



OPERATIONS COMMITTEE  
FEBRUARY 16, 2000

**SUBJECT: METRO BLUE LINE SAFETY PROGRAM**

**ACTION: RECEIVE AND FILE**

**RECOMMENDATIONS**

Receive and file responses to Board Chair Yvonne Brathwaite Burke's motion approved at the December 2, 1999 Board meeting.

**ISSUE**

Board Chair Yvonne Brathwaite Burke's motion at the December 2nd Board of Directors meeting directed staff to report back to the Operations Committee in 60 days on the following issues:

1. The status of the MTA's current Metro Blue Line safety programs including publicity and awareness education
2. A review of other rail properties' experiences and solutions relating to similar at-grade light rail safety issues
3. Possible additional efforts to effectively boost safety, including but not limited to additional safety education programs, and design improvements, such as medians, four quadrant gates, separate left-turn phases, and other alternatives, including all possibilities surrounding grade separations
4. Levels of funding required to implement the above range of improvements
5. Identify any legislative efforts needed to secure appropriate funding for improvements or other enhancements of MTA's Rail Safety Program; and
6. Look at proposing legislation that would make it a criminal act (misdemeanor) to ignore traffic laws and safety systems

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## BACKGROUND

### CURRENT SAFETY PROGRAMS

#### Safety Awareness Education

In 1999, Public Affairs implemented a public safety outreach campaign in support of the Office of System Safety and Security's Metro Blue Line (MBL) Grade Crossing Safety Awareness Program, which seeks to improve pedestrian and vehicular safety. A 30-minute MTA rail safety show that was produced by the Compton School District continues to air on cable. Public Affairs continues to work with local schools, churches and other civic organizations. Please refer to Schedule 3 which provides a comparison of MTA's outreach campaign with other light rail transit properties.

#### Engineering

MTA staff continues to perform the following safety improvements along the Metro Blue Line corridor:

- Expansion of the Photo Enforcement Program in Los Angeles and Long Beach. The installation of cameras at six intersections in Los Angeles will be handled by Los Angeles Department of Transportation (LADOT) with technical and engineering support provided by Lockheed Martin, IMS. In January, 2000, MTA Board approved the extension of photo enforcement maintenance contract with Lockheed Martin, IMS.
- Review of the signs, signals, and pavement markings along the entire alignment with respect to enhanced automobile driver awareness of the light rail operation.
- Improvement of the maintenance of safeguards already in place.
- Continuation with on-going demonstration projects, train ARC lights, and Four Quadrant crossing gates.
- Completion of the installation of fiber optic "TRAIN" signs currently installed at twenty (20) intersections in Los Angeles. Future plans call for the outfitting of twenty (20) additional intersections in Long Beach, relocation of "T" signals, and the installation of pedestrian gates and pedestrian arms.
- Installation of swing gates where appropriate; and
- Installation of additional pedestrian warning flashers.

## Enforcement

The Los Angeles Sheriff's Department (LASD) has been actively involved through the deployment of their motorcycle detail unit (eight deputies) which is solely dedicated to enforcing grade crossing laws. Through the utilization of their bicycle patrol unit, the LASD helps to improve pedestrian safety at and around Metro Blue Line stations. In addition, the LASD, in support of the educational effort, is actively involved with MTA Public Affairs in spreading grade crossing safety messages to the communities around the Metro Blue Line. The LASD has also participated in the "Officer on the Train" campaign, a safety education program sponsored by Operation Lifesaver, Inc., and has active youth safety promotional campaigns. All of these activities are on-going and will continue.

## Legislation

On October 11, 1999 Governor Davis signed into law AB-923. The bill, which was co-sponsored by the MTA and SCRRA, increased the penalties for failure to stop at a rail crossing from \$103 to \$271 for the first offense. The fine for the second offense is \$340 and for the third offense the fine is \$425. These fines became effective January 1, 2000.

AB-923 is expected to raise an estimated \$200,000 annually for the MTA under a provision of the law that dedicates the first 30 percent of the fines for use in educational programs and to enhance such safety programs as camera enforcement, engineering improvements and other safety measures.

## REVIEW OF OTHER RAIL PROPERTIES' SAFETY EXPERIENCES AND SOLUTIONS

In response to the second issue raised by Chairperson Burke's motion, a survey of ten light rail transit properties was conducted during January, 2000. Replies were received from seven properties with at-grade light rail transit operations; four in California (San Francisco, Sacramento, Santa Clara, and San Diego) in addition to Boston, St. Louis and Dallas. Please refer to Schedule 2 for a comparative chart.

## POSSIBLE ADDITIONAL EFFORTS TO EFFECTIVELY BOOST SAFETY

One of the leading safety projects that the MTA has been exploring and testing is the experimental Four Quadrant Gates system which has been operating continuously at the 124th Street crossing since October 20, 1998. An analysis of system evaluation data has been completed and a Project Report is being prepared for the California Public Utilities Commission (CPUC). Project evaluation data indicate that the four quadrant gate configuration is effective in reducing high risk s-turns by motorists who attempt to beat trains at the 124<sup>th</sup> Street crossing. In addition, the track area vehicle detection system effectively reduces the possibility of trapping motorists in the track area behind the lowered crossing gates. In the Project Report, the LACMTA will recommend that certain changes in the system operation be implemented. Once these changes have been verified, the system will be left in place, and the CPUC should provide its authorization for continued operation (**The MTA will expand the Four Quadrant Gates system to other intersections only upon obtaining CPUC approval of the current location**). MTA staff is currently working with the CPUC and with the railroads that operate in the State of California to establish a statewide standard for four quadrant gates to be included in the CPUC General Orders.

Funding for ten (10) four-quadrant gate systems was approved in the Capital Improvement Plan (CIP) from fiscal year 2000 through fiscal year 2004. It is planned that, once approval has been granted by the CPUC, construction of additional four-quadrant gate intersections will commence at the rate of two per fiscal year. There are twenty-eight (28) gated grade crossings along the mid-corridor that have been identified as candidates for median barriers or four-quadrant gates. Of these twenty-eight, two (2) have received median barriers. The remaining twenty-six (26) locations may not prove suitable for median barriers and therefore may be considered candidates for four-quadrant gates. An engineering analysis will determine which crossings are the most feasible to be outfitted, and in which priority.

Please refer to Schedule 1 which contains a summary of existing and additional safety recommendations designed to enhance the Metro Blue Line's current safety program in the areas of education, engineering, enforcement and legislation.

## Grade Separation

The following table illustrates four preliminary Rough-Order-of-Magnitude Estimates for grade separating the following intersections:

- Florence
- Vernon
- Compton
- Mid-Corridor Aerial Guideway (16 miles including the three stations mentioned above)

These estimates were based on the following:

1. Exclusion of costs for right-of-way acquisitions and mitigation,
2. Assumption of engineering feasibility for alignments and station locations and availability of temporary easements; and
3. Reuse of existing rail wherever cost effective and feasible.

In addition, these estimates are based upon maintaining current MBL service. This would involve constructing temporary structures for the rail system, moving service to those structures, and building the new guideway structures. Service will have to be restored on the new system and the temporary structures will have to be demolished.

	<b>Florence</b>	<b>Vernon</b>	<b>Compton</b>	<b>Mid-Corridor (16 Miles)</b>
Guideways, Structures, Systemwide equipment	\$27,322,300	\$30,558,700	\$30,558,700	\$889,255,375
Pre-revenue operation, Insurance, Master Agreements	\$3,551,899	\$3,972,631	\$3,972,631	\$115,603,199
Art	\$136,612	\$152,794	\$152,794	\$4,446,277
Professional Services	\$10,066,419	\$11,258,814	\$11,258,814	\$327,630,448
Contingencies	\$7,376,062	\$8,293,014	\$8,293,014	\$244,443,902
<b>Total *</b>	<b>\$48,453,292</b>	<b>\$54,235,953</b>	<b>\$54,235,953</b>	<b>\$1,581,379,200</b>

### Grade Separation Funding Issues

A State Program establishes a list of existing and proposed grade crossings of city streets, county roads, and state highways in need of separation, projects affecting the elimination of grade crossings by removal or relocation of streets or railroad tracks, and/or existing separations in need of alterations or reconstruction in accordance with Section 2452 of the Streets and Highway Code. The latest CPUC list filed July 8, 1999 is established biannually and sets a priority for grade separation proposals. The current list covers fiscal years 2000-2001 and fiscal years 2001-2002. The County of Los Angeles has eleven grade separation projects on the approved FY2000-2001 list. One of the projects involves the Metro Blue Line crossing at El Segundo (which was ranked #32 on the FY1999-2000 list, is currently ranked #56 on the FY2000-2001 list).

The ability to fund grade separation projects, such as the one at Imperial Highway utilizing county, city, state, and MTA funds, does exist. However, grade separation applications must be filed prior to the deadlines set by SB 960, and nominations must be approved, in advance, by the CPUC for inclusion on the grade separation list.

All approved grade separations are given priorities. These priorities are based on a formula provided by the CPUC. The state will allocate up to \$5,000,000 annually per project to the highest ranking grade separation nomination. Allocations greater than \$5,000,000 may require legislative approval. There are 28 gated crossings in the mid-corridor out of 101. A typical grade separation on the Blue Line is projected at approximately \$ 50,000,000.

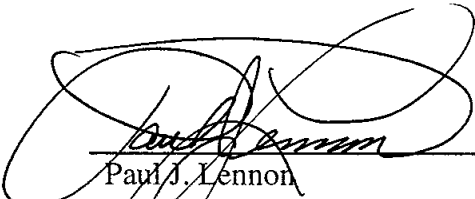
There are no federal funds available for grade separations except for certain demonstration project funds as authorized by Congress only.

**NEXT STEPS**

**Funding For Grade Crossing Safety Improvements**

Funding needed to implement additional safety recommendations will be included in upcoming fiscal years/ budgets as warranted. As was mentioned earlier, a majority of safety capital projects have been included in the CIP's FY00 through FY05 schedule.

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<b>SCHEDULE 1</b>		
<b>METRO BLUE LINE SAFETY RECOMMENDATIONS</b>		
<b>EDUCATION</b>	<b>STAFF RECOMMENDATIONS</b>	<b>ESTIMATED COSTS</b>
Public Service Announcements (PSAs)	Produce Safety Public Service Announcements (PSAs). Air on regular and cable television channels.	\$28,000
Movie Trailers	Produce movie theater trailers and purchase run times around LA County.	\$80,000
Radio	Purchase English/Spanish radio air time and spread safety messages.	\$25,000
Billboards	Prepare billboard announcements and select specific locations to spread safety message.	\$10,000
Video	Update "Playing It Safe" video and plan for countywide distribution to schools, businesses and other target audiences.	\$1,000
Schools	Conduct school safety writing/drawing contests. Present safety awards.	\$6,000
<b>ENGINEERING</b>	<b>STAFF RECOMMENDATIONS</b>	<b>ESTIMATED COSTS</b>
Four-Quadrant Gates	Install additional Four-Quadrant Gates where applicable (Subject to CPUC approval. Future installations are included in the Capital Improvement Plan budget)	\$220,000/per intersection
	Four-Quadrant Engineering Costs	TBD
Signals	Improve and upgrade traffic signals at selected crossings. Signals may include left-turn phases, train-activated "No Left Turn Signs", adaptive traffic control systems, advance warning and second-train warning signs and advance signal preemption.  Engineering Study Local Agency Participation Design, Construction, Installation and Testing	\$100,000 \$30,000 TBD
Station Area Pedestrian Improvements	Conduct an engineering study to identify specific station area problems and possible mitigating measures associated with the three-car platform extension.	\$175,000
<b>ENFORCEMENT</b>	<b>STAFF RECOMMENDATIONS</b>	<b>ESTIMATED COSTS</b>
Los Angeles Sheriff's Department (LASD)	Staff recommends continued LASD involvement in enforcement and public outreach campaigns.	None
<b>LEGISLATION</b>	<b>STAFF RECOMMENDATIONS</b>	<b>ESTIMATED COSTS</b>



**SCHEDULE 1**

**METRO BLUE LINE SAFETY RECOMMENDATIONS**

Vehicle Code	Amend the Vehicle Code to make grade crossing violations, under certain circumstances, an infraction or a misdemeanor, giving law enforcement agencies a choice of citing or arresting the vehicle's driver depending on the severity of the violation.	None
Pedestrians	Expand on trespassing laws	None
Grade Crossings	The MTA will endeavor to amend the CPUC grade separation ranking formula.	None
Grade Crossings	Introduce grade crossing legislation similar to the one proposed by the Federal Highway Administration. The legislation reads as follows: Commercial motor vehicle drivers convicted of violating laws or regulations concerning railroad-highway grade crossings would be disqualified from driving under terms of legislation being considered by the MTA. The proposed penalty for drivers is a suspension of at least 60 days for the first offense and up to 120 days for subsequent convictions. Also, under the proposal, along with drivers, employers knowingly allowing, permitting, authorizing or requiring a driver to violate such laws or regulations would be subject to a fine of up to \$10,000. (Commercial vehicles include, but not limited to, private taxis, shuttles, trucks, etc.)	None

SCHEDULE 2

ACCIDENT RATES / SAFETY MITIGATING MEASURES COMPARATIVE CHART

PROPERTY	Accident Ratio per 100K miles*	Photo Enforcement	4-Quad Gates**	Medians	Traffic Signal Improvements	Train Activated Warning Signs	Swing Gates	Ped. gates	Sidewalk Widening/Striping	Pedestrian Warning Lights	Law Enforcement	Initiated Legislation
Los Angeles	1.93	X	X	X	X	X	X	X	X	X	X	X
San Diego	0.97			X	X	X			X		X	
Santa Clara	1.39			X	X	X	X		X		X	
Sacramento	1.48			X	X				X		X	
San Francisco	0.86			X	X	X			X		X	
Boston	Not Available								X	X		
St. Louis	Not Available				X				X	X	X	
Dallas	Not Available			X		X		X	X	X	X	
Portland	Did not respond											
Baltimore	Did not respond											
Buffalo	Not applicable: Majority of Light Rail is underground.											

\* Accident data was obtained from The California Public Utilities Commission's (CPUC) Annual Report for Calendar year 1998. The report titled "Annual Report of Railroad Accidents Occurring in California" listed accident data from 1990 through 1998. Accident data for transit properties outside California were not included as no updated information has been received.

\*\* Trial Installation phase. The MTA is awaiting CPUC approval prior to expanding four-quadrant gates to other grade crossings.

The survey results indicate that the other transit properties have made similar improvements as the MTA, however, the MTA has implemented more aggressive safety programs, especially for engineering improvements such as photo enforcement, pedestrian gates, active warning signs, and four quadrant gates.

SCHEDULE 3

EDUCATION/PUBLIC OUTREACH SURVEY

PUBLIC OUTREACH ACTIVITIES											
	Los Angeles LACMTA	San Diego SDTI	Sacramento SRTD	Santa Clara SCUTA	San Francisco MUNI	Portland TRI-MET	St. Louis BSDA	Dallas DART	Boston MBTA	Buffalo NFTA	Baltimore MTA-MD
Public Safety Awareness Program	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes
Grade Crossings/Gated & Non-Gated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
School Presentations/Community Outreach	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Operation Lifesaver	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
PSA On Radio/TV	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No
Safety Program Required	Yes	No	No	Yes	No	Yes	No	Yes	Yes	Yes	No
Promo Items	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community Advisory and Support Groups	No	No	No	No	No	No	No	No	No	Yes	No
Community Meetings	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes	No
Comments			Agency uses water district's mailing to send out train safety fact sheets.		System is not high speed. There are no signalized grade crossings.	Agency will formalize education program in light of 5 fatalities in 1999.			Has escalator/elevator safety program for the public.	Placards in train cars provide rider alert safety information.	Safety program is a continuation of FTA's 1999 Stand Down for Safety.