



Automated Wayside Horn System Final Report January 21, 2003

INTRODUCTION

For three and a half years, an ad hoc committee comprised of representatives of a variety of state, federal, and local governments plus the private sector met to find a way to install, fund, maintain, and study automated horn systems at nine railroad crossings in, and adjacent to, the Village of Mundelein, Illinois.

The Automated Horn Task Force, as the group came to be known, began its work in June 2000. On January 21, 2003, the Final Report of the effectiveness of the automated horns was presented to the Task Force.

The study that follows is an in-depth analysis of the effectiveness of automated horns as a safety feature and as a method of reducing noise from train horns. On both counts the automated horn proved extremely successful.

Without the support and cooperation of all levels of government the installation of the Automated Horns and the study of their effectiveness could not have been completed. To arrive at this point, Federal, State, County, and municipal officials worked together, along with private businesses. They remained focused on a goal, implemented a technological advancement in railroad crossing safety, and arranged for an independent, scientific evaluation of the effectiveness of that new technology. This process, and those involved, brought out the best that our democratic system has to offer; and shown how the entrepreneurial creativity of the private sector can be utilized to improve the health and safety of our citizens.

I would like to extend my special thanks would like to Lake County Board Chairman Susie Schmidt and the Lake County Board, Village of Libertyville Mayor Duane Laska, Village of Vernon Hills Mayor Roger Byrne, all the members of the Automated Horn Task Force. I think we are on the verge of a significant advancement in railroad crossing safety and proud of what we have accomplished.

Sincerely,

Marilyn Sindles

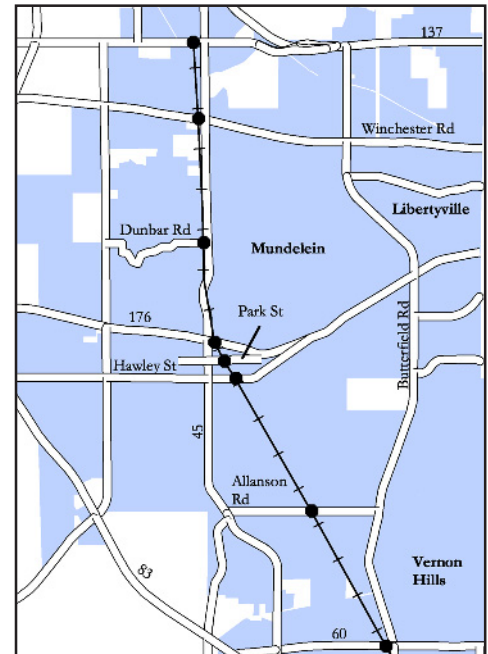
Mayor



Background. In the mid-1990's freight traffic on the Wisconsin Central began to increase significantly. Complaints regarding train horns became more frequent. When the North Central Commuter line began operation in 1996, freight traffic was scheduled around the commuter service. This resulted in more trains than ever before traveling through Mundelein in the evenings and early morning hours. Soon noise complaints began to skyrocket.

The Village began investigating ways to reduce the disturbance of train horns without reducing the safety of the crossings.

Automated Horn Alternative. Mundelein has six railroad crossings within, and three immediately adjacent to, its boundaries. The four crossings in the center of town come in rapid succession. State law requires trains to sound an audible warning when crossing a roadway. Needless to say, this causes a great deal of noise disturbance for our community. In late 1998 the Village learned of an experimental horn system, known as the Automated Horn System, manufactured by Railroad Controls Ltd. of Ft. Worth, Texas, which was being used on an experimental basis at other locations around the country, the closest being in Ames, Iowa. After conducting a good deal of research on the new system, a visit to Ames, and a demonstration in Mundelein to the elected officials, the Village Administrator convened a multi-jurisdictional task force to discuss the feasibility of installing an automated horn system in Mundelein.



● Automated Horn Locations

Meetings of the Task Force began in June 1999. The Task Force consisted of the Villages of Mundelein, Libertyville and Vernon Hills, the Federal Railroad Administration, Illinois Commerce Commission, Illinois Department of Transportation, Metra, Wisconsin Central, Lake County Division of Transportation, and Northwestern University. After many meetings, the Task Force succeeded in obtaining State and Federal funding to install nine automated horns on an experimental basis (from Peterson Road to Butterfield Road), and federal funding to conduct a study of the effectiveness of the horns as a safety device and at reducing the noise disturbances to the community.



Confirmation Signal

The Process. The Task Force members were all interested in the promise of his new technology. Earlier studies from Gehring, NE and Richardson, TX indicated the automated horns were effective at reducing the disturbance of train horns in the community. Rules proposed by the Federal Railroad Administration in accordance with the Swift Rail Act of 1996 were being developed. Indication was that an audible warning would be required at all crossings.

So called "quiet zones" are permitted in the State of Illinois with the concurrence of the Illinois Commerce Commission and the Railroad. The Mundelein crossings were all protected by automatic gates, lights and bells and were eligible under the ICC rules

to be excused from whistle blowing. The Village had investigated the quiet zone option, but chose not to pursue it do to concern over liability and uncertainty regarding the proposed FRA rules.

It was clear to the Task Force that the Illinois Commerce Commission was the key to the project. As the governing body of railroad crossing safety in Illinois the agency was essential, but it was the ICC’s access to funding through the State’s Railroad Crossing Safety Fund that made it the critically important. In time, the ICC agreed to fund seven of the crossings from the Crossing Safety Fund. The Illinois Department of Transportation stepped up and was able to secure funding through a federal grant to pay for the automated horn installation at the two crossings on State Highways.



Confirmation Signal above Automated Horn

The Task Force maintained from the beginning that it was not sufficient to just install the horns. As part of the project a scientific study that would hold up to critical review of the effectiveness of the horns had to be undertaken. The study had to look at two things—safety and noise reduction. If the study was to effectively study noise reduction the railroad crossings immediately to the north and south of the Village had to be included. Otherwise sound radiating from these crossings would hinder the results. This decision mandated the involvement of the Village of Libertyville to the north and the Village of Vernon hills to the south.

The next piece of the puzzle was to establish the scope of the study and solicit proposals. The Northwestern University Center for Public Safety performed the study, and the John A. Volpe National Transportation System Center monitored each phase on behalf of the Federal Railroad Administration. Funding for the study was obtained from a Unified Work Program Grant. In the end, the Northwestern University Center for Public Safety was contracted to perform the study. The Volpe Center remained interested in the project and provided critical review along the way.

With the funding hurdles overcome, the project seemed to be on the fast track to installation. However, there were numerous details that still needed to be worked out, and a variety of agreements that needed to be put in place before the work could get started. It was during this phase that all the parties really began to work together to make compromises and look for solutions.

Agreements Required. The Illinois Commerce Commission agreed to issue an Interim ICC order mandating that the Wisconsin Central Railroad install the automated horns. However, before the order could be issued “stipulated agreements” between the ICC and each of the jurisdictions that controlled the roadways: Mundelein, IDOT, and Lake County DOT, plus the Wisconsin Central had to be reached. The stipulated agreements set forth the parameters of the project and the duties of each party. Two “license agreements” were required—one between Mundelein and the Wisconsin Central to maintain the horn systems, and one between Northwestern University and the Wisconsin Central to install the equipment needed for the study. These documents contained sections on indemnification, railroad protective

- | <u>AGREEMENTS REQUIRED</u> | |
|--|-------------|
| • Stipulated agreements | |
| – ICC/Village | |
| – ICC/IDOT | |
| – ICC/Lake County DOT | |
| – ICC/Wisconsin Central | |
| • ICC Order to Wisconsin Central | |
| • License Agreement/Indemnifications | |
| – Wisconsin Central/Village | |
| – Wisconsin Central/Northwestern | |
| • AHS Maintenance Agreement—RCL/Village | |
| • Certificate of Insurance to Wisconsin Central | |
| • Professional Services Agreement with Northwestern Center for Public Safety | |
| • Metropolitan Planning Funds Intergovernmental Agreement—IDOT & Mundelein | |
| — Intergovernmental Agreement | |
| – Vernon Hills | – RTA |
| – Libertyville | – Mundelein |
| – Wisconsin Central | – RCL |

insurance, etc. The insurance and liability issues cannot be underestimated. All parties involved displayed flexibility and a willingness to modify traditional positions. The Village of Mundelein then entered into a “maintenance agreement” with Railroad Controls Ltd., the installer. The Wisconsin Central purchased the systems from RCL and entered into a separate “license agreement” with RCL for installation. A “grant agreement” between the Illinois Department of Transportation and Mundelein was executed for grant funding for the study. A “professional services agreement” between the Village and Northwestern for the study was agreed to and an “intergovernmental agreement” between the Villages of Mundelein, Libertyville and Vernon Hills, the Wisconsin Central, RCL and the RTA (the commuter rail provider) to share the local match portion of the study grant was executed.

Automated Wayside Horn System Cost Breakdown	
	<u>Total Cost</u>
Butterfield Road	49,893
Highway 60	53,685
Allanson Road	54,216
Hawley Street	52,705
Park Street	53,028
Maple (Route 176)	53,888
Dunbar Road	52,963
Winchester Road	49,785
Peterson Road	49,904
Total	\$470,067

Installation. Installation began in the fall of 2001 and the pre-study data collection was conducted. Initial cost estimates averaged \$35,000 per intersection. Due to a number of conflicts with existing utilities the final cost rose to an average of \$52,000 per intersection. (Horn cost was \$22,500 per intersection. Installation costs varied depending on conditions at each crossing). The horns were activated March 17, 2002. Until April 12, 2002 the automated horns and the train horns sounded. Once the regulatory bodies were satisfied that the system was operating properly and all the train crews had been fully notified the train horns were silenced on April 12, 2002. The post-study data collection began shortly thereafter.

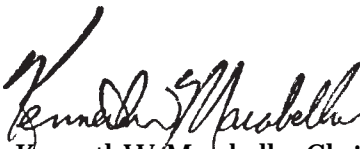
Thank you to the following individuals who served on the Automated Horn System Task Force or assisted in its work:


- Ann Abrams, Federal Railroad Administration
- Michael Allison, Village of Vernon Hills
- Kurt Anderson, Railroad Controls, Ltd.
- Michael Barron, Canadian National
- Bob Bergeron, Illinois Commerce Commission
- Robert S. Berry, Illinois Commerce Commission
- Kevin Bowens, Village of Libertyville
- Anya Carroll, John A. Volpe National Transportation System Center
- Bruce Christensen, Lake County Department of Transportation
- Daniel W. Denton, Metra
- Janet Gilbert, Canadian National
- Mohammed Ghouse, Illinois Department of Transportation
- Roy Lucke, Northwestern University Center for Public Safety
- Tom Maske, Federal Railroad Administration
- Gary Mayerhofer, Village of Libertyville
- Robert P. Meyer, Federal Railroad Administration
- Kenneth Miller, Village of Mundelein

Dennis Mogan, Metra
Tom Myers, Illinois Commerce Commission
Michael O'Brien, Village of Mundelein
Jack E. Palach, Canadian National
Philip M. Perna, Lake County Public Works
Arthur Pew, Illinois Commerce Commission
Dusty Powell, Lake County Department of Transportation
Dick Raub, Northwestern University Center for Public Safety
Raymond Rose, Village of Mundelein
Gary Schechter, Illinois Commerce Commission
Tammy Wagner, Federal Railroad Administration

For printed copies of the following study please contact Kurt Anderson, Railroad Controls, 7471 Benbrook Parkway, Benbrook, TX 76126, (817) 820-6309.

For a DVD of the study, plus this introduction and other bonus features, contact Mike Flynn, Village of Mundelein, 440 East Hawley Street, Mundelein, IL, 60060, (847) 949-3223.


Kenneth W. Marabella, Chairman
Village Administrator


Michael A. Flynn, Project Administrator
Assistant Village Administrator