

VII. DESIGNING TO ACCOMMODATE PEDESTRIAN ACCESSIBILITY REQUIREMENTS

A. DISABILITY ACCESS LEGISLATION AND DESIGN STANDARDS

To prohibit discrimination on the basis of disability, the Federal government enacted the Rehabilitation Act of 1973 (Section 504) and the Americans with Disabilities Act of 1990 (ADA). The ADA requires that persons with disabilities be provided with an equal opportunity to benefit from government programs, services and activities. These programs include pedestrian access routes within public road rights-of-way that are constructed with public or private funds.

The United States Department of Justice (USDOJ) published the “2010 ADA Standards for Accessible Design” prepared by the United States Architectural and Transportation Barriers Compliance Board (US Access Board). Since pedestrian facilities in the public right-of-way can pose unique design challenges, the US Access Board has developed the draft “2011 Public Right Of Way Accessibility Guidelines” (PROWAG). The USDOJ and the Federal Highway Administration (FHWA) have accepted the use of the draft PROWAG for best design practices in the public right-of-way until the final PROWAG is ultimately adopted by the USDOJ. In addition, the State of California has adopted accessibility requirements in its “California Building Code” (CBC), “California Manual of Uniform Traffic Control Devices” (CAMUTCD), and “Caltrans Standard Plans” (CSP) that meet or exceed the 2010 ADA Standards. The County of Riverside requires the use of the latest PROWAG, CBC, CAMUTCD, and CSP for accessibility design in the public right-of-way. In addition, the County can and has established accessibility design requirements, as shown in Riverside County Ordinance No. 461 Standard Plans and Specifications, that may be more stringent than Federal or State requirements. Where Federal, State and/or County requirements do not match, the most stringent criteria will apply.

Attached in the Appendix are updated Riverside County Standard Drawings for Curb Ramps. These updates include the requirement for flatter design slopes (7.5% maximum ramp slope and 1.5% maximum sidewalk slope) to accommodate construction tolerances to ensure that ADA minimum/maximum requirements are met. All design must be made using the flatter slopes.

It is the responsibility of the engineer of record for the project to know and apply all Federal, State and County accessibility design criteria.

B. REQUIRED IMPROVEMENTS

The ADA specifies that when roads and/or sidewalks are *newly built* or *altered*, curb ramps must be installed where they are missing and upgraded to current standards where they are existing. According to a 2013 joint letter from the USDOJ and FHWA, altered improvements include, among other items, any type of pavement reconstruction or resurfacing, such as overlay (any depth), microsurfacing, and cape seal. (The only exceptions are slurry seal, chip seal and pothole filling, which are considered *maintenance*). The requirement for accessible improvements extends

to the full project frontage and may extend to the opposite sides of the street where the County determines that the project has created a nexus and need for accessibility improvements.

C. MINIMUM SIDEWALK WIDTH, OBSTACLES

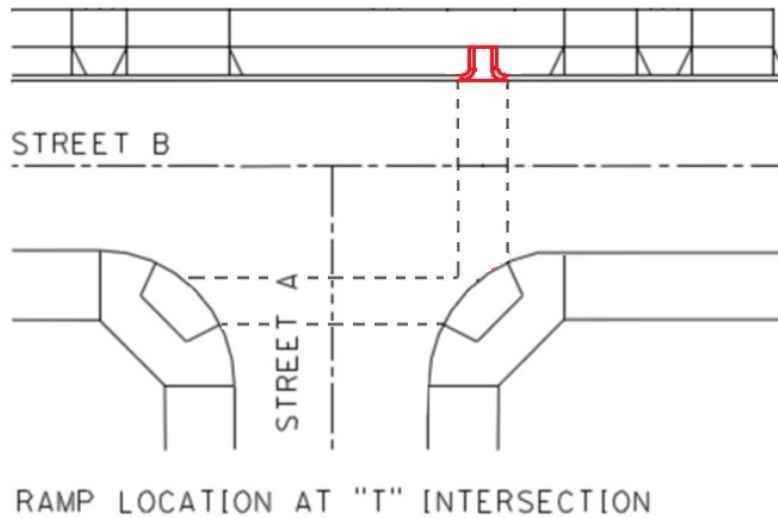
According to Federal and State requirements, the pedestrian access route is 48 inches minimum, 60 inches preferred. In cases where sidewalk is 48 inches wide, turnouts of 60 inches by 60 inches must be provided every 200 feet. The width of the top of curb is not included in the measurement of minimum sidewalk width. The minimum sidewalk width per County Ordinance No. 461 is 64 inches adjacent to back-of-curb or 60 inches not adjacent to back-of-curb. The County standard will supersede Federal and State minimums unless otherwise approved by the Director of Transportation.

Objects, such as street lights, utility poles, utility cabinets, fire hydrants, sign posts, signs, parking meters, trash receptacles, public telephones, mailboxes, newspaper stands, benches, transit shelters, kiosks, bicycle racks, planters, trees, street sculptures and opening doors, should be avoided in the pedestrian path of travel. Where obstacles exist, they must not reduce the minimum width of the pedestrian path of travel as determined by State and Federal standards. The current minimum width around obstacles, for short distances of 24 inches or less in the direction of travel, is 32 inches per Federal 2010 ADA Standards and 36 inches per State CBC. Since the most stringent requirement prevails, 36 inches is the minimum distance around an obstacle. As part of the development of the draft PROWAG, the Federal minimum width is proposed to be increased to 48 inches. If and when adopted, the 48 inch requirement would supersede all other Federal, State and County requirements. The use of any sidewalk width of less than 60 inches in new construction requires the prior approval of the Director of Transportation. It should be noted that for new construction with adequate right-of-way width, full sidewalk width of 60 inches should meander around obstacles such as street light poles, utility poles and multiple mail box units as is depicted on County Ordinance No. 461 Standards 400 and 812.

The cross slope of sidewalk perpendicular to the pedestrian access route, or in any direction within a landing, is 2% maximum. The longitudinal slope along the pedestrian access route parallel to a public street and within public right-of-way is allowed to equal the street grade. Where the pedestrian access route is not parallel to and within public right-of-way (such as sidewalk with meandering horizontal and vertical alignments), the longitudinal slope is 5% maximum.

D. PEDESTRIAN STREET CROSSINGS

In accordance with the California Vehicle Code, crosswalks whether marked or not are provided at all street intersections, including T-intersections. Therefore, curb ramps shall be provided at all intersection corners, including at least one curb ramp across from T-intersections as shown in County Standard No. 403 and as shown in the figure below. Marked crosswalks shall provide for a 10 foot minimum inside width and 12 foot minimum outside width, and a minimum of 4.0 feet clearance between the flow line of the diagonal curb ramp and the inside edge of the marked crosswalk.



The maximum cross slope of the pedestrian route of travel for *marked or unmarked* pedestrian street crossings in new construction is:

- 2% maximum for legs of an intersection with stop or yield control
- 5% maximum for legs of an intersection without stop, yield or green light signalization
- Allowed to equal the street grade for mid-block crossings

The maximum longitudinal slope along the pedestrian route of travel for *marked or unmarked* pedestrian street crossings in new construction is:

- 5% maximum

The clear width of pedestrian access routes within medians and pedestrian refuge islands shall be 5.0 feet minimum. Medians with short lengths should utilize curb cuts without the use of ramps. Detectable warning surfaces, 36 inches deep by the width of the pedestrian route, should be provided at the entry and exit of median islands that are 8.0 feet long or more. Detectable warning surfaces, 24 inches deep each, should be provided at the entry and exit of median islands that are between 8.0 and 6.0 feet long. No detectable warning surfaces should be placed where medians are less than 6.0 feet long.

E. CURB RAMPS

Curb ramps at intersection curb returns shall comply with County Ordinance No. 461 Standard 403 Case A. (Note: County Ordinance No. 461 Standard 403 Case B shall only be used with prior approval by the Director of Transportation). Curb ramps at T-intersections and mid-block crosswalks shall comply with County Ordinance No. 461 Standard 403 Case C or Case D.

General criteria for curb ramp design is shown below:

- ❑ Ramp width (not including flared sides) is 48 inches minimum.

- ❑ Ramp width with constraints on one or more side by a curb is 60 inches minimum.
- ❑ Ramp running slope is 7.5% maximum for design (8.33% maximum as-built construction)
- ❑ Pedestrian access route cross slope for ramps, landings and sidewalks is 1.5% maximum for design (2.00% maximum as-built construction). Note: the maximum cross slope applies to all locations along the pedestrian access route on sidewalks and ramps, including the bottom of the ramp along the street flow line.
- ❑ Flared sides are 10.0% maximum adjacent to the curb.
- ❑ Clear landing width at the top of a ramp is 48 inches by 48 inches minimum.
- ❑ Clear landing width at the bottom of a parallel curb ramp is 60 inches by 60 inches minimum.
- ❑ Transition of the ramp at the gutter flow line is flush (without a lip).
- ❑ Slope of the roadway from the gutter flow line to 4 feet into the roadway is 5% maximum.
- ❑ Ramp is located within the limits of a marked crosswalk.
- ❑ Detectable warning surface is the full width of the at-grade section at the entrance to a vehicular way with a 36 inches minimum depth.
- ❑ Maximum required length of a curb ramp is 15 feet.

Note: A 12 inch-wide grooved border is no longer a requirement of the CBC or 2010 ADA Standards.

To demonstrate compliance with accessibility standards, the design engineer shall provide a detail on the street improvement plans for each ramp for which the incoming street grade at one or both BCR/ECR is 5% or steeper. The detail shall show key design elevations, slopes and widths at 1"=10' scale.

F. STEEP TERRAIN

Sidewalks built on steep terrain make access difficult for people with mobility impairments. As discussed in the US Access Board's Section-by-Section Analysis of PROWAG Section R302.6:

In new construction, where pedestrian access routes within sidewalks intersect at corners, the 2 percent maximum cross slope requirement will result in level corners (i.e., the slope at the corners will not exceed 2 percent in each direction of pedestrian travel). The level corners will provide a platform for providing level spaces for curb ramps and blended transitions, pedestrian street crossings, and accessible pedestrian signals and pedestrian pushbuttons.

Where pedestrian street crossings with yield or stop control are provided at newly constructed tabled intersections, the tabling would be extended to the pedestrian street crossings to comply with the 2 percent maximum cross slope for pedestrian access routes within the pedestrian street crossings.

The FHWA discusses curb ramps on steep terrain in their publication "Designing Sidewalks and Trails for Access (Part II Section 7.4.6)":

...In the past, some designers have decided not to provide curb ramps on steep sidewalks because of the erroneous assumption that individuals with mobility impairments could not travel on significant grades. However, even if the terrain is extremely steep, curb ramps should be provided so individuals using powered mobility devices (e.g., a scooter) or traveling with assistance will be able to access the sidewalk.

...

When addressing steep grades at an intersection, it is best to extend the level area of the intersection to include the curb ramp and the landing. Although this significantly increases the grade of the path leading toward or away from the intersection, it is recommended because it enables people to cross the roadway and transition from the roadway to the sidewalk on a level surface. If this segment of the sidewalk corridor is not level, the problems caused by steep terrain are often magnified...



Figure 7-39. GOOD DESIGN: The level area of an intersection should be extended to include the curb ramps and the level landings above them.

In addition to providing well-designed curb ramps, extending the level area of the street intersection into the crosswalk areas will also ensure that the crosswalks are level. If the grade of the street slopes up or down, the slope of the street becomes a cross slope for pedestrians (in the crosswalk).

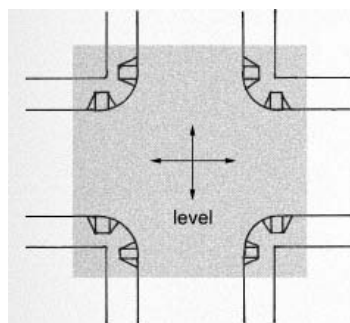


Figure 7-40. The shaded area represents the level portion of the intersection.

G. DESIGN EXCEPTIONS

The USDOJ has recognized that exceptions to the design standards are allowed when applying the standards may be technically infeasible, structurally impracticable, or threatens historically significant features of a qualified historic facility. Even for qualified exceptions, any portion of a facility that can be made accessible will need to be made accessible to the maximum extent feasible. Furthermore, if accommodating access for individuals with certain disabilities (e.g., those who use wheelchairs) would be technically infeasible, accessibility shall nonetheless be ensured to persons with other types of disabilities (e.g., those who use a walker or cane, or those who have sight, hearing or mental impairments). For instance, the requirement to install curb ramps will not be waived in steep terrain, because individuals using powered mobility devices (e.g., a scooter) or traveling with assistance will be able to access the sidewalk.

Any exception to Federal, State or County requirements must receive approval in writing from the Riverside County Director of Transportation in a Design Exception document prepared by the engineer of record for the project, prior to the approval of improvement plans.

While design engineers may encounter situations that are technically infeasible when tying into existing improvements, it is expected that all new streets be designed with full accessibility compliance without the opportunity for design exceptions. The design engineers should therefore apply all accessibility design criteria during the preparation of feasibility studies, conceptual drawings, tentative maps, and improvement plans prior to plan check submittal. Plans that do not meet full accessibility requirements, but which had the ability to meet full accessibility requirements if designed as such from the beginning, will not be granted a design exception and the project will need to be redesigned.

In the event that non-compliance is encountered during construction, it is the engineer of record's responsibility to provide a design solution, and the project owner's responsibility to re-construct improvements as necessary, such that full compliance is met. The County of Riverside will not accept improvements along public pedestrian routes that are non-compliant as it would leave the County exposed to civil rights litigation.

According to FHWA regarding cost:

Cost may not be a reason to fail to construct or delay constructing a new facility so that the facility is readily accessible to and useable by persons with disabilities under the ADAAG standards.

28 CFR §35.151(a); see DOJ Technical Assistance Manual for Title II of the ADA, II-6.3100(3). (9-12-06)