Where Does the International Building Code Require Detectable Warnings?

By Kimberly Pearlberg, RA, Senior Staff Architect, ICC

Detectable warnings provide cues for visually impaired persons when they are moving into a traffic lane or at a drop-off on a transit platform where a guard is not provided. When a curb cut is provided for persons with mobility devices to cross at an intersection, the cue of the curb along the edge of the road is lost for the visually impaired person. Detectable warnings replace those cues.
Passenger Transit Systems

The International Building Code® (IBC) requires detectable warnings at transit platform edges (2012 IBC Section 1109.10). They are not required along the curbs at bus stops. A curb cut is not required at this location to access the bus because the kneeling buses, those with special suspension that allows the front end to come down, set their ramps down on the sidewalk. Therefore, a visually impaired person still has the curb as an indicator of the road edge. The 2009 ICC A117.1 Section 705.6 provides technical criteria on the extent and location of the detectable warning along that edge of the transportation platform:

2012 IBC 1109.10 Detectable warnings. Passenger transit platform edges bordering a drop-off and not protected by platform screens or guards shall have a detectable warning.

Exception: Detectable warnings are not required at bus stops.

2009 ICC A117.1 705.6 Transportation Platform Edges. Detectable warning surfaces at transportation platform boarding edges shall extend the full length of the public use areas of the platform. The detectable warning surface shall extend 24 inches (610 mm) from the boarding edge of the platform.

A new location for detectable warnings was added to the 2009 ICC A117.1 to coordinate with the Americans with Disabilities Act (ADA) and the 2010 ADA Standard. Where a sidewalk crosses train tracks, detectable warnings are placed far enough back so that a visually impaired person would be out of danger from a passing train. The large range, 6’ to 15’ from the tracks, allows for situations where a train gate may lower over the sidewalk and road.

2009 ICC A117.1 805.10 Track Crossings. Where a circulation path crosses tracks, it shall comply with Section 402 and shall have a detectable warning 24 inches (610 mm) in depth complying with Section 705 extending the full width of the circulation path. The detectable warning surface shall be located so that the edge nearest the rail crossing is 6 foot (1830 mm) minimum and 15 foot (4570 mm) maximum from the centerline of the nearest rail.

Exception: Openings for wheel flanges shall be permitted to be 2½ inches (64 mm) maximum.

Figure 1 – Detectable warnings at a train platform edge
Figure 2 – Kneeling bus at a bus stop
Figure 3 – Track crossing with detectable warnings
Street Intersections

The IBC (2012 IBC Section 1104.2) requires an accessible route between elements on a site. The technical criteria for how to achieve this is addressed in ICC A117.1. The IBC does not address public street intersections. For criteria for curb cuts at streets, please refer to the Proposed Guidelines for the Public Rights-of-Way being developed by the U.S. Access Board. The Department of Transportation (DOT) has recommended these criteria as best practice for public street intersections.

On a Site

The IBC does not require detectable warnings on all curb cuts or transitions where the sidewalk and parking lot are at one level. If someone chooses to provide detectable warnings (note the underlined text below), they are exceeding code requirements. However, the detectable warnings are required to comply with the technical provisions in ICC A117.1, Accessible and Usable Buildings and Facilities, (ICC A117.1) Section 705. Section 705 does provide criteria for standardization; contrast; resiliency; truncated dome size, height, spacing and alignment; and location on transit platform edges.

Figure 4 – Detectable warnings are not required at curb cuts providing an accessible route to the parking access aisle.
Where detectable warnings are provided on curb ramps, they shall comply with Sections 406.13 and 705.

Where detectable warnings are provided on curb ramps or at raised marked crossings leading to islands or cut-through medians, the island or cut-through median shall be provided with detectable warnings complying with Section 705, that are 24 inches (610 mm) in depth, and extend the full width of the pedestrian route or cut-through. Where such island or cut-through median is less than 48 inches (1220 mm) in depth, the entire width and depth of the pedestrian route or cut-through shall have detectable warnings.

There is one exception, but it does not involve a curb cut: Detectable warnings are required at both ends of a raised marked crossing. This requirement is intended to address a very specific situation: The crossing must be marked or identified in some way; and the crossing must be raised to the level of the sidewalk. This is not intended to be situation where the sidewalk is the same level as a parking lot. Per the definition of vehicular way and marked crossing, this is a route for vehicles moving at some speed and not expecting pedestrians. The drive lanes between, or only associated with, parked cars are not considered vehicular ways since they are common to cars and many pedestrians. Most commonly raised marked crossings show up at airports between the passenger pick

**2009 ICC A117.1 406.14 Detectable Warnings at Islands or Cut-through Medians.** Where detectable warnings are provided on curb ramps or at raised marked crossings leading to islands or cut-through medians, the island or cut-through median shall be provided with detectable warnings complying with Section 705, that are 24 inches (610 mm) in depth, and extend the full width of the pedestrian route or cut-through. Where such island or cut-through median is less than 48 inches (1220 mm) in depth, the entire width and depth of the pedestrian route or cut-through shall have detectable warnings.

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up level and the parking garage. Passengers move across the drive/drop off aisles. The crosswalk serves a double purpose as a giant speed bump. This requirement is not in the ADA. It was brought up as a very specific safety issue only to the ICC A117.1 committee. It was never suggested to the Access Board during development of the 2010 ADA Standard for Accessible Design.

2009 ICC A117.1 106.5 Defined Terms.
marked crossing: A crosswalk or other identified path intended for pedestrian use in crossing a vehicular way.
vehicular way: A route provided for vehicular traffic.

2009 ICC A117.1 406.12 Detectable Warnings at Raised Marked Crossings. Marked crossings that are raised to the same level as the adjoining sidewalk shall be preceded by a detectable warning 24 inches (610 mm) in depth complying with Section 705. The detectable warning shall extend the full width of the marked crossing.

Figure 6 – Detectable warnings at raised marked crossings

Figure 7 – Example of options to alert someone they are moving into a parking lot.
Conclusion

These provisions are not intended to disregard the safety of persons with visual impairments. In parking lots, drivers are moving at slow speeds, and they are expecting pedestrians. There are a variety of ways to slow down drivers, even on drive lanes adjacent to parking lanes, such as speed bumps and stop signs. Many facilities use changes in textures or colors, or other types of indicators such as bollards, to provide cues that a person may be moving from a sidewalk to a parking area.

If a site has an approach drive, or is large enough that there may be internal circulation roads, the designer could choose to use detectable warnings. If someone chooses to use detectable warnings, they must meet the provisions in ICC A117.1 Section 705. Remember the code is a minimum requirement, not a best practice document. Where someone chooses to provide a warning system for people with visual impairments, the system chosen should be consistent throughout the site to improve understanding and way finding.

Figure 8 – Designers of this store chose to use detectable warnings surrounding the entrance, but did not carry the detectable warnings to the full extent of where there is no curb. This placement exceeds minimum code requirements.

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**Ron Hoover**
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