

Memorandum

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To: DISTRICT DIRECTORS
DEPUTY DIRECTORS
DIVISION CHIEFS

Date: June 11, 2012

File: 263 and 608

From: TERRY L. ABBOTT
Chief
Division of Design



Subject: Additional Guidelines on Curb Ramp Scoping and Design

The attached curb ramp scoping and design document is for the purpose of providing additional guidelines to achieve the most accessible curb ramp design for the unique site constraints of the pedestrian facility.

Current design policy and standards were developed in accordance with the Americans with Disabilities Act of 1990 and have been reviewed by the Federal Highway Administration. The most current version of Design Information Bulletin 82 (DIB 82-04) "Pedestrian Accessibility Guidelines for Highway Projects" provides the accessible pedestrian design guidance for public rights of way applicable to the State Highway System. This more detailed guide specific to curb ramp design will help ensure that the designer is taking the appropriate steps to achieve the most reasonable design for a given situation.

This guide for curb ramp scoping and design is to be considered along with the designer's engineering judgment when designing curb ramps.

If you have any questions on this guidance, please contact your assigned Design Coordinator or Design Reviewer.

Attachment

c: DHeikens

Curb Ramp Scoping and Design

A. Introduction

This guidance has been developed to assist designers of curb ramps to be familiar with design requirements and construction considerations for these facilities. Design Information Bulletin (DIB) 82 contains the accessibility standards in accordance with the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG). The goal is to design fully accessible facilities. However, in certain circumstances where physical or project scope constraints prevent meeting strict compliance with the accessibility standards, the facilities may be designed to be compliant to the extent practicable as explained in this guide.

The *Highway Design Manual*, Index 105.5 provides a discussion on pedestrian movement, location of curb ramp placement, and the number of curb ramps at each corner. Also discussed in Topic 401 is the pedestrian as a factor in design of intersections.

B. Project Scoping

Curb ramps may be included as part of the project scope and funded from many different sources. Generally, projects with curb ramp work are considered roadway alterations (see DIB 82). Pavement preservation projects, other than the Maintenance Program (HM) funded projects, may require curb ramp work. The Clarification of FHWA's Oversight Role Memorandum, dated September 12, 2006, states the following regarding project scope and alterations:

Alterations shall incorporate accessibility improvements to existing pedestrian facilities to the extent that those improvements are in the scope of the project and are technically feasible, without regard to cost. Projects altering the usability of the roadway must incorporate accessible pedestrian improvements at the same time as the alterations to the roadway occur.

It further states:

When constructing a new transportation facility or altering an existing transportation facility, a public agency should consider what is included within the scope of the project. For elements that are within the scope of the project, the ADAAG provides that "Any features of a... facility that are being altered and can be made accessible shall be made accessible [e.g., made to conform with ADAAG] within the scope of the alteration." ADAAG 4.1.6(j). The only exception to this rule is where conformity with ADAAG is "technically infeasible," meaning that "existing structural conditions would require removing or altering a load-bearing member which is an essential part of the structural frame [e.g., in the case of a highway project, a bridge support]; or because other existing physical or site constraints prohibit modification of addition of elements, spaces, or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility." ADAAG 4.1.6(j).

The draft implementing ADA regulations, Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG), recognizes that existing highway grades built to the surrounding terrain are appropriate reasons for not building to full standard. Although this is currently a draft document, the FHWA has recommended this document as best practice guidance. The draft PROWAG says:

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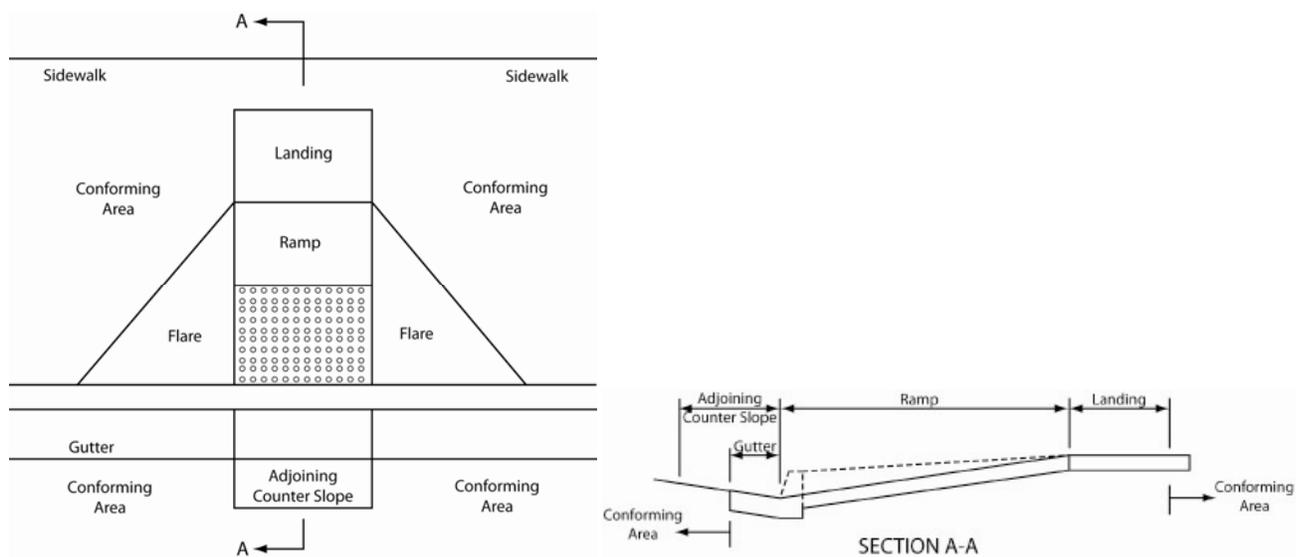
R202.3.1 Existing Physical Constraints. Where existing physical constraints make it impracticable for altered elements, spaces, or facilities to fully comply with the requirements for new construction, compliance is required to the extent practicable within the scope of the project. Existing physical constraints include, but are not limited to, underlying terrain, right-of-way availability, underground structures, adjacent developed facilities, drainage, or the presence of a notable natural or historic feature.

The ADAAG discusses how both physical constraints and limits of the project’s scope may determine when ADA facilities may be considered “technically infeasible”. Therefore, both the ADAAG and the draft PROWAG allows for ADA improvements to be constructed to the extent technically feasible or practicable. The clear primary goal of each document is to construct accessible facilities in compliance with their standards.

Curb ramps are a key accessibility feature in the public right of way since they will act as a refuge associated with a pedestrian crossing. It may be a challenge to design curb ramps into an existing network of pedestrian sidewalks and crossings because sidewalks and crossings are subject to the existing roadway features, which are designed according to geometric highway standards approved by the Federal Highway Administration in the *Highway Design Manual*. In spite of this potential dichotomy, curb ramps are to be given the priority of meeting the full accessibility standards and then conforming to the surrounding area as necessary. Conforming to the surrounding area should also be designed to fully meet accessibility standards. In some limited instances constraints may prevent strict compliance of the conforming area. In these instances the conforming area shall comply with the ADA to the “extent practicable within the scope of the project.”

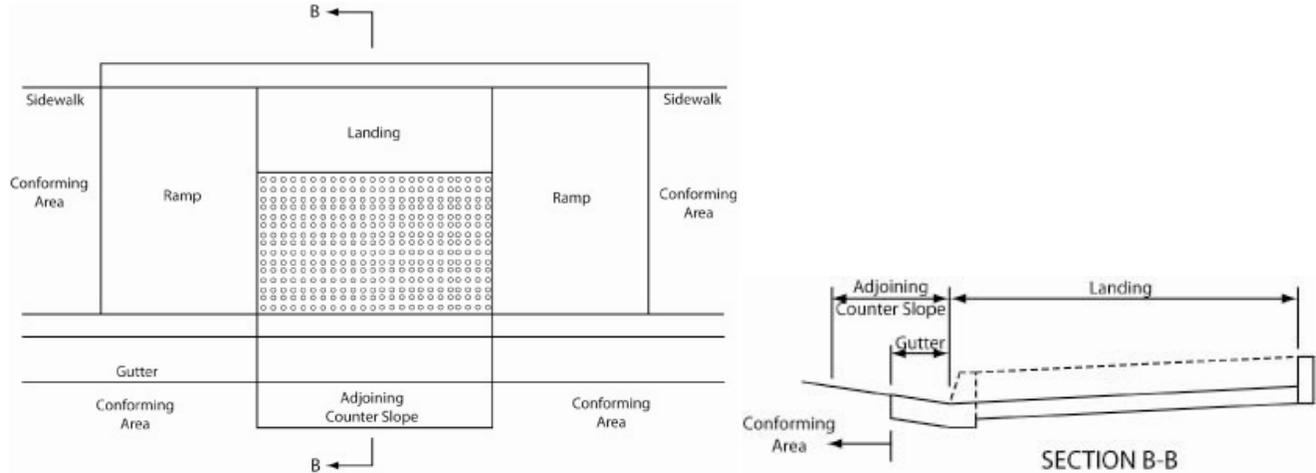
For the purpose of this guide, a typical curb ramp (Case A and Case C) will consist of basic features shown below. These features are to be designed to meet full accessibility standards. See DIB 82 and the Standard Plan A88A for more details and the applicable standards.

Perpendicular Curb Ramp (Case A):



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Parallel Curb Ramp (Case C):



It is expected that scoping decisions will lead to designing the curb ramp features to full accessibility standards. Consultation with the Design Coordinator or the Design Reviewer will help ensure these expectations are met.

C. Project Development

The level of design detail will depend on the phase of the project in the project development process. The following should be considered for each phase.

Project Initiation Document (PID)

1. Seek sufficient funds to allow ADA facilities to be adequately scoped into the project. This should be a project development team decision.
2. Identify where curb ramps are missing or if they exist, but do not meet the accessibility standards (see DIB 82). Usually, a recommendation from district Traffic Operations will be the basis of this early scope. An access request or grievance filed by the public or the need identified in the ADA Transition Plan could also be the basis of the project.
3. Identify potential constraints, e.g., utilities, signal hardware, electrical, drainage, structures, R/W, etc. using as-built plans, mapping and photos.
4. Perform a site visit with staff from District/Region Design, Traffic, District ADA Engineer other functional units as needed, e.g., Structures, Surveys, Hydraulics, R/W, etc.
 - a. Measure the existing curb ramps or other pedestrian facilities to determine if they meet the standards per DIB 82. Measurements of curb heights, sidewalk width, sidewalk running/cross slope, flow line slope, pavement cross slope, etc., will help to ascertain what will be required in order for a curb ramp to be designed to meet full standards.
 - b. Determine the appropriate type of curb ramp for each location.
 - c. Determine approximate dimensions of each proposed curb ramp, considering existing curb height, existing slopes of roadbed gutter, roadbed pavement, and sidewalks.

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- d. Identify all existing features within limits of each proposed curb ramp, e.g., signal poles, drainage inlets, utilities, R/W fence, bridge, buildings, evidence of truck offtracking, pavement markings, etc.
- e. Consider capturing stormwater runoff prior to each curb ramp.
- f. Include other features (see DIB 82) that improve accessibility within the project.
5. Determine what portion of the adjacent sidewalk will need to be reconstructed to provide a standard top landing (e.g., Case A Curb Ramp) as well as a transition section to conform back to the existing sidewalk. Transition sections should be outside the boundary of the top landing to a reasonable distance, e.g., a sidewalk contraction joint or to a structure. Consult with the Design Reviewer or Design Coordinator regarding the reasonable conforming distance.
6. Work with district Traffic to determine the proper scope and cost of traffic related items such as striping and signal activation details.
7. Avoid designing to maximum slopes and minimum dimensions of the accessibility standards.
8. Identify right of way, utility relocation, and drainage needs at each location.
9. Include the necessary funds and time for resolving conflicts as noted above in the schedule and estimate.
10. Evaluate reconstructing the roadbed pavement if necessary. Readily achievable roadbed work is considered practicable.
11. Curb ramps are the most common solution when a curb obstructs the pedestrian accessible route. Occasionally, solutions such as raising roadbed pavement to the top of curb, thereby creating a blended curb ramp or transition, is a valid alternate design.
12. Consider scoping stand alone ADA curb ramp projects to combine curb ramps with similar work involved, such as those on existing structures requiring special construction materials and techniques, those with significant relocations, and the less complex locations. This may lead to the decision to break up the curb ramps identified in the PID process for multiple highway projects.
13. Estimate contract item quantities to provide sufficient funding to meet the ADA standards at each location.

Project Approval and Environmental Document (PA&ED)

1. Perform a site visit with staff from District/Region Design, Traffic, District ADA Engineer and other functional units as needed, e.g., Structures, Surveys, Hydraulics, R/W, etc.
 - a. Verify type of curb ramp or pedestrian facility for each location.
 - b. Verify dimensions of each proposed curb ramp, considering existing curb height, existing slopes of gutter, pavement, and sidewalks.
 - c. Verify all existing features within limits of each proposed curb ramp, e.g., signal poles, drainage inlets, utilities, R/W fence, bridge, buildings, evidence of truck offtracking, pavement markings, etc.
 - d. Consider capturing stormwater runoff prior to each curb ramp.
 - e. Consider other features that should be included in the project to enhance accessibility (see DIB 82).

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2. Prepare survey request for locations with many constraints, e.g., R/W, significant utilities, street grades, and elevation changes.
3. Meet with functional units to determine feasibility of relocating existing features in conflict with each proposed curb ramp, e.g., Hydraulics, Electrical Design, Utilities, R/W (easements), Structures, etc.
4. Meet with functional units to identify additional features to be added to the project to improve pedestrian access, e.g., additional drainage, signs, profile adjustments, pavement markings, etc.
5. Prepare curb ramp designs that are fully compliant with the accessibility standards in DIB 82. Once standard curb ramps and landings are designed, the transition to the existing sidewalk also should strictly meet the accessibility standards. When it is not feasible to design the transition to the accessibility standards, the transition shall be designed to comply with the accessibility standards to the “extent practicable within the scope of the project.” Documentation of the nonstandard conforming area is to be included in the Transition Plan and coordinated by the District ADA Engineer once a request is initiated by the designer. Documentation of the request (memo, e-mail, etc) is to be included in the Project History File. Documentation of an Exception to Accessibility Design Standards is not required.
6. If the curb ramps themselves cannot be designed to full accessibility standards, an approved Exception to Accessibility Design Standards per DIB 82 will be required. This will also document compliance with the ADA to the “extent practicable within the scope of the project.”

Plans, Specifications, and Estimates (PS&E)

1. Use the survey data and field notes provided during the Project Report (PA&ED) phase to design the curb ramps.
2. To achieve a fully standard pedestrian facility at locations with constraints, or if quality assurance may be an issue in construction, construction details should show all key points (dimensions and elevations) of the proposed curb ramp.
 - a. Design for less than maximum slope, e.g., 1.5% instead of 2%, 7.5% instead of 8.33%, etc. Try to obtain a 50-inch width instead of the minimum 48-inch clear width standard.
 - b. Show all existing features to be protected in place.
 - c. Do not use the term “maximum slopes” on plan sheets even if the maximum slope is flatter than the maximum standard (see DIB 82).
3. Discuss with District Construction the need to provide cross sections.
4. Follow the guidance in the *Plans Preparation Manual* and the *Surveys Manual* regarding the placement, alignment, call-outs, etc., of curb ramps. These manuals are being revised to include the guidance of creating an alignment along the flow line to designate curb ramp location.
5. Update the nonstandard accessibility documentation in the Transition Plan and/or the Exception to Accessibility Design Standards, per the discussion in #5 and #6 under PA&ED above, if necessary.

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D. Compliance

Curb ramps that are designed and constructed in accordance with DIB 82, standard plans and specifications will achieve compliance with the ADA.

If the Design Coordinator has approved an Exception to Accessibility Design Standards, per DIB 82, this documentation will be referenced in the Project Report and will be made part of the Project History File. Also, if a request from the designer to the District ADA Engineer is made to include nonstandard conforming area designs to the existing facility in the Transition Plan, this request is to be included in the Project History File.

For existing pedestrian facilities, the documentation of not designing to full accessibility standards contained in a previously Project History File may be useful when deciding to scope a project in the beginning.

E. Other Considerations

The following are recommendations and reminders when designing curb ramps.

- Whether projects are stand alone curb ramp projects or other alterations of roadways, ADA standards apply to all pedestrian facilities.
- When using the curb ramp standard plan, make sure to verify that a standard curb ramp can meet the accessibility standards in construction. Check to see if ample space is available and that there are no obstructions, e.g., utilities, drainage inlets, etc. If that is not the case, construction details will be required.
- Provide an adequate estimate and schedule at the PID phase to provide full standard curb ramp design.
- Do not design to the maximum slopes or the minimum widths if feasible.
- Consider relocating/redesigning the drainage system of an intersection in order to intercept flow before the curb ramp location.
- If pavement reconstruction is not part of the project scope, consider minor pavement work as needed to achieve standards.
- Consider modifying the alignment of the sidewalk transition segment to achieve standard slopes.
- Make sure the marked crossings are well placed. Involve District Traffic Operations to help decide the need and/or placement of marked crosswalks in accordance with accessibility standards and the *California MUTCD*.
- Right of way acquisition (fee, easements, etc.) or utility relocation may be necessary to solve an accessibility issue. This should be identified early in the process.
- Consider designing a curb extension (bulbout), see *Highway Design Manual* Index 303.4, where right-of-way is limited to accommodate a standard curb ramp.
- Consider directional curb ramps (curb ramps aligned in the direction of pedestrian crossing) if an engineered design can show that no instability will occur.
- Curb ramps are normal solutions when a curb obstructs the pedestrian accessible route. However, there may be other solutions, e.g., a blended curb ramp. Consult with your Design Coordinator or Design Reviewer.