

Draft Guidelines for Accessible Public Rights-of-Way

(June 17, 2002)

Access Board

Please feel free to print this PDF form. The document is below. Please scroll down.

For more relevant information, please visit the Armor Tile website. This website is an excellent resource on ADA solutions, ADA regulations and requirements, truncated domes, detectable warning surface tiles and more.

You will find extensive content in the form of PDF files, Videos, Images, Word Documents, Power Point Presentations, Flash Presentations and AutoCAD Drawings on the Armor Tile website, by clicking the link below. Be sure to bookmark the Armor Tile site as a favorite.

[**http://www.armor-tile.com**](http://www.armor-tile.com)

Draft Guidelines for Accessible Public Rights-of-Way (June 17, 2002)

Introduction

Background

Discussion of Provisions

Text of the Draft Guidelines

The Americans with Disabilities Act (ADA) recognizes and protects the civil rights of people with disabilities and is modeled after earlier landmark laws prohibiting discrimination on the basis of race and gender. To ensure that buildings and facilities are accessible to and usable by people with disabilities, the ADA establishes accessibility requirements for State and local government facilities, places of public accommodation, and commercial facilities. Under the ADA, the Access Board has developed and continues to maintain design guidelines for accessible buildings and facilities known as the ADA Accessibility Guidelines (ADAAG). ADAAG covers a wide variety of facilities and establishes minimum requirements for new construction and alterations.

The Board maintains a similar responsibility for accessibility guidelines under the Architectural Barriers Act (ABA). The ABA requires access to certain facilities designed, built, altered, or leased with Federal funds. Like ADAAG, the Board's ABA accessibility guidelines apply to new construction and alterations.

The Board plans to undertake rulemaking to supplement its ADA and ABA accessibility guidelines, which primarily cover facilities on sites, by adding new provisions specific to public rights-of-way. The Board's aim is to ensure that access for persons with disabilities is provided wherever a pedestrian way is newly built or altered, and that the same degree of convenience, connection, and safety afforded the public generally is available to pedestrians with disabilities. The guidelines would not require alterations to existing public rights-of-way, but would apply where a pedestrian route or facility is altered as part of a planned project to improve existing public rights-of-way.

BACKGROUND

The Need for Guidelines on Public Rights-of-Way

Local jurisdictions, and other entities covered by the ADA or ABA, must ensure that the facilities they build or alter are accessible to people with disabilities. The Board's ADA and ABA accessibility guidelines specify the minimum level of accessibility in new construction and alteration projects and serve as the basis for enforceable standards maintained by other agencies. Currently, the Board's guidelines, like the industry standards from which they derive, focus mainly on facilities on sites. While they address certain features common to public sidewalks, such as curb ramps, accessible routes, ground and floor surfaces, and bus stops and shelters, further guidance is necessary to address conditions unique to public rights-of-way. Various constraints posed by space limitations at sidewalks, roadway design practices, slope, and terrain raise valid questions on how and to what extent access can be achieved. Access for blind pedestrians at street crossings and wheelchair access to on-street parking are typical of the issues for which additional guidance is needed. In addition, new trends in roadway design, such as the growing use of traffic roundabouts, pose additional challenges to access, while various technological innovations, particularly those pertaining

to pedestrian signaling devices, offer new solutions.

The Board previously proposed guidelines for public rights-of-way under the ADA which were published for public comment in 1992 and 1994. Based on the comments received, the Board determined that it should further coordinate with the transportation industry and State and local governments before continuing its rulemaking. Consequently, the Board undertook an outreach and training program on accessible public rights-of-way. Under this program, the Board developed a series of videos, an accessibility checklist, and a design guide on accessible public rights-of-way. In addition, the Board sponsored research on tactile warnings at street crossings, accessible pedestrian signals, and traffic roundabouts. The Board has made this information widely available to the public. The interest in these materials has underscored the need for criteria for public rights-of-way that are definitive and enforceable so that local jurisdictions and others are clear on their obligations when constructing or altering streets and sidewalks.

Public Rights-of-Way Access Advisory Committee

In resuming its rulemaking effort, the Board chartered an advisory committee in 1999 to develop recommendations on guidelines for accessible public rights-of-way. Use of advisory committees has become a standard practice in the Board's process for developing and updating design requirements. Through such committees, interested groups, including those representing designers, industry, and people with disabilities, play a substantive role in recommending to the Board the content of the guidelines to be developed. These committees provide significant sources of expertise while enhancing the level of consensus among stakeholders in advance of proposing a rule for public comment.

The Public Rights-of-Way Access Advisory Committee was composed of 33 members representing disability organizations, public works departments, transportation and traffic engineering groups, design professionals and civil engineers, government agencies, and standards-setting bodies. The committee coordinated its efforts with leading trade organizations represented on the committee, such as the American Association of State Highway and Transportation Officials, and federal agencies, such as the Federal Highway Administration, to ensure that its recommendations were consistent with generally accepted practice among design professionals. The committee organized several subcommittees focused on key issue areas. The subcommittee structure enabled members to continue work on a tight time schedule between meetings of the full committee and allowed for greater public participation in the process.

The advisory committee met regularly over a year's time, usually in Washington, D.C. but also in Austin and San Francisco. Its work culminated in the issuance of a report, "Building a True Community," which was submitted to the Board in January 2001. The committee's report provides criteria for the construction or alteration of public rights-of-way that reflects the broad spectrum of expertise represented by committee members. The report follows a "toolbox" approach to the establishment of guidelines designed to facilitate implementation and to promote an understanding of the needs of all users of public rights-of-ways. The report comprehensively covers the various components of public streets and sidewalks and provides criteria for sidewalks, street fixtures and furnishings, street crossings, vehicular ways, parking, and other components of public rights-of-way. In addition, the report includes advisory notes, figures, and discussion of issues that merit further study or special attention in the Board's rulemaking.

Release of Draft Guidelines

An ad hoc group of Board members proceeded to review the committee's report in depth and to craft a set of draft guidelines based on the committee's recommendations. The draft guidelines depart

from the advisory committee's report in several areas, which are detailed in the following discussion. Because of these differences, the Board is making an advance draft of the guidelines available for comment by the public, including industry groups, State and local governments, and advisory committee members. The Board also seeks information and feedback, including usability and cost data. Instructions on providing comment in writing or at an information meeting to be held in Portland, Oregon, in October, are provided in a [notice](#) the Board published on the release of the draft guidelines.

Rulemaking Process

The Board is making these draft guidelines available for public review and comment to seek information and input for its use in developing a proposed rule. The proposed rule will provide another opportunity for public comment on the guidelines. The Board will then proceed to finalize the guidelines based on public comments received in response to the proposed rule. The Board's guidelines serve as the basis for enforceable standards maintained by other agencies under the ADA and the ABA. The Department of Justice and the Department of Transportation maintain standards based on the Board's guidelines that apply to facilities covered by the ADA. Design standards for federally funded facilities covered by the ABA are maintained by the Department of Defense, the Department of Housing and Urban Development, the General Services Administration, and the U.S. Postal Service. These enforceable standards must be consistent with the Board's guidelines.

Relationship to ADA and ABA Accessibility Guidelines

Currently, the Board is completing an update of ADAAG, the first comprehensive revision of the document since its publication in 1991. The revised ADAAG features a new format and numbering system and a host of updated scoping and technical provisions. The Board is updating its ABA Accessibility Guidelines along similar lines so that both of the documents are more consistent. The Board released a draft of the final ADA and ABA guidelines last April.

The draft guidelines for public rights-of-way are being developed as a supplement to the ADA and ABA guidelines and not as a stand-alone document. As such, they will ultimately comprise a new chapter on public rights-of-way. The Board has revised recommendations from the advisory committee in preparing these draft guidelines in order to facilitate their incorporation into the ADA and ABA guidelines. The draft guidelines presented here support the new format and structure of those documents. In addition, various provisions of this draft refer to provisions in the ADA and ABA guidelines to minimize redundancy. For simplicity, the following discussion refers to the draft final ADA and ABA guidelines released in April as "ADAAG," an acronym that has wide currency.

DRAFT GUIDELINES FOR PUBLIC RIGHTS-OF-WAY: DISCUSSION OF PROVISIONS

The proposed draft is formatted as a separate chapter, 11 Public Rights-of-Way, to be integrated into ADAAG. This chapter has a general section (1101), a scoping section, which indicates what is covered (1102), and technical sections addressing various elements of public rights-of-ways (1103 to 1111). Figures and advisory notes provided in the advisory committee's report are not included in this draft, but will be included in the proposed rule.

on walls or posts with leading edges above the standard sweep of canes (27 inches) and below the standard head room clearance (80 inches) would be limited to a 4 inch protrusion.

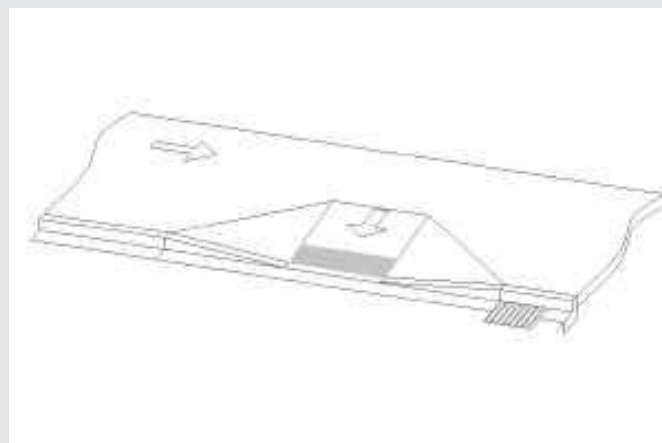
Curb Ramps and Blended Transitions (1102.6, 1104)

Curb ramps or blended transitions would be required to connect pedestrian access routes to street crossings and to be located within the width of each crosswalk. Generally, this would require two separate curb ramps at a corner instead of a single ramp that opens diagonally onto an intersection. The advisory committee strongly discouraged single installations where possible for several reasons. Single ramps can misdirect blind pedestrians who use the slope of curb ramps as a cue. They can increase crossing times for persons who use wheeled mobility aids and can place users into oncoming traffic at small radius corners where it is difficult to provide landing space at the bottom that is wholly within marked crossings. Also, drivers may not be as alert to persons crossing at the apex of a corner. On the other hand, the advisory committee recognized that providing two separate compliant curb ramps may not always be practicable, particularly in alterations, due to storm drain inlets, utility poles, and other constraints.

The draft guidelines provide technical criteria for perpendicular curb ramps, parallel curb ramps, and blended transitions. Perpendicular curb ramps, the most common type, have a running slope that cuts through a curb or meets the gutter grade break at right angles. Parallel curb ramps have a running slope that is in line with the direction of sidewalk travel. Blended transitions can be achieved by depressing the entire curb radius to street level or, less commonly, raising street crossings to sidewalk level, which can serve as a traffic calming strategy by creating a "speed table" at intersections. Various combinations of these different types of ramps and transitions can be used. For example, parallel ramps can be used for a portion of a curb level change in conjunction with a perpendicular ramp or a blended transition. The draft guidelines include requirements specific to each of these elements as well as criteria common to all of them.

Perpendicular Curb Ramps (1104.2.1)

Consistent with ADAAG, curb ramps must have a maximum running slope of 1:12. The draft guidelines specify a minimum running slope of 1:48 for perpendicular ramps (and parallel ramps) in order to distinguish them from blended transitions, which cannot have a slope of more than 1:48. Requirements specific to perpendicular curb ramps address the cross slope (1:48 maximum), level landings at the top (48 by 48 inches minimum), and side flares (1:10 maximum slope). Sidewalks are permitted to follow the running grade of the adjoining roadway, which

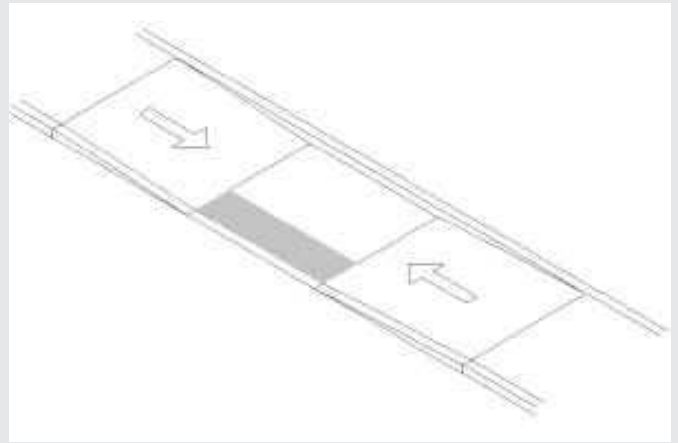


determines the cross slope of perpendicular ramps and landings at mid-block crossings. Exceptions are provided for ramps located at mid-block crossings that permit the cross slope of the ramp and landing to be greater than 1:48 so that the ramp can transition smoothly to the street crossing. Otherwise, maintaining a 1:48 cross slope at streets with a steeper grade would result in a warped transition from the ramp to the road, which is problematic for wheelchair maneuvering.

Parallel Curb Ramps (1104.2.2)

Parallel Curb Ramps (1104.2.2)

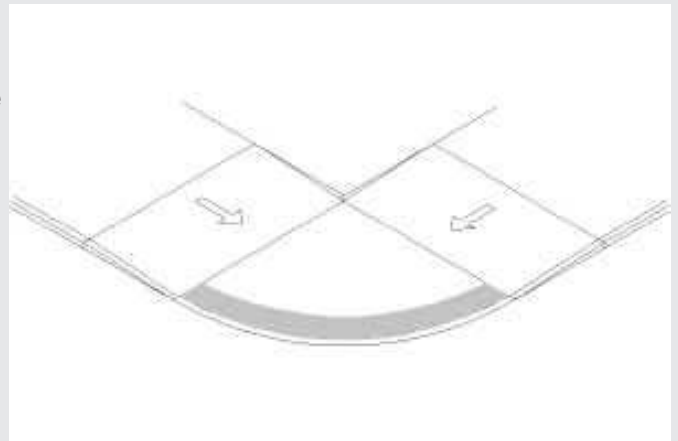
Parallel ramps are especially suited to narrow rights-of-way where there is insufficient space for the top landing of a perpendicular curb ramp. In this case, the bottom landing usually serves as the direct connection to the street crossing. Criteria for parallel curb ramps address the running slope (1:12 maximum and 1:48 minimum), cross slope (1:48 maximum), level landings at the bottom (at least 48 by 48 inches), and barriers at drop-offs. The running slope of parallel curb ramps will be affected by the slope of the sidewalk, which is permitted to be as steep as the adjacent roadway.



Thus, a maximum slope of 1:12 may not be achievable due to the road grade. In recognition of this, an exception limits the required length of a parallel ramp to 15 feet, regardless of the slope. The landing required at the bottom of the ramp is not permitted to slope more than 1:48 in any direction, but an exception is also provided for mid-block crossings where compliance with this specification may be affected by the roadway grade. Where parallel curb ramps do not span the full width of a sidewalk, a barrier is required along the drop-off created by the ramp to prevent tripping hazards.

Blended Transitions (1104.2.3)

Blended transitions are to have slopes parallel and perpendicular to the curb no greater than 1:48. Transitions with a slope greater than 1:48 are to be treated as a curb ramp.



Common Elements (1104.3)

Curb ramps and blended transitions would be subject to requirements for clear width (48 inches minimum), detectable warnings, surfaces, grade breaks, changes in level, counter slopes, and clear space.

Detectable Warnings (1104.3.2)

Detectable warnings provide a distinctive surface of truncated domes detectable by cane or underfoot to alert people with vision impairments of the transition to vehicular ways. These warnings compensate for the sloped surfaces of curb ramps which remove a tactile cue provided by curb faces. ADAAG, as originally published in 1991, contained a requirement for detectable warnings on the surface of curb ramps and other locations where pedestrian ways blend with vehicular ways without tactile cues. This requirement was temporarily suspended due to concerns raised about the specifications, the availability of complying products, maintenance, usefulness, safety, and the need for further study. The suspension expired in July 2001.

The advisory committee considered the issue at length and recommended that the draft guidelines require detectable warnings according to revised specifications. The Board agrees with the committee's recommendation and has included a requirement for a detectable warning surface 2 feet deep where the ramp, landing, or blended transition connects to a crosswalk. Since detectable warnings are intended to replace the cue otherwise provided by a curb drop-off, they would be required to span the entire area where the curb drop-off is absent. This is especially important for blended transitions, where there is no slope to help detect the presence of a ramp.

The advisory committee deliberated on whether to require detectable warnings at all curb ramps and blended transitions or only those which were the least distinguishable. One organization represented on the committee suggested that detectable warnings be required only where the ramp slope was 1:15 or less. The Board seeks comment on this issue as well as any research that supports slopes of 1:15 or steeper being sufficiently detectable by persons with vision impairments.

The technical specifications for detectable warnings are discussed below in **section 1108**.

Other Requirements for Curb Ramps and Blended Transitions (1104.3.3 - 1104.3.7)

Other technical requirements for curb ramps and blended transitions would:

- require compliance with specifications in ADAAG section 302 covering surface firmness, stability, and slip-resistance;
- prohibit the placement of gratings, storm drain, utility and sewer access covers, and similar fixtures on ramps, landings, transitions and portions of the gutter within the pedestrian access route;
- prohibit grade breaks on ramp runs, blended transitions, landings, and gutter areas within the pedestrian access route;
- require a flush transition at permitted grade breaks, such as at the top and bottom of ramp runs;
- prohibit any vertical changes in level on curb ramps, landings and gutter areas within the pedestrian access route;
- limit the counter slope of the gutter area or street at the foot of the curb ramp or blended transition to be 1:20 maximum (the advisory committee had recommended that the sum of the slope of the ramp and gutter or street be 11 percent or less, but the Board believes that the 1:20 specification, which is consistent with ADAAG, will be easier to understand and enforce); and
- require clear space at least 48 by 48 inches, located beyond the curb line and wholly within crosswalks and out of the parallel traffic travel lane.

Pedestrian Signs (1102.7)

Signs provided for pedestrian use would be subject to certain ADAAG specifications for visual legibility. These requirements would not apply to traffic and street signs intended for vehicle operators, which are covered by the MUTCD. Provisions are included for bus route identification signs, informational signs, and warning signs. Specifications in ADAAG 703.5 for visual characters are referenced. This section of ADAAG covers finish and contrast, style, the proportions and height of characters, sign height, stroke thickness, and character and line spacing.

Bus Route Identification (1102.7.1)

Bus route identification signs would be subject to the visual character requirements, except those for character height (which would apply only to the maximum extent practicable) and sign height. This requirement would not apply to bus schedules, timetables, or maps. This provision is consistent with existing ADAAG provisions for bus stops and shelters (section 810.4). In addition, the draft guidelines would require route identification signs located at bus shelters to be tactile and provide information in raised and Braille characters according to specifications in ADAAG (section 703.2). Raised characters are to have rounded corners. An exception permits certain types of audible signs to substitute for tactile signage.

Informational Signs and Warning Signs (1102.7.2)

ADAAG specifications for visual legibility would also apply to informational signs and warning signs

Detectable Warning Surfaces (1108)

Pedestrian street crossings, including, curb ramps and blended transitions (1104.3.2), certain median and refuge islands (1105.4.2), and rail lines (1103.7) are required to have detectable warnings for persons with vision impairments. These surfaces feature a distinctive pattern of raised domes to provide a tactile cue detectable by cane or underfoot at the boundary between pedestrian and vehicular routes.

Specifications in section 1108 address the area that these warnings are to cover at required locations. The Board has revised the technical criteria for detectable warnings in order to facilitate compliance and to accommodate existing detectable warning products that have been deemed to provide an equivalent level of accessibility. The revised specifications are also responsive to concerns that had been raised about the impact of the truncated dome surface on wheelchair maneuvering. The Board believes that the revised specifications, which permit wider dome spacing, an in-line grid pattern, and smaller surface coverage at curb ramps (24 inches instead of the full ramp length) will further minimize disruptions or hazards to wheelchair traffic.

Stairs (1102.10)

The draft guidelines apply requirements in ADAAG section 504 to stairs in public rights-of-way. These ADAAG specifications address tread depth and riser height, nosings, handrail and surface requirements, and prohibit open risers. The draft guidelines also include a new requirement for contrasting color across the nosing of stairs in the public right-of-way. This latter provision was recommended by the advisory committee because of the difficulty persons with low vision have in perceiving steps under the variable lighting conditions in public rights-of-ways.

Handrails (1102.11)

Consistent with the revised ADAAG, handrails, where provided, would be subject to ADAAG section 505, which provides specifications for height, knuckle clearance, gripping surface, cross section, surfaces, fittings, and extensions.

Vertical Access (1102.12)

Where elevators or lifts are provided in public rights-of-ways, the draft guidelines would apply specifications in ADAAG for passenger elevators (section 407), limited-use/ limited-application elevators (section 408), and platform lifts (section 410). Elevators are not required by these guidelines except at certain pedestrian overpasses and underpasses with elevation changes greater than 60 inches.

Bus Stops (1102.13)

ADAAG contains requirements for bus boarding and alighting areas and bus shelters in section 810.2 and 810.3. These requirements address bus stop surfacing, dimensions, connections to accessible routes, slope, and wheelchair space within bus shelters. The draft guidelines would apply these requirements to bus stops and shelters provided in public rights-of-way.

On-Street Parking (1102.14, 1109)

A key issue addressed in the guidelines is how to provide access to on-street parking. Current ADAAG scoping and technical requirements are specific to parking lots and facilities on sites. Over the years, the Board has received many inquiries on how they can be applied to on-street spaces. The draft guidelines would require access to at least one parking space on each block face. The advisory committee recommended applying ADAAG requirements in section 208 for parking lots and facilities which uses a sliding scale based on the total number of spaces provided. This scale starts

Text of the Draft Guidelines for Accessible Public Rights-of-Way

1101 Application and Administration (referenced standards and defined terms)

1102 Scoping Requirements

1103 Pedestrian Access Route

1104 Curb Ramps and Blended Transitions

1105 Pedestrian Crossings

1106 Accessible Pedestrian Signal Systems

1107 Street Furniture

1108 Detectable Warning Surfaces

1109 On-Street Parking

1110 Call Boxes

1111 Alternate Circulation Path

1101 Application and Administration

1101.1 General. For the purposes of these requirements, the terms listed in section 1101.3 shall have the indicated meaning.

1101.2 Referenced Standards.

1101.2.1 MUTCD. Copies of the referenced standards may be obtained on-line from the Federal Highway Administration at <http://mutcd.fhwa.dot.gov>.

MUTCD 2000-Millennium Edition Manual on Uniform Traffic Control Devices.

1101.3 Defined Terms.

Accessible Pedestrian Signal. A device that communicates information about the pedestrian WALK phase in non-visual format.

Accessible Route. A continuous, unobstructed path that complies with Chapter 4.

Channelizing Island. Curbed or painted area outside the vehicular path that is provided to separate and direct traffic movement, which also may serve as a refuge for pedestrians.

Cross Slope. The slope that is perpendicular to the direction of travel. This is usually called superelevation on curves in the public right-of-way (see superelevation).

1103.7 Surface Gaps at Rail Crossings. Where the pedestrian access route 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 2-½ inches (64 mm).

EXCEPTION: On tracks that carry freight, a maximum horizontal gap of 3 inch (75 mm) shall be permitted.

1103.7.1 Detectable Warnings. Where rail systems cross pedestrian facilities that are not shared with vehicular ways, a detectable warning shall be provided in compliance with [1108](#).

1103.8 Changes in Level. Changes in level shall comply with 303. Changes in level shall be separated horizontally 30 inches (760 mm) minimum.

EXCEPTION: The horizontal separation requirement shall not apply to detectable warnings.

1103.8.1 Rail Crossings. Where the pedestrian access route crosses rail systems at grade, the surface of the pedestrian access route shall be level and flush with the top of the rail at the outer edge and between the rails.

1104 Curb Ramps and Blended Transitions

1104.1 General. Curb ramps and blended transitions shall comply with 1104.

1104.2 Types. Perpendicular curb ramps shall comply with 1104.2.1 and 1104.3; parallel curb ramps shall comply with 1104.2.2 and 1104.3; blended transitions shall comply with 1104.2.3 and 1104.3.

1104.2.1 Perpendicular Curb Ramps. Perpendicular curb ramps shall comply with 1104.2.1, and shall have a running slope that cuts through the curb at right angles or

1104.3 Common Elements. Curb ramps and blended transitions shall comply with 1104.3.

1104.3.1 Width. The clear width of landings, blended transitions, and curb ramps, excluding flares, shall be 48 inches (1220 mm) minimum.

1104.3.2 Detectable Warnings. Detectable warning surfaces complying with [1108](#) shall be provided, where a curb ramp, landing, or blended transition connects to a crosswalk.

1104.3.3 Surfaces. Surfaces of curb ramps, blended transitions, and landings shall comply with 302. Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions, and gutter areas within the pedestrian access route.

distance used in calculating pedestrian signal phase timing shall include the entire length of the crosswalk plus the length of the curb ramp.

1105.4 Medians and Pedestrian Refuge Islands. Medians and pedestrian refuge islands in crosswalks shall comply with 1105.4 and shall be cut through level with the street or have curb ramps complying with **1104** and shall contain a pedestrian access route complying with **1103**. 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 (610 mm) minimum.

1105.4.1 Length. Where signal timing is inadequate for full crossing of all traffic lanes or where the crossing is not signalized, cut-through medians and pedestrian refuge islands shall be 72 inches (1830 mm) minimum in length in the direction of pedestrian travel.

1105.4.2 Detectable Warnings. Medians and refuge islands shall have detectable warnings complying with **1108**. Detectable warnings at cut-through islands shall be separated by a 24 inch (610 mm) minimum length of walkway without detectable warnings.

EXCEPTION: Detectable warnings shall not be required on cut-through islands where the crossing is controlled by signals and is timed for full crossing.

1105.5 Pedestrian Overpasses and Underpasses. Pedestrian overpasses and underpasses shall comply with 1105.5.

1105.5.1 Pedestrian Access Route. Pedestrian overpasses and underpasses shall contain a pedestrian access route complying with **1103**.

1105.5.2 Running Slope. The running slope shall not exceed 1:20 maximum.

1105.5.3 Approach. Where the approach exceeds 1:20, the approach shall be a ramp 48 inches (1220 mm) minimum in width and shall comply with 405. Where the rise of a ramped approach exceeds 60 inches (1525 mm), an elevator complying with 407, or a limited- use/limited-application elevator complying with 408 shall be provided.

1105.5.4 Stairs. Stairs shall comply with 504.

1105.5.5 Escalators. Escalators shall comply with 810.9.

1105.6 Roundabouts. Where pedestrian crosswalks and pedestrian facilities are provided at roundabouts, they shall comply with 1105.6.

1105.6.1 Separation. Continuous barriers shall be provided along the street side of the sidewalk where pedestrian crossing is prohibited. Where railings are used, they shall have a bottom rail 15 inches (380 mm) maximum above the pedestrian access route.

1105.6.2 Signals. A pedestrian activated traffic signal complying with **1106** shall be

1108 Detectable Warning Surfaces

1108.1 General. Detectable warnings shall consist of a surface of truncated domes aligned in a square grid pattern and shall comply with 1108.

1108.1.1 Dome Size. Truncated domes in a detectable warning surface shall have a base diameter of 0.9 inches (23 mm) minimum to 1.4 inches (36 mm) maximum, a top diameter of 50% of the base diameter minimum to 65% of the base diameter maximum, and a height of 0.2 inches (5 mm).

1108.1.2 Dome Spacing. Truncated domes in a detectable warning surface shall have a center-to-center spacing of 1.6 inches (41 mm) minimum and 2.4 inches (61 mm) maximum, and a base-to-base spacing of 0.65 inches (16 mm) minimum, measured between the most adjacent domes on square grid.

1108.1.3 Contrast. Detectable warning surfaces shall contrast visually with adjacent walking surfaces either light-on-dark, or dark-on-light.

1108.1.4 Size. Detectable warning surfaces shall extend 24 inches (610 mm) minimum in the direction of travel and the full width of the curb ramp, landing, or blended transition.

1108.2 Location.

1108.2.1 Curb Ramps and Blended Transitions. The detectable warning surface shall be located so that the edge nearest the curb line is 6 inches (150 mm) minimum and 8 inches (205 mm) maximum from the curb line.

1108.2.2 Rail Crossings. The detectable warning surface shall be located so that the edge nearest the rail crossing is 6 inches (150 mm) minimum and 8 inches (205 mm) maximum from the vehicle dynamic envelope.

1108.2.3 Platform Edges. Detectable warning surfaces at platform boarding edges shall be 24 inches (610 mm) wide and shall extend the full length of the platform.

1109 On-Street Parking

1109.1 General. Car and van on-street parking spaces shall comply with 1109.

1109.2 Parallel Parking Spaces. An access aisle at least 60 inches (1525 mm) wide shall be provided at street level the full length of the parking space. The access aisle shall connect to a pedestrian access route serving the space. The access aisle shall not encroach on the vehicular travel lane.