

# Designing Pedestrian Facilities for Accessibility

ADA  
Compliance  
Training

## ADA Compliance Training

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**Note: Pictures may depict non-compliant curb ramps**

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# Introduction

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FHWA promotes the Americans with Disabilities Act (ADA) to ensure that persons with disabilities have the opportunity to use the transportation system in an accessible and safe manner.

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## Introduction

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FHWA not only promotes accessibility and safety but has the regulatory responsibility under

- Section 504 of the Rehabilitation Act of 1973 (Section 504) (29 U.S.C. §794)
- Title II of the Americans with Disabilities Act of 1990 (ADA) (42 U.S.C. §§ 12131-12164)

Public rights-of-way and facilities are required to be accessible for all users through the above statutes regardless of funding source.

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The DOJ ADA regulation is 28 CFR Part 35.

The US DOT Section 504 regulation is 49 CFR Part 27 and 28.

The DOJ regulations designate the US DOT as the agency responsible for overseeing public agencies' compliance with the ADA. 28 CFR §35.190(b)(8).

The US DOT has delegated to the FHWA the responsibility to ensure ADA compliance in the public right-of-way and on projects using surface transportation funds.

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Projects that use Federal funds, the FHWA Division offices shall not approve Federal funding for projects that do not adequately provide accessibility per 23 CFR 1.9 - Limitations of Federal participation which reads as follows:

- (a) Federal-aid funds shall not participate in any cost which is not incurred in conformity with applicable Federal and State law, the regulations in this title, and policies and procedures prescribed by the Administrator.....

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The ADA and Section 504 do not require public agencies to provide pedestrian facilities, but if they exist or are proposed:

- They must meet accessibility requirements for persons with disabilities to the maximum extent feasible for alteration projects.
- Technical infeasibility must be proven and documented during the design of the project.

FHWA encourages an increased emphasis on the planning and design of proposed facilities.

Responsibility of proposed accessible facilities should be on the planners and designers of projects requiring increased attention to funding needed and existing conditions.

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## Introduction - Planning

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DOTs and MPOs must certify (at least biennially for State DOTs and annually for MPOs) that the transportation planning process is being carried out or conducted in accordance with all FHWA, Federal Transit Administration and other applicable Federal statutory and regulatory requirements [see 23 CFR 450.220 and 23 CFR 450.334, respectively].

23 CFR 450.316(b)(3) requires the MPOs to identify actions necessary to comply with the ADA and Section 504.

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## Introduction - Transition Plans

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The USDOT Section 504 regulation requires FHWA to monitor the compliance of the self-evaluation and Transition Plan of Federal-aid recipients (49 CFR 27.11).

Self evaluations need to include what's in the public right-of-way.

A Transition Plan assesses the needs of persons with disabilities, and then schedules the required pedestrian accessibility upgrades. The Transition Plan is to be updated periodically to develop the STIP and MPO programs. Transition plans need to be defensible.

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## Introduction - Projects

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- Public agencies should work to meet accessibility requirements throughout the project delivery process.
- Issues surrounding pedestrian accessibility should be addressed at the earliest stage possible to reduce or prevent conflicts with other right-of-way, planning, environmental, and design considerations.
- Projects requiring pedestrian accessibility include projects for new construction and projects altering existing street and highway facilities.

# ADA Law Requires

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- New construction must be accessible and usable by persons with disabilities



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# ADA Law Requires

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- Alterations to existing facilities, within the scope or limits of a project, must provide usability to the maximum extent feasible.



The reconstruction of the existing sidewalk must meet the latest standards



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# ADA Law Requires

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- Overlays and resurfacing = alteration.



Curb ramps must meet the latest standards. As per Federal court case (Kinney vs. Yerusallim, 813 F. Supp. 547 F.D. PA 1993)

Resurfacing improved/alterd the crosswalk

28 C.F.R. § 35.151(b) Alterations have to be made readily accessible, within the impacting project, to the maximum extent feasible. Kinney v. Yerusallim - Court held that the *resurfacing constituted an alteration*

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# ADA Law Requires

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- Existing facilities that have not been altered, shall not deny access to persons with disabilities.



The absence of a curb ramp denies access to the existing sidewalk.



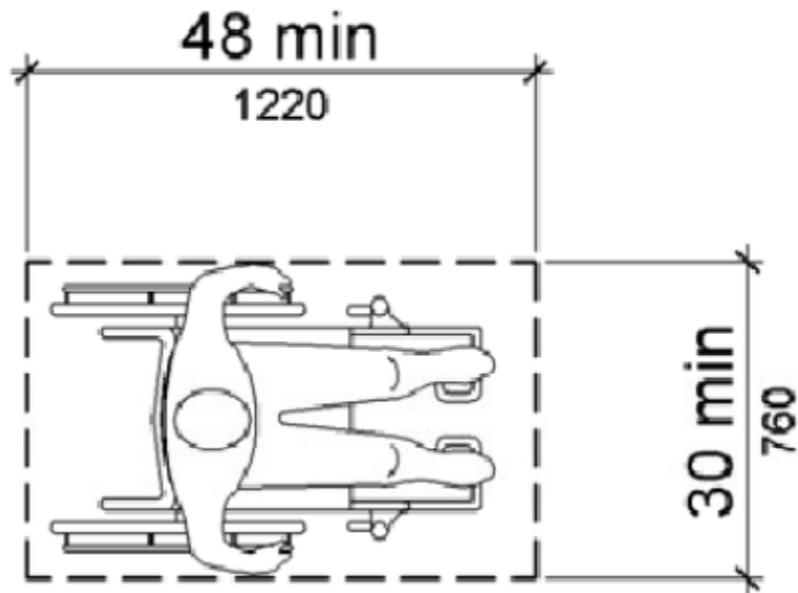
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# Types of Disabilities

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Vision Disabilities  
Hearing Disabilities  
Physical Disabilities  
Mental Disabilities



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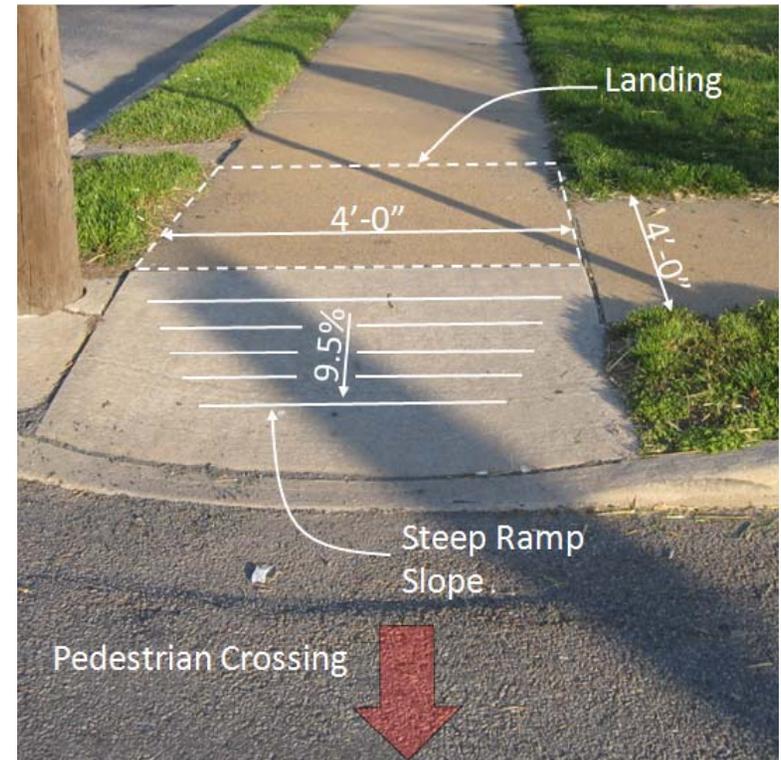
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# ADA Standards

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ADA law does not provide the details that engineers need to design a fully accessible facilities. This detail is included in the standards. It should be noted that the standards and guidelines serve as a means to achieve and/or measure compliancy but are not the requirements of ADA law.



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## ADAAG and PROWAG

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Both the ADAAG and the PROWAG provide means to meet the requirements of ADA.

ADAAG - For facilities located outside the public right of way . <http://www.access-board.gov/adaag/html/adaag.htm>

ADAAG does include an “equivalent facilitation” clause (section 2.2) which permits departures from the standards that provide equal or greater access.

PROWAG - For facilities located within the public right of way (except for structures).

<http://www.access-board.gov/prowac/draft.htm>

ADA Accessibility Guidelines for Buildings and Facilities (ADAAG)  
Public Rights-of-Way Accessibility Guidelines (PROWAG)

# Basic ADA Requirements

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## Surface - Stable, Firm & Slip Resistant



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# Basic ADA Requirements

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- Detectable Warning Surface (DWS)



*What is a DWS?*

Raised truncated domes in a rectangular array.

*Where do you place them?*

Placed across the bottom of the curb ramp.

*What exactly do they do?*

Aid those visually impaired to identify the end of the ramp.

DWS = Stop



guidance does not specify a particular color but requires the detectable warning to be a color that contrasts with the sidewalk---light on dark or dark on light

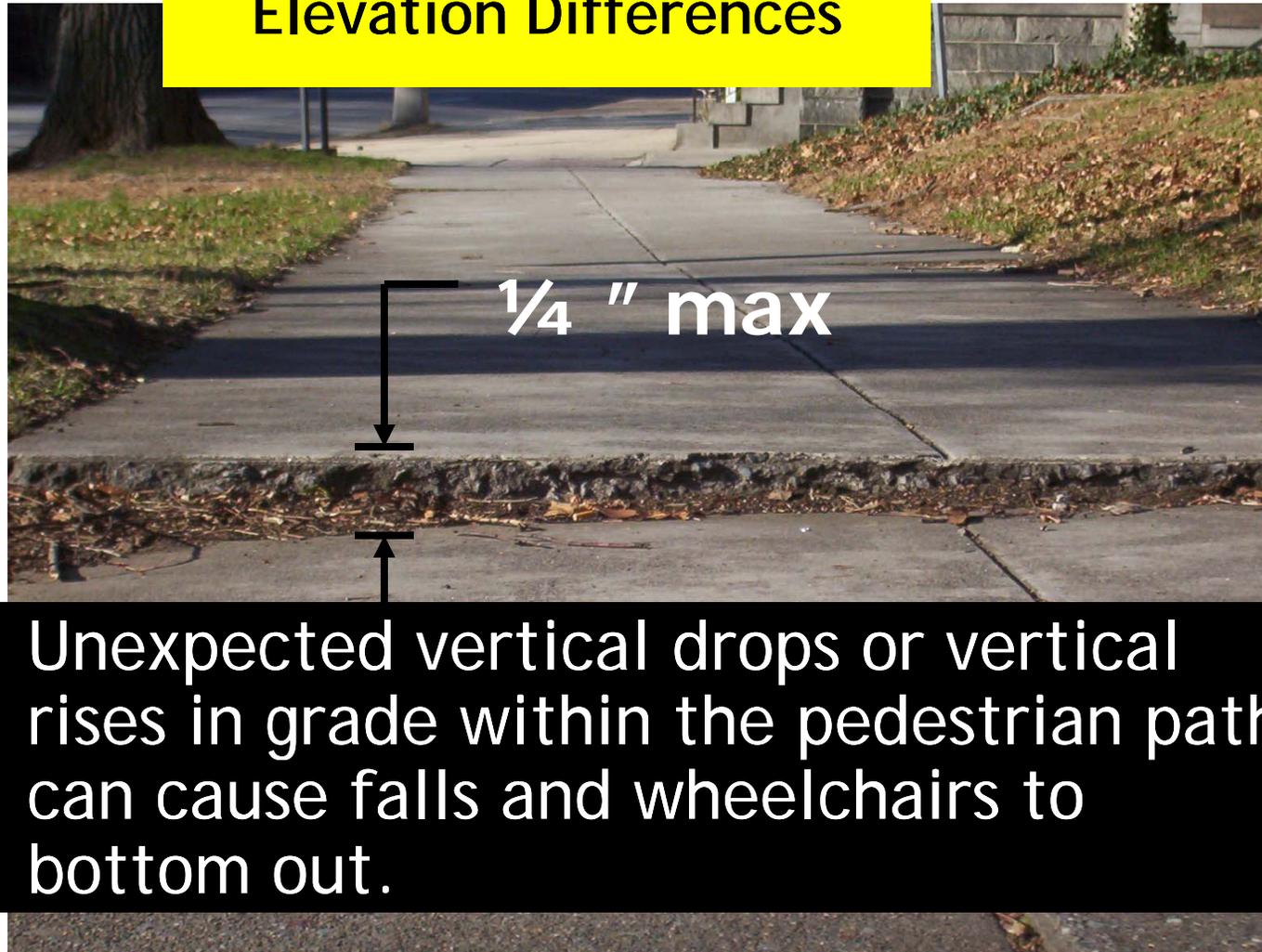
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# Basic ADA Requirements

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## Elevation Differences



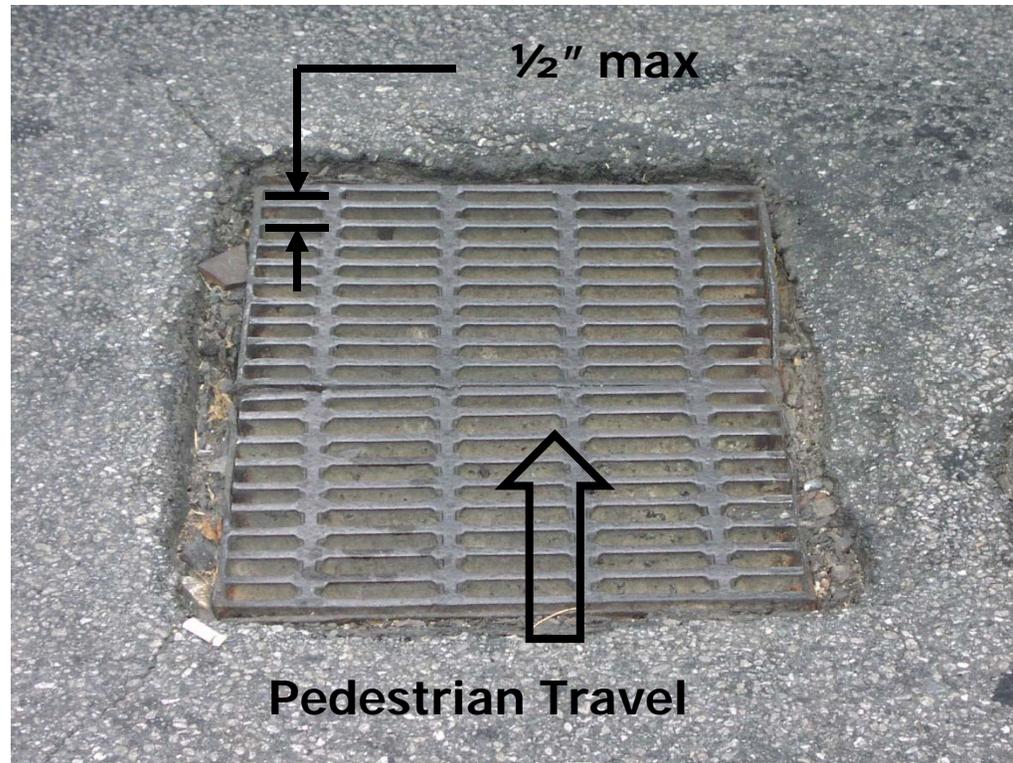
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# Basic ADA Requirements

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## Grate Openings and Horizontal Gaps



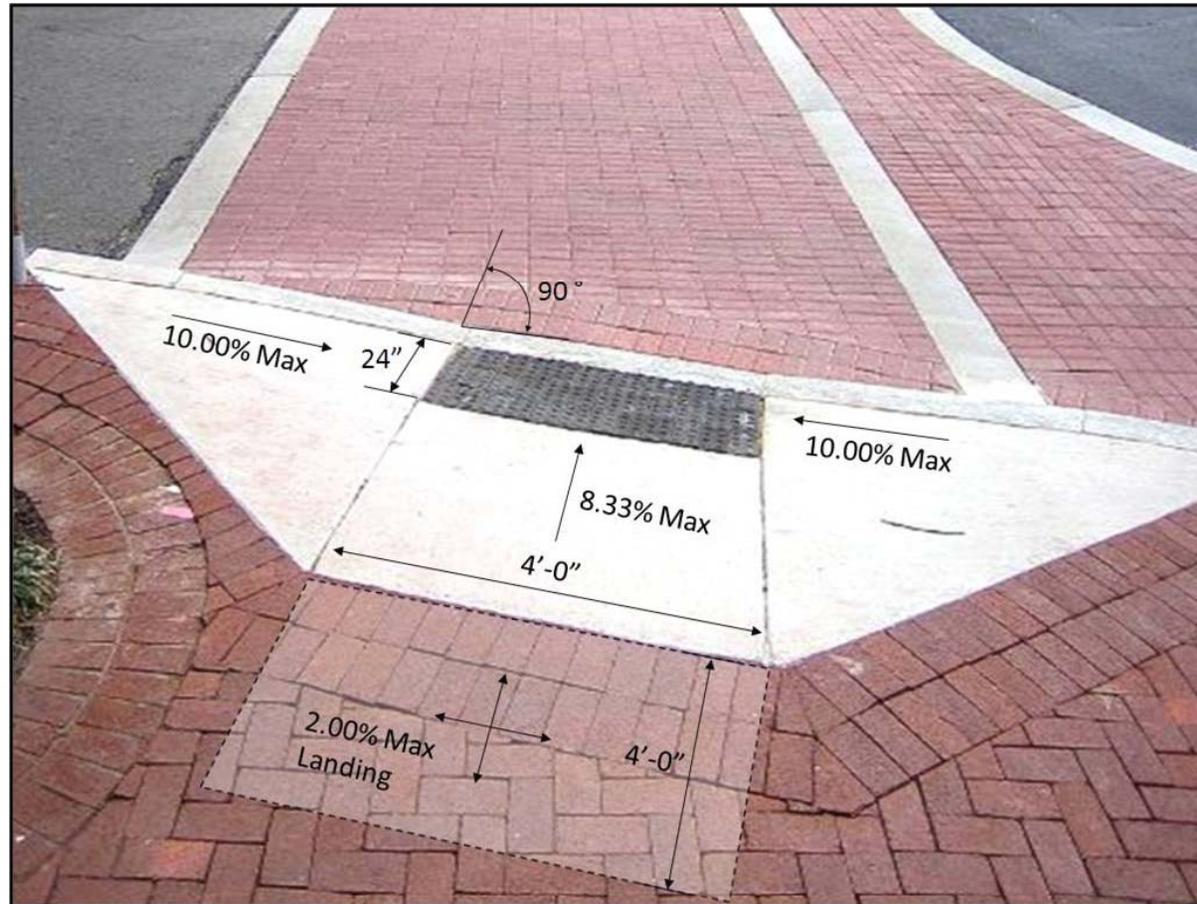
\* Grate orientation must be so that the wide opening is perpendicular to the pedestrian.

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# Basic ADA Requirements

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- Curb Ramps & Median Openings



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## Curb Ramps & Other Transitions

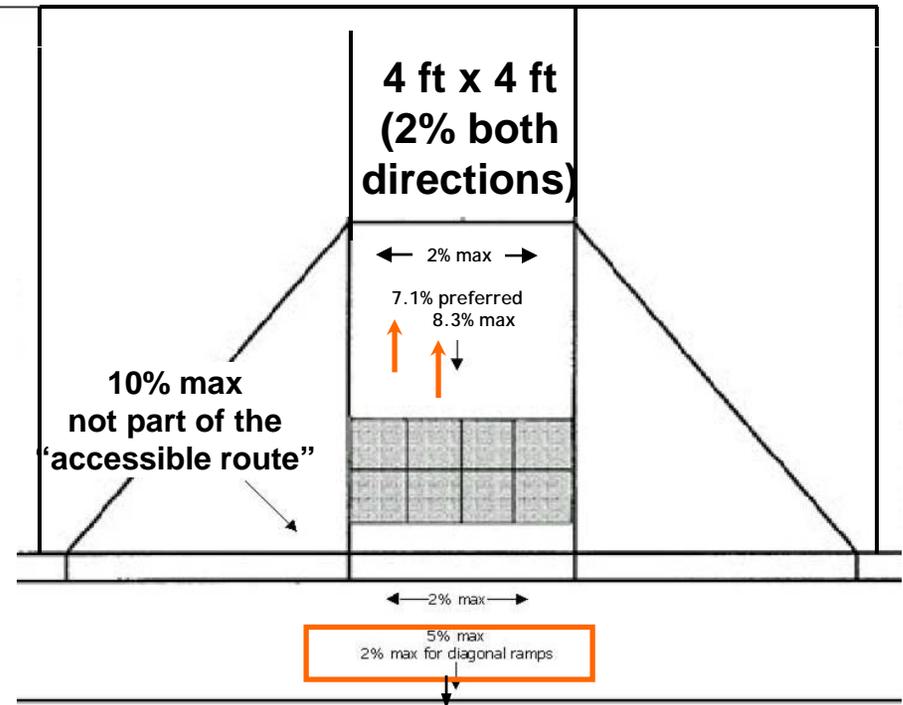
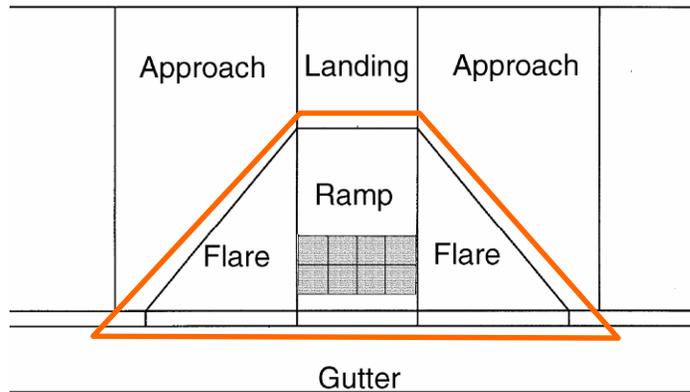
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- Purpose:
  - Allow pedestrians to transition between the street and sidewalks, islands, etc.
- Typically installed at:
  - Intersections (1 curb ramp at each end of each crosswalk)
  - Mid-block crossings (including trail crossings)
  - Accessible on-street parking spaces
  - Passenger loading zones & bus stops

# Curb Ramp Components

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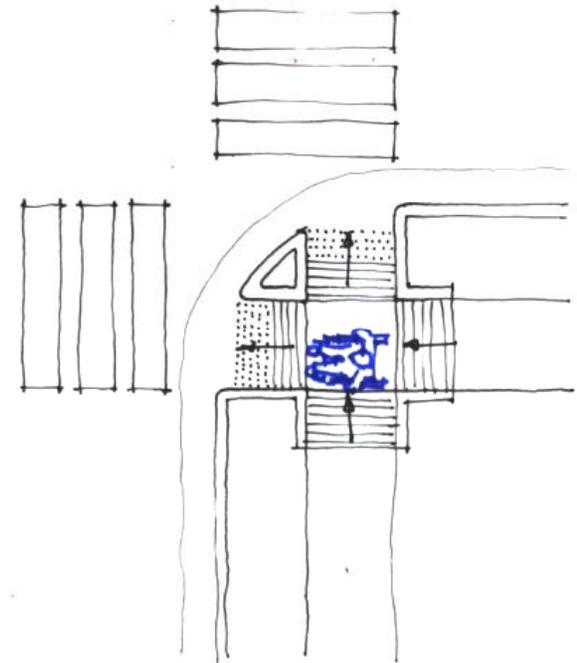
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# Ramp Alignment

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- Ramps must be aligned with crosswalks to help wheelchair users orient themselves to cross the street



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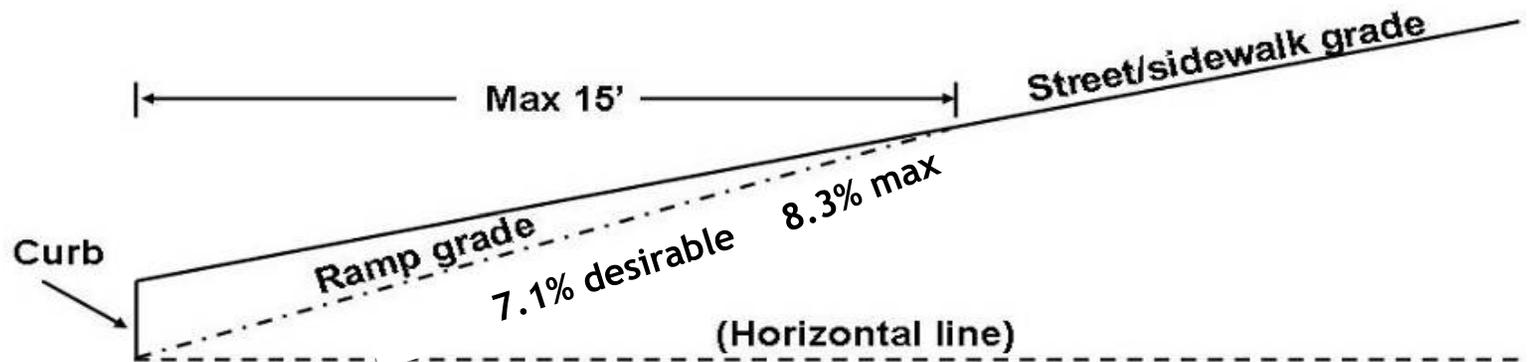
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## Ramp Grade

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- Recommended maximum grade to allow for construction tolerance - 7.1%
- Maximum grade - 8.3%
- Least slope possible is preferred
- When “chasing grade,” ramp length need not exceed 15', but slope must be uniform (PROWAG)



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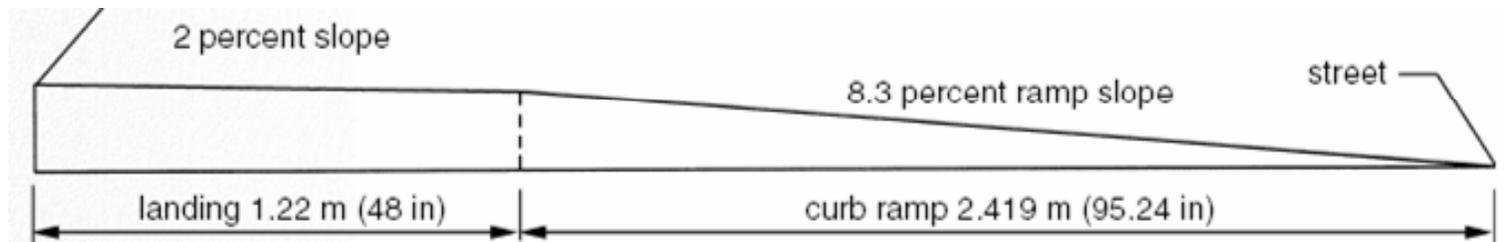
# Ramp Length

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$$\text{Ramp Length} = \frac{\text{curb height } 6''}{(\text{ramp slope } 8.3\% \text{ max}) - (\text{sidewalk cross slope } 2\% \text{ max})}$$

- Sample ramp length calculation
  - $6'' / (8.3\% - 2\%) = 7' 11''$
- Higher curb or flatter ramp grade = longer ramp



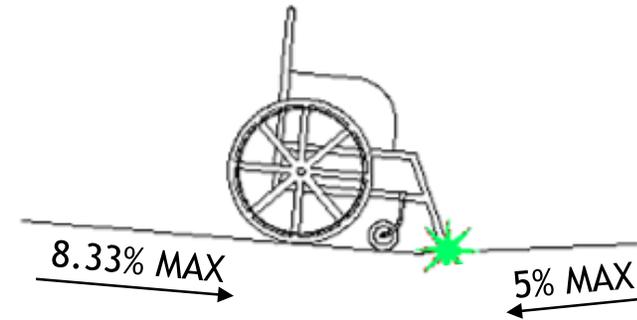
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## Change of Grade

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- PROWAG allows 8.3% ramp plus 5% grade at the adjacent street = 13.3%
- Recommendation calls for:
  - 11% maximum
  - Provide 2' level area if greater than 11%



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# Ramp Cross Slope

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- Ramp cross slope shall not exceed 2.0 percent (1:48) - Zero is best
- Combined running slope and cross slope makes climbing ramps more difficult
- Since ramp running slope is significant, cross-slope should be minimized



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## Gutter Counter Slope (Slope opposite the ramp grade)

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- Becomes a running grade for pedestrians
- Slope should not exceed 5% (1:20) at the curb ramp
- 2% maximum for diagonal ramps



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## Ramp Width

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- PROWAG min: 4'
- Wider ramps are better: full crosswalk or sidewalk width



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## Landing

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- Min. 4.0 ft. by 4.0 ft. landing shall be provided at the top of the curb ramp and shall be permitted to overlap other landings and clear space.
- Running and cross slopes at intersections shall be 2 percent maximum.
- Running and cross slope at midblock crossings shall be permitted to be warped to meet street or highway grade.



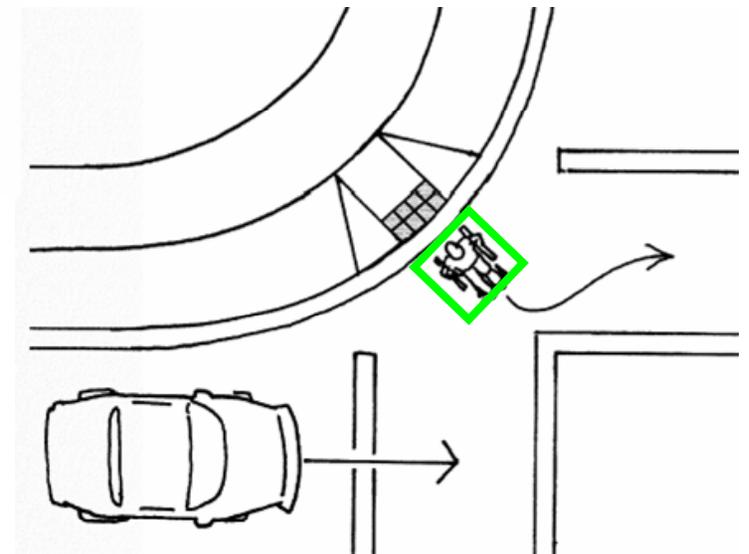
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## Bottom Landing

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Bottom of ramp must have 48 x 48 inch level (2% max) clear space outside of vehicle travel lanes



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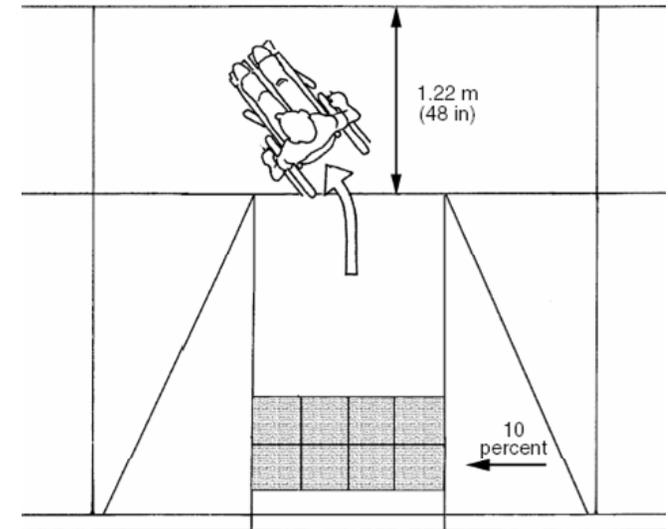
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# Flares

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- Not part of the accessible route
- Flares should be used on all curbside sidewalks
- Flare slope: 10% (1:10) max.



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# Surfaces

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Gratings, access covers, and other appurtenances shall not be located on curb ramps, landings, blended transitions & gutters within the pedestrian access route (PROWAG R303.3.3)



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## Drainage at Curb Ramps

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- Drainage can be difficult because gutter grade should not exceed 2%
- To prevent standing water at the base of ramps:
  - Place inlets upstream of ramps
  - Widen the gutter pan and flatten at the ramp
  - The gutter pan counter slope must be flatter than the running slope of the ramp; a steeper gutter cross slope can resume outside the ramp



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## Types of Curb Ramps

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- R303.2.1 - Perpendicular curb ramps
- R303.2.2 - Parallel curb ramps
- R303.2.3 - Blended transitions



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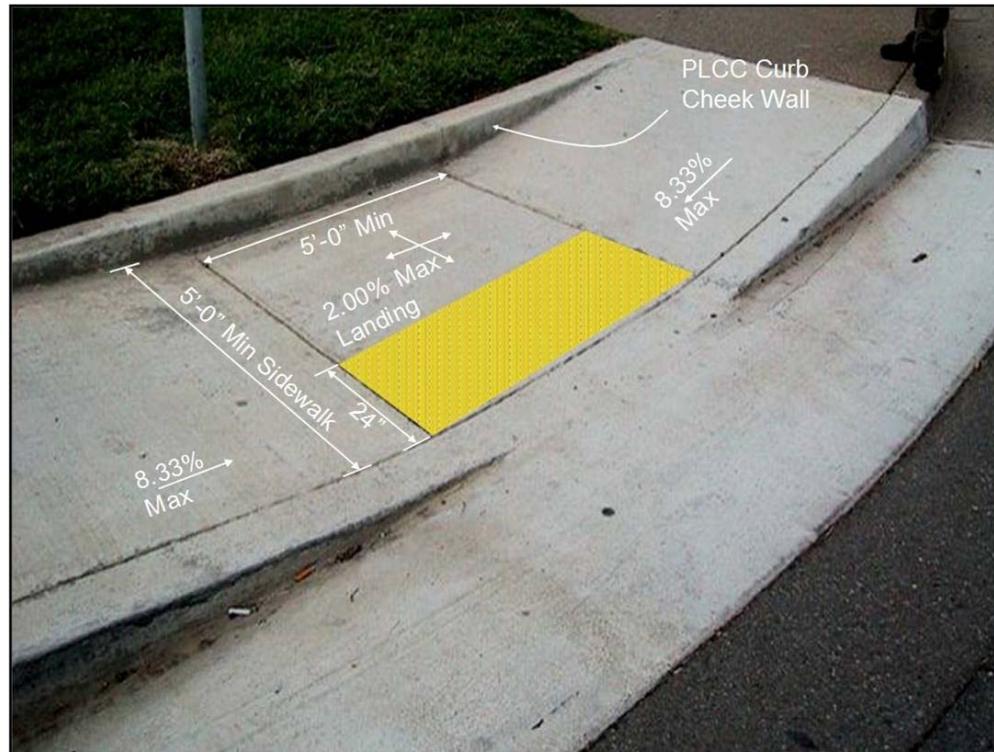
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# Perpendicular Curb Ramps

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- Perpendicular curb ramps shall have a running slope that cuts through or is built up to the curb at right angles or meets the gutter grade break at right angles.



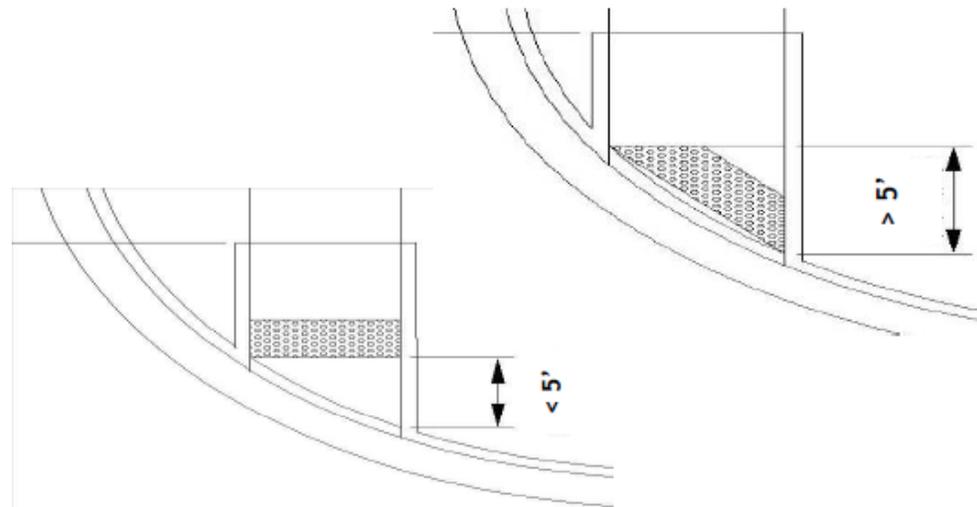
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# Parallel Curb Ramps

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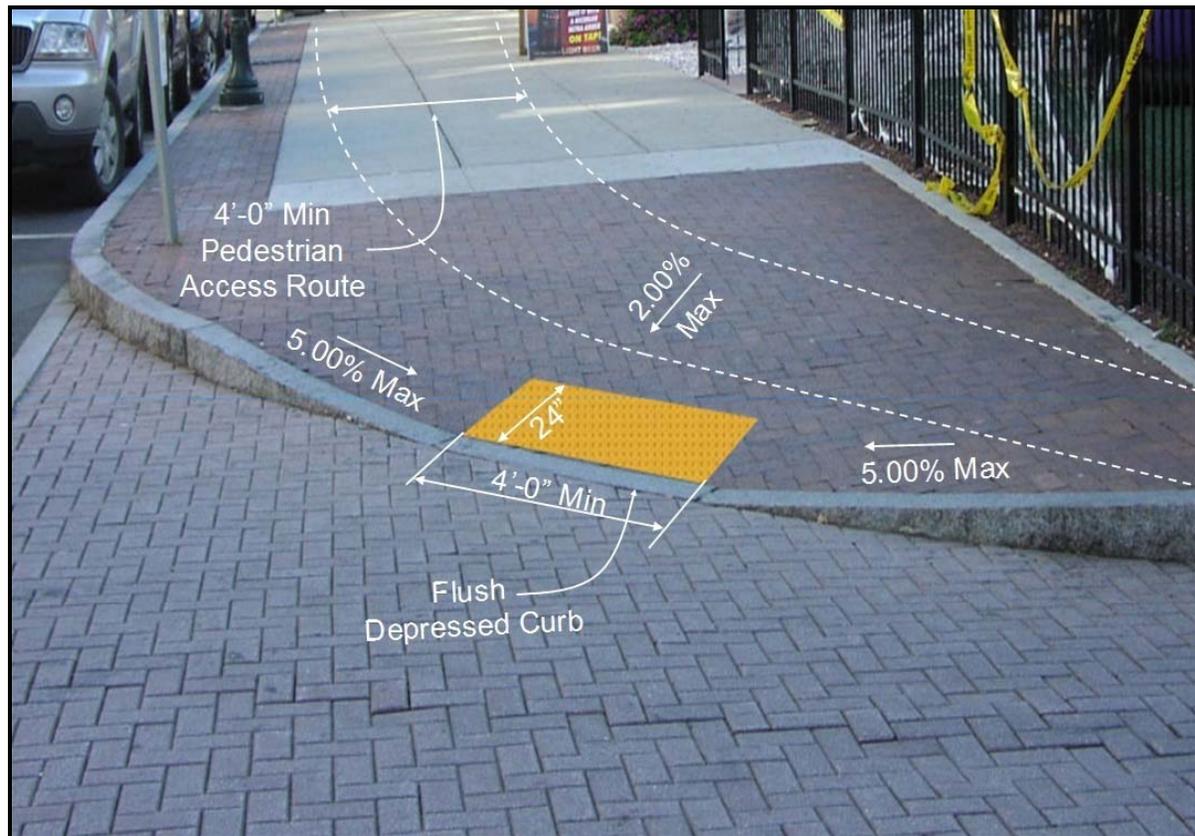
- Parallel curb ramps shall have a running slope that is in-line with the direction of sidewalk travel.



# Blended Transitions

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- Blended transitions shall have a running slope of no more than 5 percent maximum and cross slope shall be 2 percent maximum.



U.S. Department of Transportation  
**Federal Highway Administration**



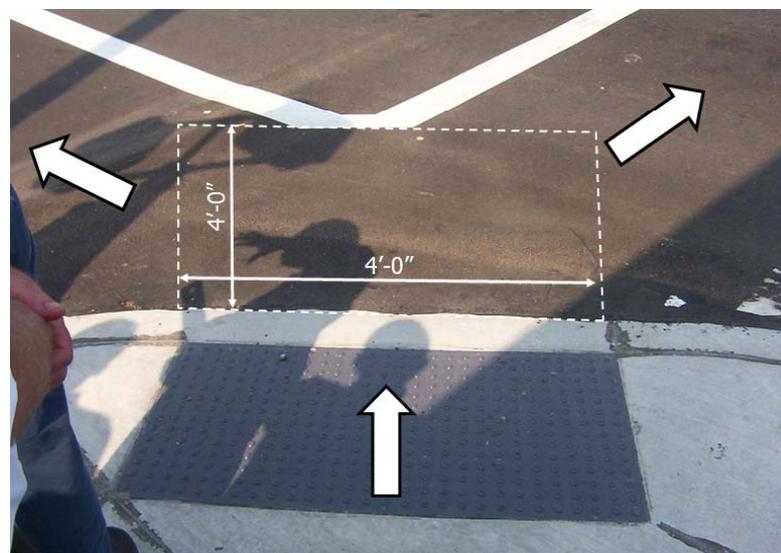
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## Diagonal (single) Curb Ramp

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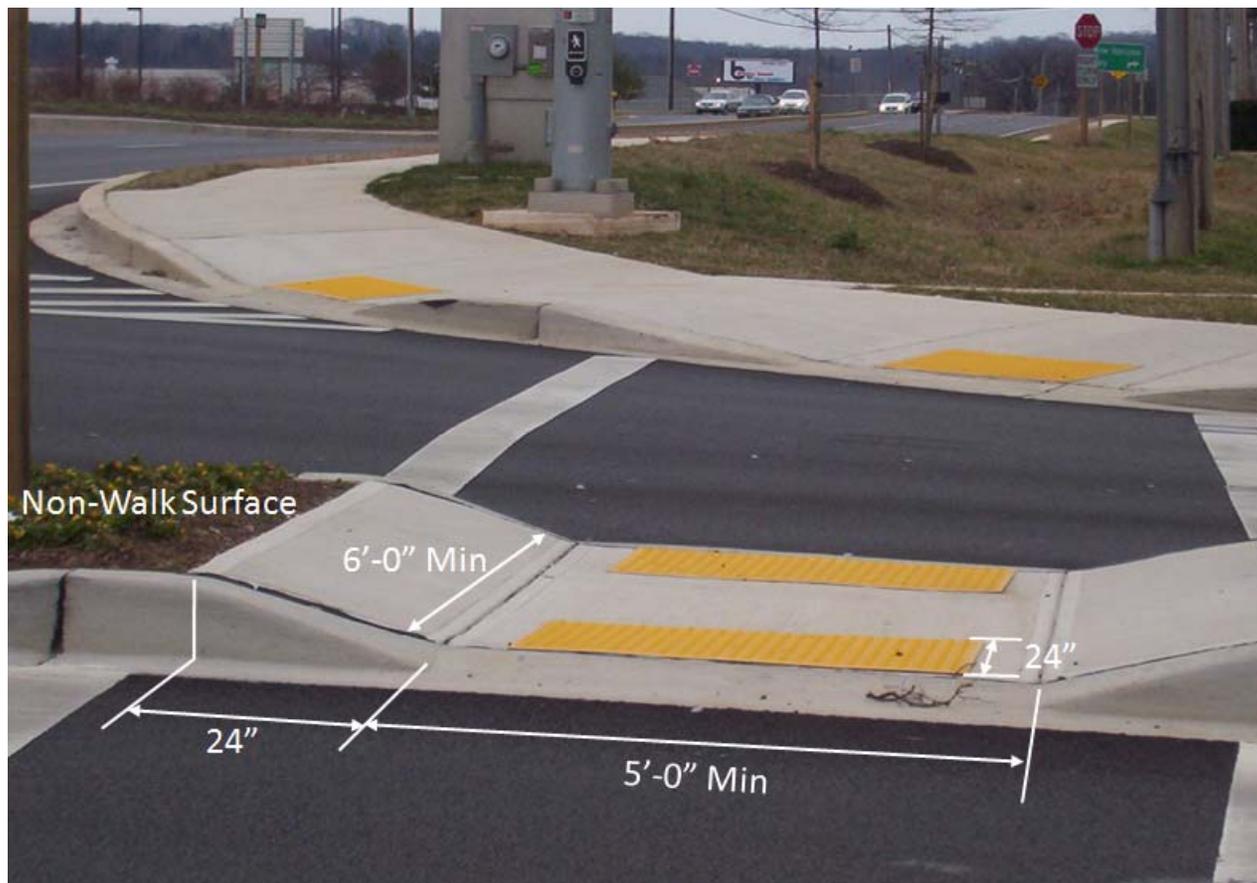
- Diagonal ramp is a single ramp (usually perpendicular) located at the apex of the corner
- Should be avoided in new construction
- Maybe OK for alterations:
  - Utility barriers
  - Non signalized intersections
  - Low traffic volume residential



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# Median Openings

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NJDOT Pedestrian Compatible Planning and Design Guidelines state if a street is wider than 60 feet than a pedestrian refuge should be provided so that people can find openings in traffic from only one direction, and have a place to wait for an opening in the other direction.

MUTCD requires a walking speed of 3.5 ft./sec

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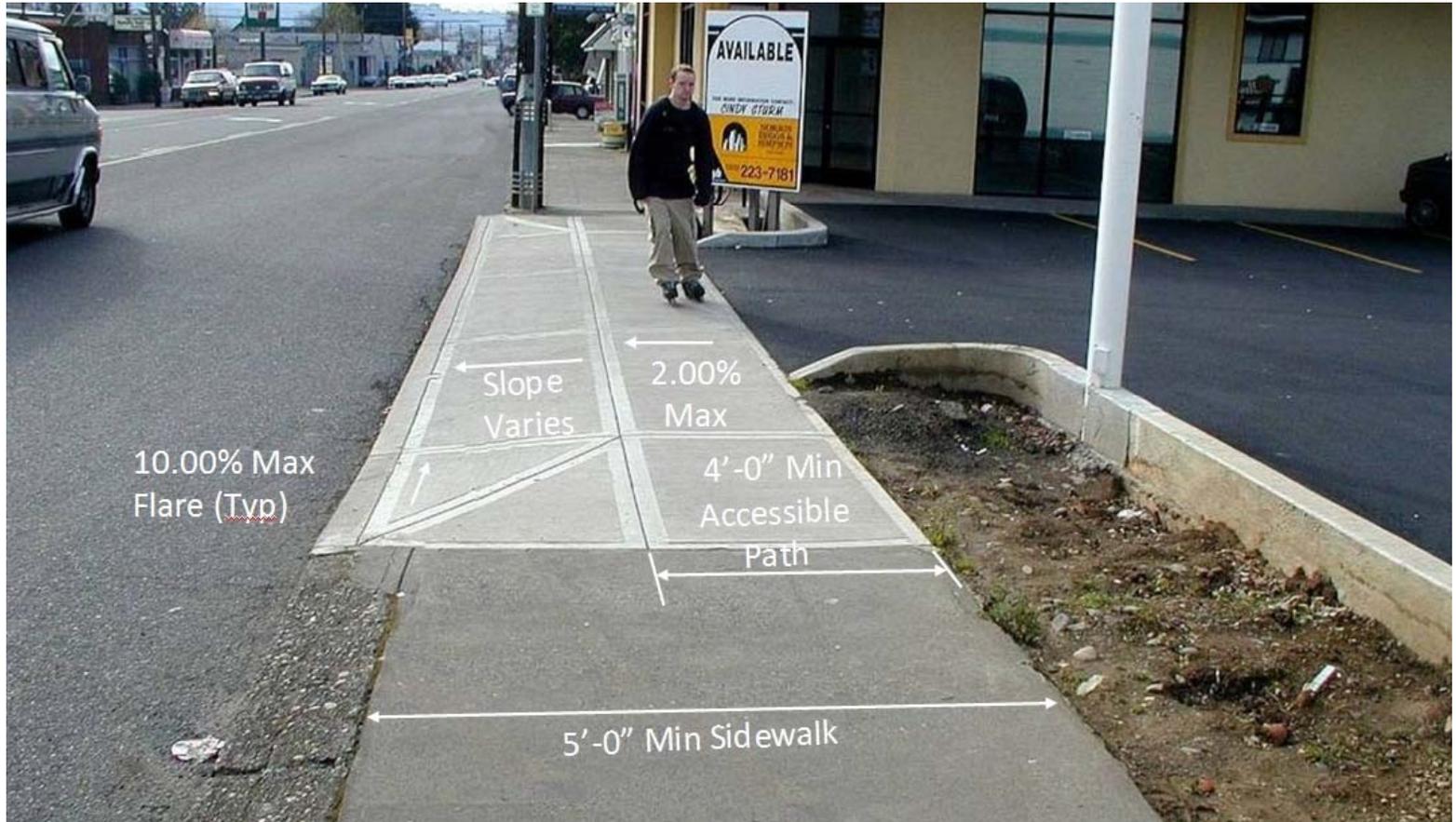
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# Driveway Details

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# Driveway Details

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Compliance  
Training



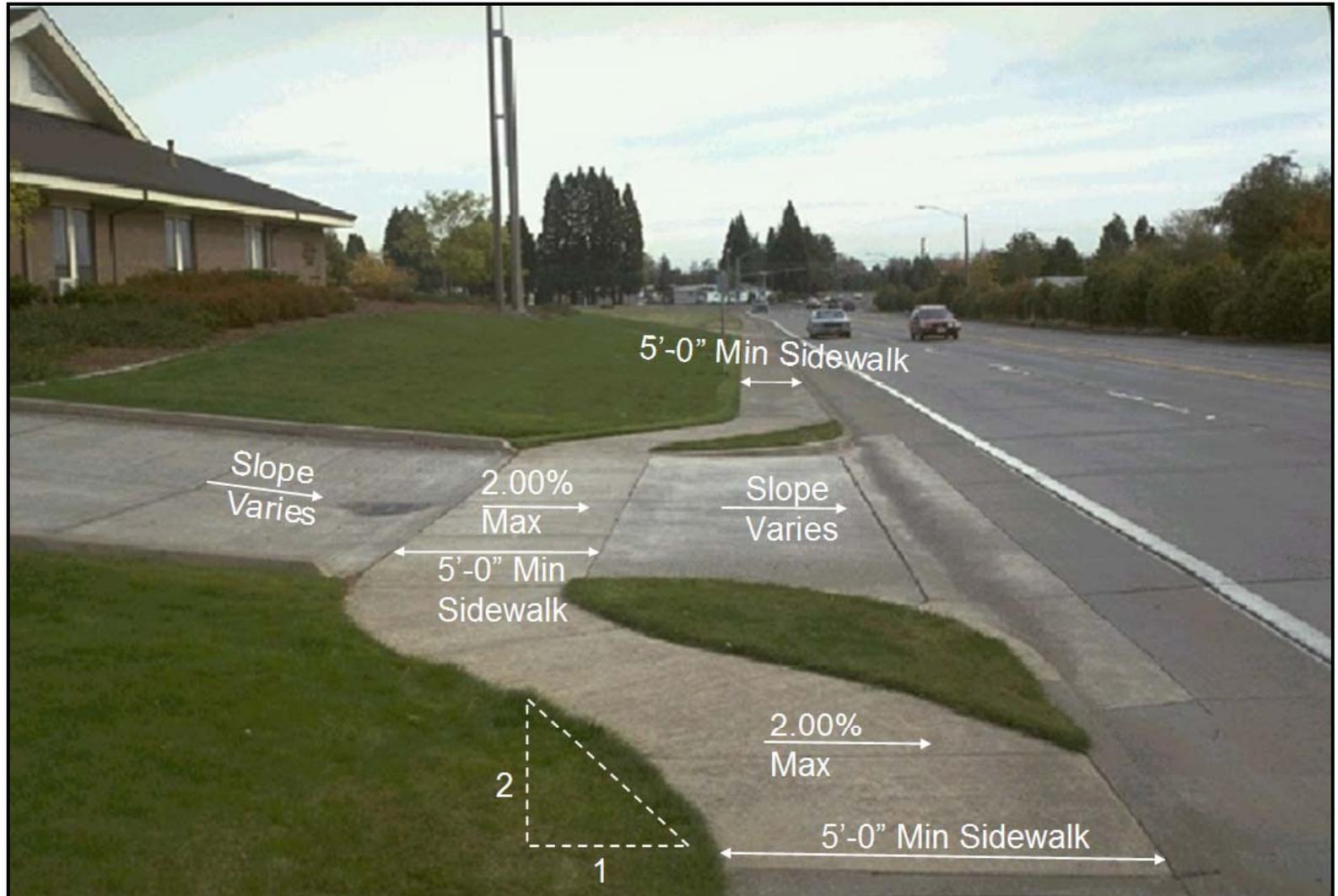
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# Driveway Details

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# Example #1

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## Example #2

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## Example #2

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## Example #3

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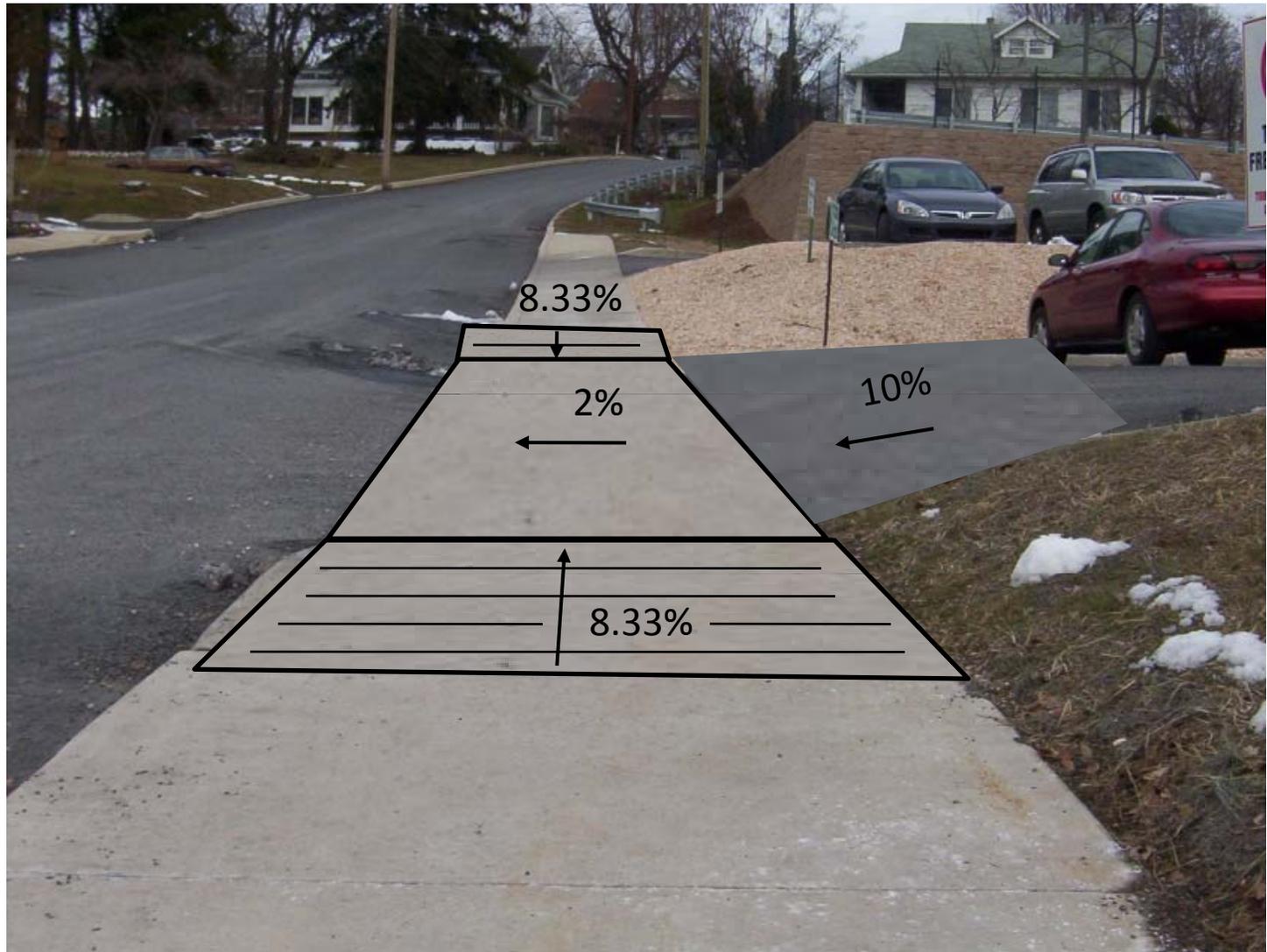


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# Example #3

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## Example #4

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## Example #4

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## Example #5

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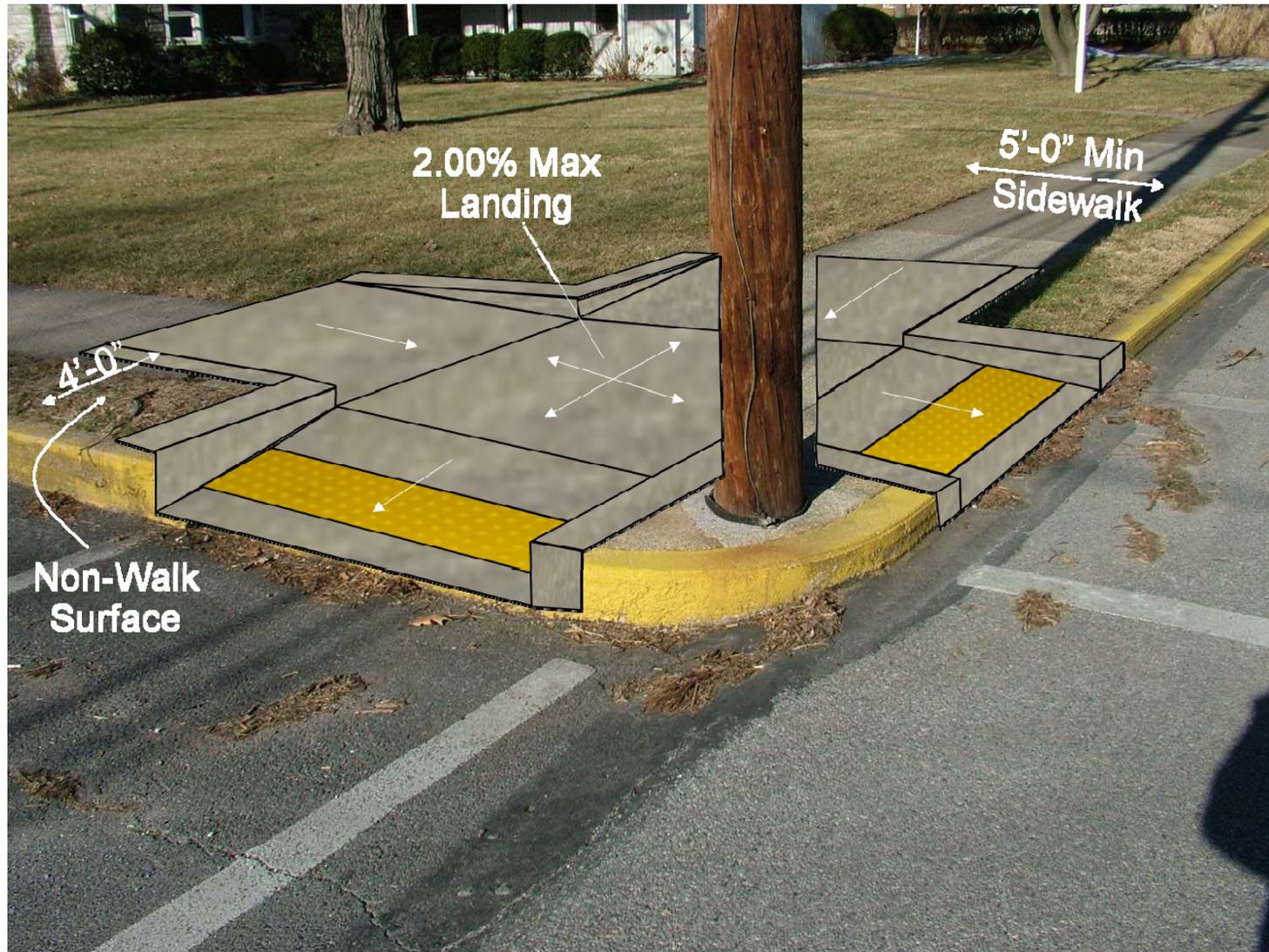
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# Example #5

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## Example #6

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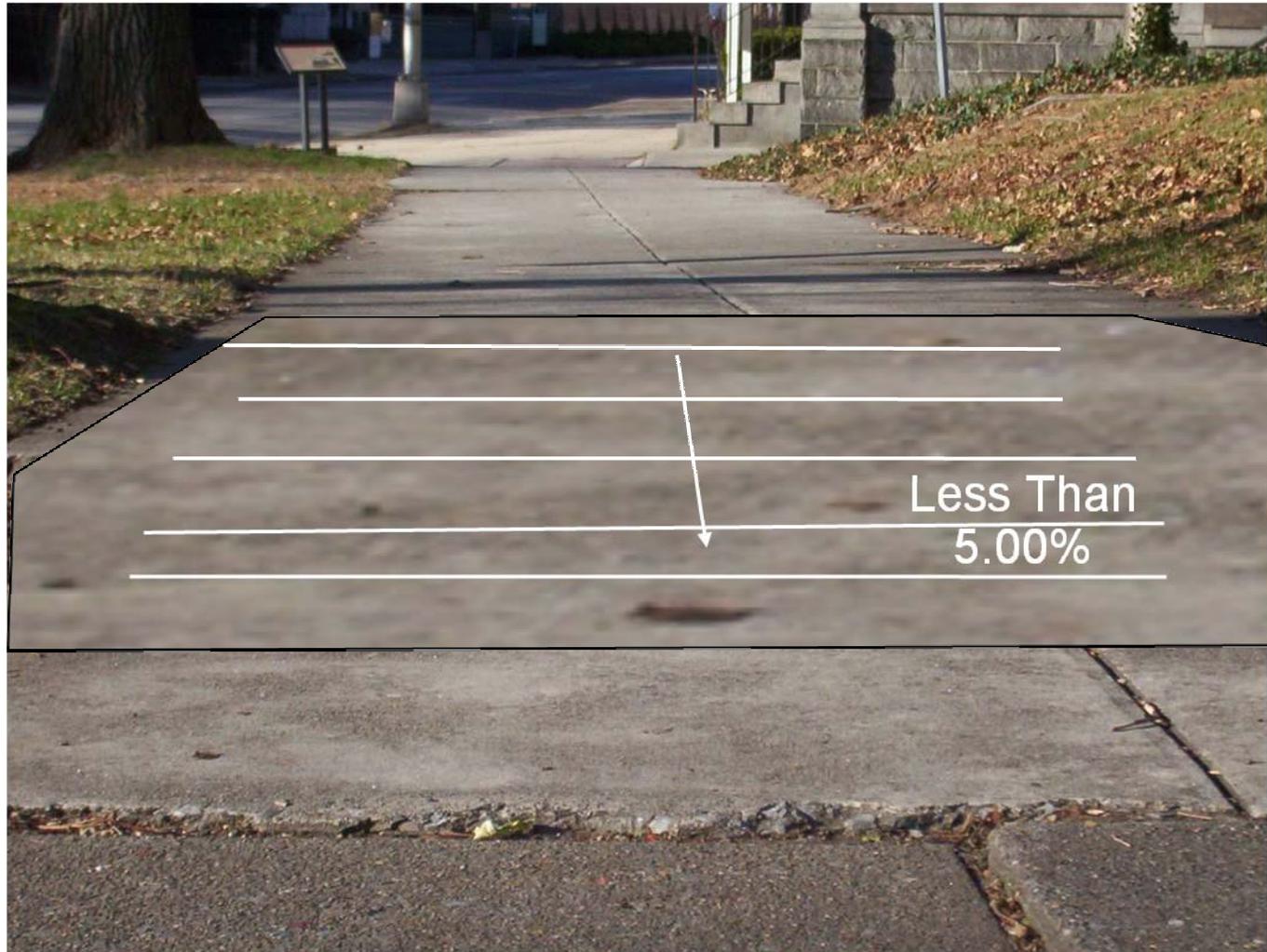


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## Example #6

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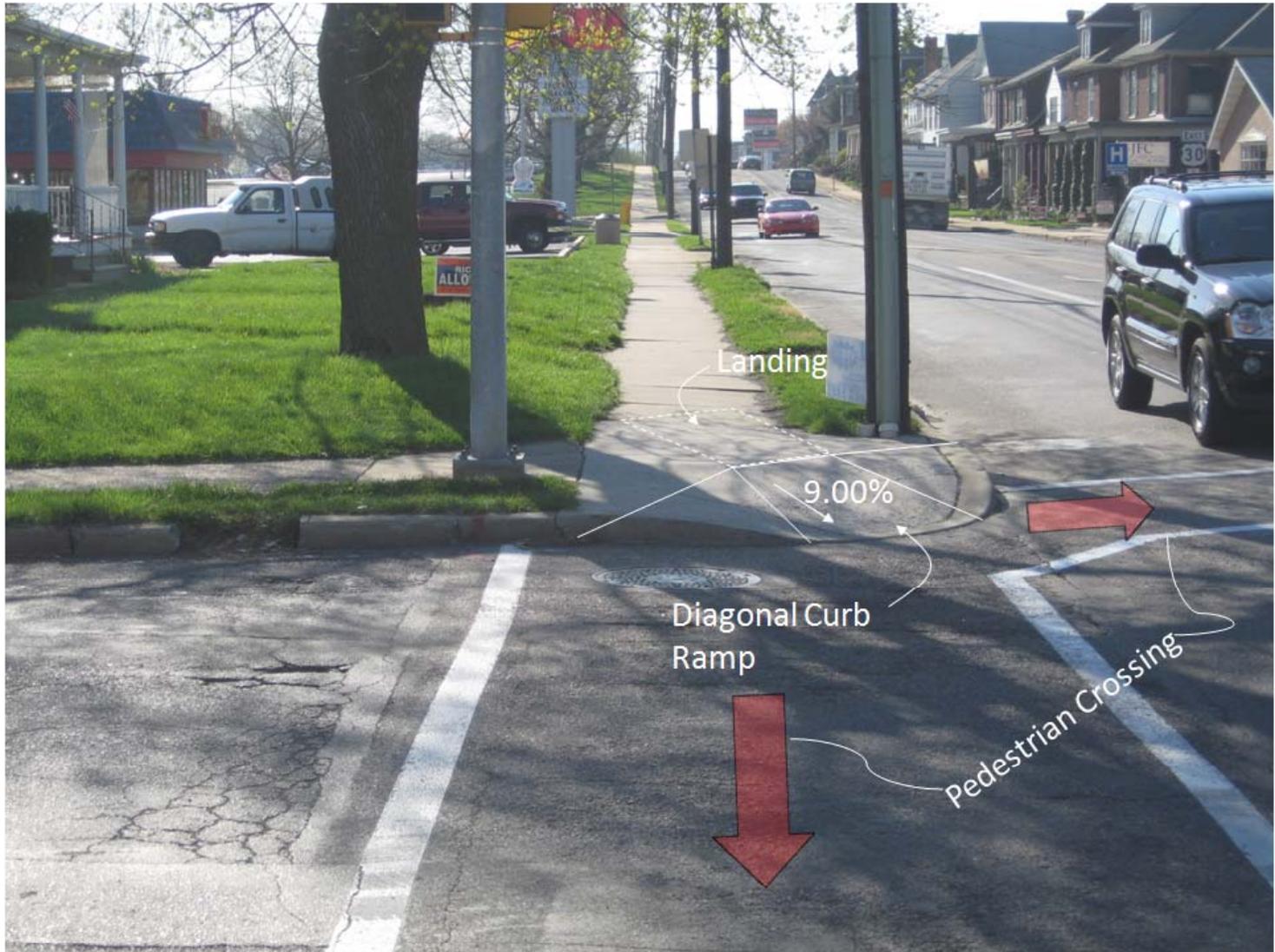


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# Example #7

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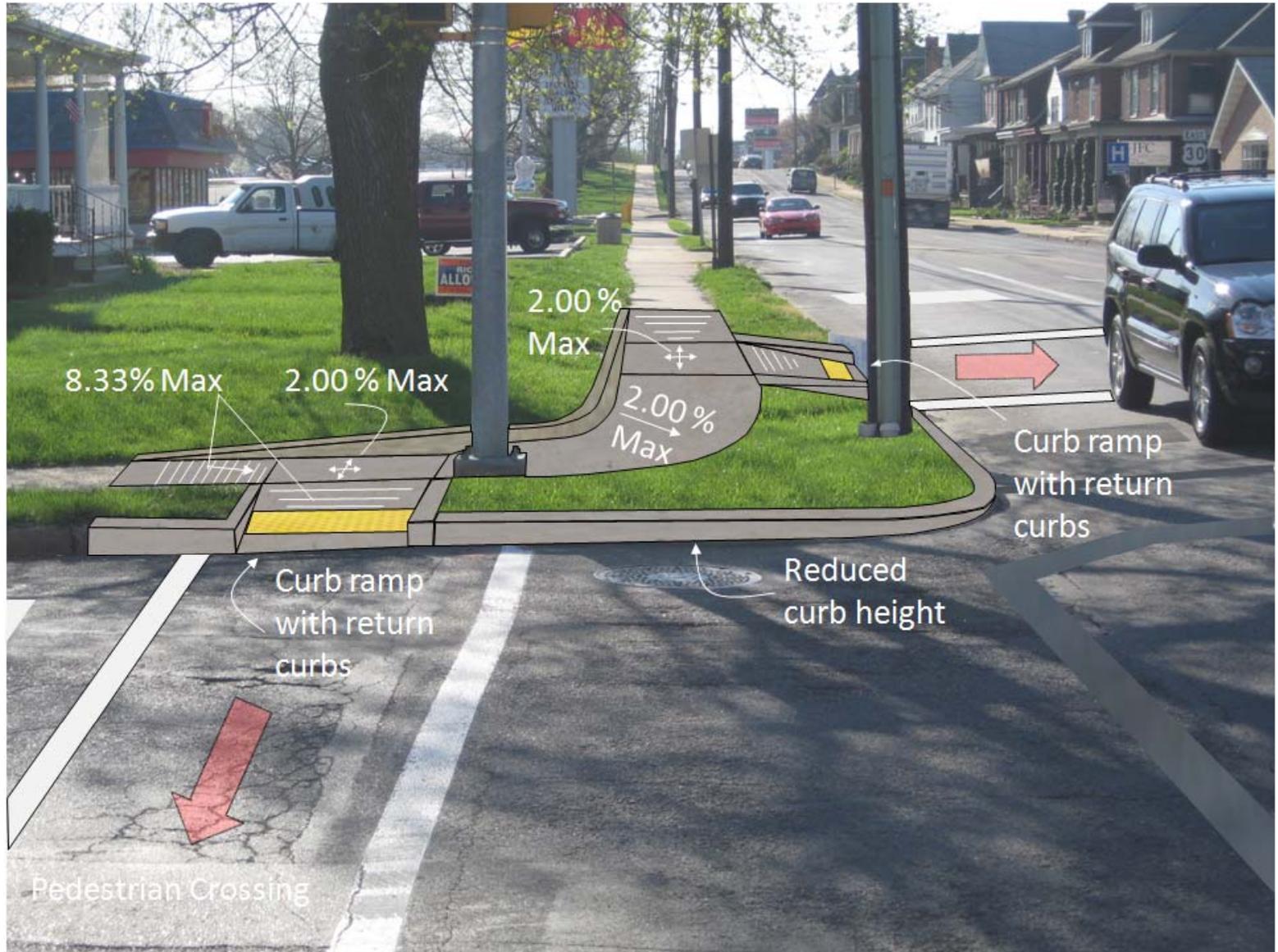


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# Example #7

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# Example #7

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Compliance  
Training



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## Example #8

ADA  
Compliance  
Training



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# Example #8

ADA  
Compliance  
Training



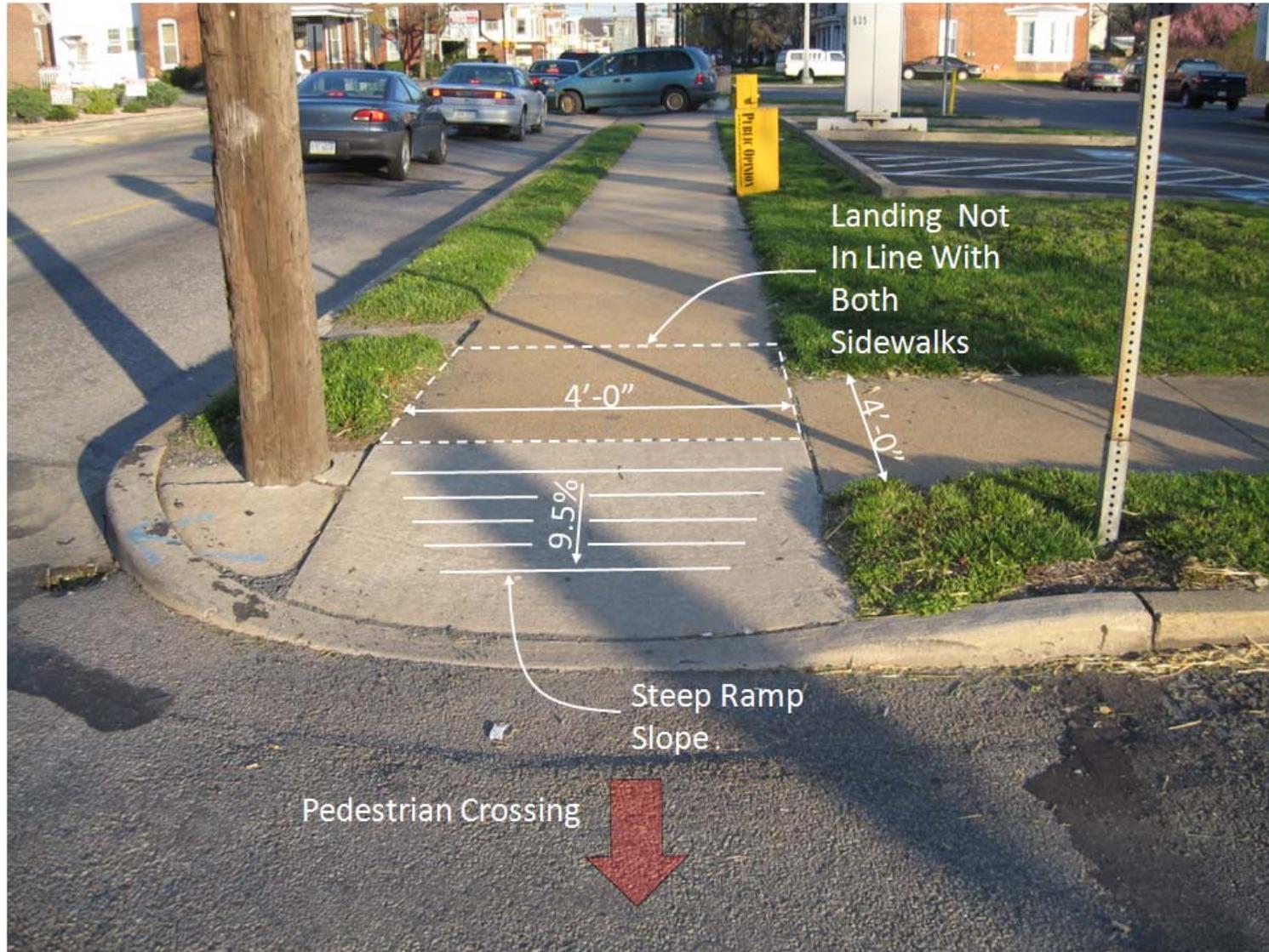
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# Example #9

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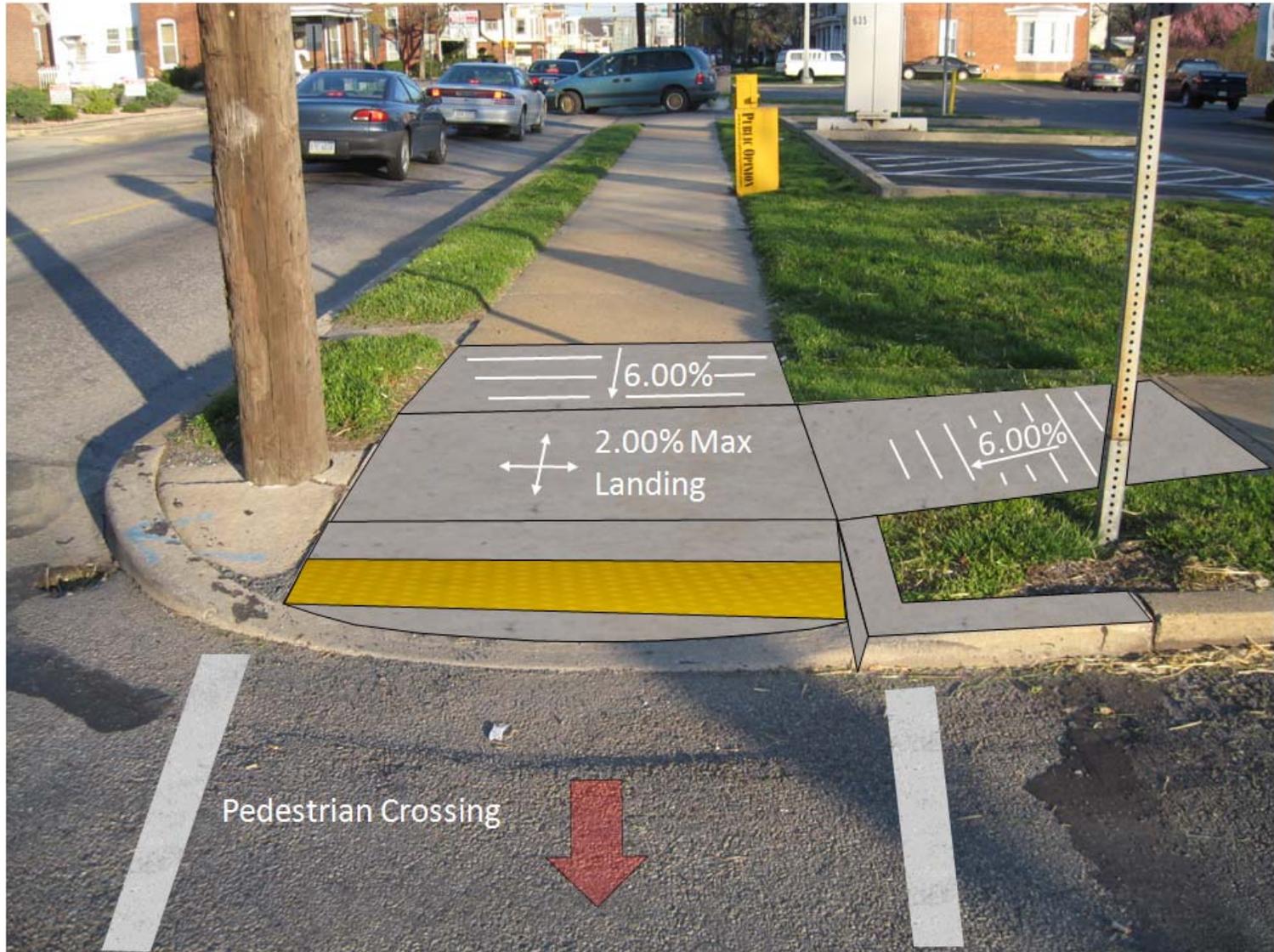


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# Example #9

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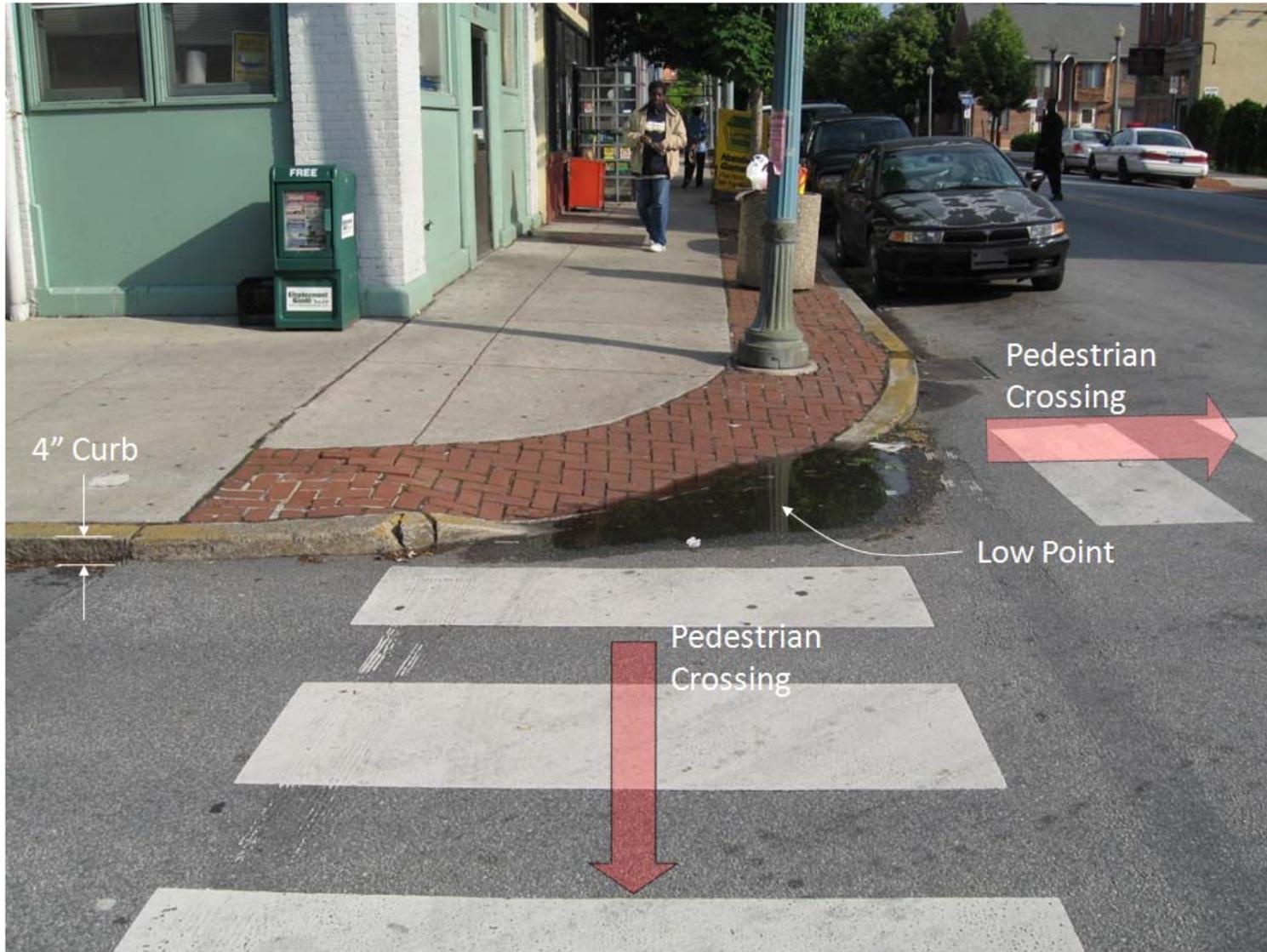


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# Example #10

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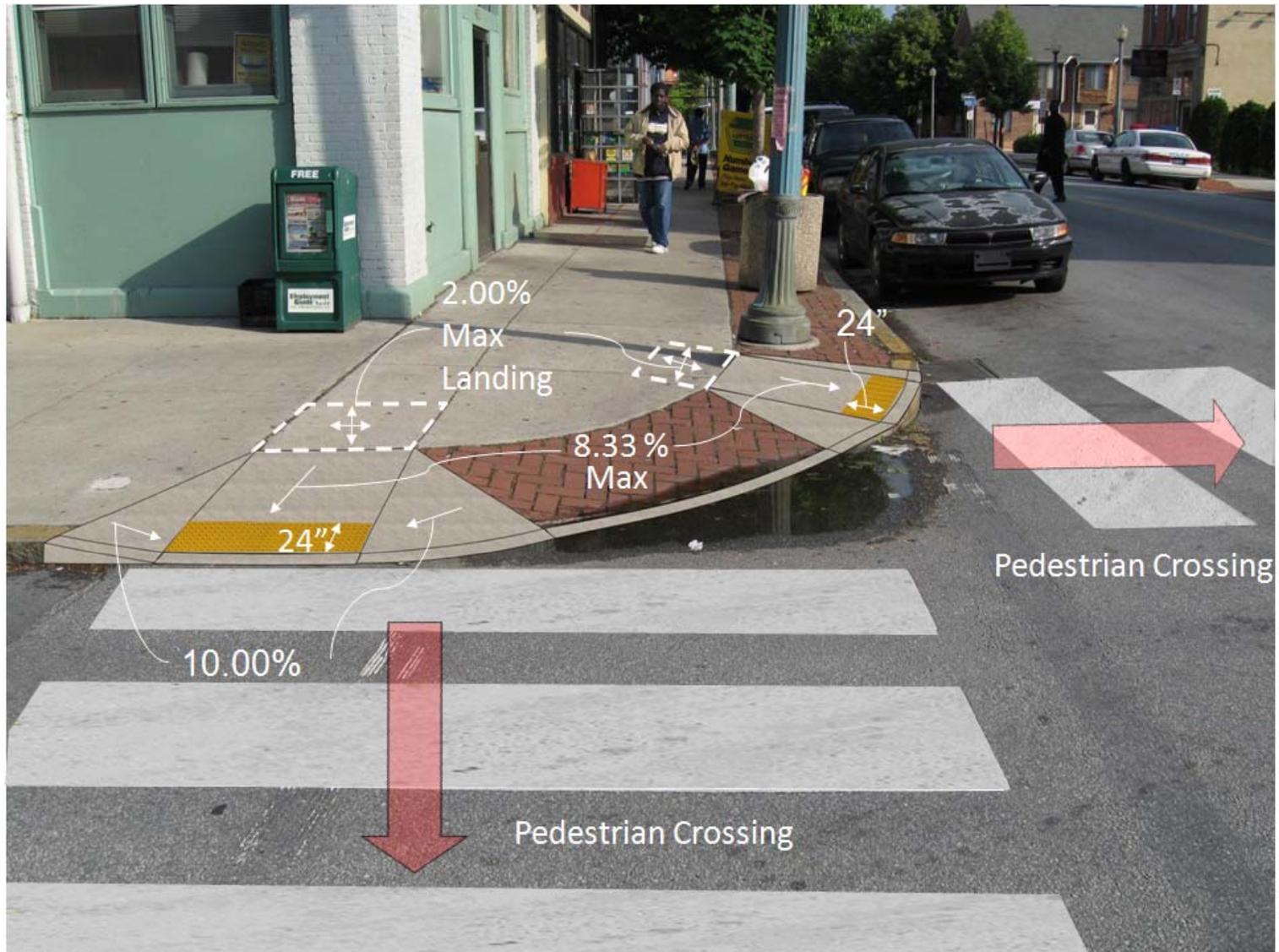


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# ADA Links

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United States Access Board - Sidewalk Videos

<http://www.access-board.gov/news/sidewalk-videos.htm>

ADA Accessibility Guidelines for Buildings and Facilities (ADAAG)

<http://www.access-board.gov/adaag/html/adaag.htm>

DOJ's 2010 ADA Standards (effective March 15, 2012, but can be used now instead of the 1991 standards)

<http://www.access-board.gov/ada-aba/ada-standards-doj.cfm>

Public Rights-of-Way (PROW) Draft Guidelines

<http://www.access-board.gov/prowac/draft.htm>

Special Report: Accessible Public Rights-of-Way Planning and Design for Alterations

<http://www.access-board.gov/prowac/alterations/guide.htm>

Federal Highway Administration (FHWA)

Designing Sidewalks and Trails for Access (Chapter 7 curb ramps)

<http://www.fhwa.dot.gov/environment/sidewalk2/index.htm>

Common Problems Arising in the Installation of Accessible Pedestrian Signals

<http://www.access-board.gov/research/pedestrian-signals/bulletin.htm>

FHWA Accessibility Resource Library

<http://www.fhwa.dot.gov/accessibility/index.cfm>

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## Litigation Avoidance

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**Chicago agrees to Pay Largest ADA Curb Ramp Settlement Ever -- \$50,000,000 in New Money (5 years)**

**Caltrans settles lawsuit over disabled access - The agency proposes to spend \$1.1 billion to ease use of sidewalks, crosswalks and park-and-ride facilities. (30 years)**

**PennDOT ramping up efforts on curb cuts - Lawsuits prompt budgeting of \$820 million to improve access for disabled (10 years)**

**Sacramento settles sidewalk case, avoiding Supreme Court - 20 percent of its transportation funds for the next 30 years to improve sidewalks, crosswalks and curb ramps**

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# Questions

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