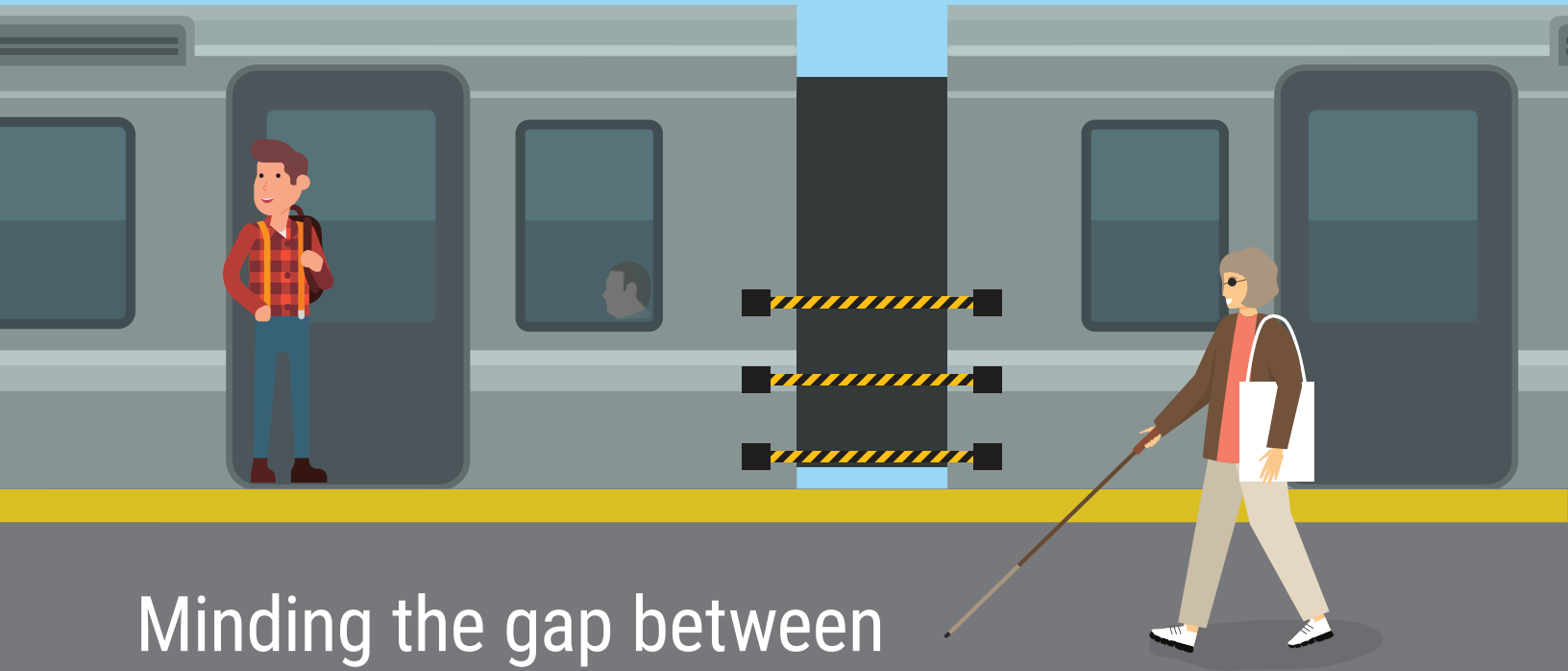


For assistance with your application, contact a
People Guidance Pro at 631-582-8600 or Sales@Visiontron.com



Minding the gap between train cars isn't always easy for passengers with visual impairments.

People with visual impairments face an enormous set of challenges getting from point A to point B independently, particularly when using mass transit. If an environment is not suited with the proper audio guidance or clear visual safety warnings, it can be an unnecessarily dangerous journey.

Just one of the many safety concerns is the open space between train cars when they are at a station stop with level-boarding platforms. The gap between the train cars can easily be confused for a doorway, creating a perilous opportunity for a passenger to fall between the cars and onto the track bed.

After several incidences of people falling between train cars onto the track bed, the Federal Transit Authority (FTA) posted new regulations effective Nov. 4, 2015 in compliance with the Americans with Disabilities Act (ADA) of 1992:

49 CFR (Code of Federal Regulations) § 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.

Compliance with ADA Act requirements and FTA policy is a condition of receiving Federal financial assistance.³

These relatively new regulations are an example of how agencies are aiming to make a safer voyage for all passengers.

There are Two Types of Between-car Barriers (BCBs)

Platform BCBs

Platform barriers are suitable for GoA 2-4 (Grades of Automation) systems. Because they are fully automatic, trains can stop at the same specific location at each station. Mounted stanchions, bollards, or panels that are permanently installed on the platform block the gap between cars and clearly guide travelers to the correct doorways to board the train.



Bollards or Eliminators

- PVC mounted tubes mounted onto the platform.
- Might have some flexibility to absorb light impacts.
- Outdoor-rated materials are weather resistant.
- Bright colored tubes and reflector tape create a safety barrier.

Retractable Belt Barriers

- ADA-compliant dual line, retractable belts can provide safety messages, warning graphics and/or bright colors.
- Stanchions are permanently mounted to platform in various ways, depending on platform construction.
- Outdoor-rated materials are weather resistant.

Aluminum-Framed Rigid Panel Barriers

- Metal framed panels mounted on stanchion posts create a rigid barrier wall.
- Insert materials can vary, from frosted Plexiglas to perforated metal for added durability.
- Custom print inserts with safety messages advertisements to generate additional revenue.

Loop Posts + Chains

- Stainless Steel Loop Post can be mounted onto the platform.
- ADA-compliant 2 or 3-line chains can provide a clear barrier.*
- Outdoor-rated materials are weather resistant.

* Image shows three chains.

Other solutions not shown:
 - Tactical Floor Mats
 - Fencing

On-Car BCBs

Crew-operated rapid rail GoA 0-1 level-boarding systems cannot guarantee alignment with on-platform BCBs. Therefore, the broad solution is to attach barriers onto the rail cars to help travelers avoid the gaps. These barriers can either meet in the middle of the gap or stretch across the gap from one car to another.



Retractable Belt Barriers

- Units are securely mounted on train cars.
- Belts extend and retract easily to accommodate as trains round turns.
- Belts can provide safety messages, warning graphics and/or bright colors.
- Outdoor-rated materials are weather resistant.

Chains

- Chains are affixed to both cars with mounting brackets.
- Enough slack must be considered to accommodate for trains rounding turns, which might render them ineffective to stop a person from falling between cars.
- Outdoor-rated materials are weather resistant.

Bungee Cords

- Bungees are affixed to both cars with mounting brackets.
- Wear on the bungees as trains round turns could stretch them out and create slack, which might render them ineffective to stop a person from falling between cars.
- Outdoor-rated materials are weather resistant.

Integrated Car Design

Rail car manufacturers are beginning to introduce On-Car BCB solutions on new car builds and many are adopting similar proven technology that is being used on the retrofit fleets.

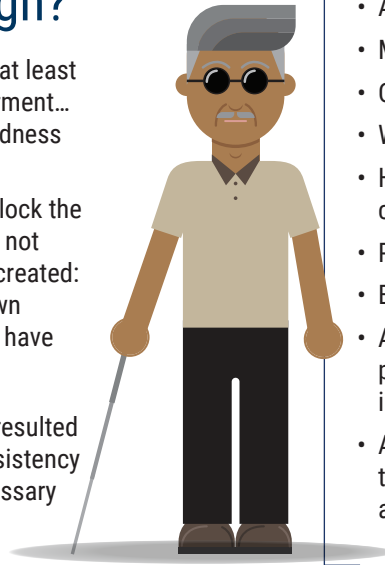
Other solutions not shown:
 - Chains & Rubber Barriers
 - Pantograph Gates
 - Audio Alarms

Are these regulations enough?

According to the World Health Organization, “globally, at least 2.2 billion people have a near or distance vision impairment... The majority of people with vision impairment and blindness are over the age of 50 years.”³

The general mandate to put a barrier of some sort to block the gap between rail cars is a great first step. However, by not providing full specifications, a new problem has been created: inconsistency. Rail companies have developed their own solutions with no industry standardization. Some even have variations among different fleets.

While each solution may be deemed compliant, it has resulted in an unexpected experience across rail systems. Consistency sets expectations for disabled passengers and is necessary when developing the safest standards.



What do the DOT ADA regulations for rail vehicles require? (49 C.F.R. §38)¹

- Accessible railcard
- Means for wheelchair users to board
- Clear path for wheelchair user in rail car
- 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

For a significant number of visually impaired and blind persons, public transport plays an important role in productivity, community involvement and independence, since it may be the sole viable mobility option to seek education, work, medical care, food and many other venues in their community.¹

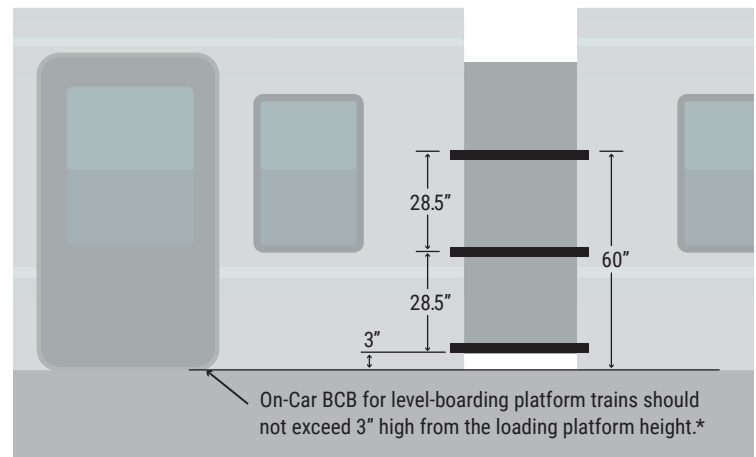
Standardizing On-Car BCBs.

Travelers who are blind or have visual impairments use a cane in different ways to detect obstacles in their path. The preferred technique is the Constant Contact method, in which obstacles or elevation changes are detected at every point in the swing of the cane arc. Alternatively, in the Standard Method, the cane just 1-2" off the ground at the center of the arc.⁵ This must be considered when standardizing and specifying Between-car Barriers.

Inconsistencies in current, compliant on-car BCB solutions must be reviewed for efficacy and standardized in order to create a universal solution that keeps everyone safe.

We call on regulators to standardize on-car BCB specifications with the following considerations*:

- Maximum distance from the train floor to the bottom of the barrier must not exceed 3" high or 6-8" away from the platform edge to properly inform cane users of the barrier.
- The top of the barrier should be level with an average person's shoulder height or 5' high from the train floor.
- If using several single line barriers, a middle one should be evenly placed between the top and bottom barriers.
- A standard, bright color or contrasting pattern should be used.
- Acceptable, fail-safe materials should be required.



Many transit organizations are migrating towards a solution that has been proven to be effective.

Originally developed for Siemens (San Fran Muni) and Valley Metro, the **RETRACTA-BELT®** BCB412 Series is a specialized barrier designed specifically for Between-car Barrier applications. Thicker belt webbing, a stronger internal spring and metal components in critical wear and breakage points are just a few upgrades to meet the heavy requirements of constant outdoor rail transit.

The solution has been tested and deployed over the past five years among various mass transit authorities such as Hudson-Bergen and Metro Houston. The BCB412 has proven itself as a preferred and affordable on-car BCB solution among our transit customers and is being utilized for both retrofit and new construction applications.

"We tried (a) platform solution but we had a variation in (the set of locomotive cars) spacing which made it not feasible," said Michael Bogonvich, MetroRail Vehicle Engineer for Metro Houston/Siemens. "Visiontron was very easy to work with, developing and producing a product to our specifications."

Visiontron has been a US manufacturer of standard and custom people guidance products for 50+ years. With our talented team of engineers and on-site manufacturing capabilities, we can quickly customize a wide range of crowd control solutions for airports, venues, retailers and more. From slight adjustments to complete new concepts we are here to help.



For assistance in finding the right solution for your application, please contact your People Guidance Pro at **(631) 582-8600** or **Sales@Visiontron.com**.



1. "Assisting Visually Impaired People in the Public Transport System through RF-Communication and Embedded Systems" Published 3/14/2019, Sensors, PMC <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6471122/#B2-sensors-19-01282>
2. "Information and Technical Assistance on the Americans with Disabilities Act" United States Department of Justice, Civil Rights Division https://www.ada.gov/ada_intro.htm
3. "49 CFR 27.19 - Compliance with Americans with Disabilities Act requirements and FTA policy." <https://www.govinfo.gov/app/details/CFR-2009-title49-vol1/CFR-2009-title49-vol1-sec27-19/summary>
4. "Blindness and Vision Impairment" Fact Sheet, 2/26/2021, World Health Organization <https://www.who.int/en/news-room/fact-sheets/detail/blindness-and-visual-impairment>
5. "Long Cane Techniques" Study Guide https://tech.aph.org/sbs/04_sbs_lc_study.html