

**Metro****OPERATIONS COMMITTEE
MARCH 17, 2005****SUBJECT: CURRENT AND FUTURE SAFETY MEASURES FOR ALL METRO RAIL
LINES****ACTION: RECEIVE AND FILE****RECOMMENDATION**

Receive and file report on current and future safety measures for all rail lines.

ISSUE

At the January 27, 2005 Board meeting, staff was requested to conduct an immediate and comprehensive review of all Metro rail lines and determine what, if any, additional safety measures should be put into place to protect rail passengers, automobiles and pedestrians.

DISCUSSION

Safety has always been in the forefront of all rail projects starting with planning and design, and continuing into the construction and operation phases. Metro has implemented numerous safety measures that extend beyond regulatory and mandated requirements through the introduction of an array of Intelligent Transportation Systems.

Based on Rail Operations Safety staff's evaluation of safety measures, with the exception of grade separations and road closures, Metro has installed and incorporated all known safety engineering, enforcement and educational features on all of its rail lines in order to mitigate potential train incidents (see Exhibit A for specific safety improvements implemented on the rail lines). These features surpass all mandated requirements of California Public Utilities Commission's (CPUC) General Orders, the Manual on Uniform Traffic Control Devices (MUTCD), industry standards and recommended practices.

An additional safety measure that would protect rail passengers, automobiles and pedestrians on light rail alignments would be to close certain crossings. This is occasionally recommended during the planning and design phase of a project. However, closures tend to be strongly opposed by local jurisdictions and residents due to disruption of local traffic vehicle patterns and negative impacts on access for emergency responders.

Grade separations are the ultimate defense against an incident such the one that recently occurred on Metrolink. The California Public Utilities Commission (CPUC) administers a grade separation-funding program, based on priority that provides \$15 million per year to separate crossings throughout the State of California. Typically, only \$5 million is awarded per crossing to agencies, for a maximum of three crossings that meet the top eligibility requirements, including having the balance of the cost of separation available. Separating a crossing in an urban area such as Los Angeles would cost between \$40 and \$50 million dollars. Even if one of Metro's crossings qualified as a top candidate under this program, Metro would have to demonstrate that it has approximately \$35-\$45 million available to fund the balance of the project.

CPUC's formula used for prioritizing crossings under this program inherently does not favor light rail crossing separations projects. Metro has participated in workshops with the CPUC in an effort to change the variables in the formula in order to provide a more "level playing field" between the competing freight and light rail system proposed grade separation projects. However, the CPUC did not adopt Metro's recommendations and the funding formula remains skewed towards favoring the freight railroad projects.

The Board adopted the Light Rail policy, which provides a standard methodology for determining whether grade crossings along light rail lines should be grade separated or at grade. It recognizes discussions about grade crossings are complex circumstances that include the interest of local, state and federal governments, the communities near the rail lines and Metro. This policy will result in grade separated crossings where warranted as new rail lines are built.

Metro is a national leader in rail safety education and is committed to staying at the forefront of this important effort. An ongoing and continuous public education campaign that addresses the behavior at grade crossings and explains the "Do's and Don'ts" around railroad tracks and at stations is a highly effective strategy and should be continued and expanded. Full page advertisements in the local newspapers, billboard advertisements, Public Service Announcements, movie theatre trailers are planned to emphasize the safe behavior at crossings, tracks, and stations.

Our award winning safety education program has brought national credibility to the agency and to our funding partners. Rail safety public service announcements (PSAs) produced by Metro Rail Operations Safety and Community Relations Department recently won a World Gold Medal for excellence at the recent New York Festivals for International TV, Cinema and Radio in 2005. The competition included advertising agencies and organizations from 87 countries, including Honda, Toyota, and Coca-Cola. The PSAs were funded by a federal grant, with \$1.5 million earmarked for safety education. Also, the safety education program received first place recognition at the American Public Transportation Association's adwheel awards in 2003.

Safety staff is currently in negotiations with the Union Pacific to construct the four-quadrant gate system at ten additional crossings on the Metro Blue Line.

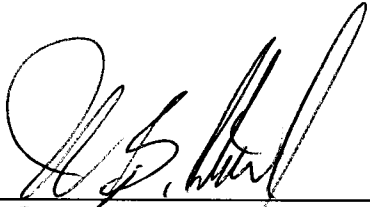
NEXT STEPS

Staff will continue to seek and evaluate innovative grade crossing technologies that could be tested and implemented to safeguard our grade crossings.

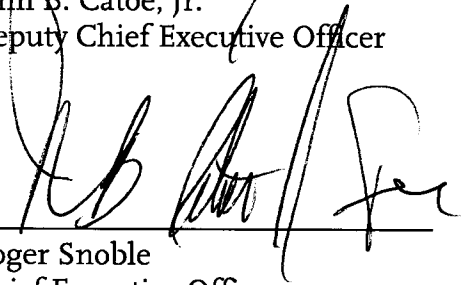
ATTACHMENT

A. Current Safety Measures

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Chief Executive Officer

SAFETY IMPROVEMENTS**Engineering**

In order to mitigate and reduce the number of incidents involving train/vehicles, and train/pedestrians, safety staff has, over the past fourteen years, added the following engineering improvements to the light rail lines:

1. Installed “Cyclops” Light on all trains to enhance the visibility of approaching trains for pedestrians and motorists
2. Reduced the height of the Right-of-Way fencing at Highway Rail Grade Crossings to improve the visibility for train operators at the grade crossings
3. Changed the Mechanical Horn on the trains to an Electronic Horn to provide a more focused warning
4. Installed additional flashing lights and bells at grade crossings to provide added active visual warnings on all approaches to the crossing
5. Installed active “No Left Turn” signs in Street-running alignments to reinforce the prohibited movement
6. Modified the traffic signal system in Los Angeles to reduce the probability of conflict between motorists turning left across the tracks and trains
7. Installed “Swing Gates” at several high-risk pedestrian crossings forcing pedestrians to stop prior to entering the crossing
8. Modified the headlights on all light rail trains to flash alternately when the horn is sounded to increase the awareness of the train’s presence
9. Installed “Four Quadrant Gates” and Vehicle Detection Loops at 124th Street Highway Rail Grade Crossing on the Metro Blue Line as a demonstration project to completely seal the intersection and deter motorists from driving around lowered gates. Additional installations of this system are planned on the Blue Line. This design resulted in the installation of four quadrant gates at seventeen grade crossings on the Metro Gold Line.
10. Replaced passive “No Left Turn” signs with active “Train Coming” Signs in the Cities of Los Angeles and Long Beach. This type of installation was installed in the street running section along Marmion Way of the Metro Gold Line
11. Modified the design of train “T” signals in the City of Los Angeles and the City of Long Beach to “Bar” Signals to reduce confusion for motorists
12. Installed active “Second Train” coming sign at Vernon Station to remind pedestrians to look both ways prior to crossing the tracks
13. Installed “Pedestrian Gates” at several crossings to enhance the warning for pedestrians. Similar pedestrian gates were installed at all grade crossings of the Metro Gold Line
14. Installed “Delineators” at Pico Station entrance to prevent motorists from illegally entering the rail right-of-way
15. Installed Stamped Crosswalks to clearly delineate the rail right of way and enhance pedestrian and motorist awareness

16. Replaced filament lights on Highway Crossing Warning Devices with new LED's to increase the brightness and visibility of warning devices when activated by approaching trains

Enforcement

In addition to the Engineering improvements detailed above, an extensive enforcement program comprised of the following was developed:

1. Initiated Motor Bike patrols by Transit Services Bureau for added grade crossing enforcement
2. Sponsored Legislation that increased the citation for Highway Rail Grade Crossing Violations from \$104 to \$271 and added a section on light rail safety in the California DMV Handbook
3. Installed 22 automatic Photo Enforcement Cameras that are 'rotated' among 42 Highway Rail Grade Crossings to issue citations to motorists who illegally violate the warning devices and left turn traffic signals
4. The Los Angeles Sheriff's Department also provides dedicated enforcement to encourage safe operation and obedience to the traffic warning devices at grade crossings.

Education

Safety staff and Community Relations staff revived the dormant Safety Education and Outreach component for rail safety approximately five years ago. Major milestones have been achieved during this period including the safest opening of a new light rail line (Metro Gold Line) in North America. Through the production of state-of-the art videos, graphics and programs that communicate a powerful message about unsafe behavior around trains, the program has been recognized nationally for its quality and impact. With the development of a "teaching network" with seven Los Angeles County school districts, the program is expected to be viewed by one million students this year. Community Relations staff also makes personal presentations annually to each of the schools immediately adjacent to the Metro Blue Line and Gold Line alignments. Presentations are also made to senior and community centers and are scheduled upon request by any school or community group. No requests for safety presentations are turned away. For community events, the Metro Experience, a 3-D mobile theater serves as an attraction to children and adults as another opportunity to deliver the critical safety message to thousands each year.

Components of the Rail Safety Education and Outreach Program Include

1. Metro Experience – 3D mobile Theater, 38,000 viewed the program at 2004 LA County Fair
2. Teaching Network – Videos and CD's Available to LAUSD and six other School Districts in Los Angeles County will reach 1 million students this year
3. Site Specific Safety Presentations – Videos of complete Blue & Gold alignments depict local community-specific information such as stations, crossings, etc

4. Nine Public Service Announcements currently running on Cable and Commercial TV including LAUSD's cable channel
5. National Distribution. Staff is currently in negotiations with other Transit Agencies and Operation Lifesaver for the use of Metro Videos and Public Service Announcements
6. Awards: Rail Safety video received the world Gold Medal at the New York Festivals for International TV, Cinema and Radio in 2005. The Safety education program has also received first place recognition at the APTA Adwheels in 2003

Fire Life Safety drills were conducted to simulate fires, hazardous spills, derailments, and terrorist activity on all rail lines. These simulations have proven to be extremely effective in coordinating activities of Metro, Fire, Police, and medical personnel.

All safety elements have been utilized as lessons-learned and have been included in the planning, design, construction and operation of the future Metro Rail Lines.