

## PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

SAFETY DIVISION  
Rail Transit Safety Section

RESOLUTION ST-15  
Date: Nov. 22, 1994

**R E S O L U T I O N**

RESOLUTION ST-15. AUTHORITY GRANTING LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY (LACMTA) AN EXEMPTION FOR THE METRO GREEN LINE (MGL) FROM THE GENERAL ORDER 127, SECTION 3.9 REQUIREMENT FOR AUTOMATIC INITIATION OF OPEN LOOP BRAKING UPON INTERRUPTION OF TRAIN CONTROL SIGNALLING FOR LONGER THAN ONE SECOND.

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**SUMMARY**

By letter dated August 24, 1994, the Los Angeles County Metropolitan Transportation Authority (LACMTA) requests an exemption for the MGL from Section 3.9 of General Order (G.O.) 127 which requires automatic initiation of open-loop braking anytime a train control signal governing train movements is interrupted for longer than one second. The specific deviation requested by LACMTA is for a time delay of two seconds after which open-loop braking has to be initiated instead of the one second requirement in General Order 127, Section 3.9.

**BACKGROUND**

The one second requirement in General Order 127 was taken directly from the San Francisco Bay Area Rapid Transit District (BART) automatic train control system specification which was originally written in 1967. The MGL train control system requires more time to decode a speed code change because each transmitted message contains considerably more information than can be carried by the BART system.

**DISCUSSION**

The MGL train control system requires 0.70 seconds to recognize a downward change in speed code which is considerably more time than required by BART's train control system for the same function. The MGL train control system takes longer to decode speed command changes because each transmitted message contains

much more data than a BART message. Two seconds was chosen rather than 0.7 seconds because areas of special trackwork (crossovers, switches, etc.) are more susceptible to intermittent and brief losses of data, thereby requiring additional time to distinguish between an actual loss of speed command versus a temporary loss of data. The two second delay also improves system reliability in special trackwork areas by not unnecessarily applying brakes every time there is a momentary loss of signal (less than two seconds). The safe braking distance model of the MGL takes this two second delay into account and system safety is not compromised.

Resolution RTS-7 granted a similar two second deviation to the Metro Red Line on January 14, 1987.

**PROTESTS**

There are no known protests to this request.

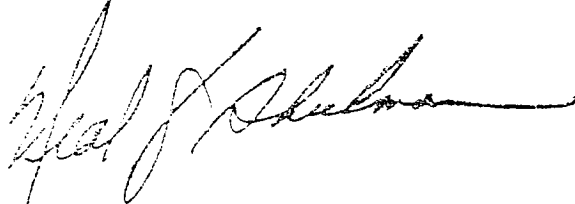
**FINDINGS**

Staff has reviewed LACMTA's request and finds it appropriate and reasonable. Approval to initiate open-loop braking after the interruption of train control signaling for two seconds instead of one second is reasonable and safe.

**THEREFORE, IT IS ORDERED that:**

The Los Angeles County Metropolitan Transportation Authority (LACMTA) is granted authority to deviate from Section 3.9 of General Order 127 in the construction and operation of its Metro Green Line transit system, by initiating open-loop braking after the interruption of train control signalling for two rather than one second.

I hereby certify that this Resolution was adopted by the Public Utilities Commission at its regular meeting on Nov. 22, 1994. The following Commissioners approved it:



Executive Director

DANIEL Wm. FESSLER  
President  
PATRICIA M. ECKERT  
NORMAN D. SHUMWAY  
P. GREGORY CONLON  
JESSIE J. KNIGHT, Jr.  
Commissioners