



U.S. Department of Transportation
Federal Transit Administration



Emergency Lighting and Signage for Rail Transit Passenger Vehicles

Background

The ability for passengers to exit a train during an emergency and for emergency personnel to enter a rail car to assist passengers is a complex process that depends on several dynamic factors and conditions (darkness, fire, smoke, etc.); emergency lighting and signage on rail cars affect the time required for evacuation. Lack of sufficient lighting prevents passengers from seeing their surroundings, identifying exit locations, and reading emergency signage to effectively react and evacuate after an accident. The need for standards for emergency lighting and signage in the rail transit industry required review and evaluation.

Objectives

Objectives of this study included collecting information on existing rail- and transit-related specifications or voluntary standards that can be applied to the rail transit industry, analyzing industry needs through discussions with industry stakeholders and review of reports and recommendations from the National Safety Transportation Board (NTSB), identifying gaps in standards that address industry needs, reviewing existing standards and specifications, and making recommendations on existing standards that may be directly applicable without modification.

Conclusions and Findings

Evaluation of current standards revealed that non-transit rail standards related to emergency lighting and signage would need some modification, but rail transit standards could be implemented without modifications.

Data collected on emergency lighting and signage implementation in transit agency fleets in the U.S. revealed the following:

- Emergency lighting has been implemented in 78% of rail transit vehicles; however, fewer than 2.4% are designed to a publicly-available standard; rather, it was designed to meet agency-specific Requests for Proposal (RFP) that do not refer to any publicly-available standard.
- Emergency signage has been implemented in 80% of rail transit vehicles; however, only 3.4% of are designed to a publicly-available standard; only one agency has implemented signage related to emergency exits near third rail(s), and two have implemented bilingual emergency signs.
- Implementation of Low Location Emergency Path Markings (LLEPM) is low, with only 12% of rail transit vehicles equipped with it. Currently, transit implementation is voluntary, and it is unknown if LLEPM incorporation will grow.

Industry stakeholders from small and large U.S. transit agencies convened to inform the project team, validate and verify the need for given standards, and make recommendations related to transit safety-related standards. Among the recommendations developed based on feedback and suggestions were the following:

- Installation of emergency lighting on new rail transit vehicles and on mid-life overhaul vehicles that meets or exceeds the current APTA standard will homogenize implementation of emergency lighting on fleets and ensure that emergency lighting meets a recognized industry standard.
- Third-rail hazard signs next to emergency exits that are near third rails (specifically for heavy rail transit systems) and general egress signage (all modes) should incorporate more internationally-recognizable symbols to enhance passenger knowledge and safety about egress procedures next to high voltage apparatus.
- New vehicle procurements can meet or exceed the current APTA standard, which will ensure that industry standards are met; mid-life rehabilitation vehicle procurements may be able to meet or exceed the standard.
- Due to legacy design workarounds and cost considerations related to mid-life rehabilitation procurements, active lighting solutions may not be practical for remaining rail vehicle lives, whereas passive self-illuminating markings may be practical.
- Additional ways to provide meaningful public emergency preparedness and notifications include using visual and audio safety signs, dynamic messages such as cell phone messages and electronic signs, and tailored disability notifications in accordance with the ADA.

Benefits

The findings of this report and subsequent guidance can be leveraged to guide public transit agency decision-making related to emergency lighting and signage for rail transit vehicles for heavy rail, light rail, and streetcar modes.

Project Information

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This research project was conducted by MaryClara Jones of the Transportation Technology Center, Inc., a subsidiary of the Association of American Railroads. For more information, contact FTA Project Manager Raj Wagley at (202) 366-5386 or Raj.Wagley@dot.gov. All research reports can be found at

<https://www.transit.dot.gov/about/research-innovation>.