

## PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE  
SAN FRANCISCO, CA 94102-3298



June 28, 2018

Agenda ID# 16639

TO PARTIES TO RESOLUTION ST-208

This is the Resolution of the Safety and Enforcement Division. It will be on the August 9, 2018, Commission Meeting agenda. The Commission may act then, or it may postpone action until later.

When the Commission acts on the Resolution, it may adopt all or part of it as written, amend or modify it, or set it aside and prepare its own decision. Only when the Commission acts does the resolution become binding on the parties.

Parties may file comments on the Resolution as provided in Article 14, rule 14.5 of the Commission's Rules of Practice and Procedure (Rules), accessible on the Commission's website at [www.cpuc.ca.gov](http://www.cpuc.ca.gov). Opening comments shall not exceed 15 pages. Late-submitted comments or reply comments will not be considered.

An electronic copy of the comments should be submitted to Daniel Kwok (email: [daniel.kwok@cpuc.ca.gov](mailto:daniel.kwok@cpuc.ca.gov)).

/s/ ELIZAVETA MALASHENKO  
ELIVAVETA MALASHENKO, Director  
Safety and Enforcement Division

DK3:PD2

## **CERTIFICATE OF SERVICE**

I certify that I have by mail this day served a true copy of Draft Resolution ST-208 on all identified parties in this matter as shown on the attached Service List.

Dated June 28, 2018, at San Francisco, California.

/s/ PATRICK DONNELLY

Patrick Donnelly

## **NOTICE**

Parties should notify the Safety and Enforcement Division of any change of address to ensure that they continue to receive documents. You must indicate the Resolution number on which your name appears.

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**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Safety and Enforcement Division  
Rail Transit Safety Branch

Resolution ST-208  
August 9, 2018

**RESOLUTION**

RESOLUTION ST-208 GRANTING THE LOS ANGELES COUNTY  
METROPOLITAN TRANSPORTATION AUTHORITY A VARIANCE  
FROM GENERAL ORDER 143-B, SECTION 9.07, HIGH LEVEL  
PLATFORMS FOR INSTALLATION OF A DOOR ENABLE SYSTEM

**SUMMARY**

This resolution approves the Los Angeles County Metropolitan Transportation Authority request for a variance to General Order 143-B, Section 9.07 High Level Platforms, where a 30" Height x 30" Depth refuge area is required.

The Los Angeles County Metropolitan Transportation Authority plans to deploy the Door Enable System currently being used on the Green line onto the Blue, Expo, and Gold Lines as well, to ensure that the Light Rail Vehicle doors open only on the platform side at the station stops and to prevent the doors from opening unless the train is properly berthed at the station. The Door Enable System requires a module to be installed in the refuge area at both ends of the platform, which will reduce the refuge area to 20" x 22" for a width of 16" from each end.

**BACKGROUND**

By a letter dated July 5, 2017, the Los Angeles County Metropolitan Transportation Authority (LACMTA or Metro) requested a variance to

General Order (GO) 143-B, Section 9.07 High Level Platforms requiring a 30" Height (H) x 30" Depth (D) refuge area.

LACMTA rail operations consist of the Metro Red, Purple, Blue, Green, Expo, and Gold Lines. The LACMTA rail system carries an average of 361,000 passengers per day. LACMTA's light and heavy rail system reported that it experienced 72 wrong side door openings from 2010 to 2016. Currently LACMTA does not have a system installed on their rail system that can automatically detect and report to management when the Light Rail Vehicle (LRV) or Heavy Rail Vehicle doors have been opened on the wrong side. The number of occurrences is derived from the train operators' self-reporting, passengers reporting occurrences to customer service, the line supervisors observing the trains at stations, or from LACMTA's closed circuit television system.

LACMTA's Green Line is equipped with a Door Enable System (DES), which ensures the LRV doors open only on the platform side of the station and prevents the LRV doors from opening unless the train is berthed at the proper location on the platform at each station. The LACMTA Red/Purple line is also equipped with a DES. LACMTA is planning to implement the DES on its Blue, Gold, and Expo Lines. In order to install the DES on these lines, LACMTA will install a 16" W x 10"H x 8" D coupling unit that establishes a communication link between the LRV and a wayside controller unit utilizing new signal loops to be located in the Right of Way.

GO 143-B, Safety Rules and Regulations Governing Light Rail Transit, Section 9.07, states:

Where passenger platforms are constructed to the nominal level of the floor of the LRVs operated, the space between the platform edge and the vehicle doorsill shall not be greater than three (3) inches on tangent alignment. A minimum personnel refuge area measuring thirty (30) inches high and thirty (30) inches deep shall be provided under all high-level platforms. Special purpose platforms (e.g. handicap and crew loading platforms) shall be excluded from this requirement.

Per GO 143-B, Section 1.07 (Exemptions or Modifications), Rail Transit Agencies (RTAs) may request exemptions or modifications from the rules and regulations defined in this GO. Requests must contain a full statement justifying the request. Additionally, RTAs must demonstrate that safety is not compromised by granting the request. Any exemption or modification granted through this Section is limited to the particular case covered by the request.

## **DISCUSSION**

LACMTA's Blue, Expo, and Gold Lines systems are dependent on operators opening the correct doors and are not equipped with a safety system that would prevent the LRV doors from opening on the wrong side and/or opening while the train is not properly berthed at a station. On June 28, 2016, Rail Transit Safety Branch (RTSB) staff sent a letter to LACMTA's Safety Department urging it to explore further deployment of a DES to all its lines.

LACMTA's LRV platforms have a platform refuge area totaling 1,688 cubic feet for each track. Each DES coupling unit occupies a total of 0.75 cubic feet and a total of 1.5 cubic feet per refuge area per track. The total displacement per refuge area due to the DES coupling units is less than 0.01% of the total and will not significantly impact the total available refuge space.

The coupling units are to be mounted at each end of the platform at a minimum distance to the berthed LRV for operational effectiveness. The coupling unit will reduce the outermost refuge area from a 30" (2.5') height to 20" (1.67') and will reduce the depth from 30" (2.5') to 22" (1.83') for a width of 16" (1.33') at the ends of each platform refuge area.

Based on available anthropometrical data, the proposed reduction in height will still allow 97.5 percentile adult human males to be able to roll

into the refuge area<sup>1</sup>. The 97.5 percentile American male is the accepted standard in the United States for architectural design considerations to accommodate large persons.

LACMTA has recorded that the refuge area was used twice, from 2012 to present, on its heavy and light rail lines. The first incident occurred on the Red Line on June 18, 2012, when a patron fell off the platform and rolled into the refuge area avoiding contact with the train. The incident happened at the Pershing Square Station near mid-platform. The second incident occurred on the Green Line on July 13, 2016, at Harbor Station near mid-platform. The patron was found in the refuge area by a Metro employee performing a ground inspection. As noted, both occurrences happened near the mid-platform of the station as that is where patrons normally congregate and not at the ends of the platform where it is normally empty, and where the DES coupling units will be located.

LACMTA's variance from GO 143-B, Section 9.07 will only be implemented at the LRV stations where the tracks are embedded and will not be required at the stations that have ballasted track. The DES equipment can be installed without encroaching into the refuge area at stations with ballasted track. Total stations that require a variance are as follows for each line:

- Blue Line = 9 stations  
(Pico, Grand, San Pedro, PCH, Anaheim, 5<sup>th</sup> Street, 1<sup>st</sup> Street, Transit Mall, and Pacific)
- Gold Line = 8 stations  
(Highland Park, Pico Aliso, Indiana, Maravilla, Civic Center, Atlantic, Mariachi, and Soto)
- Expo Line = 6 stations  
(23<sup>rd</sup> Street, Jefferson, USC, Vermont, 17<sup>th</sup> Street, and Santa Monica)

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<sup>1</sup> Based on staff review of Niels Diffrient, Alvin R. Tilley, Joan Bardagiy, Human Scale 4/5/6, MIT Press, 1981.



The RTSB staff evaluated this variance request from the vantage point of its impact on public and employee safety. Staff met with LACMTA's technical staff and examined the equipment and project plans and made site visits to some project stations.

The DES enhances the safety of LACMTA rail operations by engineering out potential operator error in door openings at LACMTA stations on the lines not already equipped with such technology. LACMTA experienced at least 72 instances where the wrong doors were opened during the period from 2010 to 2016. The minimal refuge area loss along the platform at locations at both ends of stations, the portions least likely to have the refuge area be needed, are not significant, and although impaired somewhat by the DES Coupler, are still able to be used for their intended purpose. Staff recommends approval of this Resolution.

### **NOTICE**

On June 29, 2018, this Resolution was published on the Commission's Daily Calendar.

### **COMMENTS**

The draft resolution of the Safety and Enforcement Division in this matter was mailed in accordance with Section 311 of the Public Utilities Code and Rule 14.2(d)(1) of the Commission's Rules of Practice and Procedure. \_\_\_\_ comments were received.

### **FINDINGS**

1. LACMTA experienced at least 72 instances where the wrong doors were opened at station stops during the period from 2010 to 2016.
2. RTSB staff encouraged LACMTA to explore applying the DES technology to all its rail lines in a letter dated June 28, 2016.

3. By a letter dated July 5, 2017, LACMTA requested a variance to the thirty (30) inch by thirty (30) inch refuge area required by GO 143-B, Section 9.07 for the installation of a DES on the Blue, Expo, and Gold Lines.
4. LACMTA's submittal included a technical summary of the DES components and functions.
5. LACMTA submitted exhibits of the DES coupling unit and loops to be installed on the Blue, Expo, and Gold Lines.
6. LACMTA intends to implement the DES on the Blue, Expo, and Gold Lines since these lines currently do not have any devices preventing the train operator from opening the LRV doors on the wrong side of the train while berthed at a station.

**THEREFORE, IT IS ORDERED THAT:**

1. The Los Angeles County Metropolitan Transportation Authority request for a variance to General Order 143-B, Section 9.07, High Level Platforms, requiring a 30" x 30" refuge area is granted for the purpose of installing the Door Enable System as described in this resolution.
2. This resolution is effective today.

I certify that this resolution was adopted by the Public Utilities Commission at its regular meeting held on August 9, 2018. The following Commissioners voting favorably thereon:

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ALICE STEBBINS  
Executive Director