE
RailRoad I.D. No.:		Highway Type & No.:	
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	
Crossing Owner:		Latitude:	44.4288600
ENS Sign Installed:	Yes	Longitude:	-93.2100910
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category:	Industrial	Public Access:	
No signs or signals	Specify Signs:	Specify Signals:	

	ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:				
State Use:				
Narrative:				

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:

Total Trains:	0	Total Switching:	0	Less Than One Movement Per Day:	Yes
Typical Speed Range Over Crossing:	From 0 to 0 mph	Day Thru:	0	Maximum Time Table Speed:	0
Type and Number of Tracks:	Main: 0 Other 0	Specify:			

Does Another RR Operate a Separate Track at Crossing?
 Does Another RR Operate Over Your Track at Crossing?

U.S. DOT - CROSSING INVENTORY INFORMATION

Crossing **380366K**

Continued

Effective Begin-Date of Record: **12/07/05**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks:	0	Highway Stop Signs:	2
Advanced Warning:		Hump Crossing Sign:	
Pavement Markings:		Other Signs:	2 Specify: PRIVATE
			0

Train Activated Devices:

Gates:	0	4 Quad or Full Barrier:	
Mast Mounted FL:	0	Total Number FL Pairs:	0
Cantilevered FL (Over):	0	Cantilevered FL (Not over):	0
Other Flashing Lights:	0	Specify Other Flashing Lights:	
Highway Traffic Signals:	0	Wigwags:	0 Bells: 0
Other Train Activated Warning Devices:		Special Warning Devices Not Train Activated:	
Channelization:		Type of Train Detection:	
Track Equipped with Train Signals?	Yes	Traffic Light Interconnection/Preemption:	

Part IV: Physical Characteristics

Type of Development:		Smallest Crossing Angle:	
Number of Traffic Lanes Crossing Railroad:		Are Truck Pullout Lanes Present?	
Is Highway Paved?		If Other:	
Crossing Surface:	Asphalt	Is it Signalized?	
Nearby Intersecting Highway?	Less than 75 feet	Is Crossing Illuminated?	
Does Track Run Down a Street?			
Is Commercial Power Available?			

Part V: Highway Information

Highway System:		Functional Classification of Road at Crossing:	
Is Crossing on State Highway System:			
Annual Average Daily Traffic (AADT):		AADT Year:	1970
Estimated Percent Trucks:		Avg. No of School Buses per Day:	0
Posted Highway Speed:	0		

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **694511B** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **04/01/05**
 Railroad: **PGR Progressive Rail Inc [PGR]** **Current Record**
 Initiating Agency **State** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	AUSTIN	County:	RICE
Branch or Line Name:	SAVAGE SPUR	City:	In NORTHFIELD
Railroad Milepost:	0052.52	Street or Road Name:	DRESDEN AVENUE
RailRoad I.D. No.:		Highway Type & No.:	MSAS115
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	301
Crossing Owner:		Latitude:	44.4098630
ENS Sign Installed:	Yes	Longitude:	-93.2319030
Passenger Service:	None	Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:	No		

Private Crossing Information:

Category:	Public Access:		
Specify Signs:	Specify Signals:		
ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:			
State Use:			
Narrative:			

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:	Less Than One Movement Per Day:	No
Total Trains: 2 Total Switching: 0	Day Thru: 2	
Typical Speed Range Over Crossing: From 15 to 20 mph	Maximum Time Table Speed:	20
Type and Number of Tracks: Main: 1 Other: 0	Specify:	
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 **694511B**

Continued

Effective Begin-Date of Record: **04/01/05**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks: **2**
 Advanced Warning: **No**
 Pavement Markings: **No Markings**

Highway Stop Signs: **2**
 Hump Crossing Sign: **No**
 Other Signs: **0** Specify:
0

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:
 Channelization:
 Track Equipped with Train Signals? **No**

4 Quad or Full Barrier:
 Total Number FL Pairs: **0**
 Cantilevered FL (Not over): **0**
 Specify Other Flashing Lights:
 Wigwags: **0** Bells: **1**
 Special Warning Devices Not Train Activated:
 Type of Train Detection: **DC/AFO**
 Traffic Light Interconnection/Preemption:

Part IV: Physical Characteristics

Type of Development: **Residential**
 Number of Traffic Lanes Crossing Railroad: **2**
 Is Highway Paved? **Yes**
 Crossing Surface: **Rubber**
 Nearby Intersecting Highway? **N/A**
 Does Track Run Down a Street? **No**
 Is Commercial Power Available? **Yes**

Smallest Crossing Angle: **60 to 90 Degrees**
 Are Truck Pullout Lanes Present? **No**
 If Other:
 Is it Signalized?
 Is Crossing Illuminated?

Part V: Highway Information

Highway System: **Non-Federal-aid**
 Is Crossing on State Highway System: **No**
 Annual Average Daily Traffic (AADT): ^{CA} ~~001~~ **1600**
 Estimated Percent Trucks: **05**
 Posted Highway Speed: **0**

Functional Classification of Road at Crossing: **Urban Collector**
 AADT Year: ^{CA} ~~2001~~ **2005**
 Avg. No of School Buses per Day: **0**

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **854292H** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **04/01/04**
 Railroad: **SOO SOO Line RR Co. [SOO]** **Current Record**
 Initiating Agency **State** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	ST PAUL SERVIC	State:	MN
Subdivision:	AUSTIN	County:	RICE
Branch or Line Name:	SAVAGE SPUR	City:	In NORTHFIELD
Railroad Milepost:	0052.77	Street or Road Name:	GREENVALE AVE
RailRoad I.D. No.:		Highway Type & No.:	MSAS111
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	302
Crossing Owner:		Latitude:	44.4070470
ENS Sign Installed:	Yes	Longitude:	-93.2355190
Passenger Service:	None	Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:	No		

Private Crossing Information:

Category:		Public Access:	
	Specify Signs:		Specify Signals:
	ST/RR A	ST/RR B	ST/RR C
Railroad Use:			ST/RR D
State Use:			
Narrative:			

Emergency Contact: **(800)716-9132** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:		Less Than One Movement Per Day:	No
Total Trains: 2	Total Switching: 0	Day Thru: 1	
Typical Speed Range Over Crossing: From 15 to 20 mph		Maximum Time Table Speed:	20
Type and Number of Tracks: Main: 1 Other 0		Specify:	
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 **854292H**

Continued

Effective Begin-Date of Record: **04/01/04**

Current Record

Part III: Traffic Control Device Information

Signs:

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

Train Activated Devices:

Gates: 0	4 Quad or Full Barrier:
Mast Mounted FL: 2	Total Number FL Pairs: 0
Cantilevered FL (Over): 0	Cantilevered FL (Not over): 0
Other Flashing Lights: 0	Specify Other Flashing Lights:
Highway Traffic Signals: 0	Wigwags: 0 Bells: 1
Other Train Activated Warning Devices:	Special Warning Devices Not Train Activated:
Channelization:	Type of Train Detection: None
Track Equipped with Train Signals? No	Traffic Light Interconnection/Preemption:

Part IV: Physical Characteristics

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

Part V: Highway Information

Highway System: Non-Federal-aid	Functional Classification of Road at Crossing: Urban Collector
Is Crossing on State Highway System: No	
Annual Average Daily Traffic (AADT): 002650 5600	AADT Year: 2001 2005
Estimated Percent Trucks: 10	Avg. No of School Buses per Day: 0
Posted Highway Speed: 0	

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **187055F** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **01/03/05**
 Railroad: **PGR Progressive Rail Inc [PGR]** **Current Record**
 Initiating Agency **State** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

Division:	NORTHERN	State:	MN
Subdivision:	CANNON FALLS	County:	RICE
Branch or Line Name:		City:	In NORTHFIELD
Railroad Milepost:	0058.32	Street or Road Name:	WATER
RailRoad I.D. No.:		Highway Type & No.:	MUN 82
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	251
Crossing Owner:		Latitude:	44.4770130
ENS Sign Installed:		Longitude:	-93.4425130
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category:	Public Access:		
Specify Signs:	Specify Signals:		
ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:			
State Use:			
Narrative:			

Emergency Contact: **(800)848-8715** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements: Less Than One Movement Per Day: ~~Yes~~ **YES**
 Total Trains: **2 / week** Total Switching: **0** Day Thru: ~~X~~
 Typical Speed Range Over Crossing: From **1** to **5** mph Maximum Time Table Speed: **5**
 Type and Number of Tracks: Main: **1** Other: **0** Specify:
 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 **187055F**

Continued

Effective Begin-Date of Record: **01/03/05**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks: **2**
 Advanced Warning: **Yes**
 Pavement Markings: **No Markings**

Highway Stop Signs: **2**
 Hump Crossing Sign: **No**
 Other Signs: **0** Specify:
0

Train Activated Devices:

Gates: **0**
 Mast Mounted FL: **0**
 Cantilevered FL (Over): **0**
 Other Flashing Lights: **0**
 Highway Traffic Signals: **0**
 Other Train Activated
 Warning Devices:
 Channelization:
 Track Equipped with
 Train Signals? **No**

4 Quad or Full Barrier:
 Total Number FL Pairs: **0**
 Cantilevered FL (Not over): **0**
 Specify Other Flashing Lights:
 Wigwags: **0** Bells: **0**
 Special Warning Devices Not
 Train Activated:
 Type of Train Detection: **None**
 Traffic Light
 Interconnection/Preemption:

Part IV: Physical Characteristics

Type of Development: **Industrial**
 Number of Traffic Lanes
 Crossing Railroad: **2**
 Is Highway Paved? **Yes**
 Crossing Surface: **Asphalt**
 Nearby Intersecting
 Highway? **N/A**
 Does Track Run Down a
 Street? **No**
 Is Commercial Power Available? **Yes**

Smallest Crossing Angle: **30 to 59 Degrees**
 Are Truck Pullout Lanes Present? **No**
 If Other:
 Is it Signalized?
 Is Crossing Illuminated?

Part V: Highway Information

Highway System: **Non-Federal-aid**
 Is Crossing on State
 Highway System: **No**
 Annual Average Daily Traffic
 (AADT): **000100**
 Estimated Percent Trucks: **05**
 Posted Highway Speed: **0**

Functional Classification of
 Road at Crossing: **Urban Local**
 AADT Year: **1988**
 Avg. No of School Buses per Day: **0**

**U.S. DOT - CROSSING INVENTORY INFORMATION
AS OF 5/30/2006**

Crossing No.: **185232B** Update Reason: **Changed Crossing** Effective Begin-Date of Record: **01/03/01**
 Railroad: **UP Union Pacific RR Co. [UP]** **Current Record**
 Initiating Agency **State** Type and Position: **Public At Grade**

Part I Location and Classification of Crossing

**(W A S T E W A T E R T R E A T M E N T
P L A N T)**

Division:	TWIN CITIES	State:	MN
Subdivision:	RED WING	County:	DAKOTA
Branch or Line Name:	ML	City:	Near NORTHFIELD
Railroad Milepost:	0059.97	Street or Road Name:	
RailRoad I.D. No.:	7890	Highway Type & No.:	TWP RD
Nearest RR Timetable Stn:	NORTHFIELD	HSR Corridor ID:	
Parent Railroad:		County Map Ref. No.:	254
Crossing Owner:		Latitude:	44.4327770
ENS Sign Installed:		Longitude:	-93.2048490
Passenger Service:		Lat/Long Source:	
Avg Passenger Train Count:	0	Quiet Zone:	Partial
Adjacent Crossing with Separate Number:			

Private Crossing Information:

Category:	Public Access:		
Specify Signs:	Specify Signs:		
ST/RR A	ST/RR B	ST/RR C	ST/RR D
Railroad Use:			
State Use:			
Narrative:			

Emergency Contact: **(800)848-8715** Railroad Contact: State Contact: **(651)406-4797**

Part II Railroad Information

Number of Daily Train Movements:

Total Trains:	X 2/week	Total Switching:	0	Less Than One Movement Per Day:	Yes
Typical Speed Range Over Crossing:	From 1 to 5 mph	Day Thru:	0	Maximum Time Table Speed:	X 5
Type and Number of Tracks:	Main: 1 Other: 0	Specify:			

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 **185232B**

Continued

Effective Begin-Date of Record: **01/03/01**

Current Record

Part III: Traffic Control Device Information

Signs:

Crossbucks: **2**
 Advanced Warning: **No**
 Pavement Markings: **No Markings**

Highway Stop Signs: **2**
 Hump Crossing Sign: **No**
 Other Signs: **0** Specify:
0

Train Activated Devices:

Gates: **0**
 Mast Mounted FL: **0**
 Cantilevered FL (Over): **0**
 Other Flashing Lights: **0**
 Highway Traffic Signals: **0**
 Other Train Activated Warning Devices:
 Channelization:
 Track Equipped with Train Signals? **No**

4 Quad or Full Barrier:
 Total Number FL Pairs: **0**
 Cantilevered FL (Not over): **0**
 Specify Other Flashing Lights:
 Wigwags: **0** Bells: **0**
 Special Warning Devices Not Train Activated:
 Type of Train Detection: **DC/AFO**
 Traffic Light Interconnection/Preemption:

Part IV: Physical Characteristics

Type of Development: **Commercial**
 Number of Traffic Lanes Crossing Railroad: **2**
 Is Highway Paved? **Yes**
 Crossing Surface: **Asphalt**
 Nearby Intersecting Highway? **Less than 75 feet**
 Does Track Run Down a Street? **No**
 Is Commercial Power Available? **Yes**

Smallest Crossing Angle: **60 to 90 Degrees**
 Are Truck Pullout Lanes Present? **No**
 If Other:
 Is it Signalized?
 Is Crossing Illuminated?

Part V: Highway Information

Highway System: **Non-Federal-aid**
 Is Crossing on State Highway System: **No**
 Annual Average Daily Traffic (AADT): **000050**
 Estimated Percent Trucks: **10**
 Posted Highway Speed: **0**

Functional Classification of Road at Crossing: **Rural Local**
 AADT Year: **1988**
 Avg. No of School Buses per Day: **0**

APPENDIX E

Site Review Spreadsheet

Northfield Quiet Zone Assessment for At-Grade Railroad Crossings

Crossing Name/Location	Water Street	Wastewater Treatment Plant	Dresden Avenue	Greenvale Avenue	Fremouw Avenue	West St. Olaf Avenue	West Second Street	West Third Street	Fifth Street/Highway 19	Sechlar Park (off of Armstrong Road)	City Compost Site Access (off of Armstrong Road)
FRA Crossing Number	187055F	185232B	694511B	854292H	384055X	380372N	380371G	380370A	380368Y	380367S	380366K
Existing SSMs	Stop Signs, Crossbucks	Stop Signs, Crossbucks	Crossbucks, Gates, Flashers	Crossbucks, Flashers	Crossbucks, Gates, Flashers	Crossbucks, Gates, Flashers	Crossbucks, Flashers, CWI, Cantilevers	Crossbucks, Flashers, CWI, Cantilevers	Crossbucks, Gates, Flashers, CWT, Cantilevers	Stop Signs, Crossbucks	Stop Signs, "Unofficial" Crossbucks
Key Issues/Notes	There is a large clear area under the overpass on the south side of the track	There is one house on the west side of the track that is close to the crossing	There is a sidewalk on the north side of the road (crosses track)	The sidewalk on the north side of the road breaks (runs into the street) for the track	There are overhead power lines on the east side of the track	There is no parking on either side of the street	Spring Street creates a T-intersection with 2nd Street just west of the track	There is a gravel parking lot access on the north side of the road	There is a sidewalk on the south side of the road (crosses track)	The Milltown State Park Trail crosses the track	There are "unofficial" crossbucks on a sign outside the gate
	There is potentially a utility relocation needed for a power pole to accomdate a future SSM on the south side of the track	There are powerlines on the east side of the track near the crossing	The road tapers out wider after the driveway on the east side of the tracks(possible opportunity to expand the road if needed on the north side of the road)	The sidewalk on the south side of the road begins on the east side of the track	There is a sidewalk on the north side of the road (crosses track)	There should be no access issues (to accommodate future SSMs)	There is a residential duplex west of the track on the north side of the road	The two accesses on the south side of the road are back entrances to businesses	Poplar Street runs into West 5th Street west of the track	The posted speed limit on the park entrance is 30 mph	There is fencing along both sides of the entrance to the dump leading up to the gate
	There is a frontage road intersecting Water Street in close proximity to the crossing that runs parallel to the track on the south side	There is a culvert 10' south of the crossing running under the track	The sidewalk on the south side of the road ends before it crosses the track	There is a vertical curve to account for the overpass to the east of the crossing	There is an old wood pedestrian bridge/overpass south of the crossing	The track starts to split into two tracks just south of the crossing	There is a sidewalk on the north side of the road (crosses track)	There are sidewalks that parallel the road on both the north/south sides of the road	There is a gas station east of the track on the south side of the road	The railroad switchyard begins about 150 yards north of the park entrance	The pavement ends on the east side of the track
	The grade of Water Street is significantly steeper on the north side of the track	The crossing surface is timber	The crossing surface is rubber	The crossing surface is rubber	There is manufactured residential housing access/driveway on the west side of the Fremouw Avenue/Dresden Avenue intersection	There are high voltage power lines on the west side of the tracks	There are businesses farther down 2nd Street on the east side of the track on both the north/south sides of the road	There are old rail buildings on the east side of the track	There are other businesses (access) off of Laurel Court on the east side of the track on both the north/south sides of the road	The crossing surface is timber	There are boulders outside the fences
	The crossing surface is timber	There are no pavement markings leading up to the crossing	There are pavement markings leading up to the crossing	There are pavement markings leading up to the crossing	The crossing surface is concrete	The roadway widens to accomdate a dedicated left-turn lane at the Highway 3 intersection	There is a manhole on the west side of the track (inbetween the eastbound lane stop line and the track)	The crossing surface is concrete	There are houses off of Poplar Street on the north/west side	There are no pavement markings leading up to the crossing	The crossing surface is timber
	There are no pavement markings leading up to the crossing				There are pavement markings leading up to the crossing	The crossing surface is rubber(east track) / concrete(west track)	The crossing surface is concrete	There are pavement markings leading up to the crossing	There should be no access issues (to accommodate future SSMs)		There are no pavement markings leading up to the crossing
						There are pavement markings leading up to the crossing	There are pavement markings leading up to the crossing		The crossing surface is concrete		
									There are pavement markings leading up to the crossing		
Key Measurements	30' roadway width on the south side of the track	20' roadway width on east/west sides of the track	31' roadway width on east/west sides of the track(15' eastbound/16' westbound)	42' roadway width on the east side of the track(32' westbound/10' eastbound)	75' from the eastbound lane stop line west to the intersection of Fremouw Avenue and Dresden Avenue	34' from the west track to the east track	43' roadway width on east/west sides of the track(22' westbound/21' eastbound)	47' roadway width on east/west sides of the track	33.5' roadway width (17.5' westbound/16' eastbound)	24' roadway width west of the track	12' roadway width west of the track
		75' from the track to the gated area east of the track	33' from the westbound lane stop line to the residential driveway on the east side of the road	38' roadway width on the west side of the track(19' eastbound/westbound)	35' roadway width on east/west sides of the track(18' eastbound/17' westbound)	32' from the east track to the front of the gas station driveway	45.5' from the track to the where the eastbound lane starts to taper to accomodate three turning movement lanes at the intersection with Highway 3	46' from the track to the curb-cut on the west side of the track on the north side of the road	2.5' from the back of the curb to the base of the post on the east side of the track	27' from the east side of the track to the trail/30' from the west side of the track to the trail	19.5' width from fence to fence
		100' from the eastbound lane stop line to the private driveway on the west side of the track	63' from the track to the assisted living driveway on the west side of the track on the north side of the road	27' from the westbound lane stop line to the residential driveway on the east side of the track on the north side of the road	3.5' from the back of the curb to the base of the posts on the east/west sides of the track	68' from the east track to the back of the gas station driveway	104' from the track to the access east of the track	72' from the track to the nearest access on the east side of the road on the south side of the road	3' from the back of the curb to the base of the post on the west side of the track	19' roadway width east of the track(pavement ends 53' from the track)	55' from the track to the entrance gate
			2.5' from the back of the curb to the base of the posts on east/west sides of the track	18' from the sidewalk break on the north side of the road to the eastbound lane stopline		117' from the eastbound lane stop line to the residential driveway on the west side of the track on the north side of the road	2.5' from the back of the curb to the base of the post on the east side of the track on the north side of the road	60' from the track to the access on the east side of the track on the north side of the road	22' from the track to the gate arm in the eastbound lane		38' from the entrance gate to the trail
			55' from the eastbound lane stop line to the assisted living driveway on the west side of the track on the north side of the road	3' from the road to the base of the post on the north side of the road		36' roadway width at the farthest east track westbound lane stop line	2' from the back of the curb to the base of the post on the west side of the track on the south side of the road	103' from the track to the second access on the east side of the track on the south side of the road	47' from the track to the gate arm in the westbound lane		
			13.5' from the back of the curb to the sidewalk on the north side of the road	2.5' from the road to the base of the post on the south side of the road		38' roadway width at the farthest west track eastbound lane stop line (17' westbound/20' eastbound)	22' from the eastbound lane stop line to the duplex driveway on the west side of the track on the north side of the road	6' from the eastbound lane stop line to the manhole cover in the eastbound lane	30' from the track to the east side of the Poplar Street intersection on the west side of the track on the north side of the road		
				30' from the eastbound lane stop line to the fire hydrant on the west side of the track on the north side of the road		2.5' from the back of the curb to the base of the posts on the east/west sides of the tracks	20' roadway width of Spring Street	160' from the track to Laurel Court/gas station access on the south side of the road			
								35' roadway width of Poplar Street			

APPENDIX F

**Minimum Quiet Zone Requirements,
Appropriate Supplemental Safety Measures
(SSMs), and Ancillary Improvement Costs**

Northfield Quiet Zone

Minimum Quiet Zone Requirements, Appropriate SSMs and Ancillary Improvement Costs

Required Quiet Zone Devices	Description	Cost
Two-Quadrant Vehicle Gates (2Q)	Two gates (one entry gate for each lane)	\$200,000 *
Constant Warning Time (CWT)	Train detection circuitry device	\$30,000 ** <i>(Cost is included with installation of gates)</i>
Mounted Flashing Lights	Standards with mounted flashing lights	<i>Cost is included with installation of gates</i>

* Cost estimate based on input from TKDA (Union Pacific Railroad)

** Cost estimate based on previous studies

Supplemental Safety Measures (SSMs)	Description	Cost
Four-Quadrant Vehicle Gates (4Q)	Four gates (two entry gates and two exit gates)	\$400,000 *
Non-Traversable Medians	Two, 100-foot concrete medians	\$25,000 **
Street Closure	Closure of a railroad-public roadway crossing	\$25,000 ***
Channelization Delineators	Removable, plastic delineators for channelization	\$6,000 ****

* Cost estimate based on input from TKDA (Union Pacific Railroad)

** Cost estimate based on previous studies-dependent on street width and existing conditions present

*** Cost estimate based on previous studies/city input/landscaping extent

**** Cost estimate is based on a cost of \$3,000 per 100-feet

Ancillary Improvements (ASMs)	Description	Cost
Cantilevers	Additional (over-hanging) standards with mounted flashers	\$50,000

* Cost estimate based on input from Progressive Railroad

APPENDIX G

Diagnostic Team Recommendations

Northfield Quiet Zone Diagnostic Meeting 4/12/2006

Agencies: City of Northfield, SRF, TKDA (represented Union Pacific Railroad), Canadian Pacific Railroad
FRA, Mn/DOT Office of Freight and Commercial, Mn/DOT District 6

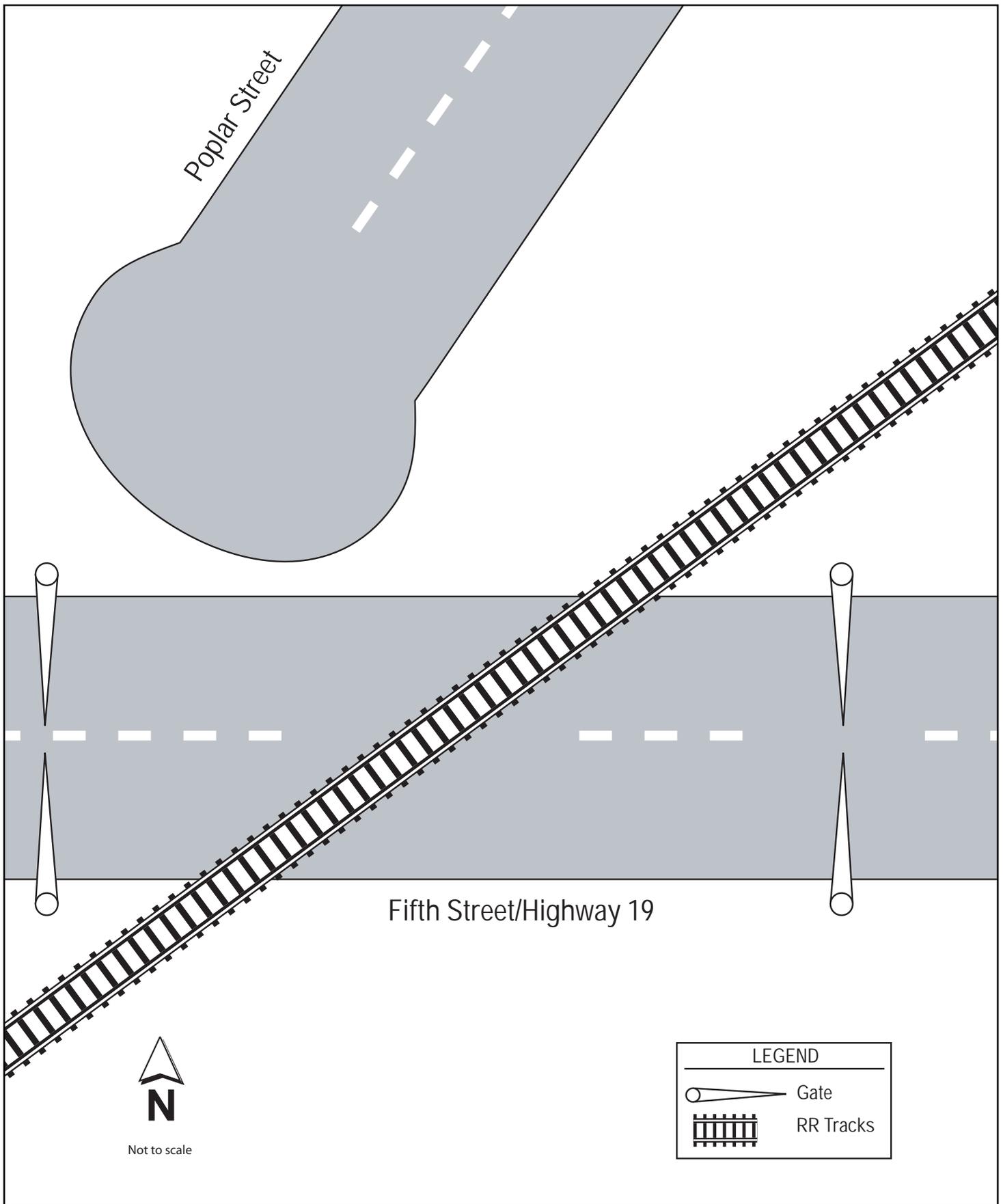
FRA Crossing #	Crossing Name	SSM/ASM/Quiet Zone Devices Preferred	SSM/ASM/Quiet Zone Devices Acceptable	Key Issues
187055F	Water Street	<ul style="list-style-type: none"> • Closure 	<ul style="list-style-type: none"> • Minimum quiet zone devices* • Medians • Closure 	Water Street does not carry a lot of vehicle traffic
185232B	Wastewater Treatment Plant	<ul style="list-style-type: none"> • Minimum quiet zone devices* 	<ul style="list-style-type: none"> • Minimum quiet zone devices* 	Wastewater Treatment Plant workers represent the only vehicle traffic at this crossing
694511B	Dresden Avenue	<ul style="list-style-type: none"> • Medians • Constant warning time 	<ul style="list-style-type: none"> • Four-quadrant vehicle gates • Medians • Constant warning time 	Median construction could cause possible gate relocation issues.
854292H	Greenvale Avenue	<ul style="list-style-type: none"> • Minimum quiet zone devices* • Cantilevers 	<ul style="list-style-type: none"> • Minimum quiet zone devices* • Cantilevers • Channelization delineators 	The grade seperated railroad crossing causes potential sight issues for the westbound at-grade crossing traffic.
384055X	Fremouw Avenue	<ul style="list-style-type: none"> • Medians • Constant warning time 	<ul style="list-style-type: none"> • Four-quadrant vehicle gates • Medians • Constant warning time 	Median construction would result in narrower driving lanes (11-foot).
380372N	West St. Olaf Avenue	<ul style="list-style-type: none"> • Medians • Constant warning time 	<ul style="list-style-type: none"> • Four-quadrant vehicle gates • Medians • Constant warning time 	CWT is needed at this crossing to meet the minimum quiet zone requirements.
380371G	West Second Street	<ul style="list-style-type: none"> • Minimum quiet zone devices* 	<ul style="list-style-type: none"> • Minimum quiet zone devices* 	Closure was not an option because of the recent West Second Street/Highway 3 intersection improvements. It was recommended that the City look into closing or cul-de-sacing the Spring Street access near the crossing.
380370A	West Third Street	<ul style="list-style-type: none"> • Closure 	<ul style="list-style-type: none"> • Minimum quiet zone devices* • Closure 	Closure is the preferred option at this crossing because of the proximity of the West Second Street crossing. The West Second Street/Hwy 3 intersection is signalized, while the West Third Street/Hwy 3 intersection is not.
380368Y	Fifth Street/Highway 19	<ul style="list-style-type: none"> • Four-quadrant vehicle gates 	<ul style="list-style-type: none"> • Four-quadrant vehicle gates 	Improvements are scheduled along Fifth Street/Hwy 19 in 2006. However, as a result of these improvements, four-quadrant vehicle gates are the only acceptable SSM.
380367S	Sechlar Park	<ul style="list-style-type: none"> • Minimum quiet zone devices* 	<ul style="list-style-type: none"> • Minimum quiet zone devices* • Closure 	This is a seasonal crossing (open during the summer/fall).
380366K	City Compost Site	<ul style="list-style-type: none"> • Minimum quiet zone devices* 	<ul style="list-style-type: none"> • Minimum quiet zone devices* • Closure 	Because this crossing is classified as private, no safety improvements are required.

* Minimum quiet zone devices = two-quadrant vehicle gates, mounted flashing lights and constant warning time detection

APPENDIX H

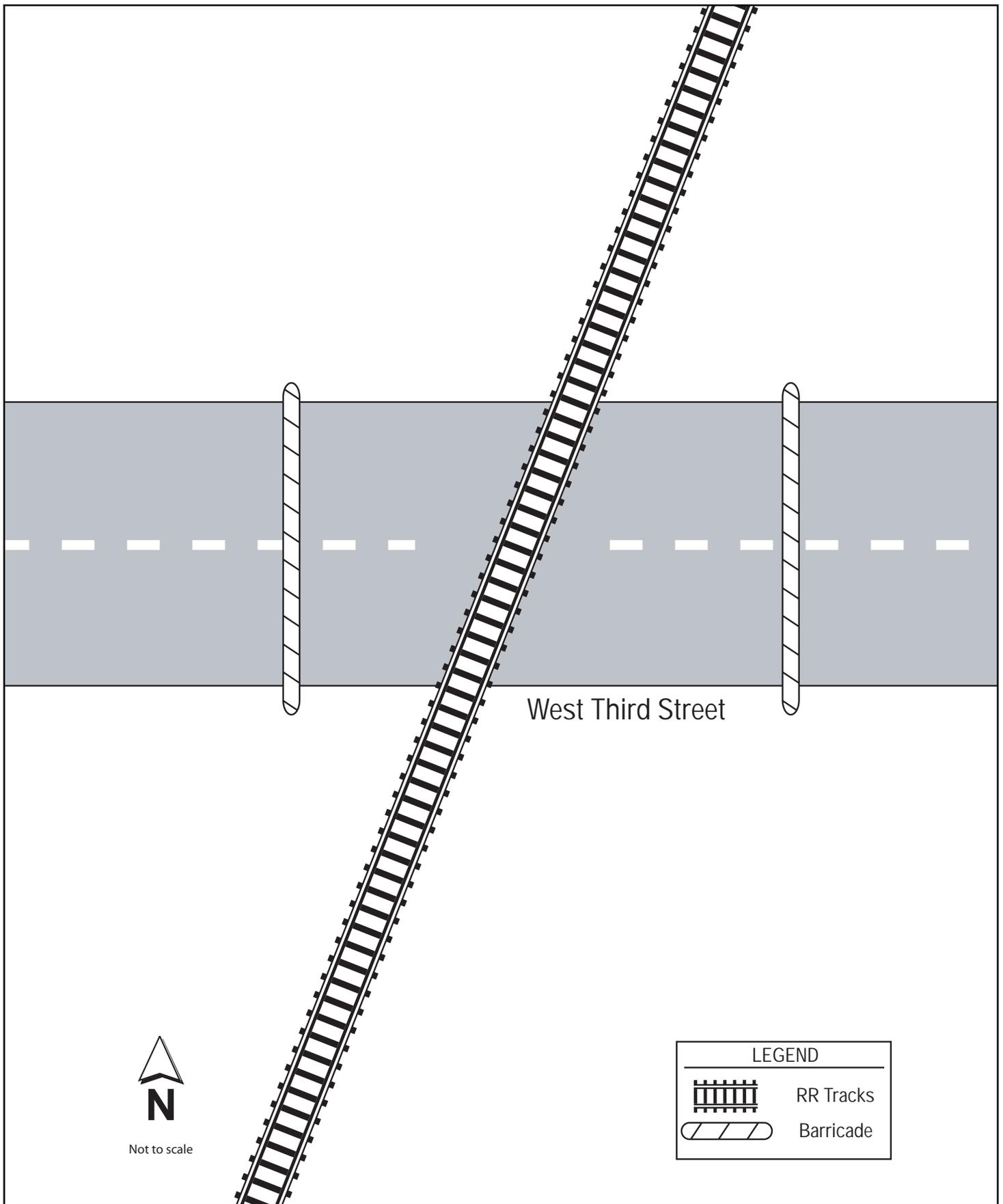
Central Quiet Zone SSM Layouts

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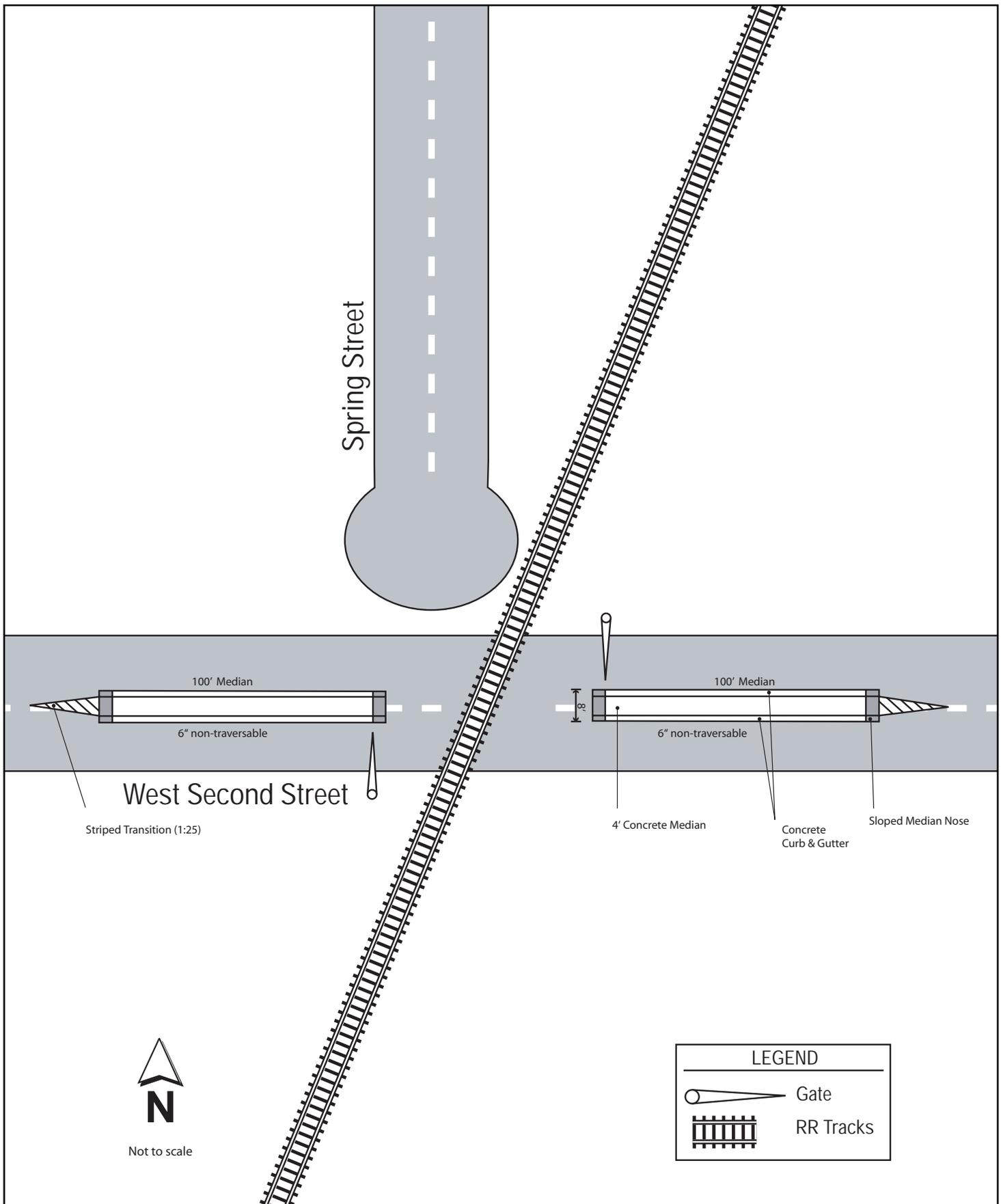


FIFTH STREET/HIGHWAY 19, 380368Y, UNION PACIFIC RR
CENTRAL QUIET ZONE
City of Northfield

Figure 1

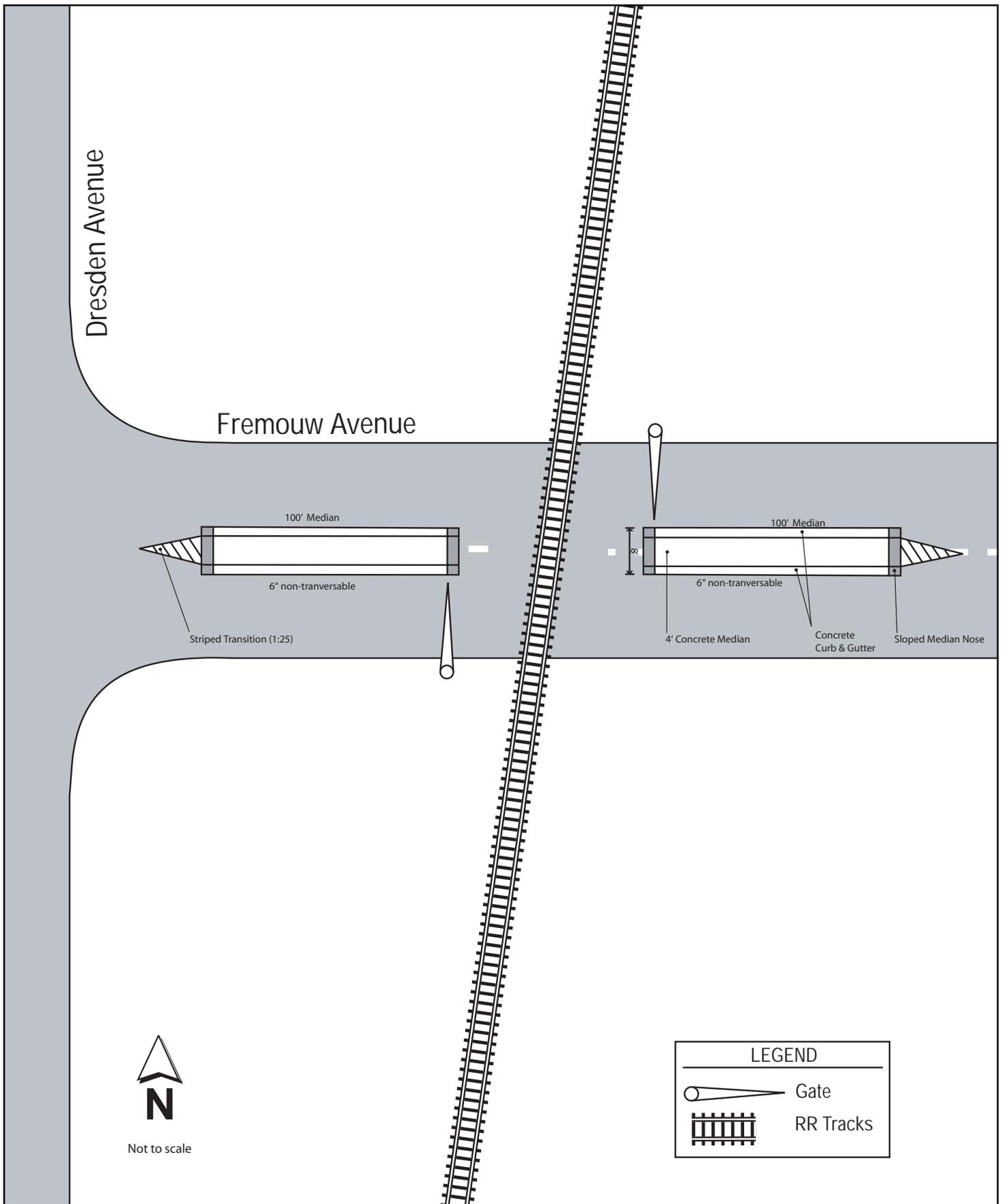


Support/5606_Northfield_QZ/Figures/5606_Northfield_Figures.qxd



WEST SECOND STREET, 380371G, UNION PACIFIC RR
 CENTRAL QUIET ZONE
 City of Northfield

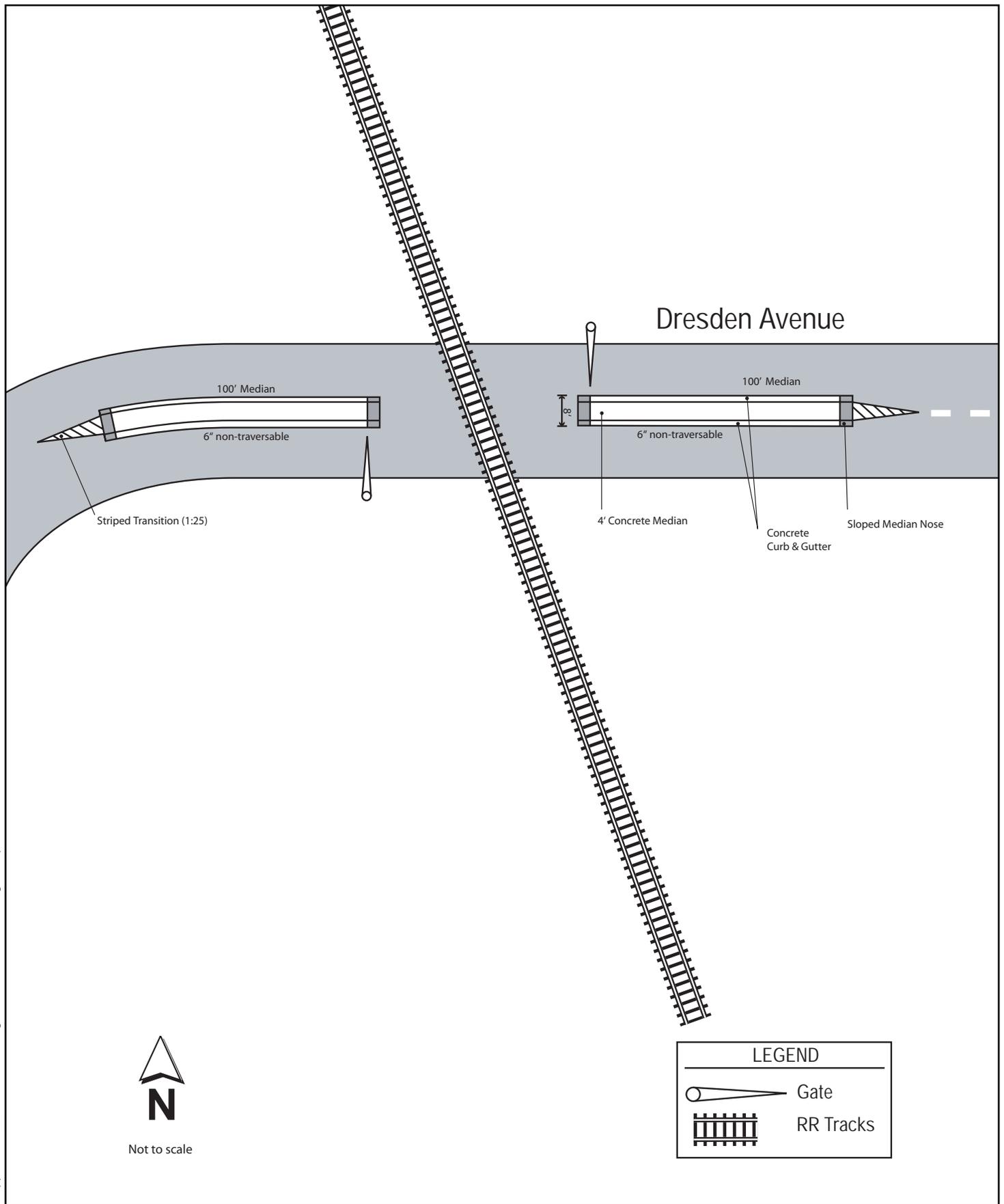
Figure 3



APPENDIX I

West Quiet Zone SSM Layouts

Support/5606_Northfield_QZ/Figures/5606_Northfield_Figures.qxd



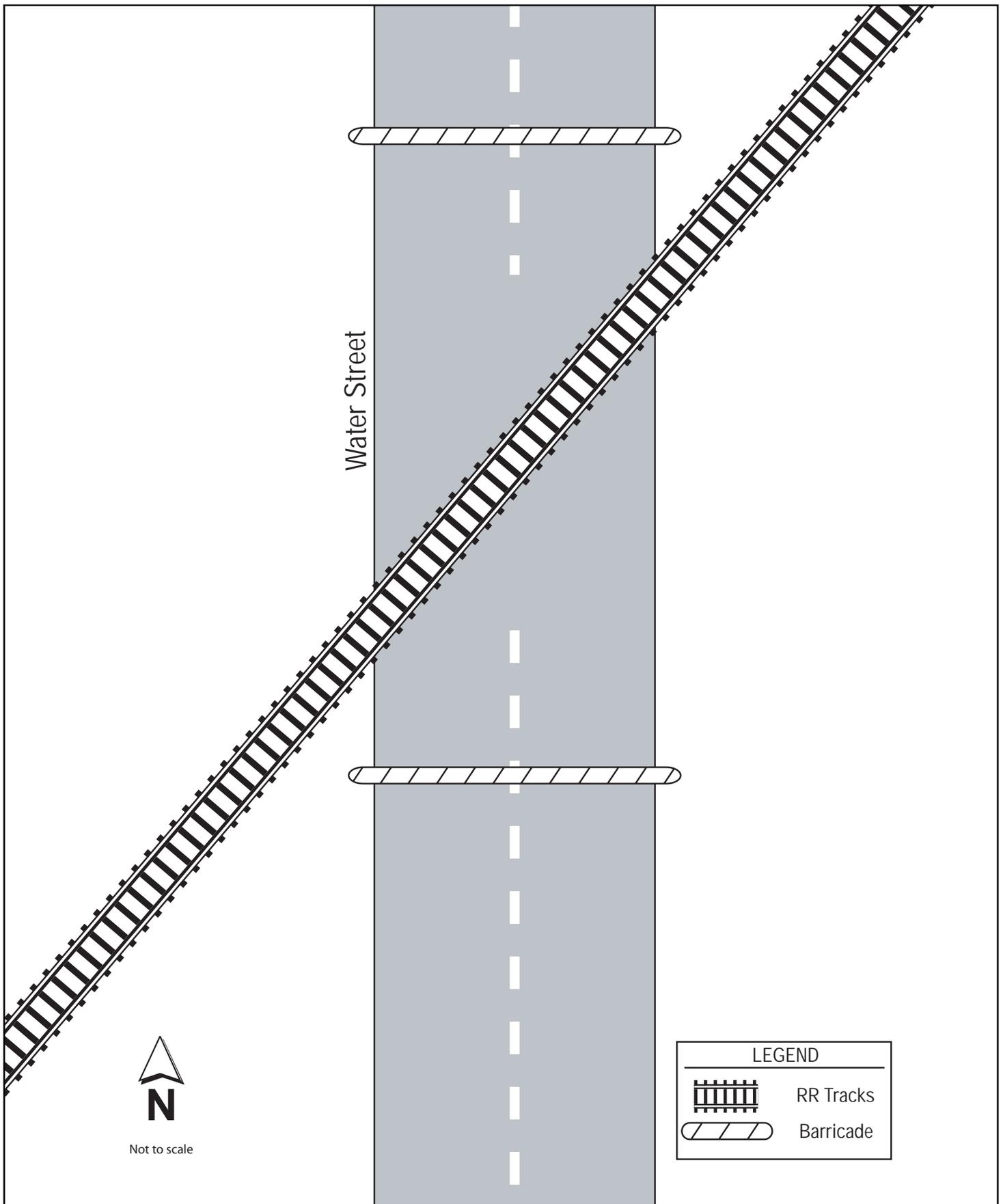
DRESDEN AVENUE, 694511B, PROGRESSIVE RR

WEST QUIET ZONE
City of Northfield

Figure 1

APPENDIX J

East Quiet Zone SSM Layouts



APPENDIX K
FRA Website Calculator Sheets

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BASELINE

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Change Scenario:

[Create New Zone](#)
[Manage Existing Zones](#)
[Log Off](#)

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the MODIFY Button

Step 2: Select proposed warning device or SSM. Then click the UPDATE button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the SELECT button is shown at the bottom right side of this page. Note that the SELECT button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the SELECT button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
380368Y	FIFTH STREET	13200	Gates	0	0	33,088.02	MODIFY
380370A	3RD ST.	2050	Gates	0	0	20,291.96	MODIFY
380371G	2ND STREET	2600	Gates	0	0	21,900.02	MODIFY
380372N	ST OLAF ST	3150	Gates	0	0	16,830.78	MODIFY
384055X	FREMONT AVENUE	2450	Gates	0	0	14,158.85	MODIFY

* Only Public At Grade Crossings are listed.

Click for [Supplementary Safety Measures \[SSM\]](#)

Click for ASM spreadsheet: **ASM**

* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	NORTHFIELD 042106
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17521
Estimated Total Cost:	\$0.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	12742.16
Quiet Zone Risk Index:	21253.93

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CENTRAL SCENARIO #1

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Change Scenario:

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk
380368Y	FIFTH STREET	13200	Gates	0	6	7,610.24
380370A	3RD ST.	2050	Gates	0	0	20,291.96
380371G	2ND STREET	2600	Gates	0	13	4,380.00
380372N	ST OLAF ST	3150	Gates	0	0	16,830.78
384055X	FREMONT AVENUE	2450	Gates	0	0	14,158.85

Create New Zone
Manage Existing Zones
Log Off

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the MODIFY Button

Step 2: Select proposed warning device or SSM. Then click the UPDATE button. To generate a spreadsheet of the values on this page, click on ASM button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the SELECT button is shown at the bottom right side of this page. Note that the SELECT button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the SELECT button

* Only Public At Grade Crossings are listed.

Click for Supplementary Safety Measures [SSM]

Click for ASM spreadsheet: **ASM**

* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	NORTHFIELD 042106
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17521
Estimated Total Cost:	\$143,000.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	12742.16
Quiet Zone Risk Index:	12654.37
Select	

CENTRAL SCENARIO # 2

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Change Scenario: NORTHFIELD_17524

Create New Zone
Manage Existing Zones
Log Off

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the MODIFY Button

Step 2: Select proposed warning device or SSM. Then click the UPDATE button. To generate a spreadsheet of the values on this page, click on ASM button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the SELECT button is shown at the bottom right side of this page. Note that the SELECT button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the SELECT button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk
380368Y	FIFTH STREET	14225	Gates	0	6	7,741.02
380370A	3RD ST.	0	CLOSED(SSM 2)	0	2	0
380371G	2ND STREET	3625	Gates	0	13	5,020.40
380372N	ST OLAF ST	3150	Gates	0	0	16,830.78
384055X	FREMONT AVENUE	2450	Gates	0	0	14,158.85

* Only Public At Grade Crossings are listed.

Click for Supplementary Safety Measures [SSM]

Click for ASM spreadsheet: **ASM**

* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	Northfield 042106
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17524
Estimated Total Cost:	\$148,000.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	12742.16
Quiet Zone Risk Index:	8750.21
<input type="button" value="Select"/>	

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CENTRAL SCENARIO # 3

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Change Scenario: NORTHFIELD_17524

Create New Zone
Manage Existing Zones
Log Off

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
380368Y	FIFTH STREET	13200	Gates	0	6	7,610.24	<input type="button" value="MODIFY"/>
380370A	3RD ST.	2050	Gates	0	0	20,291.96	<input type="button" value="MODIFY"/>
380371G	2ND STREET	2600	Gates	0	0	21,900.02	<input type="button" value="MODIFY"/>
380372N	ST OLAF ST	3150	Gates	0	0	16,830.78	<input type="button" value="MODIFY"/>
384055X	FREMONT AVENUE	2450	Gates	0	0	14,158.85	<input type="button" value="MODIFY"/>

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

Step 2: Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for **ASM** calculations.

Step 3: Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the **SELECT** button

* Only Public At Grade Crossings are listed.

Click for [Supplementary Safety Measures \[SSM\]](#)

Click for ASM spreadsheet: **ASM**

* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	Northfield 042106
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17524
Estimated Total Cost:	\$128,000.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	12742.16
Quiet Zone Risk Index:	16158.37
	<input type="button" value="Select"/>

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CENTRAL SCENARIO # 4

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Change Scenario: NORTHFIELD_17521

Create New Zone
Manage Existing Zones
Log Off

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

Step 2: Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the **SELECT** button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk
380368Y	FIFTH STREET	14225	Gates	0	0	33,656.60
380370A	3RD ST.	0	CLOSED(SSM 2)	0	2	0
380371G	2ND STREET	3625	Gates	0	13	5,020.40
380372N	ST OLAF ST	3150	Gates	0	0	16,830.78
384055X	FREMONT AVENUE	2450	Gates	0	13	2,831.77

* Only Public At Grade Crossings are listed.

Click for [Supplementary Safety Measures \[SSM\]](#)

Click for ASM spreadsheet: **ASM**

* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	NORTHFIELD 042106
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17521
Estimated Total Cost:	\$35,000.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	12742.16
Quiet Zone Risk Index:	11667.91
Select	

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CENTRAL SCENARIO # 5

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Create New Zone
Manage Existing Zones
Log Off

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

Step 2: Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the **SELECT** button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM Risk	
380368Y	FIFTH STREET	14225	Gates	0	0	33,656.60 MODIFY
380370A	3RD ST.	0	CLOSED(SSM 2)	0	2	0 Closed
380371G	2ND STREET	3625	Gates	0	13	5,020.40 MODIFY
380372N	ST OLAF ST	3150	Gates	0	0	16,830.78 MODIFY
384055X	FREMONT AVENUE	2450	Gates	0	0	14,158.85 MODIFY

* Only Public At Grade Crossings are listed.

Click for **Supplementary Safety Measures [SSM]**

ASM

Click for ASM spreadsheet:

* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	NORTHFIELD 042106
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17521
Estimated Total Cost:	\$20,000.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	12742.16
Quiet Zone Risk Index:	13933.33
Select	

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CENTRAL SCENARIO # 6

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Change Scenario:

Create New Zone
Manage Existing Zones
 Log Off

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

Step 2: Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for **ASM** calculations.

Step 3: Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the **SELECT** button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk
380368Y	FIFTH STREET	13200	Gates	0	0	33,088.02
380370A	3RD ST.	2050	Gates	0	0	20,291.96
380371G	2ND STREET	2600	Gates	0	13	4,380.00
380372N	ST OLAF ST	3150	Gates	0	0	16,830.78
384055X	FREMONT AVENUE	2450	Gates	0	13	2,831.77

* Only Public At Grade Crossings are listed.

Click for Supplementary Safety Measures [SSM]

Click for ASM spreadsheet: **ASM**

* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
Proposed Quiet Zone:	NORTHFIELD 042106
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17521
Estimated Total Cost:	\$30,000.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	12742.16
Quiet Zone Risk Index:	15484.51
Select	

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BASELINE / WEST SCENARIO 21

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Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk
694511B	DRESDEN AVENUE	1600	Gates	0	0	7,495.52
854292H	GREENVALE AVE	5600	Gates	0	0	5,378.71

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Summary	
Proposed Quiet Zone:	NORTHFIELD
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17677
Estimated Total Cost:	\$0.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	3859.18
Quiet Zone Risk Index:	6437.11
Select	

* Only Public At Grade Crossings are listed.

Click for [Supplementary Safety Measures \[SSM\]](#)

Click for ASM spreadsheet: **ASM**

* Note: The use of ASMs requires an application to and approval from the FRA.

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

Step 2: Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the **SELECT** button

WEST SCENARIO # 2

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Change Scenario:

Create New Zone
Manage Existing Zones
Log Off

Crossing	Street	Traffic Warning Device	Pre-SSM	SSM	Risk
694511B	DRESDEN AVENUE	1600 Gates	0	13	1,499.10
854292H	GREENVALE AVE	5600 Gates	0	0	5,378.71

* Only Public At Grade Crossings are listed.

Click for Supplementary Safety Measures

[SSM]

Click for ASM spreadsheet:

* Note: The use of ASMs requires an application to and approval from the FRA.

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

Step 2: Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat **Step (2)** until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the **SELECT** button

Summary

Proposed Quiet Zone:	NORTHFIELD
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17677
Estimated Total Cost:	\$15,000.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	3859.18
Quiet Zone Risk Index:	3438.91
<input type="button" value="Select"/>	

BASELINE / EAST SCENARIO #2

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Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk
185232B	NO NAME	50	Gates	0	0	62.89
187055F	WATER	100	Gates	0	0	773.26

[Create New Zone](#)
[Manage Existing Zones](#)
[Log Off](#)

* Only Public At Grade Crossings are listed.

Click for [Supplementary Safety Measures \[SSM\]](#)

ASM

Click for ASM spreadsheet: **ASM**
 * Note: The use of ASMs requires an application to and approval from the FRA.

Step by Step Instructions:

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the MODIFY Button

Step 2: Select proposed warning device or SSM. Then click the UPDATE button. To generate a spreadsheet of the values on this page, click on ASM button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the SELECT button is shown at the bottom right side of this page. Note that the SELECT button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the SELECT button

Summary	
Proposed Quiet Zone:	NORTHFIELD
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17884
Estimated Total Cost:	\$0.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	250.64
Quiet Zone Risk Index:	418.07
<input type="button" value="Select"/>	

EAST SCENARIO # 3

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Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk
185232B	NO NAME	150	Gates	0	0	62.89
187055F	WATER	0	CLOSED(SSM 2)	0	2	0

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[Manage Existing Zones](#)
[Log Off](#)

* Only Public At Grade Crossings are listed.

Click for [Supplementary Safety Measures \[SSM\]](#)

Step 1: To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the MODIFY Button

Step 2: Select proposed warning device or SSM. Then click the UPDATE button. To generate a spreadsheet of the values on this page, click on ASM button—This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the SELECT button is shown at the bottom right side of this page. Note that the SELECT button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the SELECT button

Summary

Proposed Quiet Zone:	NORTHFIELD
Type:	New 24-hour QZ
Scenario:	NORTHFIELD_17884
Estimated Total Cost:	\$5,000.00
Nationwide Significant Risk Threshold:	17030 .00
Risk Index with Horns:	250.64
Quiet Zone Risk Index:	31.44
Select	

Click for ASM spreadsheet: [ASM](#)

* Note: The use of ASMs requires an application to and approval from the FRA.