PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Rail Safety and Carriers Division

RESOLUTION SX-16
Date: July 23, 1998

R E S O L U T I O N

RESOLUTION SX-16. PURSUANT TO SECTION 12.2 OF GENERAL ORDER 75-C AUTHORIZING MODESTO AND EMPIRE TRACTION COMPANY AND HARMON INDUSTRIES TO PROCEED WITH A SAFETY DEMONSTRATION PROJECT (THE TRIAL INSTALLATION OF AN INTERACTIVE NETWORK WHICH PROVIDES REAL-TIME PROBLEM DETECTION, RECORDING AND REPORTING) AT 19 GRADE CROSSINGS OF THE MODESTO AND EMPIRE AND TRACTION COMPANY IN THE CITY OF MODESTO, STANISLAUS COUNTY.

SUMMARY

Harmon Industries (Harmon), on behalf of the Modesto and Empire Traction Company (M&ET), by letter dated April 11, 1997, has requested authority pursuant to Section 12.2 of Commission General Order (GO) 75-C, to conduct a trial installation of an experimental interactive network which provides real-time problem detection, recording and reporting of highway grade crossing activities.

This project will integrate railroad and highway signaling at railroad grade crossings with the most advanced equipment available so that interruption to highway traffic at these crossings will be minimized. Nineteen M&ET railroad at-grade crossings along State Highway 132 in the City of Modesto, Stanislaus County, will be upgraded with advanced technological features such as light-emitting diode (LED) flashing lights, Constant Warning Time devices, traffic advance pre-emption, and storage traffic clearance control. All parties affected by this project have expressed their support.

This resolution authorizes Harmon and M&ET to make the necessary modifications at the identified M&ET grade crossings to complete this project.

BACKGROUND

On October 25, 1995, a school bus transporting 35 high school students in Fox River Grove, Illinois was struck by a train while waiting at a signalized intersection. As a result of the accident, seven students were killed and the remaining students and driver sustained critical to minor injuries. The bus had

encroached upon the railroad tracks while waiting for the traffic signal to change.

At the request of the United States Department of Transportation, the National Transportation Safety Board (NTSB) and the Grade Crossing Safety Task Force (Task Force) were asked to investigate the matter.

The NTSB final report dated October 29, 1996 determined the accident was caused by: a) the short queuing area at the intersection; and b) insufficient time of the green signal for vehicles to clear the crossing before the arrival of a train. A contributing factor was the lack of a communications system in place that "ensures understanding of the integration and working relationship of the railroad and highway signal systems."

The Task Force's March 1, 1996, report entitled, "Accidents That Shouldn't Happen" concluded that:

> State transportation agencies should formally agree to be the focal point in the State to ensure proper coordination between highway authorities and railroads regarding the interconnection of grade crossing warning devices and highway traffic signals, and consideration of the storage distance between the tracks and the parallel highway.

DISCUSSION

This demonstration project addresses a number of the recommendations published in these reports. All the crossings will be updated with active warning train detection systems interconnected to highway traffic signals.

Nineteen M&ET railroad grade crossings will be modified during this project. These railroad crossings located along State Highway 132 in the city of Modesto are similar to the Fox River Grove crossing in that all are found close to a signalized highway intersection. The crossings are located at:

	PUC Crossing No.	Street Name
1.	28-1.0	Santa Rita Ave
2.	28-0.9	Santa Rosa Ave
3.	28-1.04-C	Santa Rosa Ave
4.	28-1.1	Santa Ana Ave
5.	28-1.2	Santa Cruz Ave
6.	28-1.4	Kerr Ave
7.	28-1.6	Empire Ave
8.	28-1.9	Daly Ave
9.	28-2.2	Mitchell Rd
10.	28-2.7	N. Riverside Dr

11.	28-3.2	Beard Ave
12.	28-3.5	N. Mariposa Rd
13.	28-4.7	Codoni Ave
14.	28-3.7	N. McClure Rd
15.	28-5.0-C	Highway 132
16.	28-4.68-C	Finch Rd
17.	28-3.50-C	S. Riverside Dr
18.	28-4.25-C	S. Mariposa Rd
19.	28-4.45-C	S. McClure Rd

There are approximately nine through trains and 20 to 30 switching trains that traverse this segment of track daily. Train speed along this corridor ranges from a minimum of 6 mph, to a maximum of 20 mph.

This project will be conducted in three phases which will consist of data collection and review, design and installation of enhanced warning devices to control the crossing signals, and fine-tuning and evaluation of the equipment's communication and recording capabilities.

During Phase One of the project, Harmon's "Highway Crossing Analyzer" (HCA) and spread spectrum radios will be installed at each of the railroad crossings. According to the project's specifications:

> "The HCA will monitor, collect and report train movements in the vicinity of the crossings. A Network Controller (HUB-1) will be installed at the dispatcher's center and will provide the communication management of the data from each crossing equipped with an HCA."

The data obtained will be available to the highway department and city for analysis.

Phase Two involves the design and installation of LED flashing lights and Constant Warning Time devices to control the crossing signals and provide input to the highway traffic signals based on the Phase One information. The specifications state:

> "The Constant Warning Time device allows for consistent warning time, preemption/interrupt time although train speed may vary. By employing such a device ... the interruption to highway traffic caused by train movements can be minimized."

Phase Three will utilize the communication and recording capabilities that have been installed to, "improve reliability of the crossing warning systems by minimizing the mean time to repair time should a failure occur." The equipment will monitor

key occurrences and information at the crossings. A triggering mechanism will notify the appropriate agency when a failure occurs in the system that could impede traffic.

Monitoring capabilities include gate position, battery voltage, traffic signal preemption time, light out detection time on the flashing lights, warning times, and other critical factors that may affect the performance of the crossing or traffic light system. Adjustments to all warning parameters can be made to improve performance.

Phase Three will constitute a period of one year for review and evaluation of crossing performance.

After each phase, data and investigative results will be provided for review to the Commission, as well as the other agencies affected by this project.

PROTESTS

No protests have been received at this time. The government agencies affected by this project, which include the County of Stanislaus, City of Modesto, and the California Department of Transportation have provided the Commission with letters endorsing support for this project.

FINDINGS

1. Harmon, on behalf of the M&ET, requests interim authority to conduct a trial installation of an experimental interactive network which provides real-time problem detection, recording and reporting of grade crossing activities.

2. The project addresses a number of recommendations to improve grade crossing safety, published in the National Transportation Safety Board's "Final Report of the School Bus-Commuter Train Accident at Fox River Grove, Illinois", and in the Rail-Highway Safety Action Plan summary prepared by the U.S. Department of Transportation, Grade Crossing Safety Task Force.

3. As part of this project, nineteen M&ET railroad crossings in the City of Modesto will be modified and upgraded with active warning train detection systems interconnected to highway traffic signals.

4. The project will be conducted in three phases consisting of data collection and review, design and development of enhanced warning devices to control the crossing signals, and fine-tuning and evaluation of communication and recording capabilities.

A. Phase One will install Harmon's "Highway Crossing

Analyzer" and spread spectrum radios at each of the railroad crossings.

B. Phase Two will design and install LED flashing lights and Constant Warning Time devices to control the crossing signals and provide input to the highway traffic signals based on Phase One information.

C. Phase Three will evaluate the communication and recording capabilities that have been installed to minimize the mean time to repair a crossing warning system should a failure occur.

5. Data and information obtained after each phase of the project will be provided to Commission staff for review.

6. Harmon and M&ET will conduct the installation of Phase One and Two during a period of approximately six (6) months. Phase Three monitoring will continue for one year.

7. No protests have been received.

8. Staff has reviewed Harmon's proposal and finds the request to have merit and should be granted.

THEREFORE, IT IS ORDERED that:

Harmon Industries, on behalf of the Modesto and Empire Traction Company (M&ET), be granted interim authority to conduct a trial installation of an experimental interactive network which provides real-time problem detection, recording and reporting of grade crossing activities.

The following requirements shall apply to this project:

1. This experimental project is approved for a period of 18 months from the effective date of this Resolution.

2. M&ET shall notify the County of Stanislaus, City of Modesto, California Department of Transportation, and the Commission's Rail Safety and Carriers Division - Traffic Engineering Staff once the project is completed.

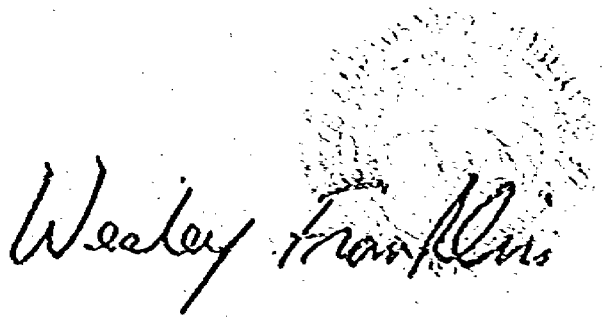
3. M&ET shall prepare a report on the results of each phase of the project after its completion.

4. M&ET shall provide each report and any data collected to the Commission and all agencies and interested parties associated with this project.

This Resolution is effective today.

I hereby certify that this Resolution was adopted by the Public Utilities Commission at its regular meeting on July 23, 1998. The following Commissioners approved it:

RICHARD A. BILAS
President
P. GREGORY CONLON
JESSIE J. KNIGHT, JR.
HENRY M. DUQUE
JOSIAH L. NEEPER
Commissioners



Wesley M. Franklin
Executive Director