AAC 8000-SERIES RAILCAR HANDBOOK

PREFACE

Universal Design and the Accessibility Advisory Committee's Role

The mission of the Accessibility Advisory Committee (AAC) includes recommending improvements for WMATA's MetroRail facilities meant to benefit the disability community, seniors, and the ridership at-large. This Handbook represents the cumulative efforts of the AAC as it has recommended design features for the 7000-Series train cars and the new 8000-Series. Based on meeting minutes from 2011-2019 archived on WMATA's website and e-mails among AAC members and staffs, the information here serves as a work-in-progress "Handbook" building on ideas that the AAC has offered thus far to improve accessibility in railcars.

Growth in the concept and implementation of universal design for the built environment has evolved over recent decades to address homes, schools, offices, and commercial spaces in addition to sidewalks, streets, and all forms of transportation used to move people from point A to point B. Many contractors have experience working on the design and construction of land-based vehicles. Some are familiarity with universal design as the concept reflects the requirements of the Americans with Disability Act, Section 504, and related laws and regulations. Meanwhile, over the years, AAC has helped WMATA and its engineers and contractors by offering practical suggestions yielding improved accessibility throughout MetroRail.

In early July, the AAC's Bus/Rail Subcommittee was delighted to meet and congratulate Lisa Woodruff and Laura Mason, two of the three women newly selected to head up WMATA's rail management leadership. At that time, design and construction contractors here and around the world were still preparing their plans proposed for bidding on the upcoming 8000-Series trains. In early October, the AAC greeted Paul Smedberg who had recently become WMATA's Board Chair. In both the July and October meetings, the AAC alluded to the B/RS's work

preparing this Handbook to share with WMATA's engineers and the soon-to-be selected contractors for their consideration when launching their work.

Table of Recommendations

[Additional details about the Recommendations shown in the following Table appear in the Chronological section below this Table.]

Recommendation	**Details**
1. Between-Car Security Barriers	Pictured below are typical chain-like barriers hung between two cars of the 7000-Series and earlier Series of trains.  In 2019, the AAC approved a security barrier (seen on photo below) with the understanding that the security barrier, still in development, becomes modified to extend slightly downwards.  [Note: In 2018, the B/RS reviewed how other subway systems can safeguard low-vision and other riders from falling into the gaps between cars. The AAC then recommended that WMATA consider a pilot project to run articulated or "open gangways trains" used in 75 percent of systems worldwide and to be piloted by New York City's MTA in 2021.

Recommendation	Details
	Articulated buses have no gap between the front and rear sections, and open gangways train cars are similarly connected so that no gap exists between any two cars. The AAC recommendation was not accepted.]
2. "No Bicycle" Signs	Prominently place large "No Bicycle" sign on the glass of the center doors readable from outside and inside. (See photo below.) 
3. Priority Seats	Designate four priority seats (only two are seen below) per train with access logos on the wall and clearly visible on the back of each seat cover. 

Recommendation	Details
4. Space for Two Wheelchairs; and Nearby, Variable Height Seats for People With Other Disabilities	Locate spaces for two wheelchairs in the center of each car but away from the intercom. Each space should be large enough to park a battery-powered wheelchair and with sufficient room to shield wheelchair users from the legs or feet of riders in adjacent seats. Handholds should be provided for wheelchair users to maintain stability. Attach to the wall beside each designated space just a single pair of seats whose seat bottoms can be raised or lowered. When no wheelchair is occupying a designated space, each seat bottom can be lowered to enable another rider to use one of the wall-attached seats. 
5. Armrests	The first row of seats (next to the designated Priority Seats) should have an armrest to assist riders when rising. The shield with the "M" (as seen below) should be narrowed to allow the lower metal support bar to be designed wide enough to aid those seated when they rise from the seat. WMATA should explore adjustable armrests (such as in aircraft armrests) or removable armrests to accommodate riders of different abilities. 

Recommendation	Details
6. Seating	A few designated seats should have adjustable heights to match riders of different heights. Some riders are unable to stand up from seats that are too low; others lose stability because the seats are too high for them to place their feet on the floor.
7. Flooring	Non-slip weatherproof flooring replaced the older carpets that had been on the pre-7000-Series railcars. The flooring should be reassessed for its effectiveness in preventing slippage.
8. Floor Marking	In addition to the blue access symbol shown elsewhere, any floor space designated for mobility devices should be marked (as seen in the photo below).  Flooring in the 8000-Series can be of any color as long as the access symbol is large and in a color that will contrast well with the floor color.]
9. Priority Seat Signage	Place access symbol for Priority Seats above or near the seats and also on the seat backs themselves. (See photo below, twin Priority Seats in cars of the Santa Monica line of the Los Angeles Metro).

Recommendation	Details
	
10. Accessibility symbol	WMATA should consider using a modern, more action-oriented access symbol. One (of many online examples) is shown below. 
11. Rails and Handholds	The 7000-Series lacks handholds in the center section of cars. WMATA should consider handholds in the center similar to ceiling-mounted rails by the center doors on the 2000-Series or else a ceiling rail from a car's front to the back end above the center aisle. Either type of rail should be high enough from the floor to avoid touching the riders' heads. 

Recommendation	Details
12. Posters, Notices, and Maps	Increase the text size of the poster that provides emergency instructions. Consider mounting a ceiling map better viewable in a crowded car
13. Emergency Instructions	Indicate locations of intercoms and the evacuation instructions for wheelchair and other mobility device users. Standardize all information on the emergency instruction card. Move wheelchair spaces away from intercoms and emergency door release
14. Information Systems	Improve audio and video information systems
15. Train Operator Visibility	Improve visibility to enable the train operator to see all eight cars, especially during rush hour, by using closed-circuit TV system or by providing operator access to platform cameras.
16. Communica-tions	More network or hotspot availability in railcars. Having a hotspot system will provide riders with disabilities reliable and accurate information regarding elevator or escalator outages, or other pertinent information with enough time for them to react accordingly. 8000-Series announcements should be informative, clear, and concise. The AAC has previously submitted comments to WMATA regarding announcements. (See Addendum.) WMATA should explore live captioning of the conductor announcements.

The above recommendations flow from the AAC's commitment to improving the riding experience for people with disabilities and seniors. Moreover, the AAC believes that by helping WMATA progress towards full accessibility, all riders will benefit. For example, though scarcely known, the history of curb-cuts, as originated by Berkeley, California wheelchair users in the early 1970s, subsequently showed that everyone who uses streets and sidewalks benefits from the curb-cuts universally available throughout the U.S. and in many places elsewhere around the globe.

Chronological Summary of Train Recommendations

2011

The year 2011 is the earliest point on record at which the Accessibility Advisory Committee began contributing to railcar design. Many AAC recommendations were adopted.

These recommendations included:

1. Continuing to use and update gap reducers for the gap between the car door and the station platform and;

2. The design of between-car security barriers to safeguard low-vision and other riders from inadvertently falling into the gap between two cars.

2012

WMATA's Chief Engineer for Railcars provided an update on Metro's 7000-Series cars. The features included larger seats, more handrails, automated stop announcements, an emergency call button near the priority seating area, and new display signs to identify the train's location. The Chief Engineer also stated that all 18 recommendations by the AAC were accepted and that a prototype of the 7000-Series cars would be available for the AAC to inspect.

2013

The B/RS began focusing on train announcements. Placing the speaker on both sides of the car doors enhances riders' ability to hear information no matter where they sit or stand. The B/RS recommended that the Office of Rail Transportation (RTRA) implement a policy that all announcements be made five seconds after a train enters a station and prior to the opening of the car doors. The B/RS also reiterated the importance of the priority seating. **Momentum**, WMATA's 2013-2025 strategic plan, was also discussed.

2014

The AAC expressed interest in test-riding the 7000-Series car in FY2015. Staff stated that they would follow-up on the request. WMATA reported at the July B/RS meeting that the first cars would be available in December 2014.

2015

The AAC expressed concerns about the location of the emergency evacuation areas in the cars. Locating the evacuation area in the same place where mobility device users are would be hazardous for all riders. Riders with disabilities might become shoved or clambered over by other riders rushing in an emergency. The AAC had long advocated for a change to this policy, but to no avail. Emergency personnel reported no incidents in such a situation and stated the reason for the use of the center door is due to the placement of the third rail.

The B/RS noted that all AAC recommendations were met with two exceptions:

1. No action was taken regarding the placement of wheelchair parking spaces; and

2. No action was taken regarding the inclusion of armrests on the first forward-facing seat near the priority seating.

The concern for wheelchair placement echoed the safety considerations discussed previously. The lack of armrests caused concern because without them riders with limited standing abilities would have nothing to assist them in rising from their seat. The B/RS also recommended recognizing the difficulties in accessing a railcar where the platform is at a different height than the car.

2016

The AAC reiterated its recommendation to move wheelchair spaces away from the vicinity of the emergency doors and the intercoms. It repeated its request to install armrests on the first row of priority seats.

2017

Discussion about the 7000-Series train centered around how the cars display information to riders. The AAC recommended that the "No Bicycle" signs should be larger and repositioned to enable riders to see the signs better. The AAC urged the consideration because cyclists and their bicycles often take up spaces designated for mobility device users. By more effectively conveying the information, all riders might situate themselves more appropriately.

2018

The AAC continued to express concern with the hazards of slippage on the floors of the 7000-Series railcars. The AAC went on to recommend that a workgroup should be formed to give feedback on 8000-Series trains. Several formal recommendations came out over the year regarding the new series:

1. That Metro install larger screens for the 8000-Series railcars;
2. That Metro develop several new videos on priority seating and employ persons with disabilities and seniors to be shown on-screen;

3. That the 8000-Series announcements be more informative, clear, and concise (see Addendum);

4. That the 8000-Series cars have adjustable or removable armrests;

5. That Metro explore how priority seating might include options for adjustable seats to accommodate riders of differing heights or riders with a variety of other needs; and

6. That Metro reverse the current seating and the wheelchair parking space, so that the benches are placed under the intercom.

2019

The AAC also recommended that the WMATA Board and General Manager/CEO consider adopting the open gangways car design for the 8000-Series or at least a trial set of trains with open gangway cars. As with an articulated bus that has no gap between the front section and the rear section, there are no gaps between any two cars of open gangway trains. Thus, the chain-like link or the security barrier link now under development (see photos in No. 1 above) would become unnecessary, with low-vision and other riders benefiting from the safest arrangement.

Eliminating the gaps between cars was the AAC's primary reason for recommending that WMATA consider operating open gangways trains. Another benefit is that such trains can carry more riders per train than the 7000-Series and earlier trains. Moreover, about 75 percent of the world's Metro/subway systems already operate open gangways trains and even New York City's Metropolitan Transit Authority plans to operate 20 such trains within two years. For all such reasons, AAC resolved to continue collecting data and other information to support recommending this design.

The AAC learned that bids for the 8000-Series were due from contractors on April 4th (later changed to fall, 2019). In 2019, the AAC also began compiling all its past and current recommendations on railcar design and started drafting this Handbook.

Addendum Regarding Announcements:

Relevant to the design of the 8000-Series train are recommendations earlier submitted by the AAC regarding the announcements made within cars and on station platforms. First, the AAC noted that for a time prior to the replacement of the clam shell security barriers on the 7000-Series trains, the announcements heard by riders were:

1. "This is a 7000 series car;
2. "Doors opening;
3. "Step back to allow customers to enter;

4. "When boarding, please move to the center of the car;
5. "This is a XX line train to (last stop)"The next stop is (next station)."

The announcement, “This is a 7000 series train,” puzzled many average riders and was, of course, discontinued after the faulty clam shell security barrier model was replaced by the chain security model. From observations voiced by ACC members and statements made by public commenters during AAC or B/RS meetings, the ACC concluded that those announcements are lengthy and offer the most pertinent information at the end of the sequence. Also, because the message so long during non-peak hours, train operators often shorten the announcement, which could result in no verbal indication of the train’s direction; for trains, designated as “special” an audio cue might be the only source of that information.

In current messaging, the name of the station is not given. The final destination and next stop is left until the end of the message. And yet, these three pieces of information are arguably the most important, especially for new riders. Moreover, those with visual or auditory impairments are forced to wait until just before the doors close before they know where the train is headed. The AAC is concerned that for a rider to rush to board a train before it leaves -- while fully informed or not -- is a safety hazard that can be avoided by simply changing the delivery sequence.

The PID System also provides pertinent information and is especially important to assisting those that may not hear the varied announcements. The screen currently cycles through information including track work, elevator outages, sporting events, and shuttle service. The AAC recommends that upon a train's arrival, the screen reverts to train-related information so that those coming down the stairs can know which train is arriving (and where it is going) before it comes into view. In addition to the PID screens on the platform, the AAC further recommends that the screens located on the 7000-Series trains indicate any elevator outages on the given line, if possible. Train operators rarely give such information with enough time for the rider to consider options and make decisions.

As more pertinent messaging to all riders, the AAC recommends the following:

1. "This is: [NAME of the station];
2. "This [color] line train goes to [last stop's name];
3. "Next stop: [NAME of next stop];
4. "Chimes;
5. "Doors closing."

In addition, the AAC recommends the inspection of all equipment used for train announcements -- especially the equipment in trains manufactured before the 7000-Series -- and repairing or replacing poorly functioning equipment. Also, announcements by some operators are spoken too quickly, often lack clarity, or are otherwise unintelligible which is made worse during times of peak noise while the train is moving. Thus, operators should be routinely auditioned for the clarity and effectiveness of their announcements and offered subsequent help in enunciation and the pacing of speech.

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