Accessibility

and

Public Works Projects

PW 14.1

Continuing Education

- ***AIA Members*** *- this course meets the requirements for AIA CES HSW Learning Units.*

- ***ICC Members*** *– this course is registered with the ICC Preferred Provider Program for CEUs.*

Please Note: *This program is registered with the AIA and ICC for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA or ICC of any material of distributing, or dealing in any material or product.*

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Housekeeping

- Cell phones
- Restrooms
- Breaks / Lunch
- Attendance Credit

Today's Program

I. Laws, Regulations, Standards

II. Accessibility Basics

III. Scoping requirements

   a. Existing facilities

   b. New Construction

IV. Selected Technical requirements

   (*Relating to selective Public Rights-of-Way projects)*

- **Federal Civil Rights Act (1964) -** Establishes individual civil rights in the United States. Prohibited discrimination based on race, color, religion, sex or national origin. (1968) Provided for Equal Housing Opportunities, by prohibiting discrimination based on race, color, religion, sex or national origin, and disabilities

- **California Unruh Civil Rights Act** ***(1964)*** – Establishes individual civil rights in CA; and later, incorporated federal disabled access requirements under the ADA and FHA and the regulations under Title 24, as minimum design standards for accessibility.

- **Architectural Barriers Act (ABA)** ***(1968 / 2004)*** –for federally funded projects. Scoping and technical requirements (ABAS, UFAS)

- **Federal Rehabilitations Act** ***(1973)*** – Prohibits discrimination based on disability in programs, services, and activities provided by any Public Entity

- **Americans with Disabilities Act (ADA)** ***(1990 / 2010)*** – In part - Scoping and technical requirements for State, Locally, and Privately funded projects (ADAS)

- **CA Government Code, Title 1, Division 5. Public Works and Public Purchases, Chapter 7 Access to Public Buildings by Physically Disabled Persons, Section 4450** ***(1968)*** – to ensure that all buildings, structures, sidewalks, curbs and related facilities that are publicly funded shall be accessible to persons with disabilities. (CBC)

Ca Manual for Traffic Control Devices (CaMUTCD) (*2012)* – covers a wide range of requirements relating to the movement of vehicle and pedestrians, including related disabled access provisions

Guidelines for Outdoor Developed Areas (US Access Board) – provides scoping and technical guidance

Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way [PROWAG] (US Access Board) – provides scoping and technical guidance for accessibility provisions in the public right-of-way.

Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way; Shared Use Paths (US Access Board) – provides guidance on protecting disabled persons when shared use paths are utilized.

Highway Design Manual, Bikeway Planning and Design – provides guidance on best practices for bikeways in conjunction with vehicles and pedestrian usage.

Dimensional Tolerances for Surface Accessibility (US Access Board research document) – provides guidance on allowable tolerances for construction of selected surfaces and materials.

Numerous Standards have been legally adopted, by reference, and are applicable to and necessary for the effective design and enforcement of disabled access requirements.

- *Examples:*
- ICC 300 – Bleachers, Folding and Telescopic Seating, and Grandstands
- ASME A18.1 – Safety Standard for Platform Lifts and Stairway Chairlifts
- ASME A17.1 – Safety Code for Elevators and Escalators
- ASTM F1487 – Safety Performance Specifications for Playground Equipment
- ASTM F1951 – Standard for Accessibility of Surface Materials, Playgrounds
- ASTM F1292 – Standard for Impact Attenuation of Surface Material, Playgrounds

Selected Interpretive References available:

① **DOJ - 2010 ADA Standards for Accessible Design** [
http://www.ada.gov/2010ADAstandards_index.htm]

② **DOJ – Technical Assistance Publications** [
http://www.ada.gov/ta-pubs-pg2.htm]

③ **ICC - A117.1 Standard and Commentary** [
http://shop.iccsafe.org/standards/icc-standards.html]

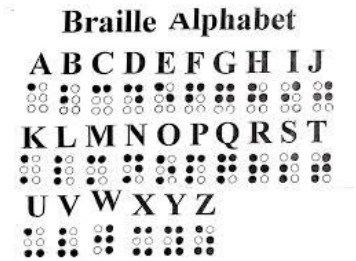
④ **US Access Board – Guidelines and Standards** [
http://www.access-board.gov/guidelines-and-standards]

a. **Public Rights-of Way (PROWAG)**
b. **Shared Use Paths**
c. **Outdoor Developed Areas**
d. **Transportation Facilities**

⑤ **CALTRANS CaMUTCD –**
[http://www.dot.ca.gov/hq/traffops/engineering/mutcd/ca_mutcd2012.htm]

⑥ **DSA - 2013 CBC Accessibility Advisory Manual**
[http://www.documents.dgs.ca.gov/dsa/pubs 2013CBC_Advisory_Manual.pdf]

In the built environment, a limited number of disabilities can be accommodated by what, and how, we design.



Mobility Basics

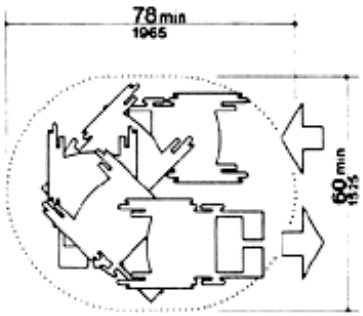
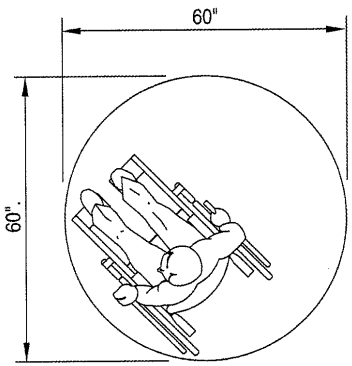
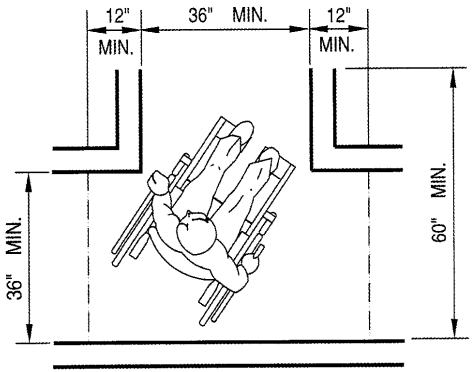


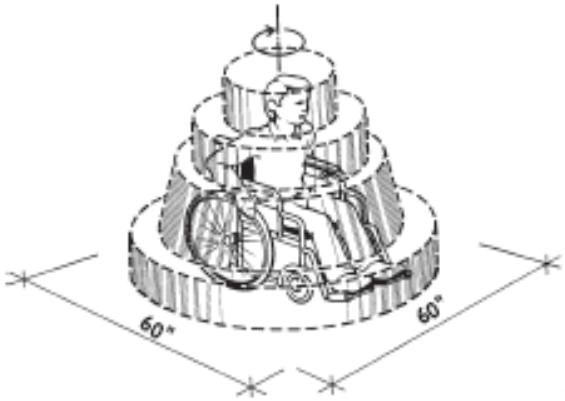
Fig. A2
Space Needed for Smooth U-Turn in a Wheelchair



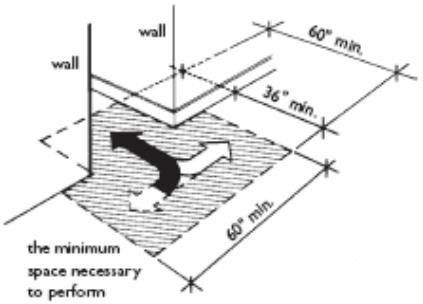
(a) 60 INCHES DIAMETER SPACE



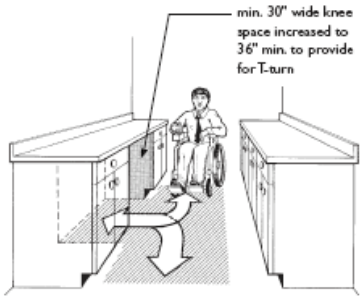
(b) T–SHAPED SPACE FOR 180° TURNS



Pivoting Turn Space

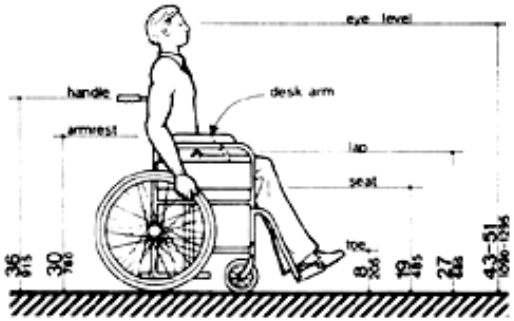


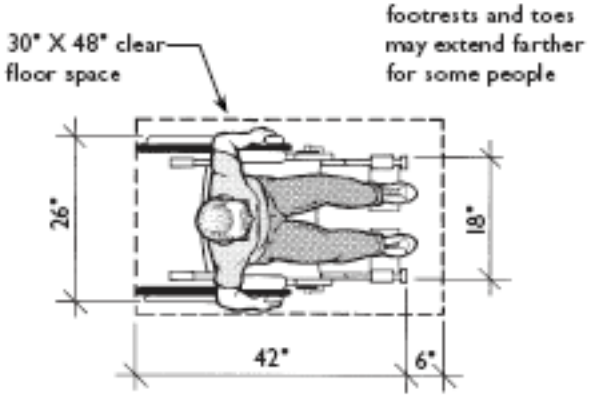
T-Turn Space



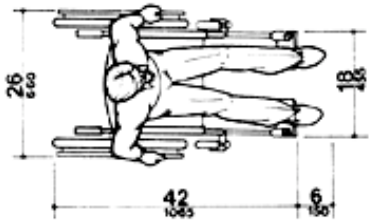
T-Turn within a Knee Space

Mobility Basics





Space Allowances and Approximate Dimensions of Adult-Sized Wheelchairs



NOTE: Footrests may extend further for tall people

Fig. A3
Dimensions of Adult-Sized Wheelchairs

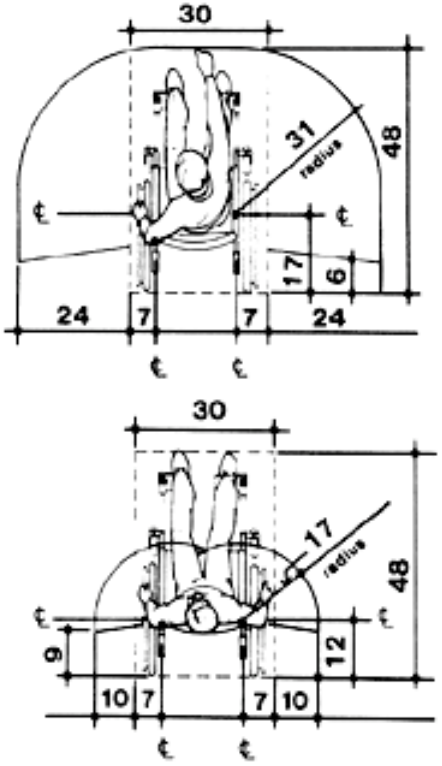
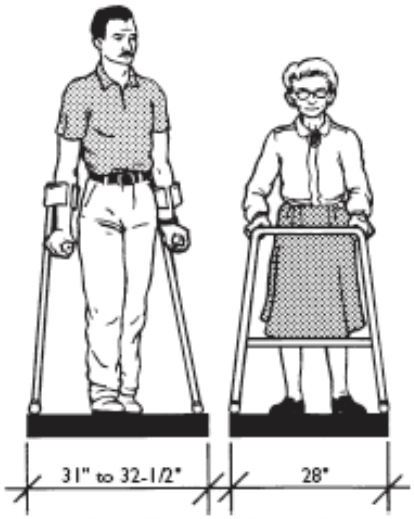


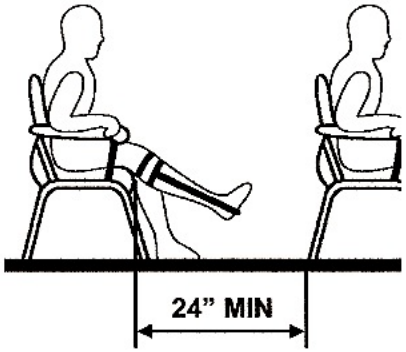
Fig. A3 (a)

Mobility Basics



Space Necessary for Adults Using Crutches or Walker

Minimum Space Necessary for Person with a Service Animal



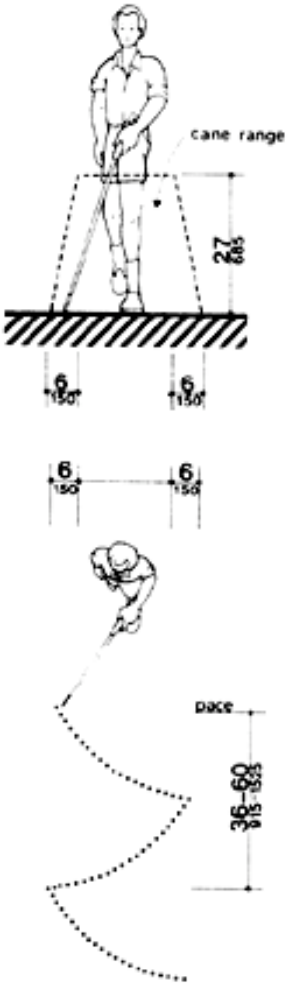


Fig. A4
Cane Technique

Americans with Disabilities Act

[ADA] (1990 / 2010)

THE ADA DRAWS HEAVILY from previous civil rights legislation, including Titles II and VII of the 1964 Civil Rights Act and the Rehabilitation Act of 1973. It prohibits discrimination against Americans with physical and mental disabilities in such areas as employment, public accommodations, and transportation.

Title I Employment

Title II State and Local Government

Title III Public Accommodations and Commercial Facilities

Title IV Communications

Title V Miscellaneous Provisions

the **STANDARDS**

Americans with Disabilities Act (1990) (2010)

§ 35.101 Purpose.

The purpose of this part is to effectuate subtitle A of title II of the Americans with Disabilities Act of 1990 (42 U.S. C. 12131), which prohibits discrimination on the basis of disability by public entities.

§ 35.102 Application.

(a) Except as provided in paragraph (b) of this section, this part applies to all services, programs, and activities provided or made available by public entities.

(b) To the extent that public transportation services, programs, and activities of public entities are covered by subtitle B of title II of the ADA, they are not subject to the requirements of this part.

§ 35.130 General prohibitions against discrimination

(a) No qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any public entity.

Examples of Services, Programs, and Activities that may be provided by a local jurisdiction

- Community meetings
- Construction permitting
- Parks
- Playground equipment
- Recreational Boating docks
- Fishing
- Beaches
- Recreation / Sports
- Aquatics programs
- Golf Courses
- Senior Services
- Art and Crafts
- Tours and Special Events
- Library
- Licensing
- Sidewalks / Curb Ramps
- Crosswalks / Lights / Signage
- Roadways
- Bus / Transportation Services
- On-street Parking
- Airports
- Emergency Mgmt & Shelters
- Voting
- Small Business assistance
- Homeless Shelter
- Website / Email
- Telephone / Communications
- Fairs / Festivals

Americans with Disabilities Act

§ 35.105 Self-evaluation.

(a) A public entity shall, within one year of the effective date of this part, evaluate its current services, policies, and practices, and the effects thereof, that do not or may not meet the requirements of this part and**, to the extent modification of any such services, policies, and practices is required, the public entity shall proceed to make the necessary modifications.**

(d) If a public entity has already complied with the self-evaluation requirement of a regulation implementing section 504 of the Rehabilitation Act of 1973, then the requirements of this section shall apply only to those policies and practices that were not included in the previous self- evaluation.

Note: This mandated requirement should be considered as an on-going obligation for each public entity.

Americans with Disabilities Act

§ 35.149 Discrimination prohibited.

Except as otherwise provided in § 35.150, no qualified individual with a disability shall, because a public entity's facilities are inaccessible to or unusable by individuals with disabilities, be excluded from participation in, or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any public entity.

Americans with Disabilities Act

§ 35.150 Existing facilities ***(pre-ADA)***

(a) *General.* A public entity shall operate each service, program, or activity so that the service, program, or activity, when viewed in its entirety, is readily accessible to and usable by individuals with disabilities.

(b) *Methods.*

(1) *General.* A public entity may comply with the requirements of this section through such means as redesign or acquisition of equipment, reassignment of services to accessible buildings, assignment of aides to beneficiaries, home visits, delivery of services at alternate accessible sites, alteration of existing facilities and construction of new facilities, use of accessible rolling stock or other conveyances, or any other methods that result in making its services, programs, or activities readily accessible to and usable by individuals with disabilities.

(Continued -)

§ 35.150 Existing facilities (Continued)

(2)

(i) **Safe harbor**. Elements that have not been altered in existing facilities on or after March 15, 2012, and that comply with the corresponding technical and scoping specifications for those elements in either the 1991 Standards or in the Uniform Federal Accessibility Standards (UFAS)…

(i) **The safe harbor provided in § 35.150(b)(2)(i) does not apply** to those elements in existing facilities that are subject to supplemental requirements (i.e., elements for which there are neither technical nor scoping specifications in the 1991 Standards). Elements in the 2010 Standards not eligible for the element-by-element safe harbor are identified as follows—

(A) ***Residential facilities dwelling units*, sections 233 and 809.**

(B) ***Amusement rides*, sections 234 and 1002; 206.2.9; 216.12.**

(C) ***Recreational boating facilities*, sections 235 and 1003; 206.2.10.**

(D) ***Exercise machines and equipment*, sections 236 and 1004; 206.2.13.**

(E) ***Fishing piers and platforms*, sections 237 and 1005; 206.2.14.**

(F) ***Golf facilities*, sections 238 and 1006; 206.2.15.**

(G) ***Miniature golf facilities*, sections 239 and 1007; 206.2.16.**

(H) ***Play areas*, sections 240 and 1008; 206.2.17.**

(I) ***Saunas and steam rooms*, sections 241 and 612.**

(J) ***Swimming pools, wading pools, and spas,* sections 242 and 1009.**

(K) ***Shooting facilities with firing positions,* sections 243 and 1010.**

(L) ***Miscellaneous.***

(1) Team or player seating, section 221.2.1.4.

(2) Accessible route to bowling lanes, section. 206.2.11.

(3) Accessible route in court sports facilities, section 206.2.12.

Americans with Disabilities Act

§ 35.151 New construction and alterations

(a) Design and construction.

1) Each facility or part of a facility constructed by, on behalf of, or for the use of a public entity shall be designed and constructed in such manner that the facility or part of the facility is readily accessible to and usable by individuals with disabilities, if the construction was commenced after January 26, 1992.
2) Exception for structural impracticality …

(b) Alterations

(1) Each facility altered in a manner that affects or could affect the usability shall be altered to be readily accessible to and usable by individuals with disabilities
(2) Path of travel shall apply to alterations undertaken solely for the purposes other than to meet program accessibility requirements
(3) …
(4) …

California

Government Code 4450

(a) It is the purpose of this chapter to ensure that all buildings, structures, sidewalks, curbs, and related facilities constructed in this state shall be accessible to and usable by persons with disabilities.

(b) The State Architect shall develop and submit proposed building standards to the California Building Standards Commission for approval and adoption ... The regulations and building standards relating to access for persons with disabilities shall be consistent with the standards for buildings and structures that are contained in pertinent provisions of the latest edition of the selected model code, as adopted by the California Building Standards Commission, ...

(c) In no case shall the State Architect's regulations and building standards prescribe a lesser standard of accessibility or usability than provided by the Accessibility Guidelines prepared by the Federal Access Board as adopted by the United States Department of Justice to implement the Americans with Disabilities Act ... .

UNITED STATES ACCESS BOARD

(2004 ADA-ABA Accessibility Guidelines)

2013 California Building Code – Chapter 11B

Part I - ADA Application and Scoping

Chapter 1 - Application and Administration

Chapter 2 - Scoping Requirements

11B - Division 1 – Application and Administration

11B - Division 2 – Scoping Requirements

Part II - ABA Application and Scoping

Chapter F1 - Application and Administration

Chapter F2 - Scoping Requirements

Part III - Technical Requirements

Chapter 3 - Building Blocks

Chapter 4 - Accessible Routes

Chapter 5 - General Site and Building Elements

Chapter 6 - Plumbing Elements and Facilities

Chapter 7 - Communications Elements and Features

Chapter 8 - Special Rooms, Spaces and Elements

Chapter 9 - Built-in Elements

Chapter 10- Recreation Facilities

11B - Division 3 – Building Blocks

11B - Division 4 – Accessible Routes

11B - Division 5 – General Site and Building Elements

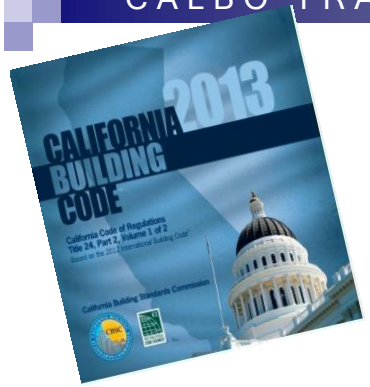
11B - Division 6 – Plumbing Elements and Facilities

11B - Division 7 – Communications Elements and Features

11B - Division 8 – Special Rooms, Spaces and Elements

11B - Division 9 – Built-in Elements

11B - Division 10- Recreation Facilities



Chapter 1
SCOPE AND ADMINISTRATION
DIVISION I
CALIFORNIA ADMINISTRATION

1.1.1 Title

1.1.2 Purpose

1.1.3 Scope. The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and …

NOTE:

Due to the scoping intent of the CBC, the proactive and retroactive requirements contained in the ADA are not applicable under the CBC.

Each property owner is required comply with the ADA (or other Federal requirements) as appropriate.

1.9.1.1 Application

[See Government Code §4450]

Publicly Funded buildings, structures, sidewalks, curbs and related facilities:

- constructed with state, county or municipal funds
- Leased, rented, contracted, sublet or hired by …
- Used for congregate residences or 1 or 2 family dwellings
- When alterations, structural repairs or additions to existing publicly funded buildings or facilities
- When permits are not required, see GC 4450 and the codes in effect at the time of construction

1.9.1.2 Application

[See Health & Safety Code 19952]

Privately Funded public accommodations and commercial facilities:

- any building, structure, facility, complex, or improved area, which are used by the general public
- any sanitary facility available to the public, clients or employees
- any curb or sidewalk intended for public use
- all existing public accommodations, when alterations, structural repairs or additions are made

1.9.1.3 Application

[See Government Code 4450 & 12955.1(d)]

Public Housing and Private Housing

Available for Public Use

DSA

Advisory 1.9.1.1 Application. Not only does publicly funded mean state funds, but it also means county funds, municipal funds or the funds of any political subdivision of the state. When public funds are provided by other sources and transferred to a state, county, municipality or other political subdivision of the state, the entity that collects and controls the distribution of the public funds becomes the funding source, and subject to the requirements of this section. ■

DSA

Advisory 1.9.1.1.2. Leases per se, unless alterations occur, do not directly "trigger" construction code requirements. The lessee of public accommodations should be aware that readily achievable barrier removal is an ongoing obligation under the ADA and may require physical alterations to the building or facility in compliance with the accessibility provisions in the building code. For public entities, leasing should be focused on selecting accessible sites, buildings and facilities. The Department of General Services requires newly leased facilities, and lease renewals, to be accessible by first surveying the facility for code compliance and then making necessary corrections where public programs are provided and in employee common-use areas, restrooms, break rooms, parking, etc. ■

DSA

Advisory 1.9.1.1.5. Some construction such as parking lot resurfacing, re-striping parking stalls, sidewalk repair and cabinet installations do not always require building permits. In such cases, the code in place on the date of any construction would be the effective code for such work. ■

DSA

Advisory 1.9.1.2.1. The term "used by the general public" is frequently misinterpreted to mean only facilities which are publicly owned. However, the term actually means facilities made available to the public, and often includes privately owned buildings and facilities. ■

Public Entity (ADA)

Factors to be considered:

(1) Whether the entity is operated with public funds;

(2) Whether the entity's employees are considered governmental employees

(3) Whether the entity receives significant assistance from the government by provision of property or equipment; and

(4) Whether the entity is governed by an independent board selected by members of a private organization or a board elected by the voters or appointed officials

Public Building or Facility

A building or facility or portion of a building or facility designed, constructed, or altered by, on behalf of, or for the use of a public entity

1.9.1.5 Appeals Action Ratification

Whenever reference is made to this section, the findings and determinations required to rendered by the local enforcing agency shall be subject to ratification through an appeals process.

- *Health & Safety Code 19957 - In cases of practical difficulty, unnecessary hardship, or extreme differences - Authority to grant exceptions from the literal requirements, but only when it is clearly evident that equivalent facilitation will be provided.*

- *Health & Safety Code 19957.5 - Appeals Board. 2 members shall be physically disabled, 2 experienced in construction, and 1 public member.*

DSA

Advisory 1.9.1.5 Special conditions for persons with disabilities requiring appeals action ratification. California statutes and the California Building Standards Commission regulations allow Equivalent Facilitation for public accommodations or facilities built with private funds whenever a determination of Unreasonable Hardship is granted by the local enforcing agency or building department. (Reference CA H&S C. §19957)

When buildings and facilities are constructed with state, county or municipal funds, or the funds of any political subdivision of the state, administrative authorities may grant exceptions from the literal requirements of the building standards only when it is clearly evident that equivalent facilitation and protection that meets or exceeds the requirements under federal law are secured. (Reference CA Gov. C. §4451(f))

California Health and Safety Code §19957.5 provides that every city, county, or city and county may appoint a local appeals board to hear written appeals regarding the action taken by the building department. ■

Chapter 2 *(Selected)* Definitions

- Accessibility
- Accessibility Function Button
- Accessible
- Accessible Element
- Accessible Route
- Adaptable
- Alteration
- Amusement Attraction
- Amusement Ride
- Assembly Area
- Bathroom
- Blended Transition
- Boarding Pier
- Boat Launch Ramp
- Boat Slip
- Catch Pool
- Children's Use
- Commercial Facilities
- Designated Public Transportation
- Destination-Oriented Elevator
- Elevated Play Component
- Equivalent Facilitation
- Existing Building
- Functional Area
- Grade Level Play Component
- Housing at a Place of Education
- Key Stations
- Mail boxes
- Marked Crossing
- Multi-Bedroom Housing Unit
- Path of Travel
- Place of Public Accommodation
- Play Area
- Play Component
- Public Housing
- Qualified Historical Building of Facility
- Residential Dwelling Unit
- Shopping Center
- Soft Contained Play Structure
- Tactile
- Technically Infeasible
- Teeing Ground
- Transient Lodging
- TTY
- Unreasonable Hardship
- Use Zone
- Variable Message Signs & Characters
- Work Station
- Work Area Equipment

BLENDED TRANSITION. [DSA-AC]

A raised pedestrian street crossing, depressed corner, or similar connection between the pedestrian access route at the level of the sidewalk and the level of the pedestrian street crossing that has a grade of 5 percent or less.

CATCH POOL. [DSA-AC] A pool or designated section of a pool used as a terminus for water slide flumes.

PLAY COMPONENT. [DSA-AC] An element intended to generate specific opportunities for play, socialization, or learning. Play components are manufactured or natural; and are stand-alone or part of a composite play structure.

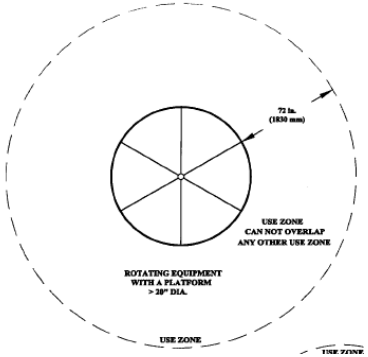
ELEVATED PLAY COMPONENT. [DSA-AC] A play component that is approached above or below grade and that is part of a composite play structure consisting of two or more play components attached or functionally linked to create an integrated unit providing more than one play activity.

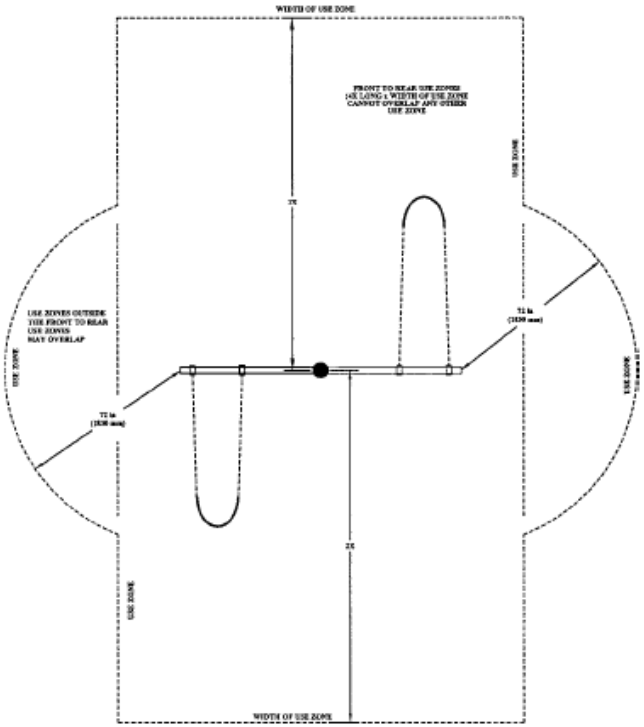
GROUND LEVEL PLAY COMPONENT. [DSA-AC] A play component that is approached and exited at the ground level.

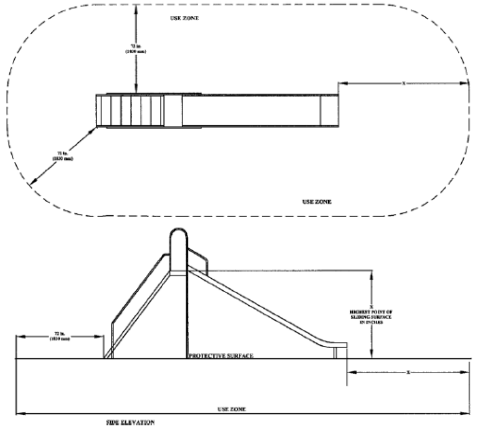
PLAY AREA. [DSA-AC] A portion of a site containing play components designed and constructed for children.

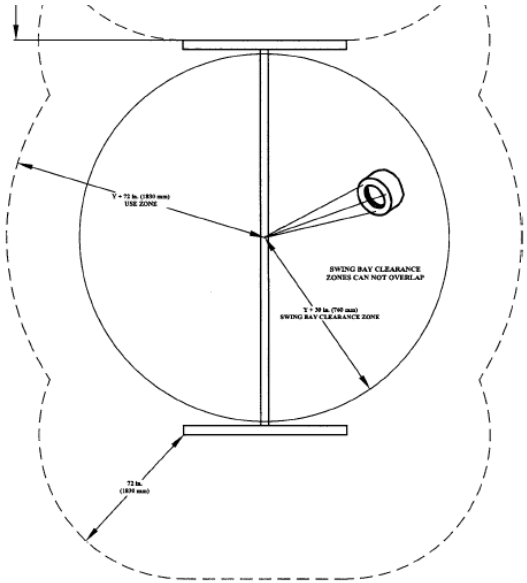
SOFT CONTAINED PLAY STRUCTURE. [DSA-AC] A play structure made up of one or more play components where the user enters a fully enclosed play environment that utilizes pliable materials, such as plastic, netting, or fabric.

USE ZONE. [DSA-AC] The ground level area beneath and immediately adjacent to a play structure or play equipment that is designated by ***ASTM F 1487*** (incorporated by reference, see “Referenced Standards” in Chapter 1) for unrestricted circulation around the play equipment and where it is predicted that a user would land when falling from or exiting the play equipment.









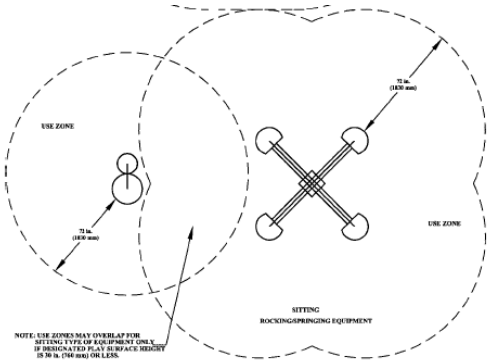


FIG. A1.39 Use Zones for Rocking/Springing Equipment
Reference Paragraphs 9.5

CBC

WALK. [DSA-AC] An exterior prepared surface for pedestrian use, including pedestrian areas such as plazas and courts.

SIDEWALK. A surfaced pedestrian way contiguous to a street used by the public

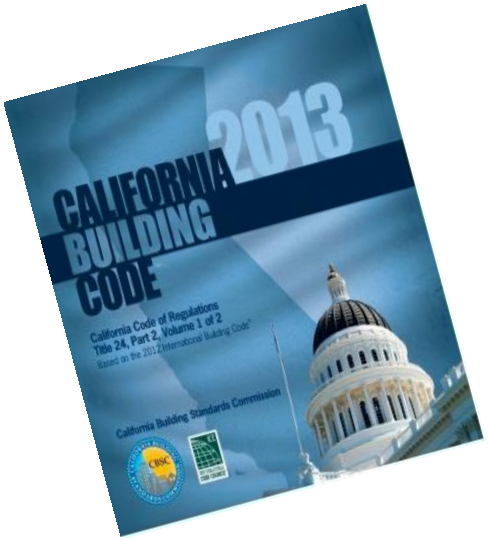
PEDESTRIAN WAY. A route by which a pedestrian may pass.

PUBLIC WAY. A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and has a clear width an height of not less than 10 feet.

PROWAG

Pedestrian Circulation Path. A prepared exterior or interior surface provided for pedestrian travel in the public right-of-way.

Public Right-of-Way. Public land or property, usually in interconnected corridors, that is acquired for or dedicated to transportation purposes.



Chapter 11B

Accessibility to Public Buildings. Public Accommodations, Commercial Buildings and Public Housing

2013 California Building Code – Chapter 11B

11B - Division 1 – Application and Administration

11B - Division 2 – Scoping Requirements

11B - Division 3 – Building Blocks

11B - Division 4 – Accessible Routes

11B - Division 5 – General Site and Building Elements

11B - Division 6 – Plumbing Elements and Facilities

11B - Division 7 – Communications Elements and Features

11B - Division 8 – Special Rooms, Spaces and Elements

11B - Division 9 – Built-in Elements

11B - Division 10- Recreation Facilities

Division 1: APPLICATION AND ADMINISTRATION

- 11B- 101 Purpose
- 11B-102 Dimensions for Adults and Children
- 11B-103 Equivalent Facilitation
- 11B-104 Conventions
  - Dimensions
    - Construction and manufacturing tolerances
  - Calculation of Percentages
  - Figures
- 11B-105 Referenced Standards → Chapter 35
- 11B-106 Definitions → Chapter 2
- 11B-107 Special Conditions Appeals Action
- 11B-108 Maintenance of Accessible Features

11B-103 Equivalent Facilitation

DOJ Advisory 103 Equivalent Facilitation. The responsibility for demonstrating equivalent facilitation in the event of a challenge rests with the covered entity. With the exception of transit facilities, which are covered by regulations issued by the Department of Transportation, there is no process for certifying that an alternative design provides equivalent facilitation.

U.S. Court of Appeals for the Ninth Circuit - Antoninetti v. Chipotle Mexican Grill

- The "Chipotle experience" [614 F.3d 971 (2010)]
- A substitute experience **is not** equivalent facilitation
- Equivalent Facilitation must involve the "**use of other designs and technologies**"

or "provide substantially equivalent or greater access to and usability …"

CBC Chapter 2 - EQUIVALENT FACILITATION. [DSA-AC]. The use of designs, products, or technologies as alternatives to those prescribed, resulting in substantially equivalent or greater accessibility and usability.

Note: In determining equivalent facilitation, consideration shall be given to means that provide for the maximum independence of persons with disabilities while presenting the least risk of harm, injury or other hazard to such persons or others.

11B-104 Conventions

- **Dimensions**
  - **Construction and manufacturing tolerances**
- Calculation of Percentages
- Figures

DOJ Advisory Construction and Manufacturing tolerances. "Conventional industry tolerances recognized by this provision include those for field conditions and those that may be necessary consequence of a particular manufacturing process. Recognized tolerances are not intended to apply to design work …

Where the requirement states a specified range, such as in Section" 11B- 609.4 "where grab bars must be installed between 33 inches and 36 inches above the floor, the range provides an adequate tolerance and therefore no tolerance outside of the range at either endpoint is permitted."

DSA IR 11B-8 USE OF PREDETERMINED CONSTRUCTION TOLERANCE GUIDELINES FOR ACCESSIBILITY

"The California Attorney General's office has indicated that construction tolerance guidelines may wrongfully viewed by some as to have the effect of law and unnecessarily encourages contractors and others to deviate from access regulations contained in the CBC

The use of predetermined construction tolerance guidelines allows a blanket acceptance of departures from the building code requirements with no analysis as to the reason the use of a tolerance is either justified or warranted. As a result, the guidelines are then arbitrarily substituted for building code requirements, without taking into account the specific facts of each circumstance.

It is preferred that construction tolerance acceptance be on a case-by-case basis, with the degree of departure from the literal requirements coupled with the specific reason that the requirement was unable to be achieved as the basis to be utilized for analysis. Many times when questions arise regarding tolerances, it is often found after analysis that neither field conditions nor manufacturing variables contributed to the deviation, but rather there was simply a lack of proper planning or coordination. Inadequate planning and coordination are not justifications for the use of construction tolerances. "

DSA

Advisory 11B-104.1.1 Construction and manufacturing tolerances. Application of conventional industry tolerances must be on a case-by-case, project-by-project basis. Predetermined guidelines for construction tolerances could unnecessarily encourage contractors and others to deviate from the access regulations found in the CBC and may wrongfully be viewed by some to have the effect of law.

Conventional building industry tolerances include those for field conditions and those that may be a necessary consequence of a particular manufacturing process. Recognized tolerances are not intended to apply to design work.

Where accessibility provisions state a dimensional range, such as Section 11B-505.4 which requires the top of stair handrails to be installed between 34 inches and 38 inches above the nosing, the range already provides an adequate tolerance, therefore, no tolerance outside the range at either end point is permitted.

An element designed to be constructed at either the maximum or minimum permitted dimensions puts the construction at risk if construction errors result in a violation of the standards. It is good practice to specify a dimension less than the required maximum (or more than the required minimum) by the amount of the expected field or manufacturing tolerance and not to state any tolerance in conjunction with the specified dimension.

In other words, dimensions noted in accessibility provisions as “maximum” or “minimum” should not be considered dimensions for design, as they represent the limits of a requirement. To be sure that field tolerances result in usable construction, notes and dimensions in construction documents should anticipate expected tolerances so that a required dimensional range is not exceeded by the addition of a finish or a variation in construction practice.

Specifying dimensions in design in the manner described above will better ensure that facilities and elements accomplish the level of accessibility intended by the provision. It will also more often produce an end result of strict and literal compliance with the stated requirements and eliminate enforcement difficulties and issues that might otherwise arise.■

❑ 11B-104 Conventions

- ❑ Dimensions
  - Construction and manufacturing tolerances

❑ Calculation of Percentages

- ❑ Figures

Where the ***number of elements or facilities*** to be provided is determined by calculations of ratios or percentages and remainders or fractions result, the next greater whole number of such elements or facilities shall be provided.

Where the determination of ***the required size or dimension*** of an element or facility involves ratios or percentages, rounding down for values less than one-half shall be permitted

Example #1: Number of accessible lockers needed = 5%
Given: 116 lockers

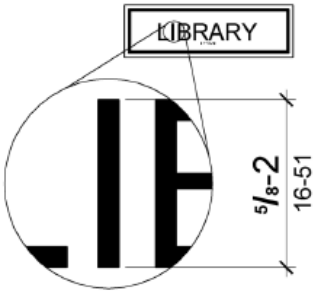
5% of 116 [116 x .05 = 2.32]

round up - 3 accessible lockers required

Example #2: *Signage* – The stroke thickness of the uppercase letter "I" shall be 15% maximum of the character height

If the computed thickness is actually 15.4%, it may be rounded down.

rounding down is OK



- **11B-107 Special Conditions Appeals Action.** See Chapter 1, Section 1.9.1.5

DSA

Advisory 1.9.1.5 Special conditions for persons with disabilities requiring appeals action ratification. California statutes and the California Building Standards Commission regulations allow Equivalent Facilitation for public accommodations or facilities built with private funds whenever a determination of Unreasonable Hardship is granted by the local enforcing agency or building department. (Reference CA H&S C. §19957)

When buildings and facilities are constructed with state, county or municipal funds, or the funds of any political subdivision of the state, administrative authorities may grant exceptions from the literal requirements of the building standards only when it is clearly evident that equivalent facilitation and protection that meets or exceeds the requirements under federal law are secured. (Reference CA Gov. C. §4451(f))

California Health and Safety Code §19957.5 provides that every city, county, or city and county may appoint a local appeals board to hear written appeals regarding the action taken by the building department. ■

- **11B-108 Maintenance of Accessible Features.** A public accommodation shall maintain in operable working condition those features of facilities and equipment that are required to be accessible to and useable by persons with disabilities. Isolated or temporary interruptions in service or accessibility due to maintenance or repairs shall be permitted.

- **ADA 36.211(c) - If the 2010 Standards reduce the technical requirements or the number of required accessible elements below the number required by the 1991 Standards, the technical requirements or the number of accessible elements in a facility subject to this part may be reduced in accordance with the requirements of the 2010 Standards.**

Division 2 Scoping Requirements

11B-201 Application
11B-202 Existing Buildings
11B-203 General Exceptions
11B-204 Protruding Objects
11B-205 Operable Parts
11B-206 Accessible Routes
11B-207 Means of Egress
11B-208 Parking
11B-209 Loading Zones & Bus Stops
11B-210 Stairways
11B-211 Drinking Fountains
11B-212 Kitchens, Wet Bars, Sinks
11B-213 Toilet Facilities
11B-214 Washing Machines & Dryers
11B-215 Fire Alarm Systems
11B-216 Signs
11B-217 Telephones
11B-218 Transportation Facilities
11B-219 Assistive Listening Systems
11B-220 ATMs & Fare Machines
11B-221 Assembly Areas
11B-222 Dressing & Locker Rooms
11B-223 Medical Care Facilities
11B-224 Transient Lodging
11B-225 Storage
11B-226 Dining & Working Surfaces
11B-227 Sales and Service
11B-228 Vending Machines, Fuel Disp.
11B-229 Windows
11B-230 Two-way Communications
11B-231 Judicial Facilities
11B-232 Correctional Facilities
11B-233 Residential Facilities
11B-234 Amusement Rides
11B-235 Recreational Boating
11B-236 Exercise Machines
11B-237 Fishing Piers & Platforms
11B-238 Golf Facilities
11B-239 Miniature Golf Facilities
11B-240 Play Areas
11B-241 Sauna & Steam Rooms
11B-242 Swimming Pools
11B-243 Shooting Facilities
11B-244 Religious Facilities
11B-245 Commercial in Private Residences
11B-246 Outdoor Developed Areas
11B-247 Detectable Warnings

ALTERATION [DSA-AC] A change, addition or modification in construction, change in occupancy or use, or structural repair to an existing building or facility.

Alterations include, but are not limited to, remodeling, renovation, rehabilitation, reconstruction, historic restoration, resurfacing of circulation paths or vehicular ways, changes or rearrangement of the structural parts or elements, and changes or rearrangement in the plan configuration of walls and full-height partitions.

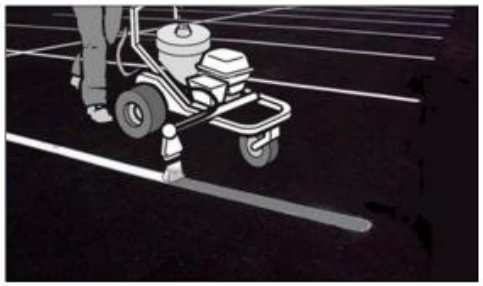
Normal maintenance, reroofing, painting or wallpapering, or changes to mechanical and electrical systems ***are not alterations <u>unless they affect the usability</u> of the building or facility.***

Alteration. (ADA) A change to a *building* or *facility* that affects or could affect the usability of the *building* or *facility* or portion thereof. …

Alterations

Example: Parking Lot

Repainting existing markings in place, filling potholes = maintenance (not an alteration)



Alterations

Example: Parking Lot

Resurfacing and restriping of lot = alteration

Alterations

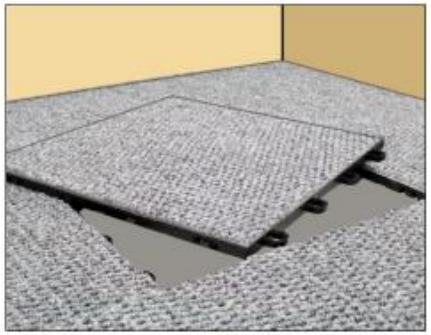
Example: Carpet

Replacement = alteration (new carpet must comply)

Alterations

Example: Carpet repair

Patch tears, replace loose/ missing tiles = maintenance



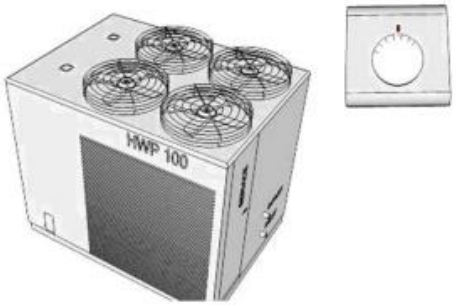
Example: Seismic upgrade

Alterations

Example: Replace HVAC system

Covered where usability affected

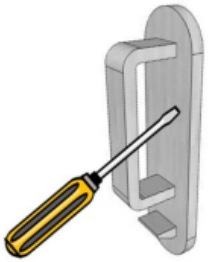
(e.g., new thermostats installed – operable parts)



Alterations

Example: Damaged door handle

- **repaired = normal maintenance**
- **replaced = new handle must comply**



22

TECHNICALLY INFEASIBLE. An alteration of a building or a facility, that has little likelihood of being accomplished because the existing structural conditions require the removal or alteration of **a load-bearing member** that is an essential part of the structural frame, or because other **existing physical or site constraints** prohibit modification or addition of elements, spaces, or features that are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility.

"Something that has little likelihood of being accomplished because existing structural conditions would require removing or altering a load-bearing member that is an essential part of the structural frame ...

"... or because other existing physical or site constraints prohibit modification or addition of elements, spaces, or features that are in full and strict compliance with the minimum requirements."

TECHNICALLY INFEASIBLE. An alteration of a building or a facility, that has little likelihood of being accomplished because the existing structural conditions require the removal or alteration of a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces, or features that are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility.

ILLUSTRATION: A restaurant is undergoing a major renovation. Widening the entrance would affect the building structure because removal of an essential part of the structural frame would be required. In this case, it is "technically infeasible" to widen the entrance, and the action is not required. However, all other accessible alterations requirements apply to the renovation.

BUT: If the only problem with widening the entrance is that it would increase the cost of the renovation, the "technically infeasible" exception does not apply, and the entrance must be widened.

11B-202.4 **Exception #5** – Parking lot surfaces

Alterations to existing parking lots by resurfacing and/or restriping, ***and limited to that work only***

Alterations

Example: Parking Lot

Repainting existing markings in place, filling potholes = maintenance (not an alteration)

Alterations

Example: Parking Lot

Resurfacing and restriping of lot = alteration

11B-202.4 **Exception #6** – Signage improvements

Addition or replacement of signs or identification devices, ***and limited to that work only***

11B-202.4 **Exception #7** – Comfort and Cosmetic work

Projects consisting only of HVAC, reroofing, electrical work, cosmetic work, unless they affect the usability of the facility

Alterations

Example: Replace HVAC system

Covered where usability affected

(e.g., new thermostats installed – operable parts)

Informational Only

ADA 36.104 - Readily achievable means easily accomplishable and able to be carried out without much difficulty or expense. In determining whether an action is readily achievable factors to be considered include –

(1) The nature and cost of the action needed under this part;

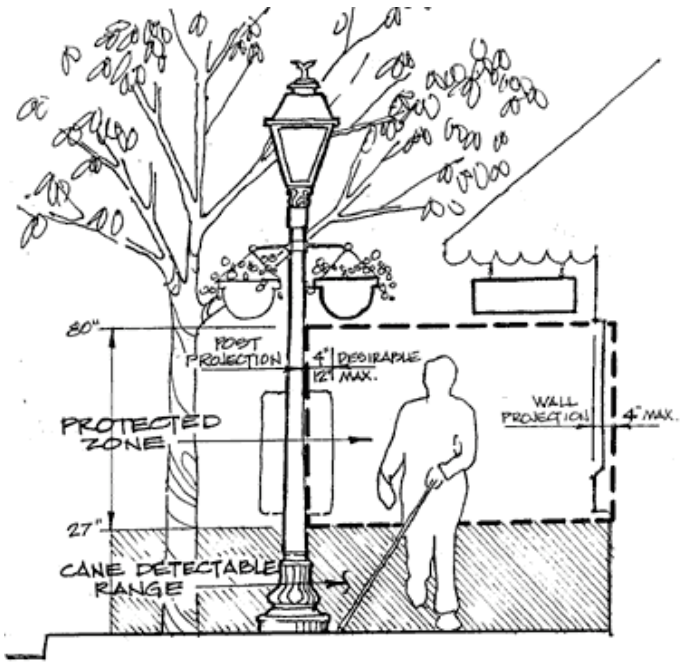
(2) The overall financial resources of the site or sites involved in the action; the number of persons employed at the site; the effect on expenses and resources; legitimate safety requirements that are necessary for safe operation, including crime prevention measures; or the impact otherwise of the action upon the operation of the site;

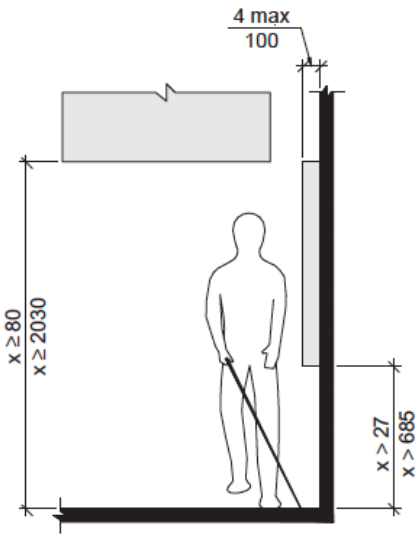
(3) The geographic separateness, and the administrative or fiscal relationship of the site or sites in question to any parent corporation or entity;

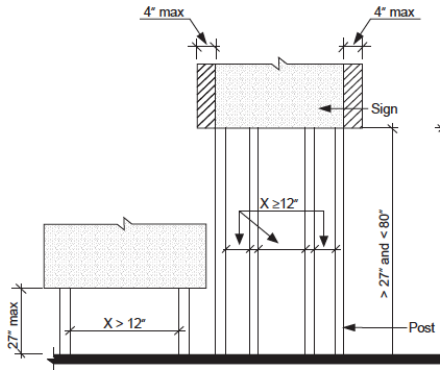
(4) If applicable, the overall financial resources of any parent corporation or entity; the overall size of the parent corporation or entity with respect to the number of its employees; the number, type, and location of its facilities; and

(5) If applicable, the type of operation or operations of any parent corporation or entity, including the composition, structure, and functions of the workforce of the parent corporation or entity.

11B-204 Protruding Objects







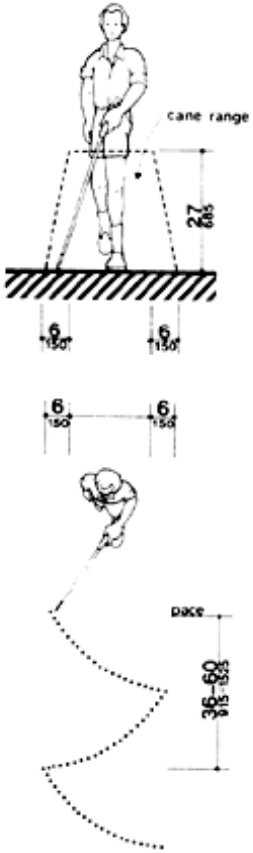


Fig. A4
Cane Technique

11B-204 Protruding Objects

11B-307.2 Protrusion limits – between 27” and 80” AFF is limited to a maximum of 4”

Exception: Handrails may protrude 4 ½” maximum

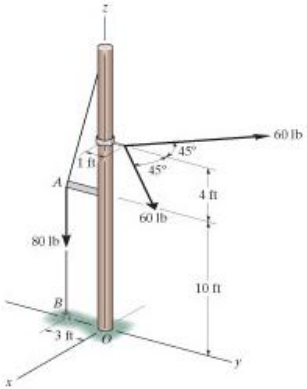
USDOJ

Advisory 11B-307.2 Protrusion limits. When a cane is used and the element is in the detectable range, it gives a person sufficient time to detect the element with the cane before there is body contact. Elements located on circulation paths, including operable elements, must comply with requirements for protruding objects. For example, awnings and their supporting structures cannot reduce the minimum required vertical clearance. Similarly, casement windows, when open, cannot encroach more than 4 inches (100 mm) into circulation paths above 27 inches (685 mm). ■

- **11B-307.4 Vertical clearance** – Vertical clearance shall be 80” …

  ..... Where a guy support is used parallel to a circulation path, including but not limited to sidewalks, a guy brace, sidewalk guy or similar device shall be used to prevent an overhanging obstruction.

Exception: Door closures and stops shall be permitted to be 78” minimum AFF



11B-205 Operable Parts

Operable parts shall be accessible per 11B-309

Exceptions:

1. Intended to only be used by maintenance personnel
2. Electrical receptacles serving a dedicated use
3. *Reserved*
4. Floor electrical receptacles
5. HVAC diffusers
6. Redundant controls, except for light switches
7. Boat securement devices
8. Exercise machines and equipment

USDOJ

Advisory 11B-205.1 General. Controls covered by Section 11B-205.1 include, but are not limited to, light switches, circuit breakers, duplexes and other convenience receptacles, environmental and appliance controls, plumbing fixture controls, and security and intercom systems. ■

Operable Parts

11B-206 Accessible Routes

- 11B-206.2 Where required
- 11B-206.3 Location
- 11B-206.4 Entrances
- 11B-206.5 Doors, doorways, and gates
- 11B-206.6 Elevators
- 11B-206.7 Platform lifts
- 11B-206.8 Security barriers

DIVISION 4
ACCESSIBLE ROUTES

11B-403 Walking Surfaces

11B-403.2 Floor and Ground surfaces shall comply with 11B-302

11B- 403.3 Slope. The running slope of walking surfaces shall not be steeper than 1:20. The cross slope shall not be steeper than 1:48.

Exception: *The running slope of sidewalks shall not exceed the general grade established for the adjacent street or highway.*

DSA

Advisory 11B-403.3 Slope. There is an important distinction between a "sidewalk" and a "walk", and they are treated differently under the California Building Code. A sidewalk is contiguous to a street while a walk is not.

When the running slope of a walking surface exceeds 5%, it must comply with the accessibility requirements for ramps.

A sloping sidewalk with a running slope in excess of 5% is excluded from ramp requirements for landings and handrails but it must comply with cross-slope and width requirements. ■

DIVISION 3
BUILDING BLOCKS

11B-302.3 Openings. Openings in floor or ground surfaces *(grates or joints)* shall not allow passage of a sphere more than ½ inch (13 12.7 mm) diameter ...

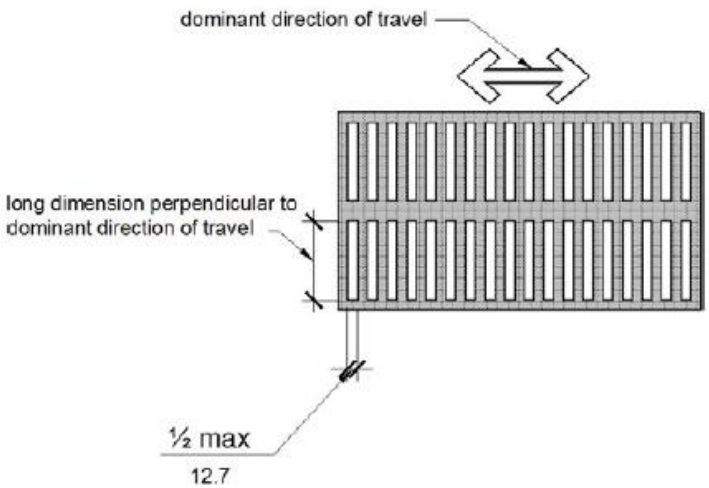


Figure *11B*-302.3
Elongated Openings in Floor or Ground Surfaces

DIVISION 3
BUILDING BLOCKS

11B-303 Changes in Level

FIG. 303.2
CARPET ON FLOOR SURFACES

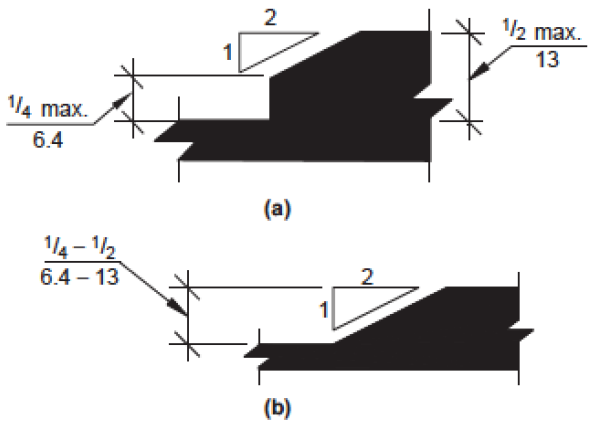
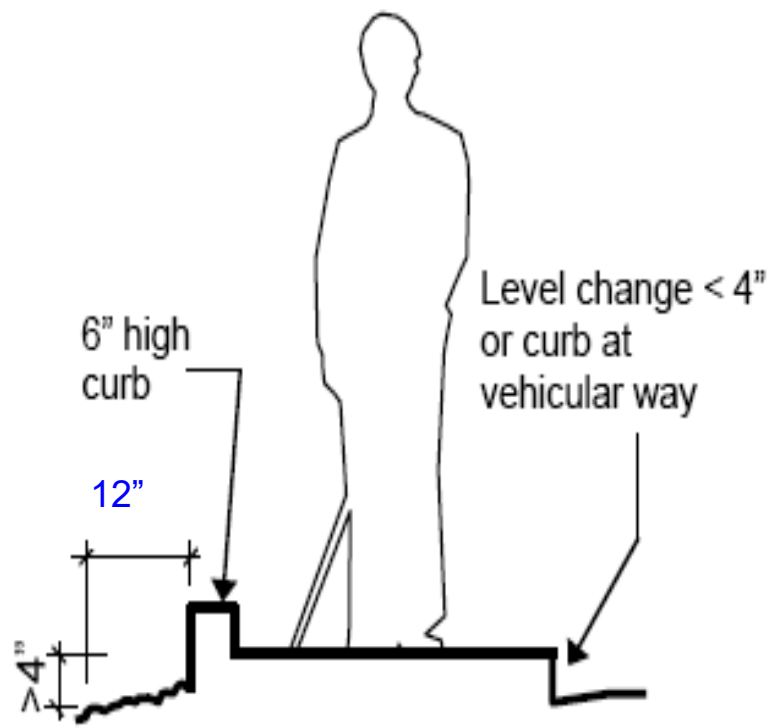


FIG. 303.3
BEVELED CHANGES IN LEVEL

11B-303.5 Warning Curb



DIVISION 4
ACCESSIBLE ROUTES

11B-403.5.1 Clear Width. The clear width of walking surfaces shall be 36 inches minimum.

Exceptions:

1. OK to reduce to 32” for short segments
2. Corridors serving an occupant load >10 shall be 44”
3. The clear width of walks and sidewalks shall be 48” minimum. When right-of-way restrictions create an unreasonable hardship, the clear width may be reduced to 36”.
4. 44” minimum required if serving elements on both sides.

11B-403.5.3 Passing Spaces. A clear width of not less than 60” shall provide passing spaces at intervals of 200’ maximum.

PROWAG

Advisory R302.3 Continuous Width. The continuous clear width requirements in R302.3 apply to sidewalks and other pedestrian circulation paths, pedestrian street crossings and at-grade rail crossings, and pedestrian overpasses and underpasses and similar structures (see R302.2). Clear width requirements are contained in R304.5.1 for curb ramps and blended transitions, and in R407.4 for ramps. Where sidewalks are wider than 1.2 m (4.0 ft), only a portion of the sidewalk is required to comply with the requirements in R302.3 through R302.7. Additional maneuvering space should be provided at turns or changes in direction, transit stops, recesses and alcoves, building entrances, and along curved or angled routes, particularly where the grade exceeds 5 percent. R210 prohibits street furniture and other objects from reducing the minimum clear width of pedestrian access routes.

Figure R302.3 Continuous Width

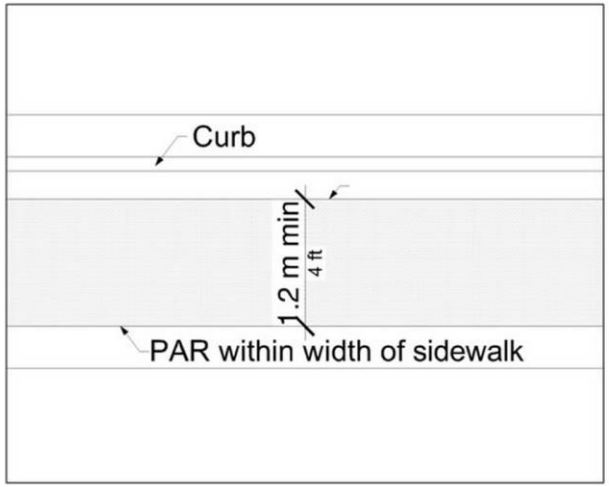
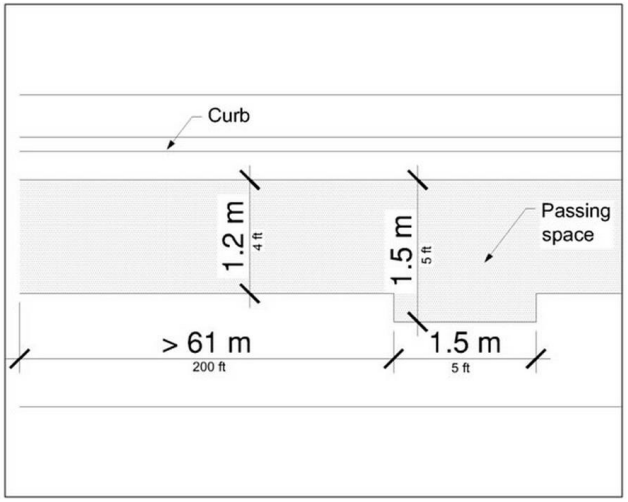


Figure R302.4 Passing Spaces



EXAMPLES

DSA's Accessibility Plan Check Manual

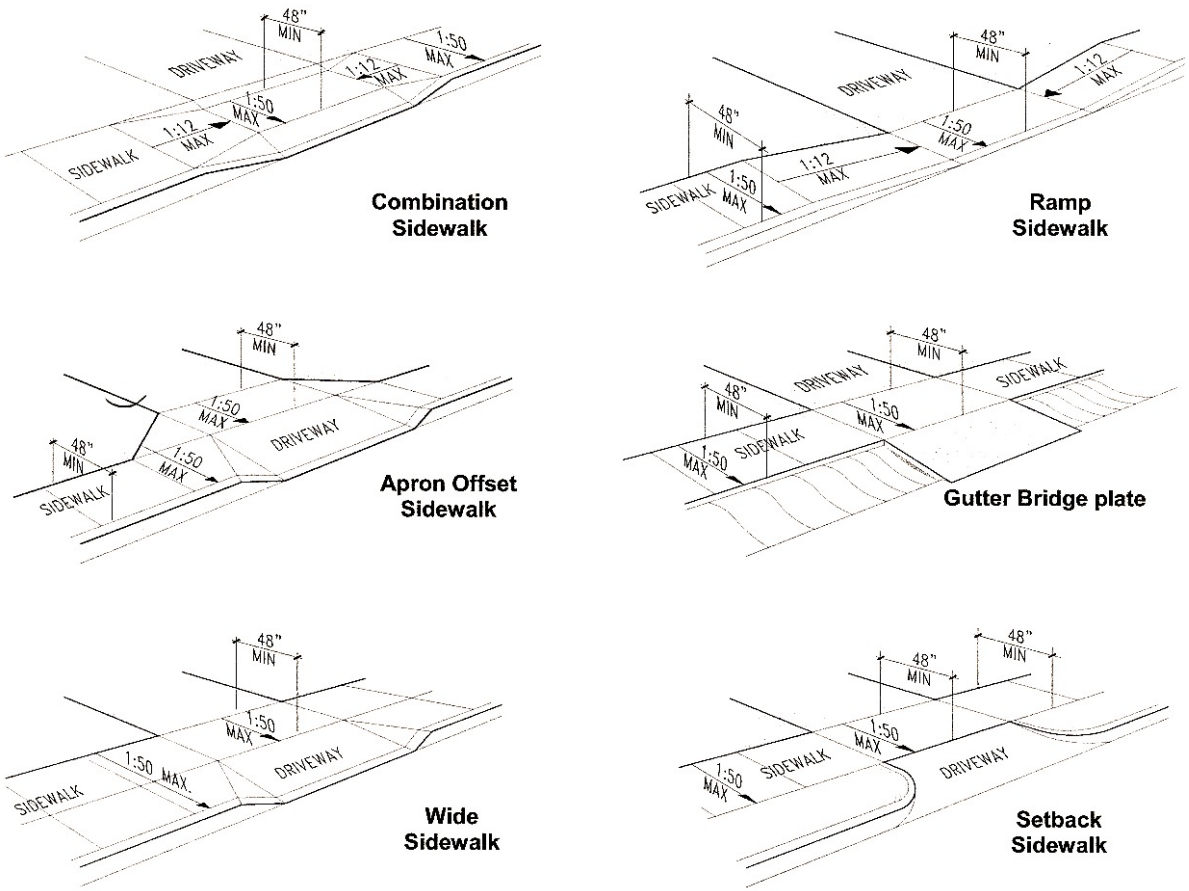


Fig 6-A. Examples of Sidewalk Driveway Connections

DIVISION 4
ACCESSIBLE ROUTES

- **11B-404.2.5 Thresholds** shall be a maximum ½" high

- **11B-404.2.7 Door and Gate Hardware** -

USDOJ

Advisory 11B-404.2.7 Door and gate hardware. Door hardware that can be operated with a closed fist or a loose grip accommodates the greatest range of users. Hardware that requires simultaneous hand and finger movements require greater dexterity and coordination, and is not recommended. ■

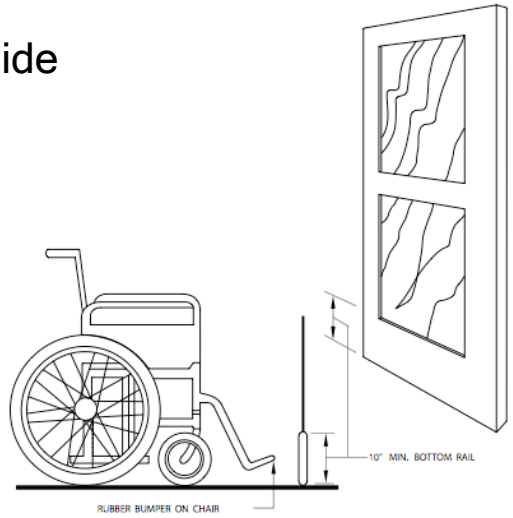
DSA

Advisory 11B-404.2.7 Door and gate hardware. In addition to the requirements of this section, designers should be aware of the Part 12, Section 12-10-202(f) requirement for lever hardware as adopted by the State Fire Marshal. The lever of lever actuated latches or locks must be curved with a return to within ½ inch of the door to prevent catching on the clothing of persons during egress. ■

- **11B-404.2.8 Door closing speed**
  - from 90 degrees to 12 degrees - minimum 5 seconds
  - spring hinges - from 70 degrees to close 1.5 seconds min.

DIVISION 4
ACCESSIBLE ROUTES

- **11B-404.2.10 Door and gate surfaces**
  - within 10” of the finish floor/ground on the push side
  - full width of the door or gate
  - joints to be within 1/16” of the same plane
  - cavities created shall be capped



Exceptions:

1. Sliding doors
2. Tempered glass doors without stiles and having a bottom rail tapered 60 degrees min.
3. Doors and gates that do not extend to within 10” AFF

DIVISION 4
ACCESSIBLE ROUTES

11B-405 Ramps

- Slope

USDOJ

Advisory 11B-405.2 Slope. To accommodate the widest range of users, provide ramps with the least possible running slope and, wherever possible, accompany ramps with stairs for use by those individuals for whom distance presents a greater barrier than steps, e.g., people with heart disease or limited stamina. ■

- Cross slope

USDOJ

Advisory 11B-405.3 Cross slope. Cross slope is the slope of the surface perpendicular to the direction of travel. Cross slope is measured the same way as slope is measured (i.e., the rise over the run). ■

DSA

Advisory 11B-405.3 Cross slope. Curved ramps are not prohibited by Chapter 11B; however, requirements for maximum slope and cross-slope cannot be exceeded. ■

DIVISION 4
ACCESSIBLE ROUTES

11B-405 Ramps

- **11B-405.7 Landings.** Ramps shall have landings at the top and bottom of each ramp run.

- **11B-405.7.5 Change of Direction.** Ramps that change direction between runs shall have a landing

USDOJ

Advisory 11B-405.7 Landings. Ramps that do not have level landings at changes in direction can create a compound slope that will not meet the requirements of this chapter. Circular or curved ramps continually change direction. Curvilinear ramps with small radii also can create compound cross slopes and cannot, by their nature, meet the requirements for accessible routes. A level landing is needed at the accessible door to permit maneuvering and simultaneously door operation. ■

DIVISION 4
ACCESSIBLE ROUTES

- 11B-406 Curb Ramps, Blended Transitions and Islands

Perpendicular Curb Ramp

Parallel Curb Ramp

Islands

Blended Transition

References to assist in the understanding of the purposes and uses for, and in the design of, Curb Ramps, Blended Transitions and Islands

Designing Sidewalks and Trails for Access, Part II (Federal Highway Administration) http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/sidewalks207.cfm

Public Rights-of-Way Guidelines (US Access Board) http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/chapter-r3-technical-requirements

***Note**: These references are written to ensure compliance with Federal requirements. Please ensure that any California differences are also included in any approved paths of travel and accessible routes*

Perpendicular Curb Ramps - CBC

11B-406.2 Perpendicular curb ramps. *Perpendicular curb ramps shall comply with Sections 11B-406.2 and 11B-406.5.*

11B-406.2.1 Slope. *Ramp runs shall have a running slope not steeper than 1:12.*

11B-406.2.2 Sides of curb ramps. *Where provided, curb ramp flares shall not be steeper than 1:10.*

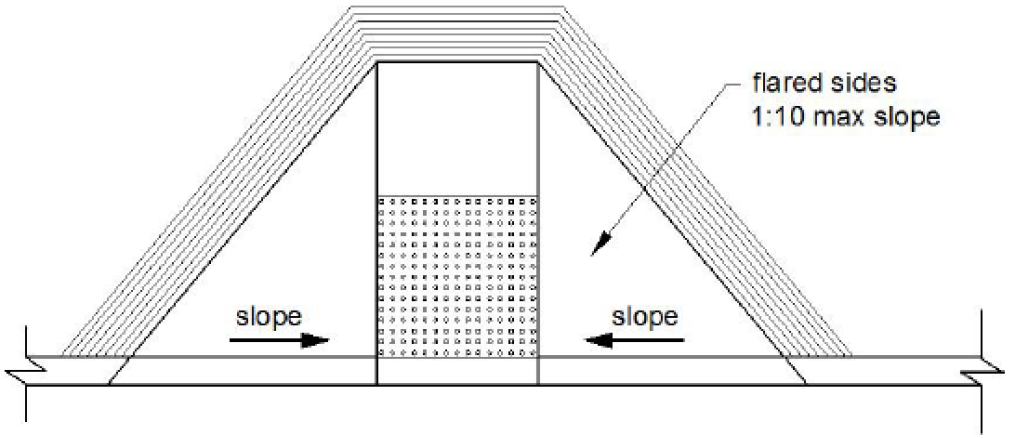


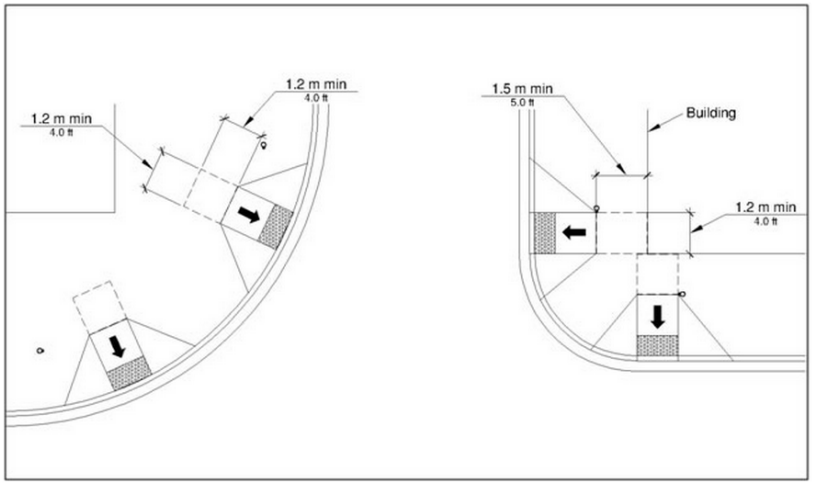
Figure *11B-406.2.2*
Sides of Curb Ramps

Perpendicular Curb Ramps - PROWAG

R304.2 Perpendicular Curb Ramps. Perpendicular curb ramps shall comply with R304.2 and R304.5.

R304.2.1 Turning Space. A turning space 1.2 m (4.0 ft) minimum by 1.2 m (4.0 ft) minimum shall be provided at the top of the curb ramp and shal be permitted to overlap other turning spaces and clear spaces. Where the turning space is constrained at the back-of-sidewalk, the turning space shall be 1.2 m (4.0 ft) minimum by 1.5 m (5.0 ft) minimum. The 1.5 m (5.0 ft) dimension shall be provided in the direction of the ramp run.

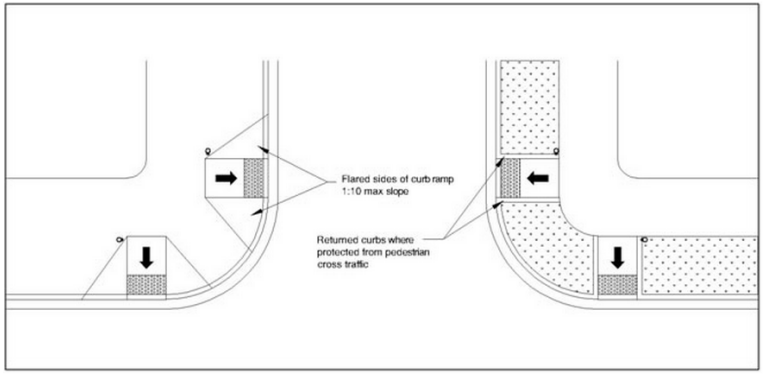
Figure R304.2.1 Turning Space



R304.2.2 Running Slope. The running slope of the curb ramp shall cut through or shall be built up to the curb at right angles or shall meet the gutter grade break at right angles where the curb is curved. The running slope of the curb ramp shall be 5 percent minimum and 8.3 percent maximum but shall not require the ramp length to exceed 4.5 m (15.0 ft). The running slope of the turning space shall be 2 percent maximum.

R304.2.3 Flared Sides. Where a pedestrian circulation path crosses the curb ramp, flared sides shall be sloped 10 percent maximum, measured parallel to the curb line.

Figure 304.2.3 Flared Sides



Advisory R304.2.3 Flared Sides. The flared sides are part of the pedestrian circulation path, but are not part of the pedestrian access route. Curb ramps whose sides have returned curbs provide useful directional cues where they are aligned with the pedestrian street crossing and are protected from cross travel by landscaping, street furniture, chains, fencing, or railings.

Parallel Curb Ramps - CBC

11B-406.3 Parallel curb ramps. *Parallel curb ramps shall comply with Sections 11B-406.3 and 11B-406.5.*

11B-406.3.1 Slope. *The running slope of the curb ramp segments shall be in-line with the direction of sidewalk travel. Ramp runs shall have a running slope not steeper than 1:12.*

11B-406.3.2 Turning space. *A turning space 48 inches (1219 mm) minimum by 48 inches (1219 mm) minimum shall be provided at the bottom of the curb ramp. The slope of the turning space in all directions shall be 1:48 maximum.*

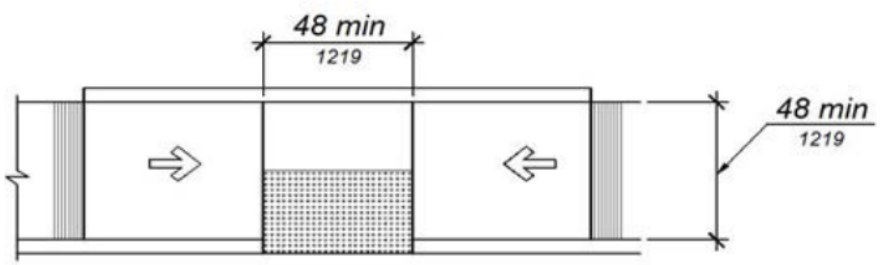
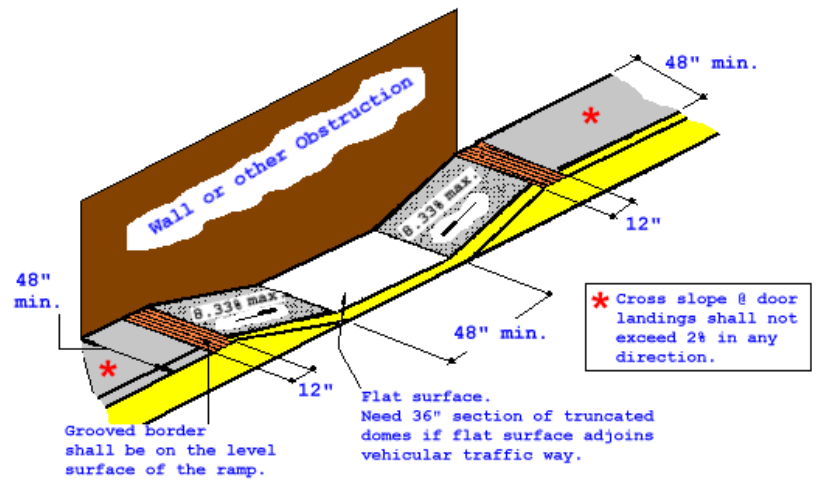
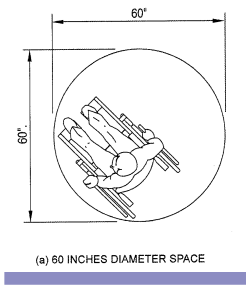


FIGURE *11B*-406.3.2
PARALLEL CURB RAMPS



RAMPS IN SIDEWALK PATH



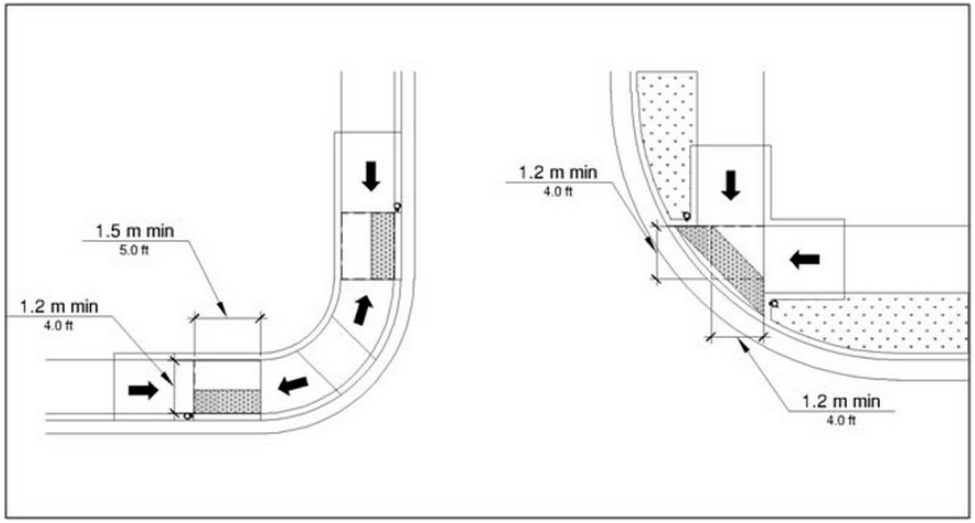
(a) 60 INCHES DIAMETER SPACE

Parallel Curb Ramps - PROWAG

R304.3 Parallel Curb Ramps. Parallel curb ramps shall comply with R304.3 and R304.5.

R304.3.1 Turning Space. A turning space 1.2 m (4.0 ft) minimum by 1.2 m (4.0 ft) minimum shall be provided at the bottom of the curb ramp and shall be permitted to overlap other turning spaces and clear spaces. If the turning space is constrained on 2 or more sides, the turning space shall be 1.2 m (4.0 ft) minimum by 1.5 m (5.0 ft). The 1.5 m (5.0 ft) dimension shall be provided in the direction of the pedestrian street crossing.

Figure R304.3.1 Turning Space



R304.3.2 Running Slope. The running slope of the curb ramp shall be in-line with the direction of sidewalk travel. The running slope of the curb ramp shall be 5 percent minimum and 8.3 percent maximum but shall not require the ramp length to exceed 4.5 m (15.0 ft) minimum. The running slope of the turning space shall be 2 percent maximum.

Blended Transitions - CBC

11B-406.4 Blended transitions. *Blended transitions shall comply with Sections 11B-406.4 and 11B-406.5.*

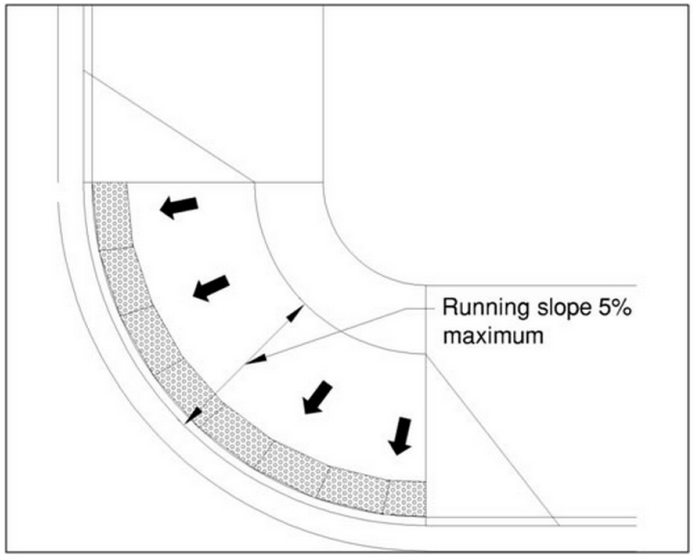
11B-406.4.1 Slope. *Blended transitions shall have a running slope not steeper than 1:20.*

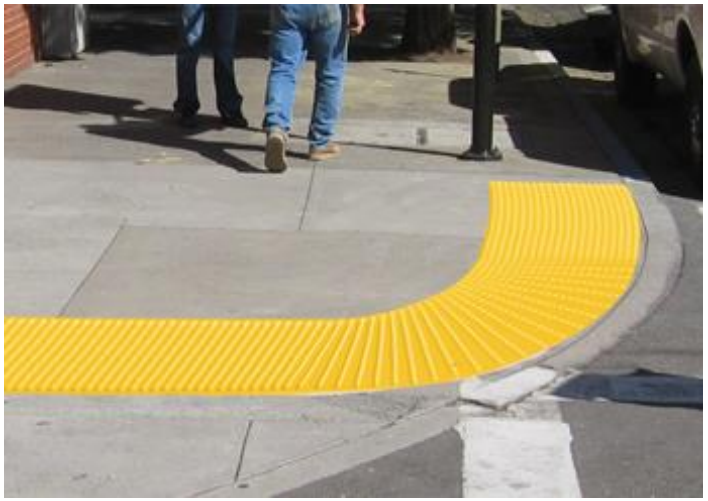
Blended Transitions - PROWAG

R304.4 Blended Transitions. Blended transitions shall comply with R304.4 and R304.5.

R304.4.1 Running Slope. The running slope of blended transitions shall be 5 percent maximum.

Figure R304.4.1 Running Slope

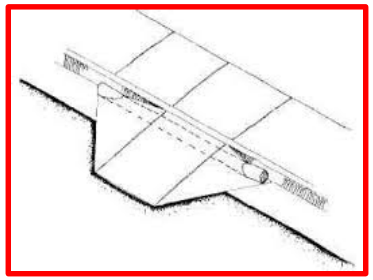




11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

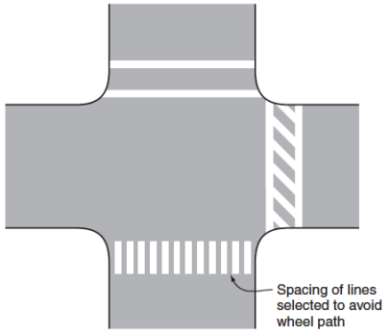
11B-406.5.1 Location:

NOT

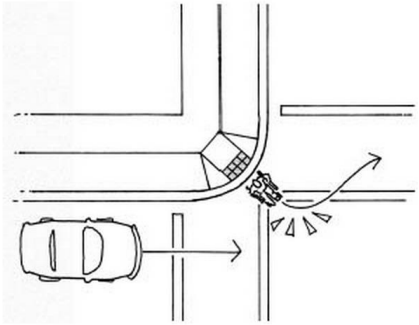


- ✓ Curb ramps and the flared sides shall not project into traffic lanes, parking spaces, or parking access aisles

Figure 3B-19. Examples of Crosswalk Markings



- ✓ Curb ramps at marked crossings shall be wholly contained within the markings



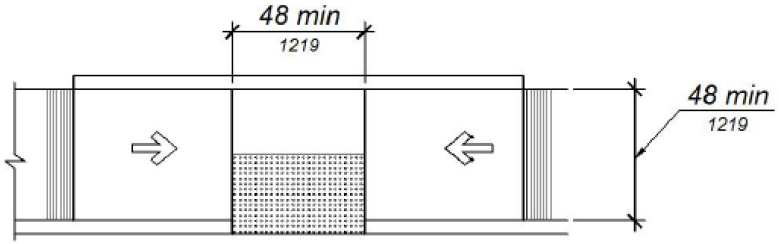
- ✓ Diagonal curb ramp bottom landings must traffic lanes

11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

Width:

- ✓ The minimum width of all curb ramp runs (excluding any flared sides), blended transitions, and turning spaces shall be 48”

(Note: See 11B-304.3 Turning Space sizes)



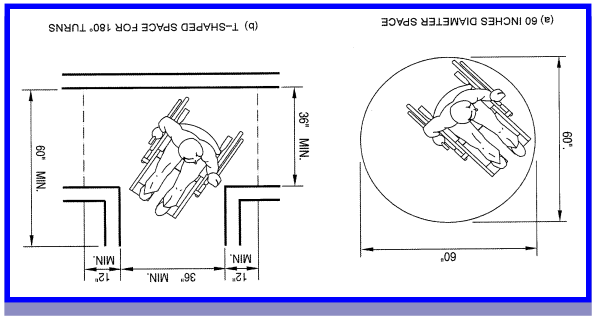
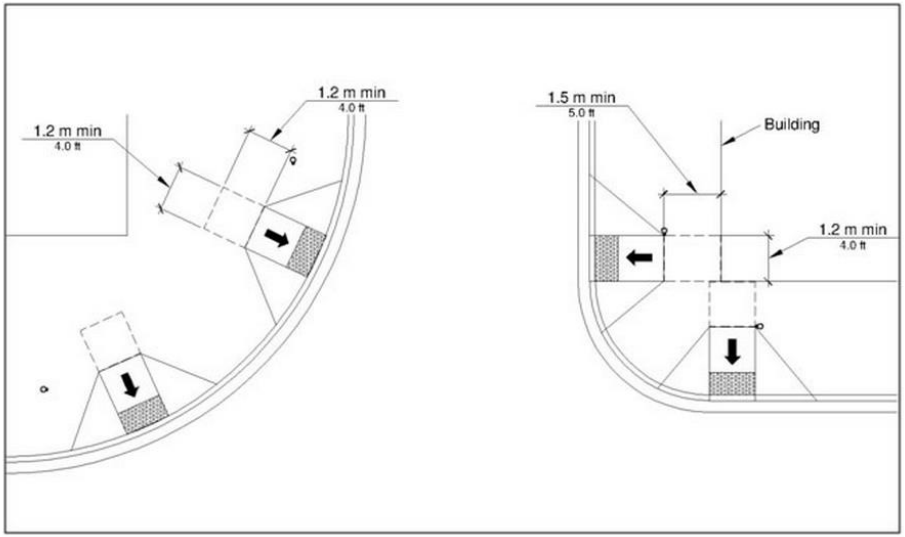


Figure R304.2.1 Turning Space



11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

11B-406.5.3 Landings:

- ✓ Landings shall be provided at the tops of all curb ramps and blended transitions.
- ✓ The landing clear length shall be 48” minimum
- ✓ The width shall be as wide as the curb ramps or blended transitions leading to the landing

Exception: Parallel curb ramps

DSA

Advisory 11B-406.5.3 Landings. A level landing, 48” deep and at least as wide as the curb ramp, is required at the top of a curb ramp. The landing provides an area for users to exit the curb ramp and proceed along the walking surface at the top of the curb ramp.

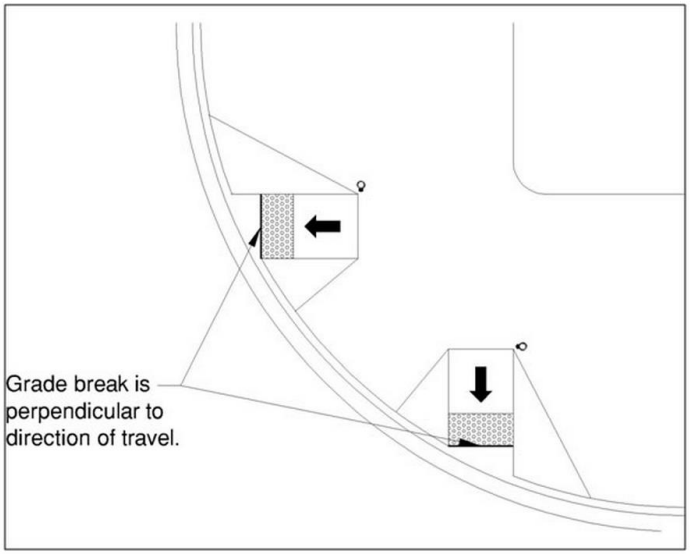
Some designs have been proposed that reduce or omit the level top landing by providing a curb ramp with flared sides of 1:12 or less. This design is not compliant with the building code and may result in a condition where a wheelchair user cannot safely turn and proceed along the intersecting walk. Section 11B-403.5.1, Exception 3, requires walks and sidewalks to be 48” wide minimum; Section 11B-403.3 requires walks and sidewalks to have a cross-slope of 1:48 or less. In this example, reducing or omitting the top landing of the curb ramp may result in a substandard walk width and/or a walk with a cross-slope in excess of 1:48. ■

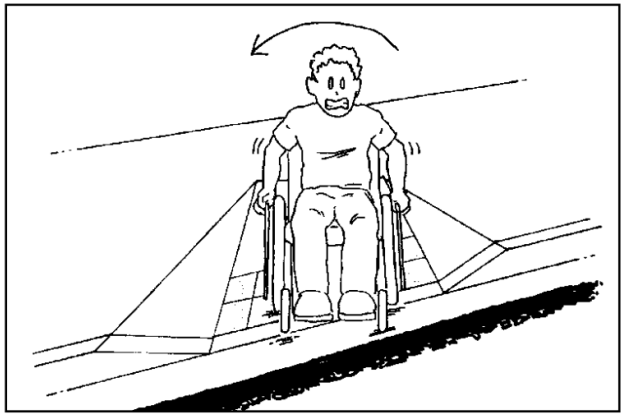
11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

11B-406.5.6 Grade Breaks:

- ✓ Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run.
- ✓ Grade breaks shall not be permitted on the surface of ramp runs and turning spaces.
- ✓ Surface slopes that meet at grade breaks shall be flush

Figure R304.5.2 Grade Breaks

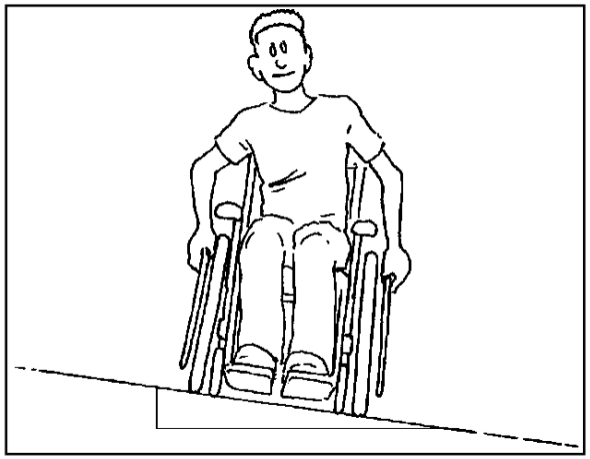


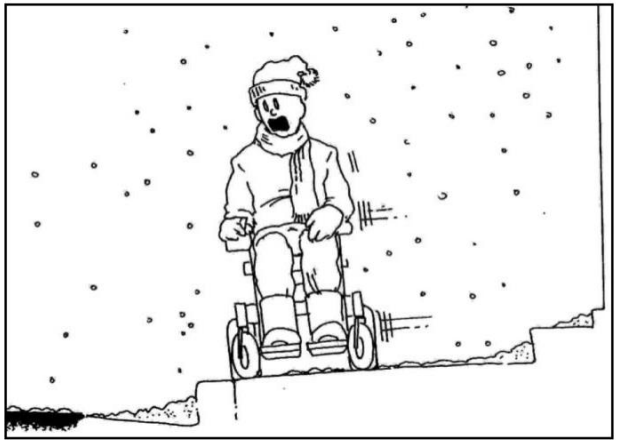


11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

11B-406.5.7 Cross Slope:

- ✓ Cross slopes of curb ramps and blended transitions shall be 1:48 maximum

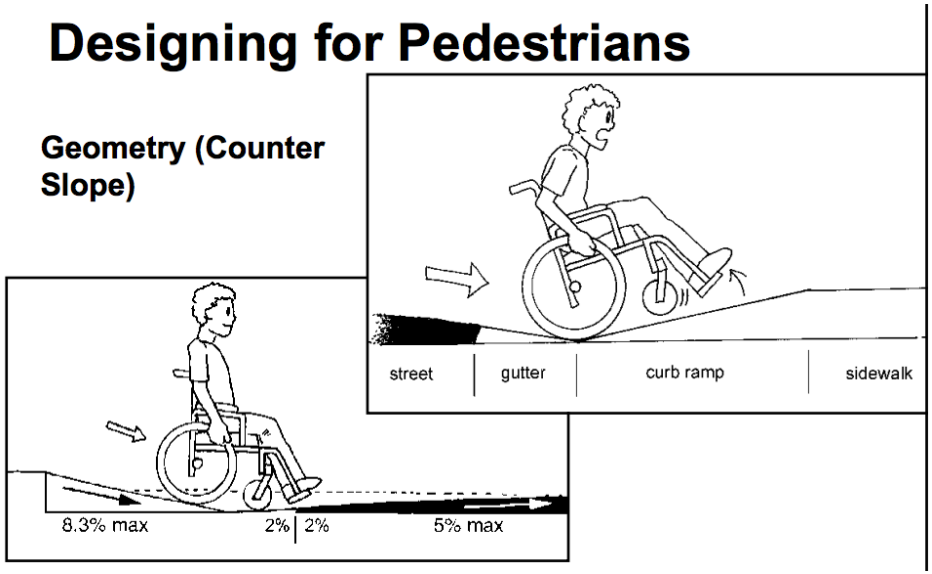




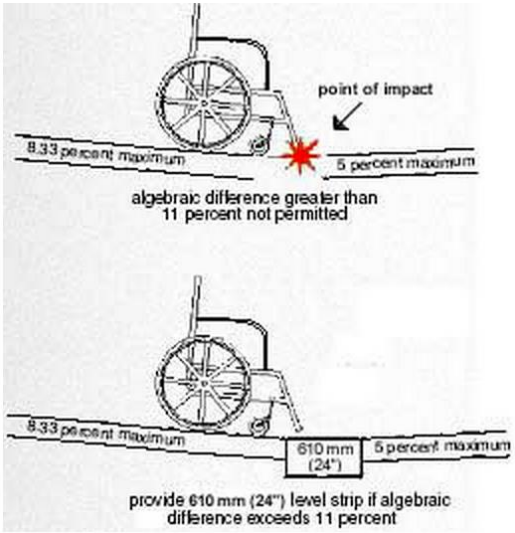
11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

11B-406.5.8 Counter Slope:

- ✓ Curb ramps and the flared sides shall not project into traffic lanes, parking spaces, or parking access aisles
- ✓ Curb ramps at marked crossings shall be wholly contained within the markings

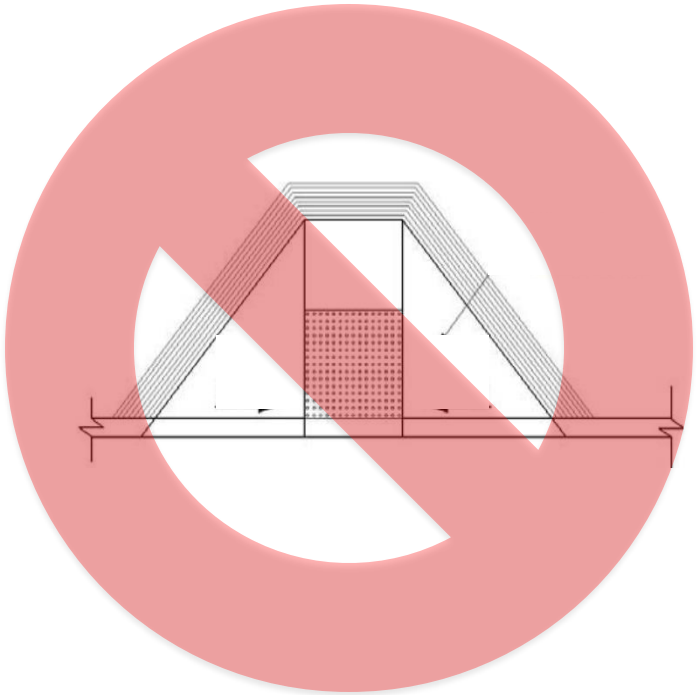


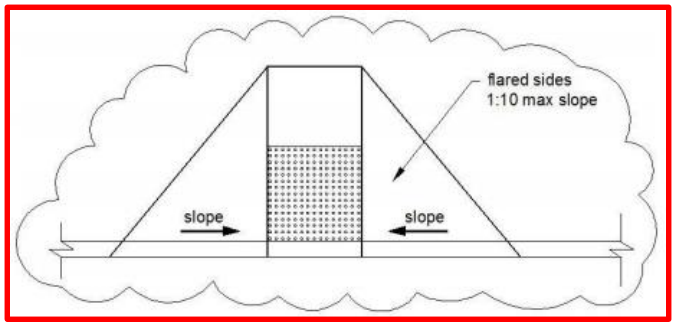
11% maximum combined counter slope - Fhwa

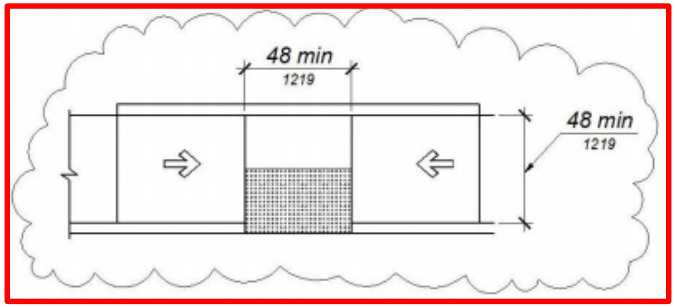


11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

11B-406.5.11 Grooved Borders:



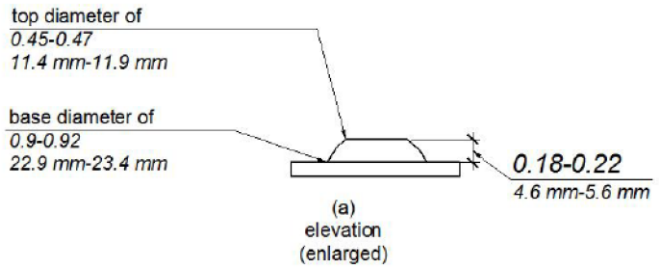




11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

11B-406.5.12 Detectable Warnings:

- ✓ Shall comply with 11B-705



11B-705.1 Detectable Warnings:

11B-705.1.1.1 Dome size:

11B-705.1.1.2 Dome Spacing

(***Exception***: *Radial pattern 1.6" to 2.4"*)

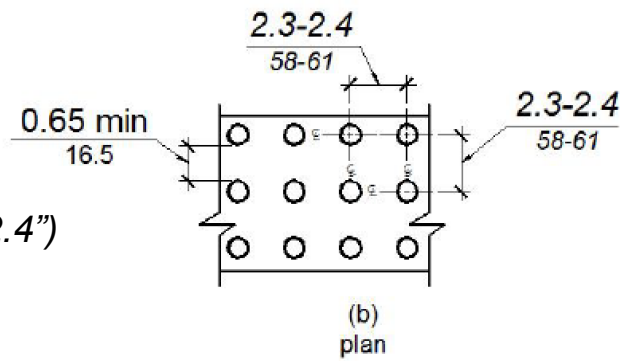


Figure *11B*-705.1
Size and Spacing of Truncated Domes

11B-406.5
Common Requirements for All Curb Ramps & Blended Transitions

11B-705.1.1.3 Contrasting with the adjacent walking surfaces

(Exception: *Where colors do not adequately contrast with adjacent surfaces, a 1" wide Black strip shall separate yellow warning materials from adjacent surfaces.)*

Contrast = ***[(B1 – B2) / B1] x 100 percent***

B1 = light reflectance value (LRV) of the lighter area, and
B2 = light reflectance value (LRV) of the darker area

11B-705.1 Detectable Warnings *(continued)*

11B-705.1 Detectable Warnings:

11B-705.1.2 Locations

11B-705.1.2.1 Platform Edges

11B-705.1.2.2 Curb Ramps

- ✓ Full width of the curb ramp
- ✓ 36” in the direction of travel
- ✓ 6” to 8” fro the line of the face of the curb and gutter, or street

11B-705.1.2.3 Islands or Cut-Through Medians

- ✓ Full width of pedestrian path or cut-through
- ✓ 36” minimum in depth
- ✓ Placed at the edge of the pedestrian path or cut-through
- ✓ Separated by a minimum space of 24” without detectable warnings

11B-705.1.2.4 Bus Stops

11B-705.1.2.5 Hazardous Vehicular areas

11B-705.1.2.6 Reflecting Pools

11B-705.1.2.7 Track Crossings

Diagonal or Corner Type Curb Ramp (CBC)

11B-406.5.9 Clear Space at Diagonal Curb Ramps:

- ✓ Curb ramps and the flared sides shall not project into traffic lanes, parking spaces, or parking access aisles
- ✓ Curb ramps at marked crossings shall be wholly contained within the markings
- ✓ Diagonal curb ramp bottom landings must be outside active traffic lanes

11B-406.5.10 Diagonal Curb Ramps:

- ✓ Diagonal curb ramps with returned curbs or other well defined edges shall have edges parallel to the direction of travel
- ✓ Diagonal curb ramps with flared sides shall a 24” segment of curb located on each side of the curb ramp and within the marked crossing.

Note:
PROWAG does not recognize this type of curb ramp design

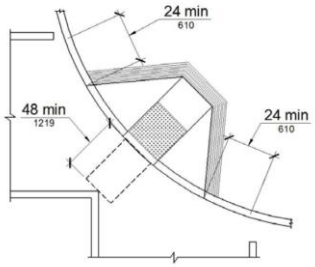
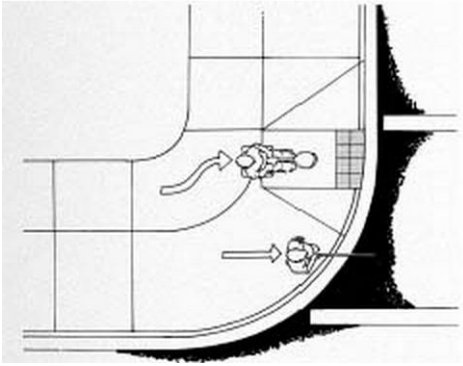


FIGURE *11B*-406.5.10
DIAGONAL OR CORNER TYPE CURB RAMPS

Curb Ramp Design Considerations

- ✓ Curb ramps are critical to providing access between the sidewalk and the street for people who use wheelchairs
- ✓ They may also be used at other locations – i.e. on-street parking, loading zones, bus stops, and mid-block crossings
- ✓ ADA Title II regulations specifically require local jurisdictions to include correcting all existing curb ramp conditions as part of the local transition plan
- ✓ Curb ramps provide access for people who use wheelchairs, or other disabled users who would otherwise be excluded from the sidewalk use because of the barrier created
- ✓ Curb ramp miss-designs can create a major information barrier for people with vision impairments who rely on the curb to identify the transition point between the sidewalk and street
- ✓ Some mobility assistance devices can actually be impaired by a curb ramp, due to the sloping surface. Cane users, crutches users and walker users rely on hard, level surfaces

Perpendicular curb ramps
Pros & Cons



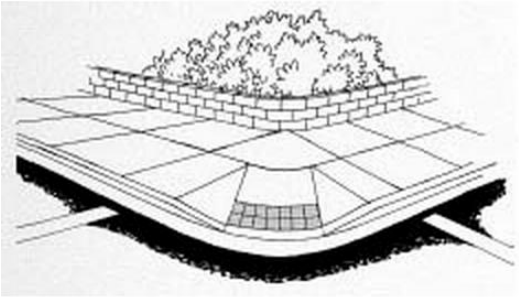
Advantages

- Are aligned perpendicular to vehicular traffic
- Provide a straight accessible route on tight radius corners
- Are aligned with the crossing direction on tight radius corners
- Are positioned within crosswalk
- Are at the expected crossing location for all pedestrians

Disadvantages

- Are more expensive than a single diagonal curb ramp
- Do not provide a straight route on large radius corners
- Requires a level landing that takes up additional right-of-way
- Require a wide sidewalk corridor or a curb extension to accommodate the curb ramp and the level landing

Diagonal curb ramps
Pros & Cons



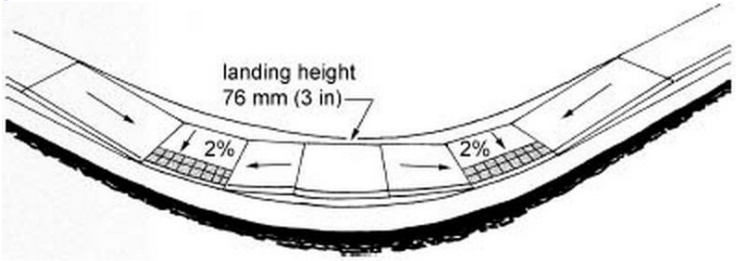
Advantages

- Requires less space because there is only one curb per corner
- Are less expensive for alterations because there is only one curb per corner
- Allow a pedestrian's normal route to intersect a curb rather than a curb ramp, which enhances detectability of the intersection by people with vision impairments who use the curb to identify the transition

Disadvantages

- Put pedestrians into a potential area of conflict with motorists who are traveling straight and turning
- Require turning at the top and bottom of the ramp
- Provide no alignment with the proper crossing direction, which is difficult for most people with disabilities
- Make the essential level maneuvering area difficult to achieve at the bottom of the curb ramp
- Can cause a person with vision impairment to mistake a diagonal curb ramp for a perpendicular curb ramp and unintentionally travel into the middle of the intersection due to the lack, or ambiguous, audible cues from the surge of traffic

Parallel curb ramps
Pros & Cons



Advantages

- Require minimal right-of-way
- Enhance the detectability of the boundary between the curb ramp and the roadway because the ramp ends at a landing, not in the street
- Allow ramps to be extended to reduce ramp grades
- Does not require turning or maneuvering on the ramp
- Provide the connection to the street within the crosswalk
- Provide a level maneuvering area at the top and bottom of the ramp
- Provide edges on the sides of the ramp that are clearly defined for people with visual impairments

Disadvantages

- Require users continuing along the sidewalk to negotiate two ramp grades
- Require careful attention to the construction of the landing at the bottom of the ramp to limit the accumulation of water and/or debris

Combined Parallel and Perpendicular curb ramps Pros & Cons

Utilizes the best characteristics of both ramp types. Uses the concept of the parallel ramp to lower the elevation level of the landing and then uses a perpendicular ramp to bridge the remaining elevation gap between the landing and the street. This design is particularly helpful for enhancing access in problematic situations where the sidewalk is narrow, has steep grade, or high curb.

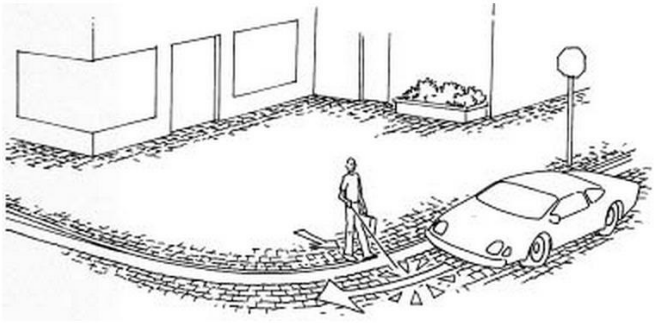
Advantages

- Do not require turning or maneuvering on the ramp surface
- Provide the connection to the street within the marked crosswalk
- Are aligned with the proper crossing direction
- Provide level maneuvering areas at the top and bottom of the ramps
- They provide adequate drainage to limit the accumulation of water or debris

Disadvantages

- Generally require more space than a parallel curb ramp
- Require more extensive alterations for installation in retrofit situations
- Require users continuing along the sidewalk to negotiate the parallel ramps

Blended Transitions / Depressed Corners
Pros & Cons



Advantages

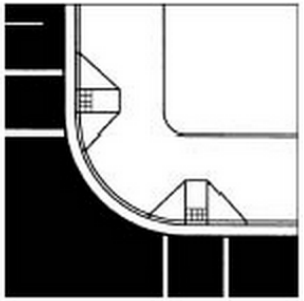
- Give children and people with cognitive impairments the illusion that the sidewalk and street are a unified pedestrian space (i.e. safe)

Disadvantages

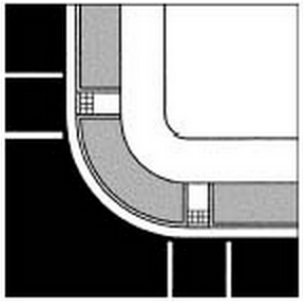
- Enables large trucks to travel onto the sidewalk to make tight turns, which puts pedestrians at risk
- Make it much more difficult to detect the boundary between the sidewalk and the street for persons with visual impairments
- Guide animals may not distinguish the boundary and continue walking
- May encourage motorists to drive on the sidewalk, enabling them to turn at higher speeds and making it less likely that they will notice or able to quickly stop for pedestrians on the sidewalk or in the crosswalk

Discussion

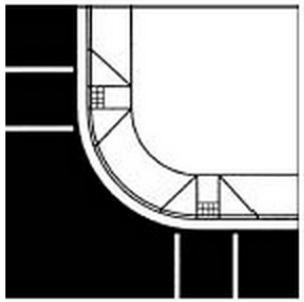
Table 7 - 2. Curb Ramps: Perpendicular



Good Design:
Perpendicular curb ramps with flares and a level landing



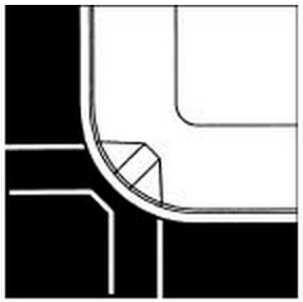
Good Design:
Perpendicular curb ramps with returned curbs and a level landing



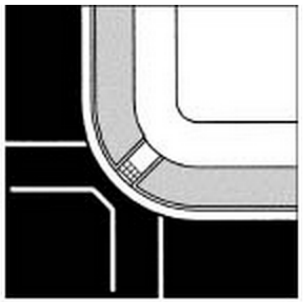
Inaccessible:
Perpendicular curb ramps without a landing

Discussion

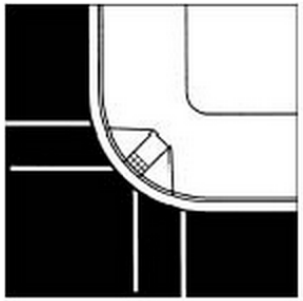
Table 7 - 2. Curb Ramps: Diagonal



Acceptable Design :
Diagonal curb ramp with flares and a level landing, in addition to at least 1.22 m (48 in) of clear space.



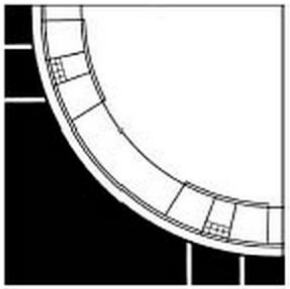
Acceptable Design :
Diagonal curb ramp with returned curbs, a level landing, and sufficient clear space in the crosswalk.



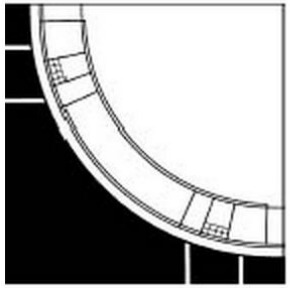
Inaccessible :
Diagonal curb ramp with no clear space or no level area at the bottom of the curb ramp.

Discussion

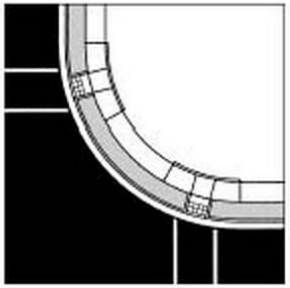
Table 7 - 2. Curb Ramps: Parallel and Combination



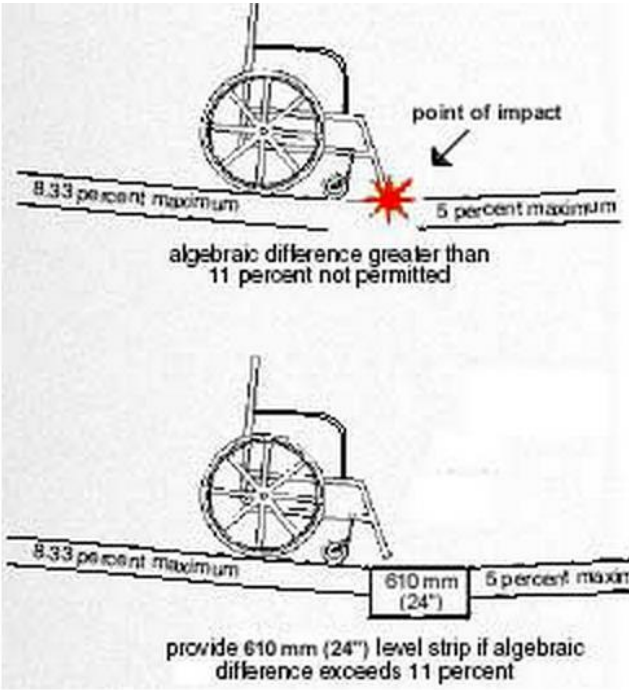
Good Design :
Two parallel curb ramps on a wide turning radius.

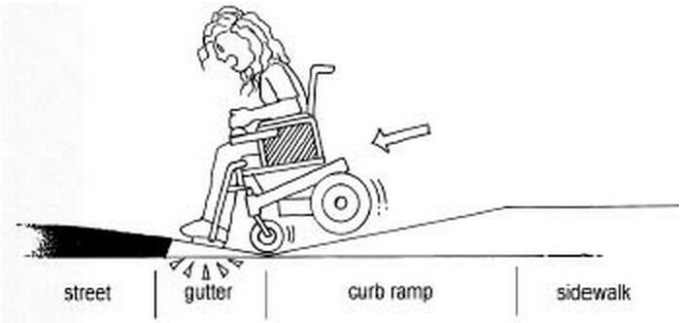


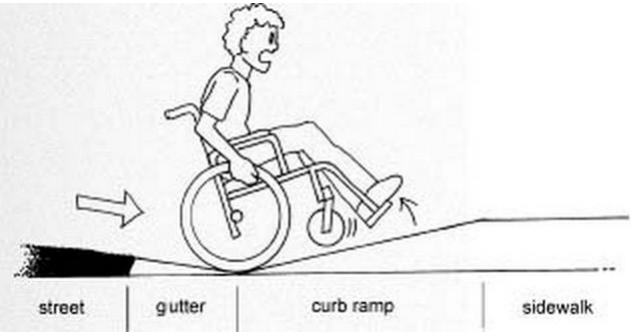
Good Design :
Two parallel curb ramps with a lowered curb.

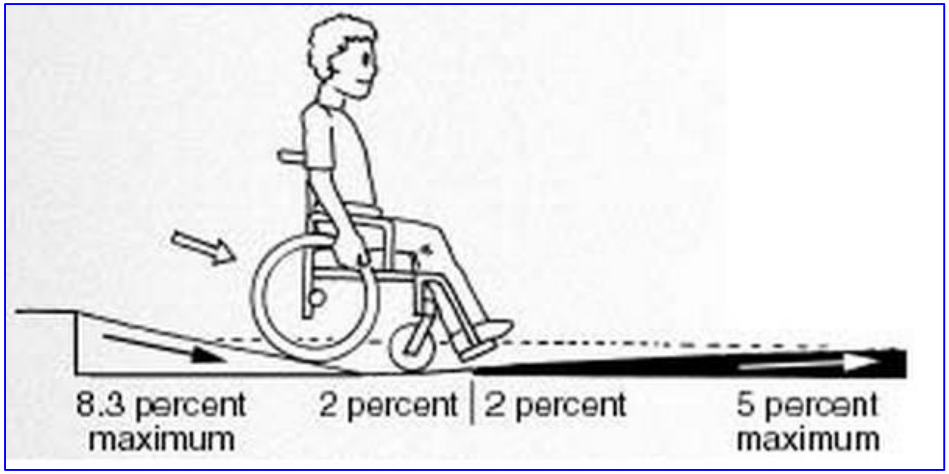


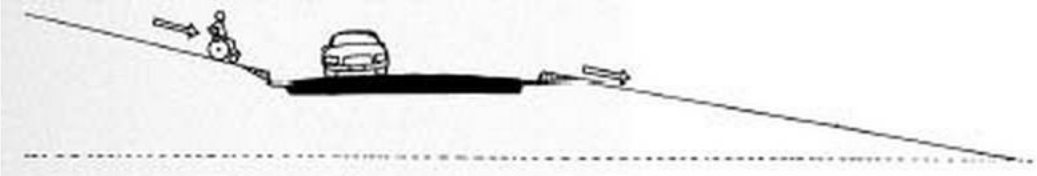
Good Design :
Two combination curb ramps on a corner with a wide turning radius.

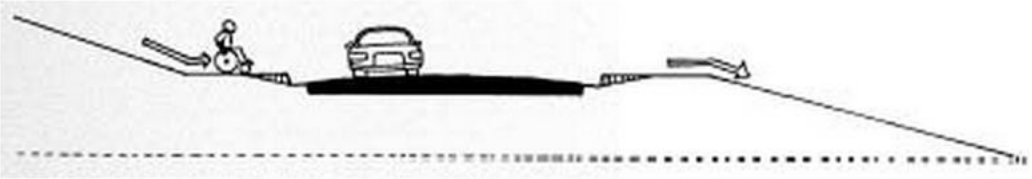

point of impact
8.33 percent maximum
5 percent maximum
algebraic difference greater than
11 percent not permitted
8.33 percent maximum
610 mm
(24")
5 percent maximum
provide 610 mm (24") level strip if algebraic
difference exceeds 11 percent

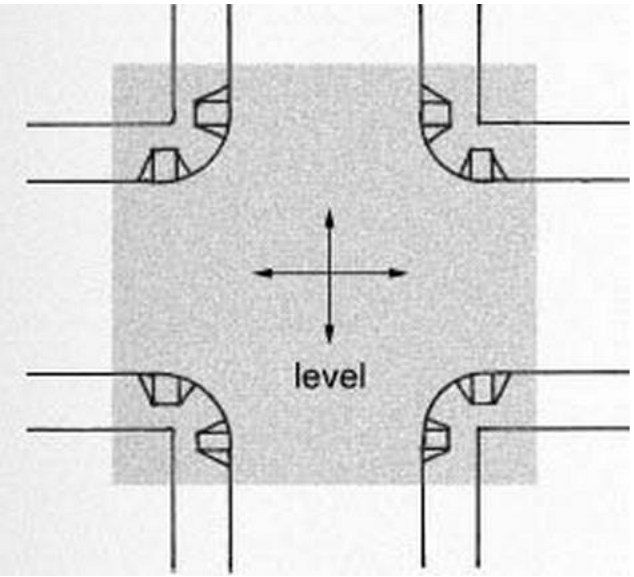

street
gutter
curb ramp
sidewalk


street
gutter
curb ramp
sidewalk


8.3 percent
maximum
2 percent
2 percent
5 percent
maximum






level

11B-108 Maintenance of accessible features

Accessible features must be maintained in operable working condition.

Isolated or temporary interruptions in services due to maintenance or repairs is permitted.

DSA

11B-108 Maintenance of accessible features. Features for accessibility must be permanently functional, unobstructed and may not be removed. It is not sufficient to provide features such as accessible routes, parking, elevators, ramps or signage if those features are not maintained in a manner that enables individuals with disabilities to use them. Inoperable elevators, locked accessible doors, or "accessible" routes that are obstructed by furniture, filing cabinets or potted plants are not accessible to nor usable by persons with disabilities. ■

11B-406.6 Islands

Detectable Warning Surfaces
See 11B-705

- 36” minimum depth, full width
- A minimum 24” without detectable warnings is required between

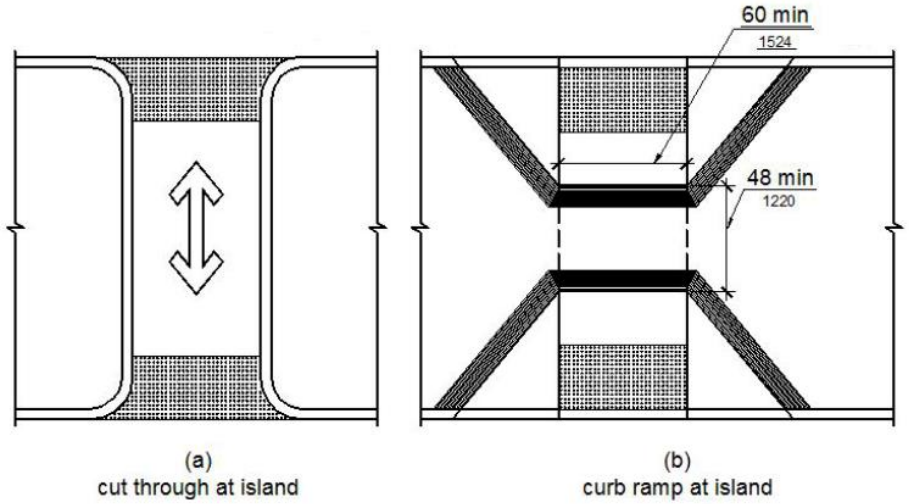
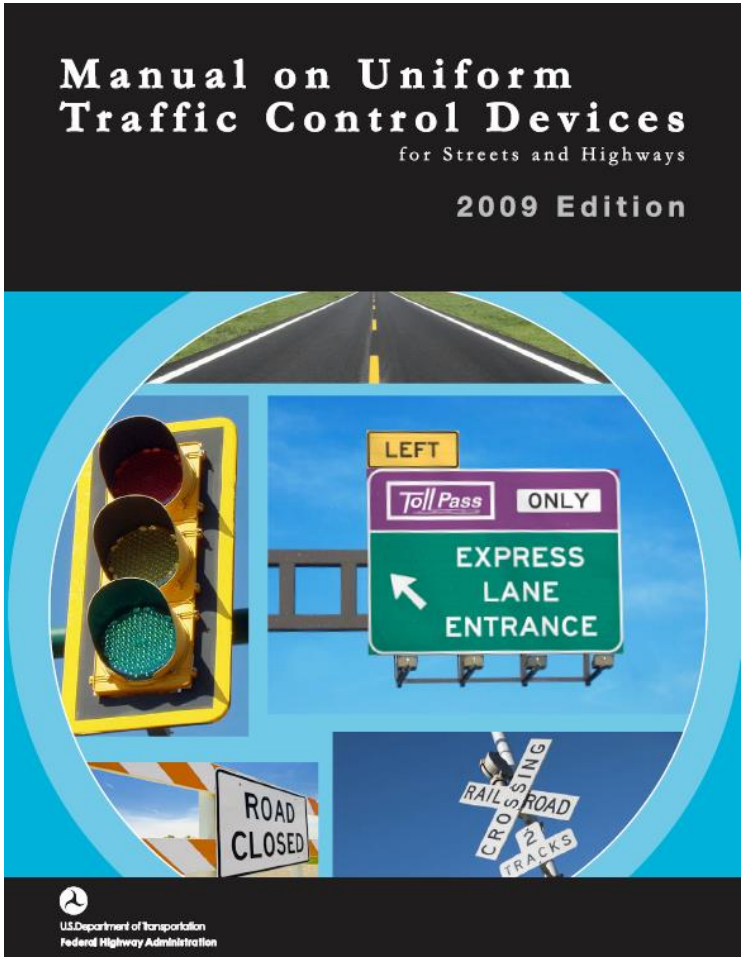


Figure ~~406.7~~ *11B-406.6*
Islands in Crossings

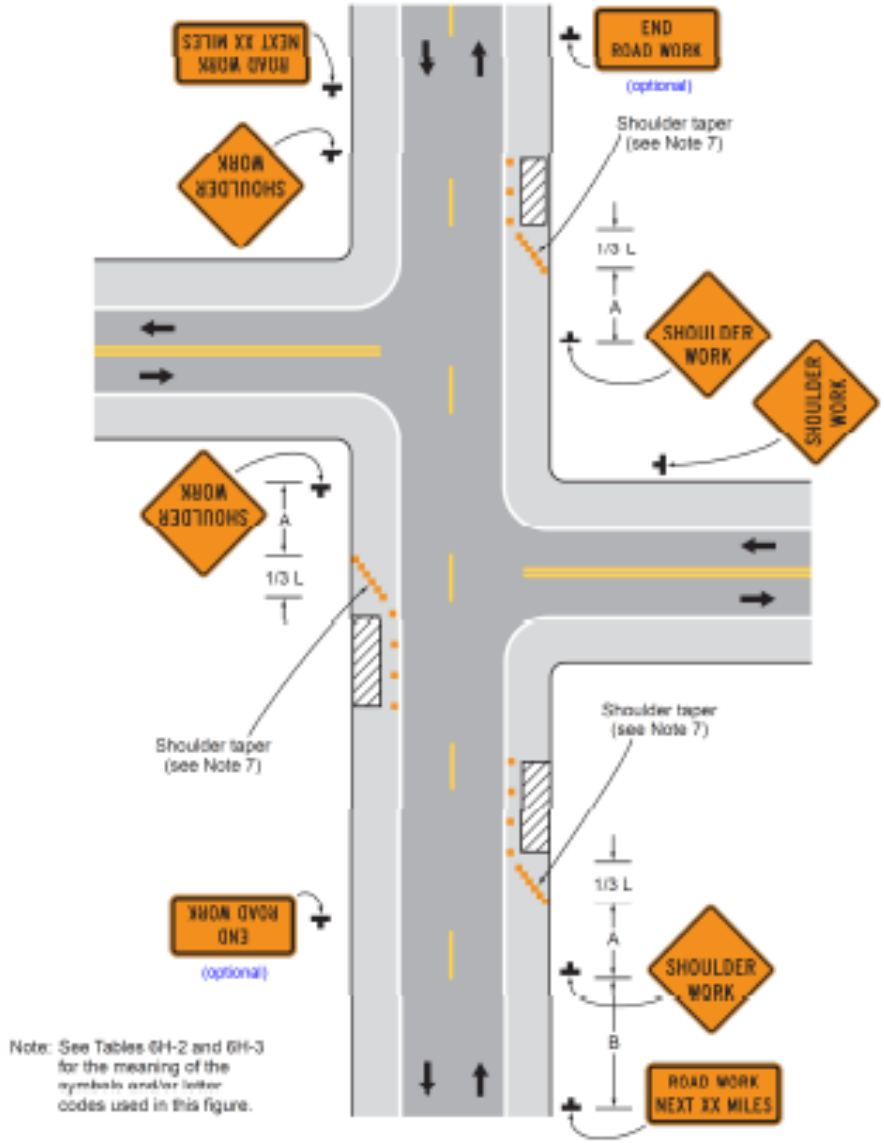
Other State Adopted STANDARD

MUTCD



Ca MUTCD

Figure 6H-3. Work on the Shoulders (TA-3)



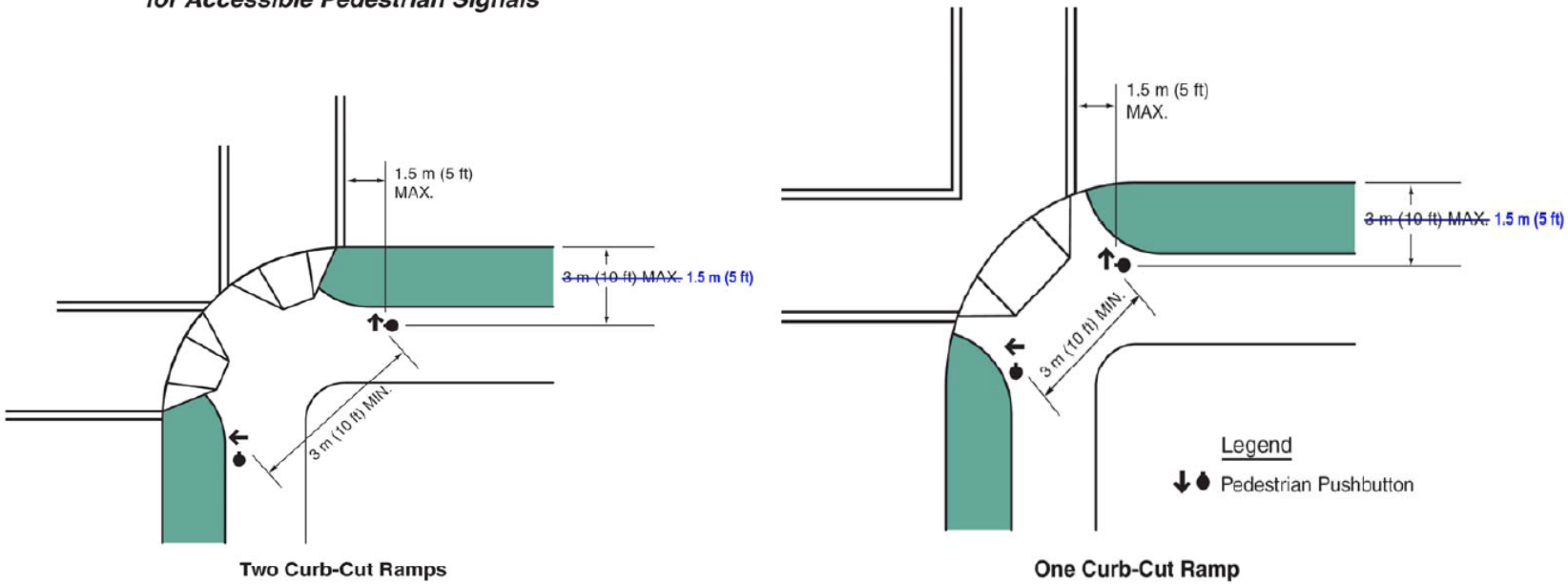
Typical Application 3

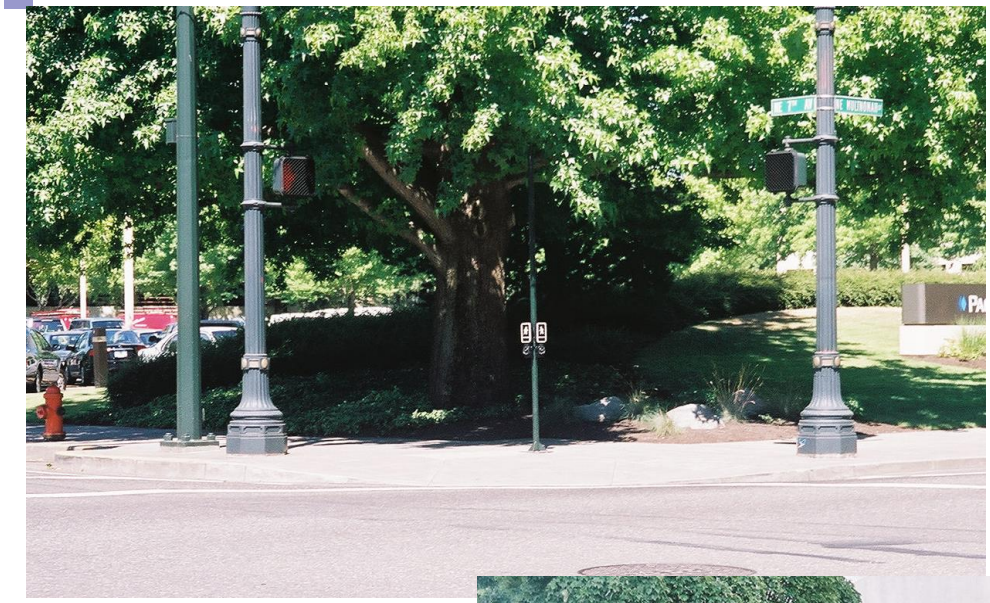
Ca MUTCD

Section 4E.06 Access Pedestrian Signals

Section 4E.09 Accessible Pedestrian Signal Detectors

Figure 4E-2. Recommended Pushbutton Locations for Accessible Pedestrian Signals





Ca MUTCD

11B-703.7.2 Traffic-control devices. Pole-supported pedestrian *traffic-control buttons shall be identified with color coding consisting of a textured horizontal yellow band 2 inches (51 mm) in width encircling the pole, and a 1-inchwide (25 mm) dark border band above and below this yellow band. Color coding should be placed immediately above the control button. Control buttons shall be located no higher than 48 inches (1219 mm) above the surface adjacent to the pole.*

PROWAG

- When new pedestrian signals are installed, include APS. Audible signal is integrated in pedestrian button.

BLIND
PERSONS
CROSSING
AHEAD

BLIND PERSONS
CROSS HERE

Crosswalks / Limit Lines

Ch11A (1112A.1) – Where is is necessary to locate a curb ramp in the center of the curb return, the street surface shall be marked to identify the pedestrian crosswalks, and the lower end of the curb ramp shall terminate with the crosswalk.

Ch11B –

11B-406.5.1 – Curb ramps *(other than Diagonal Curb Ramps)* at marked crossings shall be fully contained within the markings, excluding any flared sides.

11B-406.5.9 – Diagonal curb ramps provided at marked crossings shall provide the 48” minimum clear space within the markings.

11B-406.5.10 – Diagonal curb ramps with flared sides shall have a minimum 24” segment of curb on each side of the curb ramp and within the marked crossings

Crosswalks / Limit Lines

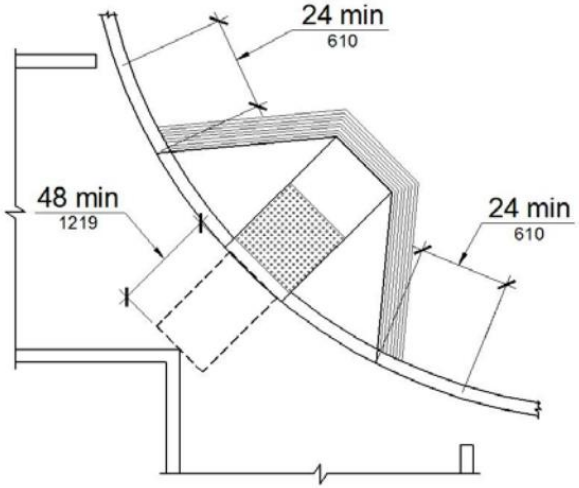
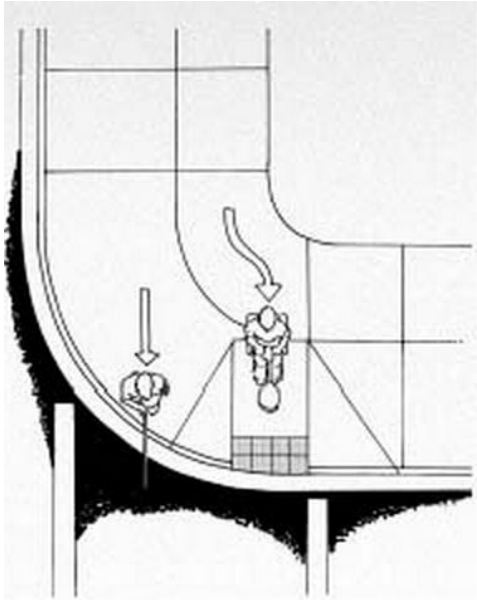


FIGURE *11B*-406.5.10
DIAGONAL OR CORNER TYPE CURB RAMPS



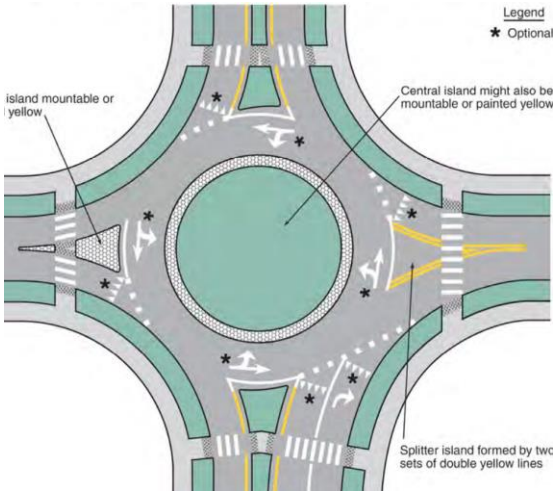
Crosswalks / Limit Lines

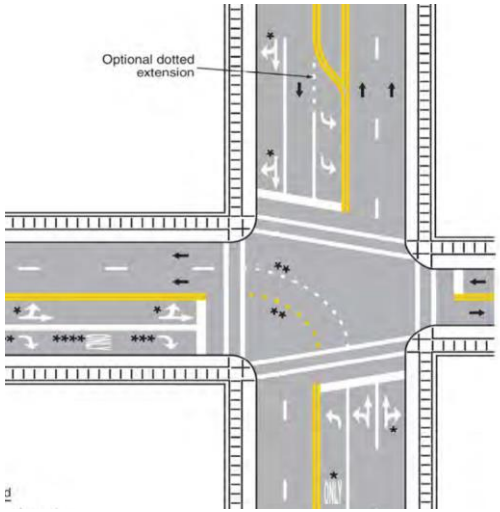
CaMUTCD *(selected sections)*

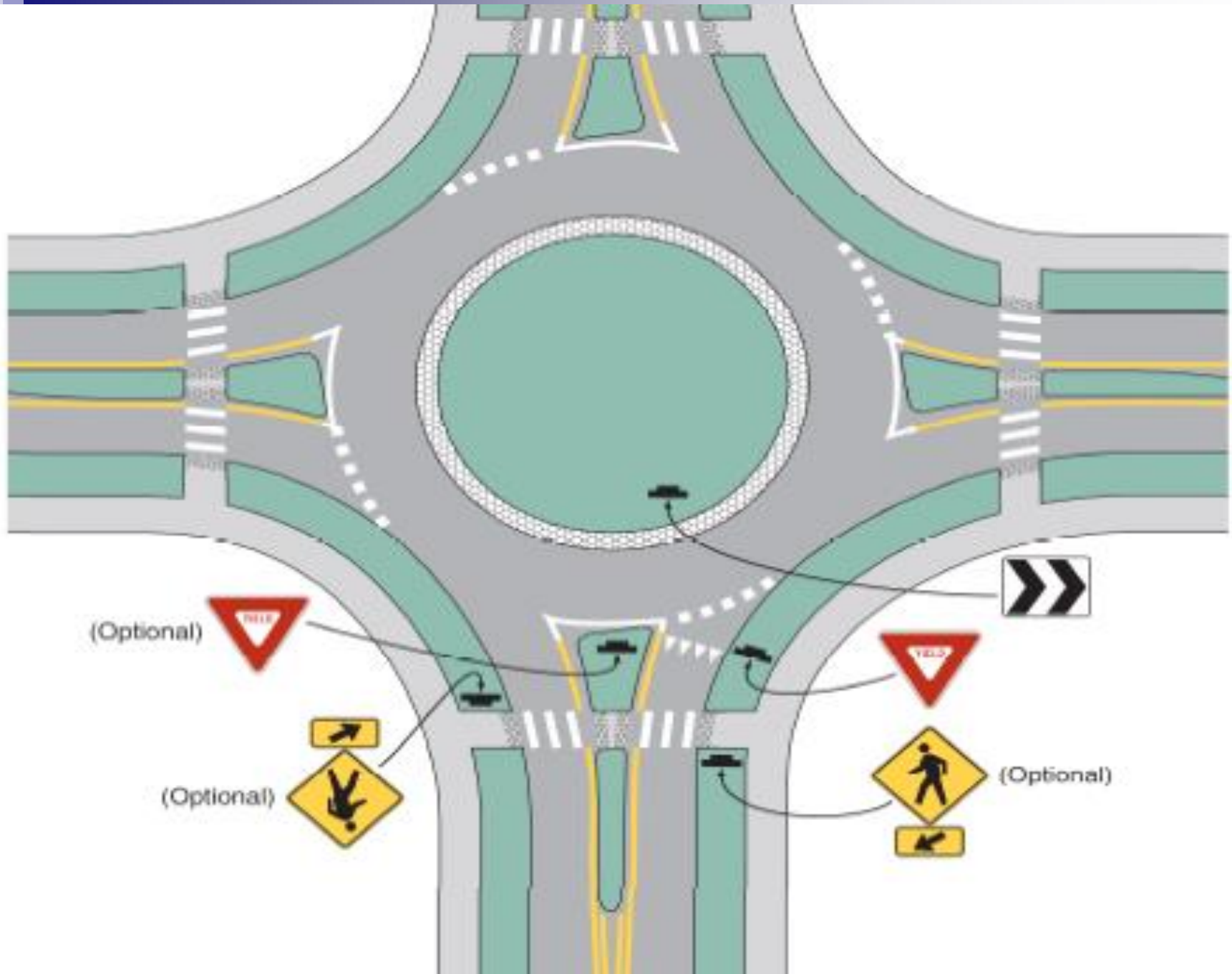
3B.16 Stop and Yield Lines

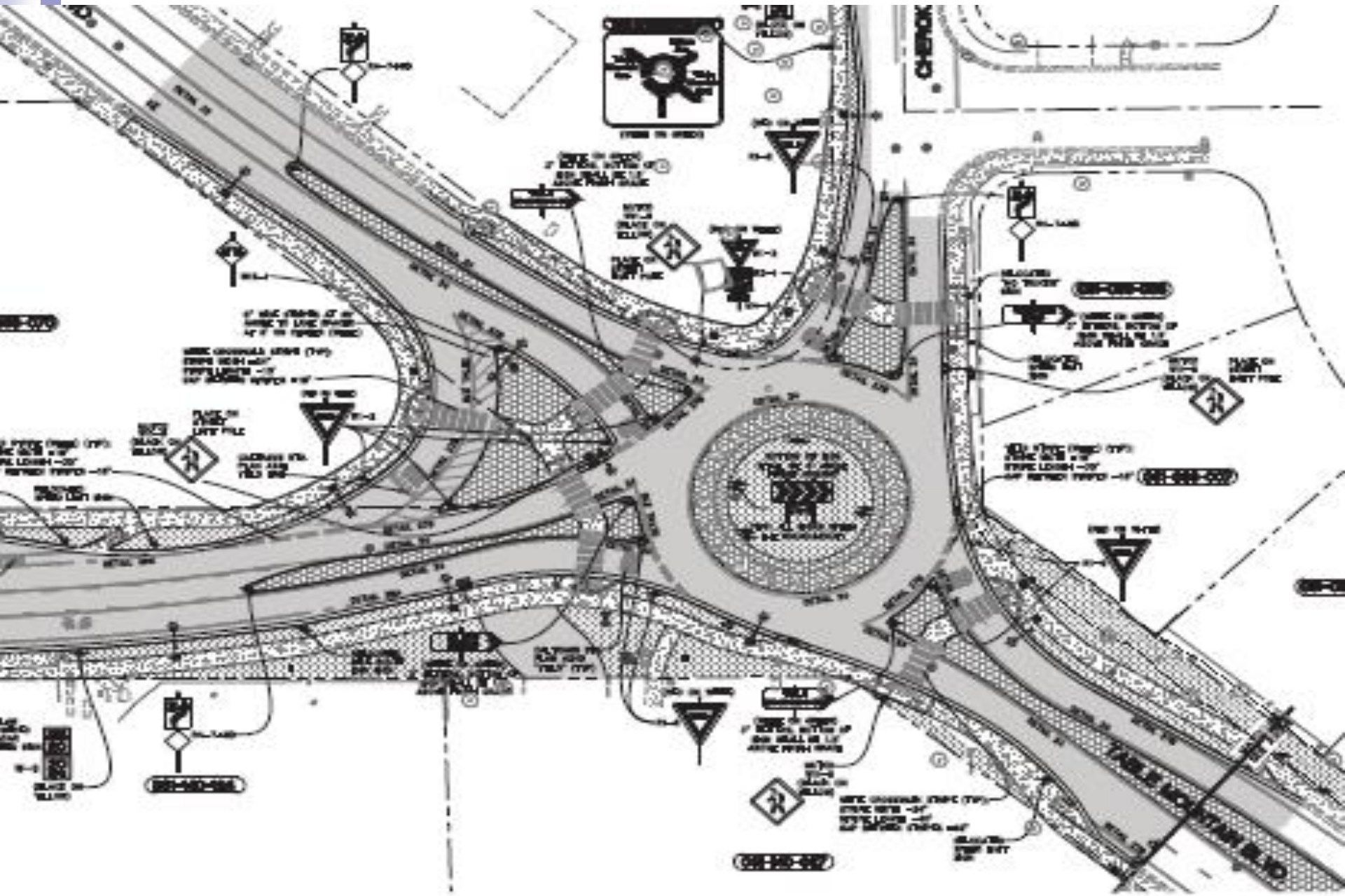
3B.18 Crosswalk Markings

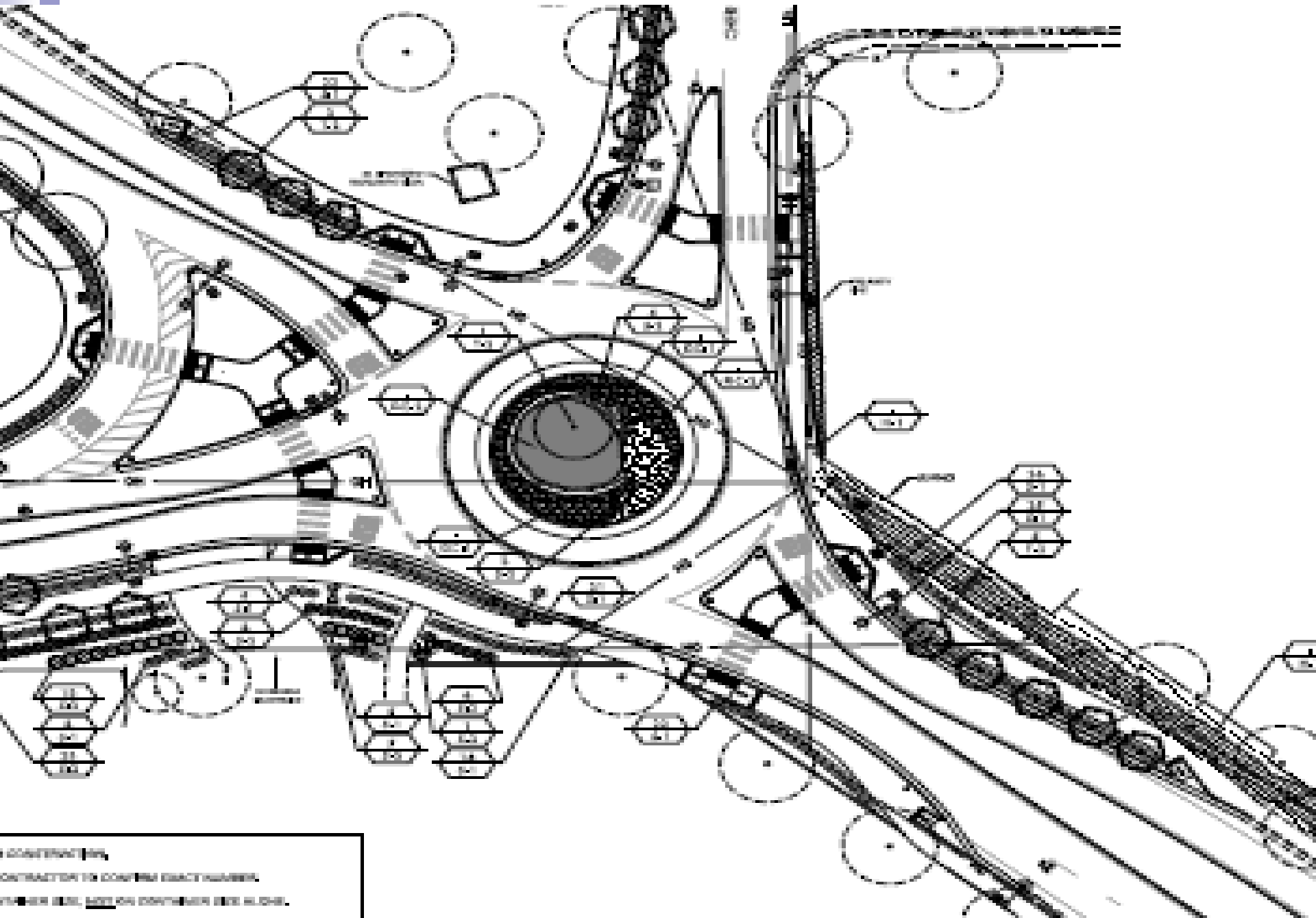
3C.05 Crosswalk Markings at Roundabouts

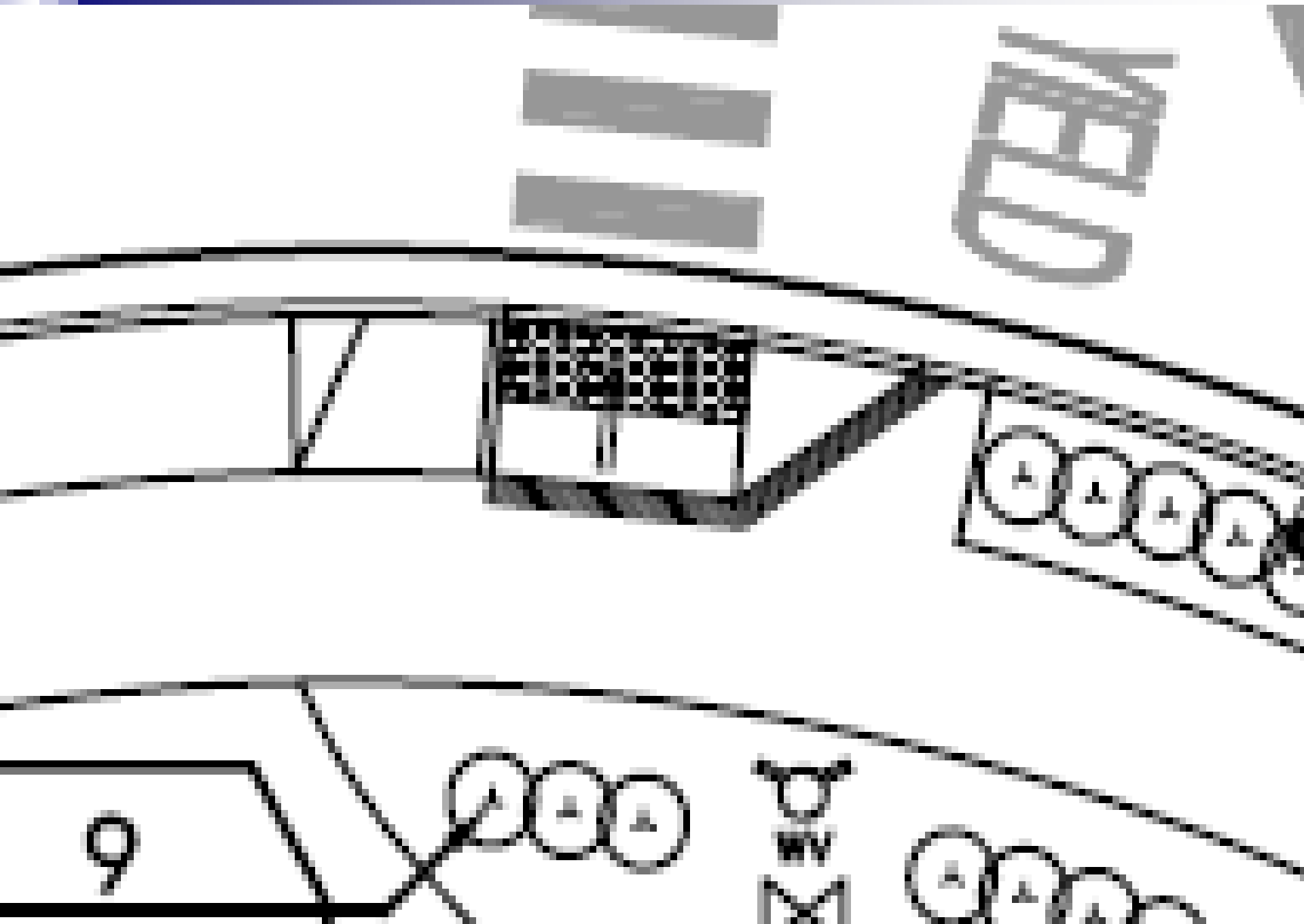


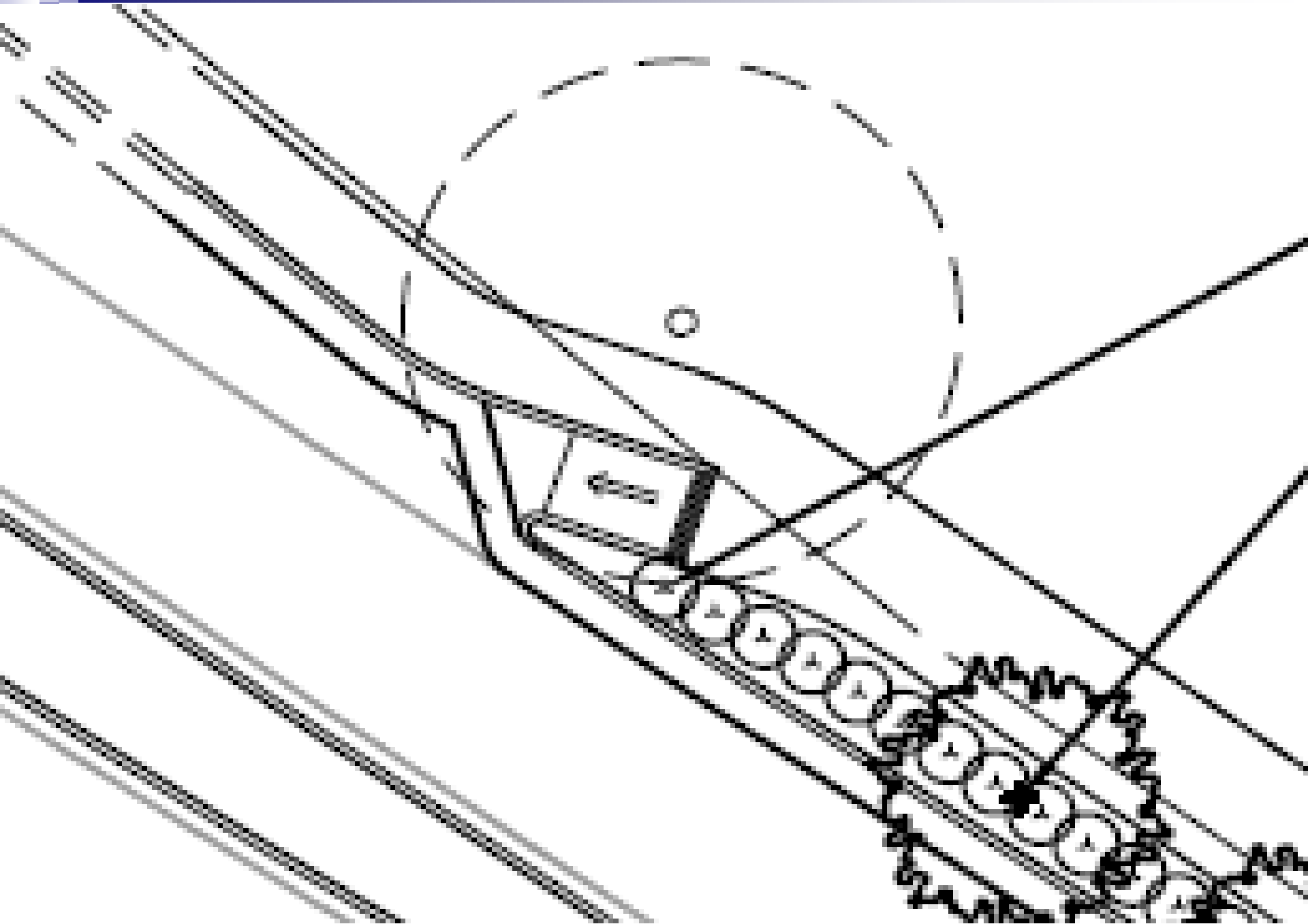


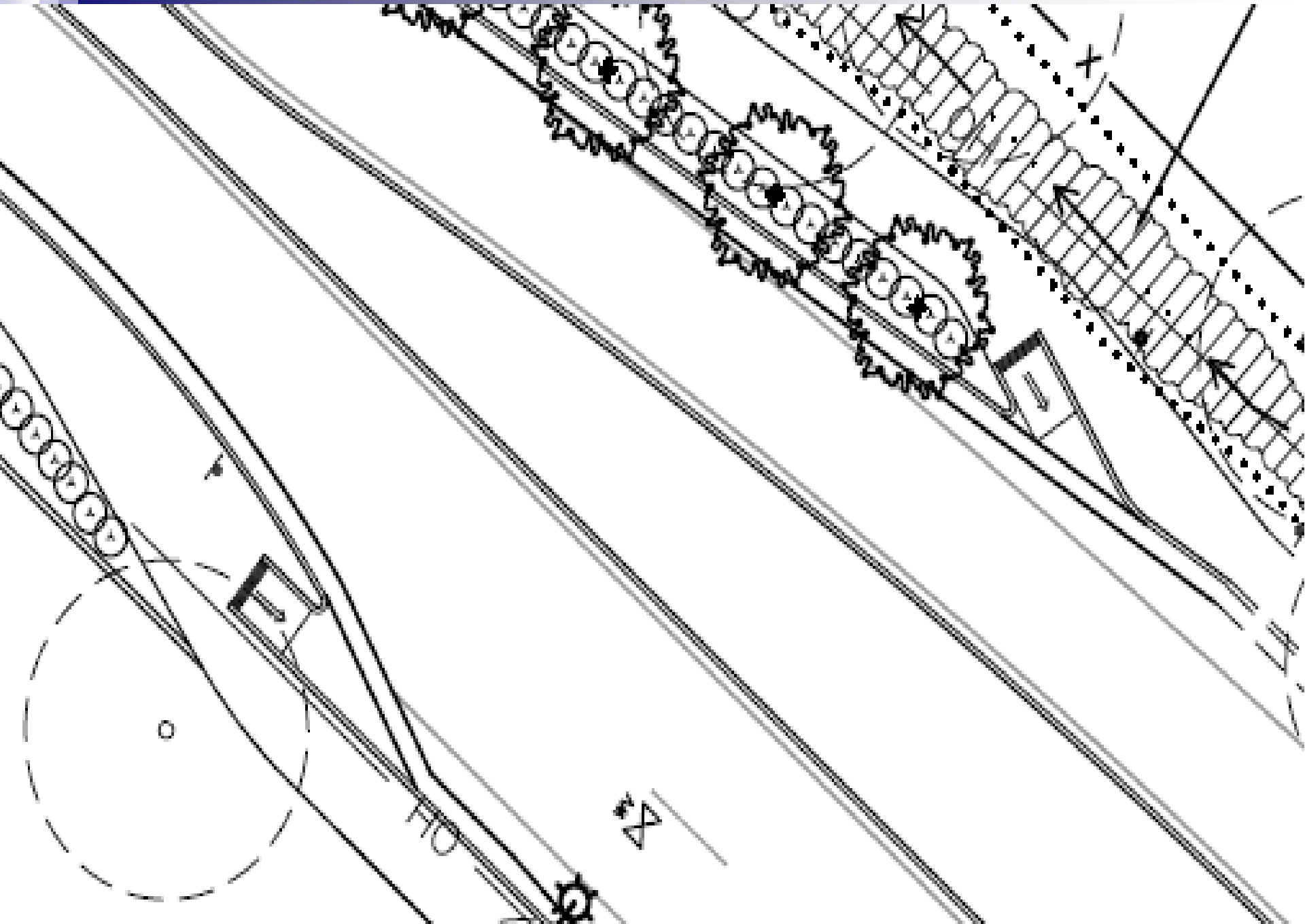

(Optional)
(Optional)
(Optional)

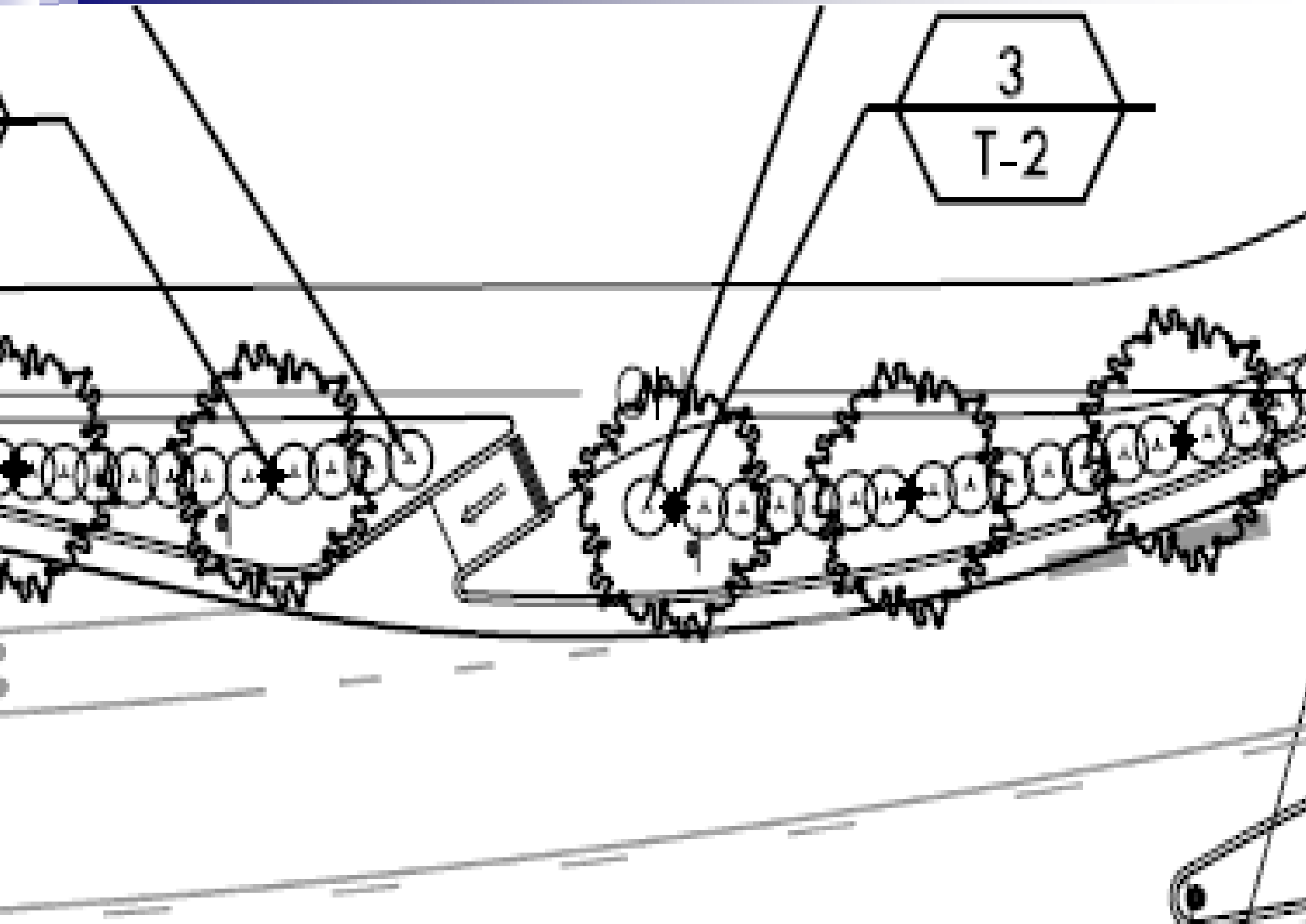


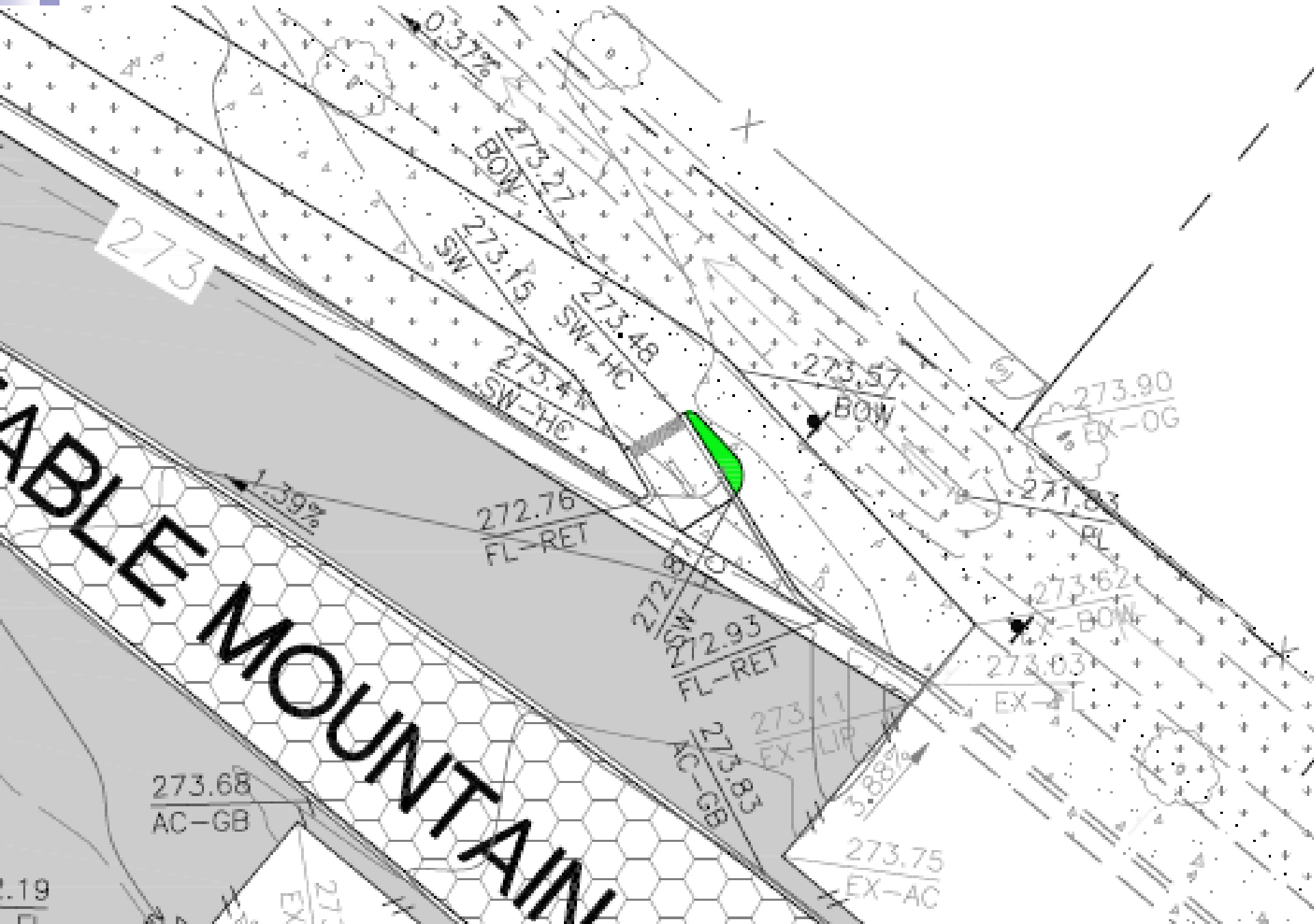









3
T-2


273
273.27
BOW
273.15
SW
273.48
SW-HC
273.41
SW-HC
273.57
BOW
273.90
EX-OG
271.83
PL
273.62
EX-BOW
273.03
EX-FL
272.76
FL-RET
272.93
FL-RET
273.11
EX-LIP
273.83
AC-GB
273.68
AC-GB
273.75
EX-AC
1.39%
3.88%
0.37%
ABLE MOUNTAIN

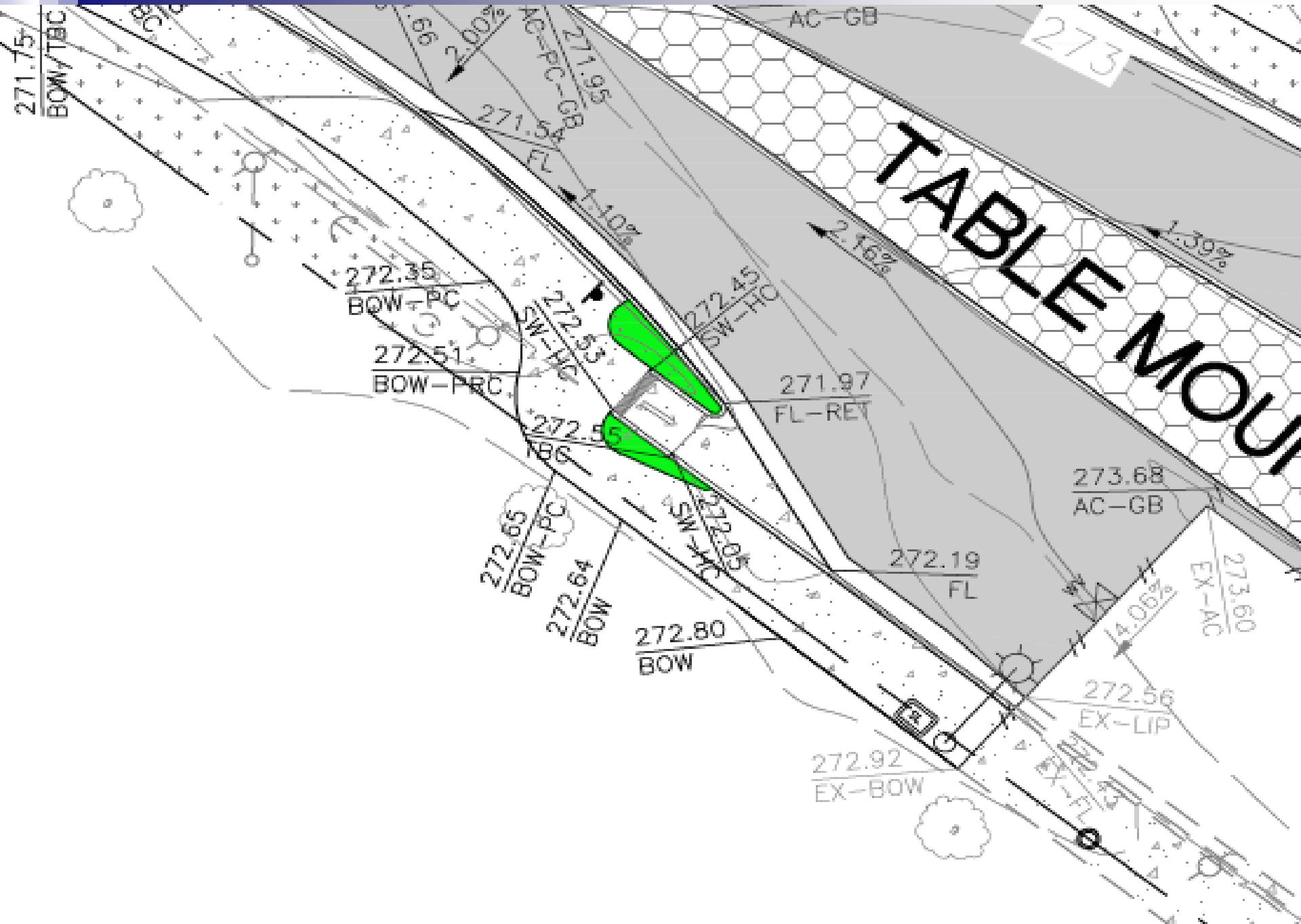
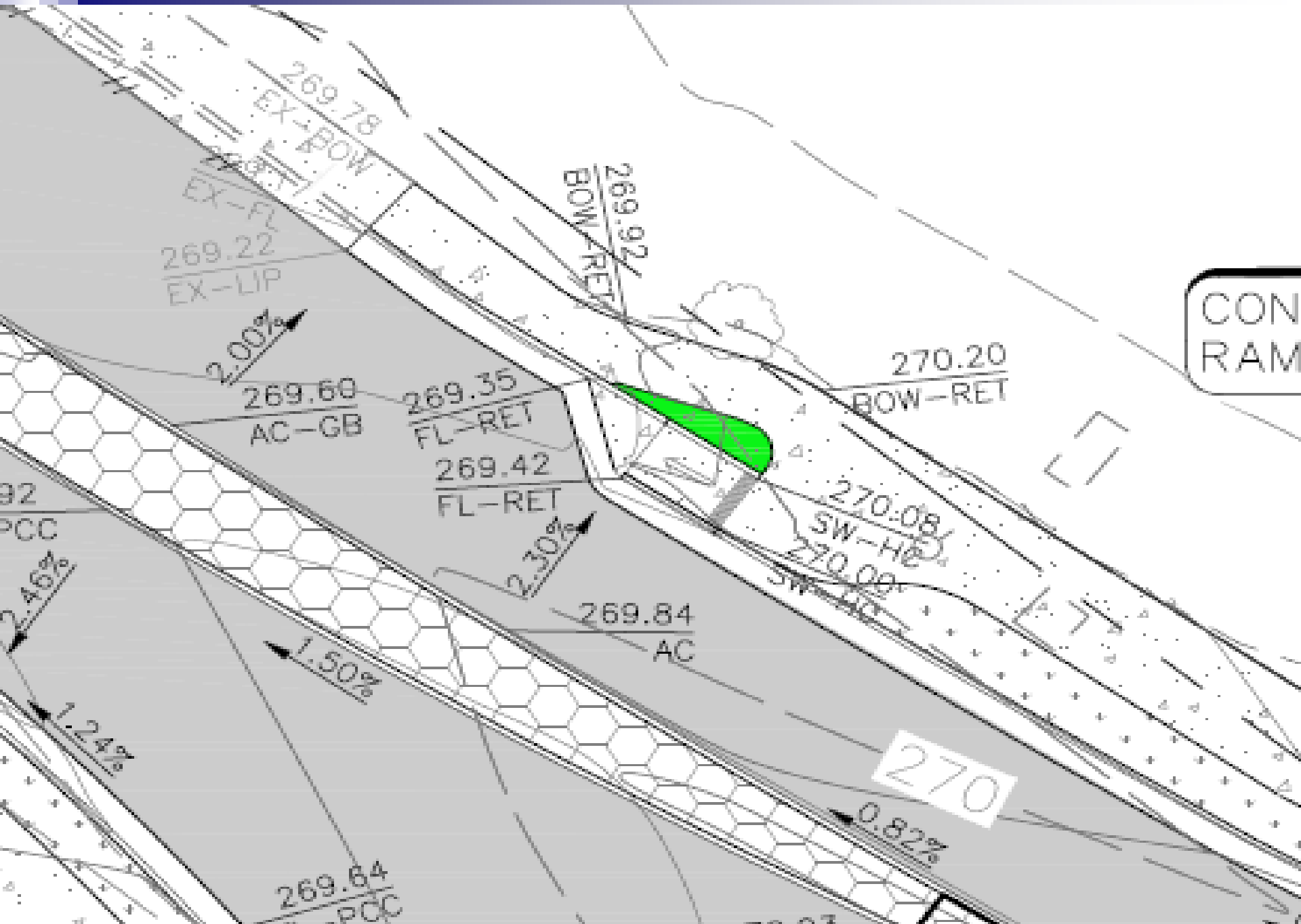


TABLE MOU
AC-GB
273
271.75
BOW/TBC
2.00%
AC-PC-GB
271.95
271.54
FL
1.10%
2.16%
1.39%
272.35
BOW-PC
272.53
SW-HC
272.45
SW-HC
272.51
BOW-PRC
271.97
FL-RET
272.55
TBC
273.68
AC-GB
272.65
BOW-PC
272.05
SW-HC
272.19
FL
272.64
BOW
272.80
BOW
4.06%
273.60
EX-AC
272.56
EX-LIP
272.92
EX-BOW
EX-FL


269.78
EX-BOW
EX-FL
269.22
EX-LIP
269.92
BOW-RET
2.00%
269.60
AC-GB
269.35
FL-RET
269.42
FL-RET
270.20
BOW-RET
CON
RAM
270.08
SW-HP
270.00
SW-AC
2.30%
269.84
AC
2.46%
1.50%
1.24%
270
0.82%
269.64
PCC

PROWAG

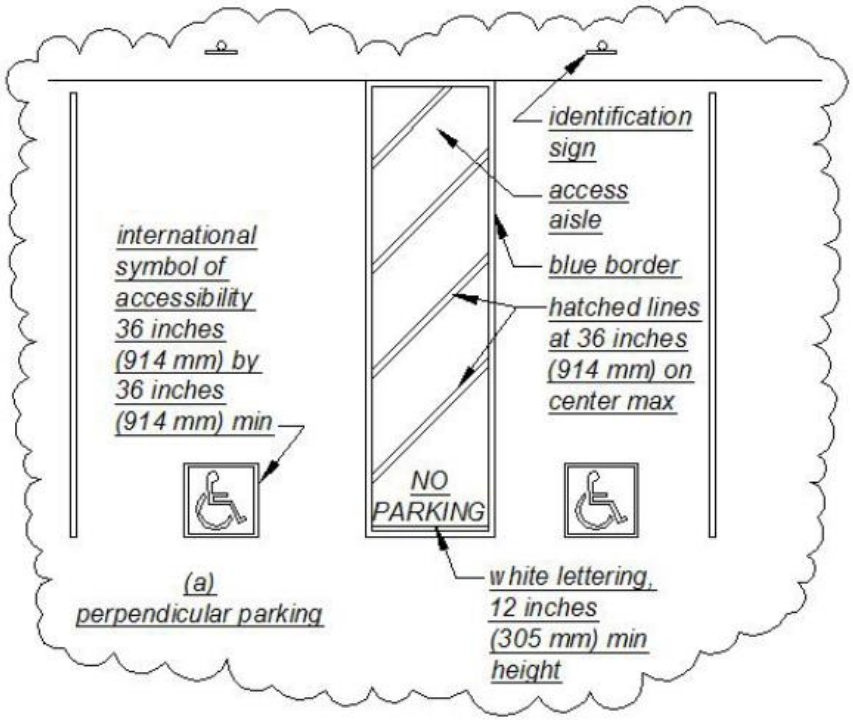
- **Street furniture must be usable, but not in the way.**

If provided, see CBC:

Drinking fountains – see CBC 11B-211

Telephones – see CBC 11B-704

11B-208 Parking Spaces



Not !

11B-208 Parking Spaces

- 11B-208.1 Lots used only for busses, truck, delivery vehicles, or impounds are not required to comply with parking requirements, except where public access is permitted a passenger loading zone is required.

- 11B-208.2 Minimum number
  - Table 11B-208.2, except:
  - Each parking facility or lot calculated separately
  - Hospital outpatient – 10%
  - Rehab & Treatment facilities that affect mobility – 20%
  - Residential facilities
    - Parking spaces for residents – one per ...
    - Additional parking spaces for residents – more than 1 per ...
    - Guest and employee parking – Table 11B-208.2
    - New Note reminding of the need to provide accessible parking, upon a reasonable request from residents
  - Van parking spaces – 1:6

Minimum Number of Parking Spaces

USDOJ

Advisory 11B-208.2 Minimum number. The term "parking facility" is used in Section 11B-208.2 instead of the term "parking lot" so that it is clear that both parking lots and parking structures are required to comply with this section. The number of parking spaces required to be accessible is to be calculated separately for each parking facility; the required number is not to be based on the total number of parking spaces provided in all of the parking facilities provided on the site. ■

DSA

Advisory 11B-208.2 Minimum number. Accessible spaces can be provided in other facilities or locations, or, in the case of parking structures, on one level only when equal or greater access is provided in terms of proximity to an accessible entrance, cost, and convenience. For example, accessible spaces required for outlying parking facilities may be located in a parking facility closer to an accessible entrance. The minimum number of spaces must still be determined separately for each facility even if the spaces are to be provided in other facilities or locations. Accessible spaces may be grouped on one level of a parking structure in order to achieve greater access. However, where parking levels serve different building entrances, accessible spaces should be dispersed so that access is provided to each entrance. ■

Off-Site (On-Street) Parking

CA Vehicle Code § 22511

- VC 22511.7
  - Local jurisdiction may, by ordinance or resolution, designate on-street accessible parking
  - Identified by blue paint on the curb or edge of the paved portion of the street adjacent to the space
  - Signage required (as per Ch 11B)
  - If access aisle is marked/painted (as per Ch 11B)
  - Fines may be increased to $1,000 (by local ordinance)

- VC 22511.8
  - This section contains the changes to the CBC that became effective July 1, 2008

- VC 22511.85
  - Allows a vehicle equipped with an assistive device to park in two adjacent stalls, on-street or off-street as may be necessary

Off-Site (On-Street) Parking

PROWAG R309

R309.2 Parallel Parking spaces

R309.3 Perpendicular or Angled Parking spaces

R309.4 Curb Ramps or Blended Transitions

R309.5 Parking Meters & Pay Stations

Figure R309.2.2 Narrow Sidewalks

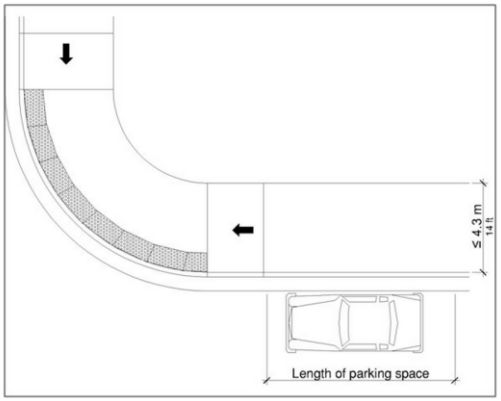


Figure R309.2.1 Wide Sidewalks

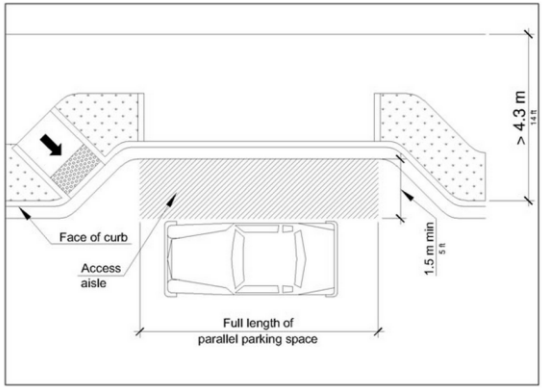
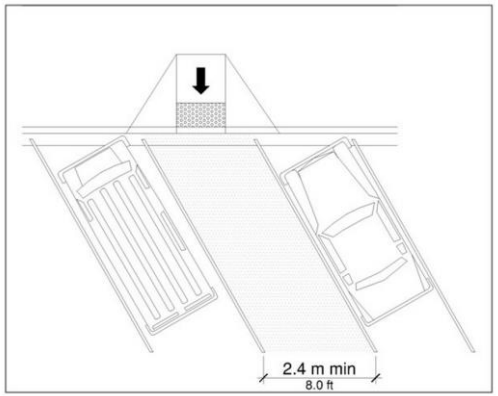


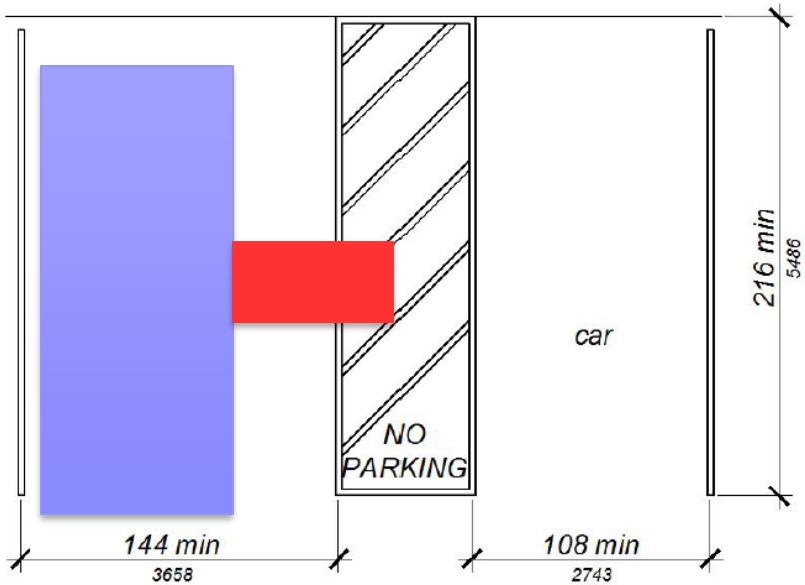
Figure R309.3 Perpendicular or Angled Parking Spaces

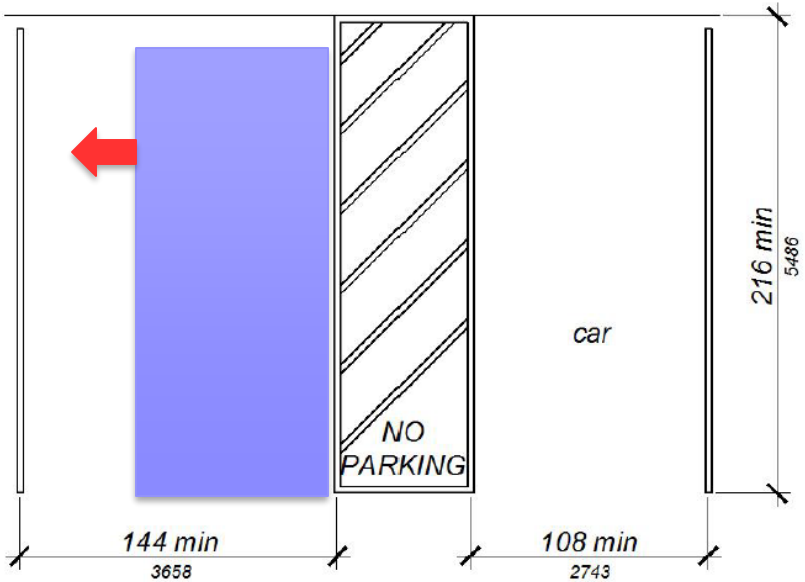


CaMUTCD – Section 3B.19 Parking Space Markings

New Van Parking Space

Universally Designed - for use by a wider group of individuals





Parking Space Marking

DSA

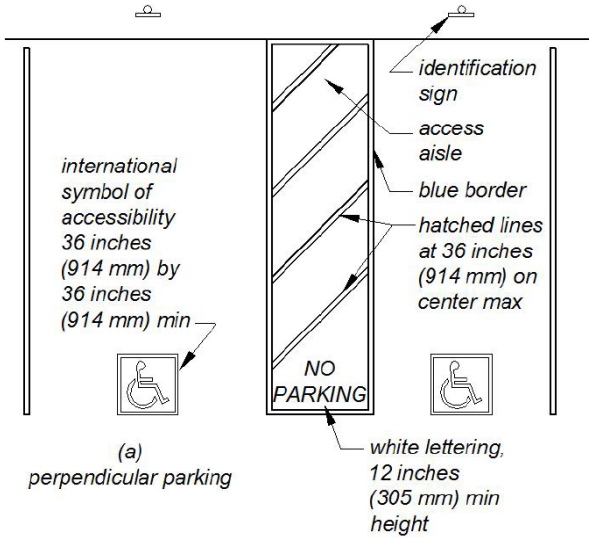
Advisory 11B-502.3.3 Marking. The requirement that the hatching at the loading and unloading access aisle be a suitable contrasting color to the parking space is intended to ensure that the hatching is visually distinct from the background to which it is applied, and thus can be more easily seen. As hatching is generally recognized as a no-parking area, this difference in contrast assists drivers by providing a conspicuous visual deterrent to parking in the loading and unloading access aisle.

Asphalt is often the parking surface material used at accessible parking spaces. Asphalt is generally considered to be fairly dark in appearance. In order to provide a suitable contrasting color at the hatched area of the loading and unloading access aisle, a light color hatching should be used at locations where asphalt is the parking surface material. Although white paint is preferred (and traditionally the color most often used), its use is not mandatory under the California Building Code (CBC).

In order to provide a suitable contrast at the hatched area of the loading and unloading access aisle in locations where light concrete is used as the parking surface material (such as at concrete parking garages), a dark color hatching should be used. Although blue paint is preferred, its use is not mandatory under the California Building Code (CBC). ■

Contrasting Color

Contrast = ***[(B1 – B2) / B1] x 100 percent***



11B-209 Passenger loading zones and Bus stops

11B-209.2 *(Where required / When provided)*

- Passenger loading zones – 20:100
- Bus loading zones/areas
- On-Street bus stops

USDOJ

Advisory 11B-209.2.2 Bus loading zones. The terms "designated public transportation" and "specified public transportation" are defined by the Department of Transportation at 49 CFR 37.3 in regulations implementing the Americans with Disabilities Act. These terms refer to public transportation services provided by public or private entities, respectively. For example, designated public transportation vehicles include buses and vans operated by public transit agencies, while specified public transportation vehicles include tour and charter buses, taxis and limousines, and hotel shuttles operated by private entities. ■

- 11B-209.4 Valet parking – at least one passenger loading zone, (and parking spaces per 11B-208)

DSA

Advisory 11B-209.4 Valet parking. Valet parking does not eliminate the requirement to provide accessible parking spaces. Some vehicles may be adapted with hand controls or lack a driver's seat, and may not be operable by a valet parking attendant. The parking space requirements of Sections 11B-208 and 11B-502 apply to facilities with valet parking, including the requirement for an accessible route of travel to the entrance of the facility. In addition, when valet parking is provided, a passenger loading zone complying with Section 11B-503 shall be located on an accessible route of travel to the entrance of the facility. ■

11B-503 Passenger Loading Area specifics

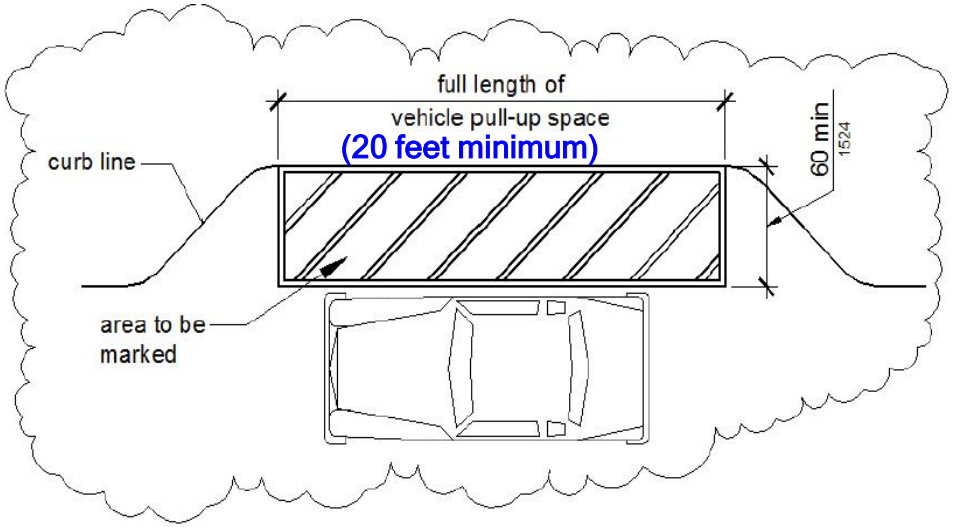
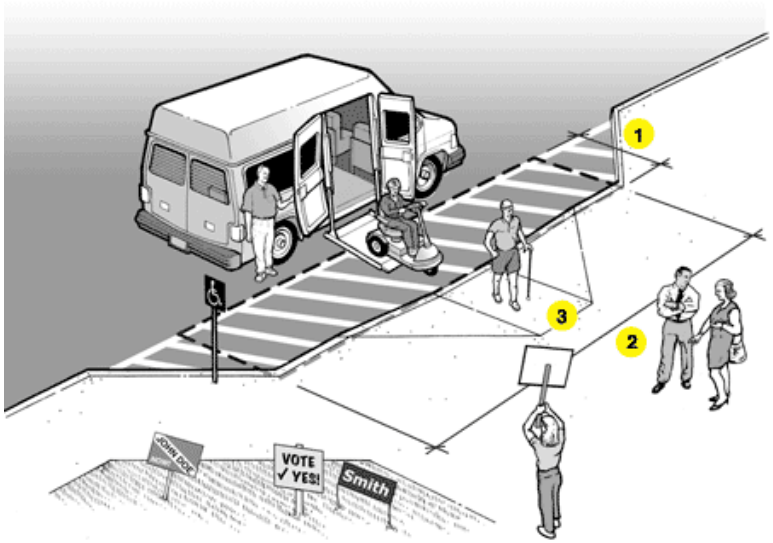


Figure *11B*-503.3
Passenger *Drop-Off and* Loading Zone Access Aisle



DIVISION 7: COMMUNICATIONS ELEMENTS AND FEATURES

11B-705.1 Detectable Warnings

11B-705.1.1 General

…

11B-705.1.1.3 Color and Contrast – shall provide visual contrast and shall be an integral part of the surface

11B-705.1.1.3.1 – Federal yellow …

11B-705.1.1.3.2 – Provide a minimum 70% visual contrast with adjacent walking surfaces

Contrast percent = [(B1-B2)/B1] x 100

B1 = LRV of the lighter area

B2 = LRV of the darker area

Exception: Where 70% minimum contrast is not met, a 1 inch wide visually contrasting surface shall separate the detectable warning from the adjacent walking surfaces. The visually contrasting surface must contrast with both the detectable warning and the adjacent waling surfaces either light-on-dark or dark-on light.

11B-703.8 Variable message signs

- General
  - High resolution VMS – pixel counts of 16 rows or greater
  - Low resolution VMS – pixel count of 7 to 15 rows

- 11B-703.8.2 Case
- 11B-703.8.3 Style
- 11B-703.8.4 Character height
- 11B-703.8.5 Character width
- 11B-703.8.6 Stroke width
- 11B-703.8.7 Character spacing
- 11B-703.8.8 Line spacing
- 11B-703.8.9 Height above floor
- 11B-703.8.10 Finish
- 11B-703.8.11 Contrast
- 11B-703.8.12 Protective covering
- 11B-703.8.13 Brightness
- 11B-703.8.14 Rate of change

DIVISION 7:
COMMUNICATIONS ELEMENTS AND FEATURES

11B-703.7.2.7 Traffic-control devices. Pole-supported pedestrian *traffic-control buttons shall be identified with color coding consisting of a textured horizontal yellow band 2 inches (51 mm) in width encircling the pole, and a 1-inchwide (25 mm) dark border band above and below this yellow band. Color coding should be placed immediately above the control button. Control buttons shall be located no higher than 48 inches (1219 mm) above the surface adjacent to the pole.*

DIVISION 8:
SPECIAL ROOMS, SPACES, AND ELEMENTS

- **11B-810 Transportation facilities**
  - General
  - Bus boarding and alighting areas
  - Bus shelters
  - Bus signs
  - Rail platforms
  - Rail station signs
  - Public address systems
  - Clocks
  - Escalators
  - Track crossings

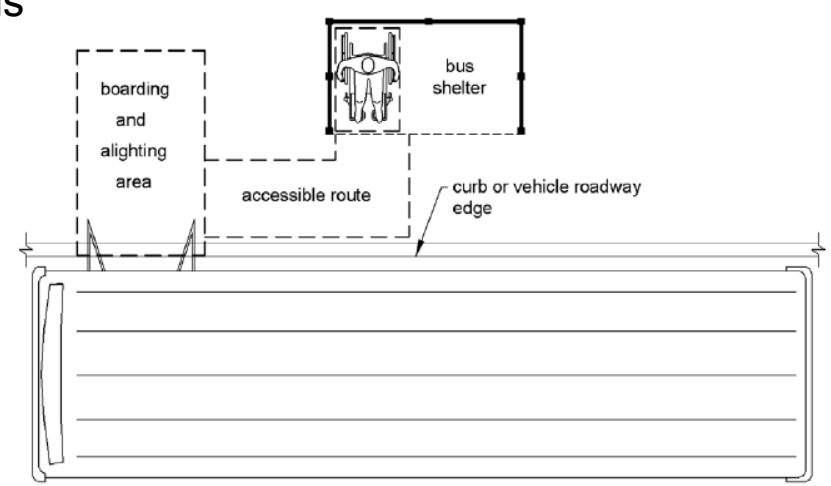


Figure 11B-810.3
Bus Shelters

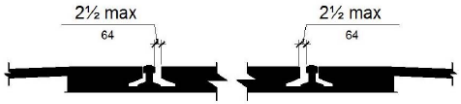


Figure 11B-810.10 (Exception)
Track Crossings

11B-810 Bus Loading

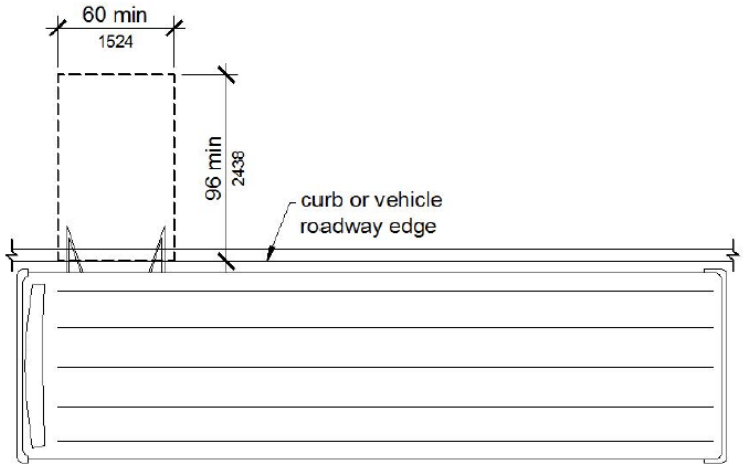


Figure *11B*-810.2.2
Dimensions of Bus Boarding and Alighting Areas

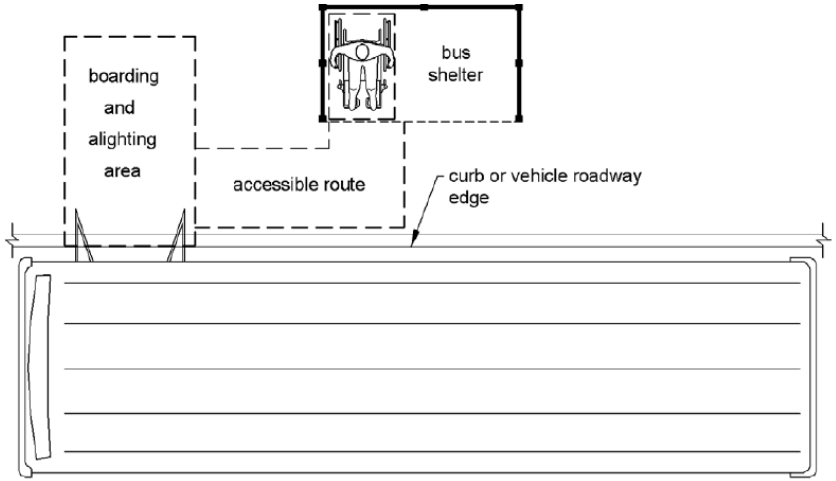


Figure *11B*-810.3
Bus Shelters

11B-810.2.3 – must provide a square curb or detectable warnings

Detectable Warning Surfaces
See 11B-705

11B-810.5 Rail platforms and other Transit Facilities

11B-810.5 Rail Platforms

- Slope – 1:48
- Detectable Warnings – Full length of the platform (11B-705)
- Platform and Vehicle floor coordination (36 CFR Part 1192)
- Rail Station Signage(11B-810.6, 702.2, 703.3, 703.5)
- Public Address systems – both audible and visual communication
- Escalators – ASME A17.1 – Step stripping
- Track Crossings – detectable warnings

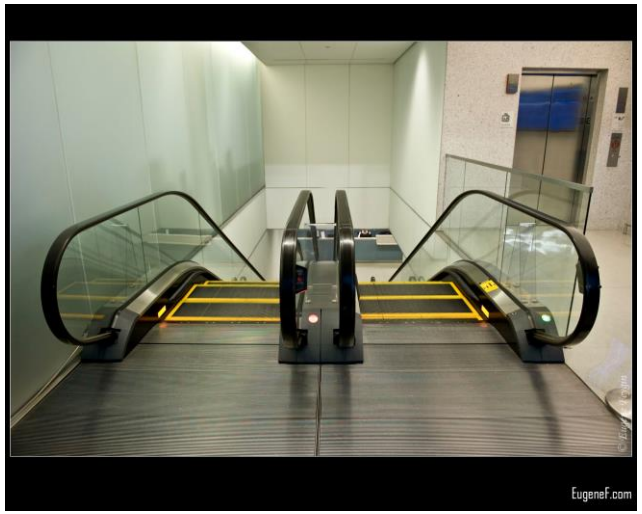
11B-247.1.2.7 Track Crossing Detectable Warnings (11B-705.1.2.7)

11B-247.2 Detectable Directional Texture (11B-705.2)

Transit Facilities

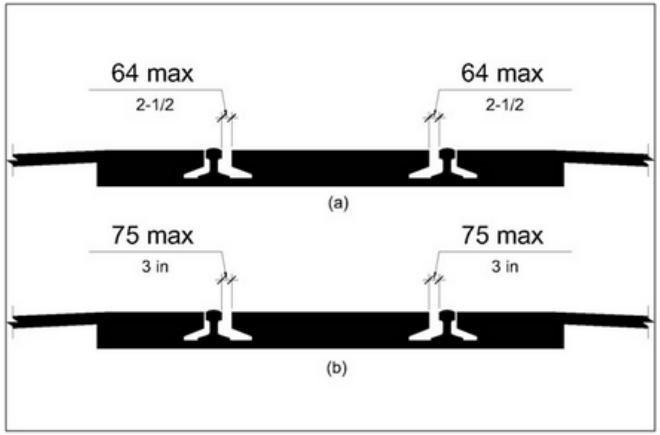
Platform Detectable Warnings

Escalator Tread Markings



Track Crossings

Flangeway Gaps



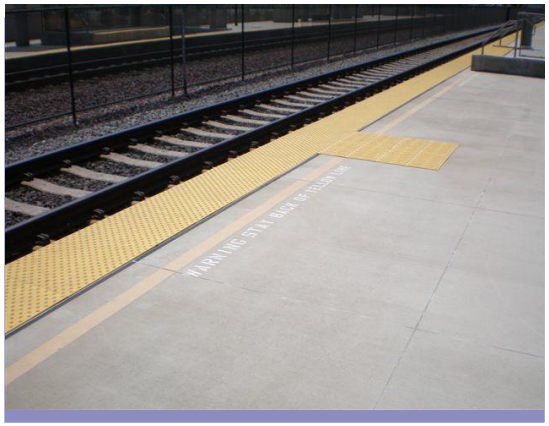
Detectable Warnings – 11B-705 Traffic Control - CaMUTCD 8D.04

Track Crossings

Chapter 2 – Definition of Transit Boarding Platform

11B-247.2 - Detectable Directional Texture *(Scoping)*

11B-705.2 - Detectable Directional Texture *(Technical)*



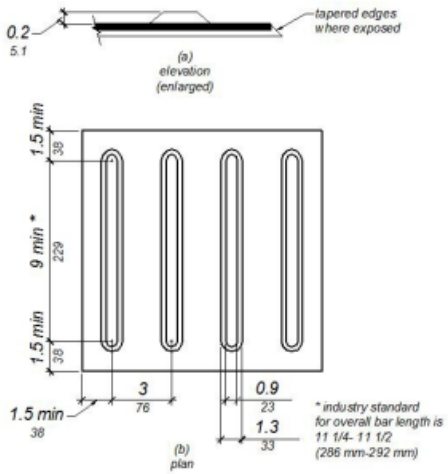
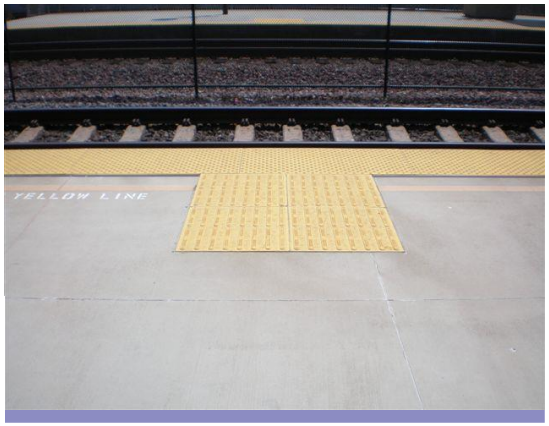


FIGURE 11B-705.2
DETECTABLE DIRECTIONAL TEXTURE



Shared Use Paths

Shared use paths provide a means of off-road transportation and recreation for various users, including pedestrians, bicyclists, skaters, equestrians, and others, including persons with disabilities.

http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/shared-use-paths

http://www.parks.ca.gov/pages/1324/files/accessible_trails_fri2007.pdf

Outdoor Developed Areas

CBC 11B-246 Outdoor Developed Areas

11B-246.2 Camping

11B-246.3 Beaches

11B-246.4 Day Use and Vistas

11B-246.5 Picnic Areas

11B-246.6 Parking

11B-246.7 Trails & Paths

11B-246.8 Nature Trails & Similar Educational areas

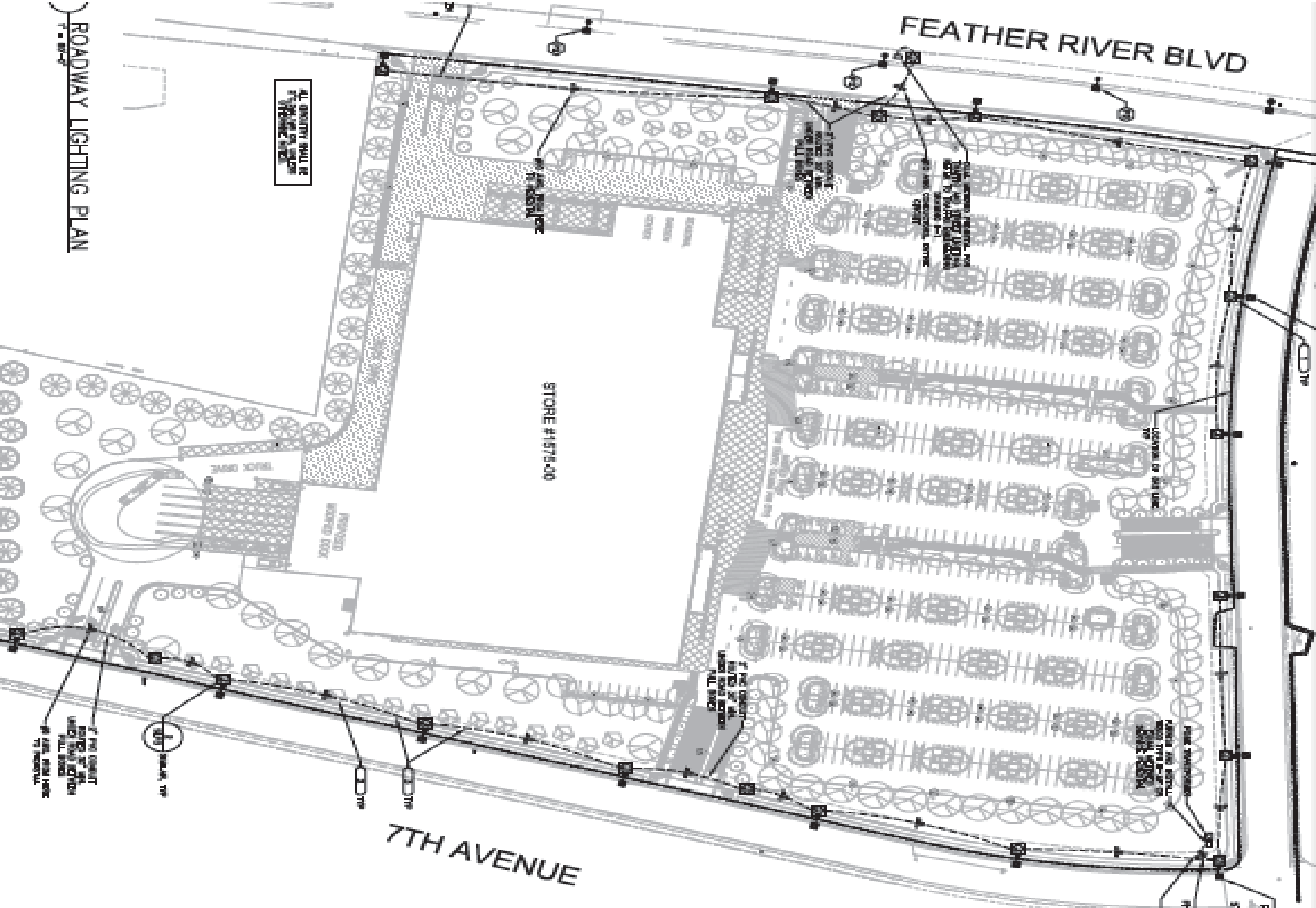
California State Parks Accessibility Guidelines (2009)

Although only enforceable within the state parks system, many different use areas are covered, where not otherwise addressed

US Access Board – Outdoor Developed Areas

Adopted under the ABA (2013) - Must use

Optional for use elsewhere, where there are no current adopted standards


FEATHER RIVER BLVD
STORE #157500
7TH AVENUE
ROADWAY LIGHTING PLAN

QUESTIONS

Thank you for attending !

Other quality programs are available through the California Building Officials Training Institute (CTI)

www.calbo.org