# Section 5: ADA Codes and Standards

## Introduction

The ADA Codes and Standards were developed as part of an extensive process to propose applicable guidelines, codes and standards as they relate to the accessibility of all facilities within the public right-of-way in the unincorporated County. The ADA Codes and Standards went through a total of three versions. The TAC and ADA CAG reviewed and provided input to each version.

The first draft of an ADA Codes and Standards Matrix was presented to SacDOT, the ADA CAG and the TAC on May 6, 2002. Based upon comments from all parties received verbally at subsequent meetings, a second draft of the ADA Codes and Standards Matrix was submitted to SacDOT, the ADA CAG and the TAC on November 22, 2002. All parties then were asked to provide written comments on the standards by December 31, 2002. A total of 16 separate response documents were received. All comments from respondents (including some comments received after the December 31, 2002 date) were analyzed by the study team and considered in the preparation of the final draft document. The final draft document was completed and submitted for review on April 25, 2003, and it was reviewed at ADA CAG and TAC meetings on June 2, 2003.

The ADA Codes and Standards were developed to combine and resolve any conflicts between the Americans with Disabilities Act Accessibility Guidelines (ADAAG), published by the U.S. Architectural and Transportation Barriers Compliance Board in July 1991, and the California State Building Code, Title 24, Part 2, of the California Code of Regulation, 2001 edition. Draft Guidelines for Public Rights-of-Way, published by the U.S. Architectural and Transportation Barriers Compliance Board on June 17, 2002, which are expected to take effect in the near future, also were considered, but not necessarily replicated, in the ADA Codes and Standards described in this section. In addition, all County of Sacramento Board of Supervisor approved policies and standards affecting accessibility in the public right-of way were included in the ADA Codes and Standards.

The ADA Codes and Standards described in this section are intended to apply to all construction undertaken with the unincorporated County right-of way after the final approval of the ADA Transition Plan. The codes and standards would include all new development and all construction undertaken as part of the ADA Capital Implementation Plan included in Section 6.

Appendix B illustrates the Standard County Improvement Drawings for curb ramps, sidewalks, driveways, bus stops and other applicable issues.

# Section 5.1: Applicability of County ADA Standards

This section describes how the ADA codes and standards impact SacDOT standards and procedures.

**1.1 New Development:** All areas of newly designed and newly constructed facilities in the County-regulated public right-of-way shall comply with these standards.

**1.2 Additions in the Existing Public Right-of-Way:** Each addition to an existing County-regulated public right-of-way shall comply with the applicable provisions of these standards. Where the addition connects with existing construction, the connection shall comply with Alterations, as described in the next subsection.

**1.3 Alterations in the Existing Public Right-of-Way:** Where existing elements or spaces in the County-regulated public right-of-way are altered, each altered element or space shall comply with the applicable provisions of these standards.

**1.3.1 Exception:** In alterations, where compliance with applicable provisions is technically infeasible, the alteration shall comply to the maximum extent feasible.

**1.3.2 Prohibited Reduction in Access.** An alteration that decreases or has the effect of decreasing the accessibility of a public right-of-way or site arrival points to buildings or facilities adjacent to the altered portion of the public right-of-way, below the requirements for new construction at the time that the alteration is prohibited.

**1.4 Approval Procedures for Exceptions, Equivalent Facilitation and Technically Infeasible Conditions:**

SacDOT shall appoint a SacDOT Program Access Coordinator, whose main duties are to review all aspects of compliance with the ADA Codes and Standards contained in this document. The SacDOT Program Access Coordinator shall report directly to the Director of SacDOT, and the Director may delegate such approval authority and responsibility contained in these standards to the SacDOT Program Access Coordinator, as he/she determines to be appropriate.

The SacDOT Program Access Coordinator also shall coordinate all activities with the Chief of the Disability Compliance Office, and shall send all determinations of exceptions, equivalent facilitation and technical infeasibility to the Chief of the Disability Compliance Office. The Chief of the Disability Compliance Office shall corroborate with SacDOT's determinations in all such cases. The Chief of the Disability Compliance Office may delegate specific determinations to the SacDOT Program Access Coordinator as he/she determines to be appropriate.

Upon determinations of exception, equivalent facilitation and technical infeasibility, the Chief of the Disability Compliance Office also shall send all such determinations to the Physical Access Subcommittee of the County's Disability Advisory Committee. The Physical Access

Subcommittee may approve or disapprove of any specific determinations of exception, equivalent facilitation and technical infeasibility. Upon disapproval, the Chief of the Disability Compliance Office may recommend a revision of the SacDOT determination or uphold the original determination. Any member of the Physical Access Subcommittee or of the public may appeal the determination, per the procedures outlined in the SacDOT ADA Grievance Procedures.

**1.5 Dimensional Tolerances:** All dimensions and numerical requirements contained in these standards are absolute and requirements have been derived taking into account construction practices and constraints, and no dimensional tolerances beyond the maximum or minimum dimensions are allowed, unless otherwise stated.

> **1.5.1 Advisory:** It is advised that designers use numerical criteria in designs and specifications that are below the maximum or are above the minimum requirements stated in these standards, so that the final constructed improvements meet the stated requirements.

**1.6 Inclusion and Incorporation into Existing County Improvement Standards:**

The intent of the listing of these standards is that all standards will be included and incorporated into SacDOT's Improvement Standards, Section 4 - Streets.

Where parentheses follow a specific standard, the number refers to the specific current County Improvement Standard sections that correspond to the specific requirements and in which the new standards will be included or incorporated.

Standard County Improvement Drawings also may be referenced as part of these standards (Appendix B). Written requirements as included in these standards shall take precedence over any drawings should there be any discrepancies in the requirements.

**1.7 Future Applicable Federal and State Code Revisions:** All future enactments and revisions to legally applicable Federal or State accessibility codes, standards or guidelines, such as the ADA Accessibility Guidelines or Title 24 of the California Code of regulation, shall be incorporated into these ADA Codes and Standards to the extent that such enactments or revisions exceed the requirements contained herein. Nevertheless, such enactments or revisions shall not decrease any requirement as contained herein.

## Section 5.2: Applicable Reference Codes and Standards

The following codes and standards are referenced as applicable by law or statute. Nothing in these County standards shall have the effect of reducing any specific requirements of the referenced standards (1) or (3), or any other codes or standards required by applicable law or statute. Should other new codes or standards become applicable law or statute after the adoption of these County standards, such new codes or standards shall supercede these County standards, but only to the extent that new codes or standards are more restrictive or exceed these County standards.

(1) **The Americans with Disabilities Act Accessibility Guidelines (ADAAG)**, published by the U.S. Architectural and Transportation Barriers Compliance Board in July 1991, binding regulatory law in 1992, with several revisions through July 1998. (Note: Some jurisdictions mistakenly use a revised edition of these standards dated September 1994; this edition was never approved and should NOT be used.) The ADAAG guidelines were written to apply to newly constructed places of public accommodation. The ADAAG is an appendix to Title III of the ADA. The technical standards of the ADAAG also provide a technical definition for accessible elements. These guidelines were not written to specifically apply to public facilities, which must provide equal access to people with disabilities to all programs and services of local and state governments. Therefore, while meeting the technical requirements of the ADAAG assures owners of places of public accommodation of full compliance with the ADA, such technical compliance may not be sufficient to provide full access to programs and services for government entities.

(2) **Draft Guidelines for Public Rights-of-Way**, published by the U.S. Architectural and Transportation Barriers Compliance Board on June 17, 2002. These guidelines are currently out for public review and are intended to replace the current ADAAG guidelines listed in (1) in the future. The guidelines have not been approved, but are represented to be the most current state-of-the-art with respect to accessibility in the public right-of-way. The guidelines also were written to apply to new construction. The extent to which they should be applied to major alterations and retrofits is still under review by the Access Board, and is scheduled to be the subject of a technical assistance manual due for release in 2004.

(3) **California State Building Code, Title 24, Part 2**, of the California Code of Regulation, 2001 edition. These code requirements apply to any actual construction work within the public right-of-way at the time that the work is constructed, but the requirements of Title 24 are limited to the actual work being constructed and do not apply to adjacent areas beyond the construction limits.

(4) **Current SacDOT Improvement Standards**, including (a) County Design Improvement Standards for Streets, Sections 4-1 through 4-33, June 11, 2003, (b) Policy on Street and Sidewalk Access Improvement Priorities, December, 2000, (c) Policy for Audible Pedestrian Signals, adopted by the Board of Supervisors on July 20, 1999, (d) Improvement Standards for Crosswalks and Tactile Guidestrips, May, 2001, (e) Sacramento County Guidestrip Policy, approved by the Board of Supervisors on August 18, 1987.

## Section 5.3: Sidewalk and Pedestrian Access Standards

**3.1 Scope:** Where sidewalks, corners or pedestrian access paths are provided adjacent to streets or roadways within the public right-of-way, they shall meet the requirements of this section.

**3.2 Clear Width**: Where a sidewalk is provided adjacent to a street or roadway, each part shall provide a minimum clear width of 48 inches, not including the width of any curb that may be present between the sidewalk and the street or gutter. This standard already is required in the County Design Improvement Standards for Streets, Section 4-21, June 11, 2003.

**3.2.1 Exception:** All frontages directly in front of all school properties shall have a clear width of 96 inches, except frontages in front of fenced play areas with no access may have a clear width of 72 inches.

**3.2.2 Exception:** Where existing conditions or obstructions or reduced right-of-way widths preclude providing a 48 inch clear width, the sidewalk width may be reduced to less than 48 inches for a distance not exceeding 24 inches, but in no case shall the clear width be less than 36 inches.

**3.2.3 Advisory:** For streets or roadways with a right-of-way width of 84 feet or greater, a minimum clear width of 72 inches is preferred.

**3.3 Passing Space:** If a sidewalk has less than 60 inches clear width, a passing space of at least 60 inches by 60 inches shall be located at reasonable intervals not to exceed 200 feet.

**3.3.1 Exception:** Where existing conditions or reduced right-of-way width preclude providing a 60 inch passing space, such space shall not be required.

**3.4 Cross Slope:** The cross slope of the sidewalk shall be 1:67 (1.5 percent), with allowances for a construction variance of 1:200 (0.5 percent) in either direction.

**3.5 Running Slope:** The running slope of the sidewalk shall not exceed the grade of the adjacent roadway or 1:20 (five percent), whichever is greater.

**3.6 Level Areas on Continuous Slopes:** For sidewalks with a running slope exceeding five percent for at least 400 feet, a 60-inch long landing with a maximum slope of two percent shall be provided for every 400 feet of the sidewalk length, except for roadway overpasses.

**3.7 Meandering Sidewalks**: Sidewalks may be separated from the curb by approved landscaping, forming a meandering sidewalk. The distance between the back of the curb and the edge of the sidewalk shall not be less than five feet nor more than 25 feet, except at transitions. If trees are planted between the back of the curb and the edge of the sidewalk, the distance between the back of the curb and the edge of the sidewalk shall not be less than five feet.

Meandering sidewalks shall comply with the requirements of either Case I or Case II, as described below. This standard already is required in the County Design Improvement Standards for Streets, Section 4-21, June 11, 2003.

For Case I, the sidewalk shall have a 24-inch wide minimum straight path along the sidewalk. For Case II, the sidewalk shall have no abrupt changes of direction and shall be constructed using only tangents of any length and inside radii of at least 150 feet. Refer to County Standard Drawing 4-29 (Appendix B).

**3.8 Curbs at Streets Adjacent to Sidewalks**: Curbs on the street side of sidewalks and corners shall be approximately vertical, with a height of at least five inches but no greater than eight inches. This standard already is required in the County Design Improvement Standards for Streets, Section 4-18, June 11, 2003.

**3.8.1 Exception:** Where a new portion of curb is constructed within an existing system of rolled curbs and existing drainage patterns must be maintained, a rolled curb matching the existing curb may be constructed. This exception shall not apply to a transit stop location, where the curb must be provided per Section 8.6

**3.9 Surfaces:** The surface shall be either Portland cement concrete or asphalt concrete, and it shall be firm, stable and slip-resistant.

**3.9.1 Exception:** A material other than concrete or asphalt may be used when it can be adequately demonstrated to the SacDOT Program Access Coordinator that it provides an equal firm, stable and slip-resistant surface.

**3.10 Changes in Level:** Changes in level up to 1/4 inch may be vertical and without edge treatment. Changes in level between 1/4 inch and 1/2 inch shall be beveled with a slope no greater than one horizontal to two vertical. Changes in level greater than 1/2 inch (13 mm) shall be accomplished by means of a ramp. Multiple changes in level shall be separated horizontally by at least 30 inches.

**3.11 Gratings:** If gratings are located in the sidewalk surface along a pedestrian access route or in the accessible portion of a curb ramp, they shall have spaces no greater than 1/2 inch wide in the direction of travel. If gratings have elongated openings, they shall be placed so that the long dimension is perpendicular to the direction of travel. Whenever possible, drainage inlets should be located outside of the crosswalk area, particularly the portion of the crosswalks that adjoin the accessible portion of curb ramps.

**3.12 Protruding Objects:**

Protruding objects shall not reduce the clear width required for sidewalks.

Objects with leading edges located between 27 inches above and 80 inches below the finish surface shall protrude no more than four inches horizontally into the pedestrian access route.

Free-standing objects mounted on posts or pylons shall overhang pedestrian access routes no more than four inches when located between 27 inches above and 80 inches below the finish surface (Figure 3).

Where a sign or other obstruction is mounted between posts or pylons and the clear distance between post or pylons is greater than 12 inches, the lowest edge of such sign or obstruction shall be located between 27 inches above and 80 inches below above the surface, and there shall be a bar or similarly detectable element 15 inches above the surface connecting the two posts or pylons.

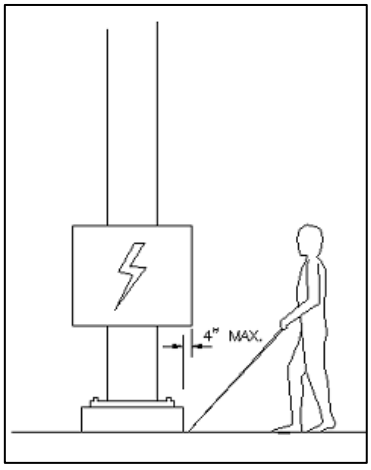


**Figure 3: Barrier for Vertical Clearance Less than 80 Inches**

Source: Public Rights-of-Way Access Advisory Committee, *Building A True Community*, January 2001.
Note: For alternative format, refer to the corresponding text

**3.13 Barrier Curbs at Drop-offs**:

Warning or barrier curbs shall be provided at the locations described below:

Abrupt changes in level at the edge of sidewalks, except between a sidewalk and an adjacent street, exceeding four inches in a vertical dimension, such as at planters or fountains located in or adjacent to sidewalks, shall be identified by curbs projecting at least six inches in height above the surface.

At bus stops, where a slope behind a sidewalk slopes toward the sidewalk, a barrier curb projecting at least six inches in height above the surface shall be provided to prevent water flow across the sidewalk.

Where the slope behind a sidewalk is greater than six (horizontal) to one (vertical) and the slope is away from the sidewalk, a barrier curb projecting at least six inches in height above the surface shall be provided for pedestrian safety. A retaining wall or fence may be provided in lieu of the required barrier curb.

These standards already are required in the County Design Improvement Standards for Streets, Section 4-20, June 11, 2003.

**3.14 Driveway Crossings**:

Where a sidewalk crosses a driveway, the minimum width of 48 inches and the cross slope of 1:67 (1.5 percent), with allowances for a construction variance of 1:200 (0.5 percent) in either direction, shall be provided for the entire width of the driveway.

Each driveway shall have a ½-inch to one-inch lip, beveled at 45 degrees, at the street or gutter.

Driveway entries shall not be designed or used as curb ramps.

This standard already is required in the County Design Improvement Standards for Streets, Section 4-10, June 11, 2003.

**3.15 Rail Crossings:**

Where a sidewalk crosses rail systems at grade, the surface of the sidewalk shall be level and flush with the top of the rail at the outer edge and between the rails.

Where a sidewalk crosses rail systems at grade, the horizontal gap at the inner edge of each rail shall be constructed to the minimum dimension necessary to allow passage of railroad car wheel flanges and shall not exceed 2½ inches (three inches for freight rails).

Where a sidewalk crosses rail systems at grade, detectable warning surfaces complying with Section 5.5 "Detectable Warning Standards" shall extend the full width of the sidewalk and 36 inches deep in the direction of pedestrian travel and shall be provided on each side of the rails.

**3.16 Stairs:** To the maximum extent feasible, stairs shall not be constructed within the public right-of way.

**3.16.1 Exception:** If provided, steps or stairs shall provide 1.5 inch diameter handrails 34 inches to 38 inches above each nosing on both sides, with extensions at the top and bottom meeting all applicable portions of the California State Building Code, Chapter 11B. If provided, steps or stairs shall provide a two inch contrasting yellow color stripe at each tread and the upper approach of each staircase. The contrasting color stripe shall be yellow conforming to Federal Color No. 33538, as shown in Table IV of Standard No. 595B.

# Section 5.4: Curb Ramp and Blended Transition Standards

**4.1 Scope:** Each corner of an intersection shall be provided with two curb ramps, each oriented in the direction of pedestrian crossing to the adjacent corner, except that only one curb ramp with a six foot pan may be provided if two curb ramps are technically infeasible or excepted as described below. Curb ramps shall comply with the requirements of this section for flared sides, detectable warning devices, landings and ramps (Figure 4).

**4.1.1 Exception:** Where pedestrian crossing in a specific direction is prohibited by a continuous raised median, barricade or sign, no curb ramp shall be provided. Where only one curb ramp is provided at a corner to serve only one direction of travel to an adjacent corner, the curb ramp shall be aligned and oriented parallel to the intended direction of travel.

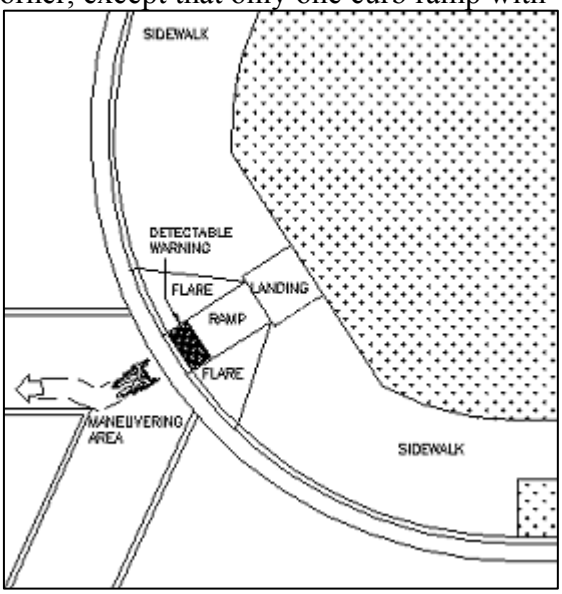


**Figure 4: Curb Ramp Components**

Source: Public Rights-of-Way Access Advisory Committee, *Building A True Community*, January 2001.

Note: The illustration shows the location of the ramp, flares, landing and other curb ramp features. For alternative format, refer to the corresponding text.

**4.1.2 Exception:** One curb ramp located at the center of the curb return at each corner or directional to the path of travel may be provided if technically infeasible to construct two ramps. For major streets with right-of-way width of 80' or larger, one curb ramp with a six foot pan shall be provided. For collector and minor residential streets with right-of-way width less than 80', one curb ramp with a four foot pan shall be provided where the sidewalk is located adjacent to the curb and gutter. Technical Infeasibility is based on the following intersection conditions:

1. A corner with a curb return radius that is so large that the crosswalks meet at the midpoint of the curve.

2. A corner where placing two curb ramps or flush landings would result in them being located outside the crosswalk markings, or would result in stop bars and/or stop signs or ramps placed too far back on the side street for driver safety or pedestrian safety.

3. An intersection that is skewed, such that two curb ramps or flush landings will not fit in the acute angle corners

4. An alteration, where the corner has retaining walls, buildings, signal poles and/or controller cabinets, utility poles or other barriers that are technically infeasible to relocate.

5. An intersection in which one street has an unavoidably steep grade, and a shared curb ramp or flush landing at the midpoint of the curb return may have less severe warp than a curb ramp or flush landing closer to the tangent of the steep street.

6. An intersection in an area of steep terrain, where both streets are flattened to allow for acceptable crosswalk slopes. It may be feasible to flatten a small intersection area and provide acceptable crosswalks leading to a shared ramp. Placement of a pair of curb ramps would necessitate a larger flattened area, resulting in steeper sidewalks between intersections.

Where the above conditions exist, the designers are encouraged to try to reduce the curb radius or take other measures to eliminate the need for shared curb ramps or flush landings."

In cases where curb ramps are installed on collector and minor residential streets (less than 80' in right-of-way width) intersections where the sidewalk is adjacent to the curb and gutter, a single ramp in normally installed. The reasoning is that on those street intersections, two ramps with flush landings would locate the crossing too far from the intersection for pedestrian safety (see item #2 above). In cases where a landscaped buffer is provided between the curb, gutter and sidewalk, two ramps can be constructed provided modified perpendicular ramps are installed..

**4.2 Curb Ramp Types:** Curb ramps shall be primarily perpendicular curb ramps, as shown in County Standard Drawing 4-23B (Appendix B), if there is sufficient right-of-way or sidewalk depth to construct the perpendicular curb ramp in full compliance with subsection 5.3. If there is not sufficient right-of-way or sidewalk depth to construct a perpendicular curb ramp, a parallel curb ramp, as shown in County Standard Drawing 4-23A (Appendix B), may be constructed. Blended transitions shall not be constructed, unless specifically approved by the Director of SacDOT and the Chief of the Disability Compliance Office.

**4.3 Perpendicular Curb Ramps**: Perpendicular curb ramps shall comply with the details described in this subsection, and shall have a running slope that cuts through the curb at right angles or meets the gutter grade break at right angles (Figure 5). This standard already is required in the County Design Improvement Standards for Streets, Section 4-17, June 11, 2003.

**4.3.1 Running Slope:** The running slope of the main portion of the curb ramp shall be 1:12 (8.33 percent) maximum.

**4.3.1.1 <u>Advisory:</u>** Where feasible, the minimum running slope of the main portion of the curb ramp is preferred to be 1:15 (6.67 percent).

**4.3.2 Cross Slope:** The cross slope of the main portion of the curb ramp shall be 1:67 (1.5 percent), with allowances for a construction variance of 1:200 (0.5 percent) in either direction.

**4.3.3 Landing:** A landing measuring 48 inches minimum by 48 inches minimum shall be provided at the top of the curb ramp, and shall be permitted to overlap other landings and clear spaces. Running and cross slopes of the landing shall be 1:67 (1.5 percent) maximum, with allowances for a construction variance of 1:200 (0.5 percent) in either direction.

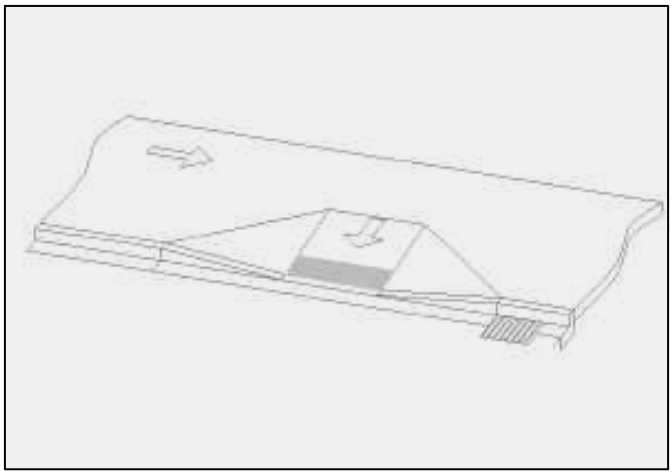

**Figure 5: Perpendicular Curb Ramp**

Note: For alternative format, refer to the corresponding text.
Source: www.access-board.gov/rowdraft.htm

**4.3.4 Flared sides:** Flared sides with a slope of 1:10 (ten percent) maximum, measured along the curb line, shall be provided where a circulation path crosses the curb ramp.

**4.3.5 Clear Width:** The clear width of the main portion of the curb ramp, excluding flared sides, shall be 48 inches minimum.

**4.3.6 Detectable Warnings:** Detectable warning surfaces complying with Section 5.5 shall be provided for the full width of the main portion of the curb ramp or blended transition, with the front edge located approximately six inches behind the curb line.

**4.3.7 Grooved Border:** A 12-inch wide grooved border with 1/4 inch grooves approximately 3/4 inch on center shall be provided at the top of the main slope and at the side of each side slope.

**4.3.8 Surfaces:** Surfaces of curb ramps and landings shall comply with Section 3.9. Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, and gutter areas directly in front of curb ramps.

> **4.3.8.1 Exception**: Where existing conditions, obstructions or reduced right-of-way widths preclude the relocation of drop inlets outside of the gutter areas directly in front of curb ramps, then the gratings for the drop inlets shall conform to Section 3.11 “Gratings”.

**4.3.9 Changes in Level:** Vertical changes in level greater than those described in Section 3.10 shall not be permitted on curb ramps, landings or gutter areas directly in front of curb ramps.

**4.3.10 Gutter Slope:** The counter slope of the gutter area or street at the foot of a curb ramp or landing shall be 1:20 (five percent) maximum.

**4.3.11 Clear Space:** Beyond the curb line toward the street, a clear space measuring 48 inches minimum by 48 inches minimum shall be provided within any marked crosswalk that may be present and located wholly outside of the parallel vehicle travel lane.

**4.3.12 Obstructions:** Curb ramps shall be located or protected to prevent their obstruction by parked cars.

**4.4 Parallel Curb Ramps**: Parallel curb ramps shall comply with the details described in this subsection, and shall have running slopes that are in-line with the direction of sidewalk travel (Figure 6). This standard already is required in the County Design Improvement Standards for Streets, Section 4-17, June 11, 2003.

**4.4.1 Running Slope:** The running slope of each side slope shall be 1:12 (8.33 percent) maximum.

**4.4.1.1 <u>Advisory:</u>** Where feasible, the minimum running slope of each side slope is preferred to be 1:15 (6.67 percent).

**4.4.2 Cross Slope:** The cross slope of each side shall be 1:67 (1.5 percent), with allowances for a construction variance of 1:200 (0.5 percent) in either direction.

**4.4.3 Clear Width:** The clear width of each side slope shall be 48 inches minimum.

**4.4.4 Landing:** A landing measuring 48 inches minimum by 48 inches minimum shall be provided at the bottom of each ramp slope. Landing slopes shall be 1:100 (one percent) minimum and 1:67 (1.5 percent) maximum, with allowances for a construction variance of 1:200 (0.5 percent) in either direction.

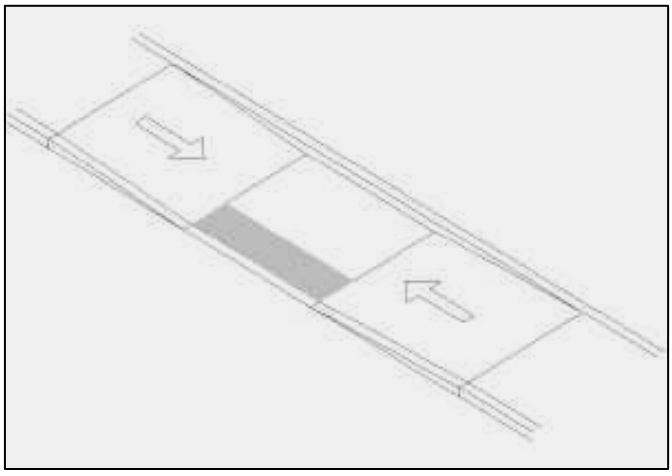

**Figure 6: Parallel Curb Ramp**

Note: For alternative format, refer to the corresponding text.
Source: www.access-board.gov/rowdraft.htm

**4.4.5 Diverging Sidewalks:** Where a parallel curb ramp does not occupy the entire width of a sidewalk, drop-offs at diverging segments shall be protected with a six inch curb or similar barrier.

**4.4.6 Common Landing Width:** Where two parallel curb ramps are located at a corner, the landing between the top of each side slope shall be 48 inches minimum.

**4.4.7 Detectable Warnings:** Detectable warning surfaces complying with Section 5.5 shall be provided for the full width of the lower landing between the side slopes of the curb ramp, with the front edge located approximately six inches behind the curb line.

**4.4.8 Grooved Border:** A 12-inch wide grooved border with 1/4 inch grooves approximately 3/4 inch on center shall be provided at the top of each side slope.

**4.4.9 Surfaces:** Surfaces of curb ramps and landings shall comply with Section 3.9. Gratings, access covers and other appurtenances shall not be located on curb ramps, landings and gutter areas directly in front of curb ramps.

> **4.4.9.1 Exception:** Where existing conditions or obstructions or reduced right-of-way widths preclude the relocation of drop inlets outside of the gutter areas directly in front of curb ramps, then the gratings for the drop inlets shall conform to Section 3.11 "Gratings".

**4.4.10 Changes in Level:** Vertical changes in level greater than those described in Section 3.10 shall not be permitted on curb ramps, landings, or gutter areas directly in front of curb ramps.

**4.4.11 Gutter Slope:** The counter slope of the gutter area or street at the foot of the lower landing shall be 1:20 (five percent) maximum.

**4.4.12 Clear Space:** Beyond the curb line toward the street, a clear space of 48 inches minimum by 48 inches minimum shall be provided within any marked crosswalk that may be present and located wholly outside the parallel vehicle travel lane.

**4.4.13 Obstructions:** Curb ramps shall be located or protected to prevent their obstruction by parked cars.

## Section 5.5: Detectable Warning Standards

**5.1 Scope**: Where detectable warnings (truncated domes) are required by other sections of these standards, they shall comply with the requirements of this section.

**5.2 Size and Location:** Detectable warnings shall be 36 inches in depth and span the full width of the area where they are required.

**5.3 Specifications:** The detectable warning surface shall be prefabricated durable slip resistant surface and shall have in-line square grid pattern truncated domes with a diameter of nominal 0.9 in. (22.9 mm) at the base tapering to 0.45 in. (11.4 mm) at the top, a height of nominal 0.2 in. (5.08 mm), and a center-to-center spacing of 1.66 in. (59.7 mm) (2.35 in. center-to-center spacing on the diagonal.) "Nominal" as used here shall be in accordance with California State Referenced Standards Code Sections 12-11A and B-102. Detectable warnings shall be safety yellow conforming to Federal Color No. 33538, Table IV of Standard No. 595B. The 0.2 inch height of domes shall be measured from the top of the highest point on the field slip resistant surface to the highest point on the top of the truncated dome. Detectable warning surfaces shall differ from adjoining walking surfaces in resiliency or sound on cane contact.

## Section 5.6: Pedestrian Crossing Standards

**6.1 Scope:** All signalized intersections shall be provided with marked crosswalks as described in this section. Crosswalk markings should be designed and installed per the County's Traffic Signal and Striping Design Guidelines, the Manual of Uniform Traffic Control Devices (MUTCD) and the MUTCD California Supplement as referenced in Section 5.5 "Crosswalks: General" of the Sacramento County Pedestrian Design Guidelines. If provided, all marked crosswalks shall comply with the requirements of this section.

**6.2 Width:** Marked crosswalks shall be 96 inches wide minimum, as measured between the striped lines.

**6.2.1 Advisory:** Where feasible, marked crosswalks shall be 120 inches wide, as measured between the striped lines.

**6.3 Color and Size:** Crosswalk stripes shall be 12 inches wide, and white in color.

**6.3.1 Exception:** Crosswalks serving schools shall be yellow in color.

**6.4 Advisory Cross Slope:** The cross slope of the pavement within a marked crosswalk shall be 1:67 (1.5 percent) maximum, measured perpendicular to the direction of pedestrian travel, with allowances for a construction variance of 1:200 (0.5 percent) in either direction.

**6.5 Running Slope:** The running slope of the pavement within a marked crosswalk shall be 1:20 (five percent) maximum measured parallel to the direction of pedestrian travel in the crosswalk.

**6.6 Pedestrian Signal Phase Timing:** The Sacramento County, Department of Transportation, shall time its pedestrian intervals at signalized intersections following the most current Manual on Uniform Traffic Control Devices (MUTCD) Standard. This policy allows for timing at a reduced walking rate at locations where those who walk (or use wheelchairs) slower than the four feet per second standard routinely use the intersection. The County policy will change in accordance with changes to the MUTCD standard, which currently reads:

MUTCD's Section 4E.10 Pedestrian Intervals and Signal Phases

When pedestrian signal heads are used, a WALKING PERSON (symbolizing WALK) signal indication shall be displayed only when pedestrians are permitted to leave the curb or shoulder. A pedestrian clearance time shall begin immediately following the WALKING PERSON (symbolizing WALK) signal indication. The first portion of the pedestrian clearance time shall consist of a pedestrian change interval during which a flashing UPRAISED HAND (symbolizing DONT WALK) signal indication shall be displayed. The remaining portions shall consist of the yellow change interval and any red clearance interval (prior to a conflicting green being displayed), during which a flashing or steady UPRAISED HAND (symbolizing DONT WALK) signal indication shall be displayed. If countdown pedestrian signals are used, a steady UPRAISED HAND (symbolizing DONT WALK) signal indication shall be displayed during the yellow change interval and any red clearance interval (prior to a conflicting green being displayed) (see Section 4E.07). At intersections

equipped with pedestrian signal heads, the pedestrian signal indications shall be displayed except when the vehicular traffic control signal is being operated in the flashing mode. At those times, the pedestrian signal lenses shall not be illuminated.

Guidance:
Except as noted in the Option, the walk interval should be at least seven seconds in length so that pedestrians will have adequate opportunity to leave the curb or shoulder before the pedestrian clearance time begins.

Option:
If pedestrian volumes and characteristics do not require a seven-second walk interval, walk intervals as short as four seconds may be used.

Support:
The walk interval itself need not equal or exceed the pedestrian clearance time calculated for the roadway width, because many pedestrians will complete their crossing during the pedestrian clearance time.

Guidance:
The pedestrian clearance time should be sufficient to allow a pedestrian crossing in the crosswalk who left the curb or shoulder during the WALKING PERSON (symbolizing WALK) signal indication to travel at a walking speed of 1.2 m (4 ft) per second, to at least the far side of the traveled way or to a median of sufficient
width for pedestrians to wait. Where pedestrians routinely walk (or use wheelchairs) slower than 1.2 m (4 ft) per second, a walking speed of less than 1.2 m (4 ft) per second should be considered in determining the pedestrian clearance time.

Option:
Passive pedestrian detection equipment, which can detect pedestrians who need more time to complete their crossing and can extend the length of the pedestrian clearance time for that particular cycle, may be used to avoid using a lower walking speed to determine the pedestrian clearance time.

Guidance:
Where the pedestrian clearance time is sufficient only for crossing from the curb or shoulder to a median of sufficient width for pedestrians to wait, additional measures should be considered, such as median-mounted pedestrian signals or additional signing.

Option:
The pedestrian clearance time may be entirely contained within the vehicular green interval, or may be entirely contained within the vehicular green and yellow change intervals. On a street with a median of sufficient width for pedestrians to wait, a pedestrian clearance time that allows the pedestrian to cross only from the curb or shoulder to the median may be

provided. During the transition into preemption, the walk interval and the pedestrian change interval may be shortened or omitted as described in Section 4D.13..

**6.7 Medians and Pedestrian Refuge Islands:** Medians and pedestrian refuge islands in crosswalks shall be cut through level with the street or have curb ramps complying with Section 5.4. Where the cut-through connects to the street, edges of the cut-through shall be aligned with the direction of the crosswalk for a length of 24 inches minimum.

**6.7.1 Width:** The width of all cut-throughs shall be 48 inches minimum.

**6.7.1.1 Advisory:** Where feasible, the width of all cut-throughs shall be 60 inches.

**6.7.2 Length:** Where signal timing is not designed or intended for full crossing of all traffic lanes or where the crossing is not signalized, cut-through medians and pedestrian refuge islands shall be 96 inches minimum in length in the direction of pedestrian travel.

**6.7.3 Detectable Warnings:** Medians and refuge islands shall have detectable warnings complying with the section titled Detectable Warnings (Section 5.5). Detectable warnings at cut-through islands shall span the full width of the cut-through and shall be separated by a 24-inch minimum length of walkway without detectable warnings.

**6.8 Crosswalk Alignment:** (per Sacramento County Guidestrip Policy, approved by the Board of Supervisors on August 18, 1987, see County Standard Drawing 4.29): Marked crosswalks shall have straight alignment, with no change of direction between the terminal ends of the crosswalk.

**6.8.1 Exception:** Where a straight crosswalk is not feasible at existing intersections due to the particular geometry of the intersection, or where blind pedestrians using a white cane have become confused and disoriented while making street crossings as a result of an intersection with unusual or nonstandard geometry, as determined by the ADA Transition Plan Oversight Committee, tactile guidestrips shall be installed within the crosswalk. Examples of unusual geometry include right turn lanes, unusual crosswalks, diagonal crosswalks, exceptionally large corner radii, T-intersections, intersections with exceptionally wide streets, and two one-way streets that intersect. Where required, a tactile guidestrip shall be located in the center of the crosswalk for the entire length of the crosswalk. The color of the tactile guidestrip shall match the crosswalk color. The tactile guidestrip material shall be vitrified polymer composite consisting of epoxy polymer composition employing aluminum oxide particles in the raised surface of the guidestrip. The nominal dimensions of the tactile guidestrip shall be 4 inches wide by 24 inches long by 5/16 inch thick. Tactile guidestrips shall be formed with structural flanges, which shall extend below the surface a minimum of 1-1/4 inch.

# Section 5.7: Accessible Pedestrian Signal Standards

**7.1 Scope:** Each crosswalk with pedestrian signal indication shall have a signal device that includes accessible indications of the walk interval. Where a pedestrian pushbutton is provided, it shall be integrated into the signal device and shall comply with the requirements of this section.

**7.2 Types and Location of Accessible Pedestrian Signals:**

Accessible pedestrian signals (APS) may be either of the following types: (1) Overhead - the APS is mounted to the Pedestrian Head, or (2) Pedestrian Activated Signal Control (PASC) - the APS accessibility features is incorporated into the PASC.

All overhead and PASC accessible pedestrian signal devices shall serve the nearest crosswalk in relationship to their installation site. The speakers of all overhead and PASC APS devices shall be oriented toward the center of the crosswalk or the direction of travel to the maximum extent feasible. If possible due to intersection configuration, all overhead and PASC APS devices shall be separated a minimum of 120 inches from any other APS device, unless on an island or median, where space will not permit.

**7.3 Audible Walk Indication:**

The audible pedestrian signals shall emit two distinct audible signals that resemble birdcalls; "cuckoo" for the north-south walk phase and "peep-peep" for the east-west walk phase, (per the California Department of Transportation Traffic Manual, Revised, July 1996, Section 9-04.8) or the closest proximity to these compass directions.

Volume measured at 36 inches from the pedestrian signal device shall be between two and five decibel (dB) above ambient noise level and responsive to ambient noise level change. Automatic volume adjustment in response to ambient traffic sound level should be provided up to a maximum volume of 89 dB.

When accessible pedestrian signals have an audible tone, they shall have a tone for the walk interval. The audible tone shall be audible from the beginning of the associated walk interval.

Activation of the pedestrian-activated signal control shall simultaneously activate the accessible pedestrian signal. There shall be no extended button press required to activate the auditory tone feature that announces the onset of the walk interval. An extended button press shall be permitted to activate additional features (e.g. auditory announcement, “wait,” “street name,” etc). Buttons that provide additional features shall be marked with three Braille dots forming an equilateral triangle in the center of the pushbutton.

**7.4 Pedestrian Pushbuttons:** Pedestrian pushbuttons shall comply with the details described in this section.

**7.4.1 Location:** Pedestrian pushbuttons shall be located 60 inches maximum from the crosswalk line extended, and if possible due to intersection configuration, 120 inches maximum and 30 inches minimum from the curb line, and 120 inches minimum from any other pedestrian pushbutton at a crossing. The control face of the pushbutton shall be installed to face the intersection and be parallel to the direction of the crosswalk it serves.

**7.4.2 Reach and Clear Space:** A clear space measuring 30 inches wide by 48 inches deep shall be provided at each pushbutton and shall connect to or overlap the pedestrian path of travel.

**7.4.3 Mounting Height:** Pedestrian pushbuttons shall be mounted at a height from 34 inches minimum to 46 inches maximum to the centerline above the lowest adjacent walking surface.

**7.4.4 Operation:** Pedestrian pushbuttons shall require no more than five pounds of pressure to operate.

**7.4.5 Size and Contrast:** Pedestrian pushbuttons shall be a minimum of two inches across in one dimension and shall contrast visually with their housing or mounting.

**7.4.6 Locator Tone:** If used by the particular accessible signal manufacturer, pedestrian pushbuttons shall incorporate a locator tone (one per pole) at the pushbutton. Locator tone volume measured at 36 inches from the pushbutton shall be two dB minimum and five dB maximum above ambient noise level and shall be responsive to ambient noise level changes. Automatic volume adjustment in response to ambient traffic sound level should be provided up to a maximum volume of 89 dB. The duration of the locator tone shall be 0.15 seconds maximum and shall repeat at intervals of one second. The locator tone shall operate during the "don't walk" and flashing "don't walk" intervals only and shall be deactivated when the pedestrian signal system is not operative.

**7.4.6.1 <u>Exception:</u>** At existing pedestrian pushbuttons without locator tones, pole-supported pedestrian pushbuttons shall be identified with color coding consisting of a textured horizontal yellow band two inches in width encircling the pole, and a one-inch wide dark border band above and below the yellow band. Color-coding should be placed immediately above the pushbutton.

**7.4.7 Vibrotactile Indicator:** If used by the particular accessible signal manufacturer, pedestrian pushbuttons shall incorporate a vibrotactile indicator at the pushbutton. The vibrotactile indicator shall indicate that the walk interval is in effect, and for which direction it applies, through the use of a vibrating directional arrow. The vibrotactile indicator shall be part of the pedestrian pushbutton and adjacent to the intended crosswalk.

**7.5 Directional Information and Signs:** If used by the particular accessible signal manufacturer, pedestrian pushbuttons shall provide tactile and visual signs on the face of the

device or its housing or mounting indicating crosswalk direction and the name of the street containing the crosswalk served by the pedestrian signal.

**7.5.1 Arrow:** Signs shall include a tactile arrow aligned parallel to the crosswalk direction. The arrow shall be raised 1/32 inch minimum and shall be 1-1/2 inches minimum in length. The arrowhead shall be open at 45 degrees to the shaft and shall be 33 percent of the length of the shaft. Stroke width shall be 10 percent minimum and 15 percent maximum of arrow length. The arrow shall contrast with the background, white on black or black on white.

**7.5.2 Street Name:** Signs shall include street name information aligned parallel to the crosswalk direction. The street name shall be printed in non-serif raised white letters a minimum of 5/8 inches high, accompanied by contracted Grade 2 Braille below, on a black background.

## Section 5.8: Transportation and Vehicle Access Standards

**8.1 Scope:** Where new public transportation facilities are constructed or substantially altered within the County-regulated right-of-way, they shall comply with the requirements of this section.

**8.2 Location:** Bus stops or other transit stops serving fixed transit routes shall be located on at least one pedestrian access route complying with the requirements of Section 5.3 for the pedestrian path of travel from the transit stop to the nearest four-way street intersection. Curb ramps located at the nearest four-way intersection or other locations along the pedestrian access route shall comply with the requirements of Section 5.4.

**8.3 Clear Width**: The sidewalk adjacent to each transit stop shall provide a minimum clear width of 72 inches, not including the width of any curb that may be present between the sidewalk and the street or gutter, for a minimum length of 28 feet. This standard already is required in the County Design Improvement Standards for Streets, Section 4-16, June 11, 2003.

> **8.3.1 Exception:** All transit stops directly in front of all school properties shall have a clear width of 96 inches, except frontages in front of fenced play areas with no access may have a clear width of 72 inches.

**8.4 Cross Slope:** The cross slope of the sidewalk along the required length of the transit stop shall be 1:67 (1.5 percent), with allowances for construction a variance of 1:200 (0.5 percent) in either direction.

**8.5 Running Slope:** The running slope of the sidewalk along the required length of the transit stop shall not exceed the grade of the adjacent roadway or 1:20 (five percent), whichever is greater.

> **8.5.1 Advisory:** A running slope of no greater than 1:48 (two percent) is preferred.

**8.6 Curbs at Streets Adjacent to Sidewalks**: Curbs on the street side of the sidewalk along the required length of the transit stop shall be approximately vertical, with a height of at least five inches but no greater than eight inches. This standard already is required in the County Design Improvement Standards for Streets, Section 4-16, June 11, 2003.

**8.7 Surface:** The surface of the sidewalk along the required length of the transit stop shall be either Portland cement concrete or asphalt concrete, and it shall be firm, stable and slip-resistant.

> **8.7.1 Exception:** A material other than concrete or asphalt may be used when it can be adequately demonstrated to the SacDOT Program Access Coordinator that it provides an equal firm, stable, and slip-resistant surface.

**8.8 Barrier Curbs at Drop-offs**: At transit stops, where a slope behind a sidewalk slopes toward the sidewalk, a barrier curb projecting at least six inches in height above the surface shall be provided to prevent water flow across the sidewalk. This standard already is required in the County Design Improvement Standards for Streets, Section 4-20, June 11, 2003.

**8.9 Bus Shelters:** Where Regional Transit provides a shelter at a transit stop, their shelter shall be located along a pedestrian access route complying with Section 5.3, and it shall provide a minimum 42 inches by 60 inches clear space, not including benches that are located completely beneath the shelter.

**8.10 Bus Stop Signage:** Where provided by Regional Transit, all new bus stop signage shall comply with ADAAG 4.30.2,.3,&.5 (1991).

> **8.10.1 Exception:** Bus schedules, timetables or maps do not have to comply with these standards.

## Section 5.9: Street and Sidewalk Furnishings and Appurtenances Standards

**9.1 Clear Space:** Street and sidewalk furnishings shall have a 30 inch wide (measured parallel to the pedestrian travel direction) by 48 inch deep (measured perpendicular to the pedestrian travel direction) clear space in front of each portion used by a pedestrian and shall be connected to the sidewalk or pedestrian access route.

**9.2 Facilities and Elements:** Where drinking fountains, telephones, concession stands, kiosks, information counters or public toilet facilities are provided, they shall comply with all applicable portions of the California State Building Code, Chapter 11B.

**9.3 Benches:** The leading edge of benches and all similar sidewalk furnishings shall be set back 12 inches minimum from the required minimum width of the pedestrian access route. Bench seats shall be 17 inches to 19 inches vertical from the adjacent walkway surface to the seat.

## Section 5.10: Temporary Construction Standards

**10.1 Scope:** Where construction or other temporary conditions prohibit full access to pedestrian facilities with the County-regulated right-of-way, an alternate pedestrian route shall be provided in compliance with the requirements of this section.

**10.2 Location:** To the maximum extent feasible, the alternate pedestrian route shall parallel the disrupted pedestrian route, on the same side of the street. Where access is not available on the same side of the street, the alternate pedestrian route may be located on the opposite side of the street as long as the distance in excess of the disrupted pedestrian route does not exceed 300 feet, and as long as all requirements of these standards are met.

**10.3 Elements:** The alternate pedestrian route shall include sidewalks and pedestrian access routes, curb ramps, pedestrian crossings and all other elements included in these standards.

**10.4 Width:** The alternate pedestrian route shall have a width of 48 inches minimum.

> **10.4.1 Exception:** Where technical infeasibility exists, the alternate pedestrian route may have a width of 36 inches minimum.

**10.5 Barricade Protection**: The alternate pedestrian route shall be protected with a solid barricade to separate alternate pedestrian route from any adjacent construction, drop-offs, openings or other hazards. Barricades shall be continuous, stable and non-flexible, and shall consist of a solid wall or fence with the bottom or lower rail 1-1/2 inches maximum above the walking surface, and the top of the fence, wall or upper rail 36 inches minimum above the walking surface. Barricade support members shall not protrude beyond the barricade face into the alternate pedestrian route. Barricades shall be of a contrasting color, with yellow or orange preferred. This standard already is required in the County Design Improvement Standards for Streets, Section 4-24, June 11, 2003.

**10.6 Signs:** Signs complying with California Building Code Section 1117B.5 shall be provided at both the near side and the far side of the intersection preceding a disrupted pedestrian route, with appropriate wording to guide pedestrians to the alternate pedestrian route. When raised characters or symbols are used, they shall be raised 1/32 inch (0.794 mm) minimum and shall be sans-serif uppercase characters accompanied by Grade 2 Braille. Dots shall be 1/10 inch (2.54 mm) on centers in each cell with 2/10 inch (5.08 mm) space between cells. Dots shall be raised a minimum of 1/40 inch (0.635 mm) above the background.