



## **CPCU Approves Device 'Four-Quad' Rail Crossing Gates Prevent Vehicle Vs. Train Accidents**

By BILL HEARD, Editor

(April 18) The rail crossing at 124th Street in Willowbrook had always been one of the more dangerous on the Metro Blue Line. Three fatalities and at least five serious vehicle vs. train accidents had occurred there over the years.

Then, in October, 1998, the MTA installed a prototype "four-quad" rail crossing gate that blocks the entire crossing and prevents vehicles from driving around the gate arms.

Since the new gate went into operation, not a single accident has occurred at the 124th Street crossing.

### **CPUC approves four-quads**

The success of the four-quad concept led the California Public Utilities Commission (CPUC) earlier this month to amend its rules to permit four-quad installations. The CPUC acted after soliciting comments from public agencies and the trucking industry.

The MTA has budgeted \$1.6 million to upgrade 10 crossings with four-quads over the next five years. The locations will be selected after engineering studies prioritize intersections based on their accident history and traffic volume.

"The four-quad gates are our mid-corridor answer to deterring people from driving around the crossing gates on the Metro Blue Line," says Lou Hubaud, director, Systems Safety and Security. "We've had excellent experience with them."

### **Significant step for device**

CPUC approval is a significant step for the MTA's version of the four-quad concept. It means four-quads that meet CPUC specifications can be installed at rail intersections throughout the state. The decision also gives impetus to include four-quads among federally approved rail crossing protection devices.

Systems Safety managers Vijay Khawani and Abdul Zohbi are members of a working group that includes the federal transit, highway, rail and transportation safety agencies. The group is preparing a report to Congress on rail safety measures that will include four-quad gates.

The concept of using four gates to block an intersection may sound simple. In reality, however, it is a complex system that uses high-tech elements to ensure the safety of motorists at a rail crossing.

### **Extra time to clear tracks**

Under the new CPUC requirements, based on the MTA's four-quad experiments, the gate's "entrance" arm must descend first as a train

approaches, before the "exit" arm is lowered. This stops approaching vehicles, but allows vehicles in the crossing extra time to clear the tracks before the gates are locked in place.

To prevent a vehicle from being caught between the gates, the four-quad installation includes a vehicle detection system whose main feature is an inductive coil buried beneath the crossing. If the coil senses a vehicle as the gates are closing, the system either raises the exit arm or prevents it from descending so the vehicle can drive through.

"It's this detection system that gives extra protection to motorists," said Paul Lennon, managing director, System Safety and Security, "that makes the MTA's four-quad gate approach so unique."

### **In the event of power loss**

Finally, the four-quad installation is designed so that - in the event of a power loss - the entrance arms will "fail" in the down position to block vehicles. The exit arms will "fail" in the up position to allow a vehicle on the tracks to drive off. Traditional rail crossing gates are designed to "fail" in the down position.

"The availability of four-quadrant gate systems at highway-rail grade crossings allows one more safety system that can be considered...," says the CPUC report that recommended approval of the new safety device.

[Back to MTA Report](#)