



## **Reducing Parking Lot Injuries, Storefront Crashes, and Tort Claims: Safety Bollards, ADA Parking Signposts, and “Wheel Stops”**

*(A Joint Position Paper of the Storefront Safety Council and Richard Avelar & Associates)*

**Safety bollards** are vertical posts, commonly fabricated from steel, that serve as a physical barrier against vehicle-into-building and vehicle-into-pedestrian crashes (and vehicle intrusions into ADA-mandated accessible pedestrian routes). Industry standard ASTM F3016 (*Standard Test Method for Surrogate Testing of Vehicle Impact Protective Devices at Low Speeds*),<sup>1</sup> promotes and standardizes the testing of such safety bollards, making it easier for design professionals and property owners and managers to select crash-tested products to increase public safety and reduce risks and liability from these increasingly common incidents.

✓ ***Installing bollards at storefronts across North America would prevent numerous injuries and deaths.***

Vehicle accidents at storefronts can occur for all sorts of reasons and involve drivers of all ages and physical abilities. Since 2011, the Storefront Safety Council ([www.storefrontsafety.org](http://www.storefrontsafety.org)) has collected data on these vehicle-into-building crashes and has published figures showing that such storefront incidents occur more than 60 times per day, injuring more than 4000 pedestrians, patrons, and employees each year: “*preliminary data shows as many as 500 deaths result from these largely preventable accidents.*”<sup>2</sup> In 2006, the Council made the original proposal for what became industry standard ASTM F3016 for testing safety bollards.

Section 502.6 of the 2010 ADA Standards<sup>3</sup> requires parking space identification signs at accessible parking spaces. Such signage, positioned at least 60 inches above the surface, often is supported by steel **signposts** that provide very little structural resistance to vehicle impact when drivers mistake their gas pedals for their brakes. During such incidents, collapsing signposts have folded the metal signage and posts into pedestrians or into vehicle windows, resulting in serious injury.

✓ ***Installing these ADA signposts into F3016-tested safety bollards would avert such injuries while also preventing vehicle-into-building and vehicle-into-pedestrian crashes.***

Section 502.7 of these 2010 ADA Standards mandates that accessible parking spaces be designed so that vehicles, when parked, cannot obstruct the “*required clear width*” of adjacent pedestrian walkways. The Department of Justice advises that **wheel stops** can be an effective method for preventing vehicle overhangs from reducing the required clear width of accessible routes. However, these wheel stops also directly cause numerous pedestrian trip-and-fall injuries nationwide.

✓ ***Installing safety bollards (with/without the ADA-required signage) at accessible parking spaces would allow complete removal of these unnecessarily dangerous wheel stops.***<sup>4</sup>

Similarly, while pedestrian trip-and-fall injuries caused by **wheel stops** don’t just happen at those parking spaces located directly in front of busy stores, it stands to reason that whenever such devices are positioned where pedestrians are most likely to congregate, the highest rates of trip-and-fall incidents will occur. Richard Avelar & Associates, a California-based leader in the fields of building codes/accessibility analysis and the forensic architectural deconstruction of failed buildings, recently has published a seminal paper: “*Let’s Eliminate Parking ‘Wheel Stops’ at Busy Storefronts*”.<sup>5</sup>

✓ ***To this goal, we strongly support the recommendations of industry standard ASTM F1637 (Standard Practice for Safe Walking Surfaces):***<sup>6</sup>

- ***“9.1 Parking lots should be designed to avoid the use of wheel stops.”***
- ***“...9.7 Bollards, not less than 3 feet in height, may be placed in the center of parking stalls as an alternative to wheel stops.”***



At these accessible parking spaces in San Francisco, CA, the only minor purpose for these concrete wheel stops (which constitute a major pedestrian tripping hazard) is to help deter vehicle interactions with the metal ADA signposts.

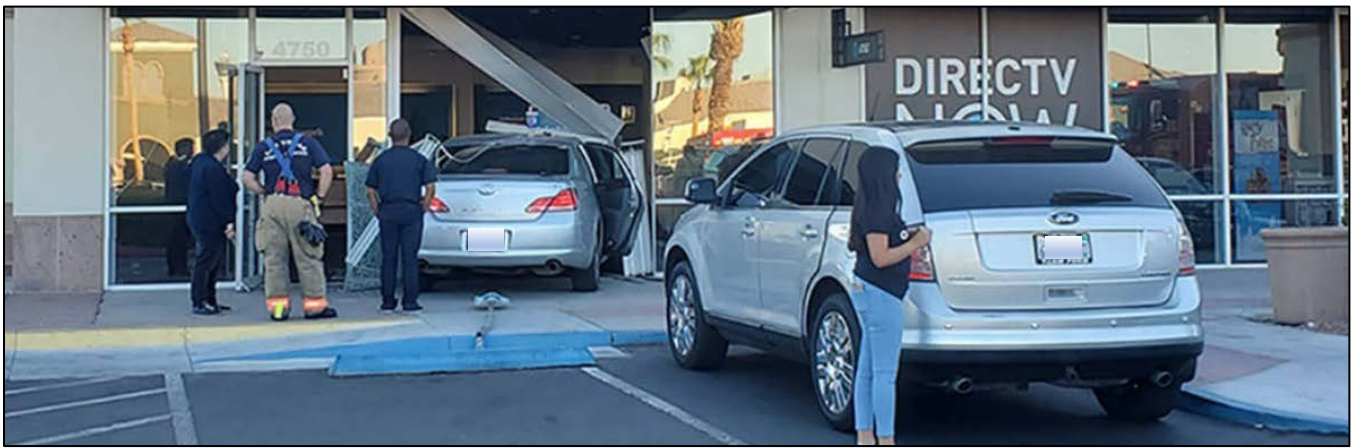


Vehicle-safety bollards protect the required ADA signposts at these well-designed parking spaces in San Clemente, CA.



Safety bollards similarly protect the required signposts at these well-designed parking spaces in Mill Valley, CA.

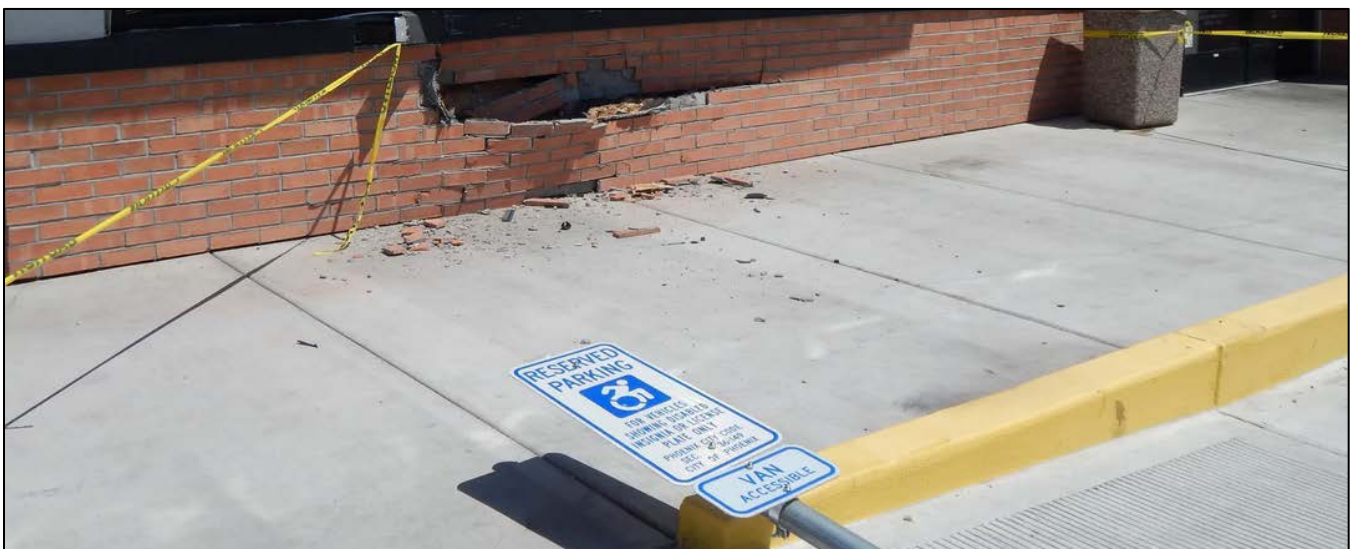




**In Las Vegas, this vehicle was not stopped by either the 'wheel stop' or the now-flattened ADA signpost.**



**Typical metal signposts supporting ADA signage simply cannot protect buildings or pedestrians.**



**This typical ADA signpost could not protect this storefront in Phoenix, AZ.**



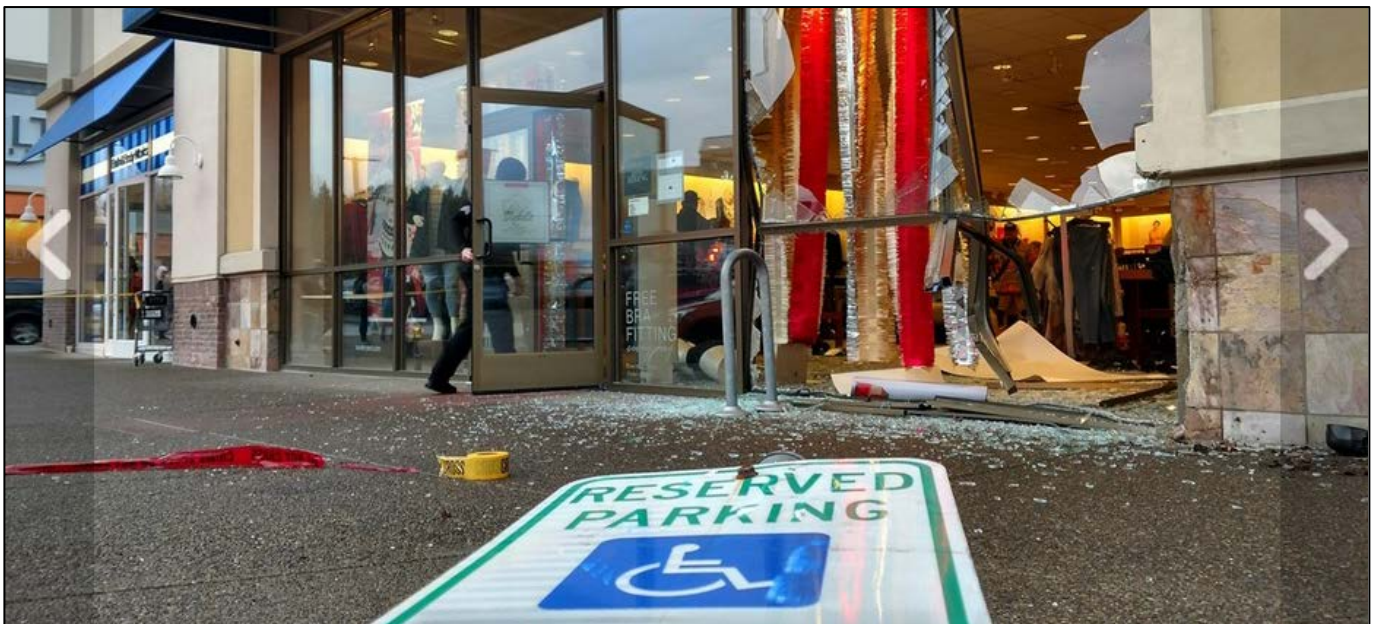


**At this smashed window and wall in Grand Haven, MI, note the crumpled metal signpost with ADA signage.**





**Photo 1 of 3: in Gresham, Oregon – by supporting this metal ADA signpost with a safety bollard...**



**Photo 2 of 3: ... this vehicle could have been prevented from smashing through the storefront window...**



**Photo 3 of 3: ...and deep into this crowded store!**





Similarly, a safety bollard could have protected this store in Montgomery, KY...



...or this store in Grangeville, Idaho!

Throughout North America, drivers who have inadvertently mistaken their gas pedals for their brakes drive over both the 'wheel stops' and the flimsy metal signposts that support the required ADA signage at public storefronts.

These accidents often greatly damage these buildings and can severely harm store customers and passing pedestrians.

Meanwhile, other pedestrians continue to suffer very serious trip-and-fall injuries at 'wheel stops' that serve little purpose.

These accidents and injuries readily could be eliminated by protecting these ADA signposts with safety bollards and also removing the wheel stops!



**These ASTM F3016-tested safety bollards in Massachusetts represent modern “best practice” and the future industry standard for life safety protection at accessible parking spaces at busy storefronts.**



**These ASTM F3016-tested safety bollards in Massachusetts represent modern “best practice” and the future industry standard for life safety protection at accessible parking spaces at busy storefronts.**





**This safety bollard in Dana Point, CA serves to prevent vehicle crashes while also protecting the bank's customers.**

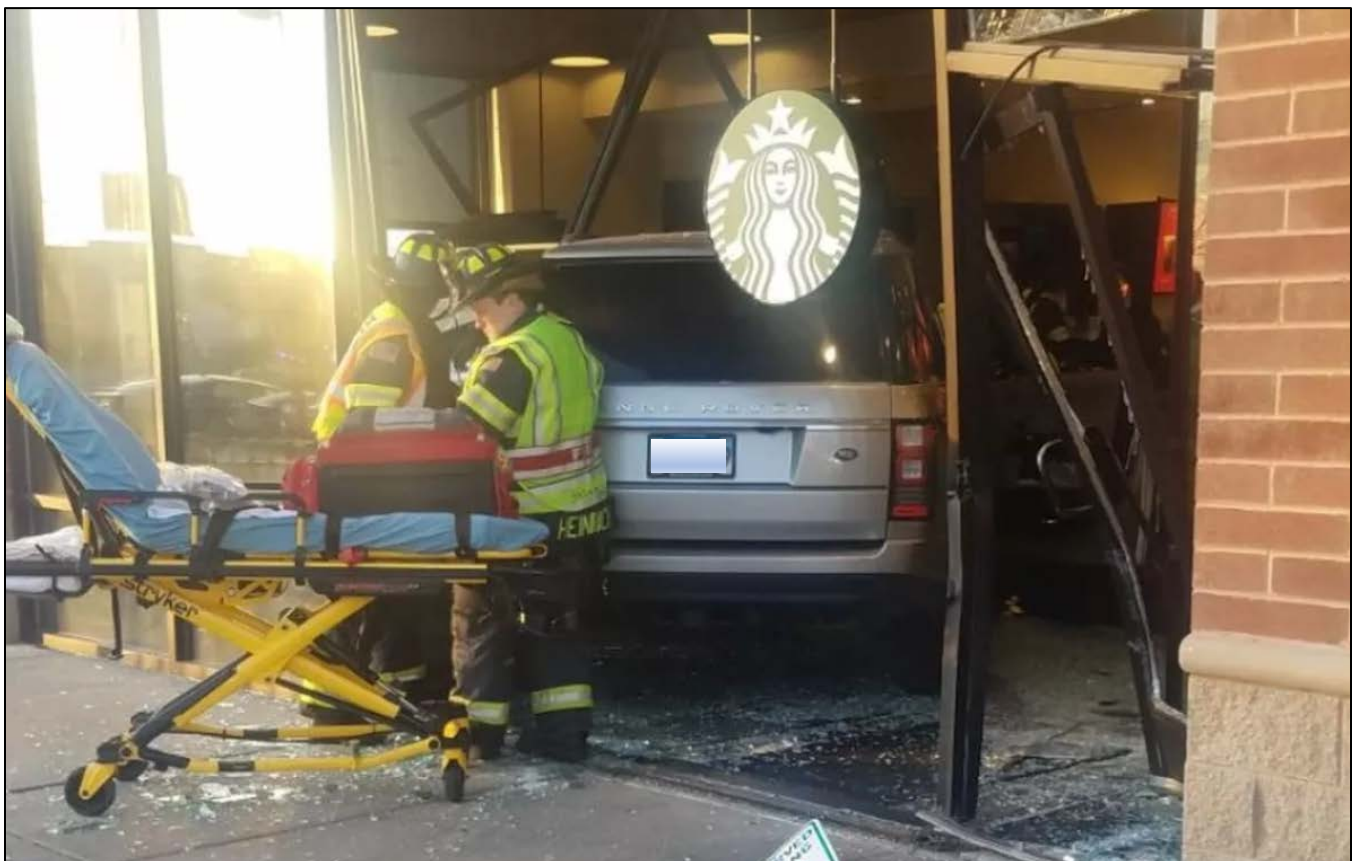


Consider the helicopter video footage below (taken by Chicago's ABC7 News) after an elderly customer drove into a Starbucks store when her foot slipped onto the gas pedal:

- ✓ *The collapsed ADA signpost and the severely damaged storefront present striking evidence of how well a safety bollard could have protected the driver, the building, and the store's patrons.*



Screenshot from excellent video by Chicago's ABC7 News: (<http://www.storefrontsafety.org/blog/with-one-simple-change-landlords-and-retailers-can-increase-safety-and-reduce-risk-from-trip-fall-incidents-and-storefront-crashes>).



**Such accidents and injuries could be prevented by encasing the required ADA signpost within a safety bollard!**



This store owner has positioned propane tanks directly in front of this accessible parking space! (Note the previous vehicle damage to the lightweight-steel cage and at the storefront wall.)

***“A typical curb, 6 in. high, or a precast wheel stop will not stop anything more than a slowly moving car, and should never be considered a barrier.”***

**Parking Consultants Council of  
the National Parking Association**

***“Our research has shown that a large number of accidents at storefronts and shopping centers are a result of poor parking lot design that is actually very simple and inexpensive to correct.”***

**Storefront Safety Initiative**

Jointly, the Storefront Safety Council, the Storefront Safety Initiative, and Richard Avelar & Associates recommend that at all accessible parking spaces throughout North America, designers and managers should integrate the metal posts supporting ADA-required signage with safety bollards (complying with ASTM F3016) and should concurrently remove all associated wheel stops. These simple measures would greatly reduce the risks of major property damage, pedestrian injuries / fatalities, and ensuing tort liability claims.

✓ ***Let's all work together for greater life safety and improved accessibility by promoting safety bollards and the elimination of wheel stops at parking spaces!***

### **Storefront Safety Council and Storefront Safety Initiative**

Robert Reiter, Cofounder

[rob.reiter@storefrontsafety.org](mailto:rob.reiter@storefrontsafety.org)

<http://www.storefrontsafety.org>

<http://www.storefrontsafetyinitiative.org>

### **Richard Avelar & Associates (Oakland, CA)**

Lonnie Haughton, MCP, CASp, Principal Codes Consultant

Joel Agnello, AIA, Principal Architect

David M. Field, AIA, NCARB, CASp, Principal Architect

<http://www.ravelar.com>

January 14, 2020 ©



<sup>1</sup> <https://www.astm.org/Standards/F3016.htm>

<sup>2</sup> <http://www.storefrontsafetyinitiative.org/>

<sup>3</sup> [https://www.ada.gov/reg2010/2010ADAStandards/2010ADAStandards\\_prt.pdf](https://www.ada.gov/reg2010/2010ADAStandards/2010ADAStandards_prt.pdf)

<sup>4</sup> L. Haughton, CASp, J. Agnello, AIA, and D.M. Field, AIA, NCARB, CASp, “Use and Misuse of Wheel Stops at Parking Spaces in California”, <http://www.ravelar.com/articles/Use-Misuse-Wheel-Stops.pdf>

<sup>5</sup> L. Haughton, CASp, J. Agnello, AIA, and D.M. Field, AIA, NCARB, CASp, “Let's Eliminate Parking ‘Wheel Stops’ at Busy Storefronts”, [http://www.ravelar.com/articles/Wheel-Stops\\_RAA\\_Dec19rev.pdf](http://www.ravelar.com/articles/Wheel-Stops_RAA_Dec19rev.pdf)

<sup>6</sup> [www.astm.org/Standards/F1637.htm](http://www.astm.org/Standards/F1637.htm)