

- Beyond the curb line, a clear width of 5'-0" x 5'-0" (2 m x 2 m) minimum shall be provided within the width of the crosswalk and wholly outside the parallel vehicle travel lane.
- Ramps shall have a textured, non-skid surface.

4.6.4.4 ADA Tactile Warning Surfaces: Install tactile warning textures at the ramp to indicate the vehicle roadway. Figure 4-13 shows an example of tactile warning surfaces.

- *Contrast* - Detectable warning surfaces shall contrast visually with adjacent walking surfaces whether light on dark or dark on light.
- *Size* - Detectable warning surfaces shall extend 24" (600 mm) minimum in the direction of travel and the full width of the curb ramp, landing, or transition.
- *Location* - The detectable warning surface shall be located at the back of the curb line and perpendicular to the line of travel.

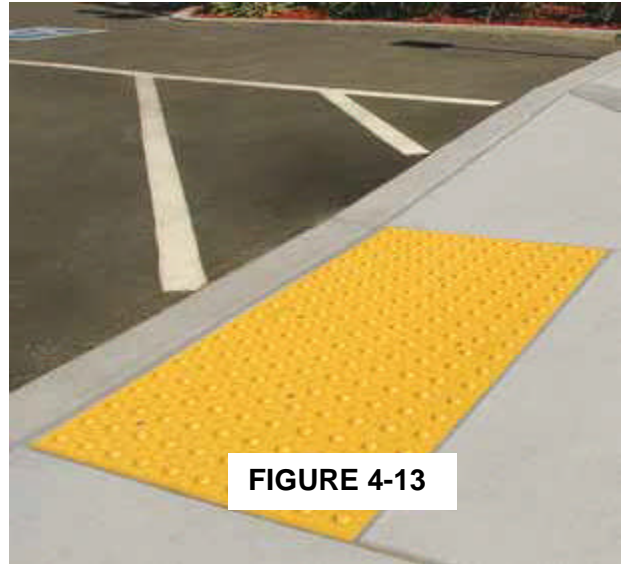


FIGURE 4-13

4.6.4.5 Crosswalks - Locate and clearly designate crosswalks to encourage pedestrians to use safe street crossings. Include crosswalks at all street intersections where there is pedestrian traffic and a curb ramp location.

- Mark crosswalks with clearly visible painted stripes or by street paving that is consistent with the walkway paving material.
- Crosswalks shall be the width of the adjacent walkway, but a minimum of 6'-0" wide (1800 mm). Mid-block crosswalks between intersections are dangerous and shall be avoided except in those cases where intersection crossings are few or very inconvenient. If possible, mid-block crossings shall be signalized.
- Adequate street lighting shall be installed at each crosswalk to provide for clear nighttime visibility for both pedestrians and drivers.
- Adequate sight lines shall be maintained to give both pedestrians and drivers an unobstructed view at crosswalks. At each corner of an intersection, a triangular area whose sides extend back a minimum of 50' (15 m) from the face of the curb shall be kept clear of visual obstructions. A similar clear area shall be maintained, if possible, at mid-block pedestrian crossings. Some objects, such as traffic signals, post-mounted signs, or high-branching trees, may still be located within this area and not significantly affect visibility. However, the placement of individual objects must be coordinated with each other so that they collectively do not create a visual obstruction.
- Where a walkway and bikeway intersect, pavement markings shall be provided to warn both pedestrians and bicyclists.

4.6.5 Ramps and Steps

Minimize the use of stairs along walkways because they are more difficult to negotiate or, for some users, impassable. Where significant grade changes along a walkway cannot be avoided, ramps and steps may be required for the convenience of the pedestrian and to maintain continuity in the walkway network. Follow the requirements of the *ADA/ABA* and *Barrier Free Design Guide* (PG-18-13).

4.6.5.1 Ramps: To provide wheelchair access, ramps shall be used to accommodate significant changes in grade. Ramps will generally be necessary adjacent to or near any stairway to provide a similar level of convenience and walkway continuity for physically challenged persons. To achieve the same vertical climb, ramps require significantly more horizontal distance than stairs, so careful planning that minimizes grade changes along a walkway and that integrates ramps into the site development plan is recommended.

- Where walkways exceed slopes of 1:20, ramps shall be utilized with or without adjacent stairways.
- Ramps will be sloped between 1:20 and a maximum of 1:12.
- A five-foot-long landing shall be provided for at least every 2'-6" (760 mm) of vertical climb. A 6'-0" (1800 mm) long level platform shall be provided at the top and bottom of a ramp.
- Ramps shall be no less than 4'-0" (1200 mm) wide.
- All ramps shall be adequately lighted to ensure safe nighttime use.
- All ramps shall have handrails on both sides that extend beyond the top and bottom of the ramp.

4.6.5.2 Steps: Steps may be used in conjunction with ramps.

- Steps shall be a minimum of 5'-0" (1500 mm) wide or equal to the walkway width.
- Steps with less than three risers shall be avoided because they are difficult to see and can present a hazard.
- All steps in a single stairway shall maintain the same tread width and riser height. Riser height shall be between 5" (125 mm) and 7" (200 mm), and tread width shall be between 12" (300 mm) and 16" (400 mm). A general formula for riser-to-tread proportion is twice the riser height plus the tread width equals 26" (660 mm). A 5-3/4" (146 mm) riser with a 14-1/2" (368 mm) tread is preferred.
- All steps with three or more risers shall have handrails on both sides that extend beyond the treads at both the top and bottom of the stairway.
- All exterior steps shall have a distinct color change at the top and bottom step nose.
- Steps shall have solid risers with rounded or chamfered nosing.
- All steps along main pedestrian walkways shall be adequately lighted to ensure safe nighttime use. A stairway greater than 4'-0" (1200 mm) in height or consisting of more than nine risers shall be broken by a landing.

4.6.6 Furnishings

Site furnishings, including benches, trash receptacles, drinking fountains, telephone booths, bus shelters, and kiosks or information signs, shall be part of a coordinated system that provides pedestrian amenities within the walkway network. Site furnishings shall be selected and sited to support the function of a walkway.

- Where possible, furnishings shall be grouped together rather than scattered to consolidate the space required and to provide complementary functions. A greater number and type of furnishings shall be located in higher-use pedestrian traffic areas than in lower-use areas.
- Furnishings shall be located adjacent to rather than on walkways, in a manner that does not impede pedestrian traffic.
- Provisions to accommodate the mobility impaired shall be incorporated into the design and siting of furnishings. This includes a provision for space adjacent to walkways for seating for wheelchairs.
- Site furnishings shall be simple and straightforward in their design and reflect the architectural character of the facility. The same types of furnishings shall be consistent in