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DESIGN DIRECTIVE

To: Distribution

From: Erik Stoothoff, P.E. *ESS*
Chief Engineer

Date: April 17, 2019

RE: Up and Over Path of Travel at Stations

This design directive is intended to consolidate, reiterate, supplement, and clarify the MBTA's approach, preferences, and requirements for boarding platform access and egress paths of travel at 'Up & Over' type stations. Up and Over station platform access is provided because pedestrian track crossings are not allowed at Commuter Rail and Heavy Rail Stations.

In the event that conditions warrant deviation from this directive, a design waiver signed by the Chief Engineer and the department owning the scope of work will be required of the project.

Design Consultants shall design to standards as prescribed by Code. MBTA Standards shall apply only where Code does not address a topic or the MBTA requires a standard above and beyond Code. The more stringent shall always apply.

DEFINITION

Stations with platform(s) requiring the crossing of tracks via overhead bridges and associated vertical circulation elements for access. Features of Up and Over Paths of Travel include but are not limited to:

1. Stairs
2. Elevators
3. Ramps
4. Bridges crossing the track(s)

OBJECTIVE

The design of paths of travel between the Transition Plaza Station entrance, or hub of multiple modes of arrival to the station and remote platforms shall:

1. Provide safe access and egress that comply with all applicable codes and accessibility standards.
2. Considers the experience for people of all ages and abilities.
3. Incorporates safety, security, comfort, and ease of wayfinding into the design.

CODES AND STANDARDS

- NFPA 130 – Standard for Fixed Guideway Transit and Passenger Rail Systems
- 780 CMR – MA State Building Code
- 521 CMR – MA Architectural Access Board Regulations
- Americans with Disabilities Act & ADA Standards for Accessible Design
- US DOT 49 CFR Part 37- Transportation Services for Individuals with Disabilities
- US DOT 49 CFR Part 38 - Accessibility Specifications for Transportation Vehicles

REGULATORY CONTEXT

NFPA 130 governs the design and construction of stations, including emergency egress from the stations. However, it does not address accessible means of egress and does not specifically require that accessible means of egress be provided. Where NFPA 130 does not address a specific life safety feature, it does require that the stations comply with the applicable requirements of the local building and fire codes.

Therefore, in addition to NFPA 130, stations must comply with the applicable requirements of 521 CMR since they are considered public areas. Per 521 CMR as well as ADA, where more than one means of egress is required by code, at least two accessible means of egress must be provided. Since NFPA 130 requires two means of egress off each platform, two accessible means of egress from each platform are required. The MBTA requires that Up and Over structures serving as the primary circulation routes for the station contain two accessible means of egress. The type and design of accessible means of egress must comply with 780 CMR since 521 CMR and ADA do not contain these design requirements.

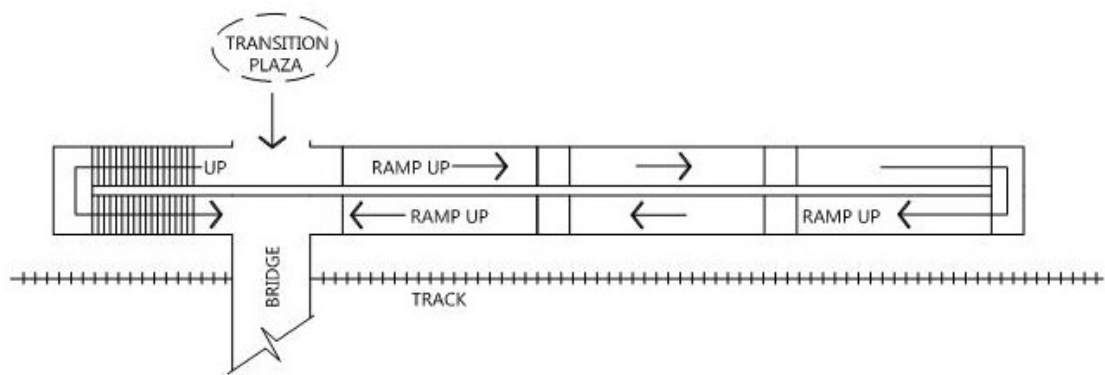
521 CMR and ADA also govern the accessibility requirements for entrances to the stations. ADA requires 60% of public entrances serving each fixed transportation route to be accessed by an accessible entrance. A single entrance is permitted to serve multiple lines. 521 CMR requires at least 50% of all station entrances to be accessible.

DESIGN PRINCIPLES

The paths of travel from a Transition Plaza or any point of entry to the station from a public way to remote platforms shall be designed as follows:

- At least one accessible path of travel to remote platforms shall be provided for each entrance from a public way to the station. For instance, if a station platform is accessed from both ends of the platform, similar accessible paths shall be provided.

- The MBTA requires redundant accessible paths of travel. Ramps are considered a redundant path of travel to an elevator(s).
- All new/altered exits/entrances shall provide a coincident path of travel. A coincident path of travel is one that accommodates people of all abilities either on the same path or by separate paths that begin and end at the same point. In the event the end points for all vertical circulation elements cannot be coincident, then preference shall be given to the end closest to the public way to be designed and constructed as coincident.
- The MBTA will not build or allow geographically isolated “stair only” entrance/exits, with the EXCEPTION of emergency only stairs added for egress capacity. Waiver required for:
 - an independent stair access may only be provided after all regulatory requirements for accessible paths of travel have been met. In the event that there is no alternative but to provide an isolated stair-only egress, rescue assistance devices such as Stryker chairs shall be provided.
- Three types of vertical circulation may qualify as means of accessible emergency egress:
 1. Ramps are suitable for self-evacuation.
 2. Elevators with an area of rescue assistance, two-way communication system, and generator back up are permitted as accessible means of emergency egress by 780 CMR, as referenced by both ADA and 521 CMR regulations; such elevators are not meant for self-evacuation during an emergency, but as a means of assisted evacuation by the fire department.
 3. Stairs with an area of rescue assistance are accessible means of egress for assisted rescue; such stairs are NOT an accessible means of egress for self-evacuation; can only be provided as a tertiary solution for emergency egress or when other design solutions are not technically feasible. This condition will require a waiver.



COINCIDENT PATHS OF TRAVEL

WHERE POSSIBLE, ACCESSIBLE PATHS SHOULD START AND END IN THE SAME LOCATION AS THE ADJACENT NON-ACCESSIBLE PATH. THIS IS GENERALLY NOT POSSIBLE ON THE BOARDING PLATFORM DUE TO WIDTH RESTRICTIONS

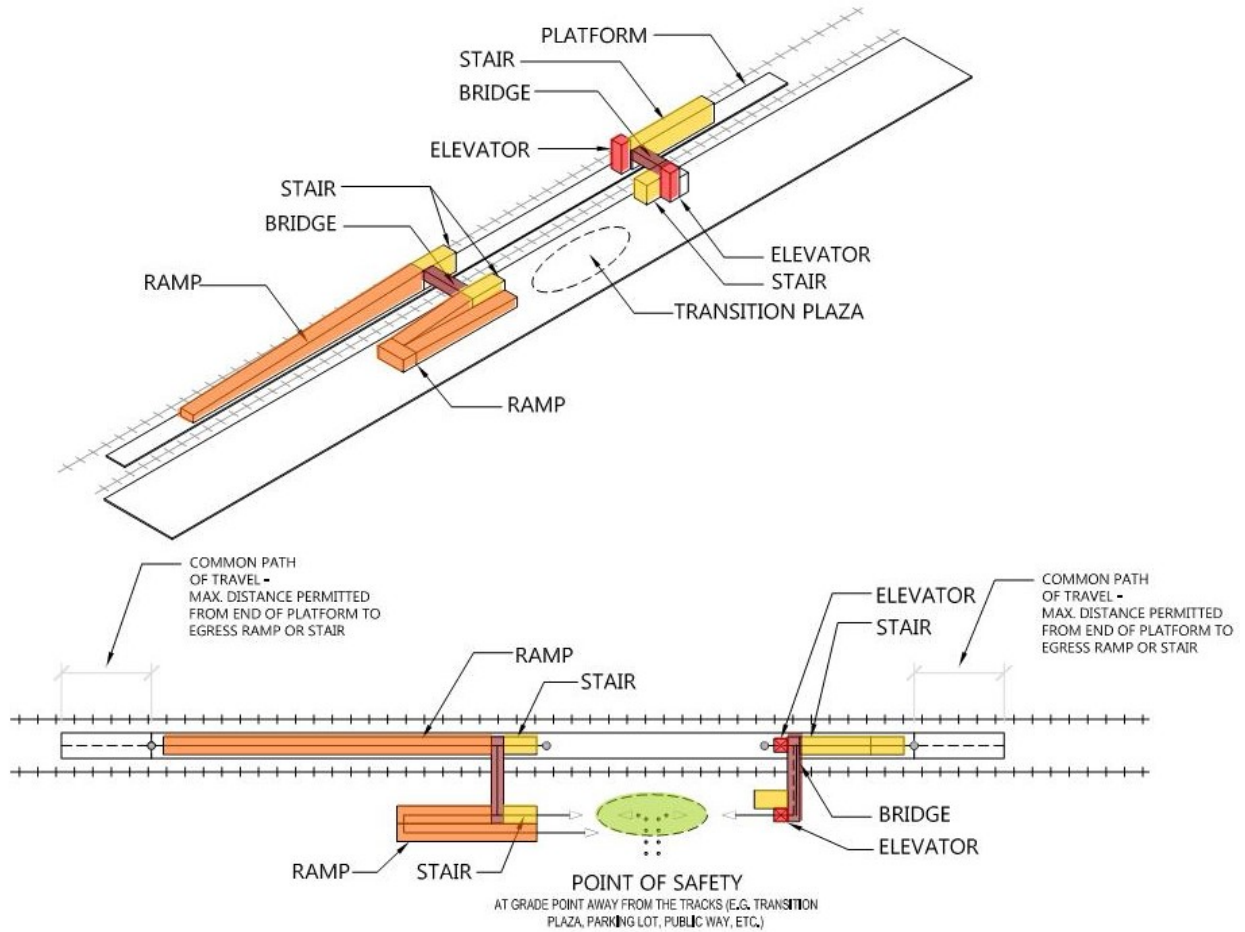
- Station shall incorporate a minimum of one elevator facilitated path of travel at stations requiring Up and Over access unless deemed technically infeasible by way of a waiver or otherwise directed by the MBTA.
- If an elevator is used, at least one ramp or level path shall be provided for redundancy to allow for self-evacuation.
- An area of rescue assistance such as a ‘holding pen’ in an isolated location accessed by only one path of travel to-and-from the boarding platform *is not allowed unless granted a waiver based on demonstrable evidence that it is technically infeasible to provide an alternate path of emergency egress. In such a case, additional safety devices shall be installed to allow further egress from the holding area.*
- Elevators shall be located to maximize their visibility from paths of travel, including platforms and efforts made to minimize being obscured by other station components.
- Canopy coverage must be provided at vertical circulation elements: stairs, ramps, and elevators. Vertical Circulation canopies shall connect to platform canopies.
- Canopies shall extend a minimum of 5 feet beyond vertical circulation elements.



Photo: Example ramp to area of rescue assistance, “holding pen.”

UP AND OVER ACCESS - EGRESS DIAGRAM

The following graphic represents a conceptual layout that addresses this Directive for Up and Over stations as approved by MBTA Office of the Chief Engineer, MBTA System-Wide Accessibility (SWA), and the Authority Having Jurisdiction (AHJ).



LEGEND	
	RAMP
	ELEVATOR
	STAIR
	BRIDGE
	POINT OF SAFETY
	PATH OF TRAVEL
	TRACK

EGRESS PARAMETER	UNITS
PLATFORM OCCUPANT LOAD	PEOPLE
PLATFORM EXIST CAPACITY	PEOPLE/MINUTE
LONGEST PATH OF TRAVEL (PLATFORM)	FEET
MAXIMUM PLATFORM EGRESS TIME	MINUTE
EGRESS TIME TO A POINT OF SAFETY	MINUTE