Accessibility Issues in Rail Transportation

TRANSCEN inc.
career and workforce development

Mid-Atlantic ada Center

NATIONAL DISABILITY RIGHTS NETWORK
Protection & Advocacy for Individuals with Disabilities

will begin at 2 pm ET

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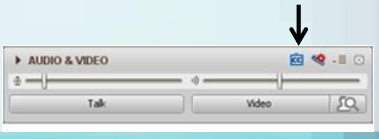

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  - Mission Statement: Improving lives of people with disabilities through meaningful work and community inclusion
- Mid-Atlantic ADA Center, a project of TransCen, Inc.
  - Funded by National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), Administration for Community Living, U.S. Department of Health and Human Services

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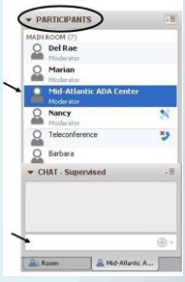

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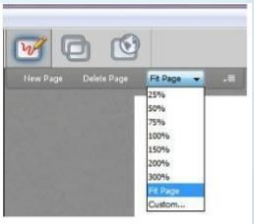

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Accessibility Issues in Rail Transportation

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ADA Statutory Provisions

Making Transportation Accessible was a major focus of the statutory provisions of ADA Title II

PART B - Actions Applicable to Public Transportation Provided by Public Entities Considered Discriminatory [Subtitle B]

SUBPART I - Public Transportation Other Than by Aircraft or Certain Rail Operations [Part I]

42 U.S.C. § 12141 – 12150

Definitions – fixed route and demand responsive, requirements for new, used and remanufactured vehicles, complementary paratransit, requirements in new facilities and alterations of existing facilities and key stations

SUBPART II - Public Transportation by Intercity and Commuter Rail [Part II]

42 U.S.C. § 12161- 12165

Detailed requirements for new, used and remanufactured rail cars for commuter and intercity service and requirements for new and altered stations and key stations

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What are the different 'modes' of passenger rail under the ADA?

- **Rapid Rail (defined as "Subway-type," full length, high level boarding) 49 C.F.R. Part 38 Subpart C** - NYCTA, Boston T Orange and Red Line, Chicago "L," D.C. Metro, BART, MARTA, SEPTA Market Frankford line, Baltimore Metro Subway, Miami Metrorail
- **Light Rail & Streetcars 49 C.F.R. Part 38 Subpart D -** Older Systems - SEPTA, MBTA Green Line, Pittsburgh T; Newer Systems - Portland Tri-Met MAX, Charlotte Lynx, Minneapolis Metro, Phoenix Valley Metro, others
- **Commuter Rail - 49 C.F.R. Part 38 Subpart E -** Older systems - Long Island Railroad (LIRR); Metro North (New York Central, Penn Central, Conrail), SEPTA (Reading RR & Pennsylvania RR), MBTA (Boston & Maine); Newer systems - MARC, VRE, Tri-Rail (Miami), UTA Front Runner (Salt Lake City), New Mexico Rail Runner (Albuquerque to Santa Fe), Metro Transit Northstar (Minneapolis), others
- **Intercity Rail 49 C.F.R. Part 38 Subpart F -** National Railroad Passenger Corporation (Amtrak). Created in 1971, took over long distance (vs. commuter) passenger service from freight railroads with a limited nationwide system.

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What do these different modes look like?

Rapid Rail (49 C.F.R. §38 Subpart C) Subways - provide full length platforms & level boarding from platforms onto railcars, can run underground, at grade or on elevated track.

Chicago CTA 'L' rapid rail/subway car at an elevated station

Washington D.C. Metro rapid rail/subway cars at an underground station

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Light Rail (49 C.F.R. §38 Subpart D)

Limited operation on streets, mostly operate on dedicated right-of- way, on grade, below grade, underground or elevated tracks. Older systems had high floor cars. Newer systems are usually low floor.

Portland TriMet MAX Bombardier Type I Light Rail car (Built mid-1980s) at platform (note steps inside car). Newer TriMet MAX cars have low floors that are close to platform height.

Phoenix Valley Metro Kinkisharyo low floor Light Rail car built in 2008 provides level boarding from platforms about 14 inches Above Top of Rail.

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Streetcars, treated as **Light Rail** under DOT ADA regulations but considered somewhat different by the transit industry

ADA Light Rail requirements apply to streetcars - Photo shows a Washington, D.C. Streetcar Inekon Trio. Modern streetcars usually have low floor and streetcar stops usually have slightly raised platforms that provide level boarding.

Modern streetcars differ from modern Light Rail by using lighter and narrower cars, usually operate as single car trains, and can run on narrower public streets with sharper curves. Sharp curve on Portland Street car shown above.

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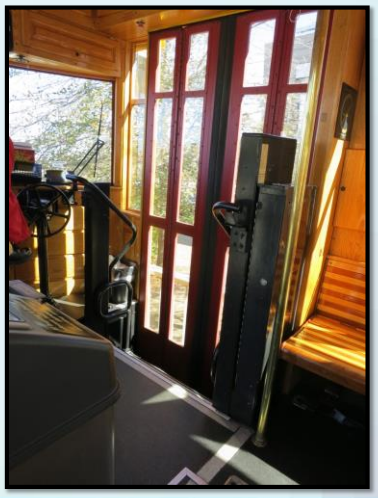
Heritage Streetcars

(49 C.F.R. §38 Subpart D)

Little Rock Arkansas River Line Heritage Streetcars (built mid-2000s). Exterior view above.
On right, an interior view of the River Line Heritage car's carborne wheelchair lift at the steps up to the high floor.



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Intercity Rail (Amtrak)

(49 C.F.R. §38 Subpart F)
Note different car floor and door heights

Amtrak Amfleet I single level cars built 1975-78. (Pre-ADA).
Car floor height is 48 inches Above Top of Rail.

Amtrak Superliner Bi-Level cars built in 1981. (Also Pre-ADA) Car floor height is 18 inches Above Top of Rail.

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Commuter Rail - High Floor cars

(49 C.F.R. §38 Subpart E)
Pre-ADA commuter rail cars boarded from high and low platforms

SEPTA GE Silverliner IV (Built 1973-1976) single level commuter car. Car floor is 48 inches Above Top of Rail (ATR). Access from the low platform shown was by climbing steps. Some stations had high platforms that allow level boarding.

MARC III Kawasaki Bi-level (built post ADA, 2000-2001) at Baltimore Penn Station that has a high car floor and platform at 48 inches Above Top of Rail allowing level boarding from matching high platforms.

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Commuter Rail - Gallery Cars

(49 C.F.R. §38 Subpart E)
Can only board from low platforms

Virginia Railway Express (VRE) Nippon Sharyo Bi-level "Gallery" cars (2006-2008) with center entrance doors with steps up to car floor and equipped with car-borne lifts. In photo on right, the left stairway bottom step says "Rincon" which is the maker of the lifts. Link to video of lift in use:
https://www.youtube.com/watch?v=gQJhK4UWim0
Gallery cars typically cannot be used at high level platforms. Similar and older gallery cars without lifts are used exclusively on all but one of Metra's Chicago suburban lines and are the majority of the cars on Caltrain's San Francisco Peninsula service.

Commuter Rail - Bombardier Bi-Levels

(49 C.F.R. §38 Subpart E)
unique (when first introduced) car floor height

Metrolink (Los Angeles) Bombardier Bi-level commuter cars with unique octagonal car shape (First introduced in the early 1990s) have two doors on the low center floor of car which is 25 inches Above Top of Rail. Metrolink was first U.S. user of Bombardier Bi-level Commuter cars.
Ten other U.S. commuter systems have since purchased Bombardier Bi-level commuter cars and similar non-octagonal shaped Bi-Level commuter cars built by Hyundai Rotem.

What do the DOT ADA regulations for rail vehicles require?

(49 C.F.R. §38)

Accessible railcars

- Means for wheelchair users to board
- Clear path for wheelchair user in railcar
- Wheelchair space
- Handrails and stanchions that do not create barriers for wheelchair users
- Public address systems
- Between-Car Barriers
- Accessible restrooms if restrooms are provided for passengers in commuter and intercity cars
- Additional mode-specific requirements for thresholds, steps, floor surfaces, lighting, accessible seating signage

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What do the DOT ADA regulations require for platforms?

Federal Register Volume 76, Number 181 (Monday, September 19, 2011)

- Requires full-length, level-boarding platforms (where the platform surface is level with the floor of the train cars) in new and substantially reconstructed commuter and Amtrak stations.
- If the passenger railroad cannot provide full-length level-entry boarding because freight traffic uses the track adjacent to the platform, a passenger railroad can choose to meet the performance standard through use of car-borne lifts, station-based lifts, or mini-high platforms (with multiple stops if needed).
- The passenger railroad must provide a plan to FTA or FRA for approval explaining how its chosen means of meeting the performance standard will provide safe, reliable access.
- If two types of railcars with different car floor heights use the same platform, level boarding platform height should be coordinated with the lower car floor height

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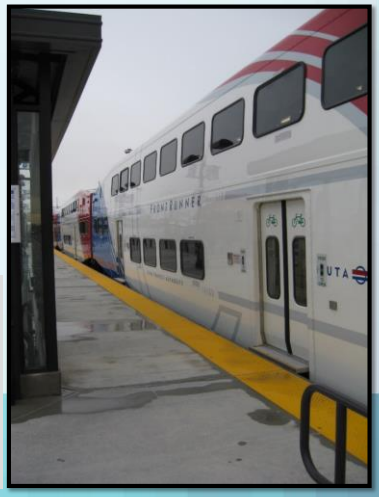
Full Length Level Boarding

UTA Front Runner provides full length level boarding onto Bombardier bi-level commuter cars at most stations



Utah Transit Authority (UTA) Front Runner service operates mostly on its own separate tracks. Bombardier bi-level commuter cars shown at the Salt Lake City Full Length Level Boarding platform. Car floors are 25 inches Above Top of Rail. Extended sill at car doors appears to mitigate the need for a bridgeplate.

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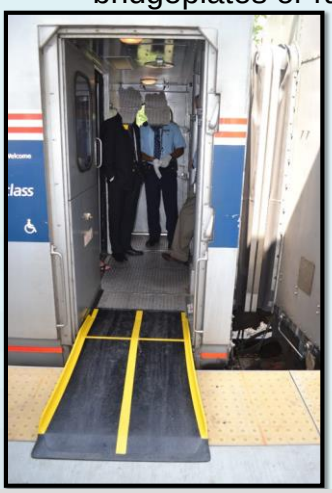
Full Length Level Boarding

Bridging the horizontal gap - bridgeplates or ramps still usually needed



New design Amtrak bridgeplate in use at Amtrak Ann Arbor, Michigan movable set back platform

Amtrak's Lorton, VA station provides full length level boarding onto Superliner cars but a bridgeplate is still needed to span the horizontal gap.

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Why can't intercity and commuter systems have full length level boarding platforms like rapid rail systems?

Most intercity and much commuter rail service in the U.S. operates on tracks owned and or used by freight railroads. Freight railroads occasionally move oversize loads, such as the industrial item shown on this car. Both the car and the load are wider than passenger railcars. To provide clearance for these wide loads, freight railroads insist that high level, level boarding platforms provide clearance or are "set back" from the tracks unlike platforms on rapid rail systems.

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Incompatible platform heights

Cars built for low level boarding cannot use 48 inch Above Top of Rail Platforms

Amtrak Bi-level Superliner car with ramp to low level platform at Washington, D.C. Union Station.

Amtrak Bi-level Superliner car at a 48 inches Above Top of Rail platform at Washington, D.C. Union Station. Floor of car is about 30 inches below the platform.

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Rail cars with different car floor heights using the same station (Oakland, CA)

Amtrak California single level former New Jersey Transit Comet 1B cars originally built by St. Louis Car Company for the Penn Central in the late 1960s. They were refurbished and entered service in California in 2013-2014. The car floor is 48 inches Above Top of Rail. Wheelchair access is by use of a portable platform lift. See upcoming slide.

Amtrak California Bi-level California cars (this car built by Morrison-Knudsen in the mid-1990s) have a 18 inch Above Top of Rail lower car floor and two sets of automatic doors. Because station platforms are lower, they have carborne lifts on most cars.

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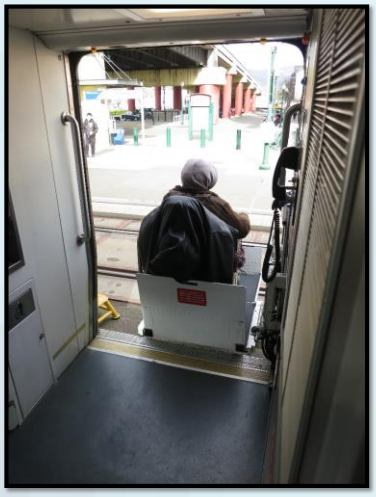
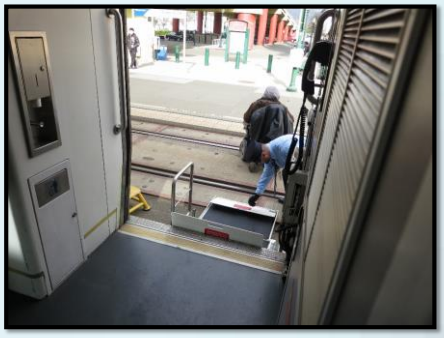
Car-borne lifts

Amtrak Bi-Level California Car car-borne lift





Amtrak California Cars have a 18 inch Above Top of Rail car floors. Platforms in California are 8 inches Above Top Rail or lower so these cars have a car-borne wheelchair lift as shown above and on left. A disadvantage of car-borne lifts is that they can become inoperable.

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Platform Lifts

To board commuter or intercity cars with a 48” Above Top of Rail car floors

An portable platform lift is another way to get a wheelchair user or individual unable to climb railcar steps up to a 48 inch Above Top of Rail car floor from a low level platform.
The lifts are deployed by the train or station crew.
Note that the lift is secured by a cable and lock to a station roof pillar.

A portable platform lift in use at Raleigh, N.C. station to board an Amtrak Amfleet car with a 48 inch Above Top of Rail car floor. Portable platform lifts are a segregated means of boarding and deploying can be slow and time consuming. For a video example of the time it takes:
https://www.youtube.com/watch?v=4P4t93tkvGs

Raised Partial or Mini-high platforms

To board commuter or intercity cars with a 48” Above Top of Rail car floors

MBTA Southborough station raised partial level boarding platforms (mini-highs), are large. approximately 45’ long and allow integrated boarding onto two cars by wheelchair users and any other passengers. Both are located on outbound (away from Boston) end of the low level platforms.

MBTA West Natick station raised partial level boarding platform (mini-high) with MBTA train with a multi-level and single level high floor car with the doors open for boarding. The conductor is leaning out of open door of the multilevel car. Note flip-up edge on the raised platform.

Better Solutions for boarding high floor railcars where full length level boarding is not possible

Amtrak's movable set back platform test in Ann Arbor, Michigan. On the left, the platform is retracted to provide clearance for freight trains. On right, the platform extended to provide level boarding onto two cars. The extension and retraction of the platform edge is powered with a manual back up and is remotely controlled. Boarding is integrated and similar to full length level boarding.

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Another solution for boarding high floor railcars

Photo above shows new raised platform at Hartford, Connecticut Amtrak and CT Rail Hartford Line (service planned to begin in 2018). Photo on right shows that the platform edge (yellow section) is hinged to flip up to provide clearance for freight trains. Platform is not a full length platform, but is approximately 3 cars long.

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Solutions for boarding lower floor cars

New Mexico Rail Runner mini high
and newer raised platform and bridgeplates

New Mexico Rail Runner Bombardier Bi-Level Commuter car with wheelchair user boarding in Albuquerque from small wooden mini-high platform and bridgeplate in October 2011

New Mexico Rail Runner Bombardier Bi-Level Commuter car with all passengers boarding from a new large raised level boarding platform using bridgeplate which replaced the wooden mini-high platform at the Albuquerque station. Picture taken in September 2016

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Another set of solutions for boarding lower floor cars

Metro Transit Northstar (Minneapolis) has partial raised platforms and bridgeplates AND car-borne lifts to allow equal access to every car

Above, Minnesota Northstar station, raised level boarding platform with bridgeplate deployed.
On Right, interior view of car doors with car-borne lift (in every car)

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Boarding high floor Light Rail cars

Maryland MTA Light Rail old “mini-high” platform to allow boarding by wheelchair users and other unable to climb steps onto MTA’s high floor Light Rail cars. Provides segregated boarding. Passengers without disabilities board from the low level platform in foreground.

Sacramento Regional Transit light rail car stopped by large raised boarding platform to allow boarding by wheelchair users and others unable to climb steps onto Sacramento’s high floor light rail cars along with other passengers who want to board without climbing steps.

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Newer Light Rail systems usually have full length level boarding on low floor cars

Charlotte Area Transit System (CATS) LYNX Blue Line Siemens S70 light rail cars with full length level boarding platform

Minneapolis, Minnesota Metro Transit Bombardier Flexity Swift light rail cars with full length level boarding platform

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ADA Between-Car Barrier Requirement

Rapid Rail

§ 38.63 Between-car barriers.

(a)Requirement. Suitable devices or systems shall be provided to prevent, deter or warn individuals from inadvertently stepping off the platform between cars. Acceptable solutions include, but are not limited to, pantograph gates, chains, motion detectors or similar devices.

(b)Exception. Between-car barriers are not required where platform screens are provided which close off the platform edge and open only when trains are correctly aligned with the doors.

Light Rail

§ 38.85 Between-car barriers.

Where vehicles operate in a high-platform, level-boarding mode, devices or systems shall be provided to prevent, deter or warn individuals from inadvertently stepping off the platform between cars. Appropriate devices include, but are not limited to, pantograph gates, chains, motion detectors or other suitable devices.

Commuter Rail

§ 38.109 Between-car barriers.

Where vehicles operate in a high-platform, level-boarding mode, and where between-car bellows are not provided, devices or systems shall be provided to prevent, deter or warn individuals from inadvertently stepping off the platform between cars. Appropriate devices include, but are not limited to, pantograph gates, chains, motion detectors or other suitable devices.

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Examples of Between-Car Barriers

Between-Car Barriers on San Francisco Muni Light Rail cars at a high level boarding subway station platform. Barriers were installed in 2014. https://www.sfmta.com/sites/default/files/pressreleases/Press%20Release--Between%20Car%20Barriers%20Enhance%20Safety%20on%20Muni%20Metro%2004.24.14_0.pdf

Between-Car Barriers on new Washington DC Metro 7000 series rapid rail (subway) car,

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Emerging issue - lack of Between-Car Barriers on level boarding light rail systems

49 C.F.R.§38.85

Phoenix Valley Metro

Phoenix Valley Metro, note lack of Between-Car Barrier

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September 15, 2016 FTA Dear Colleague Letter on Between-Car Barriers

U.S. Department of Transportation
Federal Transit Administration

Administrator

1200 New Jersey Avenue, SE
Washington, DC 20590

SEP 15 2015

Dear Colleague:

As many of you know, it is the U.S. Department of Transportation's (DOT) highest priority to provide safe transportation to the travelling public. It is with safety in mind that I bring an important issue to your attention regarding our nation's light rail systems. Some light rail project sponsors, operators, and vehicle manufacturers may be unaware of the requirement for between-car barriers contained in DOT's regulations implementing the transportation provisions of the Americans with Disabilities Act of 1990 (ADA). (Note: There are between-car barrier requirements for all types of rail vehicles; however, the subject of this letter and the citations below are specific to light rail vehicles and systems.) This is an important safety concern for people who are blind or who have low vision.

Under 49 C.F.R. § 38.85, where light rail vehicles operate in a high-platform, level boarding mode, devices or systems must be provided to prevent, deter, or warn individuals from inadvertently stepping off the platform in between cars. The intent of this provision, which has been a part of the DOT ADA regulations since September 6, 1991, is to require light rail systems to obtain suitable devices to assist with and prevent passengers from mistaking the gap between cars for a doorway and potentially falling onto the trackbed.

I believe the confusion regarding the between-car barrier requirement centers on the fact that there is no regulatory definition of "high-platform." But, the regulatory language links "high-platform" to "level boarding mode" and must be considered in conjunction with other key parts of the regulation[1], which clearly point to the relationship between platform height and entrance to the vehicle floor—an alignment that must occur to create a level boarding environment. Thus, the requirements in 49 C.F.R. § 38.85 are designed to deal with the safety problem resulting from the gap between cars when vehicles operate in this high-platform, level-boarding mode. Furthermore, the regulation recognizes that level boarding from high platforms (where the platform height is coordinated with the height of the vehicle floor) provides the most accessibility for the maximum number of people.

These requirements address the need to mitigate the hazard of a gap created between two or more rail cars operating in a consist. All travelers must have safe, unimpaired access to a light rail system. In a level boarding/platform environment without between-car barriers, the hazard of falling to the trackbed exists whenever a light rail system operates trains of more than one car.

[1] See 49 C.F.R. §38.71(b)(1) and §38.73(d)(1).

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This represents a physical risk to the travelling public as well as a financial risk to a transit agency.[2] We must do all that we can to ensure the safety of passengers by providing a level of protection from falling between two cars.

Between-car barriers have been shown to be an effective method for reducing the likelihood of passengers falling between two rail cars. The regulation provides that appropriate devices include, but are not limited to, pantograph gates, chains, motion detectors, or other suitable devices. We will include more explanation and guidance regarding between-car barriers in the Federal Transit Administration's (FTA) forthcoming ADA Circular, but until that document is finalized, please note that some FTA-funded light rail systems have successfully deployed between-car barriers pictured below:

Los Angeles | St. Louis | Pittsburgh

Thank you for your cooperation. If you have any questions or require further information. Please contact John Day, Program Manager, at (202) 366-1671 or by email at john.day@dot.gov.

Sincerely yours,

Therese W. McMillan
Acting Administrator

[2] See Los Angeles Times article, January 30, 2009, "Death of Visually Impaired Man," http://latimesblogs.latimes.com/lanow/2009/01/in-wake-of-dead.html; subsequently, a jury awarded $17M to his family in 2011.

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https://www.transit.dot.gov/regulations-and-guidance/policy-letters/lrt-vehicle-car-barrier-requirements

Platform-based Between-Car Barriers on a level boarding light rail system

49 C.F.R.§38.85

Charlotte Area Transit System (CATS) LYNX Blue Line light rail trains use platform-based Between-Car Barriers

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Questionable Between-Car Barriers on Rapid Rail - D.C. Metro 7000 series cars

49 C.F.R.§38.63

Two photos of Washington Area Metropolitan Transit Authority D.C. Metrorail Kawasaki 7000 series cars, on left and right. The between-car barrier is large rubber flap with a gap instead of a traditional chain between-car barrier. Link to Washington Post story about a blind individual who fell between the cars but was able to get back up before the train moved.
https://www.washingtonpost.com/news/dr-gridlock/wp/2017/06/29/listen-to-a-blind-mans-metro-nightmare-i-literally-fell-between-two-train-cars/?utm_term=.53a3e5e092df

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WMATA/D.C. Metro September 28, 2016 letter to FTA on Between-Car Barriers on 7000 series cars

WMATA will install traditional chain barrier between all cars . . . cars . . . will be retrofitted over the course of the next 8-15 months.

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September 28, 2016

Linda Ford, Director
FTA Office of Civil Rights
U.S. Department of Transportation
1200 New Jersey Ave SE
Washington, DC 20590

Re: FTA Inquiry No. 2016-0058-IN – Between-Car Barriers on WMATA 7000-Series Railcars

Dear Ms. Ford:

This letter responds to a June 28, 2016 letter from the Federal Transit Administration (FTA) directing the Washington Metropolitan Area Transit Authority (WMATA) to perform testing of the between-car barriers used on the ends of the 7000-series rail cars.

The 7000-series rail cars have a dual between-car barrier system. On an eight-car train, the traditional chain barriers are installed between the first and second cars, third and fourth cars, fifth and sixth cars, and seventh and eighth cars; and the new rubber barriers are installed between the second and third cars, fourth and fifth cars, and sixth and seventh cars.

On August 18, 2016 at 10:00 a.m., WMATA performed testing of the detectability of the between-car barriers by people who are blind/low vision. The testing took place at the Greenbelt Metrorail station, with an eight-car train positioned on the inbound side of the platform. The test involved six participants.

	Visual Disability Type and Mobility Aid	Affiliation
1	Blind - white cane	WMATA Accessibility Advisory Committee Member
2	Blind - service animal	American Council of the Blind (ACB)
3	Low Vision - none	National Council Citizens with Low Vision
4	Blind - white cane	National Federation of Blind - MD Chapter
5	Low Vision - white cane	Virginia Tech
6	Blind - white cane	Columbia Lighthouse for the Blind

Washington Metropolitan Area Transit Authority
600 7th Street, NW
Washington, DC 20001
202 962-1234
www.wmata.com

A System of Satellites Maryland and Virginia Transit Partnership

Ms. Linda Ford
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Testing

WMATA facilitated two tests of barrier detectability:

1. *Station Entrance to Platform to 7000-Series Car Door* – In this test, the participants were asked to: (a) begin at the station entrance; (b) navigate to the station platform; and (c) locate themselves wherever they chose on the platform and "wait for the train to arrive." At this point, WMATA conducted a mock train arrival (i.e., arriving announcement, door opening announcement, and door opening). The participants were then asked to board the train.

   This test was designed to measure the participants' ability to safely board a 7000-series vehicle with or without detecting the between-car barrier.

2. *Random Placement* – In this test, WMATA staff randomly placed the participants at random points on the station platform lined up in front of various sections of the train: door, traditional between-car barrier, new between-car barrier, or body of a train car.

   This exercise was designed to test the detectability of the between-car barriers. Participants were asked to: (a) walk to the edge of the platform; (b) identify what part of the train they were standing in front of; (c) for those standing in front of a between-car barrier (traditional or new), asked what type of between-car barrier they were standing in front of; and (d) navigate from the platform edge (random location) onto the rail car.

Results

Test 1: Four of the six participants took part in Test 1 (two participants arrived after the conclusion of Test 1). All four participants were able to successfully navigate from the station entrance to the platform and on to the train without incident.

Test 2: All six participants were able to navigate safely to the platform edge and to successfully detect at which part of the train they were located. The four participants who were placed in front of a between-car barrier were able to accurately detect the barrier and identify the type; and all six participants were able to successfully navigate onto the train without difficulty or incident.

Conclusion and Next Steps

WMATA took great strides to ensure that safety and accessibility compliance were the highest priorities during the design and decision-making process leading to the dual between-car barrier concept. WMATA remains confident in the safety and accessibility of the design, and in its compliance with all

Ms. Linda Ford
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the safety and accessibility of the design, and in its compliance with all applicable law. Even though our testing confirmed the safety of the current design, after consulting with our customers and the FTA, WMATA has decided to conform all 7000 series between-car barriers to the design currently in existence on all other cars in revenue service. WMATA will install traditional chain barriers between all cars and has already engaged the 7000-series vendor in this decision. Cars that are still in production and all future orders will have the chain barriers installed prior to delivery to WMATA, and cars currently in revenue service will be retrofitted over the course of the next 8-15 months.

For additional information or questions, please contact Christian Kent, Assistant General Manager, Access Services at 202-962-2100 or ckent@wmata.com. You may contact me directly at 202-962-1000 or at pwiedefeld@wmata.com.

Sincerely,

Paul J. Wiedefeld
General Manager and
Chief Executive Officer

cc: Patrick Lavin, Chief Safety Officer
Joseph Leader, Chief Operating Officer
Christian T. Kent, Assistant General Manager, Access Services
FTA Region III

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https://wamu.org/sites/wamu.org/files/file_attach/wmata_9-28-2016_response_to_fta_on_between_car_barrier.pdf

What are DOT's ADA requirements for the interiors of Rapid Rail and Light Rail cars

Interior circulation, clear space, handrails, and stanchions
(49 C.F.R. §38.57, 49 C.F.R. §38.77)

- Handrails and stanchions shall be provided to assist safe boarding, on-board circulation, seating and standing assistance, and alighting by persons with disabilities.
- Handrails, stanchions, and seats shall allow a route at least 32 inches wide so that at least two wheelchair or mobility aid users can enter the vehicle and position the wheelchairs or mobility aids
- Two areas, each having a minimum clear space of 48 inches by 30 inches, for wheeled mobility aid users which do not unduly restrict movement of other passengers.
- Ample vertical stanchions from ceiling to seat-back rails shall be provided.
- Vertical stanchions from ceiling to floor shall not interfere with wheelchair or mobility aid user circulation and shall be kept to a minimum in the vicinity of doors.
- Priority Seating signage
- Specific additional provisions about fare boxes and steps on light rail vehicles.

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ADA **Rapid Rail** interior circulation, wheeled mobility aid space, handrails and stanchions requirements (49 C.F.R. §38.57)

WMATA/D.C. Metrorail Breda 3000 series car delivered in 1987 (pre-ADA) showing floor-to-ceiling stanchions (which are 30 inches apart rather than providing a route 32 inches wide required under the ADA)

WMATA/D.C. Metrorail Kawasaki 7000 series car delivery began in 2014. Photo shows with open circulation space, wheelchair space that has handholds and handholds attached to seat backs and windscreens and no floor-to-ceiling stanchions

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Likely configuration of future rapid rail (subway) cars

Bombardier TORONTO Rocket, TORONTO, CANADA (not covered by the ADA). Some cars in the NYC subway system will have *wide, though not full width, gangways*

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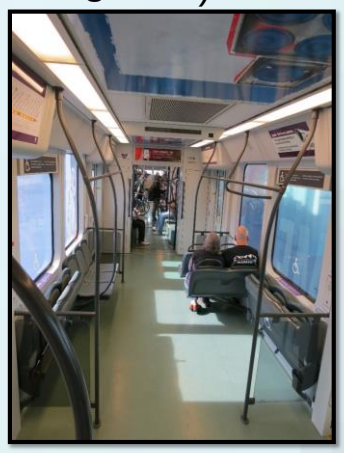
ADA **Light Rail** interior circulation, wheeled mobility aid space, handrails and stanchions requirements (49 C.F.R. §38.77)

Portland Tri-Met Siemens SD660 light rail car showing two wheelchair spaces and priority seating.



Phoenix Valley Metro Kinkisharyo light rail car showing two wheelchair spaces & priority seating.

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ADA **Light Rail** interior circulation, wheeled mobility aid space, handrails and stanchions requirements (49 C.F.R. §38.77)

Above, Minneapolis Metro Transit Siemens S70 light rail car wheeled mobility aid space & priority seating signage.

Wheeled mobility aid space in Charlotte Lynx Siemens S70 (same as Minneapolis Metro. Seem small?)

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Commuter rail cars
49 C.F.R. §38.95

- Requires new commuter cars to provide either level boarding or have level change mechanism
- Provides detailed specifications for load, controls, emergency operation, power or equipment failure, and platform details for car-borne lifts.
- Provides specifics for car ramps and bridgeplates

  and
- Has requirements for mobility aid seating locations

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Commuter rail car mobility aid seating location
49 C.F.R. §38.95

Above, wheelchair space on lower level of Minnesota Northstar Bombardier bi-level commuter car.
Left, wheelchair space on Portland Tri-Met Westside Express Service using single level Colorado Rail Car Diesel Multiple Unit railcar

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ADA commuter rail car restroom provisions

49 C.F.R. §38.107

§ 38.107 Restrooms.

(a) If a restroom is provided for the general public, it shall be designed so as to allow a person using a wheelchair or mobility aid to enter and use such restroom as specified in paragraphs (a) (1) through (5) of this section.

(1) The minimum clear floor area shall be 35 inches by 60 inches. Permanently installed fixtures may overlap this area a maximum of 6 inches, if the lowest portion of the fixture is a minimum of 9 inches above the floor, and may overlap a maximum of 19 inches, if the lowest portion of the fixture is a minimum of 29 inches above the floor, provided such fixtures do not interfere with access to the water closet. Fold-down or retractable seats or shelves may overlap the clear floor space at a lower height provided they can be easily folded up or moved out of the way.

(2) The height of the water closet shall be 17 inches to 19 inches measured to the top of the toilet seat. Seats shall not be sprung to return to a lifted position.

(3) A grab bar at least 24 inches long shall be mounted behind the water closet, and a horizontal grab bar at least 40 inches long shall be mounted on at least one side wall, with one end not more than 12 inches from the back wall, at a height between 33 inches and 36 inches above the floor.

(4) Faucets and flush controls shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf (22.2 N). Controls for flush valves shall be mounted no more than 44 inches above the floor.

(5) Doorways on the end of the enclosure, opposite the water closet, shall have a minimum clear opening width of 32 inches. Doorways on the side wall shall have a minimum clear opening width of 39 inches. Door latches and hardware shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist.

(b) Restrooms required to be accessible shall be in close proximity to at least one seating location for persons using mobility aids and shall be connected to such a space by an unobstructed path having a minimum width of 32 inches.

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Restrooms in commuter rail cars

49 C.F.R. §38.107

Restroom in Virginia Railway Express (VRE) Nippon Sharyo Gallery car

Restroom in Maryland Area Regional Commuter (MARC) Kawasaki MARC III multilevel car

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Restrooms in commuter rail cars

49 C.F.R. §38.107

Above, accessible restroom on lower level of Amtrak California bi-level car (which is sort of a hybrid between a commuter rail car and an intercity rail car). The maximum dimensions of the restroom are approximately 65 inches by 75 inches. Probably the largest restrooms in any passenger rail cars.

Above, restroom on lower level of Minnesota Northstar Bombardier bi-level commuter car.

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What are DOT's ADA Public Information System Requirements?

Rapid Rail

§ 38.61 Public information system.

(a) (1)Requirements. Each vehicle shall be equipped with a public address system permitting transportation system personnel, or recorded or digitized human speech messages, to announce stations and provide other passenger information. Alternative systems or devices which provide equivalent access are also permitted. Each vehicle operating in stations having more than one line or route shall have an external public address system to permit transportation system personnel, or recorded or digitized human speech messages, to announce train, route, or line identification information.

(2)Exception. Where station announcement systems provide information on arriving trains, an external train speaker is not required.

(b) [Reserved]

Light Rail

§ 38.87 Public information system.

(a) Each vehicle shall be equipped with an interior public address system permitting transportation system personnel, or recorded or digitized human speech messages, to announce stations and provide other passenger information. Alternative systems or devices which provide equivalent access are also permitted.

(b) [Reserved]

Commuter Rail

§ 38.121 Public information system.

(a) Each car shall be equipped with a public address system permitting transportation system personnel, or recorded or digitized human speech messages, to announce stations and provide other passenger information. Alternative systems or devices which provide equivalent access are also permitted.

(b) [Reserved]

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Examples of visual Public Address/Communications in Rail Vehicles

Above, visual public address display on New Mexico Rail Runner Bombardier Bi-Level Commuter showing next station.

Upper Right, variable message moving map on D.C. Metro 7000 series rapid rail cars
Lower Right, video display map with connecting and other information on D.C. Metro 7000 series rapid rail car.

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What are the ADA's New Construction & Alterations requirements for stations?

Sec. 12146. New facilities

For purposes of section 12132 of this title and section 794 of title 29, it shall be considered discrimination for a public entity to construct a new facility to be used in the provision of designated public transportation services unless such facility is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

Sec. 12147. Alterations of existing facilities

(a) General rule

With respect to alterations of an existing facility or part thereof used in the provision of designated public transportation services that affect or could affect the usability of the facility or part thereof, it shall be considered discrimination, for purposes of section 12132 of this title and section 794 of title 29, for a public entity to fail to make such alterations (or to ensure that the alterations are made) in such a manner that, to the maximum extent feasible, the altered portions of the facility are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, upon the completion of such alterations. Where the public entity is undertaking an alteration that affects or could affect usability of or access to an area of the facility containing a primary function, the entity shall also make the alterations in such a manner that, to the maximum extent feasible, the path of travel to the altered area and the bathrooms, telephones, and drinking fountains serving the altered area, are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, upon completion of such alterations, where such alterations to the path of travel or the bathrooms, telephones, and drinking fountains serving the altered area are not disproportionate to the overall alterations in terms of cost and scope (as determined under criteria established by the Attorney General).

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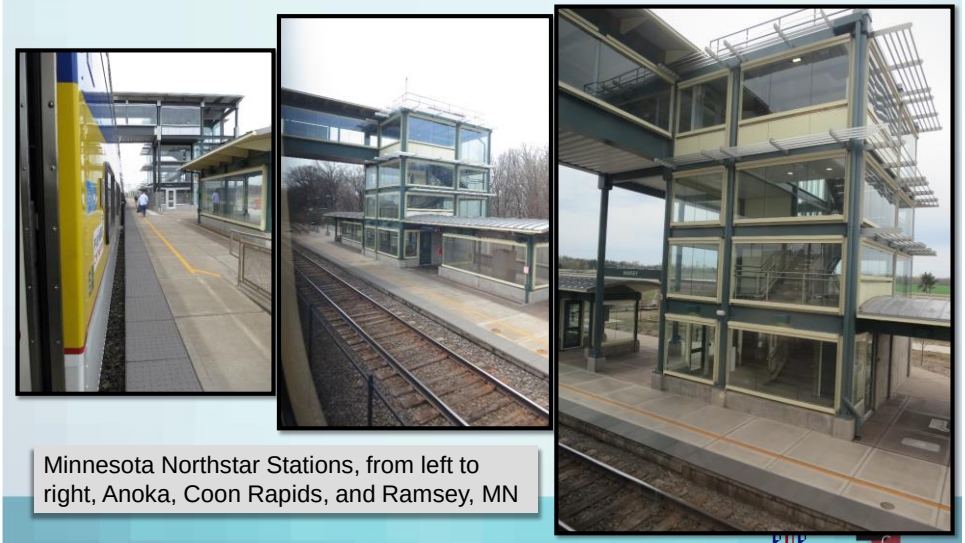
Examples of newly constructed Commuter Rail Stations



Minnesota Northstar Stations, from left to right, Anoka, Coon Rapids, and Ramsey, MN

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Alterations of Rapid Rail Stations to provide accessibility

Street to station elevator kiosk in the style of original stairway kiosks at New York City MTA rapid rail Brooklyn Bridge-City Hall Subway Station for #4, #5 #6 trains

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Recent ADA Rapid Rail Station Alterations Litigation

- *Bronx Independent Living Services v. Metropolitan Transportation Authority* (S.D.N.Y.) Failure to include elevators in $1.25 Million closing and rehabilitation of Middletown Road Bronx #6 Pelham line station. On March 13, 2018, U.S. Department of Justice moved to intervene in case in support of plaintiffs.
- *Senior and Disability Action, et al. v. San Francisco Bay Area Rapid Transit District* (N.D. Calif.) Obligation under ADA to maintain accessible features (elevators)- Disability Rights Advocates with co-counsel from Legal Aid at Work. Case in discovery.
- *Center for Independence of the Disabled New York (CIDNY), et al. v. New York City Transit Authority (NYCTA), et al*. (S.D.N.Y.) Obligation under ADA to maintain accessible features (elevators). Case in discovery.
- *Center for Independence of the Disabled New York (CIDNY), et al. v. New York City Transit Authority (NYCTA), et al.* (N.Y. State Supreme Court) – Broad challenge under NYC Human Rights Law for failure to take steps to make system accessible - Disability Rights Advocates with co-counsel from Sheppard Mullin. Court held in abeyance Transit Authority's Motion to Dismiss and directed parties into settlement talks.

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DOT and DOJ ADA requirements for fare machines & web accessibility

2010 ADA Accessibility Guidelines

§220 Automatic Teller Machines and Fare Machines

- Provide at least one compliant with §707

§707 Automatic Teller Machines and Fare Machines

- Standards for clear floor space, operable parts, privacy, speech output, receipts, input controls, numerical keypads, function keys, tactile symbols, display screen and braille

Web – while there are no explicit ADA Title II regulations, DOJ's enforcement activity clearly requires Title II entities to comply with the Web Content Accessibility Guidelines 2.0, Level AA.

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Fare Machines

NYC MTA MetroCard Transit Fare Machine Accessible Features:

- Audio plug to provide accessibility and privacy for blind users to access audio instructions
- Large function keys for individuals with dexterity limitations also have braille for identification
- Height of screen, operable parts, currency/bill validators and coin and credit card slots accessible to wheelchair users

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Another fare system accessibility issue

BART Clipper Card

Date Settled: **11/24/2015**

BART Clipper Card (fare payment card) readers at BART fare gates did not provide any audible feedback so blind passengers could not easily determine whether to move through the gates or whether they would not be able to because of an error or low-balance.

BART and the Metropolitan Transportation Commission ("MTC") signed a settlement in which they agreed to improve the accessibility of the Clipper Card system at BART stations by modifying the fare gates to emit audible Tagging Tones. The Tagging Tones will now communicate to blind or low-vision passengers their successful entry or exit through a fare gate, as well as any error or low-balance on their Clipper Cards.

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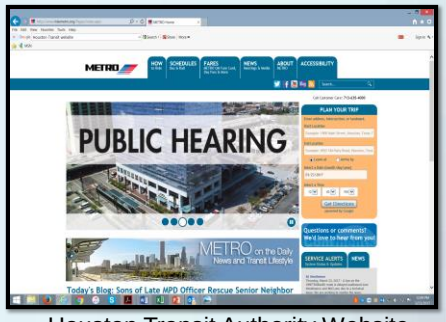
Websites
Houston METRO Agreement

METROPOLITAN TRANSIT AUTHORITY OF HARRIS COUNTY ANNOUNCES DIGITAL ACCESSIBILITY INITIATIVE

HOUSTON (March 17, 2016) — Consistent with its commitment to all of its riders, the Metropolitan Transit Authority of Harris County ("METRO") today announced an initiative to make its affiliated websites, mobile applications, and print formation more accessible and inclusive.

METRO adopted the Web Content Accessibility Guidelines (WCAG) version 2.0 level AA as its accessibility standard and is making enhancements to work toward meeting this standard.

METRO worked with blind riders and with Disability Rights Texas, a non-profit legal advocacy agency serving Texans with disabilities, on its accessibility initiative.



Houston Transit Authority Website

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Accessibility nationwide, a mix

- Newer light rail systems and new commuter rail cars and stations are largely accessible
- Some older rail systems are getting better but some have a long way to go: https://www.nytimes.com/2017/03/29/opinion/new-york-has-a-great-subway-if-youre-not-in-a-wheelchair.html?_r=0
- For example, as of November 2016, 106 out of 139 (75%) of MBTA commuter rail stations were accessible.
- A Key requirement is to *maintain infrastructure, particularly elevators*

SHINING EXAMPLE

- MassDOT – Office of Performance Management & Innovation MBTA 2016 Scorecard page 65

PERFORMANCE MEASURE	CURRENT (FY16)	CHANGE FROM FY15	2-YEAR TARGET
Platform accessibility (all rapid transit stations with elevators)	99.5% (April 2015 - March 2016)	+0.1% (April 2014 - March 2015)	In development
Vehicle accessibility (Green Line)	98.6%	no data	In development
Customer satisfaction[2]	3.2	no data	In development

http://www.massdot.state.ma.us/Portals/0/docs/infoCenter/performancemanagement/AnnualPerformanceReport_2016.pdf

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An inspiration for rail accessibility advocacy

"Grab Bar" over bed in President Franklin D. Roosevelt's 1920s- 1930s Private Rail Car, the "Marco Polo"

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Questions?

I hope you enjoyed this presentation

- I had fun putting it together
- I am happy to answer additional questions or provide information
- All photographs by Kenneth "Ken" Shiotani

Contact information:
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Requests for Certificate of Participation

- Please consult the reminder email you received about this session for instructions on obtaining a certificate of participation for this webinar.
- Requests for certificate of participation must be sent to ADAtraining@transcen.org no later than **5 PM ET on Wednesday, April 4, 2018**.

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Certificate of Participation Code:

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Thank You!

Mid-Atlantic ADA Center

Toll Free: **800-949-4232** (DC, DE, MD, PA, VA, WV)
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