



City of Grand Island

Tuesday, July 18, 2006

Study Session

Item -1

Presentation of Final Railroad Corridor Safety Study Report

Staff Contact: Steve Riehle, City Engineer/Public Works Directo

Council Agenda Memo

From: Steven P. Riehle, Public Works Director

Meeting: July 18, 2006

Subject: Presentation of Final Railroad Corridor Safety Study Report

Item #'s: 1

Presenter(s): Steven P. Riehle, Public Works Director

Background

On September 28, 2004, the city council approved an agreement with consulting engineering firm, Kirkham Michael, to prepare a comprehensive Rail Road Corridor Study for the City of Grand Island. The study was kicked off at the April 19, 2005 city council study session. Public meetings were held on June 9, August 25, and November 17 of 2005 to gather input from the public. Railroad Diagnostic Team field reviews were held on December 6th and 7th, 2005 to look at the corridors for supplemental safety measures that would be needed to implement quiet zones. The consultant and the railroads have completed their diagnostic reviews and the report is now complete.

Discussion

Kirkham Michael Consulting Engineers will make a presentation at the meeting. The report includes the following key areas:

- Introduction
- Existing Conditions
- Future Conditions
- Alternative Analysis
- Grade Separation Analysis
- Grade Separation Refinement
- Public Involvement
- Quiet Zone Study
- Recommendation and Implementation

Conclusion

This item is presented to the City Council in a Study Session to allow for any questions to be answered and to create a greater understanding of the issue at hand.

It is the intent of City Administration to bring this issue to a future council meeting for the approval of the report as a planning and budgeting document for the city.

Executive Summary

The City of Grand Island seeks to reduce community and railway conflicts by relocating tracks, constructing grade separations, and/or other railroad crossing improvements along the Union Pacific (UPRR) and Burlington Northern Santa Fe (BNSF) Railway corridors. In March 2005, the City of Grand Island contracted with Kirkham Michael to develop a railroad corridor master plan.

This study and report provided by Kirkham Michael to the City of Grand Island is a comprehensive evaluation of each of the railroad crossings in and near the City, updating previous studies, and providing a plan from which to program improvements along the UPRR and BNSF Corridors. The purpose of this report is to provide a long-range plan that will guide the City of Grand Island, Hall County, UPRR, and BNSF through the improvement process. The improvements will provide safer, quieter, and more efficient railroad/vehicle interaction.

Bold steps have been taken in past years with significant investments made to build grade separations over or under the mainline railroads in Grand Island. Underpasses were built in 1950 along the UPRR at Sycamore and Eddy Streets to supplement the overpass on US Highway 30. The Nebraska Department of Roads (NDOR) rebuilt the grade separation on US 30 and added new overpasses on US Highway 281 over the UPRR and BNSF. The BNSF corridor was elevated through the northeast portion of the community in the 1990's providing a grade separation over the UPRR, thus significantly reducing conflicts, delays, and blockages along that corridor. The project also included six railroad structures over city streets and a pedestrian underpass.

This study comes at a time when public support for upgrading crossing protection and reducing train noise has peaked. Concerns for train and horn noise are on the rise across the community. The exposure ratings (daily trains x vehicles) at many crossings warrant strong consideration by NDOR and the railroads for grade separation funding. The motor vehicle/train crash experience has reduced along the BNSF corridor in the last 10 years with grade separation construction. However, the crash rate has been steady along the UPRR, averaging 1.6 crashes per year for the past 10 years compared to 1.5 per year for the previous 20 years.

The UPRR has an estimated 75 through trains per day in the City of Grand Island on the double mainline tracks. These trains travel at a maximum speed of 70 miles per hour (mph) at the west city limits slowing to 50 mph within the downtown area.

The BNSF operates approximately 60 through trains per day in the City of Grand Island on a single mainline track. These trains travel at maximum speeds of 60 mph on the fringe areas of the city and 45 mph on the elevated portion of the corridor in the central part of the city.

There are currently 33 railroad crossings located within the study area, with 15 along the BNSF corridor and 18 along the UPRR corridor. The UPRR has the highest traffic volumes crossing the corridor within the study area, at 115,340 vehicles per day. A total of 61,800 vehicles per day cross the BNSF Corridor within the study area.

The possible investment of several million dollars in grade separations to reduce conflicts between trains, vehicles, and pedestrians raises the question of the feasibility of relocating the UPRR around the developed part of the Grand Island community. This study and report considered two possible corridors, one north and one south of the city to weigh the benefits, costs, and impacts of relocating the UPRR versus initiating improvements along the existing corridor.

The constant sounding of horns creates a nuisance for area residents, and has been an increasing source of complaints. Noise from train whistles will continue to increase and disrupt adjacent land uses if not mitigated. Grade separations and crossing closures are the most effective means of reducing train noise. Since train noise was the number one concern of persons attending the first public information meeting, Kirkham Michael initiated a *Quiet Zone* study to identify measures to reduce the noise levels where at-grade crossings remain open or until grade separations can be constructed.

The *Quiet Zone* study was based on the information and requirements for the creation of Quiet Zones as outlined in the Federal Railroad Administration's (FRA) *Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings*, which took effect on June 24, 2005. The following Supplemental Safety Measures (SSMs) may be used to mitigate the silencing of locomotive horns at railroad at-grade crossings:

1. Permanent or temporary closure (nighttime closure)
2. Four-quadrant gate systems
3. Gates with medians or channelization devices (traffic separators)
4. Conversion of a two-way street to a one-way street

Wayside horns may also be used as a one-for-one substitute for locomotive horns at individual or multiple at-grade crossings. The wayside horn is a stationary horn located at a street / railroad crossing designed to provide a more focused and confined audible warning to oncoming motorists of an approaching train, while reducing spillover noise to adjacent land uses.

All crossings within a proposed Quiet Zone must be equipped with flashing lights and gates, as well as train detection circuitry that provides consistent (constant) warning in seconds of an approaching train, and power off indicators to alert train engineers of power failures that affect crossing equipment.

Due to the cost of needed improvements and the location of future grade separations, the proposed UPRR Quiet Zone was limited to the area from ¼ mile west of Webb Road to ¼ mile east of Oak Street. This would result in a quiet zone 2.98 miles in length and an effective whistle free zone of 5.1 miles at a cost of \$1,864,000.

The proposed BNSF Quiet Zone selected began ¼ mile west of Engleman Road and continued to ¼ mile east of Shady Bend Road. The cost of improvements for this 7.63-mile quiet zone and effective whistle free zone of 8.8 miles is estimated at \$625,000.

Pedestrians and bicycles crossing the corridor, especially in areas of high usage, such as around the downtown are also a concern. The existing underpasses at Eddy and Sycamore Streets do not meet current needs for pedestrians and bicyclists nor the Americans with Disabilities Act (ADA) standards for public rights-of-way. Fencing of portions of the railroad corridors also needs to be considered to control the inherent dangers of pedestrian trespassing.

Five of the seven at-grade crossings along the BNSF Corridor and all of the 13 main line at-grade crossings in the UPRR Corridor in the study area meet the minimum exposure threshold of 50,000 to justify a grade separation. However, at most three BNSF and seven UPRR grade separation locations are anticipated due to the requirement of closing at least two at-grade crossings for each new grade separation. Each of the at-grade crossings were evaluated using a matrix based on both benefit and impact criteria. The resulting rankings in order were:

- 1- Broadwell Avenue at BNSF
- 2- Shady Bend Road at UPRR (County)
- 3- Husker Highway at UPRR (County)
- 4- Broadwell Avenue at UPRR
- 5- Shady Bend Road at BNSF (County)
- 6- North Road/ Stolley Park Road at UPRR

Study Recommendations:

1-Establish a Railroad Transportation Safety District (RTSD). It is recommended that the City of Grand Island and Hall County establish a RTSD under the Statutes of Nebraska (Sections 74-1302 through 1321). The RTSD purpose and activities listed in the Statutes are an ideal fit for the challenges Grand Island and Hall County are currently addressing. The RTSD provides a proven mechanism for moving joint county-city railroad projects forward on a program basis. Funding of an estimated \$800,000 per year could be provided for railroad projects through an RTSD.

2-Initiate Improvements in Existing Railroad Corridors. It was concluded that improvements to the current UPRR corridor meets the major objective of eliminating railroad-crossing conflicts at the least cost to the City of Grand Island. Establishing a new corridor would result in higher grade separation costs immediately and similar impacts in the future as the community continues to grow.

3-Initiate Quiet Zone Improvements. It is recommended that safety measures be constructed that will allow the implementation of Quiet Zones along both the UPRR and BNSF corridors.

4- Pursue Construction of Grade Separations. It is recommended that the City of Grand Island and Hall County pursue construction of grade separations as recommended above.

It is recommended that the projects shown in the table below be programmed over a 12 to 15-year period assuming the establishment of a RTSD.

Funding Schedule With RTSD

Project Location	Project Description	Total Project Cost	Local Share By Fiscal Year (2005 Dollars)														
			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
UPRR - Oak to Webb	Quiet Zone RR Engineering	\$50,000	\$50,000														
UPRR - Oak to Elm	Quiet Zone Construction	\$392,000	\$392,000														
UPRR - Elm to Lincoln	Quiet Zone Construction	\$420,000	\$420,000														
UPRR - Lincoln to Custer	Quiet Zone Construction	\$564,000	\$564,000														
UPRR - Custer to Webb	Quiet Zone Construction	\$438,000	\$438,000														
BNSF - Shady Bend to Engleman	Quiet Zone Construction	\$470,520		\$470,520													
BNSF @ Broadwell	Grade Separation Design/Envir.	\$606,000		\$606,000													
BNSF @ Broadwell	Grade Separation ROW/Const.	\$8,875,000		\$443,750													
UPRR @ Shady Bend	Grade Separation Design/Envir.	\$659,000		\$659,000													
UPRR @ Shady Bend	Grade Separation ROW/Const.	\$9,937,000		\$496,850													
UPRR @ Husker Highway	Grade Separation Design/Envir.	\$474,000		\$474,000													
UPRR @ Husker Highway	Grade Separation ROW/Const.	\$6,746,000		\$337,300													
UPRR @ Broadwell	Grade Separation Design/Envir.	\$751,000							\$751,000								
UPRR @ Broadwell	Grade Separation ROW/Const.	\$12,222,000							\$611,000								
UPRR @ Eddy - ReHab	Grade Separation Design/Envir.	\$950,000							\$950,000								
UPRR @ Eddy - ReHab	Grade Separation ROW/Const.	\$11,996,000							\$1,300,000								
BNSF @ Shady Bend Road.	Grade Separation Design/Envir.	\$641,000															
BNSF @ Shady Bend Road	Grade Separation ROW/Const.	\$9,696,000															
UPRR @ North/Stolley Park	Grade Separation Design/Envir.	\$443,000															
UPRR @ North/Stolley Park	Grade Separation ROW/Const.	\$6,671,000															
UPRR @ Sycamore ReHab	Grade Separation Design/Envir.	\$867,000															
UPRR @ Sycamore ReHab	Grade Separation ROW/Const.	\$10,951,000															

Orange box = BNSF Corridor
 Blue box = UPRR Corridor