2021 DelDOT PAS Manual

October 21st, 2021

DelDOT

Learning Objectives

- Understand the Department's ADA obligations.
- Discuss recent Department standard, guidance, and policy updates.
- Understand how to apply the Department's updated PAS Manual.
- Discuss application of several of the common elements in the public right-of-way.
- Discuss the Department's revised ADA inspection and acceptance process.

About the Presenters

Rob McCleary, PE

Director of Engineering

Mike Nauman, PE

Senior Engineer

Federal Legislative History

Civil Rights Act
1964

Architectural Barriers Act
1968

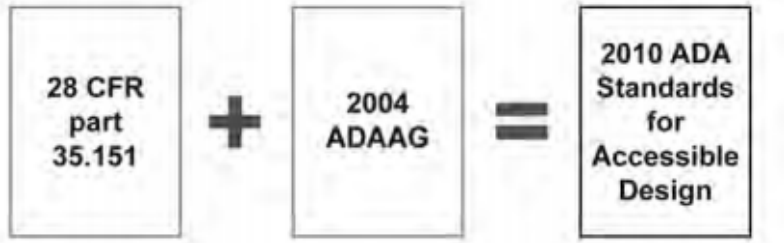
1973
Rehabilitation Act

Americans with Disabilities Act
1990

Title I, II, III, and V of 42 U.S.C. Chapter 126 §12101 et seq.

The Federal Standards

- Legislation required the DOJ and DOT to codify their standards into the Code of Federal Regulations (CFR):
  - Title 49 (Transportation) Part 37 – Transportation Services For individuals with Disabilities (2006). Incorporates the 2004 ADAAG.
  - Title 28 (Judicial Administration) Part 35 – Nondiscrimination on the Basis of Disability in State and Local Government Services (2010). Incorporates the 2004 ADAAG.



- PROWAG is the "Proposed Guidelines for Pedestrian facilities in the Public Right-of-Way". Not regulatory.
  - FHWA memo: "Until the proposed guidelines are adopted as standards, FHWA considers the proposed guidelines to represent best practices for accessibility issues in the PROW not covered by DOJ's or DOT's currently adopted standards."

Other Documents Affected by the Manual Update

- Updated the DelDOT Standard Construction Details.
- Updated Engineering Instruction PM-18-001.
- Updated the ADA Construction Inspection Application (ACIA).
- Created a new accessibility plan review workflow.
- Updated the standard Request for Practical Exception form.


Request for Practical Exception (RPE)
Cover Sheet and Executive Summary

RPE ID:

Contract Name: Contract No.:

Project Purpose: Include a brief statement of the project's proposed objective

Project Type: (from Chapter 2 of PAS Manual)

Pedestrian Facility Type: Examples include sidewalk, street level pedestrian connection, on-street parking etc.

Location Description: Provide description of location including intersecting roads.

Non-compliant element(s): Examples include cross slope, running slope, clear space, turning space etc.

Select all of the reasons why compliance is impracticable:

	Pedestrian and vehicular safety		Operational effects
	Existing site topography		Right-of-way availability
	Structures		Utilities
	Drainage		Environmental or cultural impacts
	Historic features and historic property impacts		Other physical constraints

Describe the constraints or features that made compliance impracticable:

Describe the obstacles or features that made compliance impracticable in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

Describe the evaluation process:

Describe the evaluation process in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

Describe the recommended alternative and summarize how the alternative will not decrease the usability of the facility:

Describe the recommended alternative and summarize how the alternative will not decrease the usability of the facility in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

List the required and provided measurements for all non-compliant elements associated with the feature:

List the required and provided measurements for all non-compliant elements associated with the feature in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

Prepared by: Date:

Reviewed by: Date:

Approved by: Date:

Title II Coordinator

Select all enclosures included:

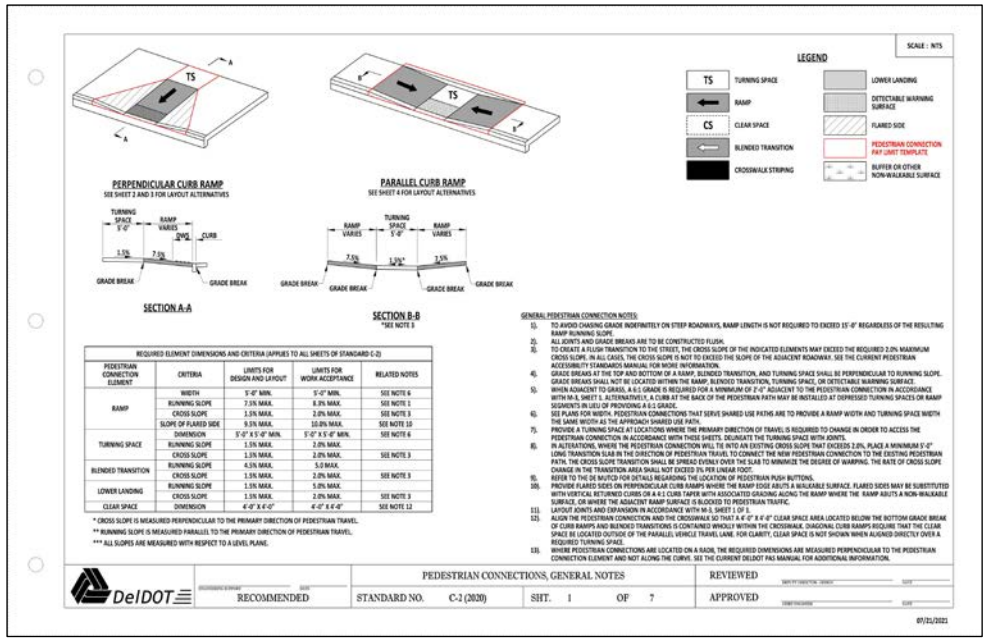
	Location map		Existing site photo(s)
	Schematic of existing location		Schematic of proposed design
	Additional written justification		Other (list below)

List other enclosures in 200 characters. Ensure list of enclosures remains inside the text box.

Future Considerations (to be completed by the DelDOT Title II Coordinator):

☐ This facility could not be made compliant within this project but should be added to the ADA Transition Plan to be made compliant in the future.

☐ The constraints causing non-compliance are not a condition of project scope. It cannot be made compliant in the foreseeable future.




Delaware Department of Transportation

ENGINEERING INSTRUCTION

EI PM-18-001

Title: Pedestrian Connection Plan Preparation and Documentation 6/13/2018

To improve the consistency and quality of information presented in the construction plans sets that are generated for the Delaware Department of Transportation in regards to proposed pedestrian connections, This Engineering Instruction does not cover the requirements of the information to be provided in the construction plan set for laying out proposed curb runs.

General

During the design phase of a project, it is imperative to consider the constraints that construction of a proposed pedestrian connection may encounter. Constraints can include any combination of the following:

- Project scope,
- Existing topography,
- Existing features, and
- Existing right-of-way.

The constraints present at a proposed pedestrian connection will determine the type and detail of information that must be provided in the construction plans. In general, the more constraints a location has the more information must be provided in order to construct the location as per the Contract Documents.

Based on the type of constraints associated with a pedestrian connection location, the Department has classified three different and unique presentation requirements. Each pedestrian connection on a project should be evaluated individually to determine that amount of information that is required to be presented in the construction plan set. Included in this guidance as Appendix A are Model Plans which present the information required to be provided in the construction plan sets based upon the constraints present at a proposed pedestrian connection for the Delaware Department of Transportation.

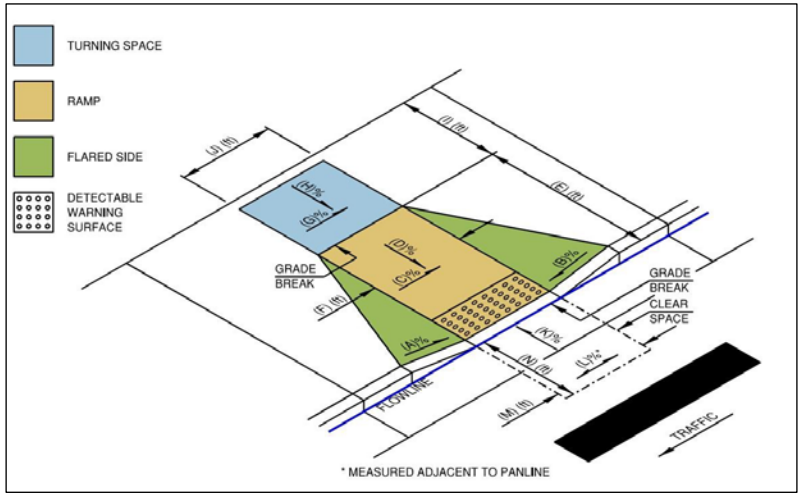
The Engineer of Record in combination with the DelDOT Project Manager will make the determination as to the constraints present at a proposed pedestrian connection location and what information must be generated and displayed in the construction plan sets in relation to the requirements of this Engineering Instruction. Additional information which does not get documented in the construction plan sets can be generated as deemed necessary by the Engineer of Record for design and verification purposes.

When it is determined during construction that a pedestrian connection cannot be built as per plan, all questions should be directed back to the Engineer of Record. The Engineer of Record will be responsible for facilitating a Request for Practical Exception when determined necessary during the construction phase.

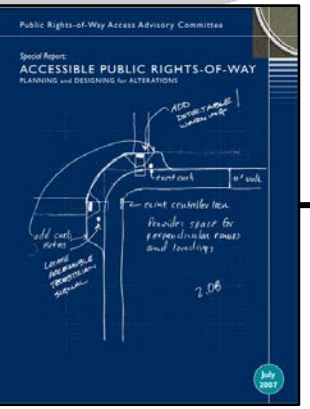
Unconstrained Pedestrian Connection

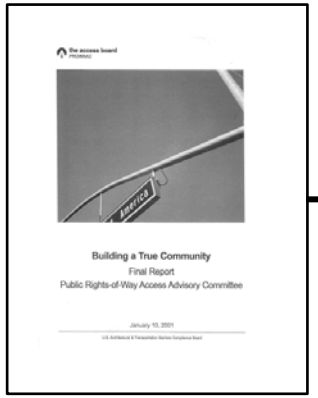
Unconstrained connection occurs where the existing environment can be readily altered during construction activities. Specifying a Standard Construction Detail in the construction plans for each location is appropriate. When a Standard Construction Detail is to be used in this environment, the designer should specify the pedestrian connection type on the plans and also provide a geometric point on the Grades and Geometrics sheet at the intersection of the middle of the pedestrian access route and the back of the curb.

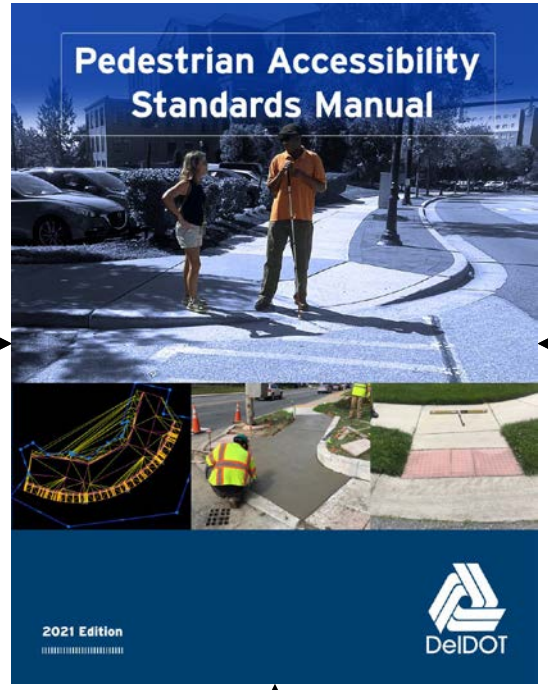
Created By: Michael Nauman Page 1 of 3

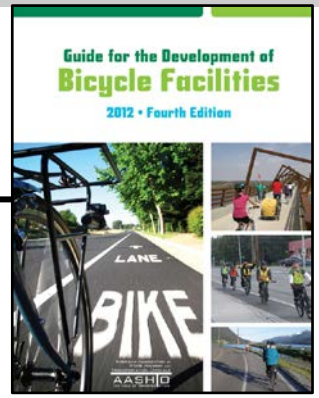


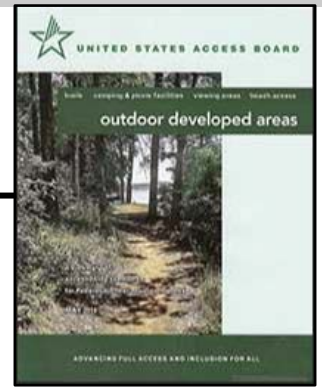
Federal & National Source Documents

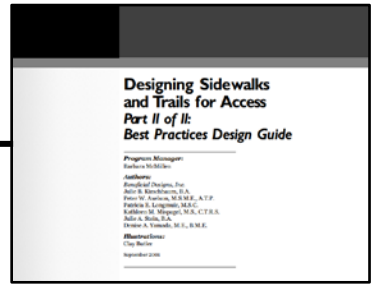


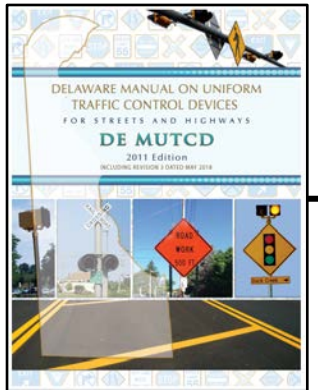


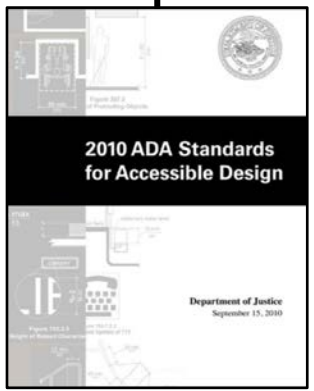




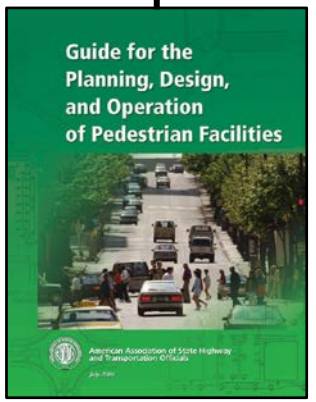


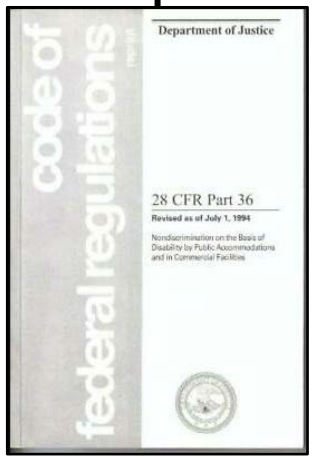


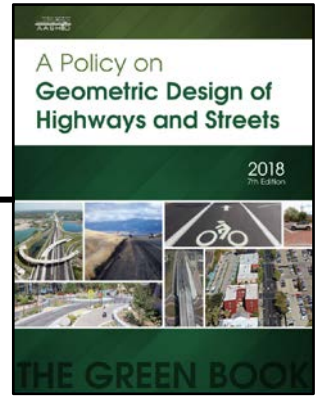




PROWAG







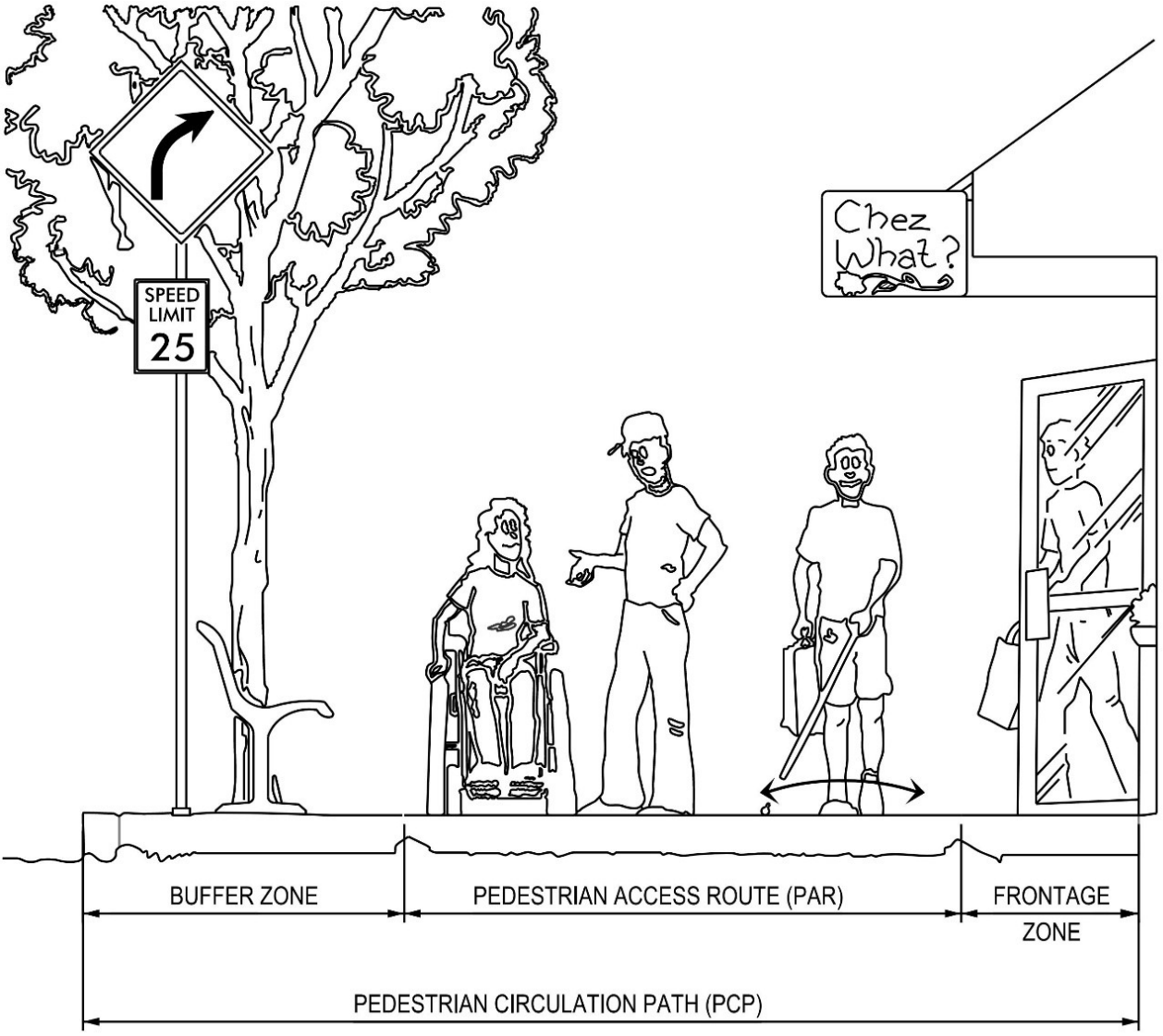
Structure of 2021 Manual

- Chapter 1: Introduction
  - Defines how to apply the manual.
  - Defines the relationship between the Federal source documents.
- Chapter 2: Project Type and Application of Standards
  - Defines the application of the manual based on the work being performed.
- Chapter 3: Accessibility Standards
  - Defines the Department's adopted accessibility standards using the "MUTCD" format for clarity.
- Chapter 4: Design Considerations
  - Provides guidance on how to best apply the accessibility standards.
  - Presents best practices to follow which are not accessibility standards.
- Chapter 5: ADA Inspection and Acceptance Criteria
  - Defines the Department's ADA inspection and accessibility feature acceptance processes.
- Chapter 6: Request for Practical Exceptions
  - Outlines the Department's process to document compliance efforts attempted when compliance is required but considered impractical.

Where Does the Manual Apply?

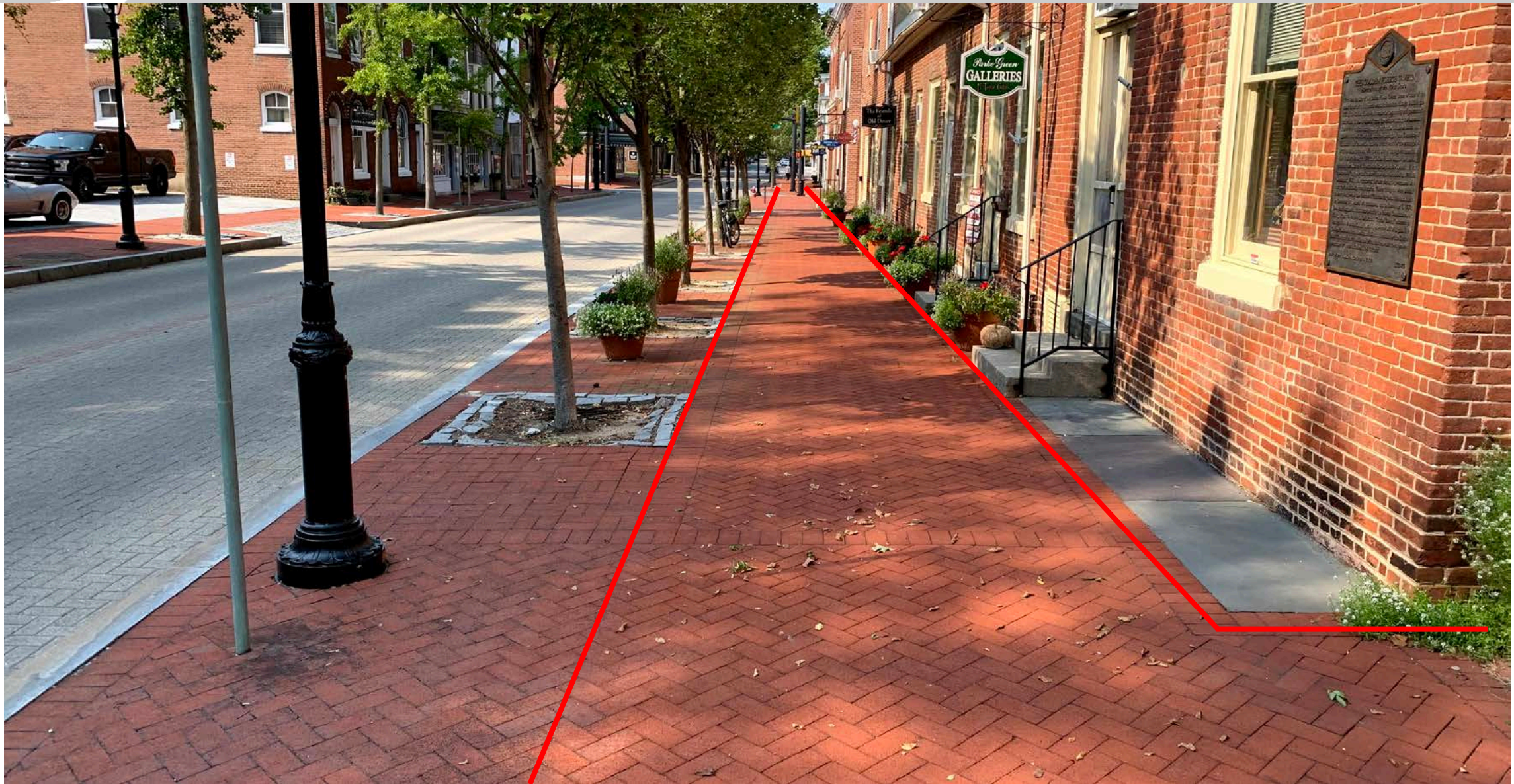
- Applies to all Department administered contracts.
- Intended to apply to all third parties performing work inside of the public right-of-way as a condition of permit approval.
- Does not apply to the following applications:
  - **Buildings and Structures** – Must follow the ADAAG and any other applicable Delaware Building Codes.
  - **Site Work Performed Outside of the Right-of-Way** – Must follow the ADAAG.
  - **Recreational Trails** – Are not governed by the ADAAG or PROWAG unless elements are specifically listed in the ADAAG. Trails are not necessarily part of an infrastructure network connecting elements or facilities, but typically are designed to provide a recreational experience and therefore not part of the pedestrian access route. Federal lands have adopted the Access Board's Outdoor Developed Areas.
  - **Parking Facilities** – Parking facilities that are not considered on-street parking are to follow the ADAAG.
  - **Machinery Spaces** – Spaces that are not intended to be accessed by the public.

The Pedestrian Circulation Path



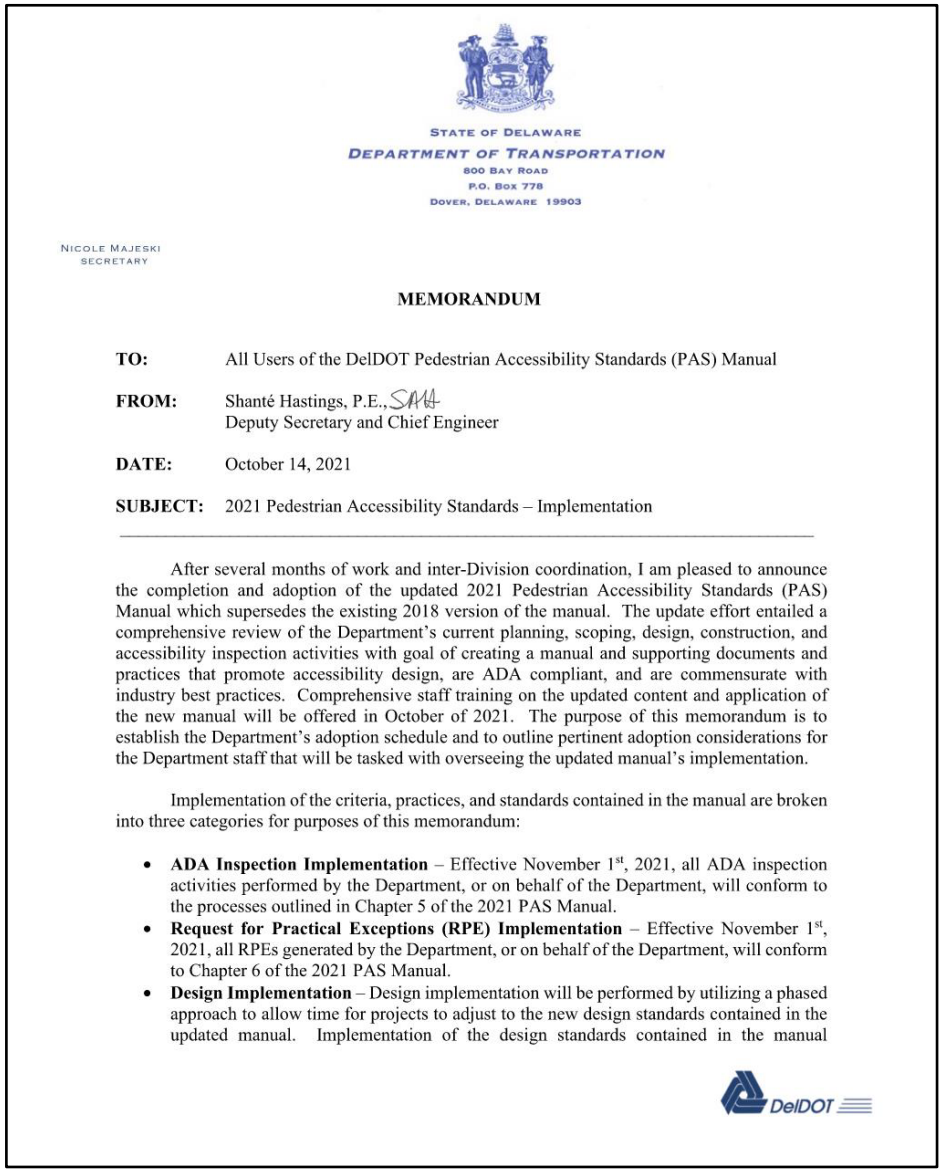
- **Pedestrian Access Route (PAR)** – A continuous and unobstructed path of travel provided for pedestrians with disabilities within or coinciding with a pedestrian circulation path.
- **Pedestrian Circulation Path (PCP)** – A prepared exterior or interior surface provided for pedestrian travel in the public right-of-way.

PAR vs. PCP



2021 Manual Implementation

- **ADA Inspection Implementation** – Effective November 1st.
- **Request for Practical Exception (RPE) Implementation** – Effective November 1st.
- **Design Implementation** – To utilize a phased approach to be discussed later.



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

NICOLE MAJESKI
SECRETARY

MEMORANDUM

TO: All Users of the DelDOT Pedestrian Accessibility Standards (PAS) Manual

FROM: Shanté Hastings, P.E., SHH
Deputy Secretary and Chief Engineer

DATE: October 14, 2021

SUBJECT: 2021 Pedestrian Accessibility Standards – Implementation

After several months of work and inter-Division coordination, I am pleased to announce the completion and adoption of the updated 2021 Pedestrian Accessibility Standards (PAS) Manual which supersedes the existing 2018 version of the manual. The update effort entailed a comprehensive review of the Department's current planning, scoping, design, construction, and accessibility inspection activities with goal of creating a manual and supporting documents and practices that promote accessibility design, are ADA compliant, and are commensurate with industry best practices. Comprehensive staff training on the updated content and application of the new manual will be offered in October of 2021. The purpose of this memorandum is to establish the Department's adoption schedule and to outline pertinent adoption considerations for the Department staff that will be tasked with overseeing the updated manual's implementation.

Implementation of the criteria, practices, and standards contained in the manual are broken into three categories for purposes of this memorandum:

- **ADA Inspection Implementation** – Effective November 1st, 2021, all ADA inspection activities performed by the Department, or on behalf of the Department, will conform to the processes outlined in Chapter 5 of the 2021 PAS Manual.
- **Request for Practical Exceptions (RPE) Implementation** – Effective November 1st, 2021, all RPEs generated by the Department, or on behalf of the Department, will conform to Chapter 6 of the 2021 PAS Manual.
- **Design Implementation** – Design implementation will be performed by utilizing a phased approach to allow time for projects to adjust to the new design standards contained in the updated manual. Implementation of the design standards contained in the manual

Chapter 2:

Project Type and Application of Standards

DelDOT

The Accessibility Requirements

- 28 CFR 35.151 (b) Alterations (1):
  - Each facility or part of a facility altered by, on behalf of, or for the use of a public entity in a manner that affects or could affect the usability of the facility or part of the facility shall, to the maximum extent feasible, be altered in such manner that the altered portion of the facility is readily accessible to and usable by individuals with disabilities, if the alteration was commenced after January 26, 1992.
- 28 CFR 35.151(*i*) Curb ramps (1):
  - Newly constructed or altered streets, roads, and highways must contain curb ramps or other sloped areas at any intersection having curbs or other barriers to entry from a street level pedestrian walkway.
- 28 CFR 35.151(*i*) Curb ramps (2):
  - Newly constructed or altered street level pedestrian walkways must contain curb ramps or other sloped areas at intersections to streets, roads, or highways.

What Does Altered Mean?

- Defined through the courts over the years.
  - *Kinney v. Yerusalim*, 9 F 3d 1067 (3rd Cir. 1993)
    - Plaintiffs (Kinney) sued Howard Yerusalim (Secretary of PennDOT) and Alexander Hoskins (Commissioner of the Streets Department of Philadelphia).
    - City did not install "curb ramps" or "other sloped areas" on streets that the city had resurfaced.
    - Court determined that "usability" should be applied broadly because, "the ADA is a remedial statute, designed to eliminate discrimination against the disabled in all facets of society. As a remedial statute it must be broadly construed to effectuate its purposes."
    - Result: resurfacing = alteration.
    - Note 4: "We should note that the Court is aware of the heavy burden this will place on the City's limited resources. It is unfortunate that Congress, in enacting this type of legislation, often fails to provide the means of financing the obligations it imposes."

DOJ/DOT Guidance

- July 8th, 2013 – DOT/DOJ issue Joint Technical Assistance on the Title II of the Americans with Disabilities Act Requirements to Provide Curb Ramps when Streets, Roads, or Highway are Altered through Resurfacing.
  - Glossary of Terms.
- December 1st, 2015 – QUESTIONS & ANSWERS Supplement to the 2013 DOJ/DOT Joint Technical Assistance on Title II of the Americans with Disabilities Act Requirements to Provide Curb Ramps when Streets, Roads, or Highway are Altered through Resurfacing.
- Questions and Answers About ADA/Section 504 - Civil Rights | Federal Highway Administration (dot.gov)

New Construction

- 28 CFR 35.151 (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.
- 201.1 Scope of the ADAAG:
  - All areas of newly designed and newly constructed buildings and facilities and altered portions of existing buildings and facilities shall comply with these requirements.
- 2.2.1 New Construction of the 2021 DelDOT PAS Manual:
  - All newly constructed facilities and elements added to existing facilities for pedestrian circulation and use located in the public right-of-way shall comply with the requirements of this manual.

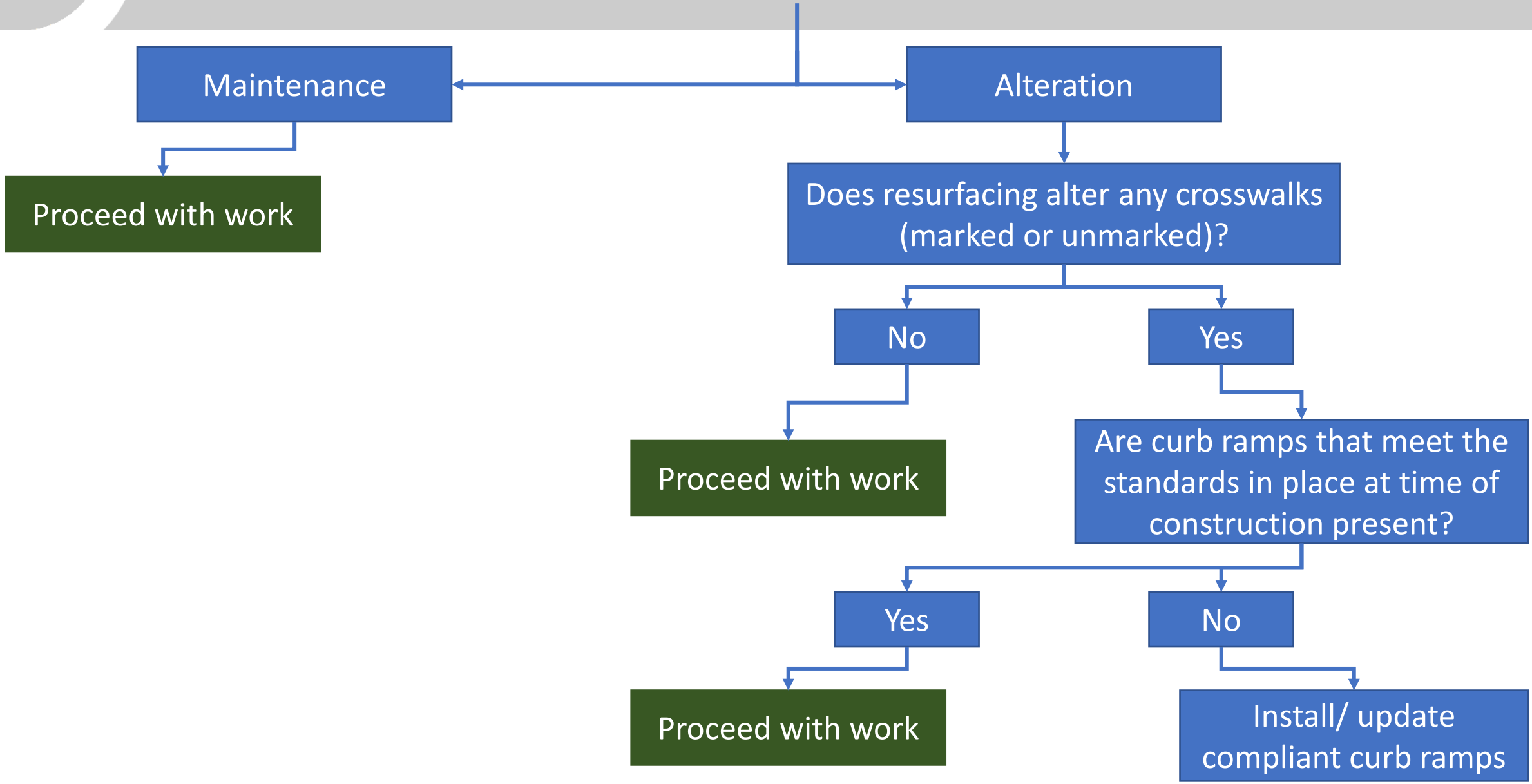
Alterations

- PAS Manual Definition: “Alteration projects include activities such as reconstruction, rehabilitation, resurfacing, widening and projects of similar scale and effect. Maintenance activities that do not affect the usability of the facility are not considered alteration projects.”
  - Reconstruction
  - Rehabilitation
  - Pavement Overlay
  - Open-Graded Surface Course
  - Microsurfacing
  - Thin Lift Overlays
  - Cape Seal
  - In-Place Asphalt Recycling
  - Signal Installation and Upgrades
- These project types are required to add new compliant or replace existing non-compliant curb ramps at locations where an existing prepared surface intended for pedestrian use crosses a curb.

Maintenance

- Maintenance projects consist of actions that are intended to preserve the system, retard future deterioration, and maintain the functional condition of the roadway without increasing the structural capacity.
  - Crack Filling and Sealing,
  - Surface Sealing,
  - Chip Seals,
  - Slurry Seal,
  - Fog Seals,
  - Scrub Sealing,
  - Joint Repairs,
  - Dowel Retrofit, and
  - Spot High-Friction Treatments,
  - Diamond Grinding,
  - Pavement Patching (Filling Potholes),
  - Utility Trenching and Patching,
  - Shoulder Repair,
  - Signing, Striping and Minor Signal Upgrades,
  - Repairs to Drainage Systems.
- Maintenance projects are not required to add new compliant or replace existing non-compliant curb ramps at locations where an existing prepared surface intended for pedestrian use crosses a curb provided that the scope of the work does not result in a lesser level of usability.

Resurfacing Projects



Temporary Conditions

- Section 6D.01 *DE MUTCD*, Paragraph 4:
  - If the TTC [Temporary Traffic Control] zone affects the movement of pedestrians, adequate pedestrian access and walkways shall be provided. If the TTC [Temporary Traffic Control] zone affects an accessible and detectable pedestrian facility, the accessibility and detectability shall be maintained along the alternate pedestrian route.
- 201.3 Temporary and Permanent Structure:
  - These requirements shall apply to temporary and permanent buildings and facilities.
  - Advisory 201.3 Temporary and Permanent Structures. Temporary buildings or facilities covered by these requirements include, but are not limited to, reviewing stands, temporary classrooms, bleacher areas, stages, platforms and daises, fixed furniture systems, wall systems, and exhibit areas, temporary banking facilities, and temporary health screening facilities. Structures and equipment directly associated with the actual processes of construction are not required to be accessible as permitted in 203.2.
- R201.2 Temporary and Permanent Facilities
  - The requirements in this document shall apply to temporary and permanent facilities in the public right-of-way.

Chapter 3:

Accessibility Standards

DelDOT

Chapter 3: Accessibility Standards

- Combines the applicable Federal Standards into one document.
- Follows the Federal source documents as much as possible.
- Uses parenthetical documentation placed at the end of paragraphs for easy citation and verification.
- Uses the “MUTCD” format to easily differentiate what is an accessibility standard vs. what is not an accessibility Standard.

The Federal Standards

- Legislation required the DOJ and DOT to codify their standards into the Code of Federal Regulations:
  - Title 49 (Transportation) Part 37 – Transportation Services For individuals with Disabilities (2010). Incorporates the 2004 ADAAG.
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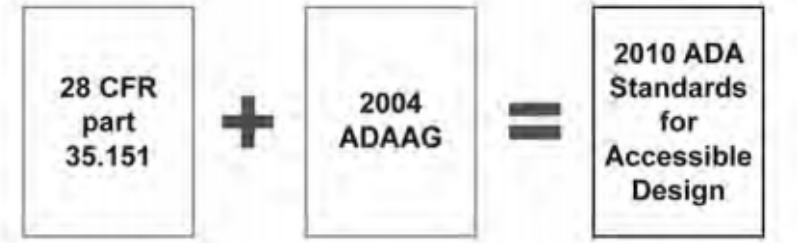

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  - FHWA memo: "Until the proposed guidelines are adopted as standards, FHWA considers the proposed guidelines to represent best practices for accessibility issues in the PROW not covered by DOJ's or DOT's currently adopted standards."

Adopted Standards

GPI's Evaluation and Analysis of Federal ADA Standards					GPI's Recommendations to DelDOT		
PROWAG			ADAAG Equivalent	Analysis	Include in Standard?	Include in Guidance?	Additional Notes
	R302.3.1	Medians and Pedestrian Refuge Islands	403.5.1	ADAAG does not differentiate or provide different criteria for these facilities.	Adopt PROWAG	Yes	PROWAG requirement is wider and may be considered above and beyond regulatory minimum, but widely accepted as a best practice. Implement RPE process to allow ADAAG minimum via a checkbox on the RPE form.
	R302.3.2	Shared Use Paths	403.5.1	ADAAG does not differentiate or provide different criteria for these facilities. PROWAG requires the PAR to extend across the full width of a shared use path, which goes above and beyond the PAR criteria elsewhere.	No	Yes	AASHTO Guidance goes beyond ADA requirement. PAS Update Committee should provide feedback on this parameter.
R302.4	Passing Spaces		403.5.3	Same basic criteria. ADAAG includes slightly more	Adopt PROWAG	Yes	Guidance document should include discussion of the

Analysis	Include in Standard?	Include in Guidance?	Additional Notes
ADAAG does not differentiate or provide different criteria for these facilities.	Adopt PROWAG	Yes	PROWAG requirement is wider and may be considered above and beyond regulatory minimum, but widely accepted as a best practice. Implement RPE process to allow ADAAG minimum via a checkbox on the RPE form.

	R302.5.4	Physical Constraints	403.3	Establishes that physical constraints do not justify a do nothing approach and instead require ADA improvements to the "extent practicable".	No	Yes	Process to document actions taken "to the extent practicable" should be included in Chapter 4 of the PAS.
	R302.5.5	Regulatory Constraints	403.3	Establishes that constraints posed by regulatory requirements on impacts to natural and cultural resources do not justify a do nothing approach and instead require ADA improvements to the "extent practicable".	No	Yes	Process to document actions taken "to the extent practicable" should be included in Chapter 4 of the PAS.
R302.6	Cross Slope		403.3	ADAAG just state's 1:48 max without additional criteria presented in the PROWAG. Please note the ADAAG states 1:48 in general for cross slope whereas PROWAG states 2%.	Adopt PROWAG	Yes	PROWAG's 2% offers more consistency with other DelDOT design standards than ADAAG's 1:48, which is a seldom encountered slope criteria in roadway design.
	R302.6.1	Pedestrian Street Crossings Without Yield or Stop Control	403.3	ADAAG just state's 1:48 max without additional criteria presented in the PROWAG. Please note the ADAAG states 1:48 in general for cross slope whereas PROWAG states 2%.	Adopt PROWAG	Yes	PROWAG's 2% offers more consistency with other DelDOT design standards than ADAAG's 1:48, which is a seldom encountered slope criteria in roadway design.
	R302.6.2	Midblock Pedestrian Street Crossings	403.3	ADAAG just state's 1:48 max without additional criteria presented in the PROWAG. PROWAG offers considerable flexibility for this parameter by permitting cross slopes to equal the street or highway grade, which could be steeper than 1:48.	Adopt PROWAG	Yes	
	Surfaces		302.1	PROWAG and ADAAG are consistent	Adopt ADAAG	Yes	ADAAG offers the advisory definition of a "slip resistant" surface as one that "provides sufficient frictional counterforce to the forces exerted in walking to permit safe ambulation." (advisory 302.1 General)
R302.7	R302.7.1	Vertical Alignment	NA	ADAAG has no equivalent.	No	Yes	The language is vague and subject to interpretation based on the term "generally".

Design and Layout Standard vs Acceptance Standard

Accessibility Element	Design and Layout Limit Standard	Work Acceptance and Accessibility Standard
Slope of Flared Sides	9.5%	10.0% max.
Curb Ramp Running Slope	7.5%	8.3% max.
Blended Transition Running Slope	4.5%	5.0% max.
Cross Slope of PAR	1.5%	2.0% max.
Turning Space Running Slope	1.5%	2.0% max.
Counter Slope at the Bottom of Ramps/ Blended Transitions	4.5%	5.0% max.
Running Slope of Path Not Within Street or Highway Right-of-Way	4.5%	5.0% max.
Running Slope of Pedestrian Street Crossing	4.5%	5.0% max.
Cross Slope of an intersection without Yield or Stop Control	4.5%	5.0% max.
Bus Stop/ Transit Stop Slope	1.5%	2.0% max.

Design and Layout Standard vs Acceptance Standard

REQUIRED ELEMENT DIMENSIONS AND CRITERIA (APPLIES TO ALL SHEETS OF STANDARD C-2)				
PEDESTRIAN CONNECTION ELEMENT	CRITERIA	LIMITS FOR DESIGN AND LAYOUT	LIMITS FOR WORK ACCEPTANCE	RELATED NOTES
RAMP	WIDTH	5'-0" MIN.	5'-0" MIN.	SEE NOTE 6
	RUNNING SLOPE	7.5%	8.3% MAX.	SEE NOTE 1
	CROSS SLOPE	1.5%	2.0% MAX.	SEE NOTE 3
	SLOPE OF FLARED SIDE	9.5%	10.0% MAX.	SEE NOTE 10
TURNING SPACE	DIMENSION	5'-0" X 5'-0" MIN.	5'-0" X 5'-0" MIN.	SEE NOTE 6
	RUNNING SLOPE	1.5%	2.0% MAX.	
	CROSS SLOPE	1.5%	2.0% MAX.	SEE NOTE 3
BLENDED TRANSITION	RUNNING SLOPE	4.5%	5.0 MAX.	
	CROSS SLOPE	1.5%	2.0% MAX.	SEE NOTE 3
TRIANGULAR AREA	RUNNING SLOPE	1.5%	5.0% MAX.	
	CROSS SLOPE	1.5%	2.0% MAX.	SEE NOTE 3
CLEAR SPACE	DIMENSION	4'-0" X 4'-0"	4'-0" X 4'-0"	SEE NOTE 12

* CROSS SLOPE IS MEASURED PERPENDICULAR TO THE PRIMARY DIRECTION OF PEDESTRIAN TRAVEL.

** RUNNING SLOPE IS MEASURED PARALLEL TO THE PRIMARY DIRECTION OF PEDESTRIAN TRAVEL.

*** ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE.

Standards Format

- **Standard - a statement of required, mandatory, or specifically prohibited practice. All Standard statements are labeled, and the text appears in bold type.**
  - ***Exception - a statement, a location, or a condition where a Standard may not apply. All Exception Statements are labeled, and the text appears in bold and italicized font.***
- *Guidance – a statement of a recommended practice to optimize facility operation. All Guidance statements are labeled, and the text appears in italicized type.*
- Option – a statement of practice that is a permissive condition and carries no requirement or recommendation.
- Advisory – an informational statement used to clarify a Standard, Exception, Guidance, or Option. An Advisory statement does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition.

Table 1.5

The user is encouraged to use Table 1.5 in conjunction with reading the full

3.2.1 Perpendicular Curb Ramps		
Turning space to be provided at the top of the curb ramp at an unconstrained location	4’-0" min. x 4’-0" min.	3.2.1.1
Turning space to be provided at the top of the curb ramp at a constrained location (long dimension in the direction of the ramp run)	5’-0" min. x 4’-0” min.	3.2.1.1
Turning space running slope	2% max.	3.2.1.2
Ramp running slope	8.3% max. (shall not be required to exceed 15’-0” in length)	3.2.1.2
Flared sides	Sloped 10% max., measured parallel to the curb line	3.2.1.3
Grade breaks at the top and bottom of the curb ramp runs	Perpendicular to the direction of the ramp run	3.2.1.4
Counter slope of the gutter or street at the foot of the curb ramp run, blended transition and turning space	5% max.	3.2.5.3

Chapter 4:

Design Considerations

DelDOT

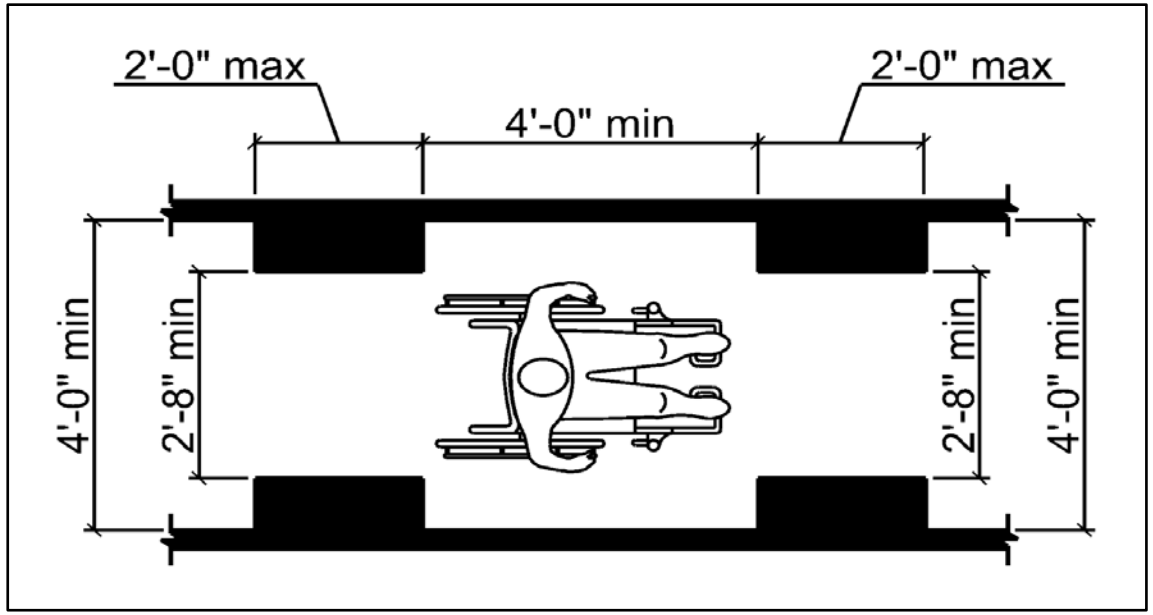
Chapter 4: Design Considerations

- Puts the standards into layman's terminology.
- Describes how to apply the accessibility standards.
- Provides additional considerations to optimize the pedestrian network.

Continuous Width of PAR (Accessibility)

Standard: Except as provided in Section 3.1.1.1, the continuous clear width of pedestrian access routes shall be 4’-0” minimum, exclusive of the width of the curb. (R302.3)

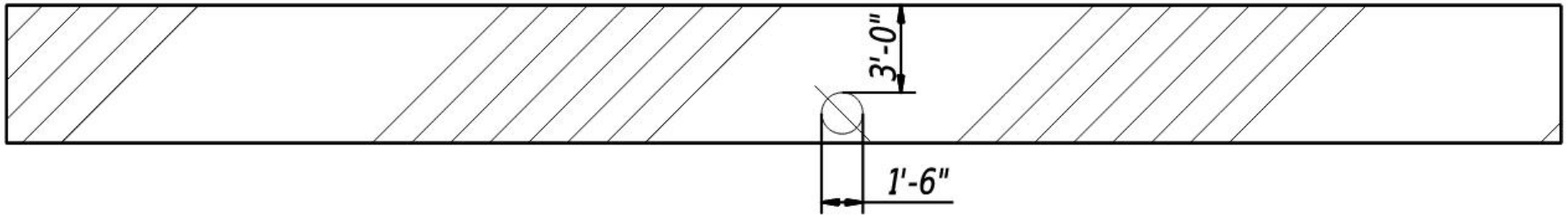
Exception: The continuous clear width shall be permitted to be reduced to 2’-8” minimum for a length of 2’-0” maximum provided that reduced width segments are separated by segments that are 4’-0” long minimum and 4’-0” wide minimum. (403.5.1)



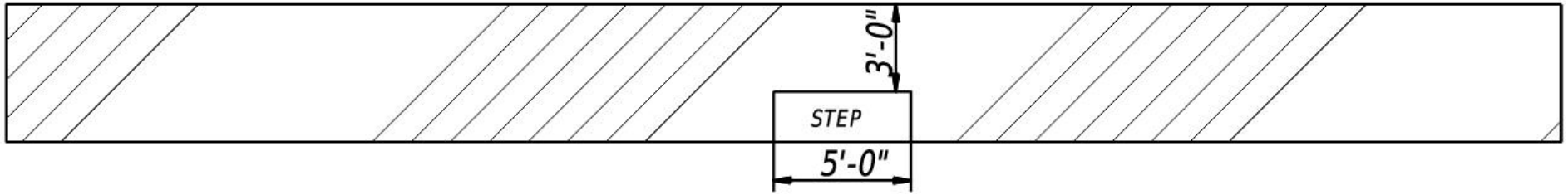
Advisory: Pedestrian access route widths that are narrower than 2’-8” for any length are not accessible and will not be permitted.

Continuous Width Examples

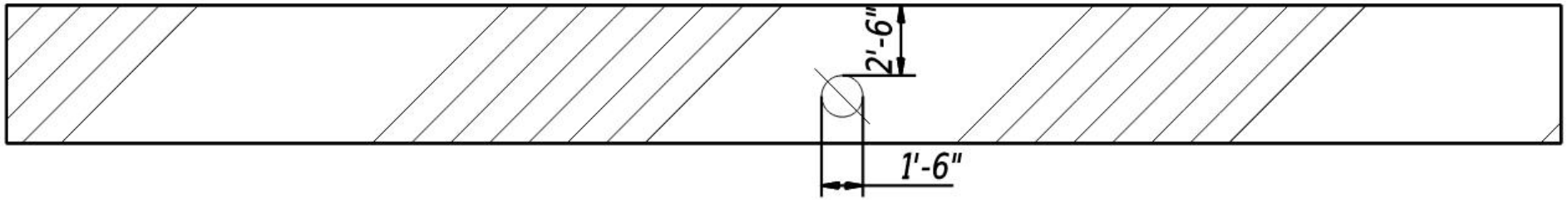
1.



2.



3.



Continuous Width of PAR

Guidance: In low pedestrian traffic volume locations, the pedestrian access route should be 5'-0" wide. At locations with narrow right-of-way, consideration should be given to re-allocating space in the right-of-way (i.e., narrower vehicular lanes) in order to provide this desired 5'-0" width.

Guidance: The pedestrian access route width should be increased to 6'-0" at locations where no buffer strip is provided between the roadway and the pedestrian access route.

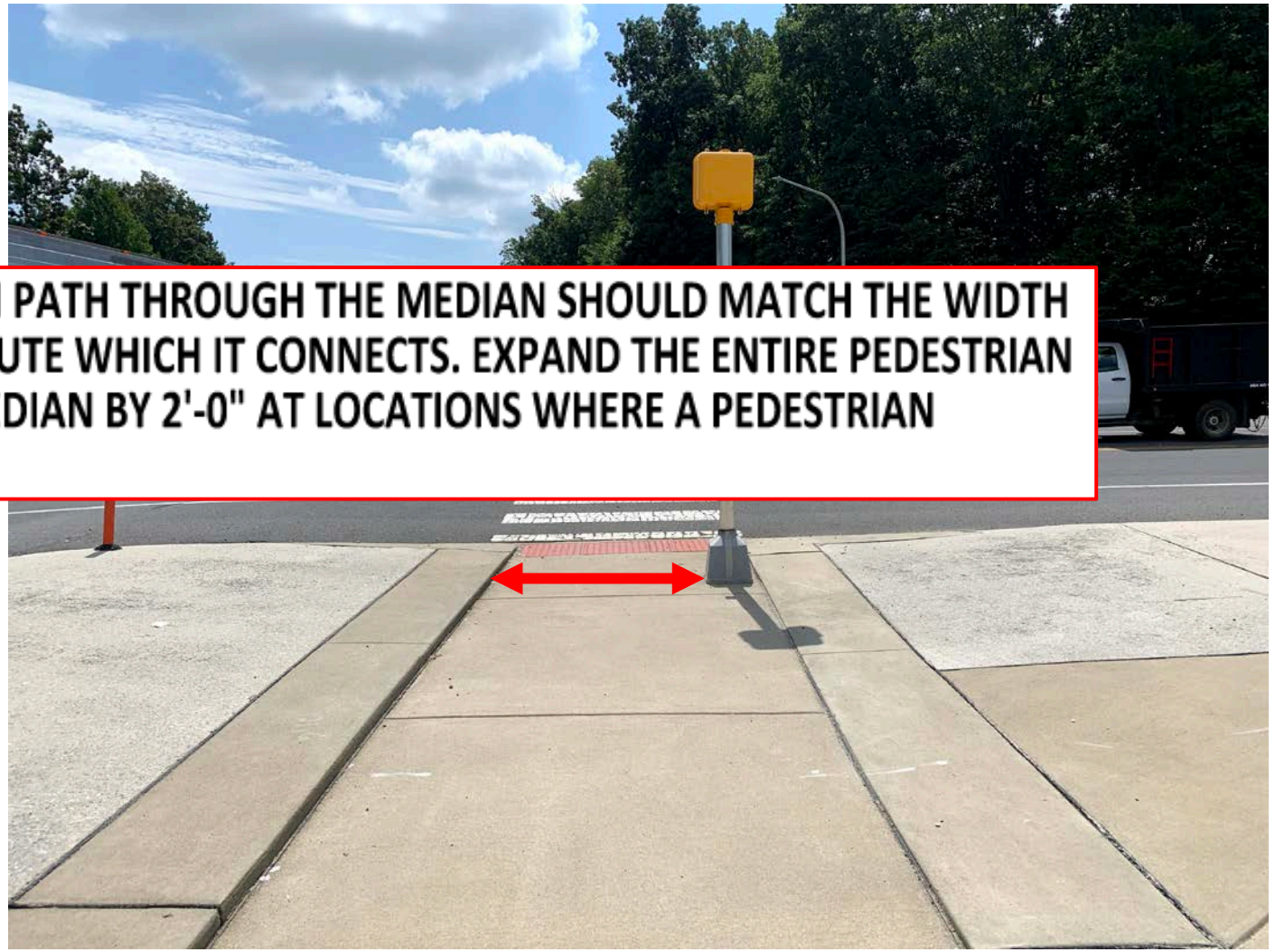
Guidance: At locations where high pedestrian traffic is anticipated such as central business districts, stadiums, and schools, additional width should be added to the pedestrian access route to accommodate the anticipated extra pedestrian volume. The Institute of Transportation Engineers' Highway Capacity Manual provides procedures to assess the sidewalk width needed to accommodate particular volumes at a desired level of service.

Medians and Pedestrian Refuge Islands

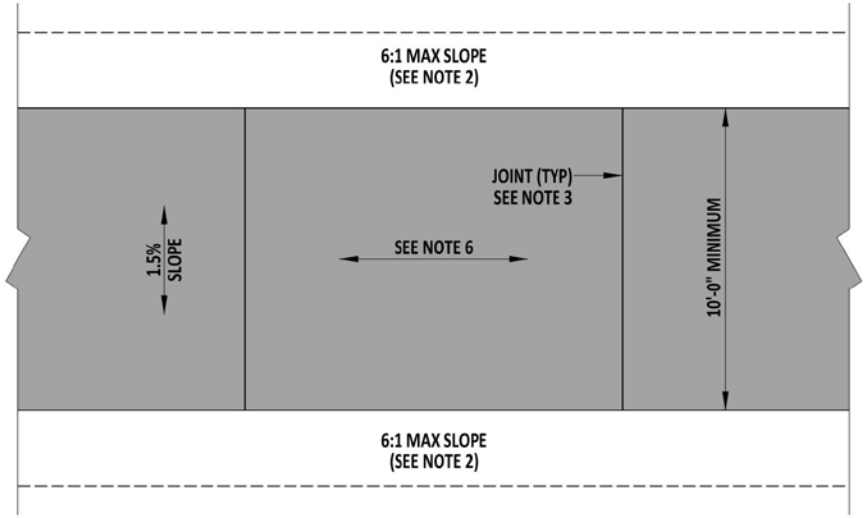
Standard: The clear width of pedestrian access routes within medians and pedestrian refuge islands shall be 5’-0” minimum. (R302.3.1)

Guidance: *width of medians match the route which it connects.*

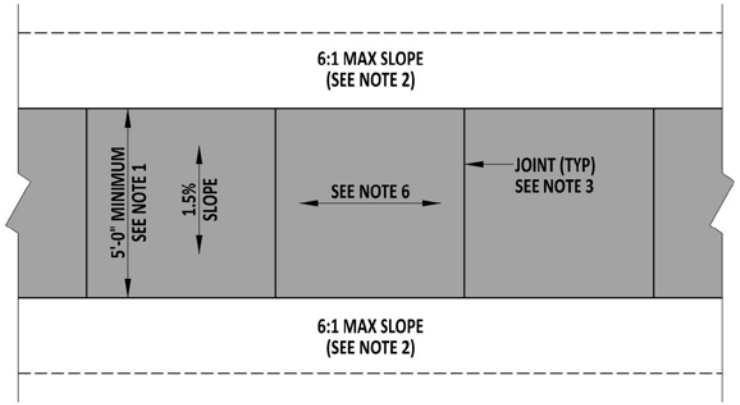
Guidance: The designed continuous clear width should be expanded an additional 2’-0” along the whole pedestrian path length at locations where pedestrian pushbuttons are to be placed.



SCALE : NTS

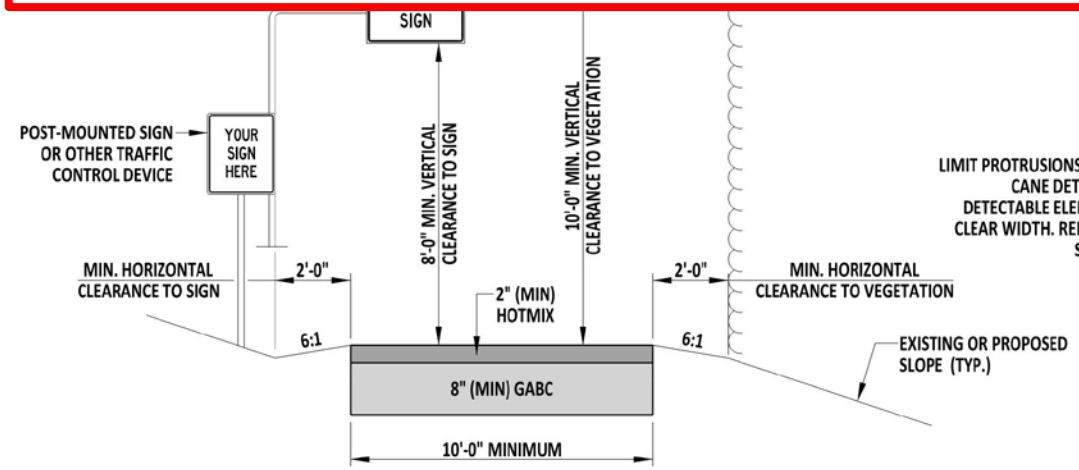


SHARED-USE PATH PLAN

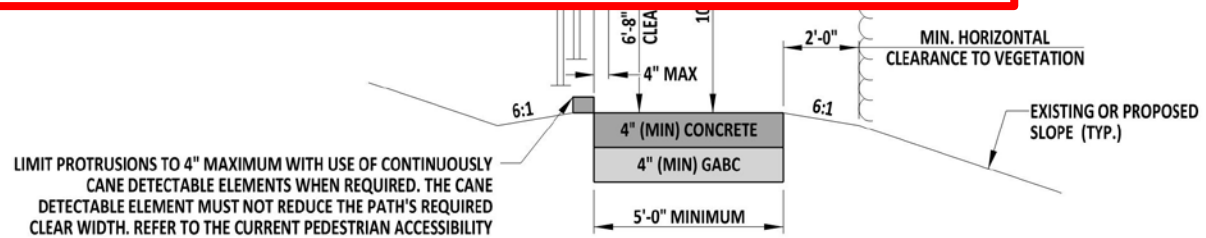


SIDEWALK PLAN

1). THE MINIMUM SIDEWALK WIDTH WHEN A BUFFER STRIP IS PROVIDED BETWEEN THE EDGE OF PAVEMENT AND THE SIDEWALK IS 5'-0". THE MINIMUM SIDEWALK WIDTH WHEN A BUFFER STRIP IS NOT PROVIDED IS 6'-0".



SHARED-USE PATH TYPICAL SECTION

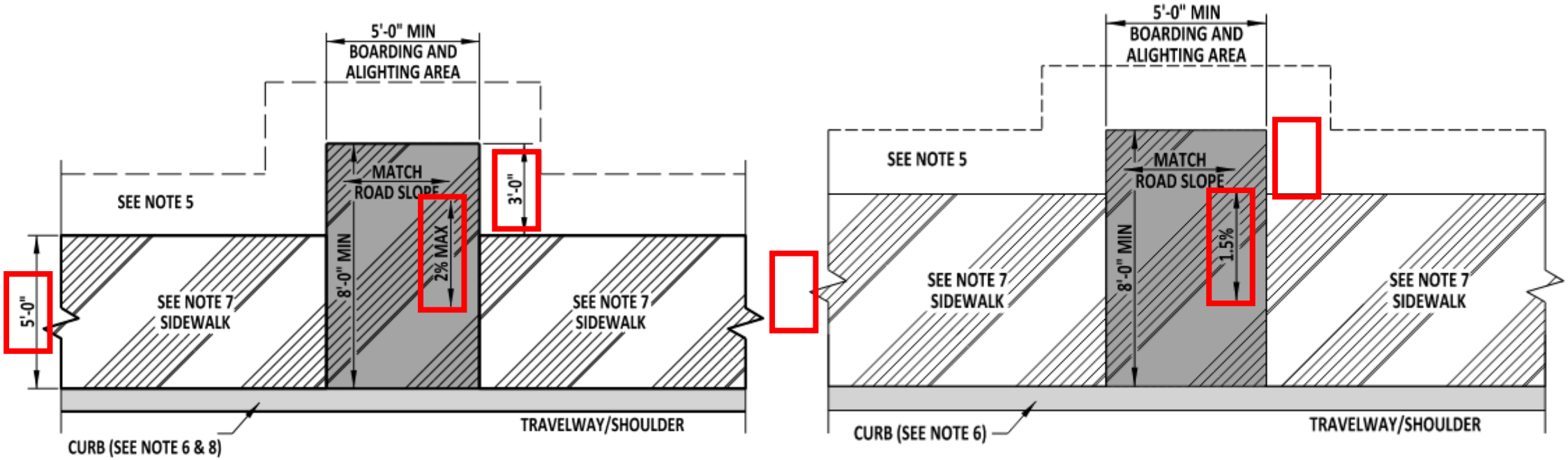


SIDEWALK TYPICAL SECTION

NOTES:

1). THE MINIMUM SIDEWALK WIDTH WHEN A BUFFER STRIP IS PROVIDED BETWEEN THE EDGE OF PAVEMENT AND THE SIDEWALK IS 5'-0". THE MINIMUM SIDEWALK WIDTH WHEN A BUFFER STRIP IS NOT PROVIDED IS 6'-0".
2). A 6:1 GRADE IS REQUIRED FOR A MINIMUM OF 2'-0" IMMEDIATELY ADJACENT TO THE SHARED USE PATH OR SIDEWALK.
3). FOR SIDEWALKS, PLACE CONSTRUCTION JOINTS EVERY 5'-0" IN ACCORDANCE WITH SECTION 705.3. FOR CONCRETE SHARED-USE PATHS, PLACE CONSTRUCTION JOINTS EVERY 10'-0".
4). PLACE EXPANSION MATERIAL IN ACCORDANCE WITH SECTION 701.3.
5). WHEN EXISTING OBSTRUCTIONS (FIRE HYDRANT, UTILITY POLE, ETC...) ARE LOCATED IN THE SIDEWALK, MAINTAIN A MINIMUM WIDTH OF 32" AND MAXIMUM LENGTH CONSTRICTION OF 24".
6). NOT TO EXCEED 4.5% OR ADJACENT ROAD GRADE.

Updated Standard Construction Details



BUS STOP PAD, TYPE 1

* - TO BE USED WHEN THE PAD IS PLACED BEHIND CURB AND INCLUDES A SIDEWALK WITHOUT A GRASS STRIP

Grade of PAR (Running Slope)

- Within Street or Highway Right-of-Way:
  - **Standard: Except as provided in Section 3.1.3.3, where pedestrian access routes are contained within a street or highway right-of-way, the grade of pedestrian access routes shall not exceed the general grade established for the adjacent street or highway. (R302.5.1)**
- Not within Street or Highway Right-of-Way:
  - **Standard: Where pedestrian access routes are not contained within a street or highway right-of-way, the grade of pedestrian access routes shall be 5 percent maximum. (R302.5.2)**
  - *Guidance: The pedestrian access route should be designed at a 4.5 percent maximum grade.*
- Within Pedestrian Street Crossings:
  - **Standard: Where pedestrian access routes are contained within a pedestrian street crossing, the grade of pedestrian access routes shall be 5 percent maximum. (R302.5.3)**
  - *Guidance: The pedestrian access route should be designed at a 4.5 percent maximum grade where possible based on roadway geometrics.*

Cross Slope of PAR

- **Standard: Except as provided in Section 3.1.4.1 and Section 3.1.4.2, the cross slope of pedestrian access routes shall be 2 percent maximum. (R302.6)**
- Pedestrian Street Crossings Without Yield or Stop Control
  - **Standard: Where pedestrian access routes are contained within pedestrian street crossings without yield or stop control, the cross slope of the pedestrian access route shall be 5 percent maximum. (R302.6.1)**
  - *The pedestrian access route should be designed at a 4.5 percent cross slope where possible based on roadway geometrics.*
- Midblock Pedestrian Street Crossings
  - **Where pedestrian access routes are contained within midblock pedestrian street crossings, the cross slope of the pedestrian access route shall be permitted to equal the street or highway grade. (R302.6.2)**
  - Roundabouts where the crossing is outside of the direct influence of the yield fall into this category.

Cross Slope of PAR

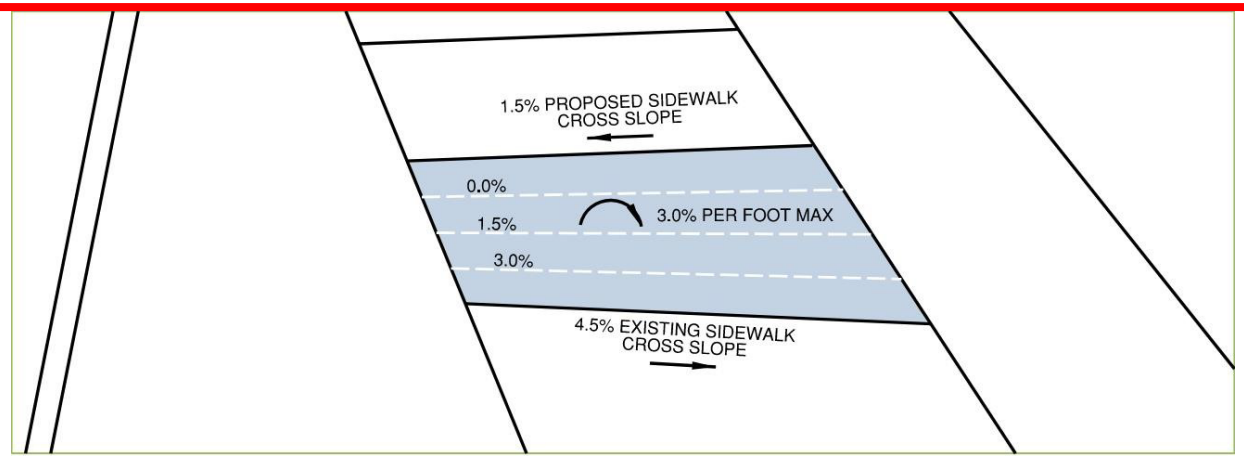
Cross Slope of PAR

Cross Slope of PAR

Transitional Segments

- R202.3.2 Transitional Segments - Transitional segments of pedestrian access routes shall connect to existing

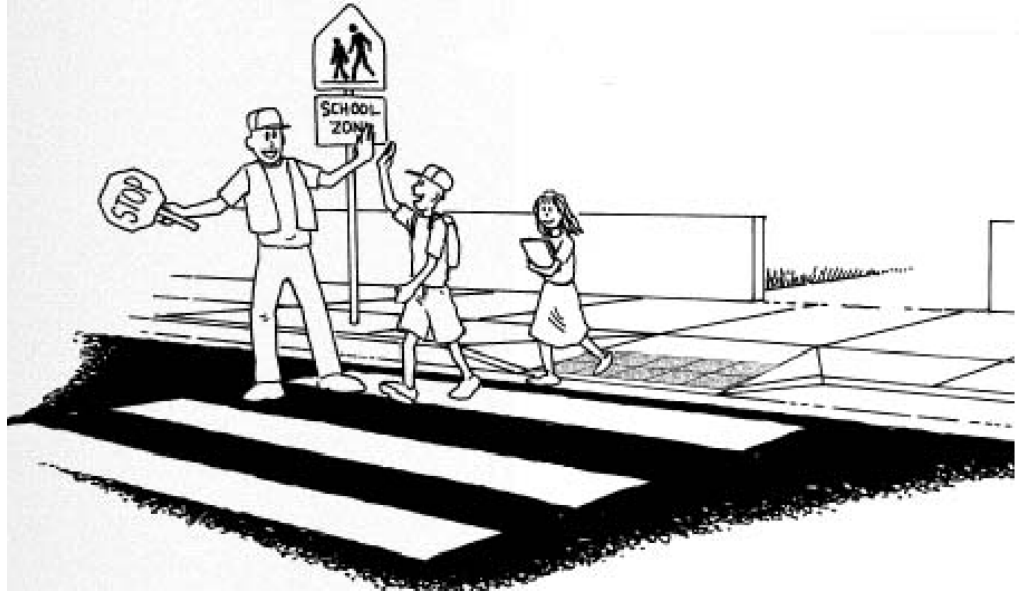
8). IN ALTERATIONS, WHERE THE PEDESTRIAN CONNECTION WILL TIE INTO AN EXISTING CROSS SLOPE THAT EXCEEDS 2.0%, PLACE A MINIMUM 5'-0" LONG TRANSITION SLAB IN THE DIRECTION OF PEDESTRIAN TRAVEL TO CONNECT THE NEW PEDESTRIAN CONNECTION TO THE EXISTING PEDESTRIAN PATH. THE TRANSITION SLAB SHALL NOT OVERLAP ANY OTHER REQUIRED PEDESTRIAN CONNECTION ELEMENT. THE CROSS SLOPE TRANSITION SHALL BE SPREAD EVENLY OVER THE SLAB TO MINIMIZE THE DEGREE OF WARPING. THE RATE OF CROSS SLOPE CHANGE IN THE TRANSITION AREA SHALL NOT EXCEED 3% PER LINEAR FOOT.



- Department uses “transitional slabs” as “transitional segments”.
  - gradual as possible and not exceed 3.0% per linear foot.
  - Minimum length of transition slab should be 5’-0”

Pedestrian Street Crossings (Crosswalks)

- Occurs where the pedestrian walkway leaves the approach sidewalk or shared use path and enters the roadway.
- **R204.3 Pedestrian Street Crossings: A pedestrian access route shall be provided within pedestrian street crossings, including medians and pedestrian refuge islands, and pedestrian at-grade rail crossings. The pedestrian access route shall connect departure and arrival ~~sidewalks~~ "pedestrian access route".**
- Can be marked or unmarked. (See *DE MUTCD* and Delaware Code, Title 21, Section 4142 and Section 4143)
- DWS are required (discuss DWS in detail later).
- Should be aligned to be perpendicular to the street crossing when possible.
  - Skewed is acceptable.
  - Kinked alignments where no pedestrian refuge islands are provided to skew the crossing should not be utilized.



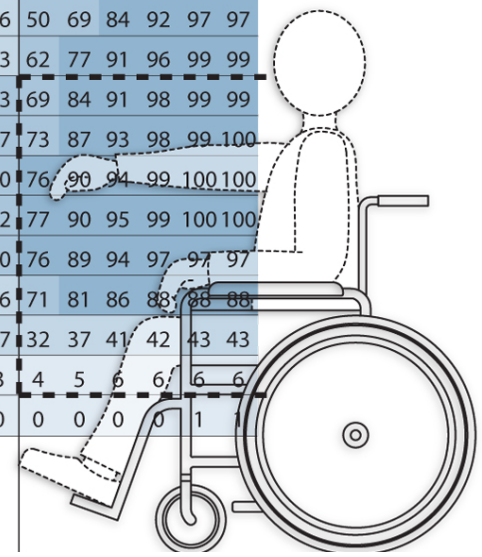
Operable Parts

- Could include pushbuttons, parking meters, and transit kiosks.
- Shall be placed within one or more of the reach ranges specified in Section 3.7.
- Reach ranges are separated into “Forward Reach” applications and “Side Reach” applications.
- Requires a “clear space”.

235 participants	300 11.9	200 7.9	100 3.9	0 0	100 3.9	200 7.9	300 11.9	400 15.8	500 19.7	mm in	horizontal distance (from forward-most
1900-1999 [74.9-78.7]	0	0	0	0	0	1	1	1	1		
1800-1899 [70.9-74.8]	0	0	0	1	1	1	1	1	1		
1700-1799 [67.0-70.8]	0	0	2	3	5	7	7	8	8		
1600-1699 [63.1-66.9]	0	3	8	14	18	24	31	35	37		
1500-1599 [59.1-63.0]	2	8	16	23	33	47	57	62	63		
1400-1499 [55.2-59.0]	7	15	26	38	54	67	79	84	87		
1300-1399 [51.2-55.1]	13	20	36	50	69	84	92	97	97		
1200-1299 [47.3-51.1]	16	28	43	62	77	91	96	99	99		
1100-1199 [43.4-47.2]	20	33	53	69	84	91	98	99	99		
1000-1099 [39.4-43.3]	22	39	57	73	87	93	98	99	100		
900-999 [35.5-39.3]	26	41	60	76	90	94	99	100	100		
800-899 [31.6-35.4]	29	43	62	77	90	95	99	100	100		
700-799 [27.6-31.5]	30	43	60	76	89	94	97	97	97		
600-699 [23.7-27.5]	29	41	56	71	81	86	88	88	88		
500-599 [19.7-23.6]	14	20	27	32	37	41	42	43	43		
400-499 [15.8-19.6]	1	2	3	4	5	6	6	6	6		
300-399 [11.9-15.8]	0	0	0	0	0	0	0	1	1		

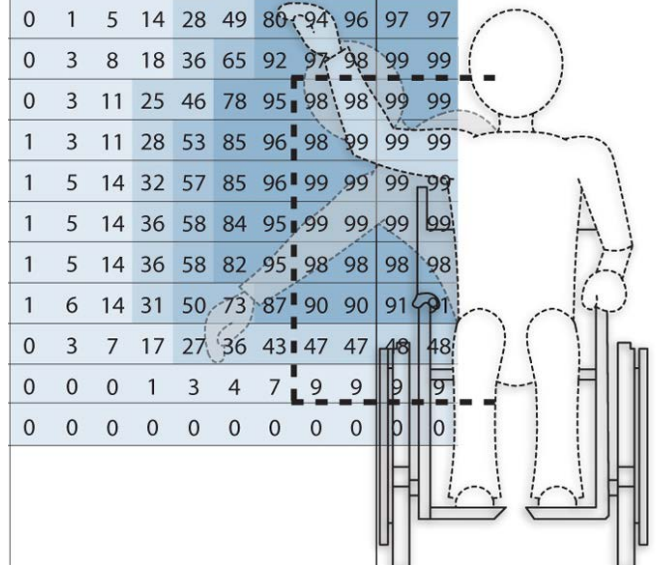
mm | [in]

vertical distance (from floor)



Forward Reach

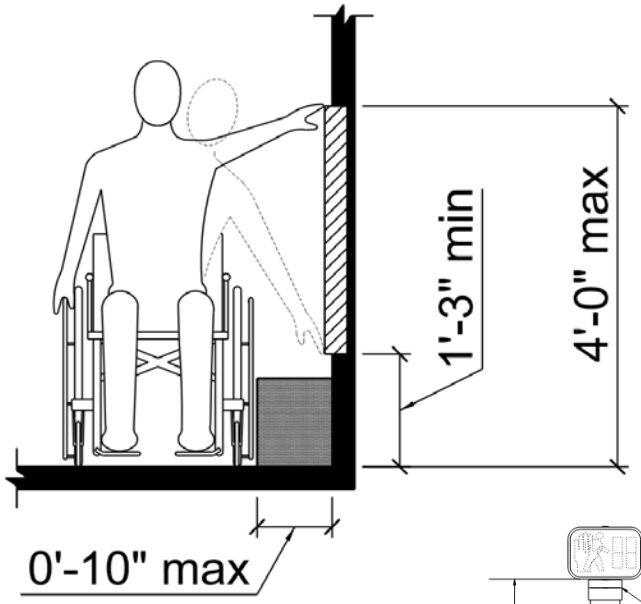
900 35.4	800 31.5	700 27.6	600 23.7	500 19.7	400 15.8	300 11.9	200 7.9	100 3.9	0 0	-100 -3.9	mm in	horizontal distance (from chair edge)
0	0	0	0	0	0	1	1	1	1	1		
0	0	0	0	0	1	1	1	1	1	1		
0	0	0	0	1	1	4	5	6	6	6		
0	0	0	1	3	12	22	29	36	38	38		
0	0	1	4	11	22	36	53	62	64	64		
0	0	2	9	20	32	59	80	86	87	87		
0	1	5	14	28	49	80	94	96	97	97		
0	3	8	18	36	65	92	97	98	99	99		
0	3	11	25	46	78	95	98	98	99	99		
1	3	11	28	53	85	96	98	99	99	99		
1	5	14	32	57	85	96	99	99	99	99		
1	5	14	36	58	84	95	99	99	99	99		
1	5	14	36	58	82	95	98	98	98	98		
1	6	14	31	50	73	87	90	90	91	91		
0	3	7	17	27	36	43	47	47	48	48		
0	0	0	1	3	4	7	9	9	9	9		
0	0	0	0	0	0	0	0	0	0	0		

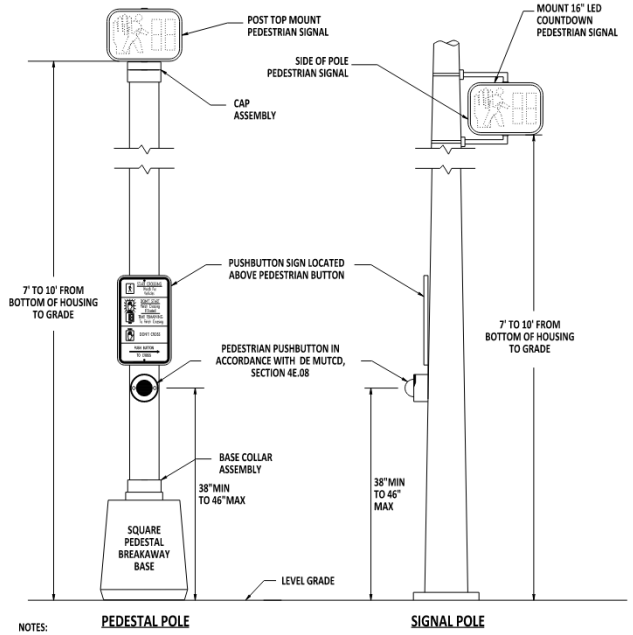


Side Reach

Side Reach - Unobstructed

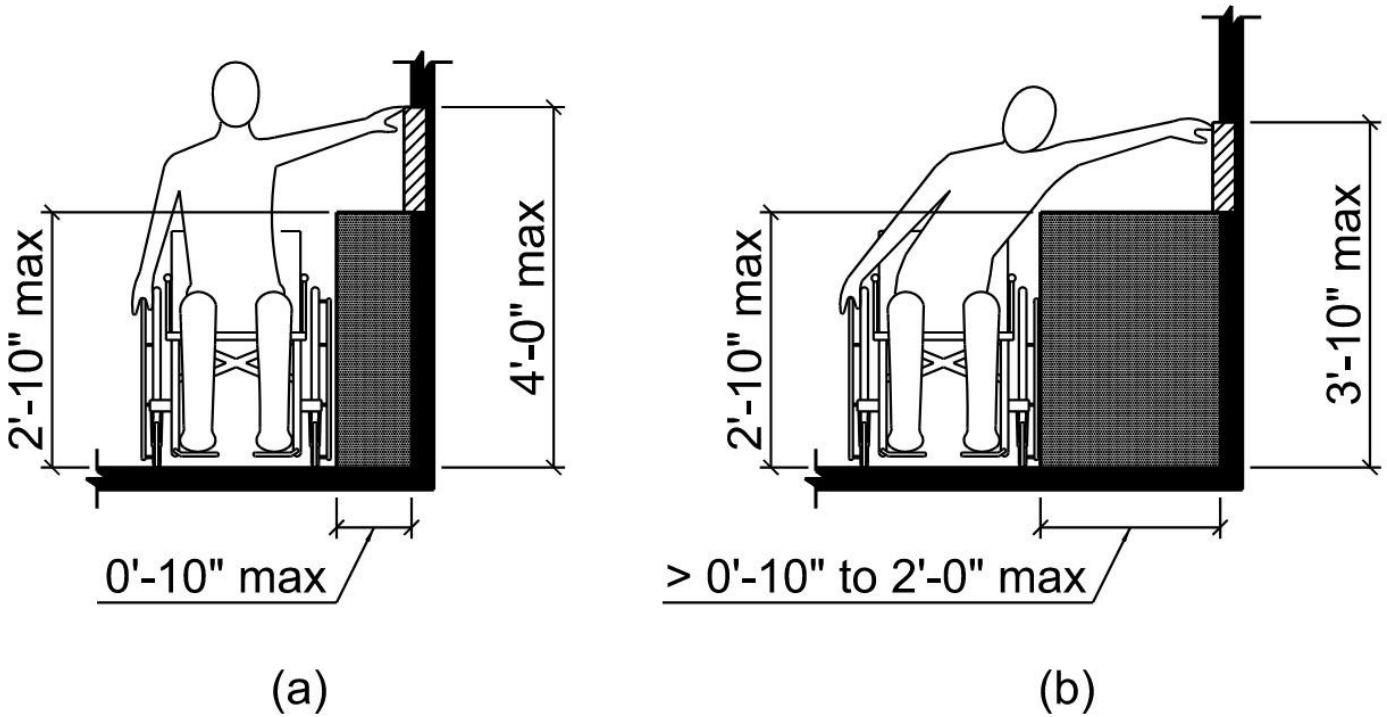
- Guidance: *All pushbuttons on pedestrian signals should be designed for unobstructed side reach.*
- **Standard: Where a clear floor or ground space allows a parallel approach to an element and the side reach is unobstructed, the high side reach shall be 4’-0” maximum and the low side reach shall be 1’-3” minimum above the finish floor or ground. (308.3.1)**
- *Guidance: Surfaces that do not meet the requirements of Section 3.1.5 should be considered as an obstruction when evaluating reach ranges.*





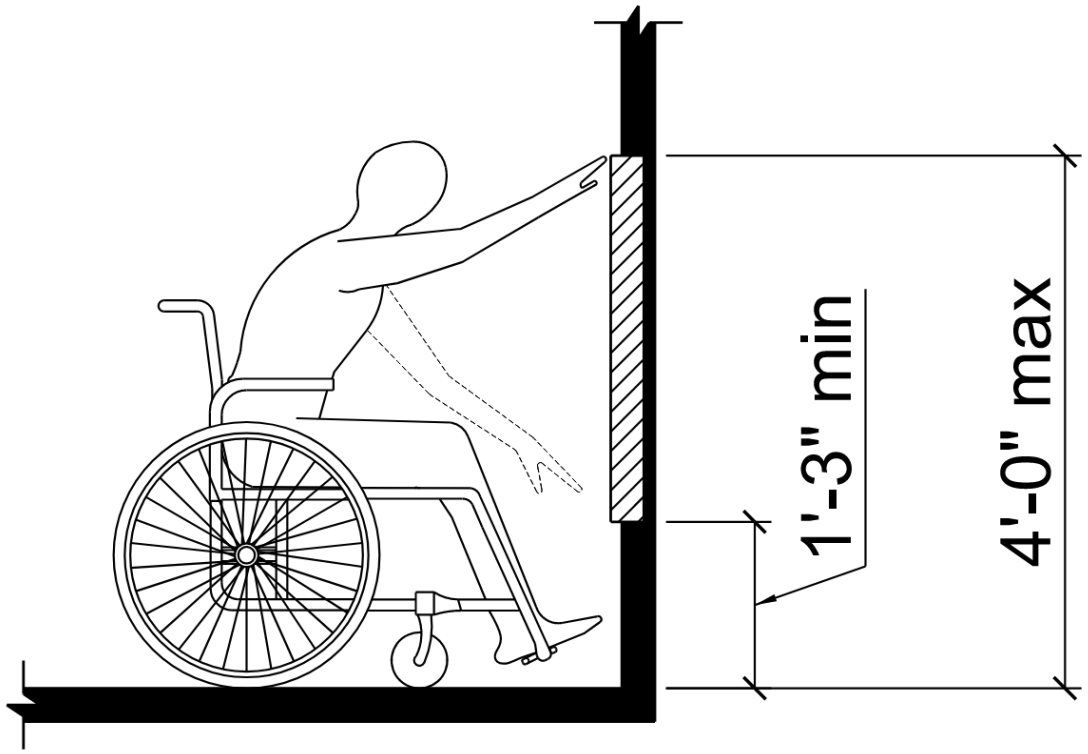
Side Reach - Obstructed

- **Standard: Where a clear floor or ground space allows a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 2’-10” maximum and the depth of the obstruction shall be 2’-0” maximum. The high side reach shall be 4’-0” maximum for a reach depth of 0’-10” maximum. Where the reach depth exceeds 0’-10”, the high side reach shall be 3’-10” maximum for a reach depth of 2’-0” maximum. (308.3.2)**



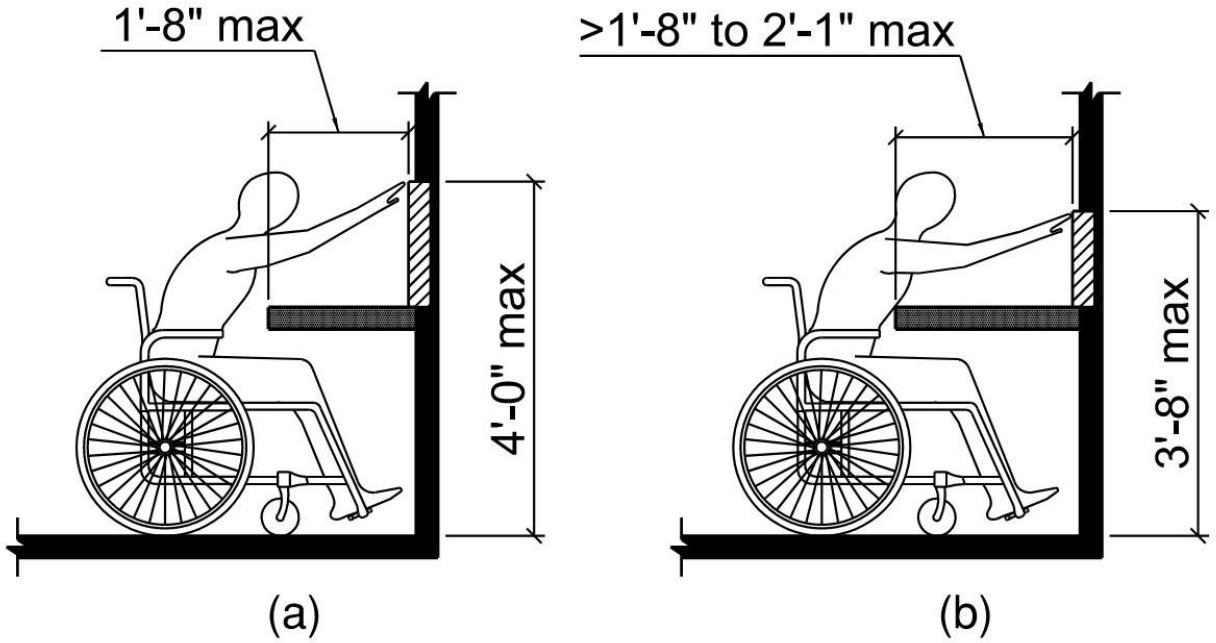
Forward Reach - Unobstructed

- **Standard: Where a forward reach is unobstructed, the high forward reach shall be 4’-0” maximum and the low forward reach shall be 1’-3” minimum above the finish floor or ground. (308.2.1)**
- Advisory: The finish floor or ground is to extend to the vertical projection limit of the element being served.
- Advisory: Consideration is to be given to any turning spaces that may be required to access the element being served.



Forward Reach - Obstructed

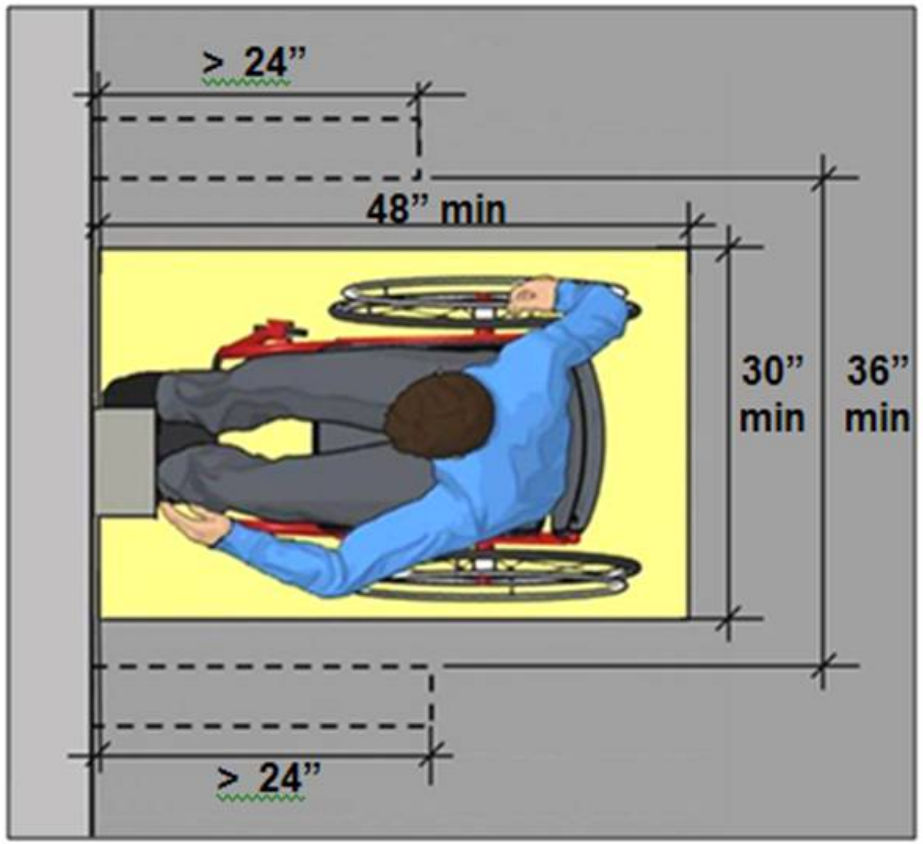
- **Standard: Where a high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 4’-0” maximum where the reach depth is 1’-8” maximum. Where the reach depth exceeds 1’-8”, the high forward reach shall be 3’-8” maximum and the reach depth shall be 2’-1” maximum. (308.2.2)**
- Advisory: The finish floor or ground is to extend to the vertical projection limit of the element being served.
- Advisory: Consideration is to be given to any turning spaces that may be required to access the element being served.

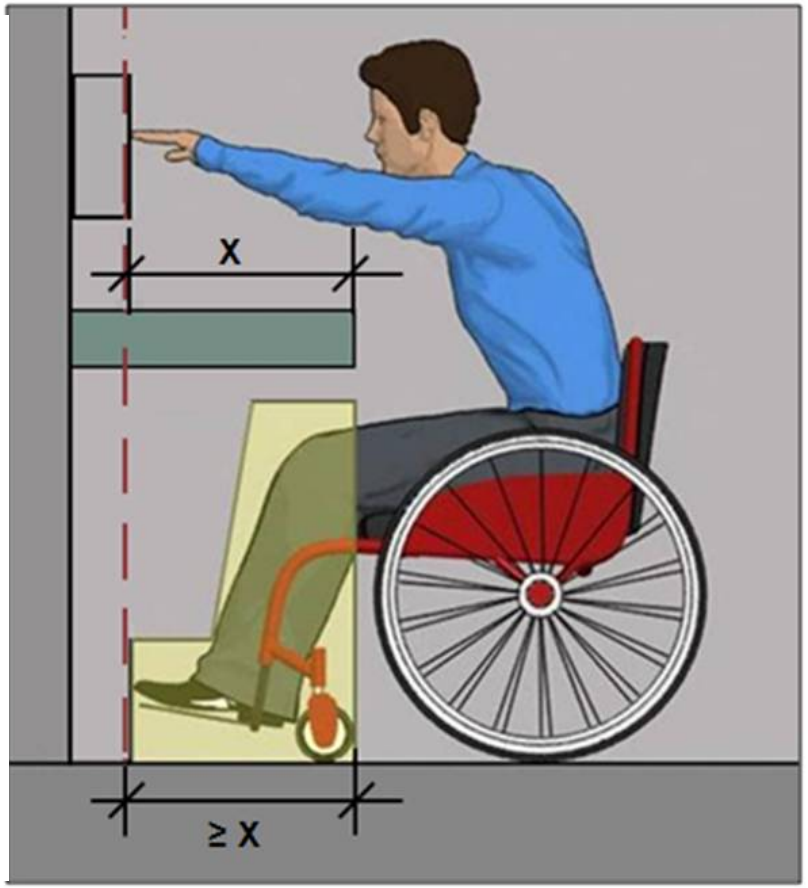


Clear Space

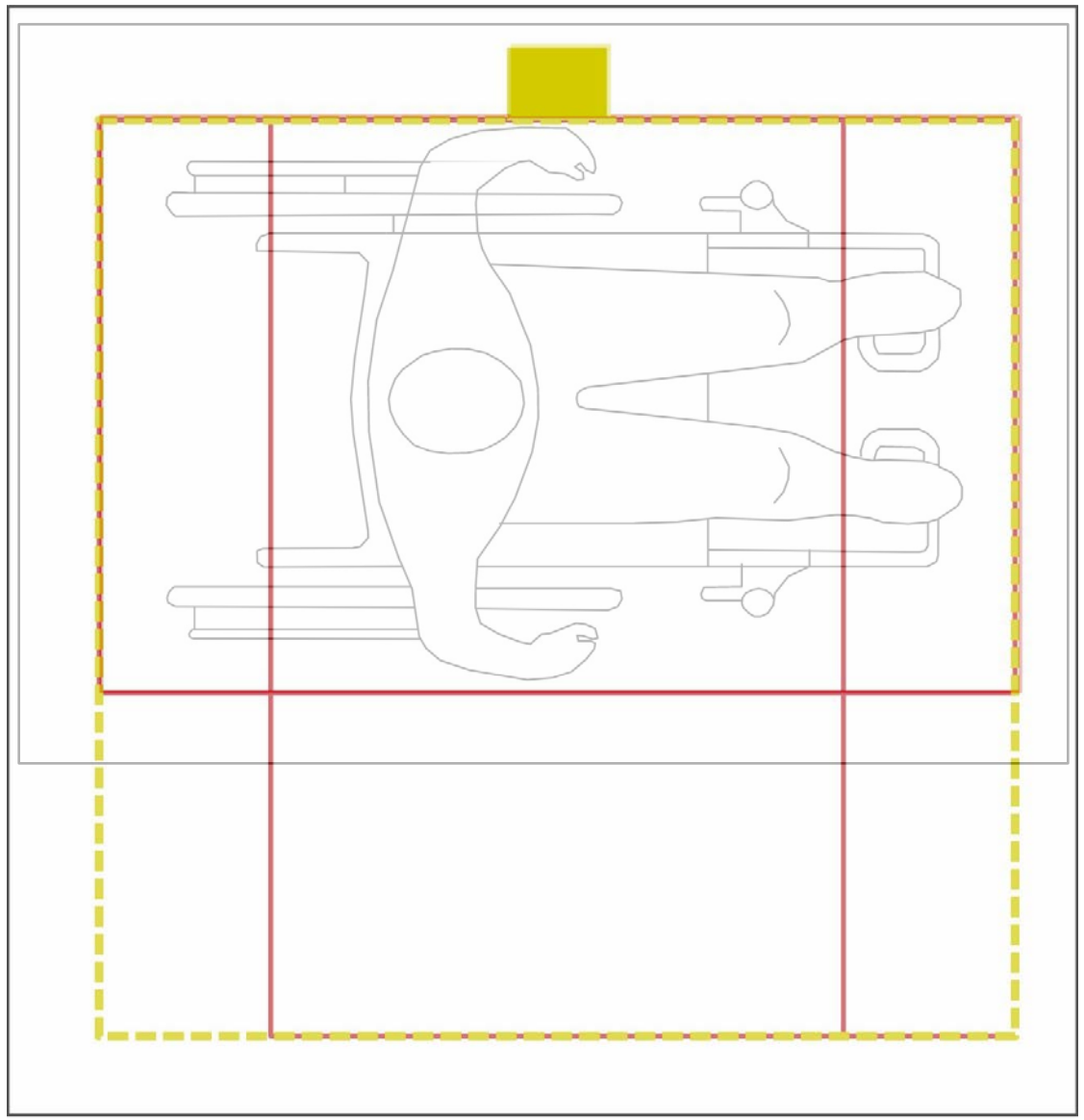
- Surfaces:
  - **Standard: Surfaces of clear spaces shall comply with Section 3.1.5 and shall have a running slope consistent with the grade of the adjacent pedestrian access route and cross slope of 2 percent maximum. (R404.2)**
- Size:
  - **Standard: Clear spaces shall be 2’-6” minimum by 4’-0” minimum. (R404.3)**
  - *Guidance: To accommodate a larger user population, clear spaces should be 2’-8” minimum by 4’-10” minimum.*
- Position:
  - **Standard: Unless otherwise specified, clear spaces shall be positioned for either forward or parallel approach to an element. (R404.5)**
- Approach:
  - **Standard: One full unobstructed side of a clear space shall adjoin a pedestrian access route or adjoin another clear space. (R404.6)**
- Maneuvering Space:
  - **Standard: Where a clear space is confined on all or part of three sides, additional maneuvering space shall be provided in accordance with Section 3.6.6.1 and Section 3.6.6.2. (R404.7)**
- Knee and Toe Clearance: Must provide adequate knee and toe Clearance when obstructed.

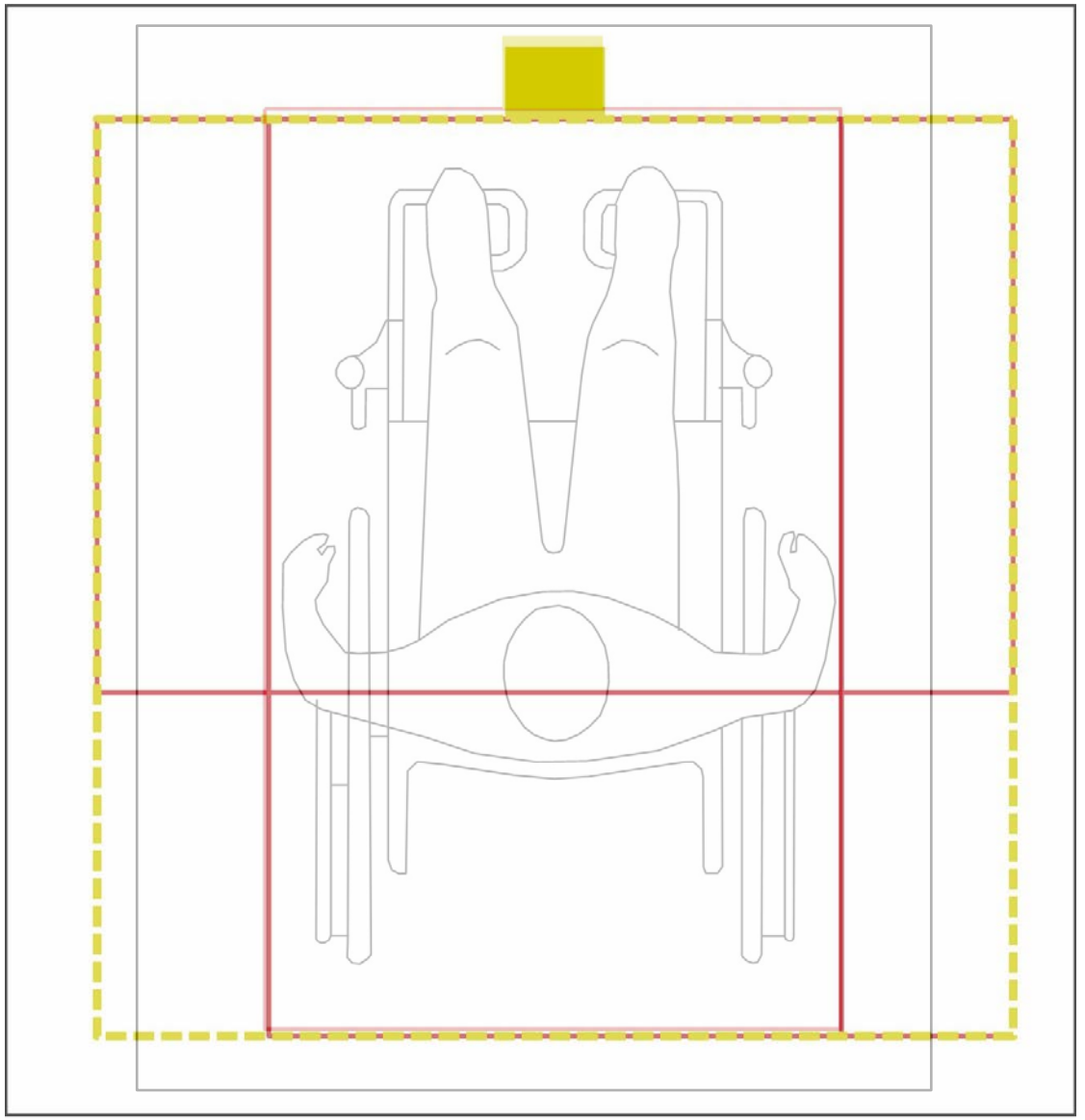
Clear Space

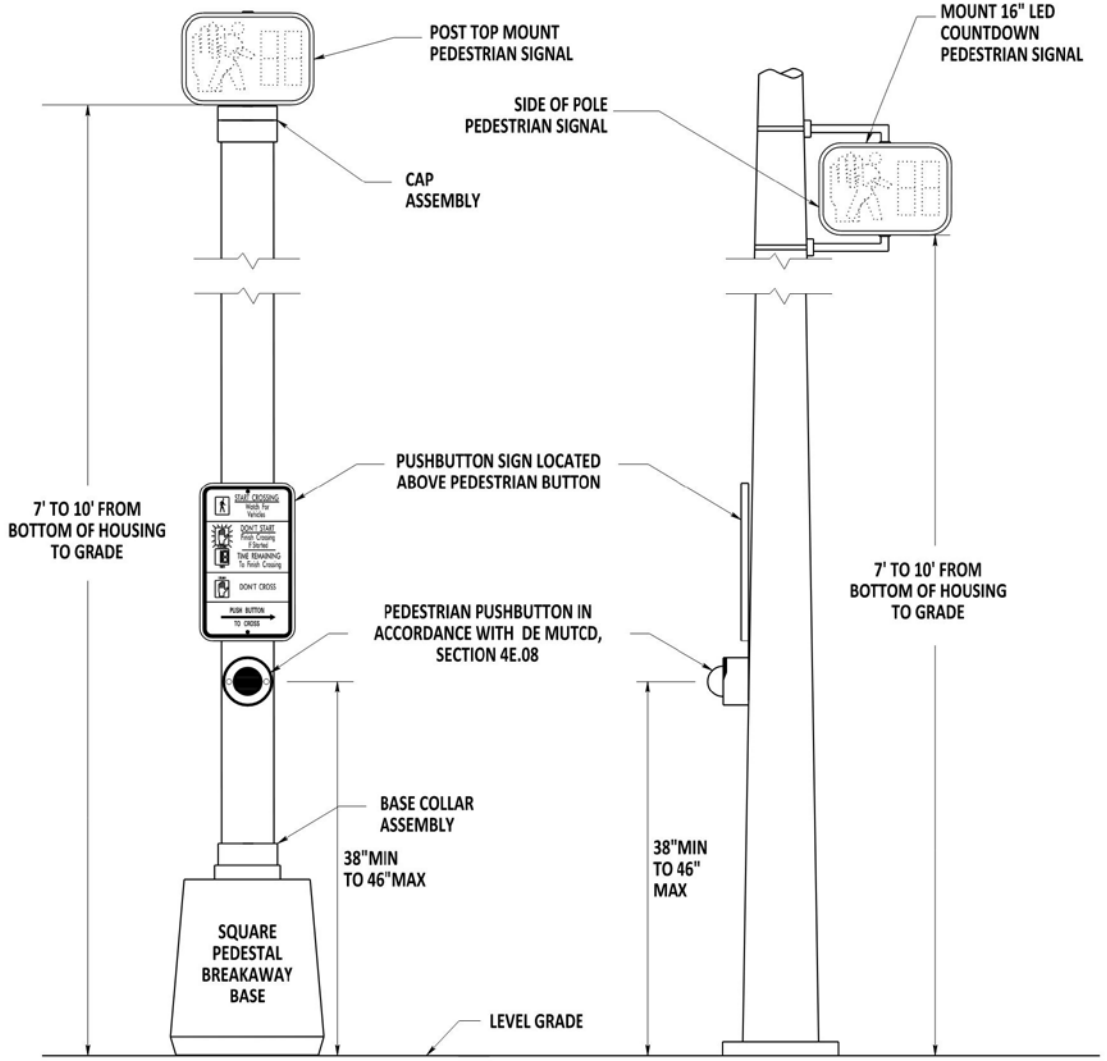


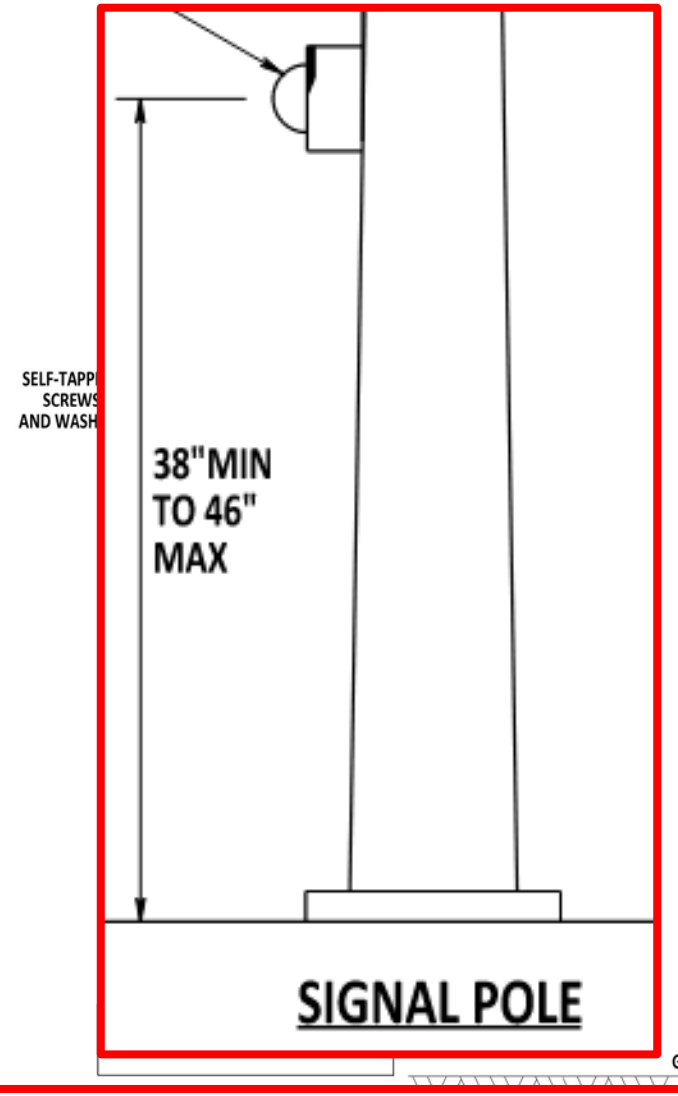


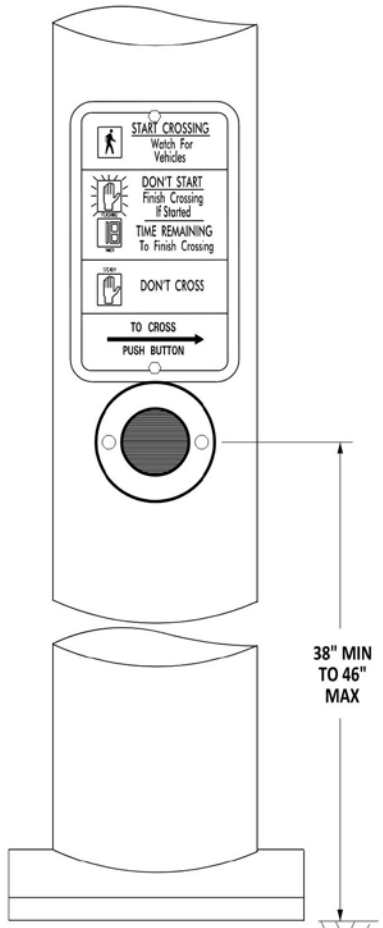
Clear Space











3). EXTEND THE PEDESTRIAN PATH TO THE VERTICAL PROJECTION LIMIT OF THE PEDESTRIAN PUSHBUTTON WHEN THE PUSHBUTTON IS ONLY ACCESSIBLE FROM A FORWARD APPROACH. THE VERTICAL PROJECTION LIMIT OF THE PEDESTRIAN PUSHBUTTON MAY BE OFFSET FROM THE PEDESTRIAN PATH A MAXIMUM OF 0'-10" FOR ALL OTHER APPLICATIONS.

Pushbutton Placement – DE MUTCD

Section 4.08 Pedestrian Detectors

04 If pedestrian pushbuttons are used, they should be capable of easy activation and conveniently located near each end of the crosswalks. Except as provided in paragraphs 5 and 6, pedestrian pushbuttons should be located to meet all of the following criteria (See Figure 4E-3).

A. Unobstructed and adjacent to a level all-weather surface to provide access from a wheelchair;

B. Where there is an all-weather surface, a wheelchair accessible route from the pushbutton to the ramp;

C. Between the edge of the crosswalk line (extended) farthest from the center of the intersection and the side of a curb ramp (if present), but not greater than 5 feet from said crosswalk line;

D. Between 1.5 and 10 feet from the edge of the curb, shoulder, or pavement;

E. With the face of the pushbutton parallel to the crosswalk to be used;

F. At a mounting height of approximately 3.5 feet, but no more than 4 feet, above the sidewalk;

G. Within 10 inches of the 50:1 landing area;

H. With an extended 50:1 landing area measuring a minimum of 18 inches behind the centerline of the face of the pushbutton.

Figure 4E-3. Pushbutton Location Area
(Delaware Revision)

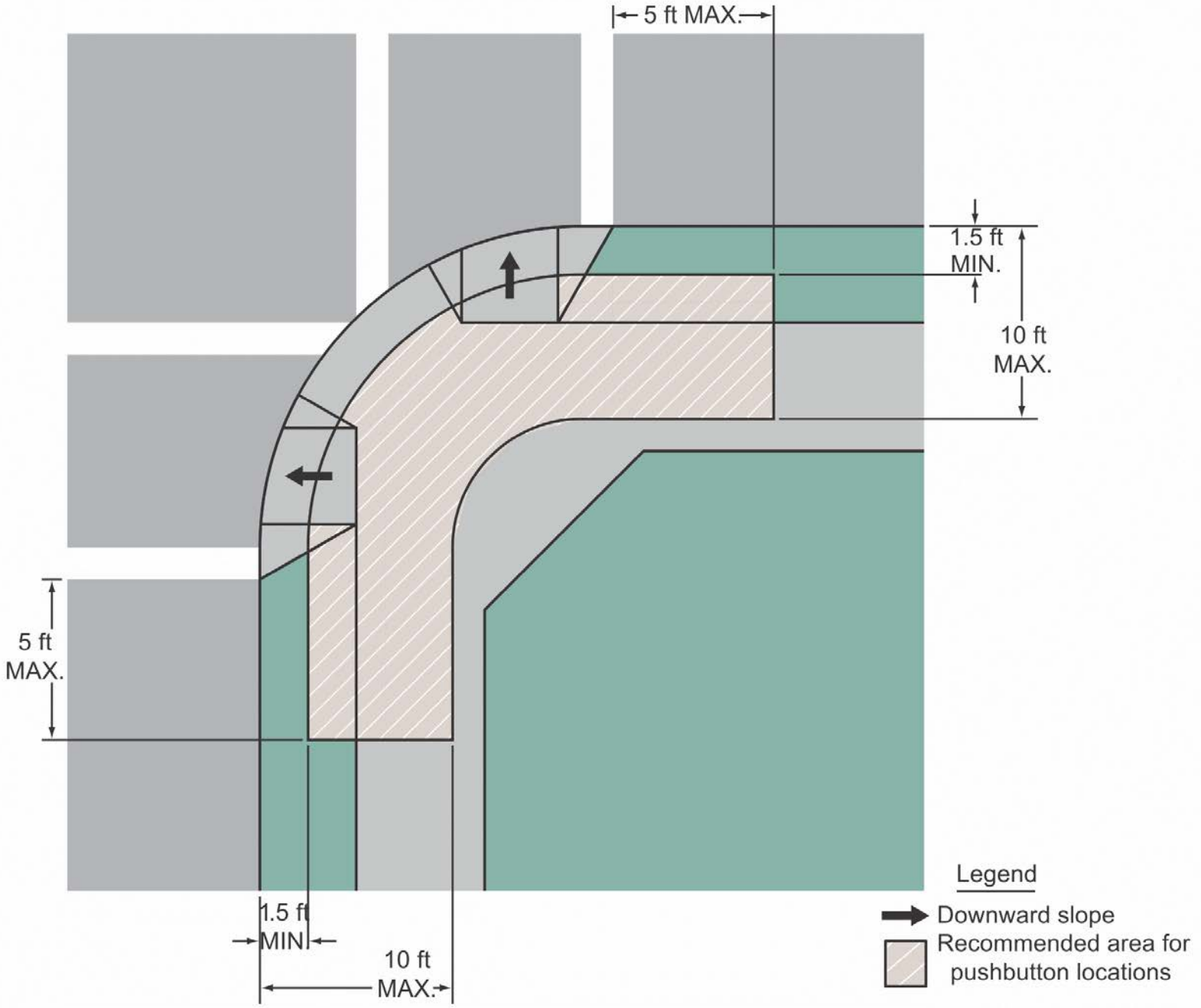
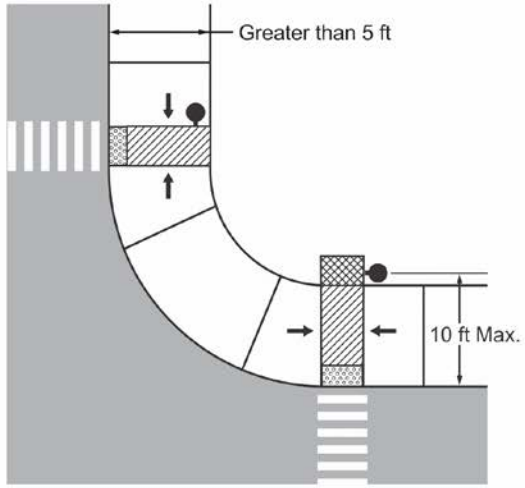
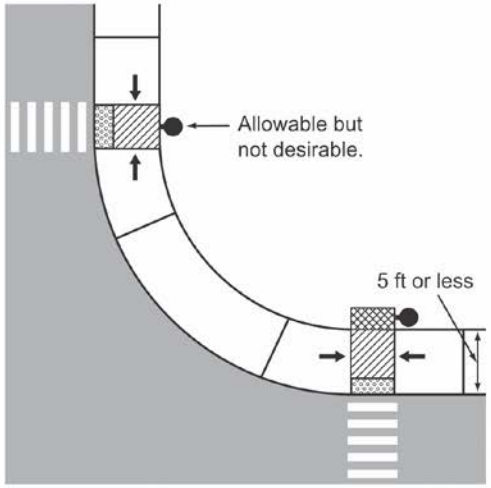


Figure 4E-4. Typical Pushbutton Locations (Sheet 1 of 2)
(Delaware Revision)

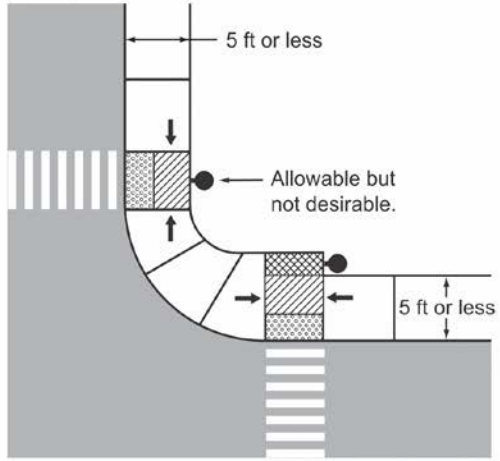
Example A



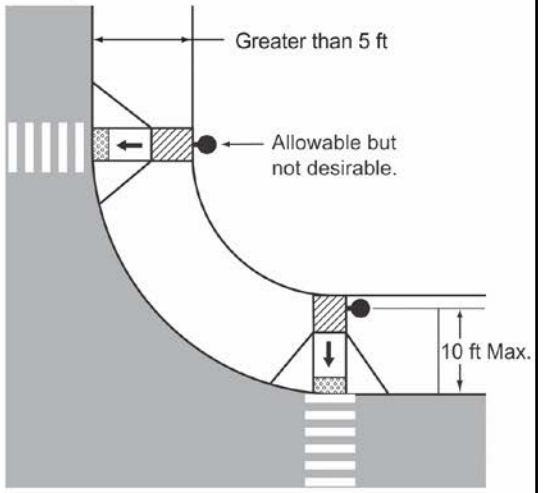
Example B



Example C



Example D



Legend

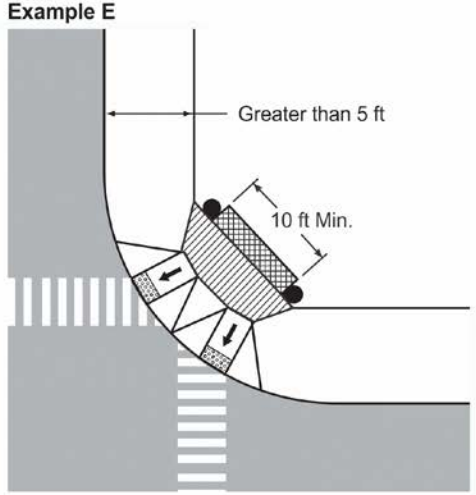
→ Downward slope ● Pedestrian pushbutton ▩ Detectable warning (per ADAAG) ▨ Landing area (per ADAAG) ▩ Extension

Notes:

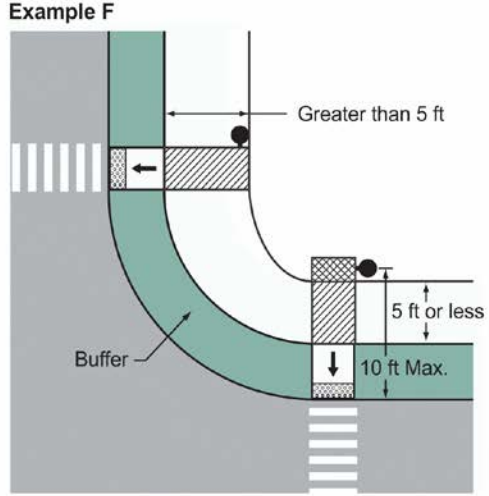
1. This figure is not drawn to scale.
2. These drawings are intended to describe the typical locations for pedestrian pushbutton installations. They are not intended to be a guide for the design of curb cut ramps.
3. Figure 4E-3 shows the recommended area for pushbutton locations.

Figure 4E-4. Typical Pushbutton Locations (Sheet 2 of 2)
(Delaware Revision)

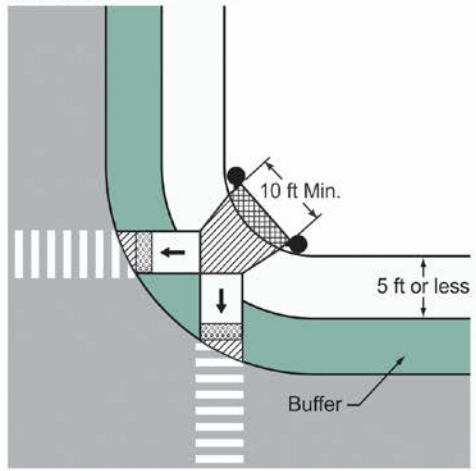
Example E



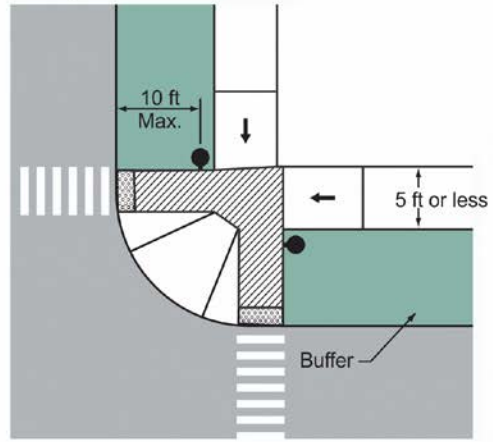
Example F



Example G



Example H



Legend

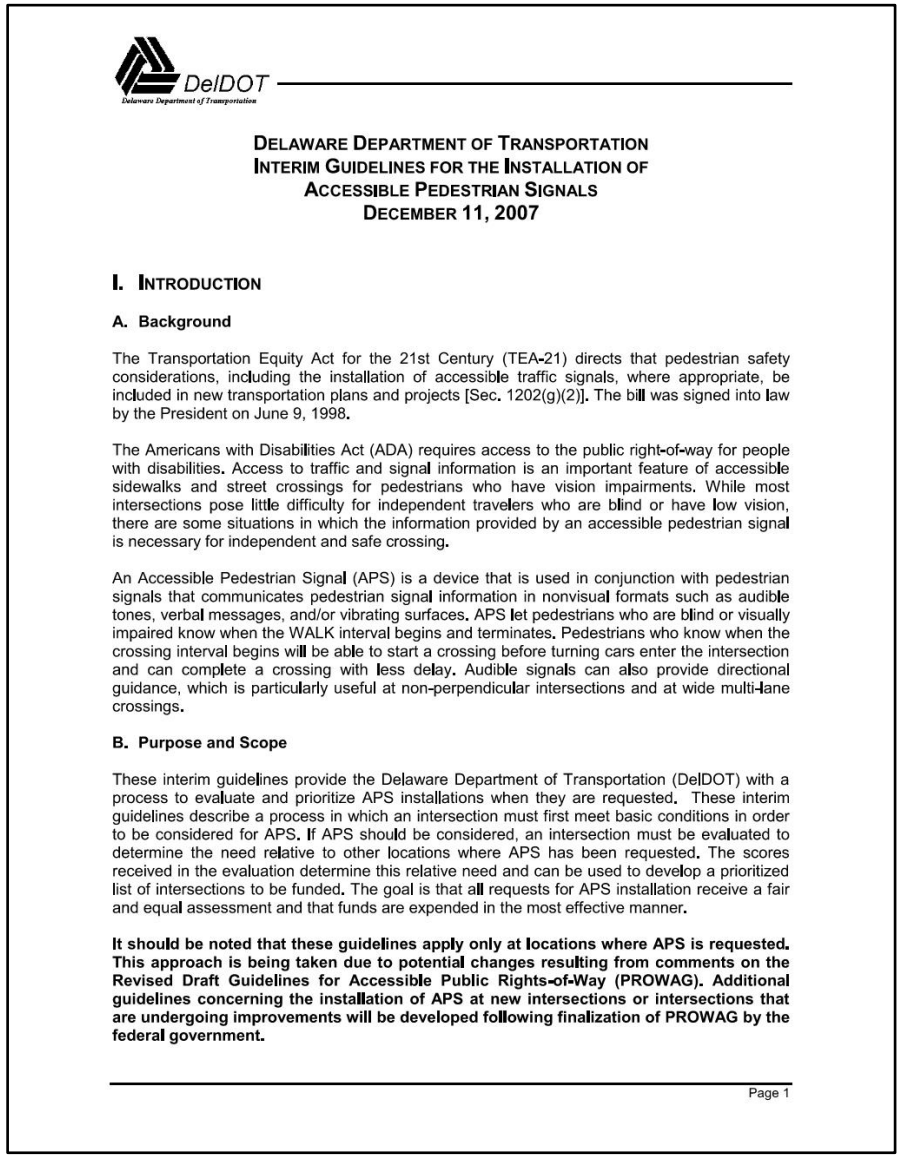
→ Downward slope ● Pedestrian pushbutton ▩ Detectable warning (per ADAAG) ▨ Landing area (per ADAAG) ▩ Extension

Notes:

1. This figure is not drawn to scale.
2. These drawings are intended to describe the typical locations for pedestrian pushbutton installations. They are not intended to be a guide for the design of curb cut ramps.
3. Figure 4E-3 shows the recommended area for pushbutton locations.

Accessible Pedestrian Signals (APS)

- APS are devices that communicate information about the WALK and DON'T WALK intervals at signalized intersections in non-visual formats to pedestrians.
- NOT INCORPORATED: R209.1: Where pedestrian signals are provided at pedestrian street crossings, they shall include accessible pedestrian signals and pedestrian pushbuttons complying with sections 4E.08 through 4E.13 of the MUTCD (incorporated by reference, see R104.2). Operable parts shall comply with R403.
- NOT INCORPORATED: R209.2: Existing pedestrian signals shall comply with R209.1 when the signal controller and software are altered, or the signal head is replaced.



DelDOT
Delaware Department of Transportation

DELAWARE DEPARTMENT OF TRANSPORTATION
INTERIM GUIDELINES FOR THE INSTALLATION OF
ACCESSIBLE PEDESTRIAN SIGNALS
DECEMBER 11, 2007

I. INTRODUCTION

A. Background

The Transportation Equity Act for the 21st Century (TEA-21) directs that pedestrian safety considerations, including the installation of accessible traffic signals, where appropriate, be included in new transportation plans and projects [Sec. 1202(g)(2)]. The bill was signed into law by the President on June 9, 1998.

The Americans with Disabilities Act (ADA) requires access to the public right-of-way for people with disabilities. Access to traffic and signal information is an important feature of accessible sidewalks and street crossings for pedestrians who have vision impairments. While most intersections pose little difficulty for independent travelers who are blind or have low vision, there are some situations in which the information provided by an accessible pedestrian signal is necessary for independent and safe crossing.

An Accessible Pedestrian Signal (APS) is a device that is used in conjunction with pedestrian signals that communicates pedestrian signal information in nonvisual formats such as audible tones, verbal messages, and/or vibrating surfaces. APS let pedestrians who are blind or visually impaired know when the WALK interval begins and terminates. Pedestrians who know when the crossing interval begins will be able to start a crossing before turning cars enter the intersection and can complete a crossing with less delay. Audible signals can also provide directional guidance, which is particularly useful at non-perpendicular intersections and at wide multi-lane crossings.

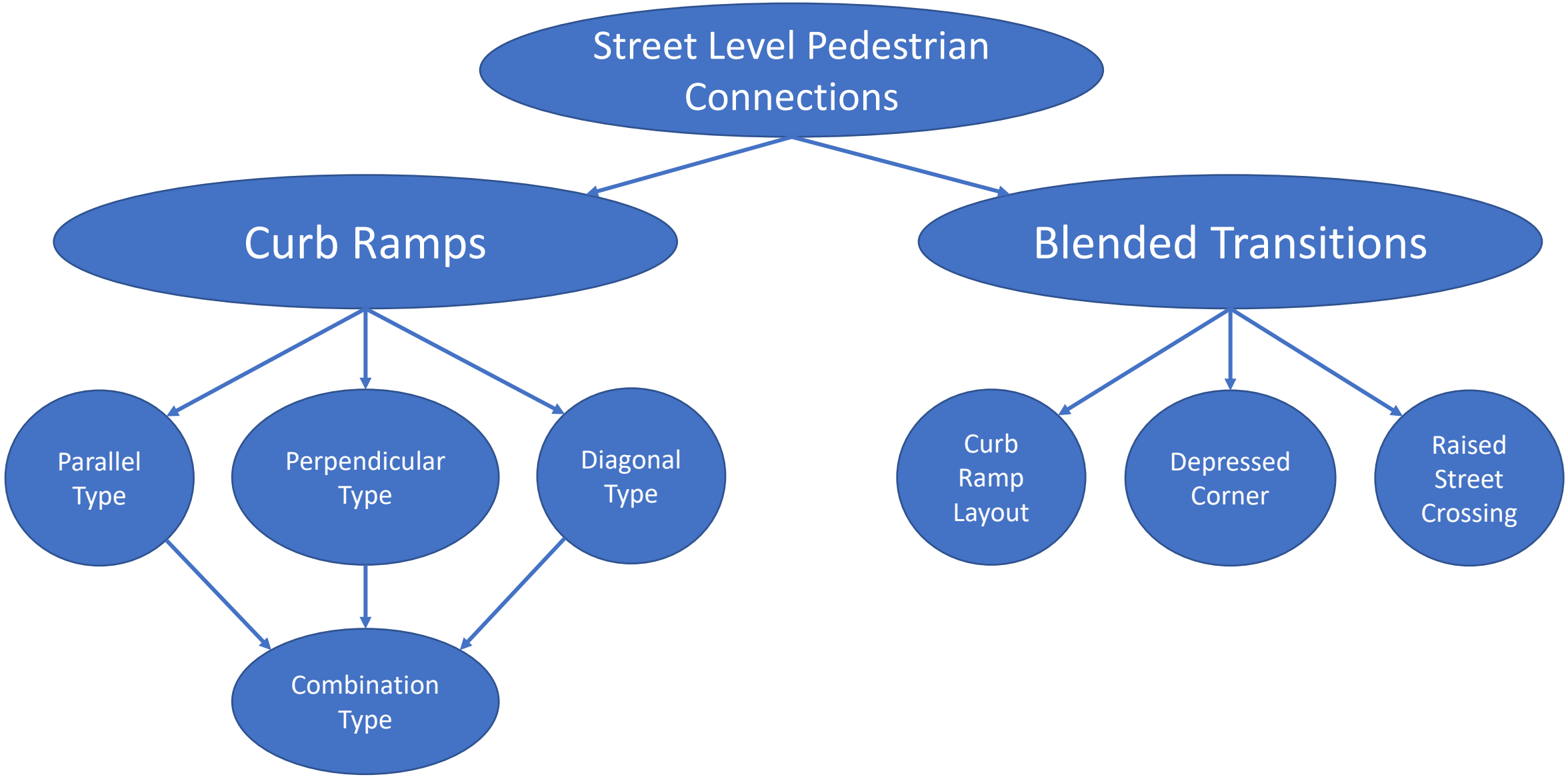
B. Purpose and Scope

These interim guidelines provide the Delaware Department of Transportation (DelDOT) with a process to evaluate and prioritize APS installations when they are requested. These interim guidelines describe a process in which an intersection must first meet basic conditions in order to be considered for APS. If APS should be considered, an intersection must be evaluated to determine the need relative to other locations where APS has been requested. The scores received in the evaluation determine this relative need and can be used to develop a prioritized list of intersections to be funded. The goal is that all requests for APS installation receive a fair and equal assessment and that funds are expended in the most effective manner.

It should be noted that these guidelines apply only at locations where APS is requested. This approach is being taken due to potential changes resulting from comments on the Revised Draft Guidelines for Accessible Public Rights-of-Way (PROWAG). Additional guidelines concerning the installation of APS at new intersections or intersections that are undergoing improvements will be developed following finalization of PROWAG by the federal government.

Page 1

Street Level Pedestrian Connections

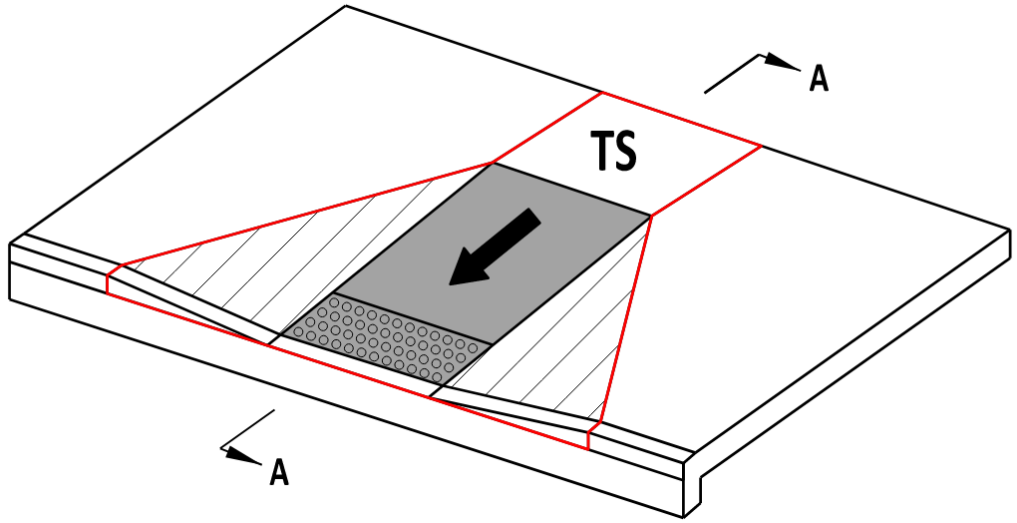


Street Level Pedestrian Connections

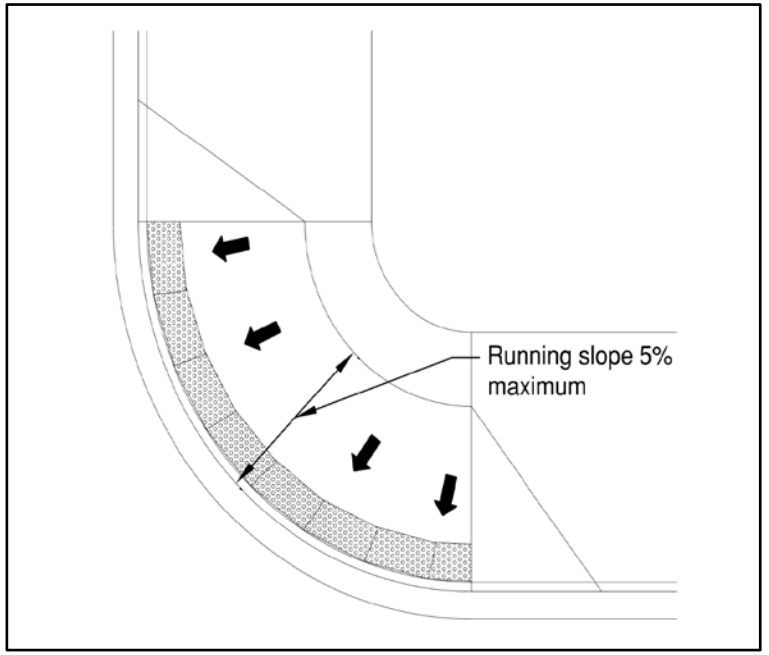
Standard: A curb ramp, blended transition, or a combination of curb ramps and blended transitions complying with Section 3.2 shall connect the pedestrian access routes at each pedestrian street crossing. The curb ramp (excluding any flared sides) or blended transition shall be contained wholly within the width of the pedestrian street crossing served. (R207.1)

Definitions

- **Curb Ramps** are street level pedestrian connections with a sloped segment having a running slope that is greater than 5.0%. (R3.2.1.2 & R3.2.2.2)

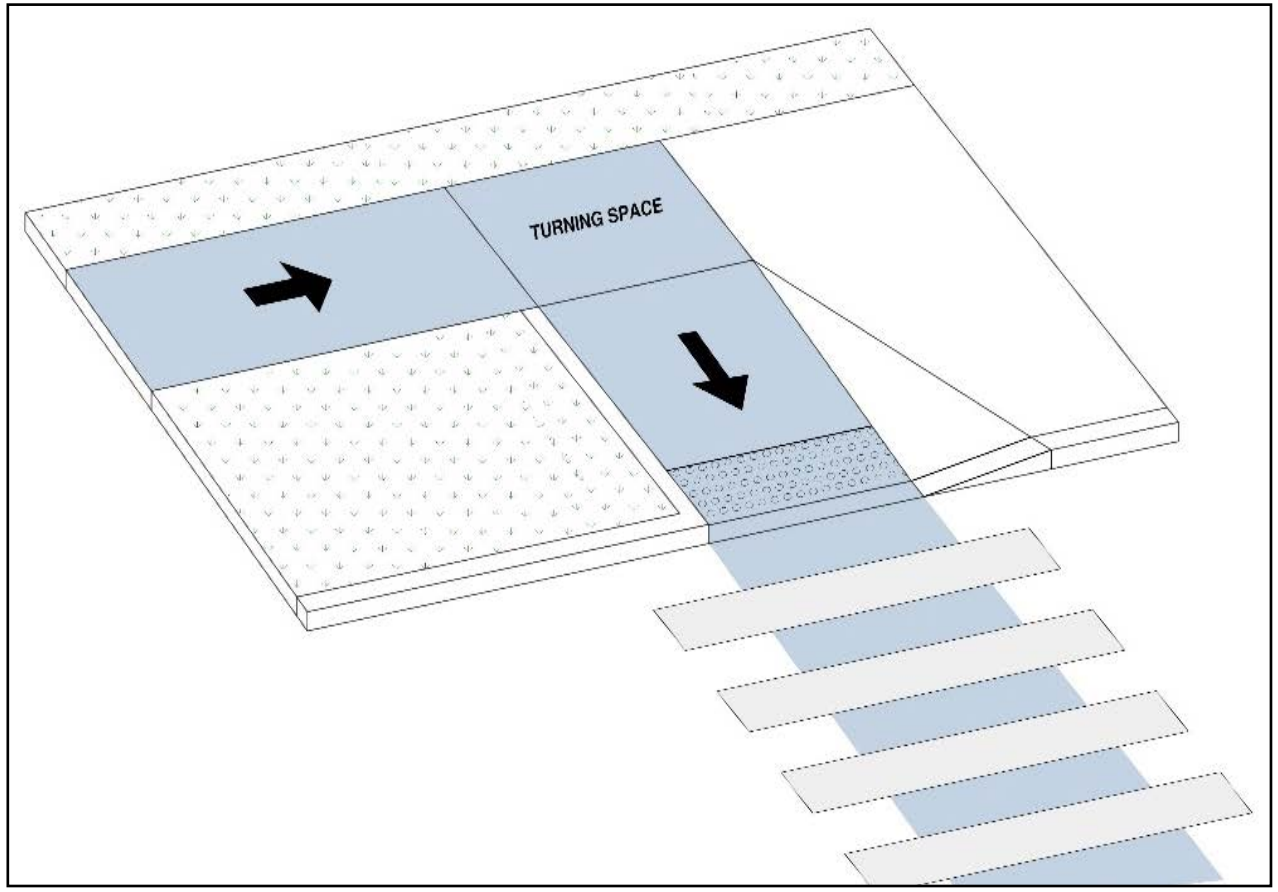


- **Blended Transitions** are street level pedestrian connections with a sloped segment having a running grade of 5.0% or less. (R304.4.1)



Perpendicular Type Curb Ramp

Perpendicular curb ramps have a running slope that cuts through or is built up to the curb at right angles or meets the gutter break at right angles where the curb is curved. On large corner radiuses, it will be necessary to indent the gutter break on one side of the curb ramp in order for the curb ramp to meet the gutter break at right angles. (Advisory R304.1)



Perpendicular Type Curb Ramp

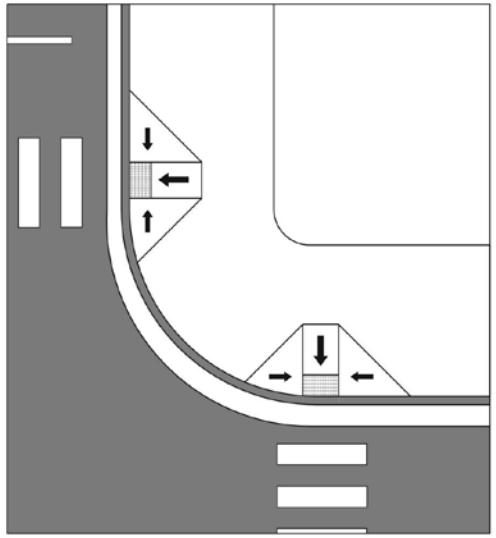
Advantages:

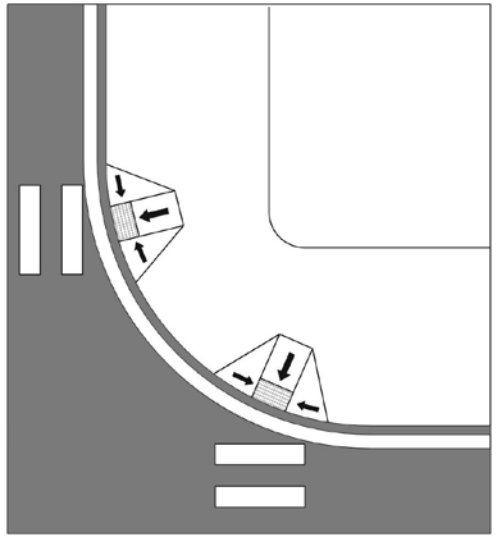
- Does not require a turning space at the street level which limits water and potential sediment accumulation,
- The street level pedestrian connection can be aligned to provide directionality (see Section 4.5.3.1.2), and
- Motorists can easily determine what direction the pedestrian is intending to cross thereby increasing safety.

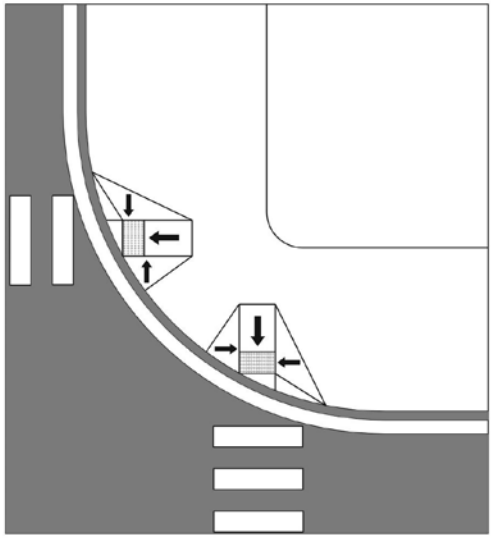
Disadvantages:

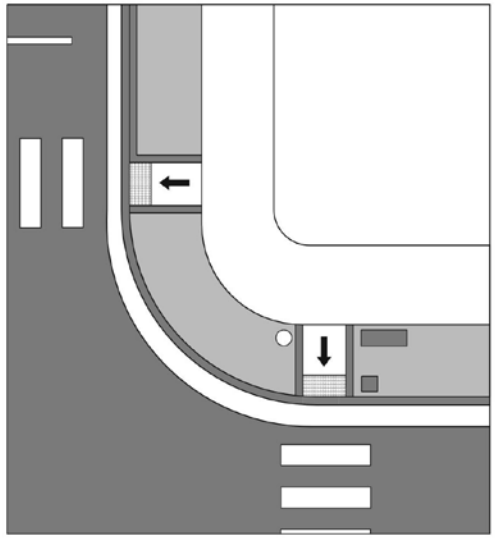
- Requires additional approach pedestrian circulation path width compared to parallel type ramps, and
- Large radius applications can present directionality challenges for designers.

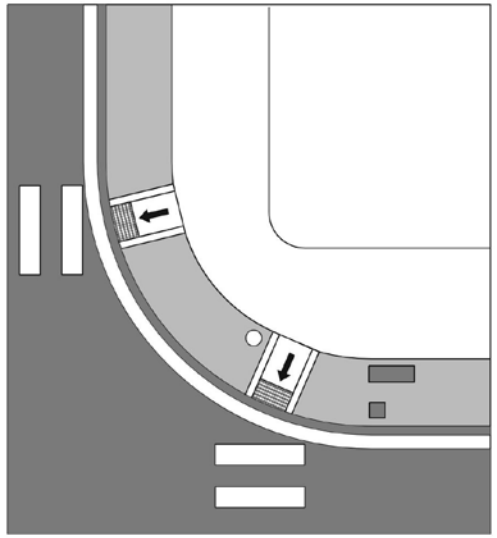
Perpendicular Type Curb Ramp

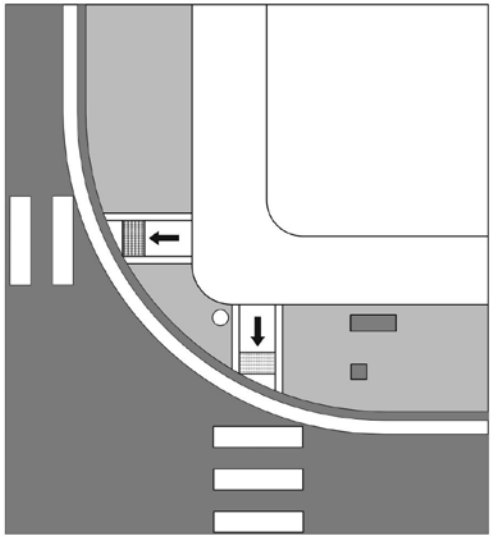


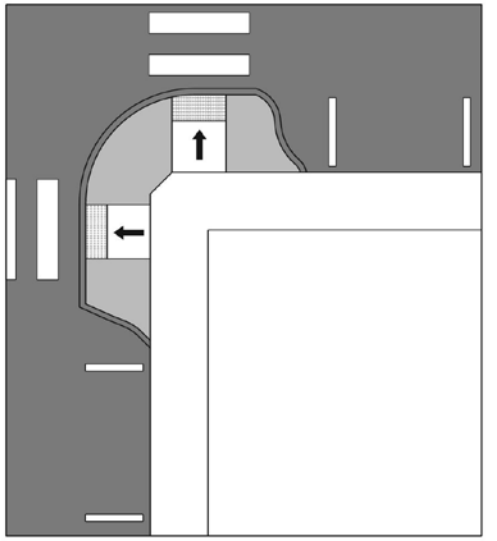






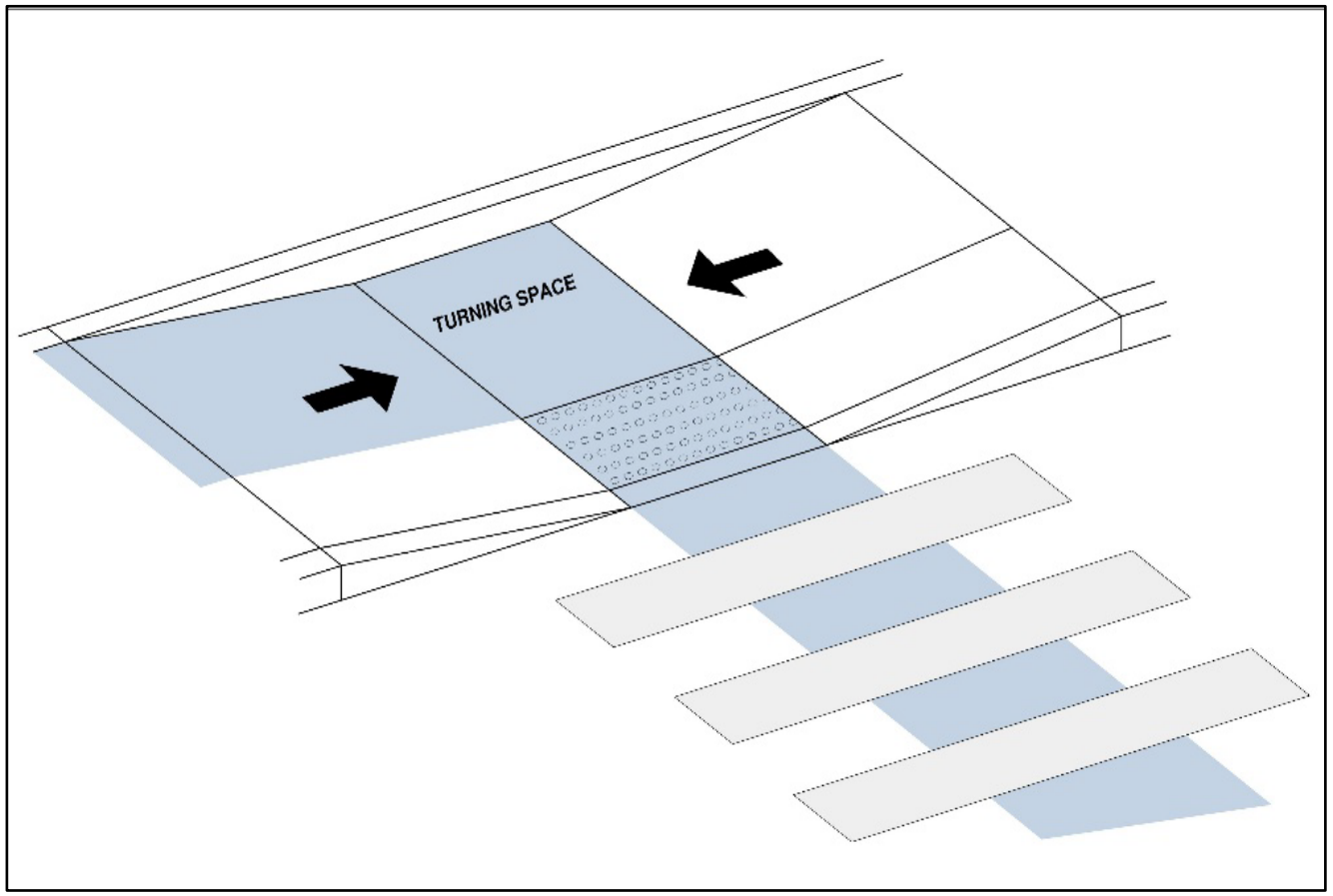






Parallel Type Curb Ramp

Parallel curb ramps have a running slope that is in-line with the direction of sidewalk travel and lower the sidewalk to a level turning space where a turn is made to enter the pedestrian street crossing. (Advisory R304.1)



Parallel Type Curb Ramp

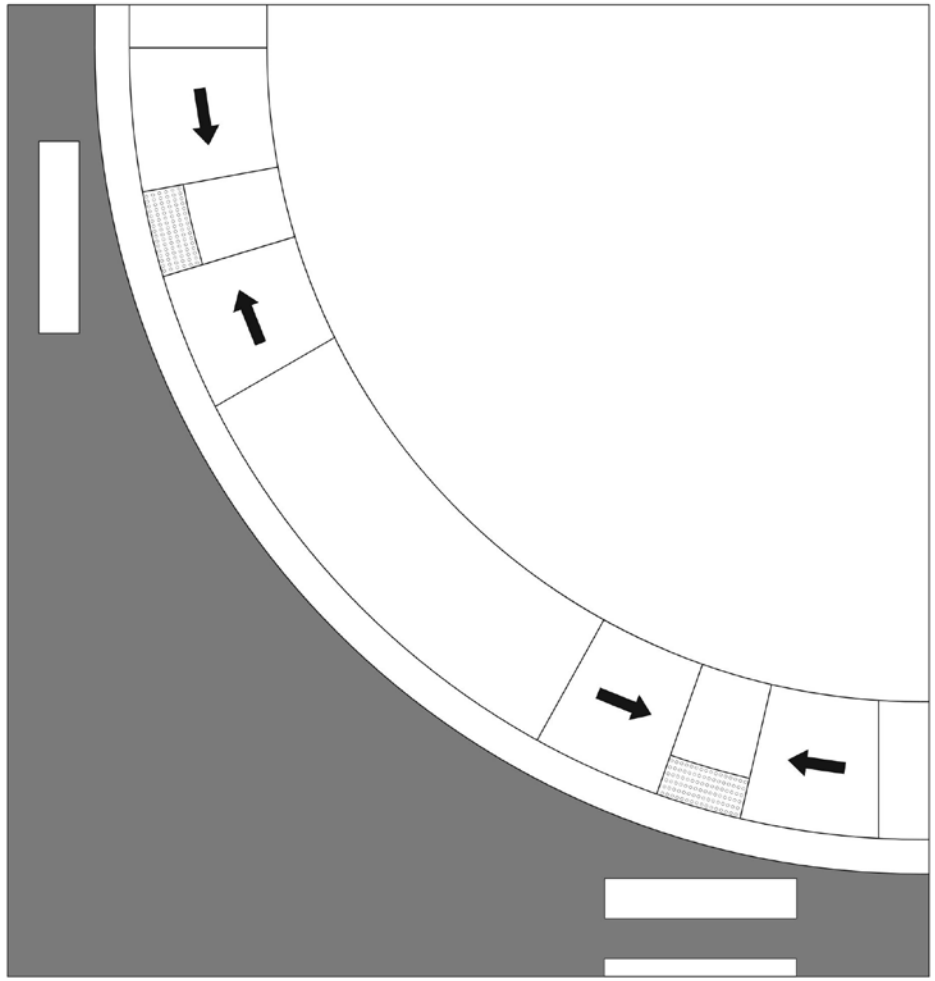
Advantages:

- Requires minimal approach pedestrian circulation path width, which is ideal for constrained locations,
- Ramps can be easily lengthened when required to “chase grade”, and
- Enhances detectability for the visually impaired users as the ramped segment leads to a turning space area ahead of the street crossing.

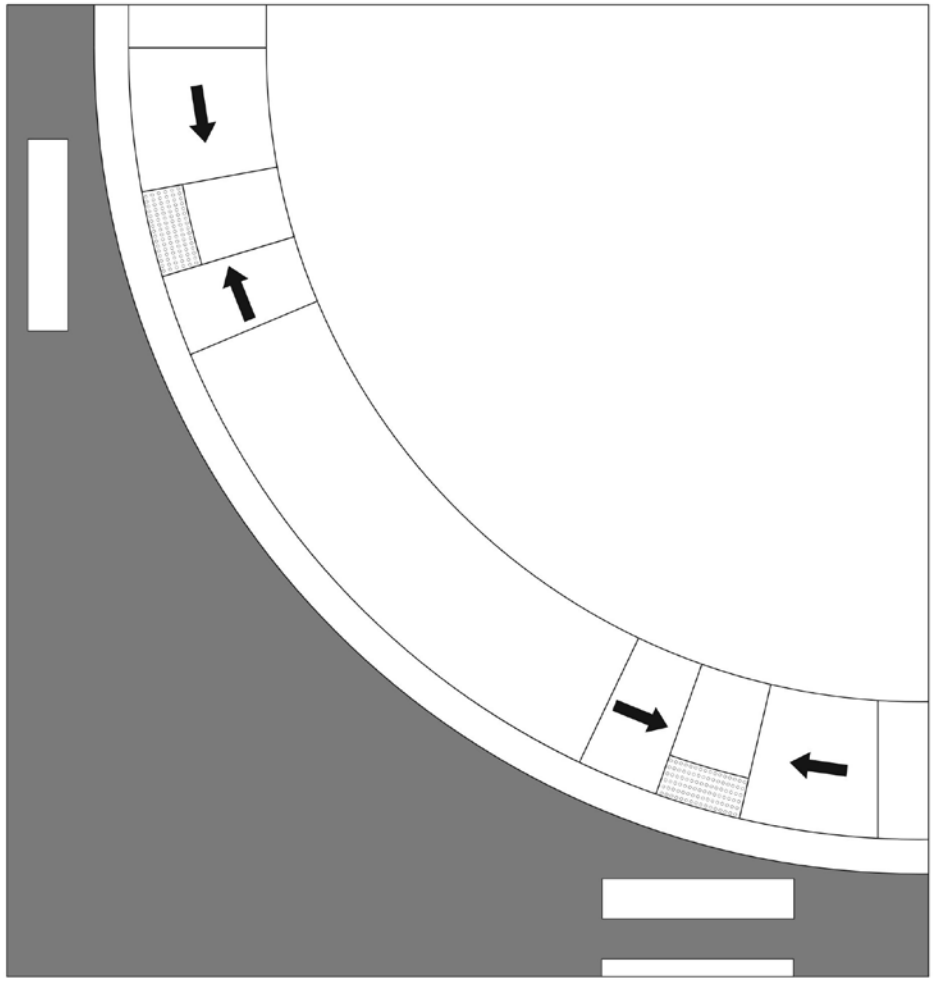
Disadvantages:

- Requires pedestrians who are not using the street level crossing to traverse multiple ramped segments when using the sidewalk, and
- Can more readily accumulate water and debris because the turning space is located on the street level.

Parallel Type Curb Ramp



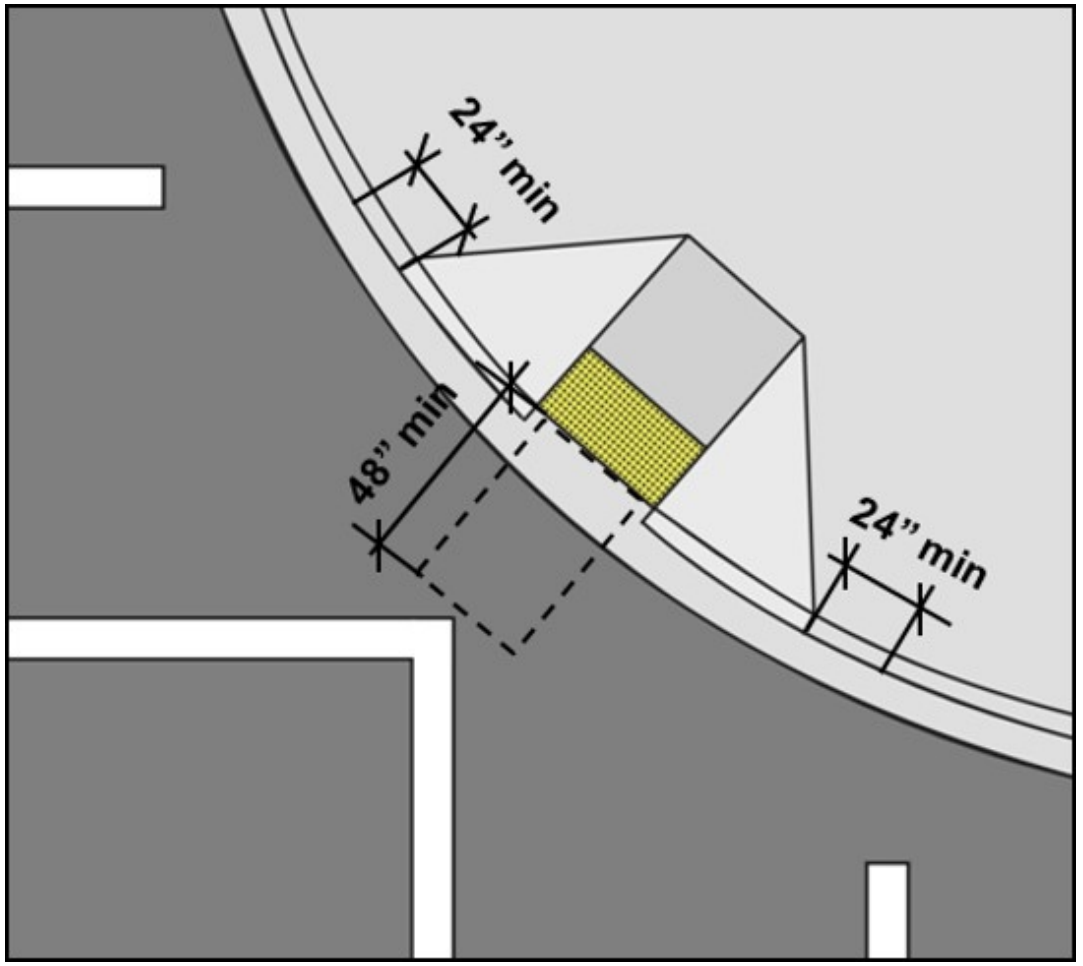
Parallel Curb Ramp With Full Height Curb



Parallel Curb Ramp With Reduced Height Curb

Diagonal Type Curb Ramp

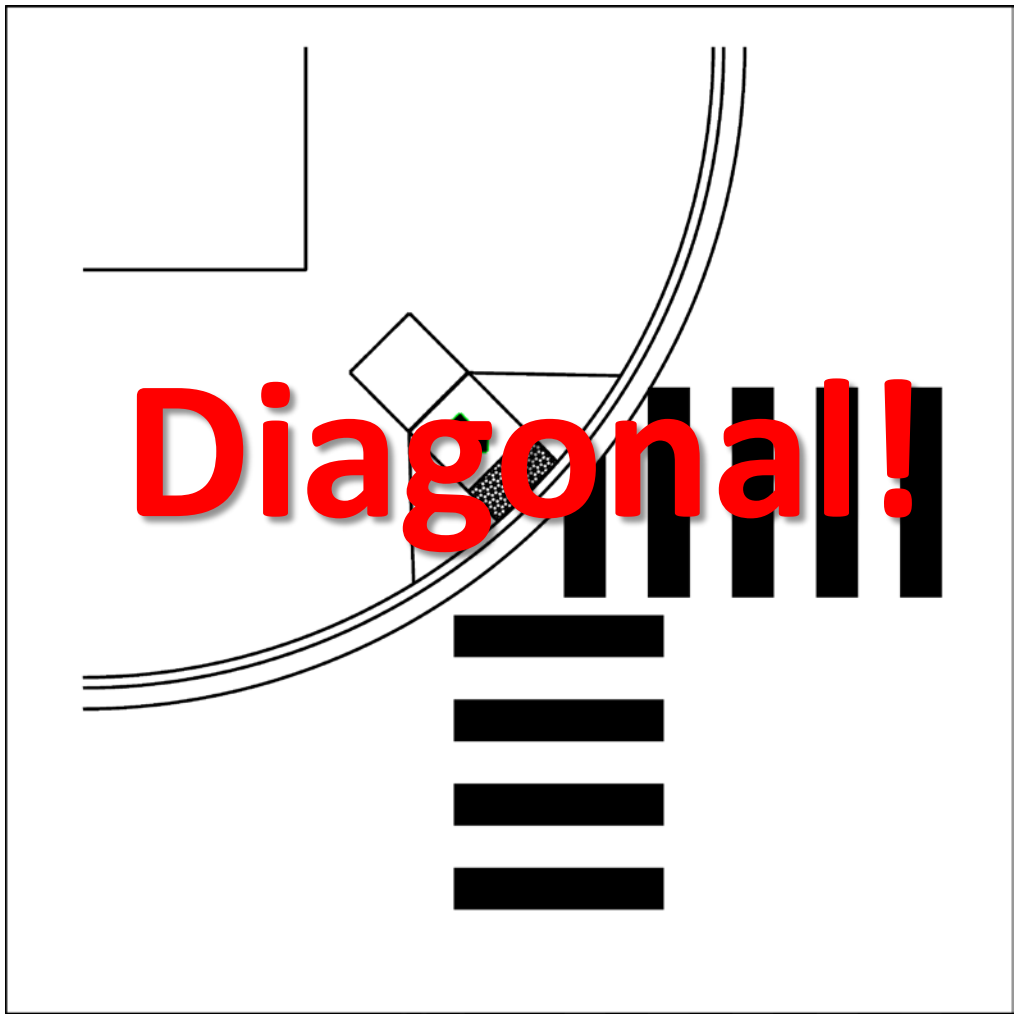
- Diagonal curb ramps are located at the apex of a corner radius and are designed to serve two independent street crossings. Diagonal curb ramps are termed diagonal ramps because they are oriented toward the center of the intersection rather than toward the crosswalks. The use of diagonal ramps is discouraged.
- In alterations where existing physical constraints prevent compliance with R207.1, a single diagonal curb ramp shall be permitted to serve both pedestrian street crossings. (R207.2)

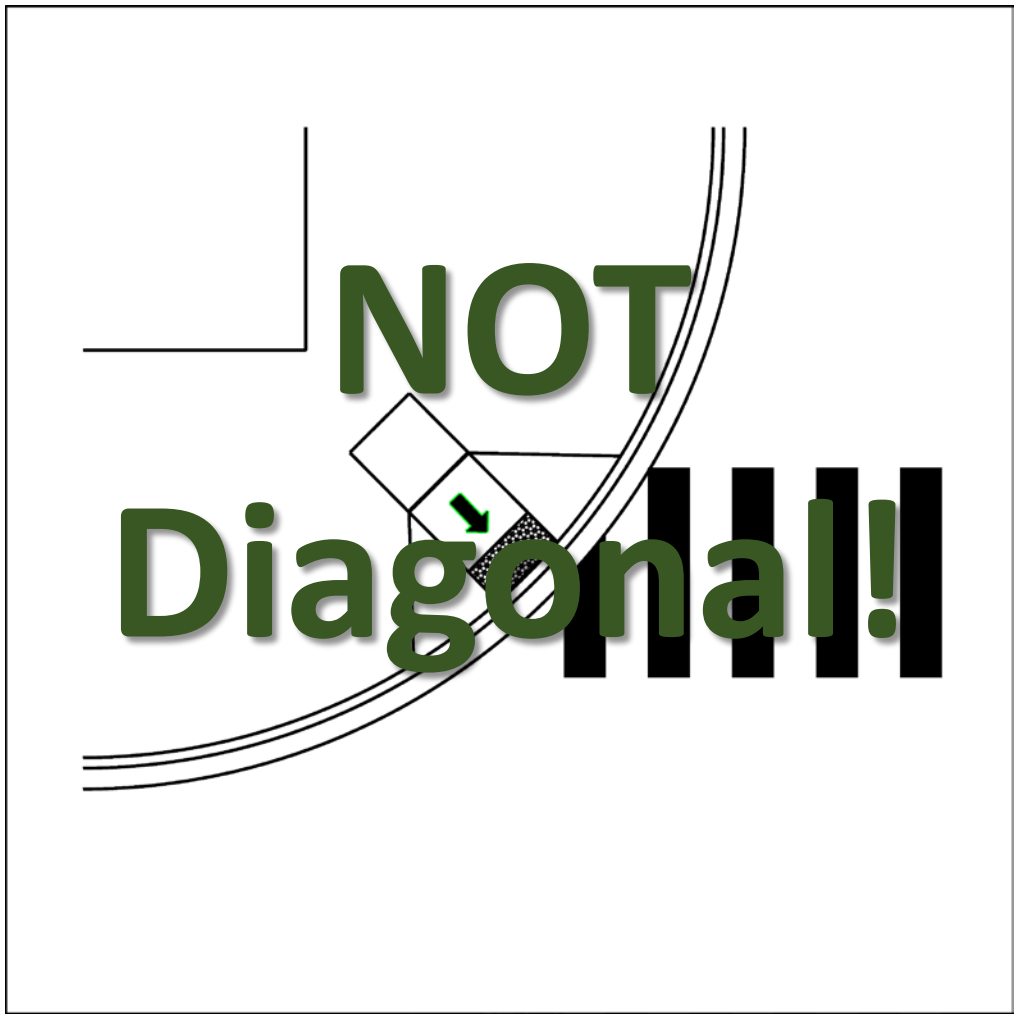


Diagonal Type Curb Ramp

- **FHWA Resource Center** – *"Diagonal curb ramp is a single ramp located at the apex of the corner that serves both crosswalks."*
- **AASHTO Ped Guide** – *"Diagonal ramps are single perpendicular curb ramps that are located at the apex of the corner*. Diagonal ramps are often appropriate in retrofit projects at existing intersections where the location of drainage inlets or other design considerations make the provision of separate ramps for each crosswalk impractical."
- **PROWAAC Final Report** – *"Where curb ramps or flush landings are required, there shall be a separate curb ramp or flush landing serving each direction of travel, whenever technically feasible. The committee strongly discourages the use of shared curb ramps, formerly called diagonal curb ramps, or shared flush landings, formerly called single parallel curb ramps, unless there is no alternative."*
- **2002 PROWAG** – *"Curb ramps or blended transitions would be required to connect pedestrian access routes to street crossings and to be located within the width of each crosswalk. Generally, this would require two separate curb ramps at a corner instead of a single ramp that opens diagonally onto an intersection. The advisory committee strongly discouraged single installations where possible for several reasons."*

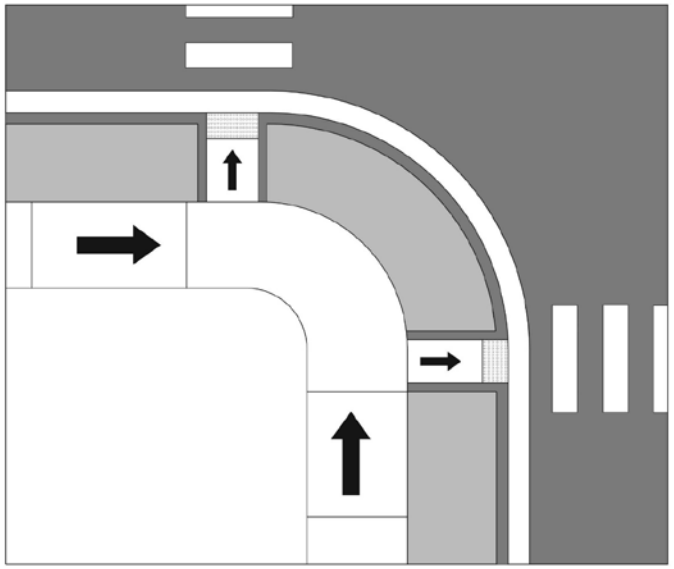
Diagonal Type Curb Ramp

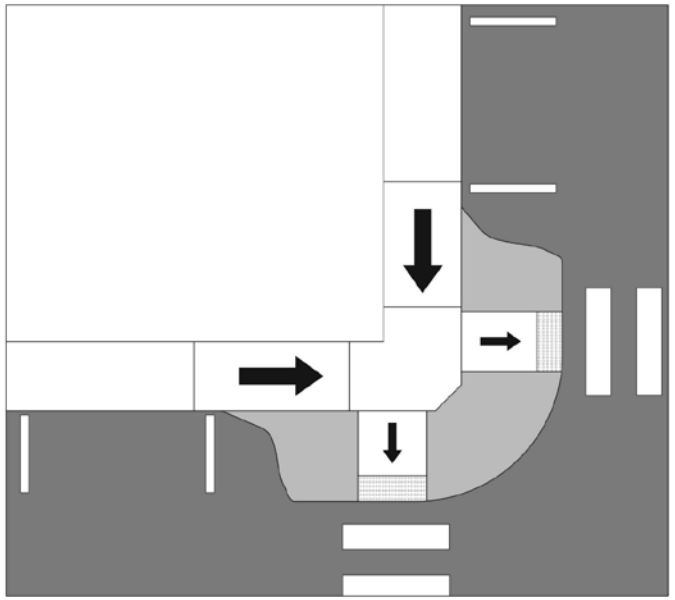




Combination Type Curb Ramp

Parallel and perpendicular curb ramps can be combined. A parallel curb ramp is used to lower the sidewalk to a mid-turning space and a short perpendicular curb ramp connects the turning space to the street. Combination curb ramps can be provided where the sidewalk is at least 6’-0” wide. (Advisory R304.1)

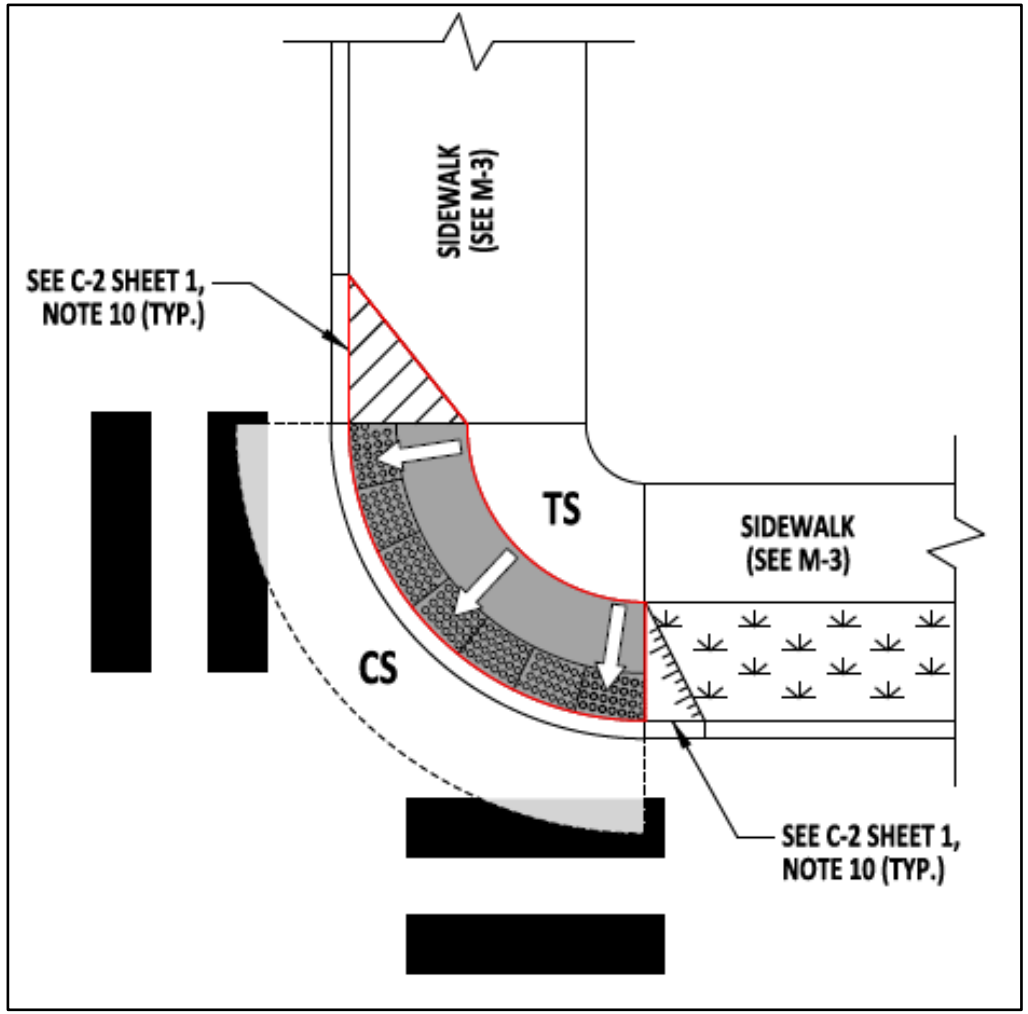


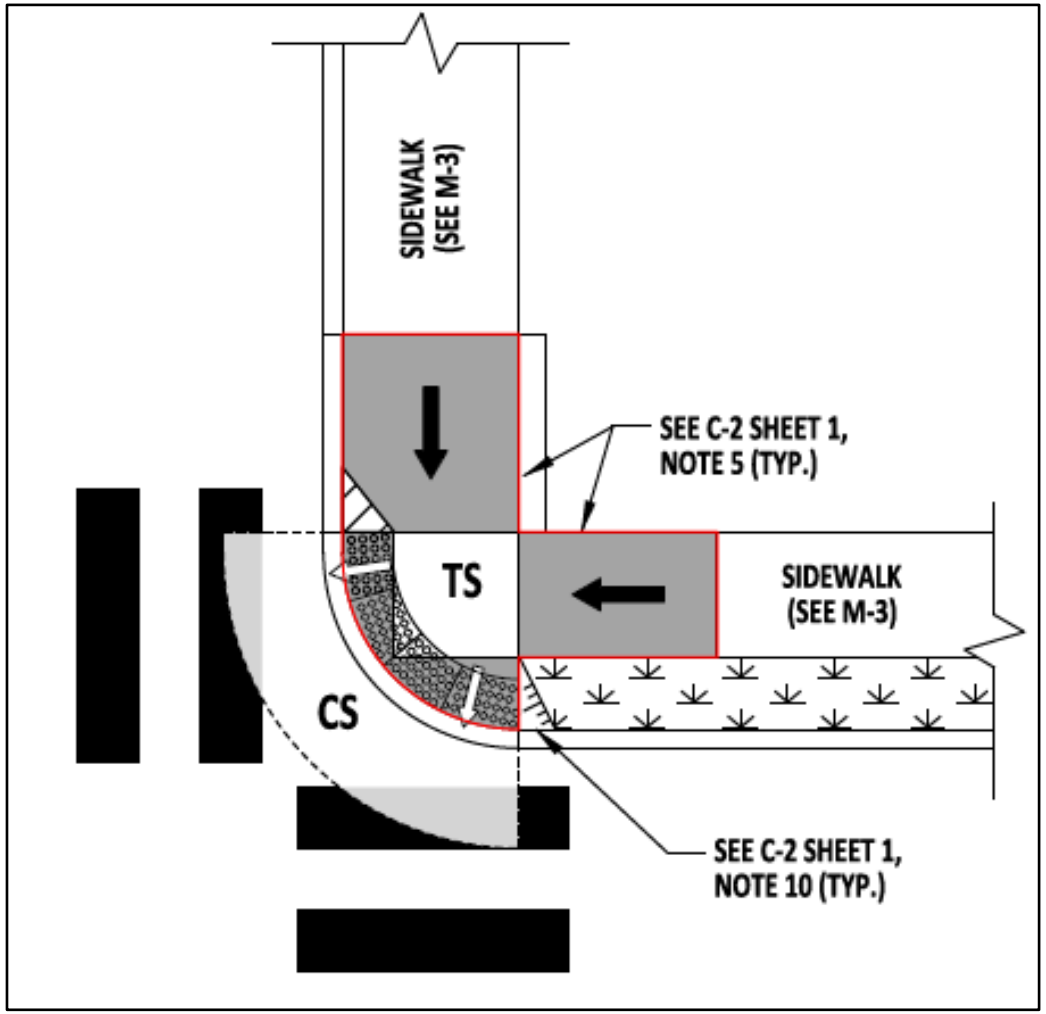


Blended Transition

- Can be laid out similar to curb ramps (except with a more gradual running slope of 5% or less).
  - “Turning spaces” are required where turning movements are required to enter or exit a facility.
- Depressed Corners:
  - Depress the entire corner to create a sloped area for the pedestrian to enter the street crossing rather than a single defined location like a curb ramp.
- Raised Street Crossings:
  - A speed table that is built into the vehicular traveled way and is intended to allow pedestrians to cross a street while also acting as a traffic calming measure.

Depressed Corners





Depressed Corners

Advantages:

- Better than parallel curb ramps at alleviating drainage concerns because a level turning space is not required at the bottom of the sloped segment,
- No turning space is required unless turning movements are required,
- Can be used at locations where there is not enough available space to construct two separate parallel or perpendicular curb ramps, and
- The geometry and accessibility requirements are ideal retrofit options for existing diagonal curb ramp locations where the pedestrian circulation path width is constrained by existing features.

Disadvantages:

- Application provides poor directionality,
- The boundary between the sidewalk and the street is much more difficult to detect for persons with vision impairments,
- Depressed corners are more difficult to drain than perpendicular curb ramps,
- Depressed corners may encourage motorists to encroach on to the sidewalk or turn at higher speeds since there is no vertical separation between the sidewalk and street at the corner, and
- It is difficult for motorists to determine the direction the pedestrian intends to cross the street which could create safety issues.

Raised Street Crossing

Paired Perpendicular Ramps

Diagonal Curb Ramp

Paired Parallel Curb Ramps

Depressed Corner

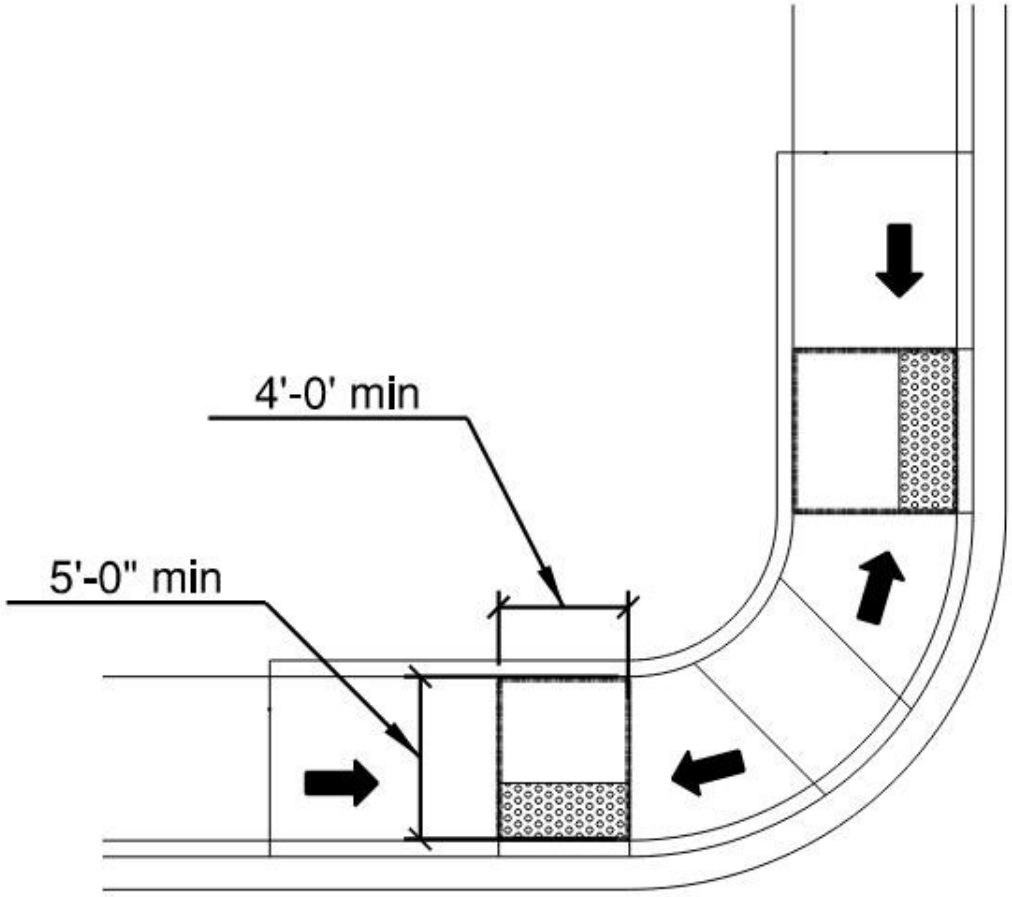
Diagonal Curb Ramp

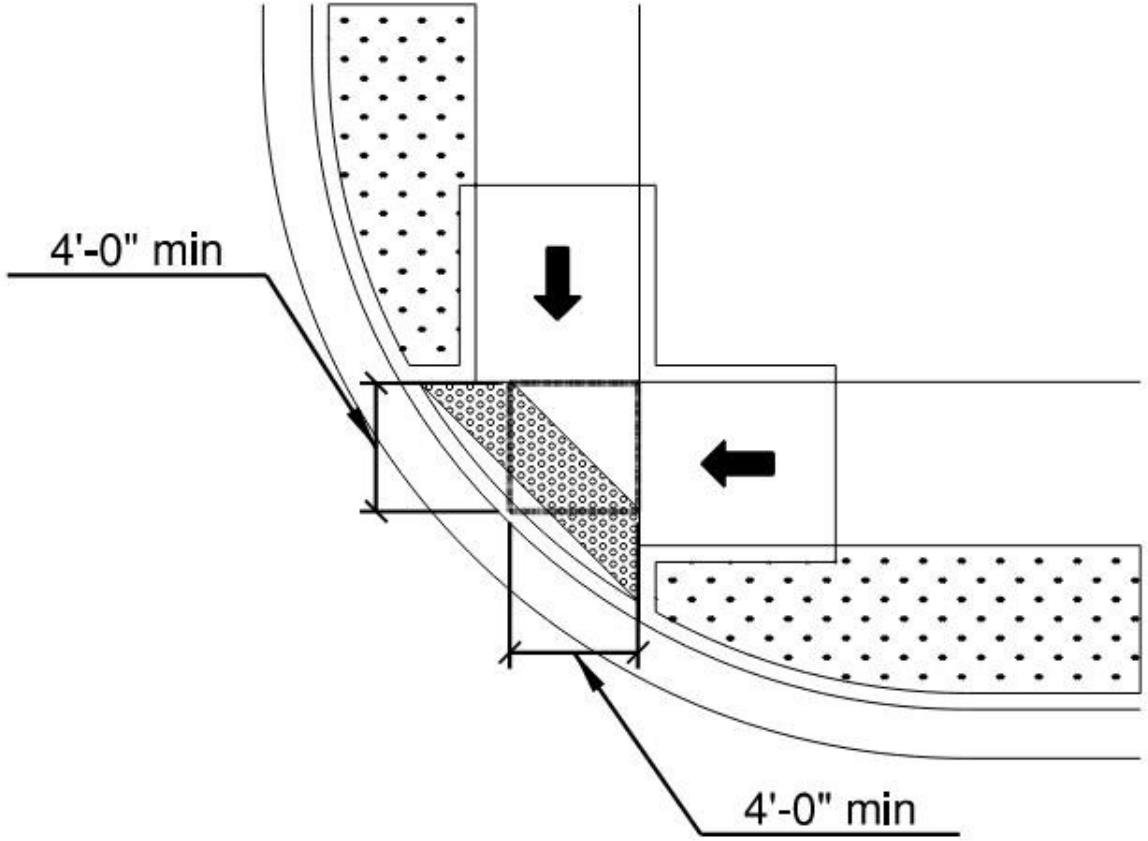
Perpendicular Curb Ramp

Perpendicular Curb Ramp

Combination Curb Ramp

What is it?





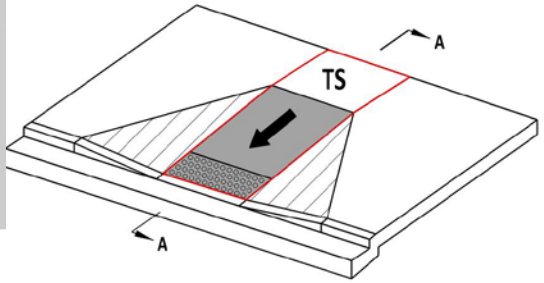
Pedestrian Connection Matrix

	Directionality (Edge Alignment)	Predictability to Vehicle	Location of Waiting Area	Positive Drainage Potential	Comfort for User not Acessing the Street	Required Footprint
Perpendicular Curb Ramp						
Parallel Curb Ramp						
Diagonal Curb Ramp						
Depressed Corner						

DelDOT Installation Preference

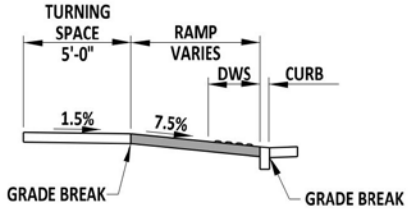
- Provide separate street level pedestrian connections for each street crossing.
  - Paired perpendicular curb ramps can be separated by curb or other detectable features.
  - Paired parallel curb ramps can be physically separated by a minimum distance of 4’-0” to create separation.
- Perpendicular curb ramps are the Department's preferred street level pedestrian connection.
- Parallel curb ramps are the preferred treatment at the following locations:
  - Constrained locations that preclude the ability to construct perpendicular type curb ramps.
  - Locations where a steep approach will require a 15’-0” ramp segment to avoid chasing grade. Combination type curb ramps can also be used for this purpose.
- Depressed corners are acceptable but should be considered after perpendicular and parallel curb ramps have been evaluated and determined not to be practical.
- Diagonal curb ramps and parallel curb ramps that serve multiple pedestrian street crossings shall not be used unless existing constraints prevent the use of other street level pedestrian connection types and should only be considered on alteration-type projects as defined in Chapter 2.

SCALE : NTS

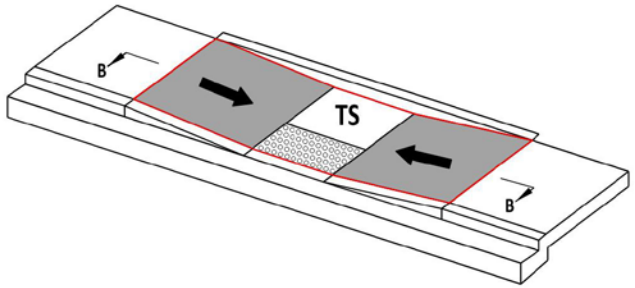


PERPENDICULAR CURB RAMP

SEE SHEET 2 AND 3 FOR LAYOUT ALTERNATIVES

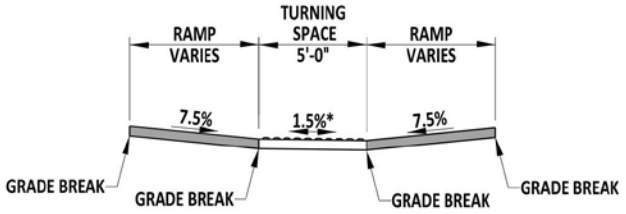


SECTION A-A



PARALLEL CURB RAMP

SEE SHEET 4 FOR LAYOUT ALTERNATIVES



SECTION B-B

*SEE NOTE 3

LEGEND

TS	TURNING SPACE
	RAMP
CS	CLEAR SPACE
	BLENDED TRANSITION
	CROSSWALK STRIPING
	TRIANGULAR AREA
	DETECTABLE WARNING SURFACE
	FLARED SIDE
	LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
	BUFFER OR OTHER NON-WALKABLE SURFACE

REQUIRED ELEMENT DIMENSIONS AND CRITERIA (APPLIES TO ALL SHEETS OF STANDARD C-2)				
PEDESTRIAN CONNECTION ELEMENT	CRITERIA	LIMITS FOR DESIGN AND LAYOUT	LIMITS FOR WORK ACCEPTANCE	RELATED NOTES
RAMP	WIDTH	5'-0" MIN.	5'-0" MIN.	SEE NOTE 6
	RUNNING SLOPE	7.5%	8.3% MAX.	SEE NOTE 1
	CROSS SLOPE	1.5%	2.0% MAX.	SEE NOTE 3
	SLOPE OF FLARED SIDE	9.5%	10.0% MAX.	SEE NOTE 10
TURNING SPACE	DIMENSION	5'-0" X 5'-0" MIN.	5'-0" X 5'-0" MIN.	SEE NOTE 6
	RUNNING SLOPE	1.5%	2.0% MAX.	
	CROSS SLOPE	1.5%	2.0% MAX.	SEE NOTE 3
BLENDED TRANSITION	RUNNING SLOPE	4.5%	5.0 MAX.	
	CROSS SLOPE	1.5%	2.0% MAX.	SEE NOTE 3
TRIANGULAR AREA	RUNNING SLOPE	1.5%	5.0% MAX.	
	CROSS SLOPE	1.5%	2.0% MAX.	SEE NOTE 3
CLEAR SPACE	DIMENSION	4'-0" X 4'-0"	4'-0" X 4'-0"	SEE NOTE 12

* CROSS SLOPE IS MEASURED PERPENDICULAR TO THE PRIMARY DIRECTION OF PEDESTRIAN TRAVEL.

** RUNNING SLOPE IS MEASURED PARALLEL TO THE PRIMARY DIRECTION OF PEDESTRIAN TRAVEL.

*** ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE.

GENERAL PEDESTRIAN CONNECTION NOTES:

1). TO AVOID CHASING GRADE INDEFINITELY ON STEEP ROADWAYS, RAMP LENGTH IS NOT REQUIRED TO EXCEED 15'-0" REGARDLESS OF THE RESULTING RAMP RUNNING SLOPE.

2). ALL JOINTS AND GRADE BREAKS ARE TO BE CONSTRUCTED FLUSH.

3). TO CREATE A FLUSH TRANSITION TO THE STREET, THE CROSS SLOPE OF THE INDICATED ELEMENTS MAY EXCEED THE REQUIRED 2.0% MAXIMUM CROSS SLOPE. THE ELEMENT PERMITTED TO EXCEED THE 2.0% MAXIMUM VARIES BY PEDESTRIAN CONNECTION TYPE. SEE THE CURRENT PEDESTRIAN ACCESSIBILITY STANDARDS MANUAL FOR ADDITIONAL INFORMATION ABOUT WHICH ELEMENTS MAY BE PERMITTED TO EXCEED THE 2.0% MAXIMUM. IN ALL CASES, THE CROSS SLOPE OF THE ELEMENT PERMITTED TO EXCEED THE 2.0% MAXIMUM IS NOT TO EXCEED THE SLOPE OF THE ADJACENT ROADWAY.

4). GRADE BREAKS AT THE TOP AND BOTTOM OF A RAMP, BLENDED TRANSITION, AND TURNING SPACE SHALL BE PERPENDICULAR TO RUNNING SLOPE. GRADE BREAKS SHALL NOT BE LOCATED WITHIN THE RAMP, BLENDED TRANSITION, TURNING SPACE, OR DETECTABLE WARNING SURFACE.

5). WHEN ADJACENT TO GRASS, A 6:1 GRADE IS REQUIRED FOR A MINIMUM OF 2'-0" ADJACENT TO THE PEDESTRIAN CONNECTION IN ACCORDANCE WITH M-3, SHEET 1. ALTERNATIVELY, A CURB AT THE BACK OF THE PEDESTRIAN PATH MAY BE INSTALLED AT DEPRESSED TURNING SPACES OR RAMP SEGMENTS IN LIEU OF PROVIDING A 6:1 GRADE.

6). SEE PLANS FOR WIDTH. PEDESTRIAN CONNECTIONS THAT SERVE SHARED USE PATHS ARE TO PROVIDE A RAMP WIDTH AND TURNING SPACE WIDTH THE SAME WIDTH AS THE APPROACH SHARED USE PATH.

7). PROVIDE A TURNING SPACE AT LOCATIONS WHERE THE PRIMARY DIRECTION OF TRAVEL IS REQUIRED TO CHANGE IN ORDER TO ACCESS THE PEDESTRIAN CONNECTION IN ACCORDANCE WITH THESE SHEETS.

8). IN ALTERATIONS, WHERE THE PEDESTRIAN CONNECTION WILL TIE INTO AN EXISTING CROSS SLOPE THAT EXCEEDS 2.0%, PLACE A MINIMUM 5'-0" LONG TRANSITION SLAB IN THE DIRECTION OF PEDESTRIAN TRAVEL TO CONNECT THE NEW PEDESTRIAN CONNECTION TO THE EXISTING PEDESTRIAN PATH. THE TRANSITION SLAB SHALL NOT OVERLAP ANY OTHER REQUIRED PEDESTRIAN CONNECTION ELEMENT. THE CROSS SLOPE TRANSITION SHALL BE SPREAD EVENLY OVER THE SLAB TO MINIMIZE THE DEGREE OF WARPING. THE RATE OF CROSS SLOPE CHANGE IN THE TRANSITION AREA SHALL NOT EXCEED 3% PER LINEAR FOOT.

9). REFER TO THE DE MUTCD FOR DETAILS REGARDING THE LOCATION OF PEDESTRIAN PUSH BUTTONS.

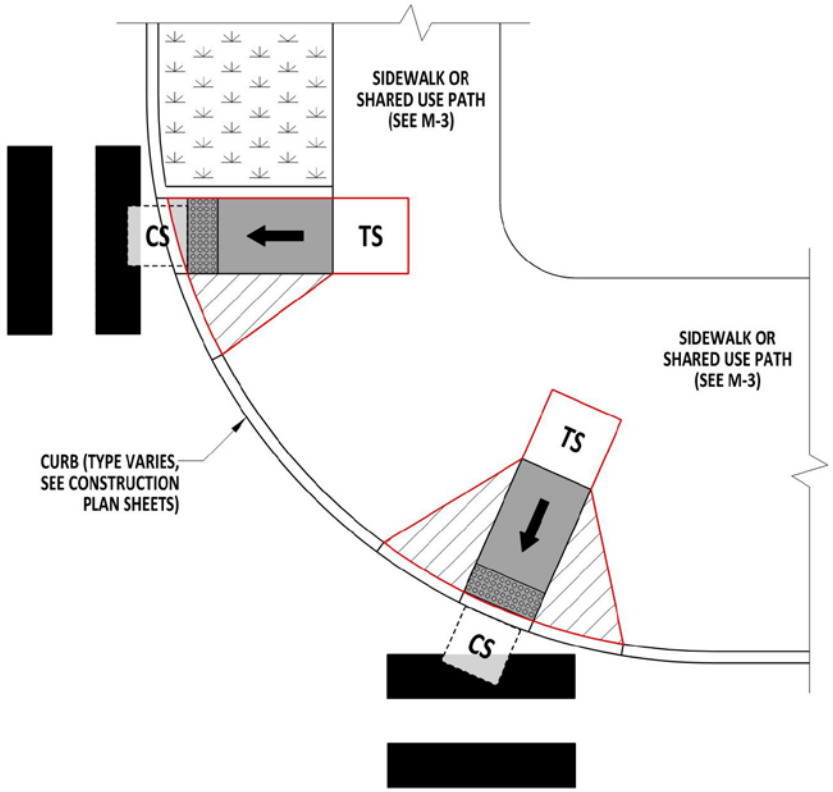
10). PROVIDE FLARED SIDES ON PERPENDICULAR CURB RAMPS AND BLENDED TRANSITIONS WHERE THE RAMP OR BLENDED TRANSITION EDGE ABUTS A WALKABLE SURFACE. UNLESS APPROVED OTHERWISE BY THE ENGINEER, PROVIDE JOINTS BETWEEN THE FLARED SIDE AND THE ABUTTING WALKABLE SURFACE AND RAMPED SEGMENT. FLARED SIDES MAY BE SUBSTITUTED WITH APPROVAL OF THE ENGINEER WITH VERTICAL RETURNED CURBS OR A 4:1 CURB TAPER WITH ASSOCIATED GRADING ALONG THE RAMP WHERE THE RAMP ABUTS A NON-WALKABLE SURFACE, OR WHERE THE ADJACENT RAMP SURFACE IS BLOCKED TO PEDESTRIAN TRAFFIC. THE RETURNED CURB MUST NOT AFFECT THE CLEAR WIDTH OF THE PEDESTRIAN ACCESS ROUTE AND SHALL BE FLUSH WITH THE PEDESTRIAN PATH AT TERMINATION.

11). LAYOUT JOINTS AND EXPANSION IN ACCORDANCE WITH M-3, SHEET 1 OF 1.

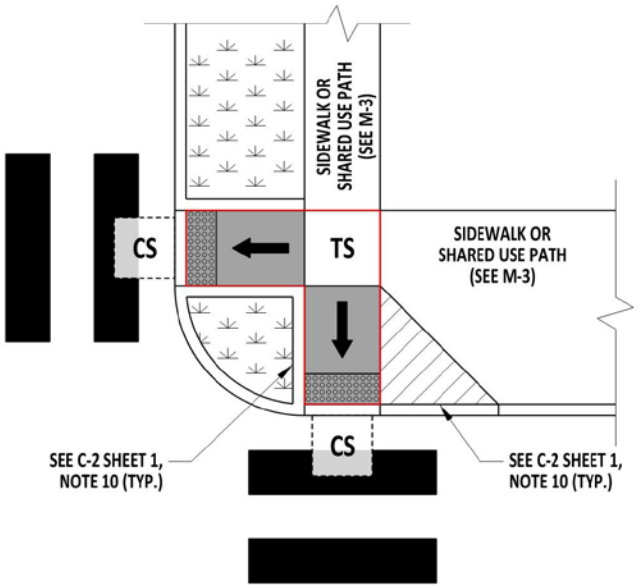
12). ALIGN THE PEDESTRIAN CONNECTION AND THE CROSSWALK SO THAT A 4'-0" X 4'-0" CLEAR SPACE AREA LOCATED BELOW THE BOTTOM GRADE BREAK OF CURB RAMPS AND BLENDED TRANSITIONS IS CONTAINED WHOLLY WITHIN THE CROSSWALK. DIAGONAL CURB RAMPS REQUIRE THAT THE CLEAR SPACE BE LOCATED OUTSIDE OF THE PARALLEL VEHICLE TRAVEL LANE AND THAT A SEGMENT OF CURB 2'-0" LONG MINIMUM BE LOCATED ON EACH SIDE OF THE DIAGANOL CURB RAMP'S FLARED SIDES AND BE WITHIN THE MARKED CROSSING. FOR CLARITY, CLEAR SPACE IS NOT SHOWN WHEN ALIGNED DIRECTLY OVER A REQUIRED TURNING SPACE.

13). WHERE PEDESTRIAN CONNECTIONS ARE LOCATED ON A RADII, THE REQUIRED DIMENSIONS ARE MEASURED PERPENDICULAR TO THE PEDESTRIAN CONNECTION ELEMENT AND NOT ALONG THE CURVE. SEE THE CURRENT DELDOT PAS MANUAL FOR ADDITIONAL INFORMATION.

SCALE : NTS



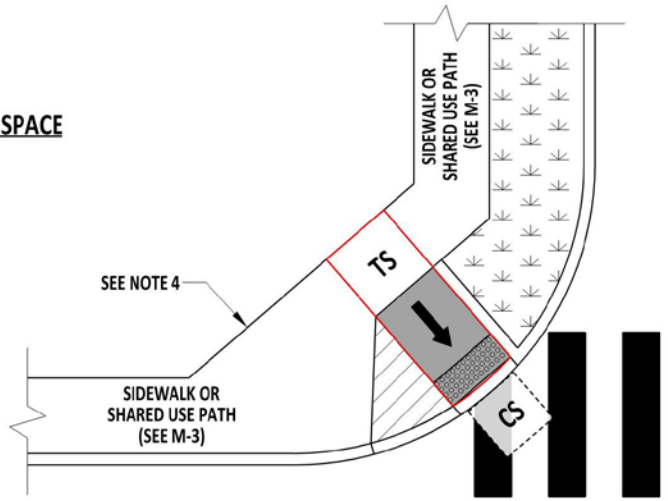
DUAL STREET CROSSINGS WITH SEPARATE TURNING SPACES



DUAL STREET CROSSINGS WITH SHARED TURNING SPACE

LEGEND

TS — TURNING SPACE	TRIANGULAR AREA
RAMP	DETECTABLE WARNING SURFACE
CS — CLEAR SPACE	FLARED SIDE
BLENDED TRANSITION	LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
CROSSWALK STRIPING	BUFFER OR OTHER NON-WALKABLE SURFACE



SINGLE STREET CROSSING

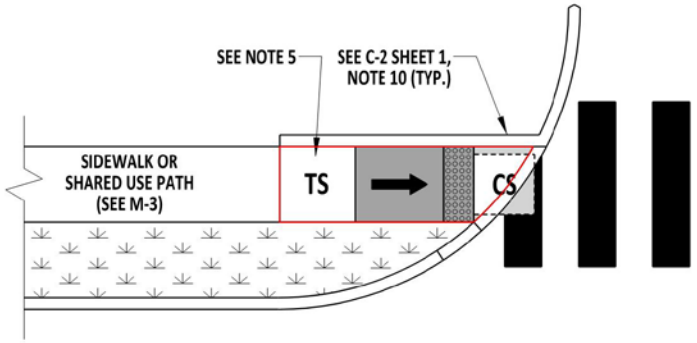
NOTES:

1). SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.
2). PERPENDICULAR CURB RAMPS HAVE A RAMPED SECTION THAT CUTS THROUGH THE CURB AT AN ANGLE. SEE THE CURRENT DELDOT PAS MANUAL FOR ADDITIONAL INFORMATION.
3). A SINGLE PERPENDICULAR CURB RAMP LOCATED ON THE APEX OF A CURB RETURN AND WHICH SERVES TWO SEPARATE CROSSWALKS IS CONSIDERED A DIAGONAL CURB RAMP. INSTALLATION OF A DIAGONAL CURB RAMP REQUIRES DEPARTMENT APPROVAL.
4). LOCATE THE BACK OF PEDESTRIAN PATH IN A MANNER THAT ALLOWS FOR THE INSTALLATION OF A TURNING SPACE AT THE TOP OF THE PERPENDICULAR CURB RAMP.

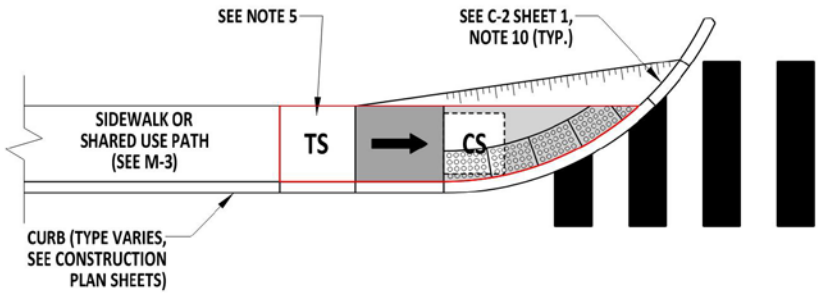
PEDESTRIAN CONNECTION, TYPE 1: PERPENDICULAR CURB RAMPS

DUAL APPROACH LAYOUT ALTERNATIVES

SCALE : NTS



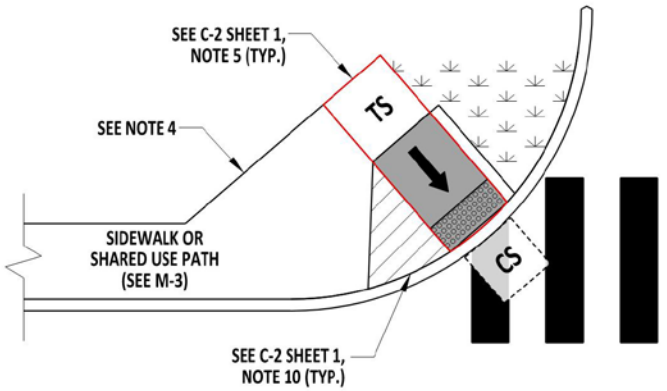
DIRECTIONAL WITH BUFFER STRIP



DIRECTIONAL WITH NO BUFFER STRIP
SEE NOTE 6

LEGEND

TS	TURNING SPACE		TRIANGULAR AREA
	RAMP		DETECTABLE WARNING SURFACE
CS	CLEAR SPACE		FLARED SIDE
	BLENDED TRANSITION		LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
	CROSSWALK STRIPING		BUFFER OR OTHER NON-WALKABLE SURFACE



PERPENDICULAR NON-DIRECTIONAL

NOTES:

1). SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.
2). PERPENDICULAR CURB RAMPS HAVE A RAMPED SECTION THAT CUTS THROUGH THE CURB AT AN ANGLE. SEE THE CURRENT DELDOT PAS MANUAL FOR ADDITIONAL INFORMATION.
3). A SINGLE PERPENDICULAR CURB RAMP LOCATED ON THE APEX OF A CURB RETURN AND WHICH SERVES TWO SEPARATE CROSSWALKS IS CONSIDERED A DIAGONAL CURB RAMP. INSTALLATION OF A DIAGONAL CURB RAMP REQUIRES DEPARTMENT APPROVAL.
4). LOCATE THE BACK OF PEDESTRIAN PATH IN A MANNER THAT ALLOWS FOR THE INSTALLATION OF A TURNING SPACE AT THE TOP OF THE PERPENDICULAR CURB RAMP.
5). A TURNING SPACE IS NOT REQUIRED AT THE TOP OF THE RAMP WHEN NO TURNING MOVEMENT IS REQUIRED TO ENTER OR EXIT THE RAMP.
6). USE OF A SINGLE APPROACH PARALLEL CURB RAMP (SEE C-2, SHEET 4) IS PREFERRED TO THE USE OF A SINGLE APPROACH DIRECTIONAL WITH NO BUFFER STRIP PERPENDICULAR TYPE APPLICATION.

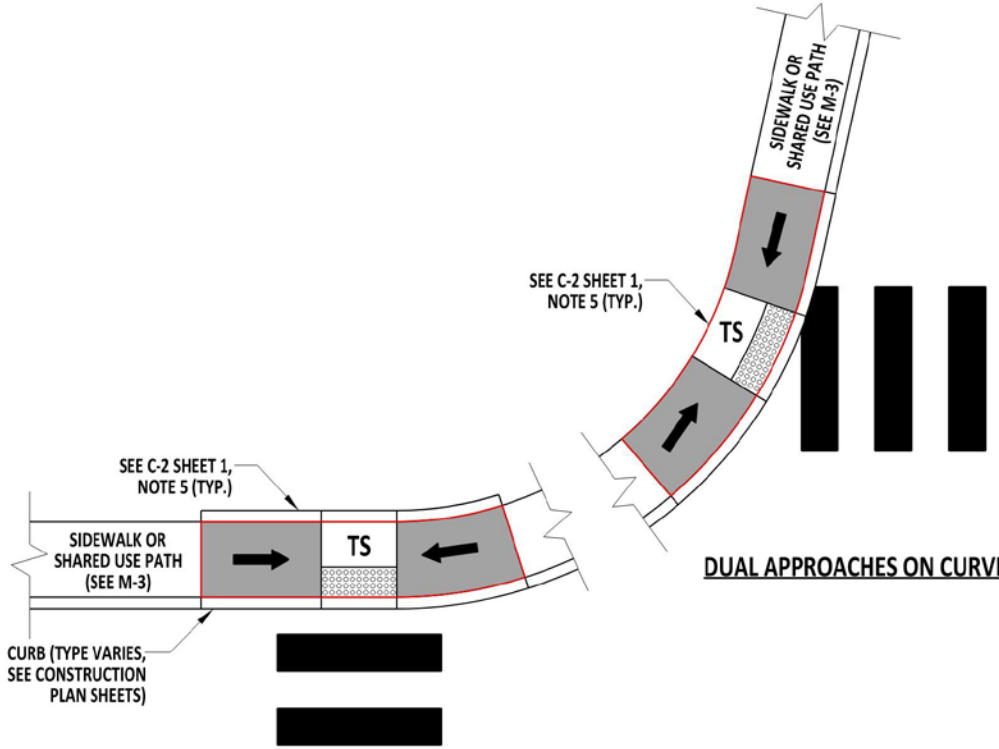
PEDESTRIAN CONNECTION, TYPE 1: PERPENDICULAR CURB RAMPS

SINGLE APPROACH LAYOUT ALTERNATIVES

SCALE : NTS

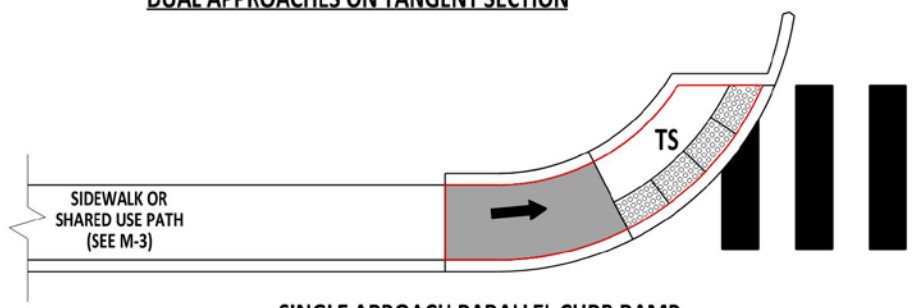
LEGEND

TS — TURNING SPACE	TRIANGULAR AREA
RAMP	DETECTABLE WARNING SURFACE
CS — CLEAR SPACE	FLARED SIDE
BLENDED TRANSITION	LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
CROSSWALK STRIPING	BUFFER OR OTHER NON-WALKABLE SURFACE

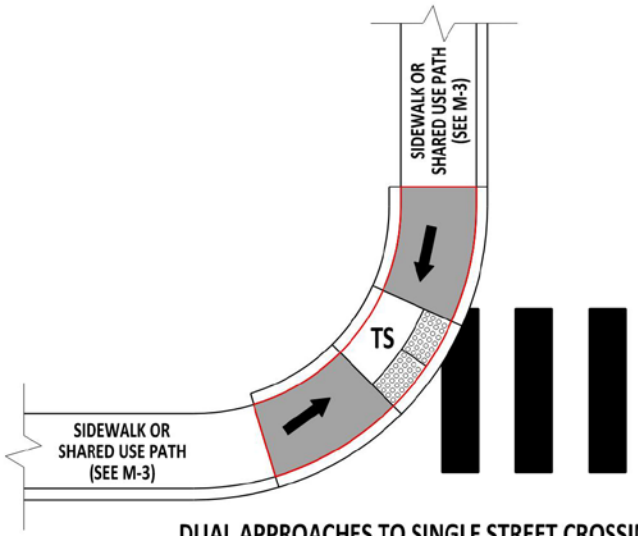


DUAL APPROACHES ON CURVED SECTION

DUAL APPROACHES ON TANGENT SECTION



SINGLE APROACH PARALLEL CURB RAMP



DUAL APPROACHES TO SINGLE STREET CROSSING

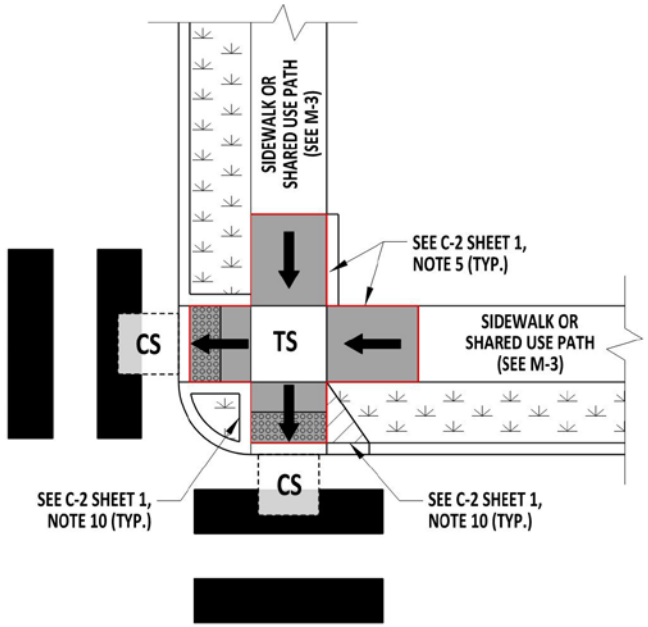
NOTES:

1). SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.
2). PARALLEL CURB RAMPS HAVE A RUNNING SLOPE THAT IS IN-LINE WITH THE DIRECTION OF SIDEWALK TRAVEL AND LOWERS THE SIDEWALK TO A TURNING SPACE WHERE A TURN IS MADE TO ENTER THE CROSSWALK. SEE THE CURRENT DELDOT PAS MANUAL FOR ADDITIONAL INFORMATION.
3). A SINGLE PARALLEL CURB RAMP THAT SERVES TWO SEPARATE CROSSWALKS REQUIRES DEPARTMENT APPROVAL.
4). APPLICATIONS SHOWN AS DUAL APPROACHES CAN ALSO SUPPORT A SINGLE PEDESTRIAN PATH APPROACH AS WELL.

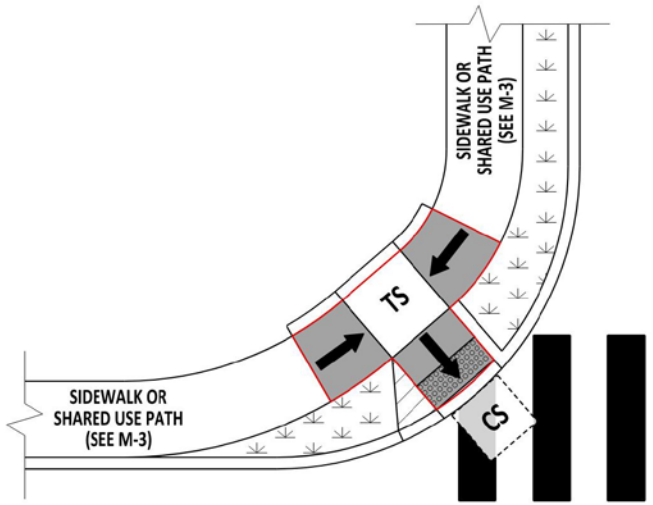
PEDESTRIAN CONNECTION, TYPE 2: PARALLEL CURB RAMPS

SINGLE AND DUAL APPROACH LAYOUT ALTERNATIVES

SCALE : NTS



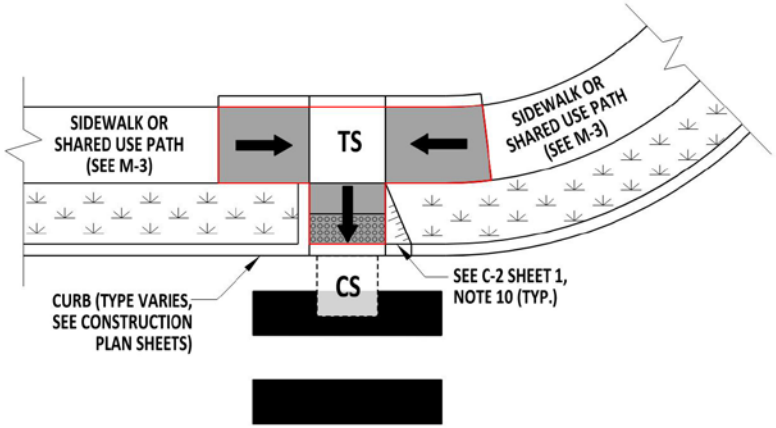
DUAL STREET CROSSINGS WITH SHARED TURNING SPACE



COMBINATION CURB RAMP ON CURVE

LEGEND

- TS — TURNING SPACE
- RAMP
- CS — CLEAR SPACE
- BLENDED TRANSITION
- CROSSWALK STRIPING
- TRIANGULAR AREA
- DETECTABLE WARNING SURFACE
- FLARED SIDE
- LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
- BUFFER OR OTHER NON-WALKABLE SURFACE



COMBINATION CURB RAMP ON TANGENT

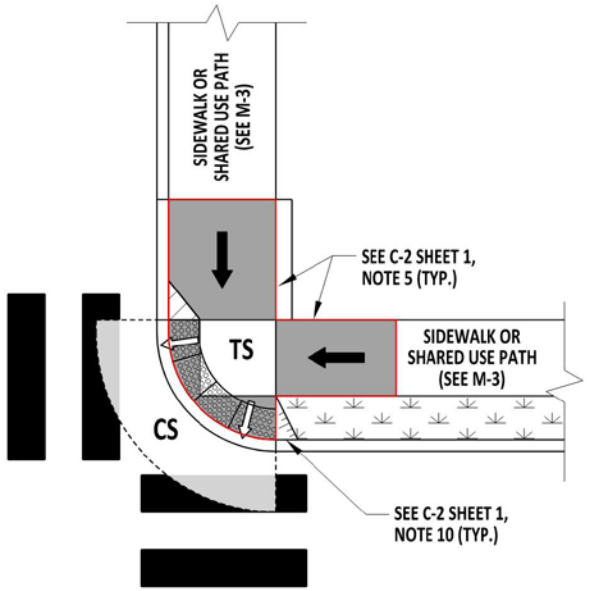
NOTES:

1). SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.
2). COMBINATION PEDESTRIAN CONNECTIONS UTILIZE A PARALLEL CURB RAMP TO LOWER THE PEDESTRIAN PATH TO A MID TURNING SPACE AND THEN A SHORT PERPENDICULAR CURB RAMP TO CONNECT THE TURNING SPACE TO THE CROSSWALK. SEE THE CURRENT DELDOT PAS MANUAL FOR ADDITIONAL INFORMATION.
3). A SINGLE COMBINATION CURB RAMP LOCATED ON THE APEX OF A CURB RETURN WHICH SERVES TWO SEPARATE CROSSWALKS IS CONSIDERED A DIAGONAL CURB RAMP. INSTALLATION OF A DIAGONAL CURB RAMP REQUIRES DEPARTMENT APPROVAL.
4). APPLICATIONS SHOWN AS DUAL APPROACHES CAN ALSO SUPPORT A SINGLE PEDESTRIAN PATH APPROACH AS WELL.

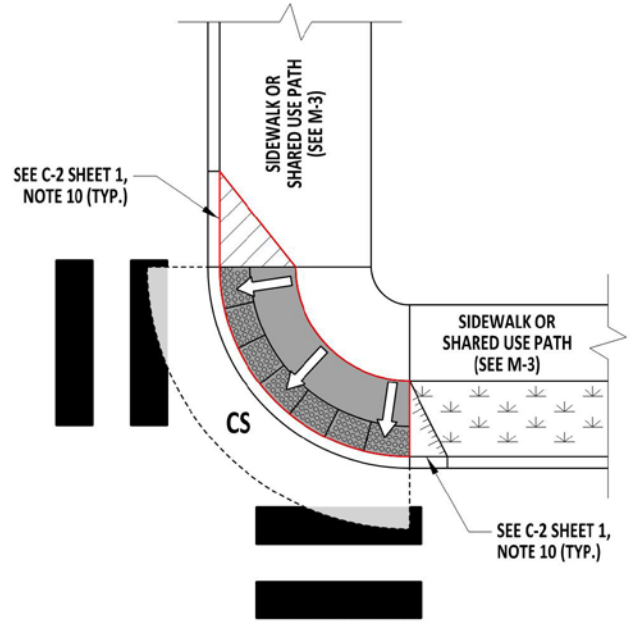
PEDESTRIAN CONNECTION, TYPE 3: COMBINATION CURB RAMPS

SINGLE AND DUAL APPROACH LAYOUT ALTERNATIVES

SCALE : NTS



DEPRESSED CORNER WITH SHARED TURNING SPACE



CORNER BLENDED TRANSTION WITH SIDEWALK

LEGEND

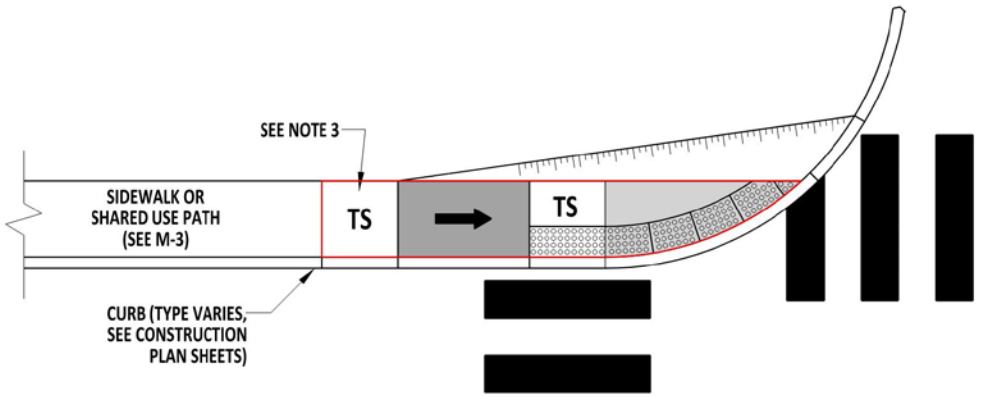
- TS — TURNING SPACE
- RAMP
- CS — CLEAR SPACE
- BLENDED TRANSITION
- CROSSWALK STRIPING
- TRIANGULAR AREA
- DETECTABLE WARNING SURFACE
- FLARED SIDE
- LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
- BUFFER OR OTHER NON-WALKABLE SURFACE

NOTES:

1). SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.

2). PERPENDICULAR AND PARALLEL RAMP CONFIGURATIONS ARE PREFERRED TO DEPRESSED CORNERS. DEPRESSED CORNERS SHOULD ONLY BE USED WHERE SITE CONDITIONS MAKE THEM A MORE APPROPRIATE OPTION, OR WHERE PERPENDICULAR OR PARALLEL RAMPS CANNOT BE INSTALLED DUE TO A PHYSICAL SITE CONSTRAINT. SEE THE CURRENT DELDOT PAS MANUAL FOR ADDITIONAL INFORMATION. ADDITIONAL INFORMATION SEE THE CURRENT PEDESTRIAN ACCESSIBILITY STANDARDS MANUAL.

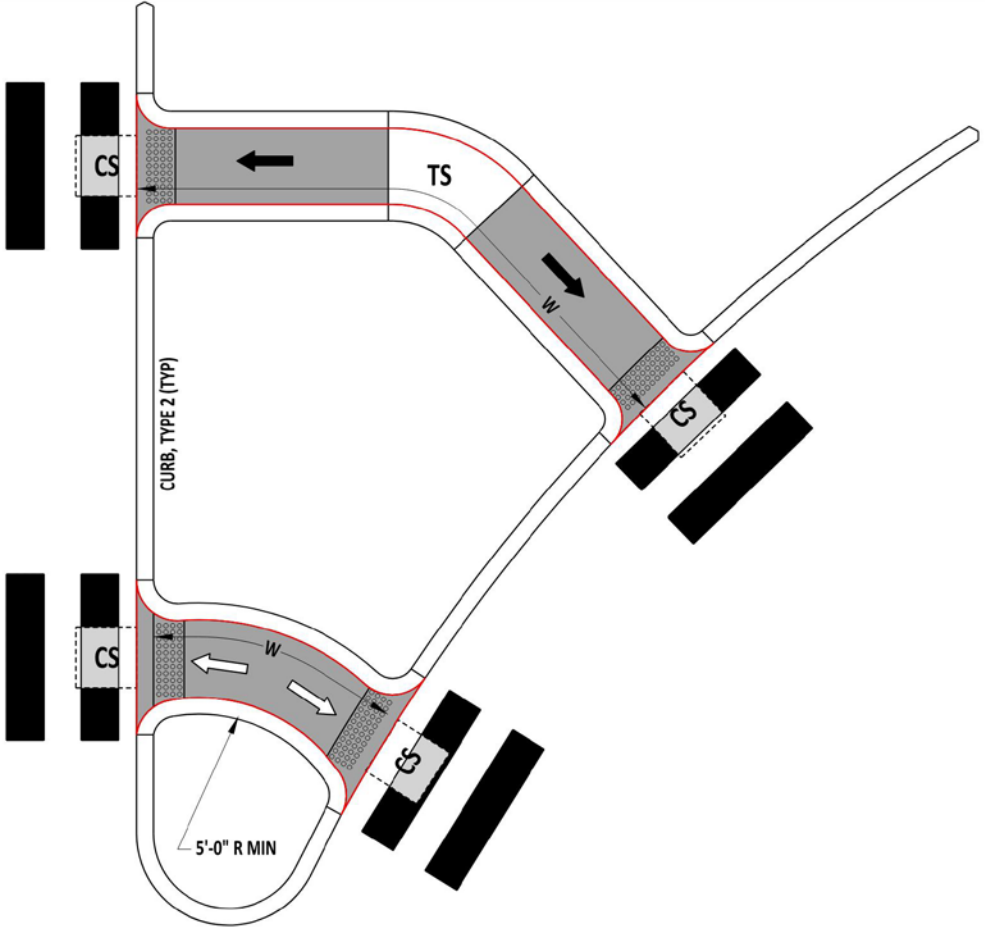
3). A TURNING SPACE IS NOT REQUIRED AT THE TOP OF THE RAMP WHEN NO TURNING MOVEMENT IS REQUIRED TO ENTER OR EXIT THE RAMP.



SINGLE APPROACH DEPRESSED CORNER

PEDESTRIAN CONNECTION, TYPE 4: DEPRESSED CORNERS

SCALE : NTS



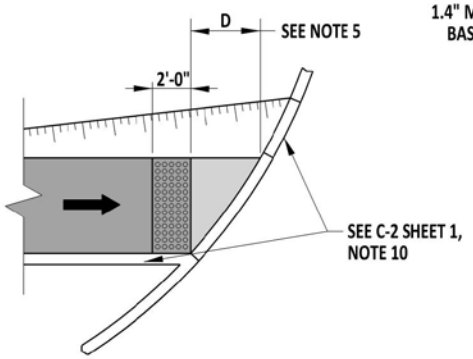
PEDESTRIAN CONNECTION, TYPE 5

PEDESTRIAN CONNECTION TYPE 5 NOTES:

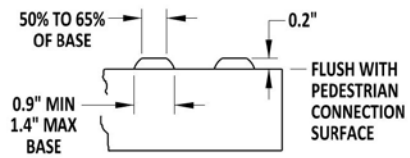
1). SEE C-2, SHEET 1 FOR GENERAL PEDESTRIAN CONNECTION NOTES AND ELEMENT REQUIREMENTS.
2). A CUT-THROUGH LEVEL WITH THE STREET IS THE PREFERRED TREATMENT FOR ISLANDS. RAMPS OR BLENDED TRANSITIONS CAN BE USED WHERE THE ISLAND IS OF SUFFICIENT SIZE TO ACCOMMODATE THEM. PROVIDE POSITIVE DRAINAGE FOR EITHER TREATMENT.
3). IF THE RUNNING SLOPE OF THE PEDESTRIAN CONNECTION IS 5% OR LESS WITH NO REQUIRED TURNING MOVEMENTS, THE TURNING SPACE CAN BE OMITTED AS IT IS A BLENDED TRANSITION.
4). THE WIDTH OF THE PEDESTRIAN PATH THROUGH THE MEDIAN SHOULD MATCH THE WIDTH OF THE PEDESTRIAN ACCESS ROUTE WHICH IT CONNECTS. EXPAND THE ENTIRE PEDESTRIAN PATH WIDTH THROUGH THE MEDIAN BY 2'-0" AT LOCATIONS WHERE A PEDESTRIAN PUSHBUTTON IS TO BE PLACED.
5). THE CROSS SLOPE IS PERMITTED TO MATCH THAT OF THE ADJACENT STREET. LOCATIONS THAT REQUIRE A CROSS SLOPE TRANSITION SHALL TRANSITION THE CROSS SLOPE UNIFORMLY AT A RATE NOT TO EXCEED 3.0% PER LINEAR FOOT.

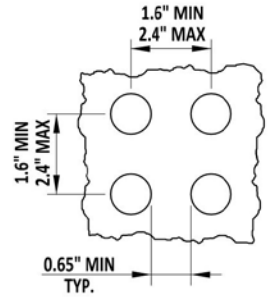
LEGEND

TS — TURNING SPACE	TRIANGULAR AREA
RAMP	DETECTABLE WARNING SURFACE
CS — CLEAR SPACE	FLARED SIDE
BLENDED TRANSITION	LIMIT OF 6" MIN. SIDEWALK OVER 6" GABC
CROSSWALK STRIPING	BUFFER OR OTHER NON-WALKABLE SURFACE



DETECTABLE WARNING SURFACE PLACEMENT FOR PERPENDICULAR CURB RAMPS





DETECTABLE WARNING SURFACE DETAILS

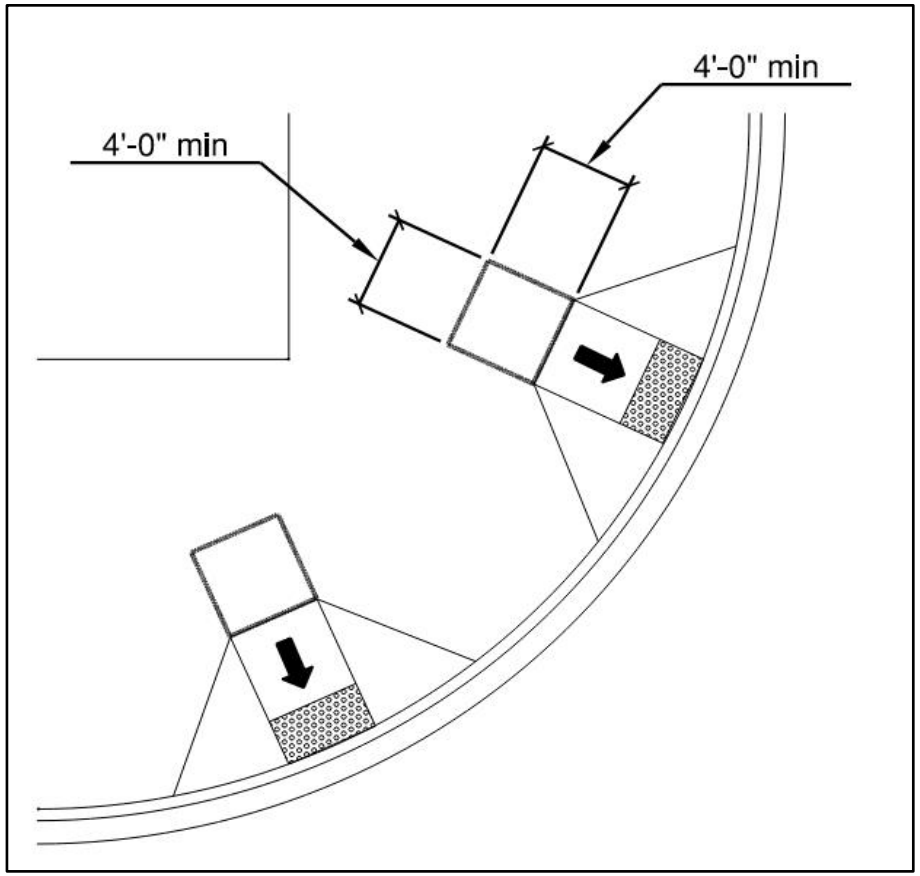
DETECTABLE WARNING SURFACE NOTES:

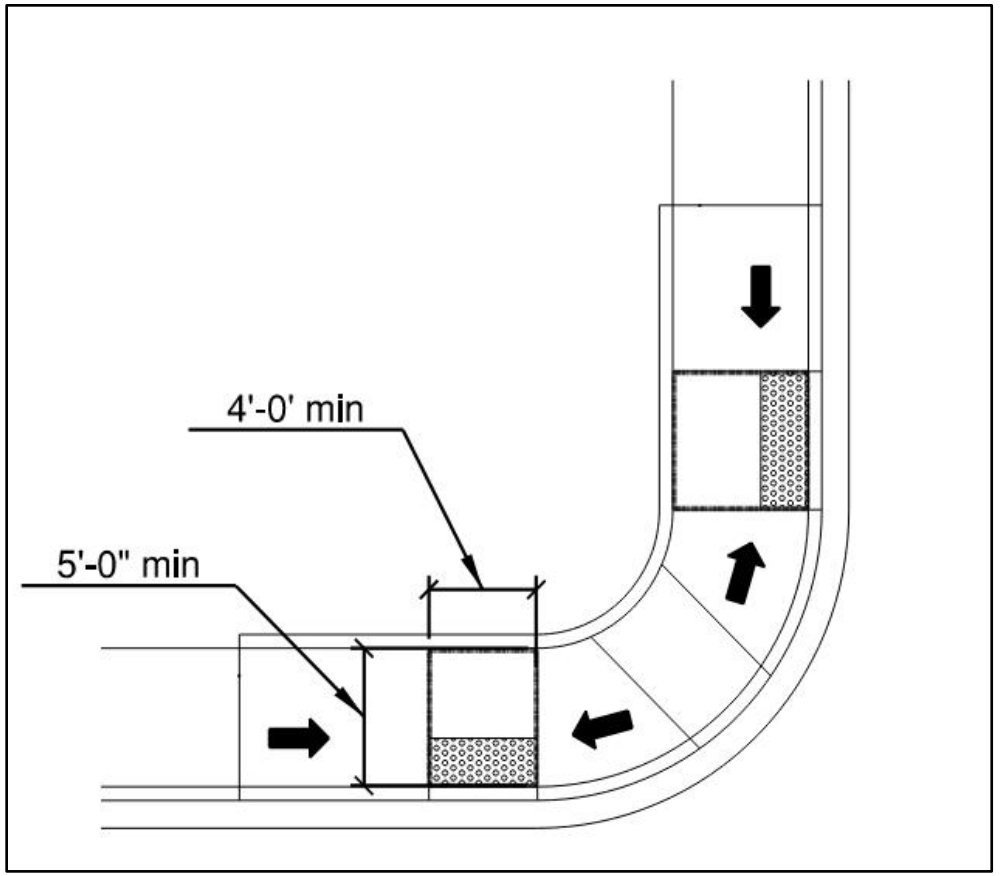
1). THE DETECTABLE WARNING SURFACE SHALL EXTEND A MINIMUM OF 2'-0" IN THE DIRECTION OF PEDESTRIAN TRAVEL AND EXTEND THE FULL WIDTH OF THE DEPRESSED CURB.
2). THE DETECTABLE WARNING SURFACE SHALL NOT BE PLACED ACROSS A GRADE BREAK.
3). WHERE THERE IS NO DEPRESSED CURB AT A MEDIAN CUT-THROUGH OF PEDESTRIAN CONNECTION, INSTALL THE DETECTABLE WARNING SURFACE A MINIMUM OF 8" FROM THE PAVEMENT EDGE.
4). DETECTABLE WARNING SURFACE MAY BE OMITTED WITH APPROVAL OF THE ENGINEER AT CUT-THROUGH LOCATIONS WHERE THE DETECTABLE WARNING SURFACE WILL BE SEPARATED BY 2'-0" OR LESS.
5). PLACE DETECTABLE WARNING SURFACES AS FOLLOWS:
   A). PERPENDICULAR CURB RAMPS - SEE ABOVE FIGURE FOR PERPENDICULAR CURB RAMP APPLICATIONS. WHERE D IS LESS THAN OR EQUAL TO 5'-0", PLACE THE DETECTABLE WARNING SURFACE PERPENDICULAR TO THE RAMP AT THE BOTTOM GRADE BREAK. WHERE D IS GREATER THAN 5'-0", PLACE AT THE BACK OF CURB.
   B). PARALLEL CURB RAMPS - PLACE AT THE BACK OF CURB ALONG THE ENTIRE LENGTH OF THE DEPRESSED CURB.
   C). DEPRESSED CORNERS - PLACE AT THE BACK OF CURB ALONG THE ENTIRE LENGTH OF THE DEPRESSED CURB.

Street Level Pedestrian Connection Standards

	Perpendicular Curb Ramps	Parallel Curb Ramps	Diagonal Curb Ramps	Blended Transitions
Turning Space	X	X	X	
Running Slope	X	X	X	X
Flared Sides	X		X	
Perpendicular Grade Breaks	X	X	X	
Width	X	X	X	X
Cross Slope	X	X	X	X
Counter Slope	X	X	X	X
Clear Space	X	X	X	X
Drainage Considerations	X	X	X	X

Curb Ramp Turning Spaces





Turning Space – A location along a pedestrian access route which provides a location for users to change their primary direction of travel.

Perpendicular Curb Ramps

Curb Ramp Turning Spaces

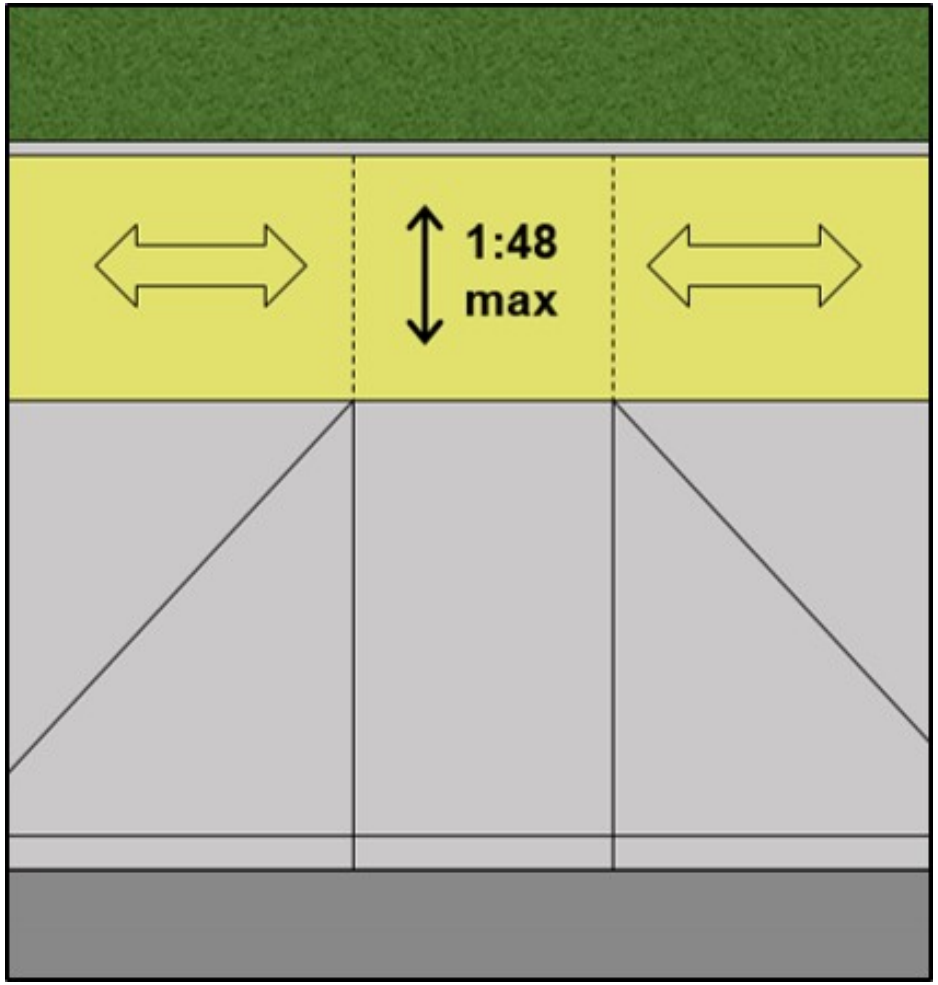
Parallel Curb Ramps

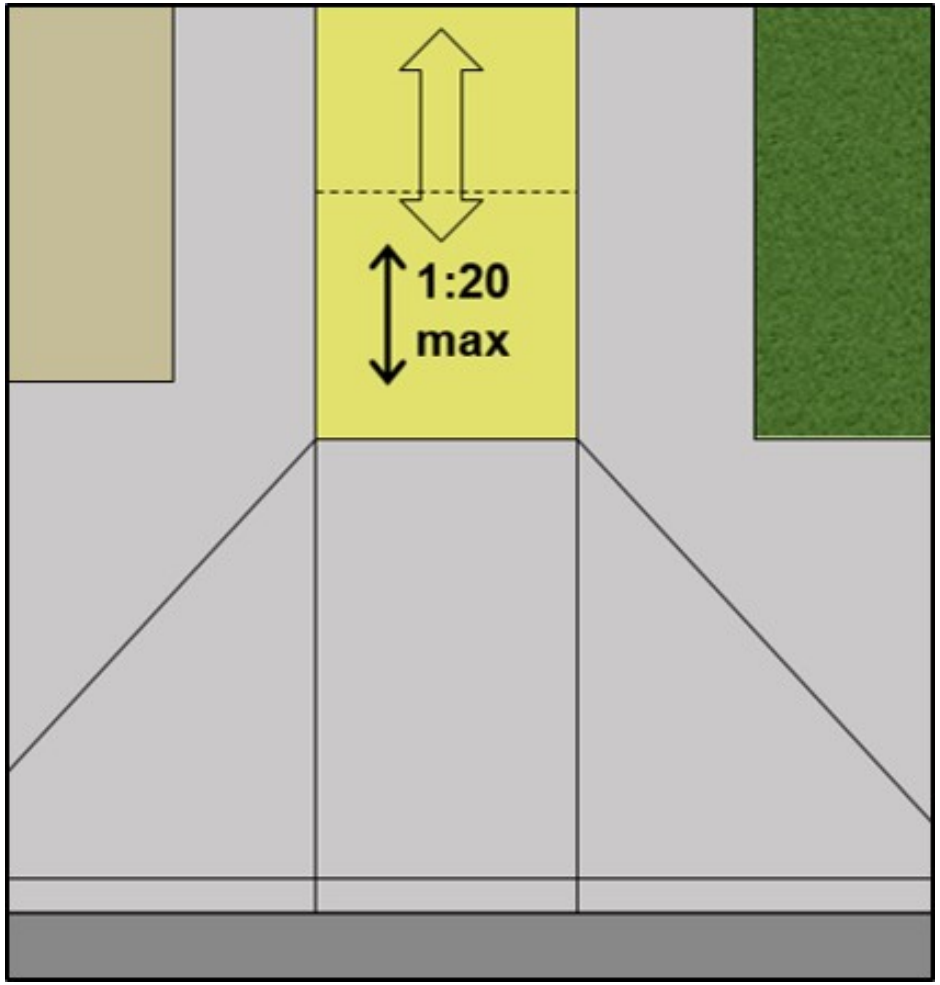
Curb Ramp Turning Space

Combination Curb Ramps

Curb Ramp Turning Spaces

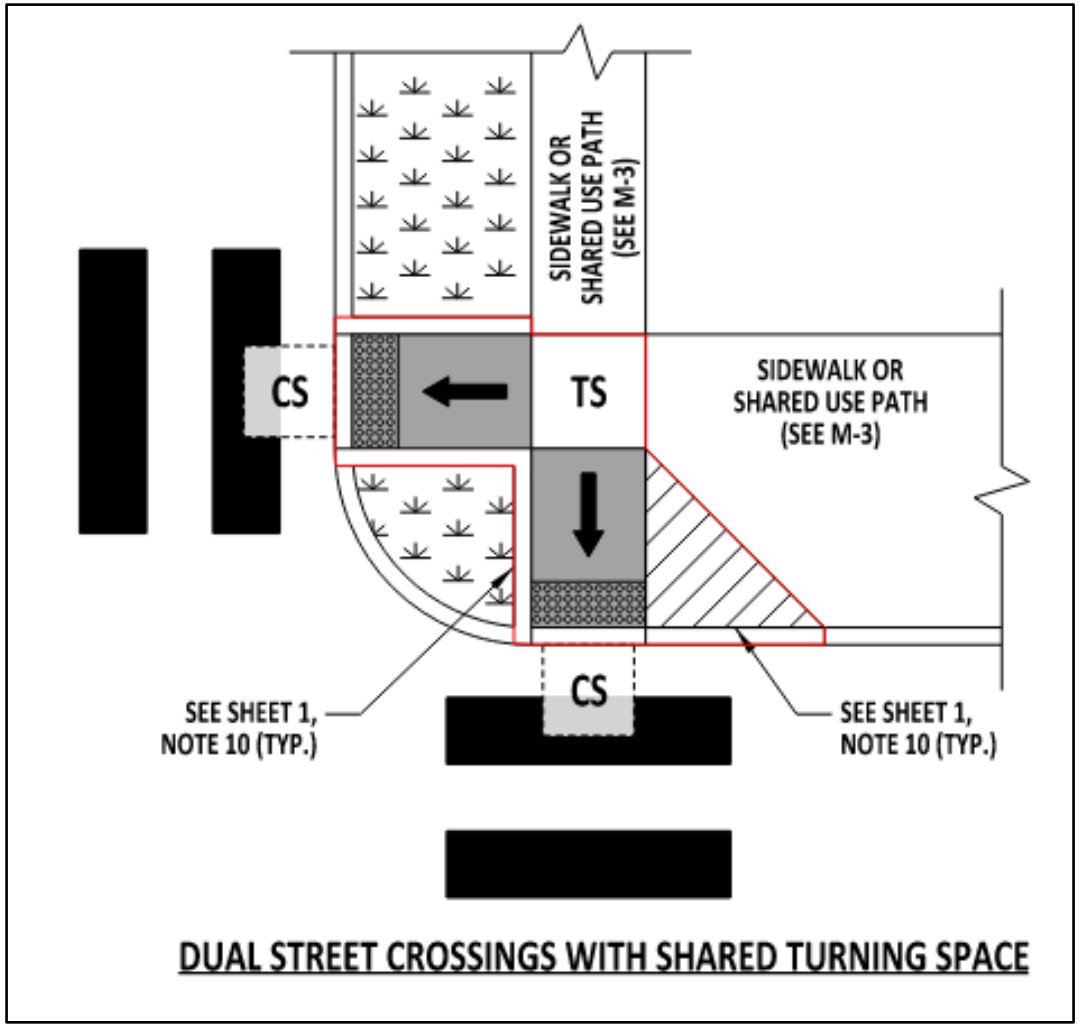
Curb Ramp Turning Spaces



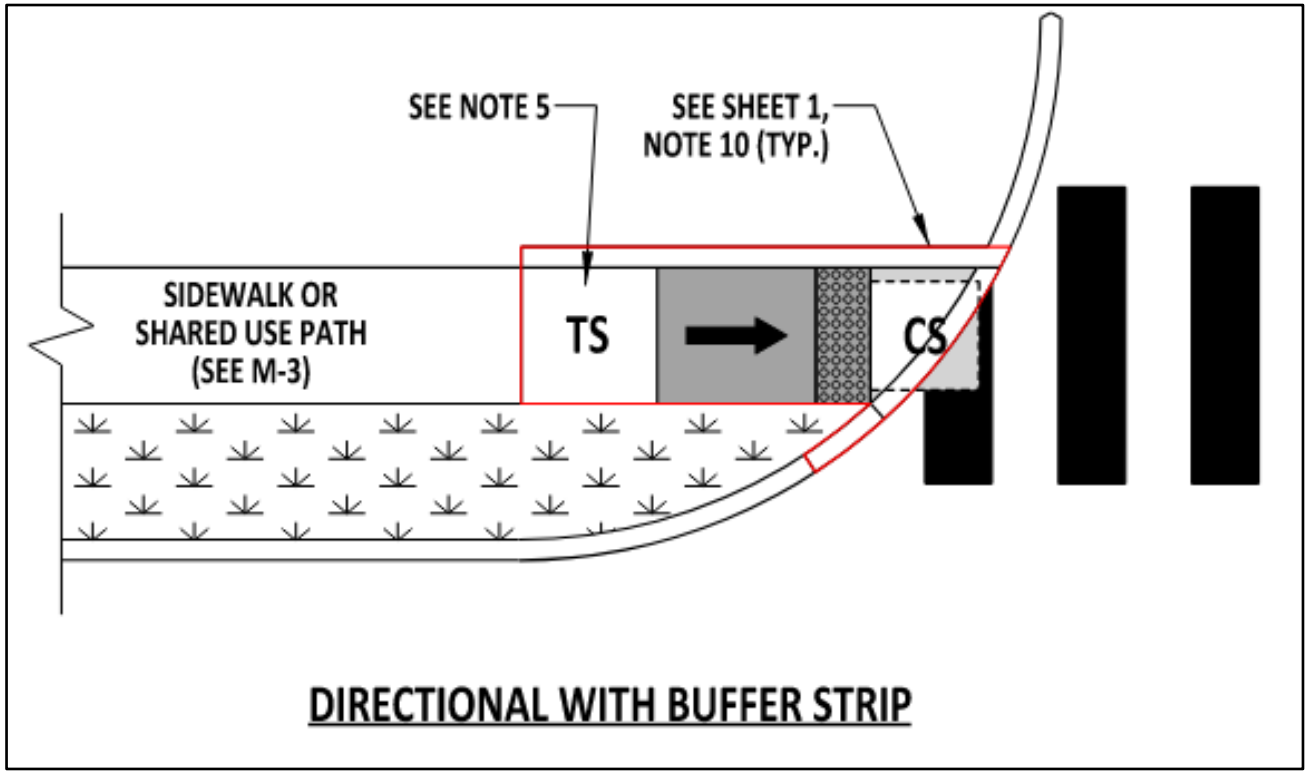


If the only connecting accessible route runs parallel to the ramp run, the top landing can slope 1:20 max.

Curb Ramp Turning Spaces



DUAL STREET CROSSINGS WITH SHARED TURNING SPACE



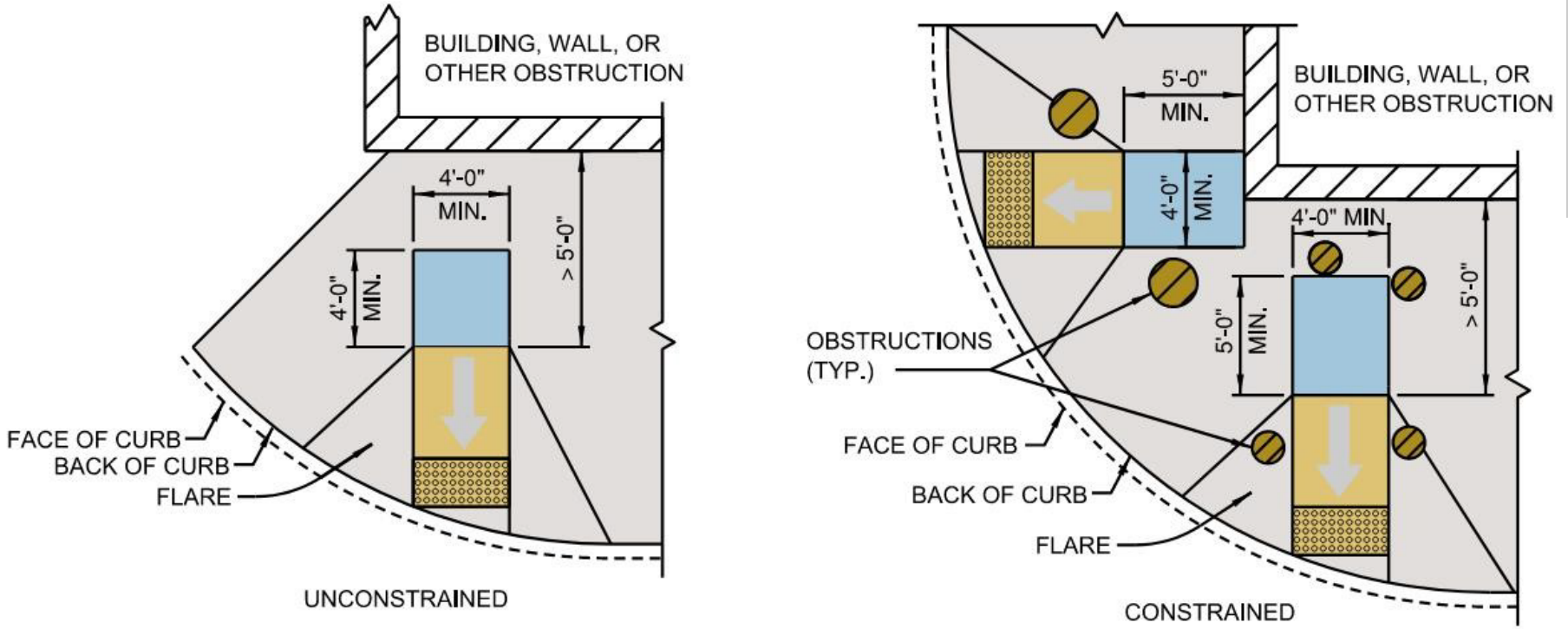
DIRECTIONAL WITH BUFFER STRIP

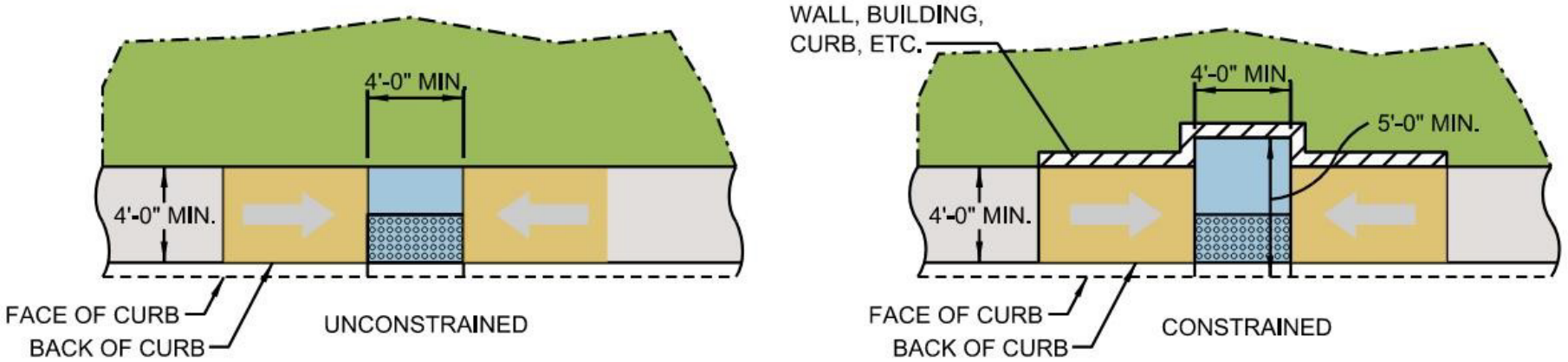
5. A TURNING SPACE IS NOT REQUIRED AT THE TOP OF THE RAMP WHEN NO TURNING MOVEMENT IS REQUIRED TO ENTER OR EXIT THE RAMP.

Curb Ramp Turning Spaces

- **Perpendicular: A turning space 4’-0” minimum by 4’-0” minimum shall be provided at the top of the curb ramp and shall 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 4’-0” minimum by 5’-0” minimum. The 5’-0” dimension shall be provided in the direction of the ramp run. (R304.2.1)**
- **Parallel: A turning space 4’-0” minimum by 4’-0” 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 4’-0” minimum by 5’-0”. The 5’-0” dimension shall be provided in the direction of the pedestrian street crossing. (R304.3.1)**

- Advisory: A constraint is any feature that projects more than 0’-2” above the pedestrian access route surface.


BUILDING, WALL, OR
OTHER OBSTRUCTION
4'-0"
MIN.
4'-0"
MIN.
> 5'-0"
FACE OF CURB
BACK OF CURB
FLARE
UNCONSTRAINED
5'-0"
MIN.
BUILDING, WALL, OR
OTHER OBSTRUCTION
4'-0"
MIN.
4'-0" MIN.
5'-0"
MIN.
> 5'-0"
OBSTRUCTIONS
(TYP.)
FACE OF CURB
BACK OF CURB
FLARE
CONSTRAINED


4'-0" MIN.
4'-0" MIN.
FACE OF CURB
BACK OF CURB
UNCONSTRAINED
WALL, BUILDING,
CURB, ETC.
4'-0" MIN.
5'-0" MIN.
4'-0" MIN.
FACE OF CURB
BACK OF CURB
CONSTRAINED


SIDEWALK
TURNING SPACE
RAMP
GRASS /
LANDSCAPING
DETECTABLE
WARNING

Curb Ramp Running Slope

Standard:

- **Perpendicular: 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 15’-0”.**
- **Parallel: 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 15’-0”.**

Guidance:

- *The running slope of the curb ramp should be designed at a 7.5 percent maximum.*

DelDOT Standard Construction Detail:

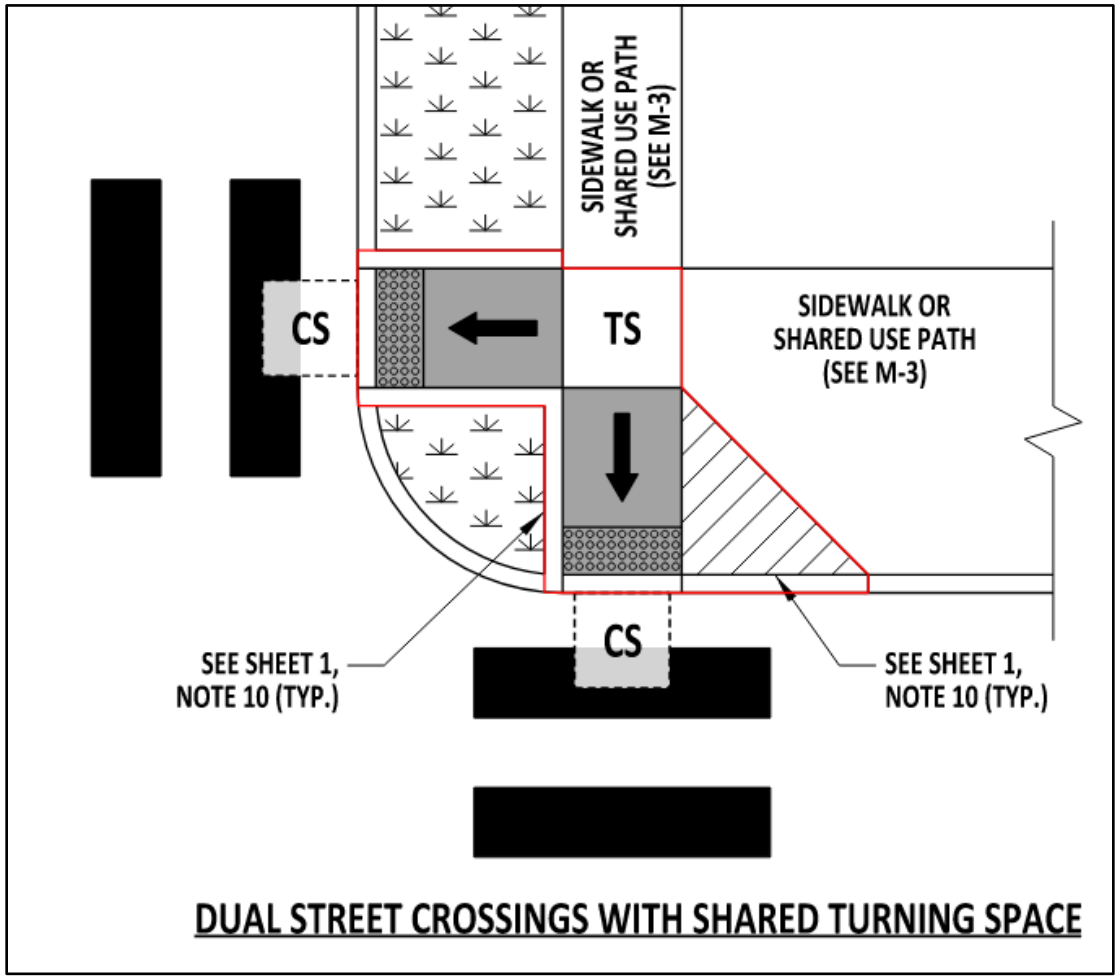
- To avoid chasing grade indefinitely on steep roadways, ramp length is not required to exceed 15’-0” regardless of the resulting ramp running slope.

Curb Ramp Flared Sides

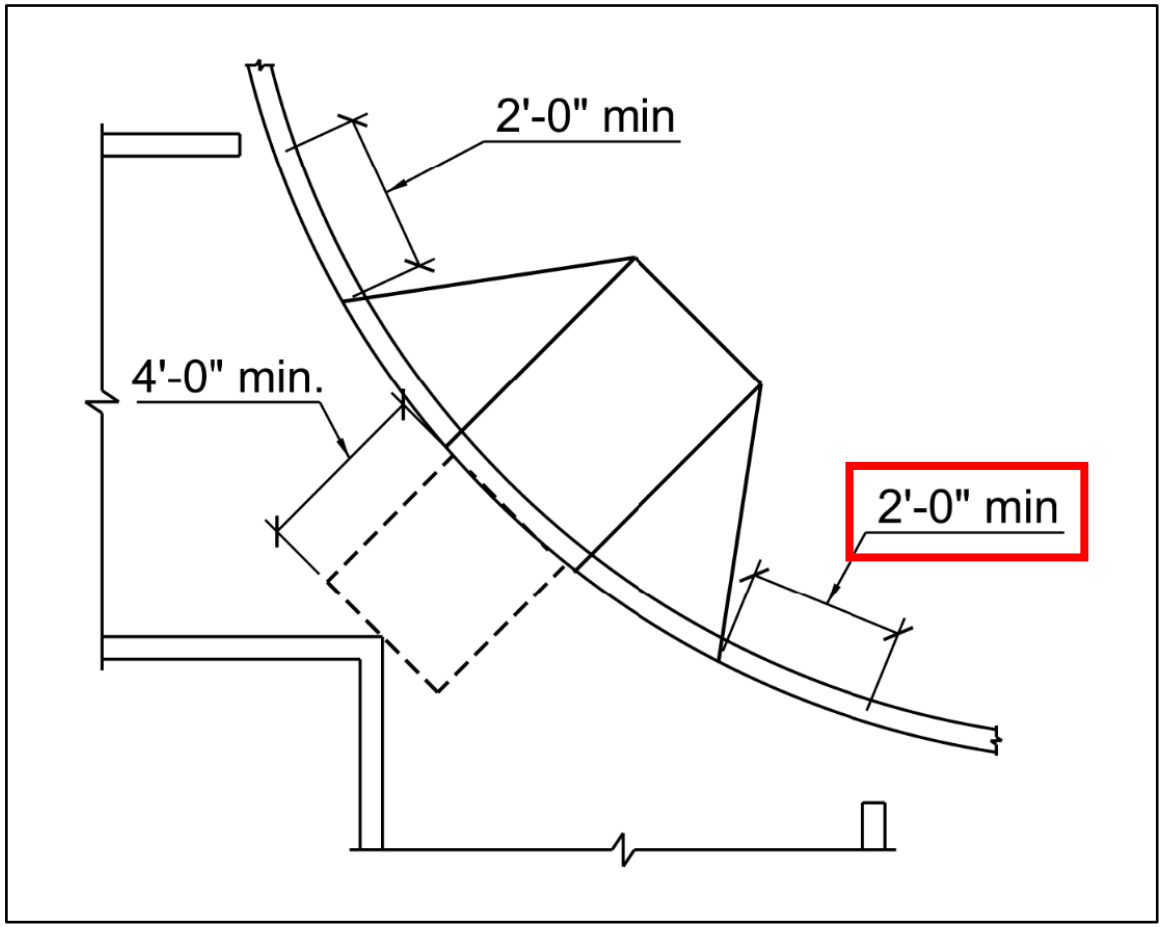
- Required for perpendicular and diagonal curb ramps.
- **Standard: Where a pedestrian circulation path crosses the curb ramp, flared sides shall be sloped 10 percent maximum, measured parallel to the curb line. (R304.2.3)**
- Not part of the pedestrian access route. (Advisory R304.2.3)
- Returned curbs can be used at locations protected from cross travel by landscaping, street furniture, chains, fencing, or railings. (Advisory R304.2.3)
- Department prefers flared sides so as not to provide an obstruction to snowplows.
- *Guidance: Should be designed at a 9.5 percent maximum.*

Curb Ramp Flared Sides

10. PROVIDE FLARED SIDES ON PERPENDICULAR CURB RAMPS WHERE THE RAMP EDGE ABUTS A WALKABLE SURFACE. FLARED SIDES MAY BE SUBSTITUTED WITH VERTICAL RETURNED CURBS OR A 4:1 CURB TAPER WITH ASSOCIATED GRADING ALONG THE RAMP WHERE THE RAMP ABUTS A NON-WALKABLE SURFACE, OR WHERE THE ADJACENT RAMP SURFACE IS BLOCKED TO PEDESTRIAN TRAFFIC WITH APPROVAL OF THE ENGINEER.



Additional Diagonal Curb Ramp Considerations

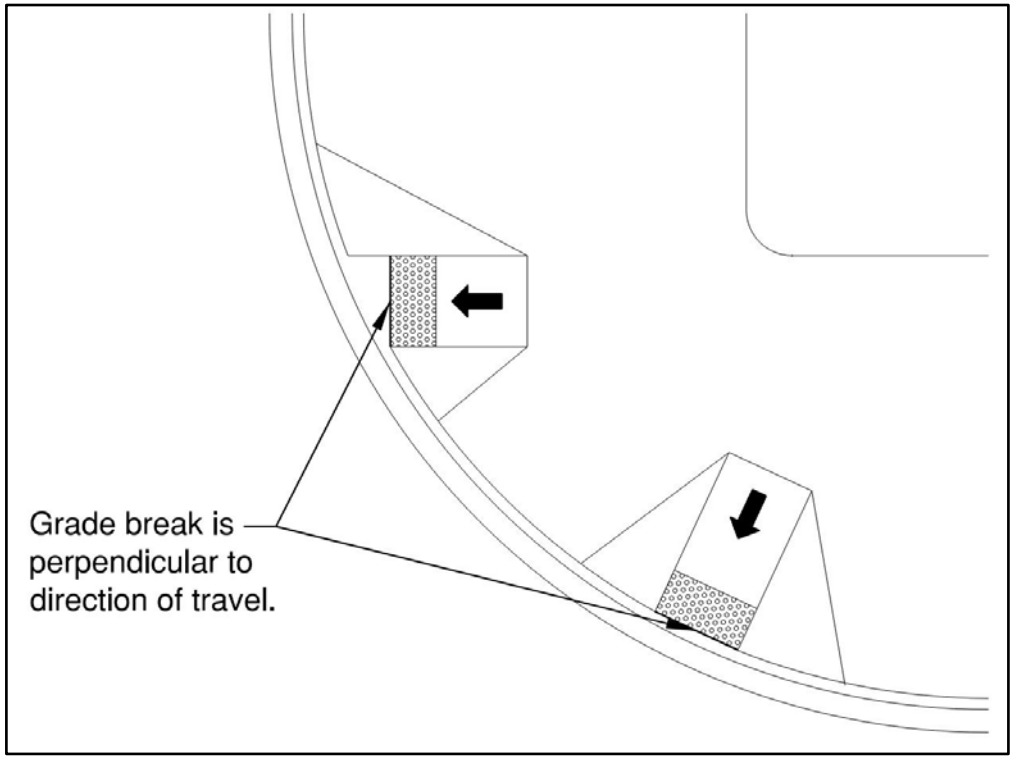


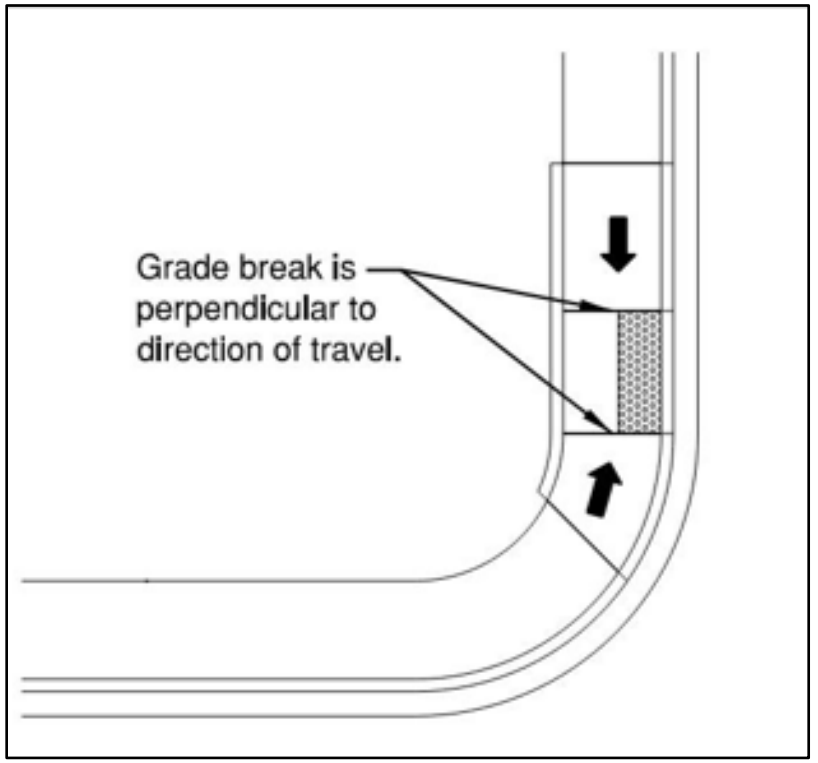
Diagonal or corner type curb ramps with returned curbs or other well-defined edges shall have the edges parallel to the direction of pedestrian flow. Diagonal curb ramps with flared sides shall have a segment of curb 2’-0” long minimum located on each side of the curb ramp and within the marked crossing. (406.6)

Additional Diagonal Curb Ramp Considerations

Curb Ramp Grade Breaks

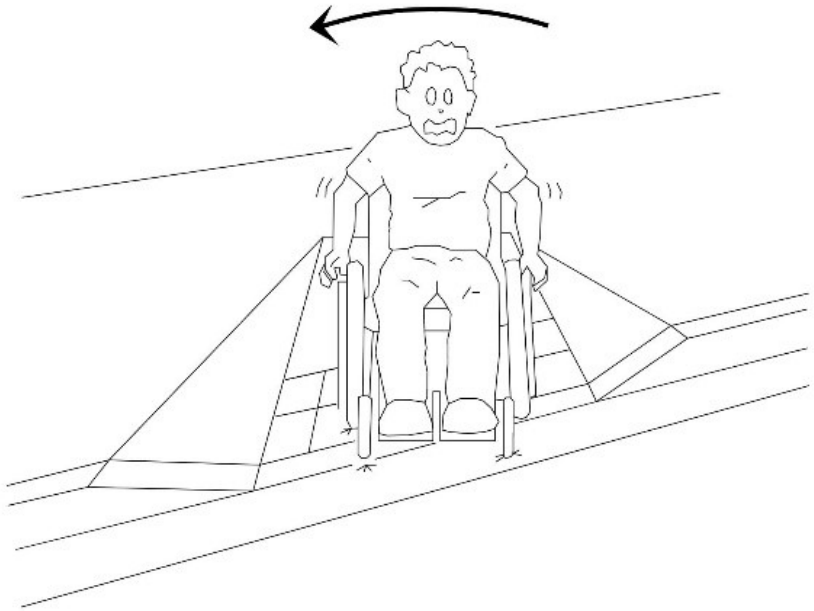
- Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush. (R304.5.2)



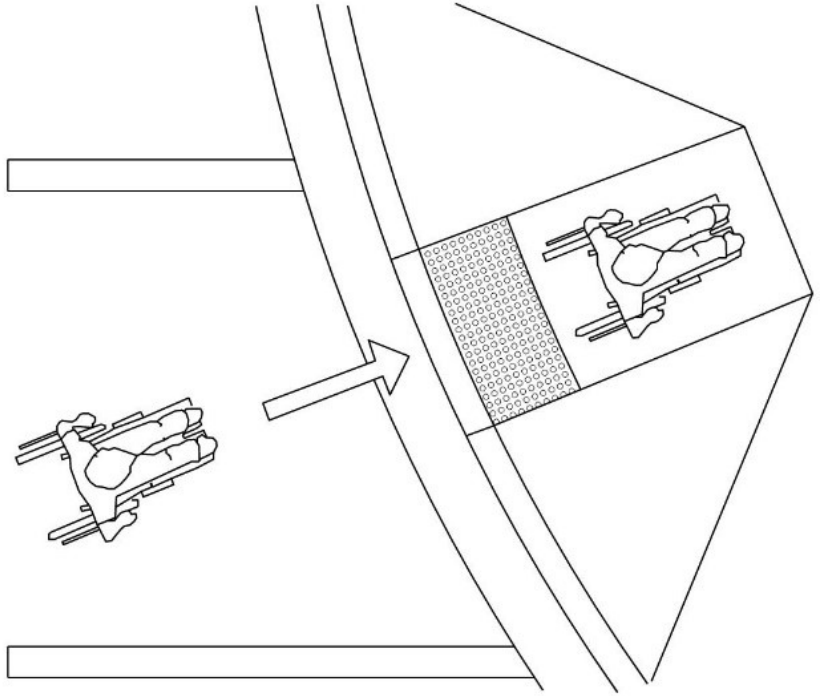


Curb Ramp Grade Breaks

- Advisory: Grade breaks at the top or bottom of a curb ramp create maneuverability difficulties for mobility device users. Accordingly, the grade break at the top and bottom of a curb ramp run is required to be perpendicular to the path of travel.

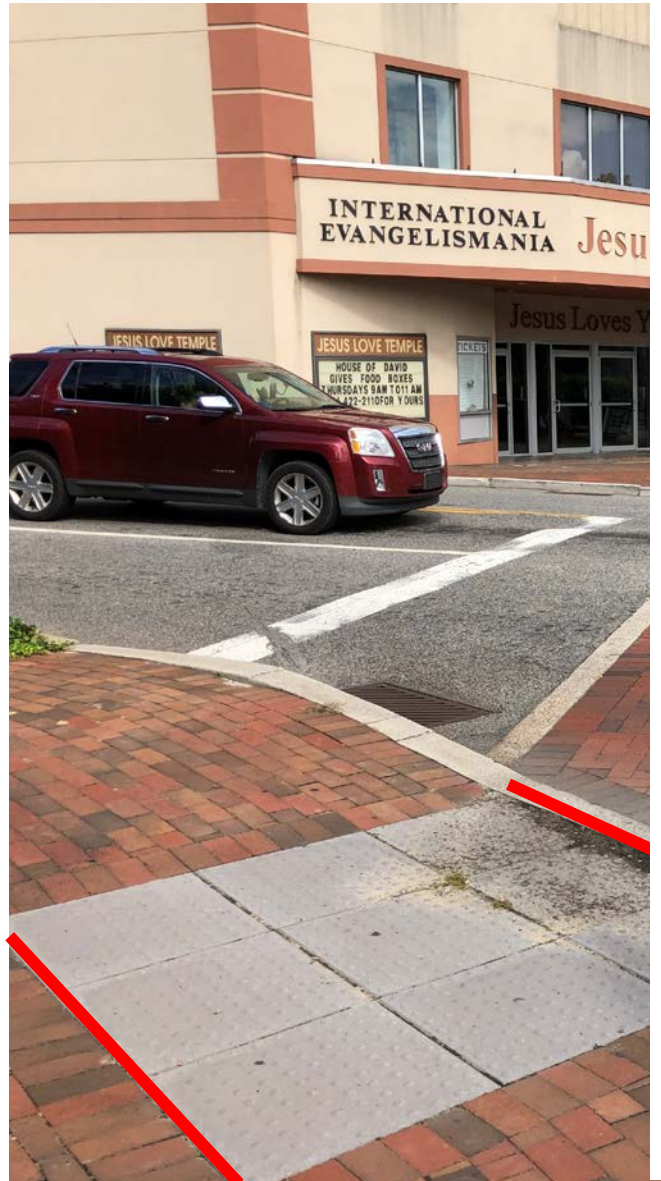


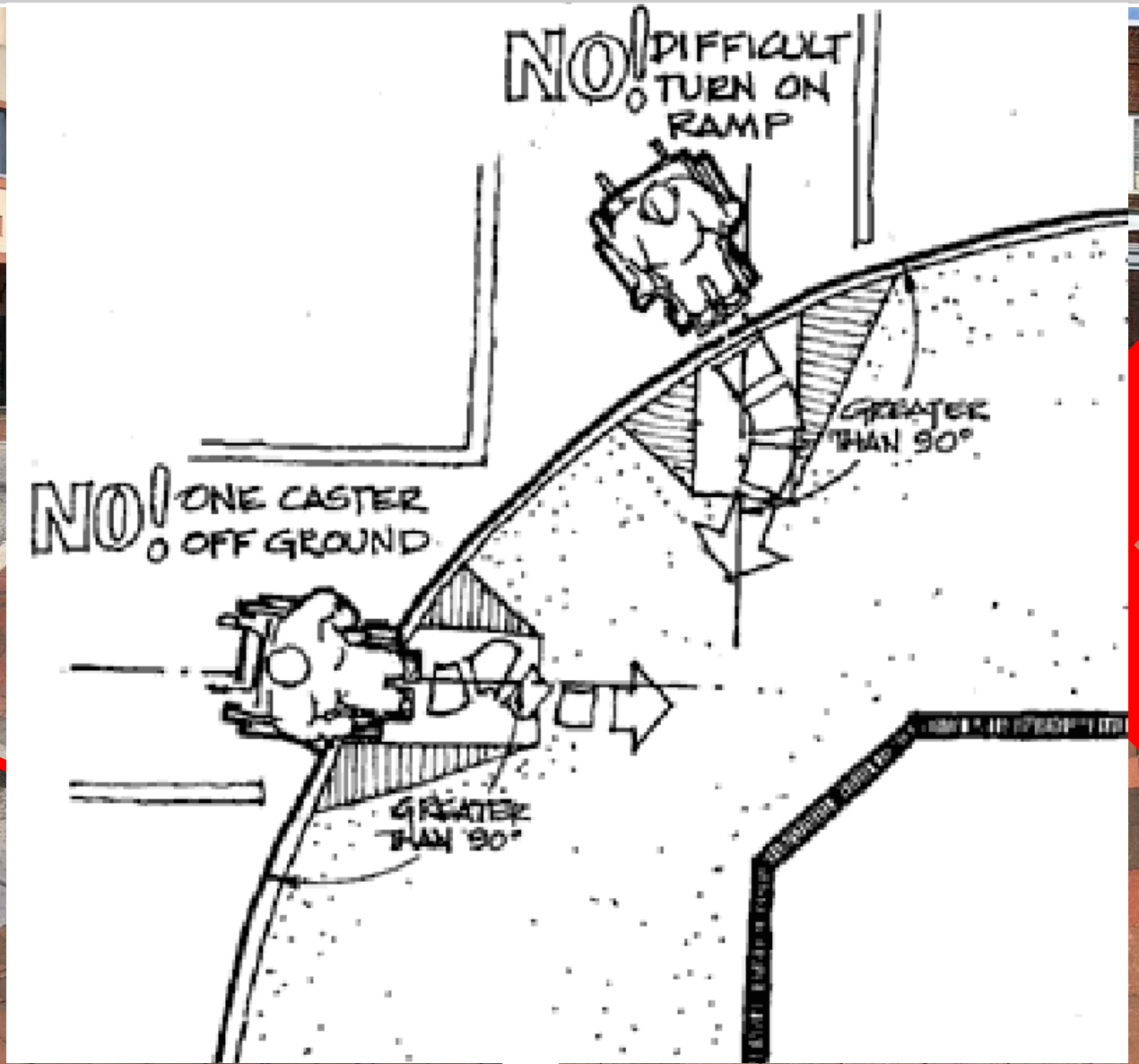
Grade Break not Perpendicular to Ramp



Grade Break Perpendicular to Ramp

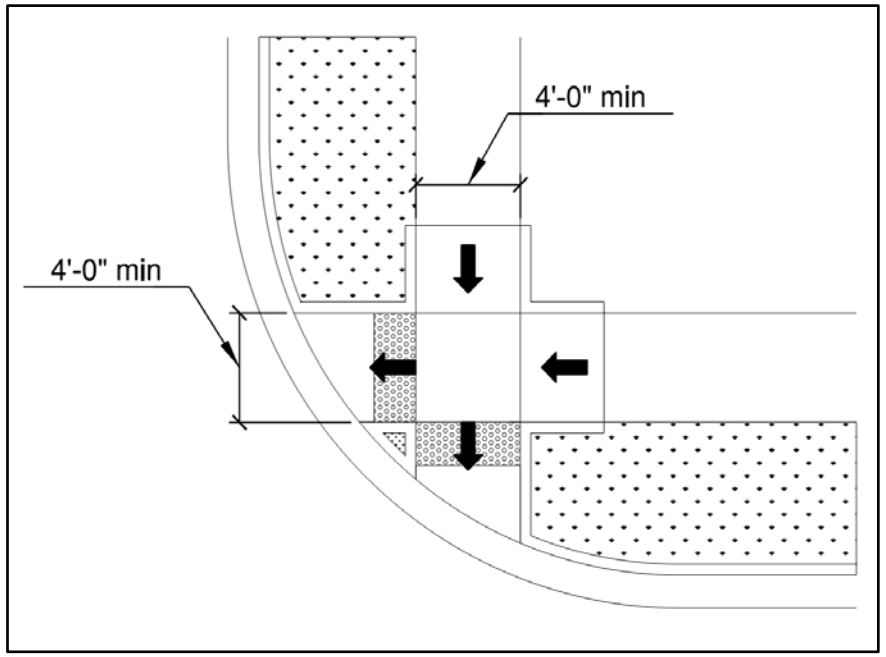
Curb Ramp Grade Breaks

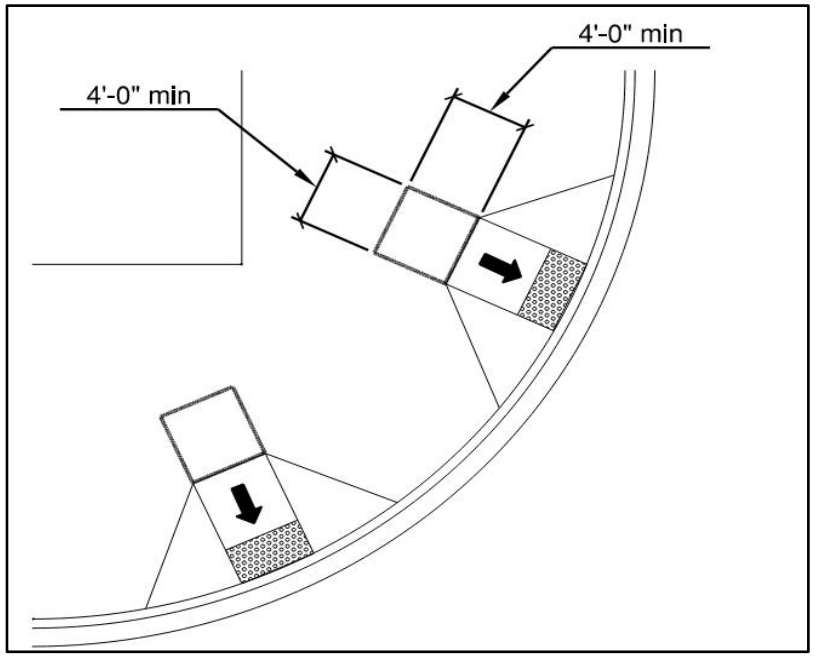




Pedestrian Connection Width

- **Standard: The clear width of curb ramp runs, blended transitions, and turning spaces shall be 4’-0” minimum. (R304.5.1.1)**
- *Guidance The width of the curb ramp or the blended transition should be equal to the width of the connecting pedestrian access route. (R304.5.1.2)*
- Advisory: Clear width reductions in accordance with Section 3.1.1 is not permitted on curb ramps or blended transitions.
- Standard Construction Detail: SEE PLANS FOR WIDTH. PEDESTRIAN CONNECTIONS THAT SERVE SHARED USE PATHS ARE TO PROVIDE A RAMP WIDTH AND TURNING SPACE WIDTH THE SAME WIDTH AS THE APPROACH SHARED USE PATH.





Pedestrian Connection Width

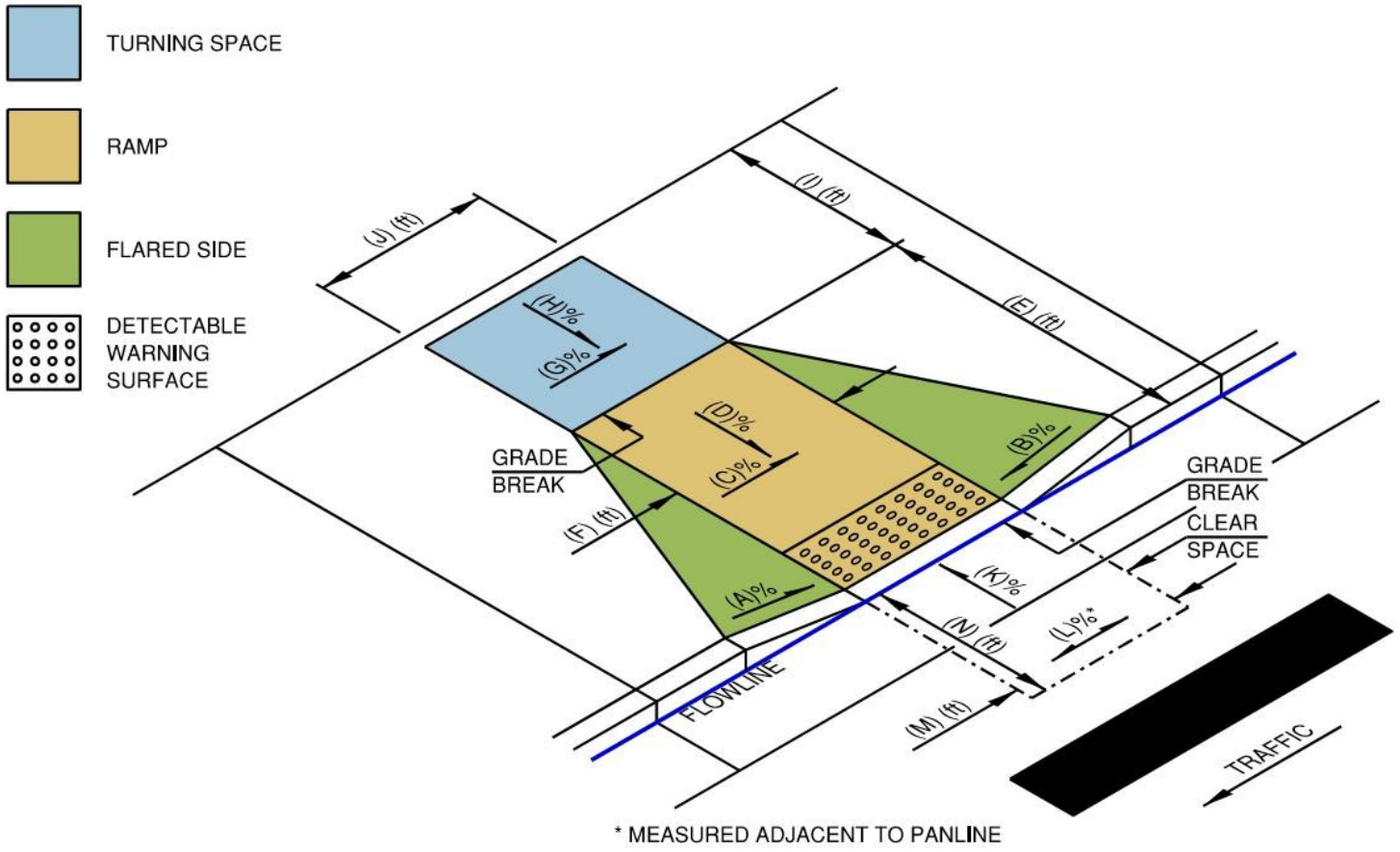
Pedestrian Connection Cross Slope

- **Standard: The cross slope of curb ramps, blended transitions, and turning spaces shall be 2 percent maximum. At pedestrian street crossings without yield or stop control and at midblock pedestrian street crossings, the cross slope shall be permitted to equal the street or highway grade. (R304.5.3)**
- Advisory: Pedestrian street crossings without yield or stop control are crossings where there is no yield or stop sign, or where there is a traffic signal that is designed for the green phase. At pedestrian street crossings without yield or stop control, vehicles can proceed through the intersection without slowing or stopping. (Advisory R304.5.3)
- *Guidance: The pedestrian access route should be designed at a 1.5 percent cross slope except at pedestrian street crossings without yield or stop control and at midblock crossings where the cross slope is permitted to equal the street or highway grade.*

Pedestrian Connection Cross Slope

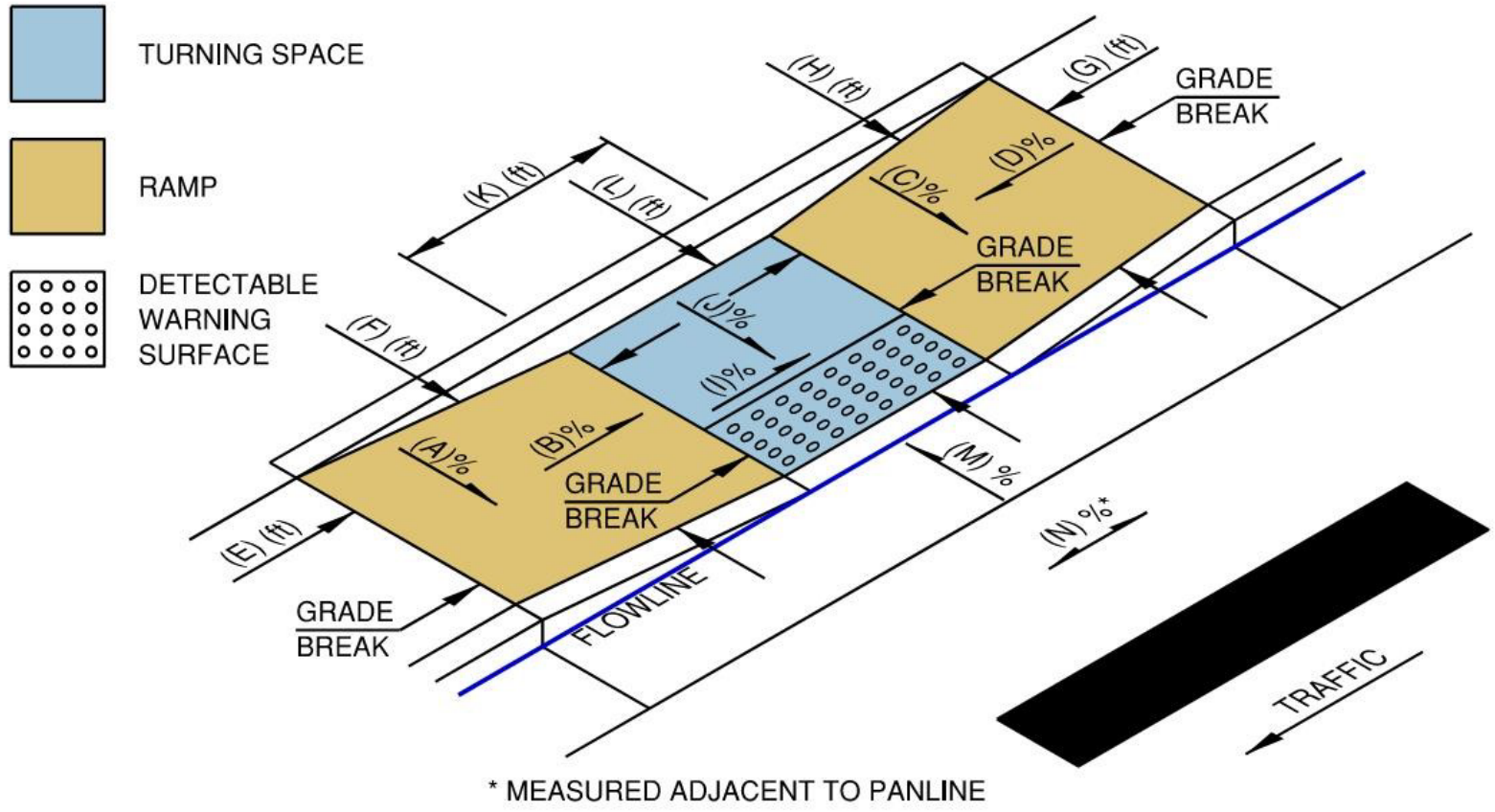
- A “flush connection” is required which means the connecting element between the street level pedestrian connection and the pedestrian street crossing must share the same cross slope.
- Therefore, cross slope is controlled by the project type and traffic control.
- Project type requirements for the treatment of pedestrian street crossings:
  - New Construction – Must meet the cross slope criteria presented in Section 3.1.4.
  - Alteration – Must meet the cross slope criteria presented in Section 3.1.4 as feasible.
  - Maintenance – Not required to upgrade non-compliant curb ramps.
- Standard Construction Detail Note: TO CREATE A FLUSH TRANSITION TO THE STREET, THE CROSS SLOPE OF THE INDICATED ELEMENTS MAY EXCEED THE REQUIRED 2.0% MAXIMUM CROSS SLOPE. IN ALL CASES, THE CROSS SLOPE IS NOT TO EXCEED THE SLOPE OF THE ADJACENT ROADWAY. SEE THE CURRENT PEDESTRIAN ACCESSIBILITY STANDARDS MANUAL FOR MORE INFORMATION.

Pedestrian Connection Cross Slope



Standard: The cross slope of curb ramps, blended transitions, and turning spaces shall be 2 percent maximum. At pedestrian street crossings without yield or stop control and at midblock pedestrian street crossings, the cross slope shall be permitted to equal the street or highway grade. (R304.5.3)

Pedestrian Connection Cross Slope



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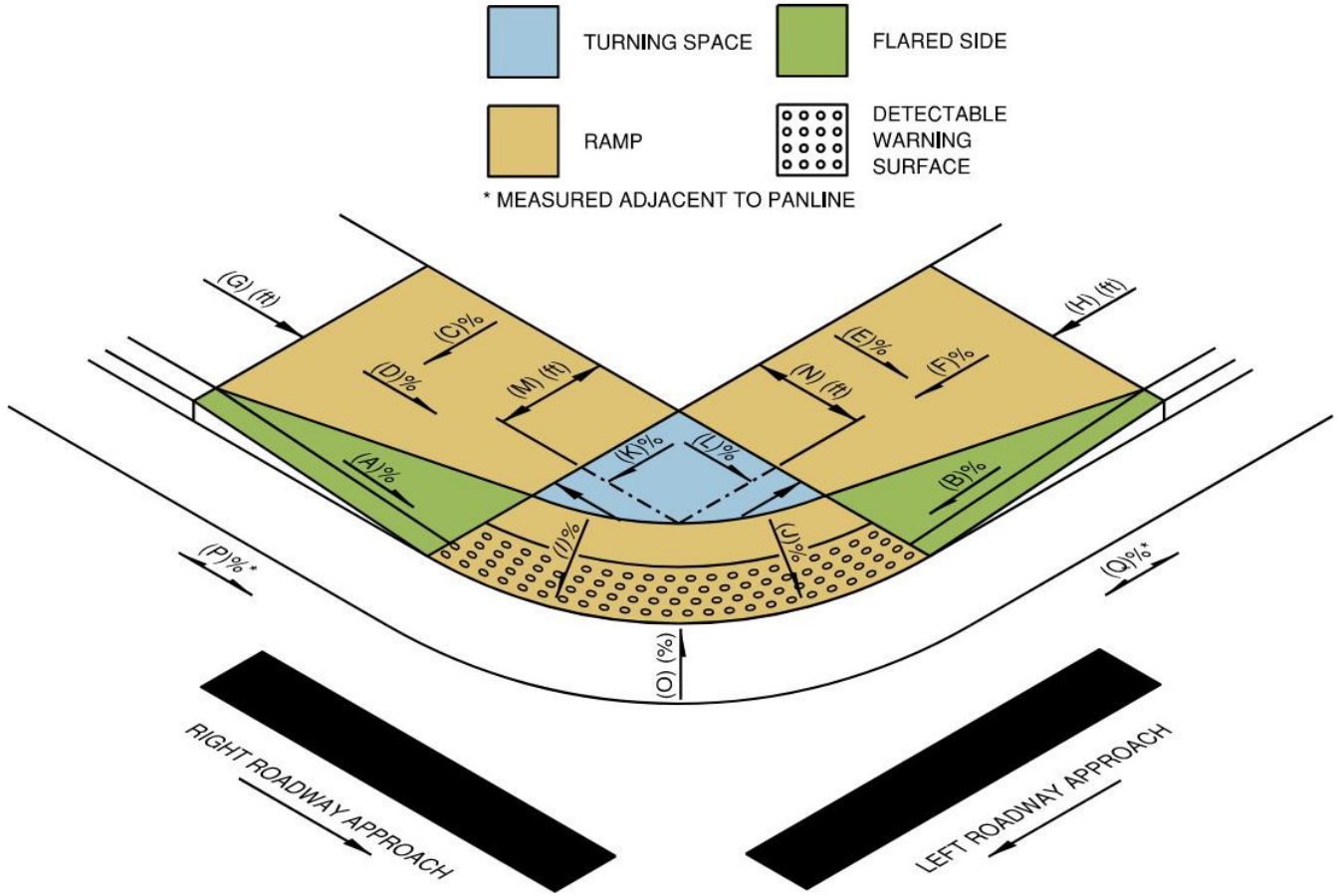
Pedestrian Connection Cross Slope



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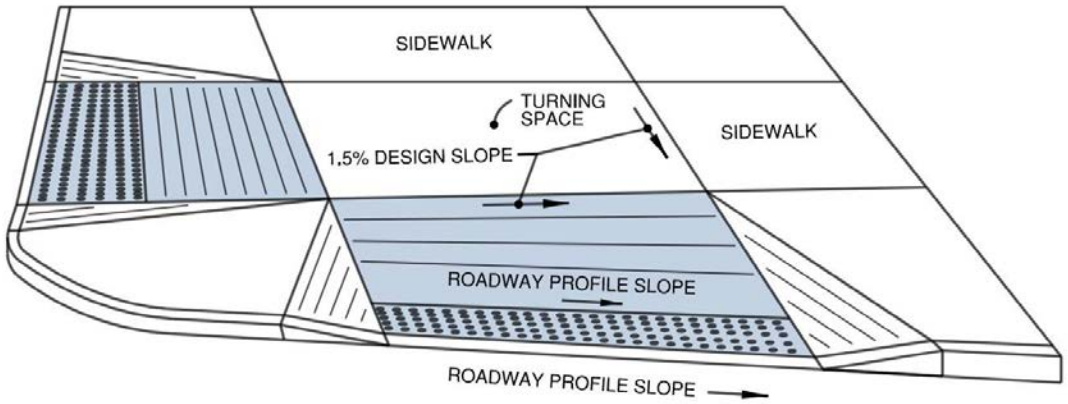
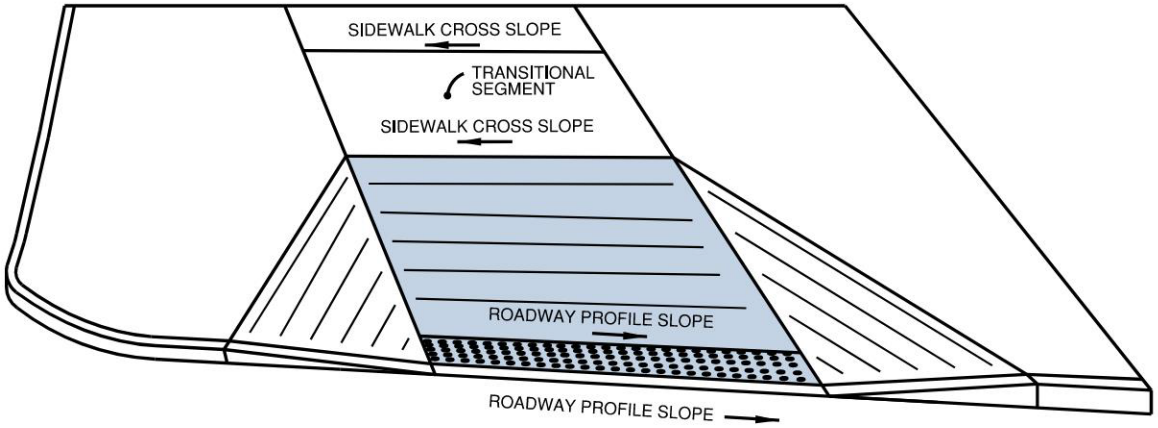
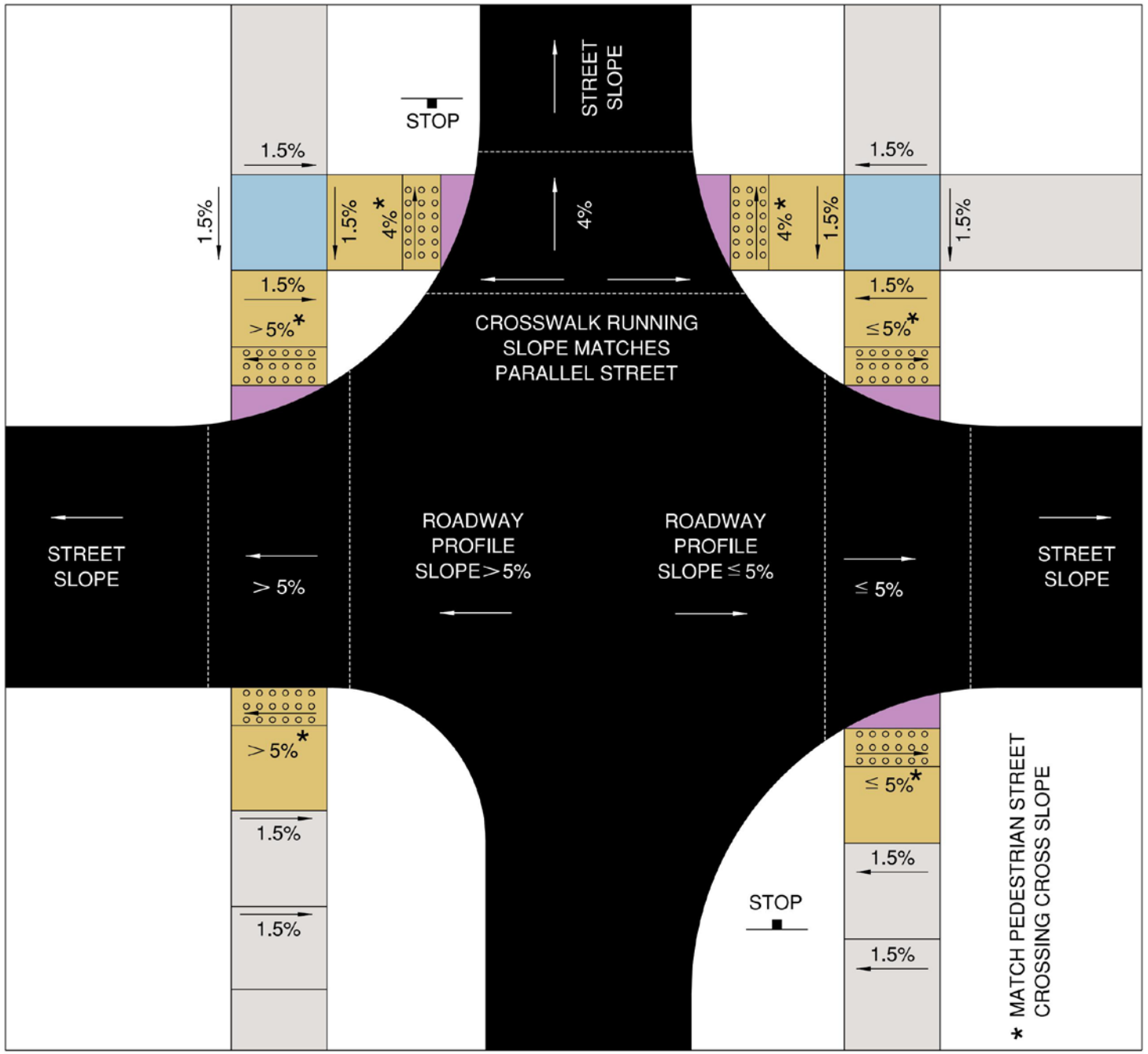
Pedestrian Connection Cross Slope





- Transition to be placed on the ramp so that a compliant turning space can be provided.
- Rapid cross slope transitions could create instability for some users; therefore, it is desirable to make the cross slope transition as gradual as possible and should not exceed a cross slope transition rate of 3.0% per foot.
- For constructability purposes, the cross slope transition should begin at the back of the truncated dome detectable warning surface.



* MATCH PEDESTRIAN STREET CROSSING CROSS SLOPE

TRIANGULAR AREA

DETECTABLE WARNING

STREET

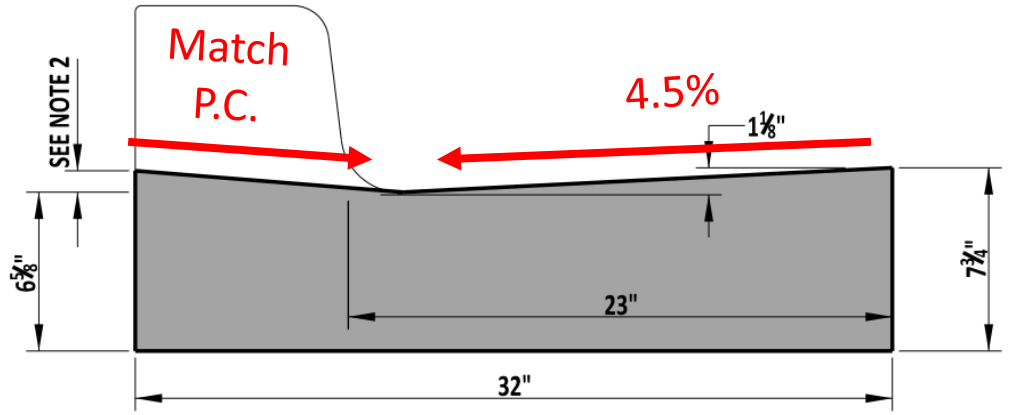
RAMP

TURNING SPACE

SIDEWALK

Pedestrian Connection Counter Slope

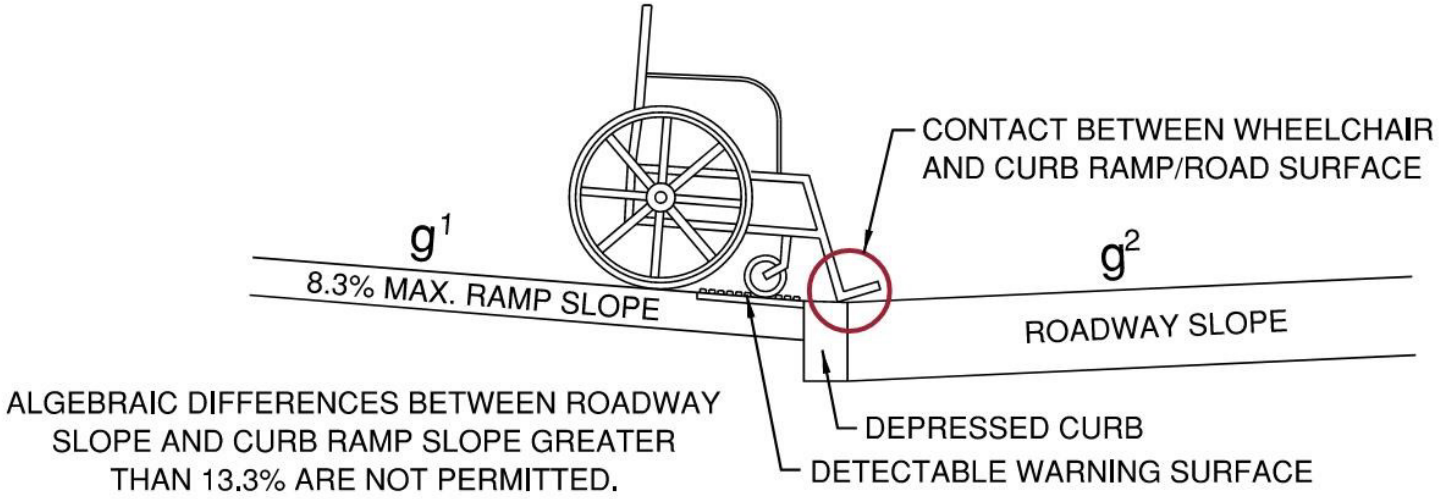
- **Standard: The counter slope of the gutter or street at the foot of curb ramp runs, blended transitions, and turning spaces shall be 5 percent maximum. (R304.5.4)**
- *Guidance: The counter slope of the gutter or street at the foot of curb ramp runs, blended transitions, and turning spaces should be designed at a 4.5 percent maximum.*



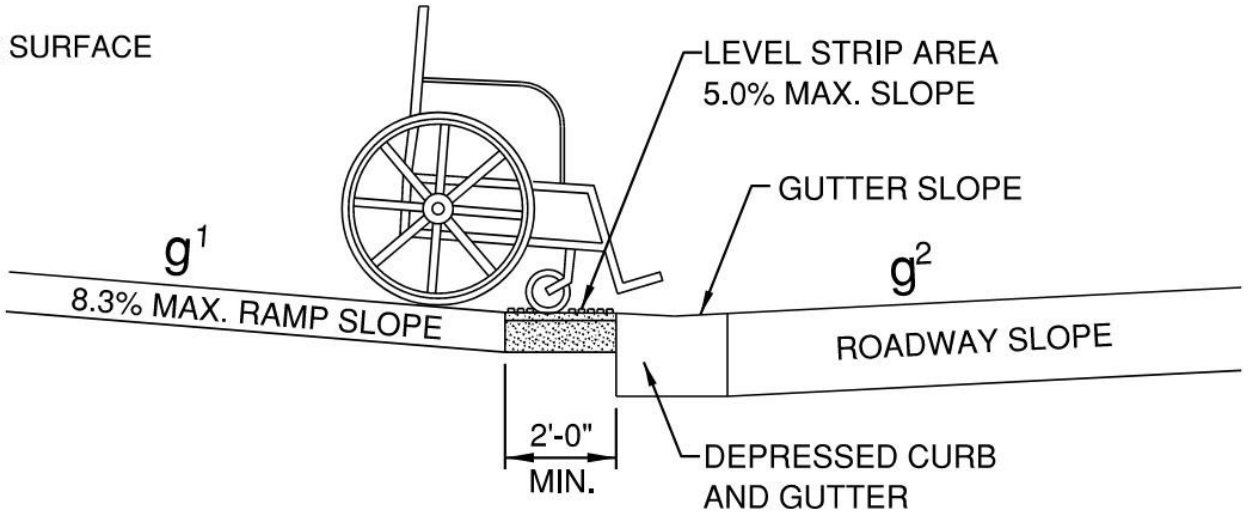
INTEGRAL PCC CURB AND GUTTER
TYPES 1-2 THRU 1-8

- *Guidance: The algebraic difference between the counter slope of the gutter or street and the intersecting ramp should not exceed 13.3 percent.*
- Advisory: Previous Department standards were based upon a 13.3 percent algebraic difference between the gutter or street slope and the intercepting ramp. Additional discussion on the significance of the algebraic difference is contained in Chapter 4 of this manual.

Pedestrian Connection Counter Slope



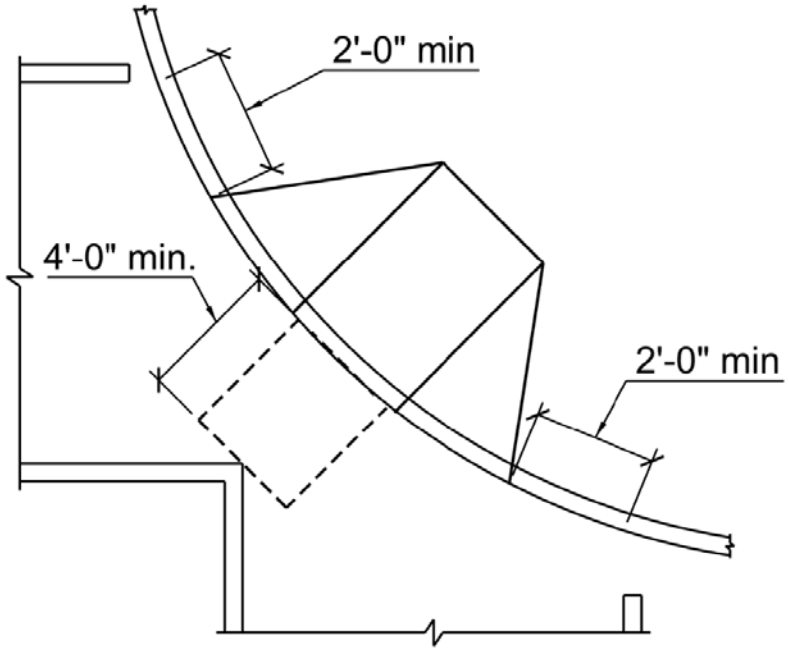
PROWAAC Final Report: “The grade break between the counter slopes of gutter and/or road surfaces within 24 inches of the curb ramp and running grade of the curb ramp shall not exceed the algebraic difference of 11 percent. If two or more plane changes are present, they shall be separated by 24 inches.”



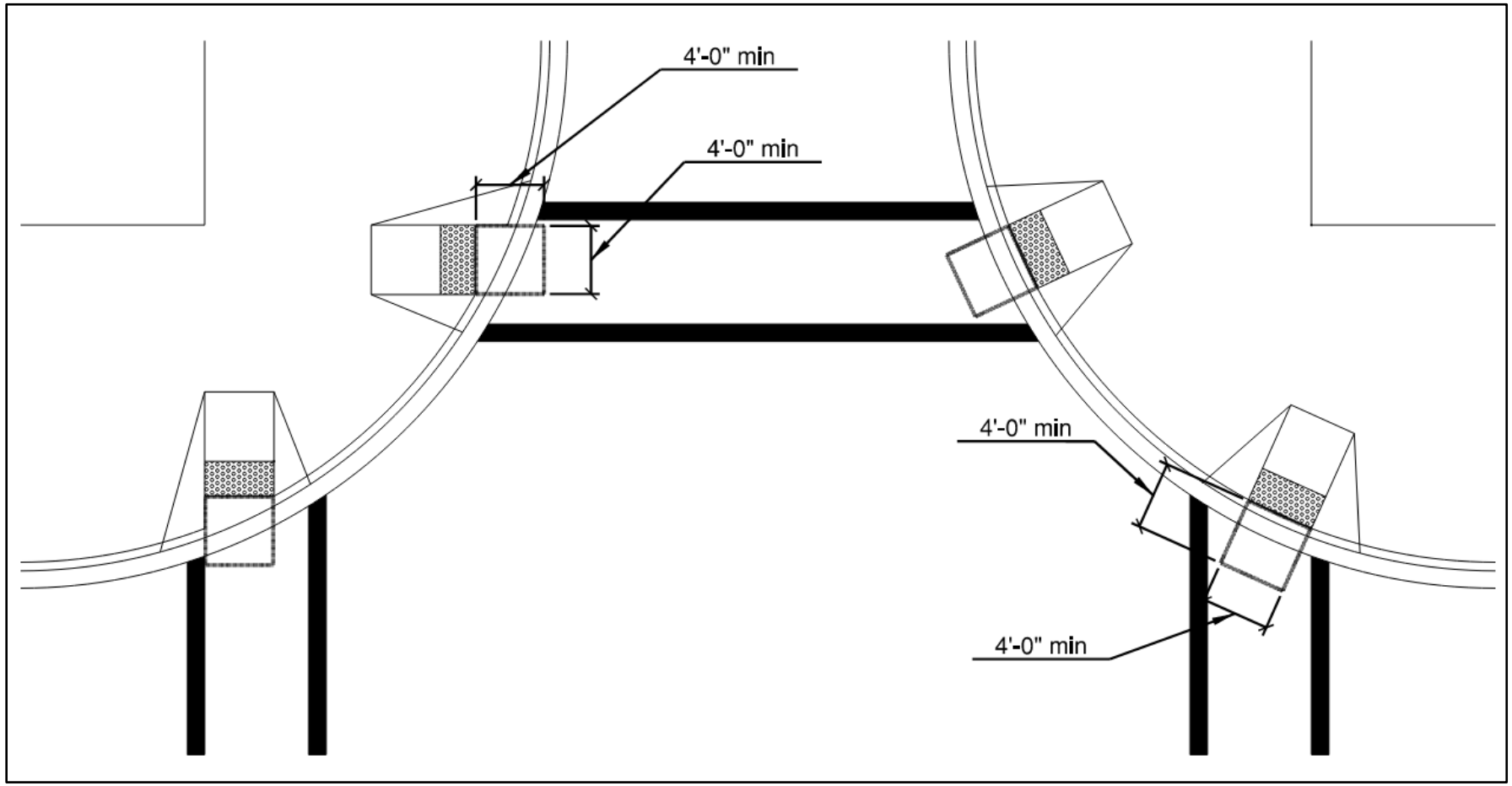
PROVIDE A 2'-0" MIN LEVEL STRIP WHEN ALGEBRAIC DIFFERENCE BETWEEN GUTTER SLOPE AND CURB RAMP SLOPE ARE GREATER THAN 13.3%

Pedestrian Connection Clear Space

- Originally comes from the ADAAG for diagonal ramps.
- **406.6 Diagonal Curb Ramps:** Diagonal or corner type curb ramps with returned curbs or other well-defined edges shall have the edges parallel to the direction of pedestrian flow. The bottom of diagonal curb ramps shall have a clear space 48 inches minimum outside active traffic lanes of the roadway. Diagonal curb ramps provided at marked crossings shall provide the 48 inches minimum clear space within the markings. Diagonal curb ramps with flared sides shall have a segment of curb 24 inches long minimum located on each side of the curb ramp and within the marked crossing.



Pedestrian Connection Clear Space

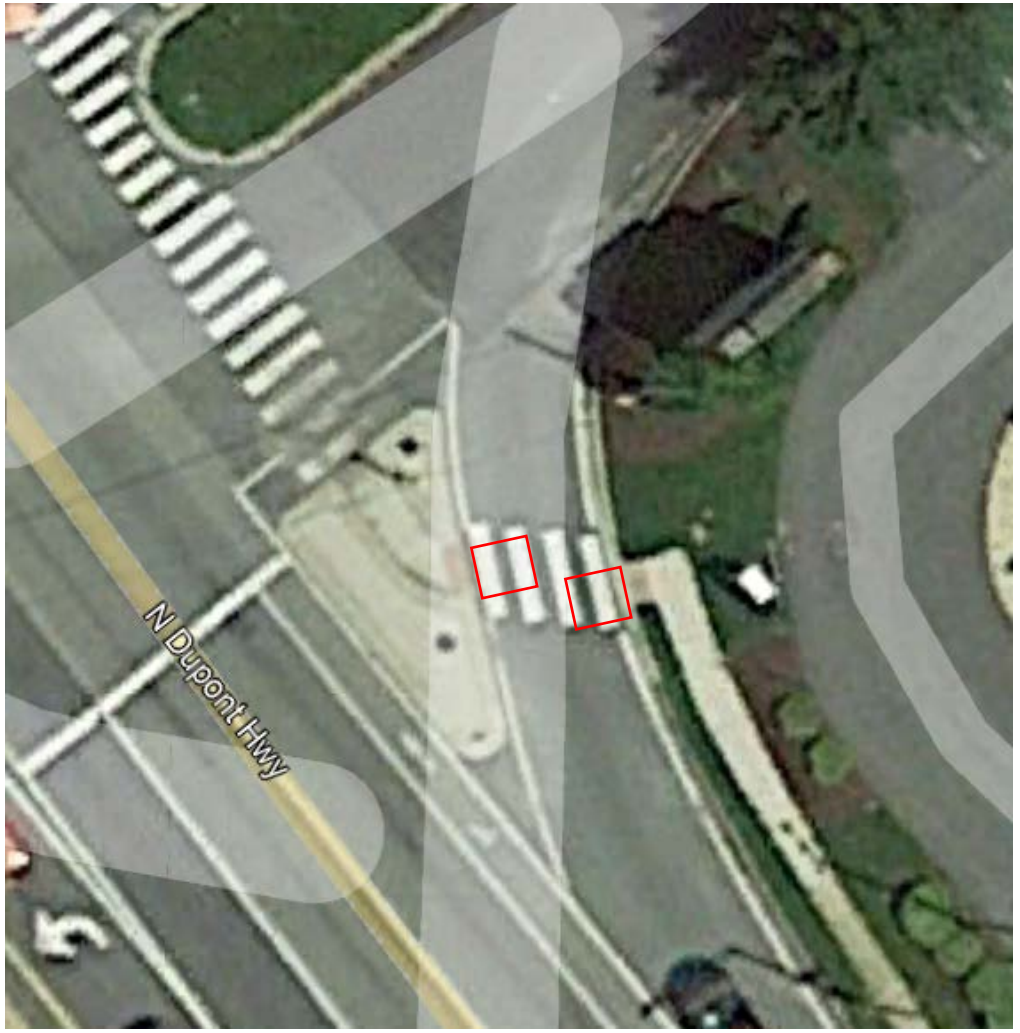


R304.5.5 Clear Space - Beyond the bottom grade break, a clear space 4.0 ft minimum by 4.0 ft minimum shall be provided within the width of the pedestrian street crossing and wholly outside the parallel vehicle travel lane.

Pedestrian Connection Clear Space

What constitutes the “parallel vehicle travel lane”:

- “If the lane is marked, the travel lane would be measured from the outside of the striping.”
- “If the lane is not marked, it would be measured from the tangent to the face of the curb prior to the radius.”
- “If there is a turn lane or auxiliary lane, it would be considered a travel lane.”



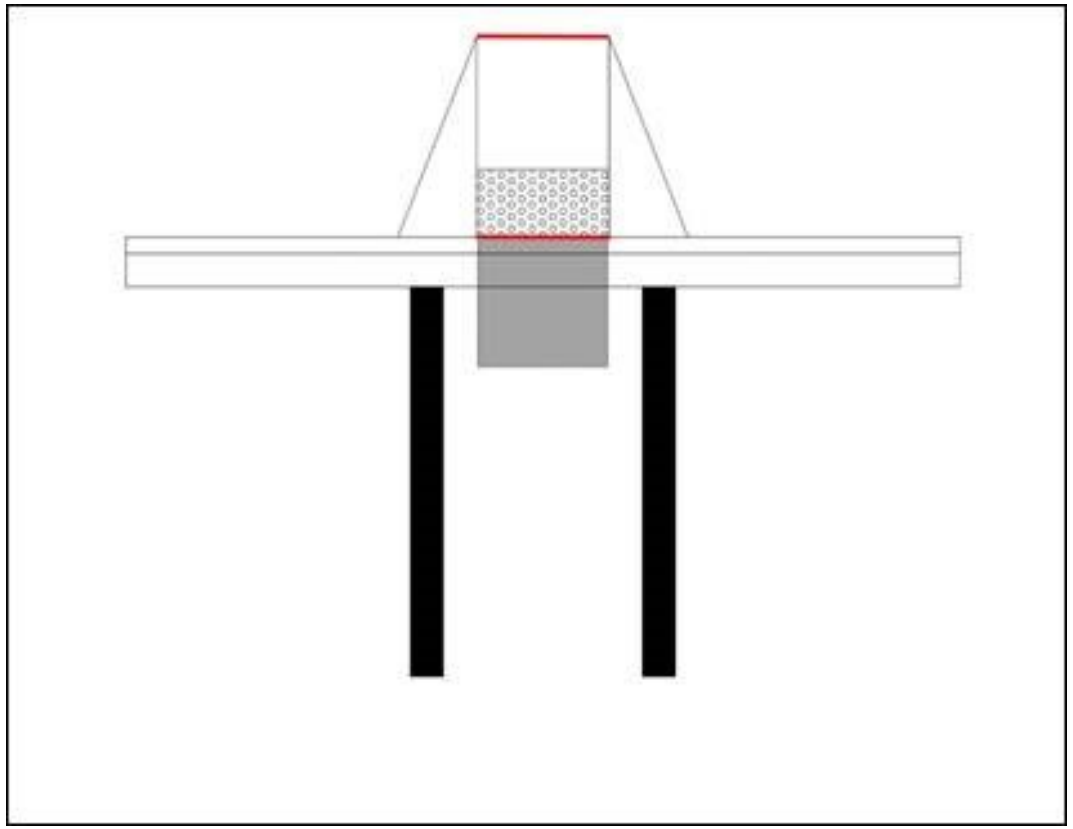
Clear Space Application

Clear Space Application

Clear Space Clarification from Access Board

- **What is the intent of the Clear Space?** The clear space provides an area for mobility device users to adjust and line up with the crosswalk. For pedestrian safety, the clear space needs to be located outside the parallel vehicle travel lane.
- **Is the intention of the clear space to be a "turning space?"** The clear space doesn't serve the same function as a turning space.
- **Is the intention of the clear space to be a "waiting area?"** Nor is it a designated waiting area.

"For the image below, the clear space is not critical because the curb ramp is perfectly lined up with the crosswalk"



Pedestrian Connection Clear Space

Standard: The bottom of diagonal curb ramps shall have a clear space 4’-0” minimum outside active traffic lanes of the roadway. Diagonal curb ramps provided at marked crossings shall provide the 4’-0” minimum clear space within the markings. (406.6)

Guidance: On all curb ramp and blended transition applications other than diagonal curb ramps, a clear space 4’-0” minimum by 4’-0” minimum should be provided beyond the bottom grade break within the width of the pedestrian street crossing and wholly outside the parallel vehicle travel lane. (R304.5.5)

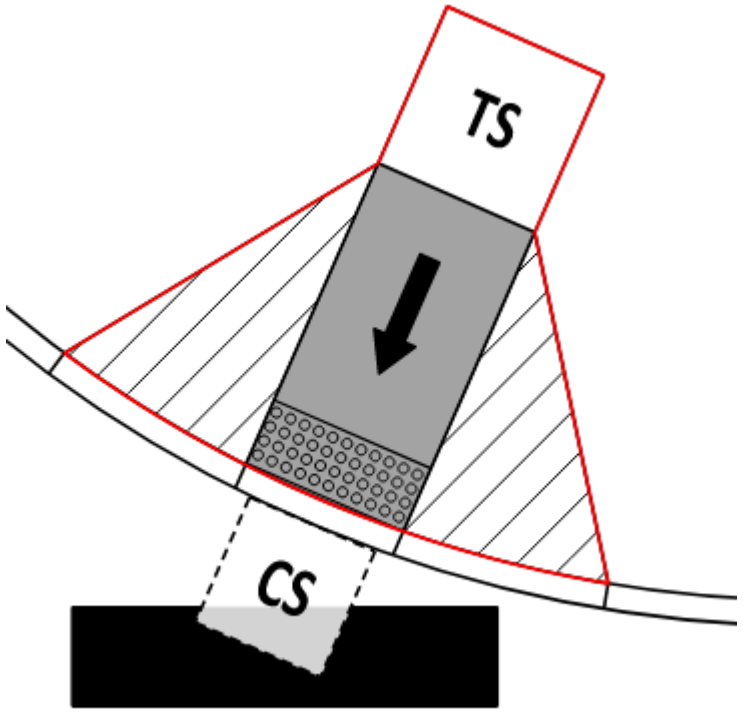
Advisory: The clear space is not intended to serve the same function as a turning space, and it is not intended as a designated waiting area. The clear space provides an area for mobility device users to adjust and line up with the crosswalk. Clear space is not a critical element when the street level pedestrian connection is directional with the crosswalk (i.e. no mobility device adjustment is needed to line up with the crosswalk).

Advisory: The clear space is to be located outside the parallel vehicle travel lane for pedestrian safety.

Pedestrian Connection Clear Space

CLEAR SPACE	DIMENSION	4'-0" X 4'-0"	4'-0" X 4'-0"	SEE NOTE 12

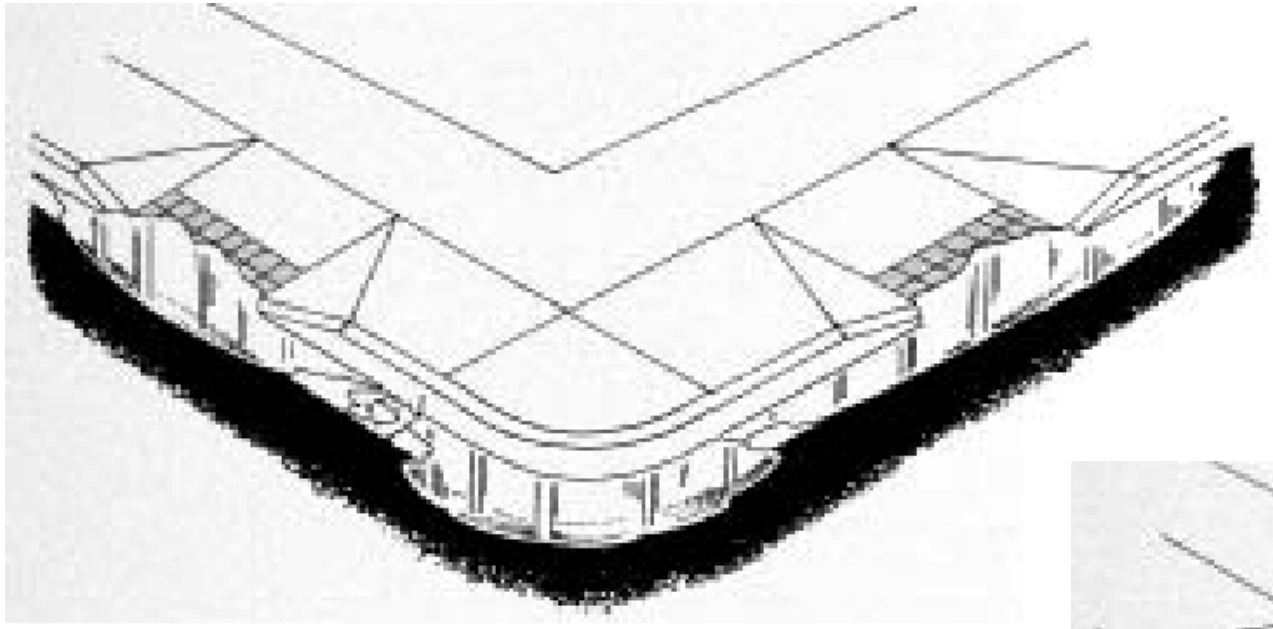
Note 12: ALIGN THE PEDESTRIAN CONNECTION AND THE CROSSWALK SO THAT A 4'-0" X 4'-0" CLEAR SPACE AREA LOCATED BELOW THE BOTTOM GRADE BREAK OF CURB RAMPS AND BLENDED TRANSITIONS IS CONTAINED WHOLLY WITHIN THE CROSSWALK. DIAGONAL CURB RAMPS REQUIRE THAT THE CLEAR SPACE BE LOCATED OUTSIDE OF THE PARALLEL VEHICLE TRAVEL LANE AND THAT A SEGMENT OF CURB 2'-0" LONG MINIMUM BE LOCATED ON EACH SIDE OF THE DIAGANOL CURB RAMP'S FLARED SIDES AND BE WITHIN THE MARKED CROSSING.

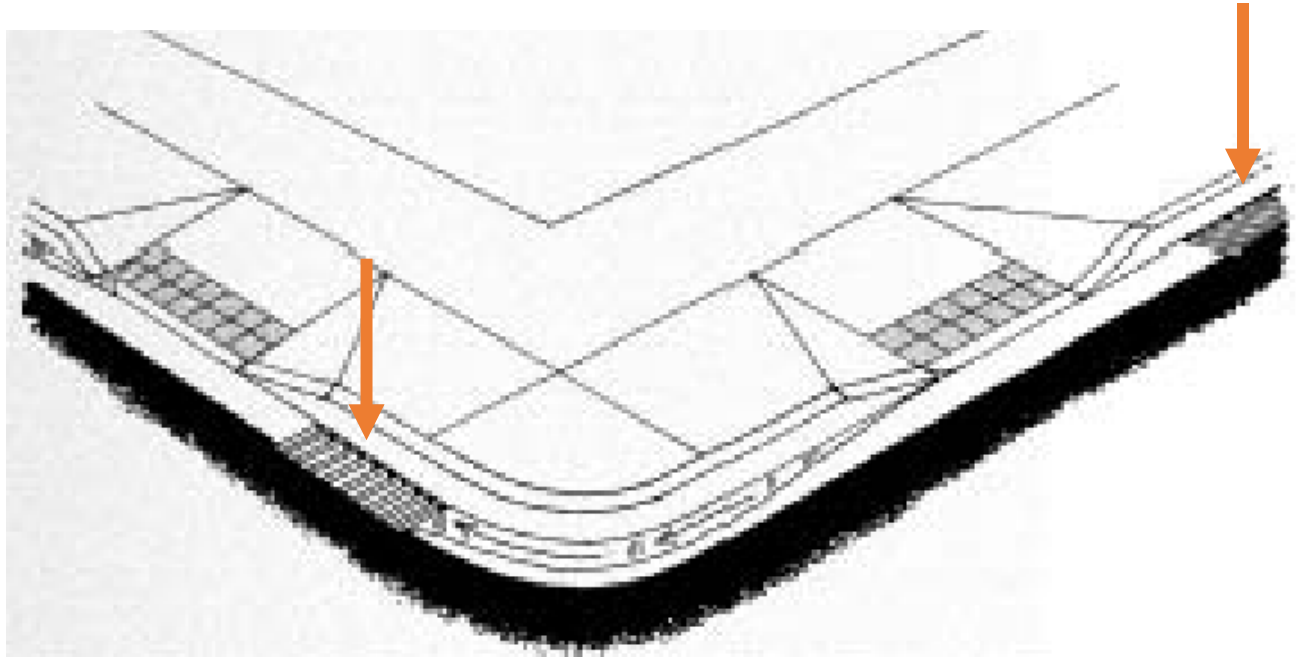


Pedestrian Connection Drainage

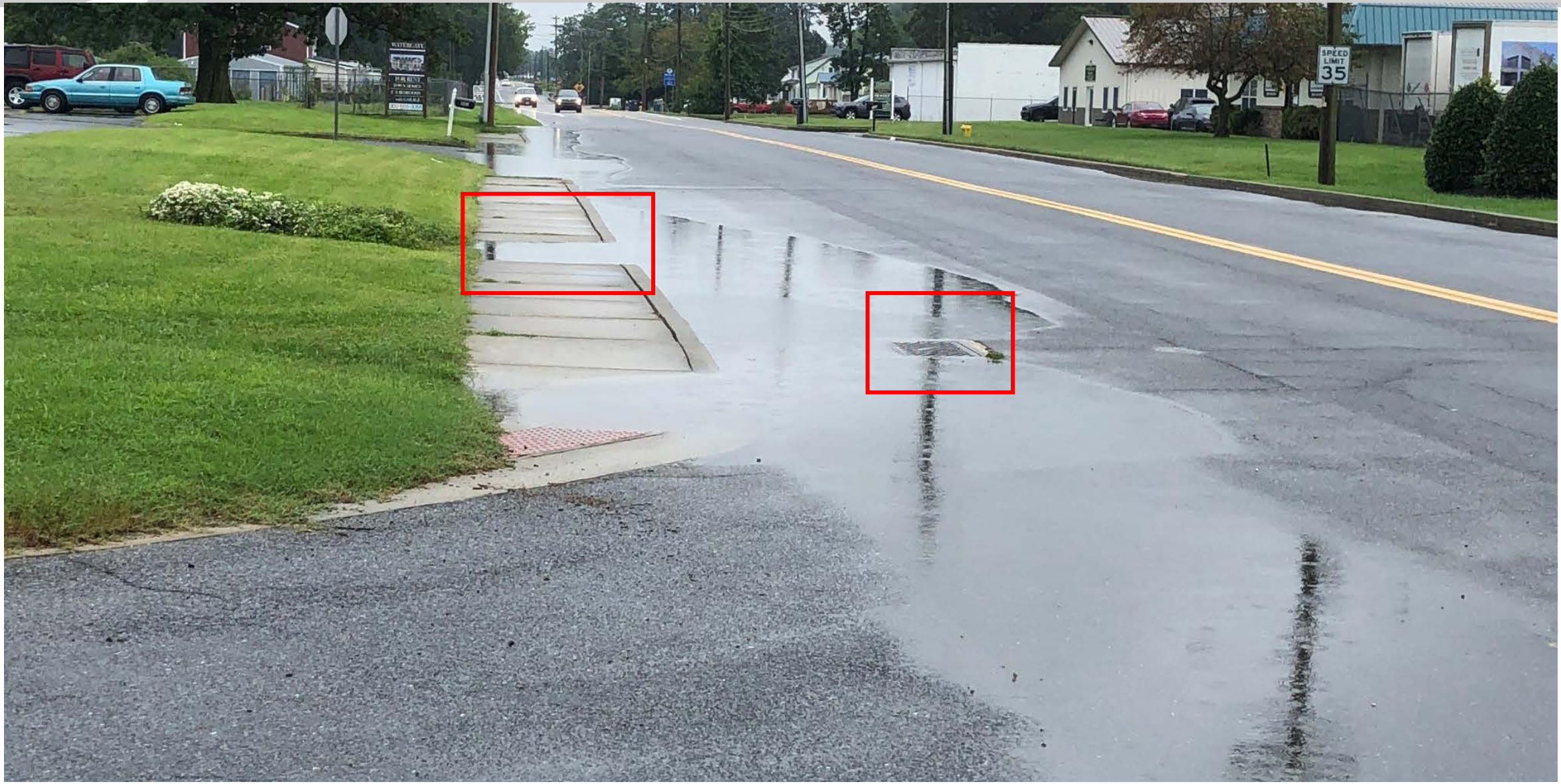
- **Standard: Curb ramps and blended transitions shall be designed to prevent the accumulation of water. (405.10)**
- *Guidance: Positive drainage for the facility should be considered during the design phase.*
- Advisory: Facilities that collect water and which do not have a means to positively convey water creates operational difficulties during and after a storm event.

Pedestrian Connection Drainage



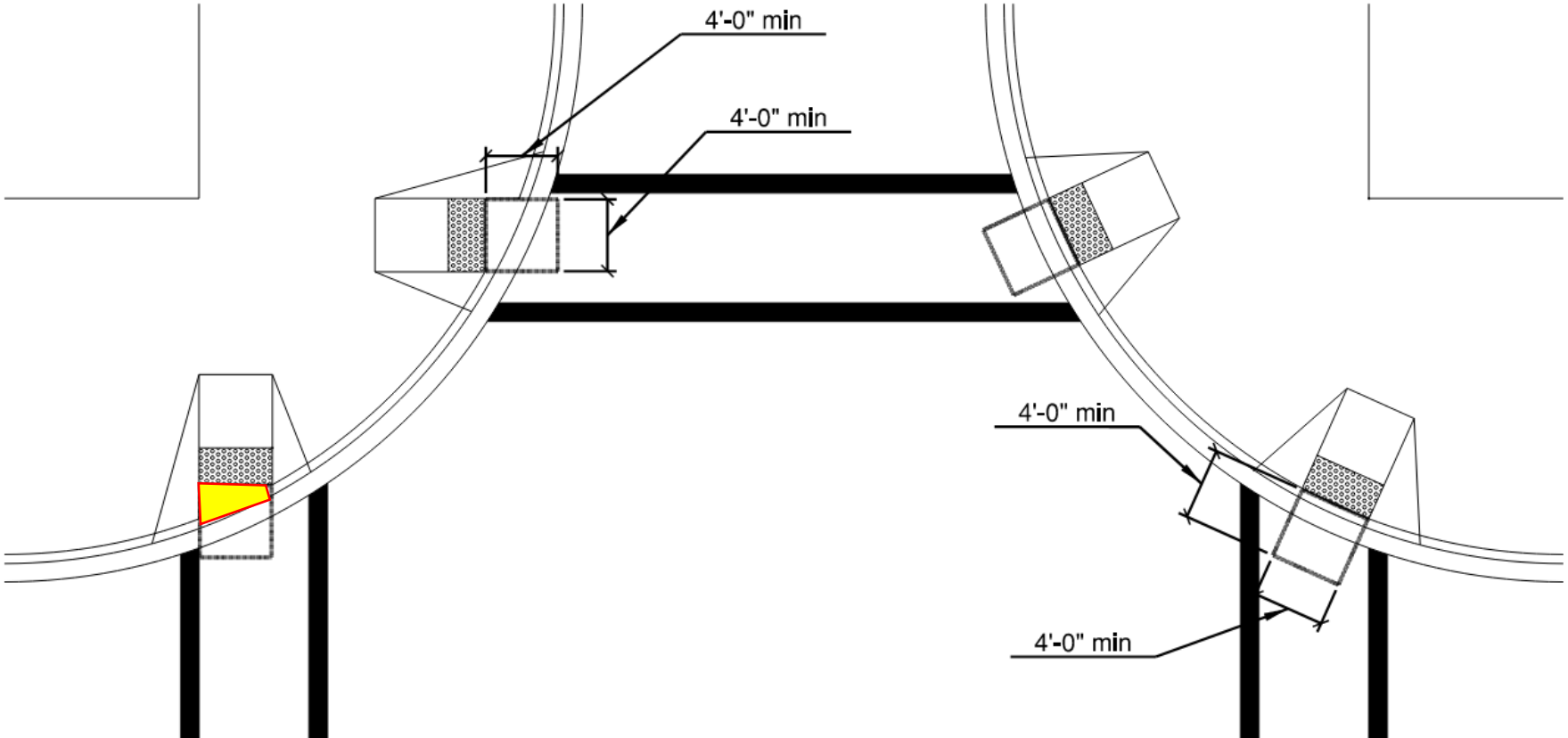


Pedestrian Connection Drainage



Pedestrian Connection Directionality

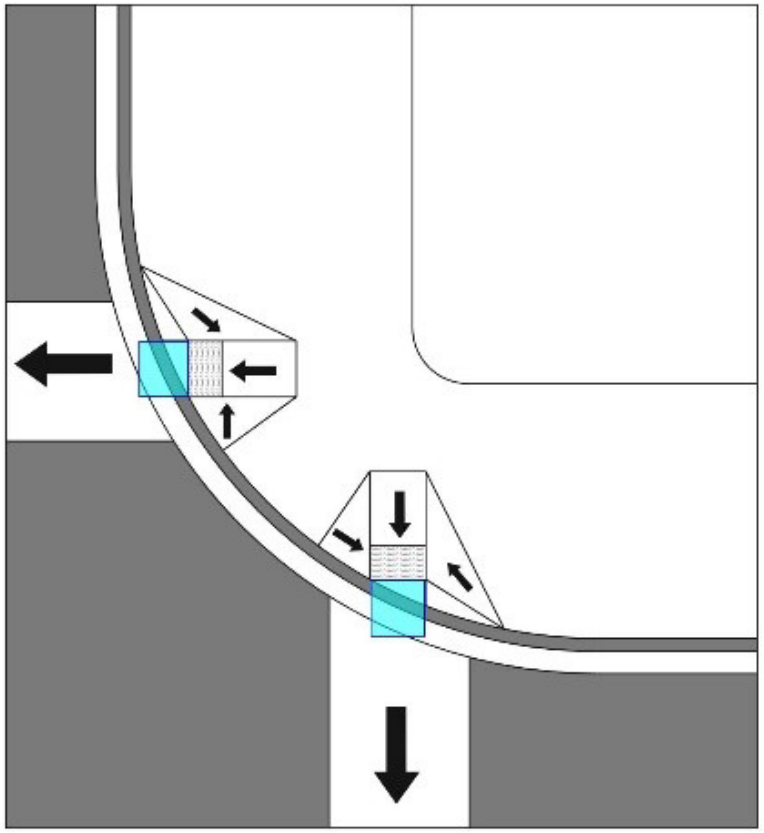
- Street level pedestrian connections can be aligned with the crosswalk to create a “directional” pedestrian connection.
- Not an ADA standard. (Not in 28 CFR 35.151, ADAAG or PROWAG)



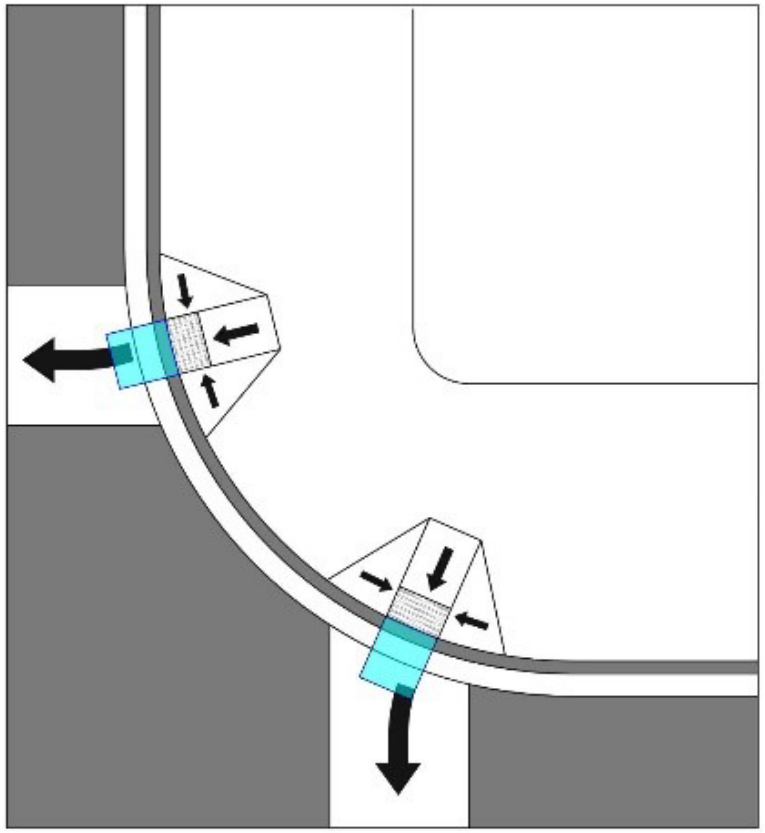
Pedestrian Connection Directionality

- PROWAAC : “The curb ramp should generally align with the expected path of travel to provide directionality.”
- Additional PROWAAC discussion:
  - Directional curb ramps help blind and visually impaired pedestrians align themselves with the crosswalk.
  - Creating a directional ramp usually requires “skewing” the ramp to the curb line.
  - This skew “may cause a wheelchair to become unbalanced. The cross-slope of the ramp, the gutter grade, the street crown grade, and the skew angle of the ramp all combine to cause one or two of the wheels of a wheelchair to lift from the ground surface.”

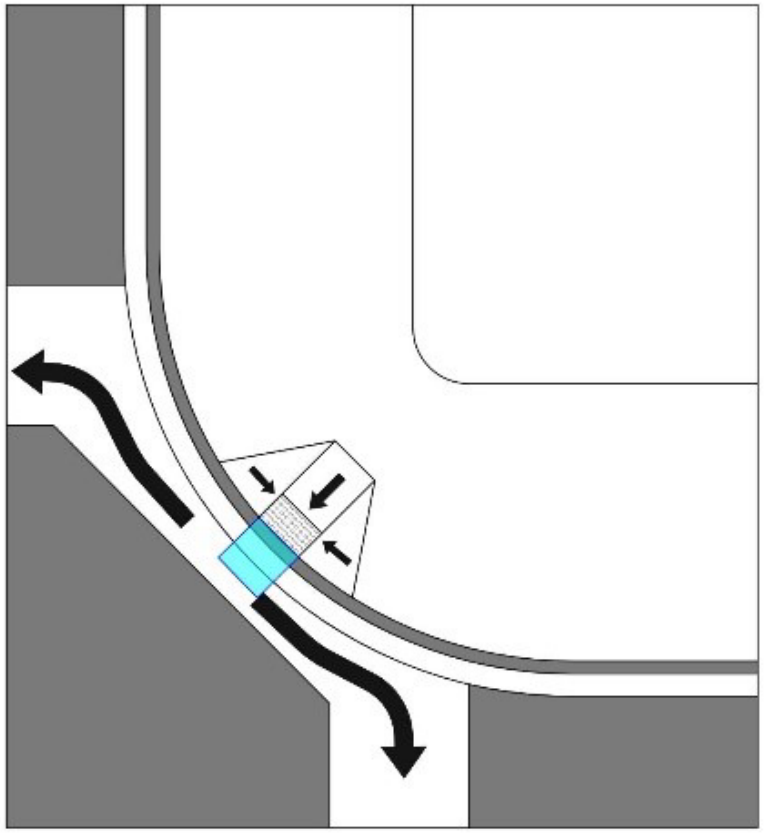
Pedestrian Connection Directionality



PREFERRED
RAMP DIRECTIONALITY



ACCEPTABLE
RAMP DIRECTIONALITY



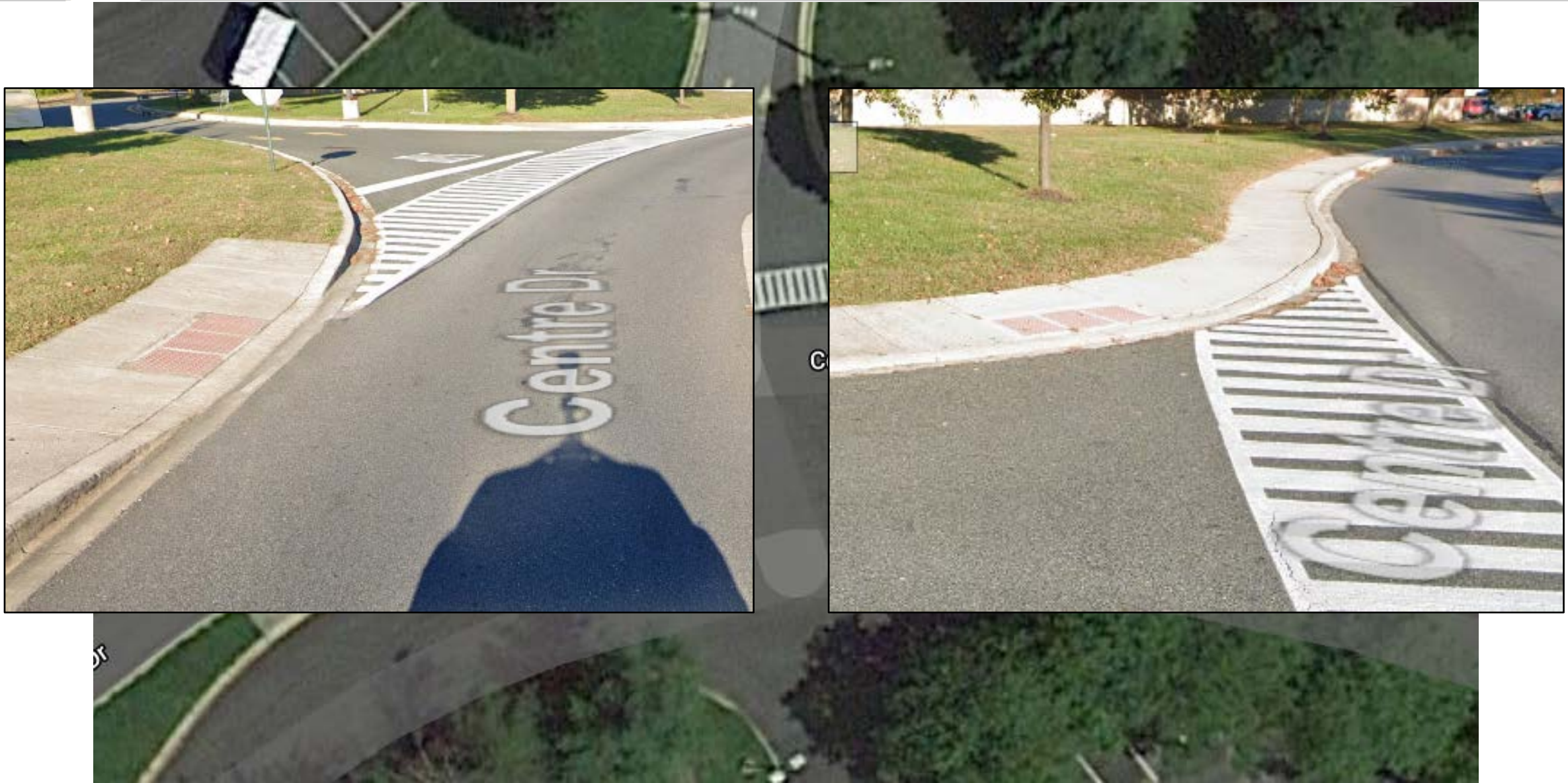
UNDESIRABLE
RAMP DIRECTIONALITY

Directionality Example

Directionality Example

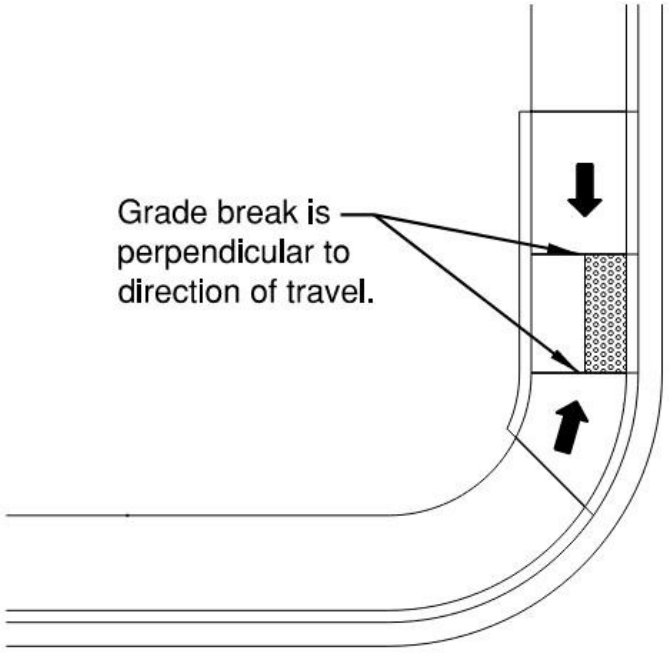
Directionality Example

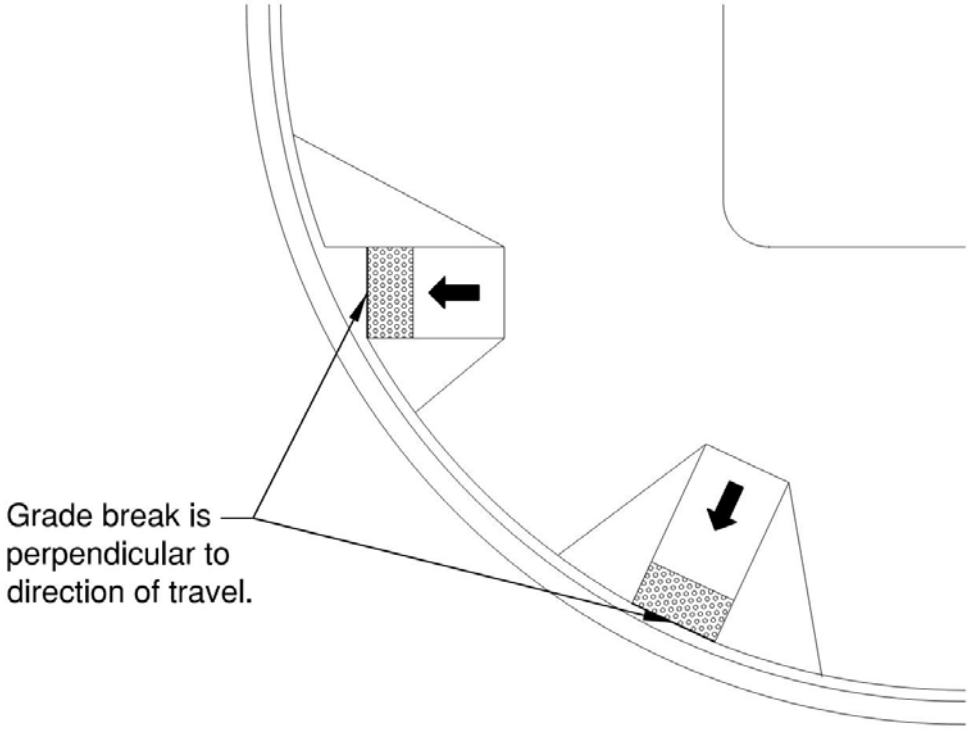
Directionality Example



Curb Ramp Grade Breaks

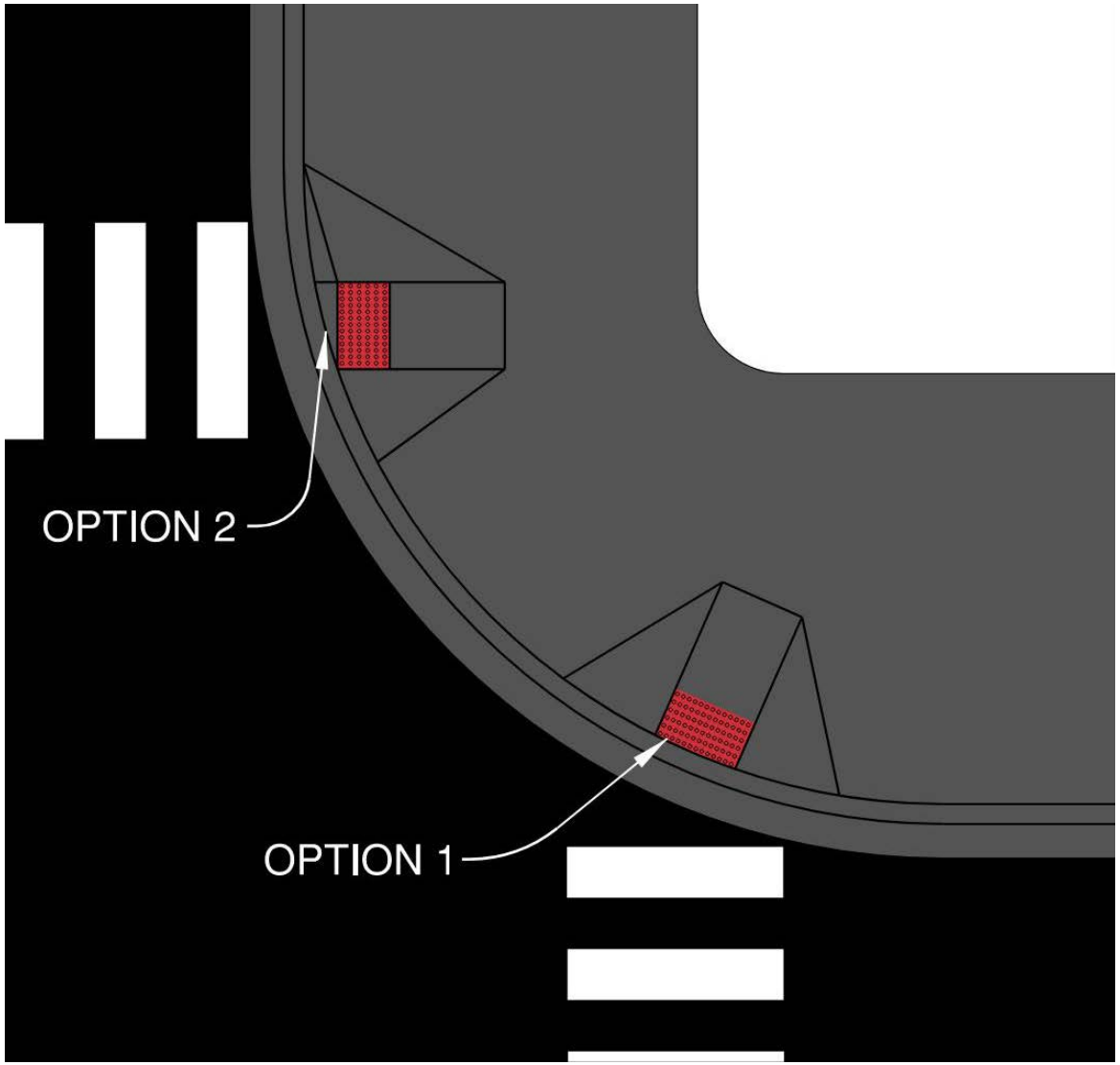
Standard: Grade breaks at the top and bottom of curb ramp runs shall be perpendicular to the direction of the ramp run. Grade breaks shall not be permitted on the surface of ramp runs and turning spaces. Surface slopes that meet at grade breaks shall be flush. (R304.5.2)



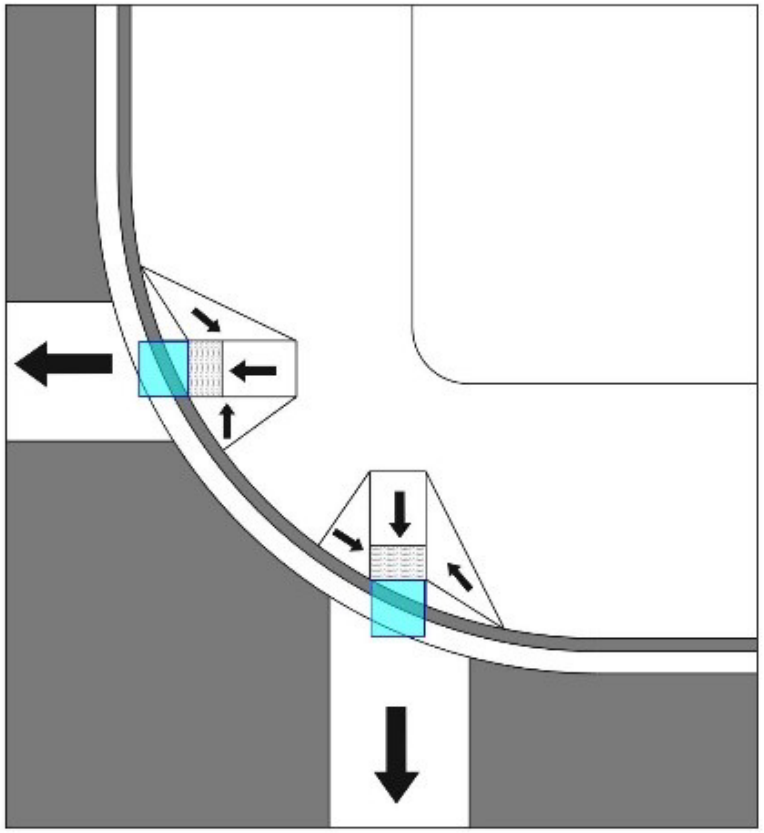


Directionality and Grade Breaks

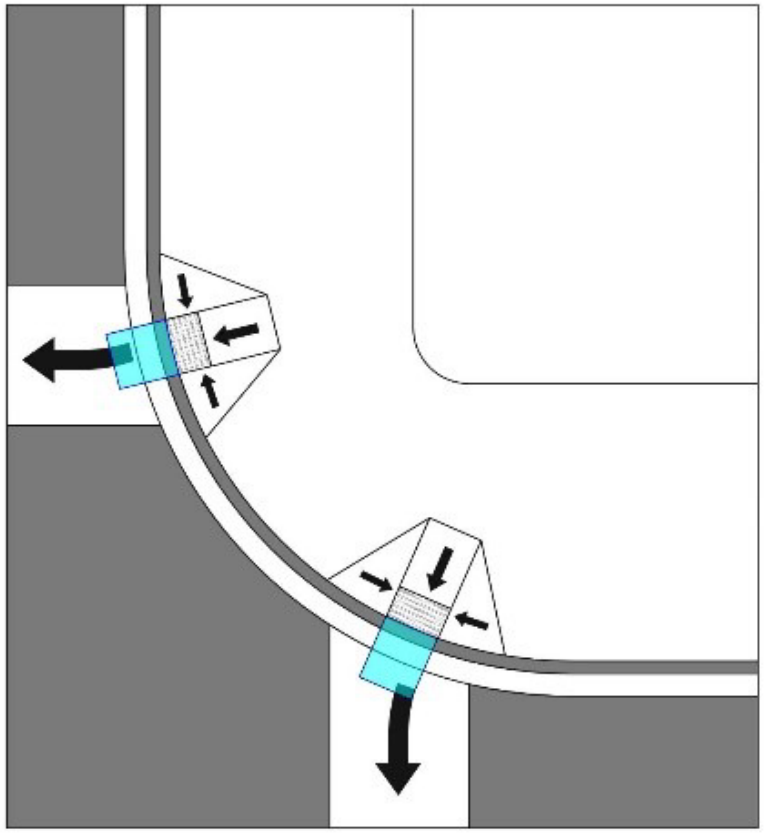
- Option 1: Place the grade break at the face of the curb. Ensure the clear space is within the street crossing.
  - Provides acceptable directionality.
  - Reduces potential drainage issues.
- Option 2: Create a directional ramp by skewing the ramp to the curb line.
  - Provides excellent directionality.
  - Increases the possibility of ponding water and creating sedimentation.
  - May create stability issues for mobility device users.



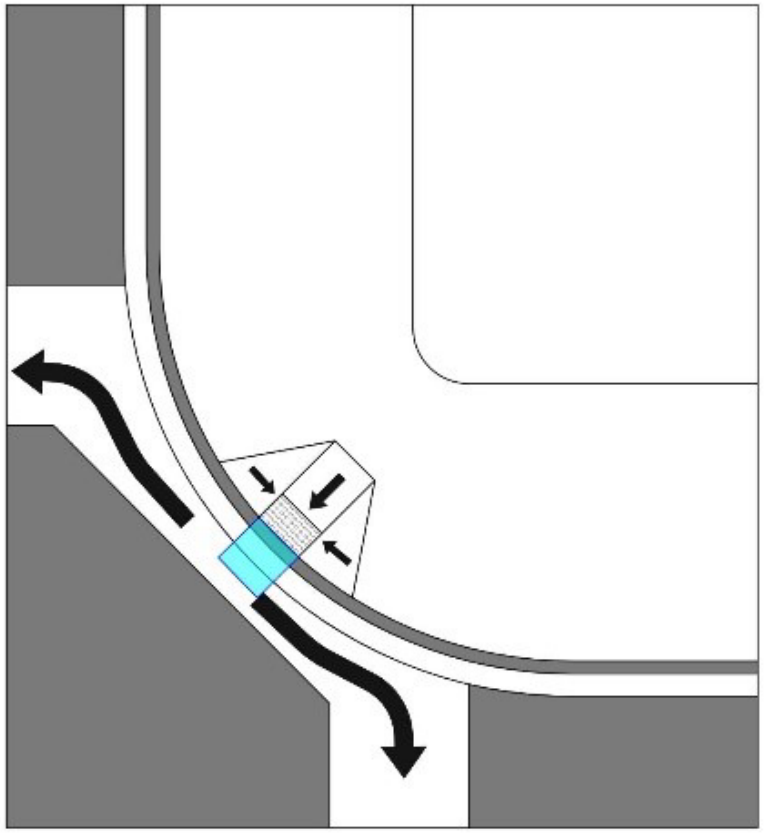
Pedestrian Connection Directionality



PREFERRED
RAMP DIRECTIONALITY

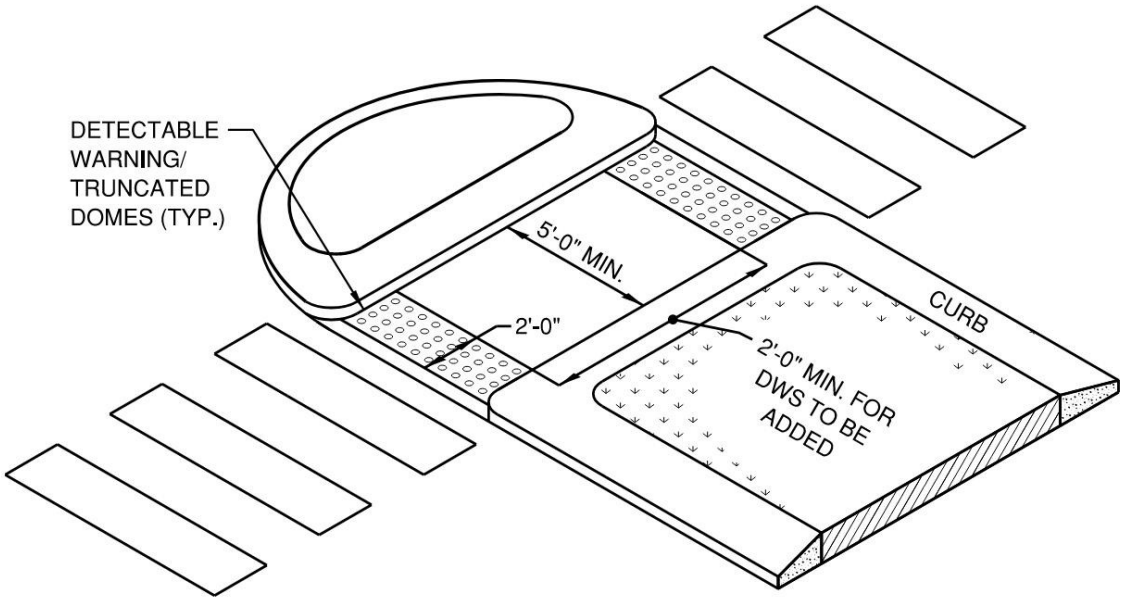


ACCEPTABLE
RAMP DIRECTIONALITY

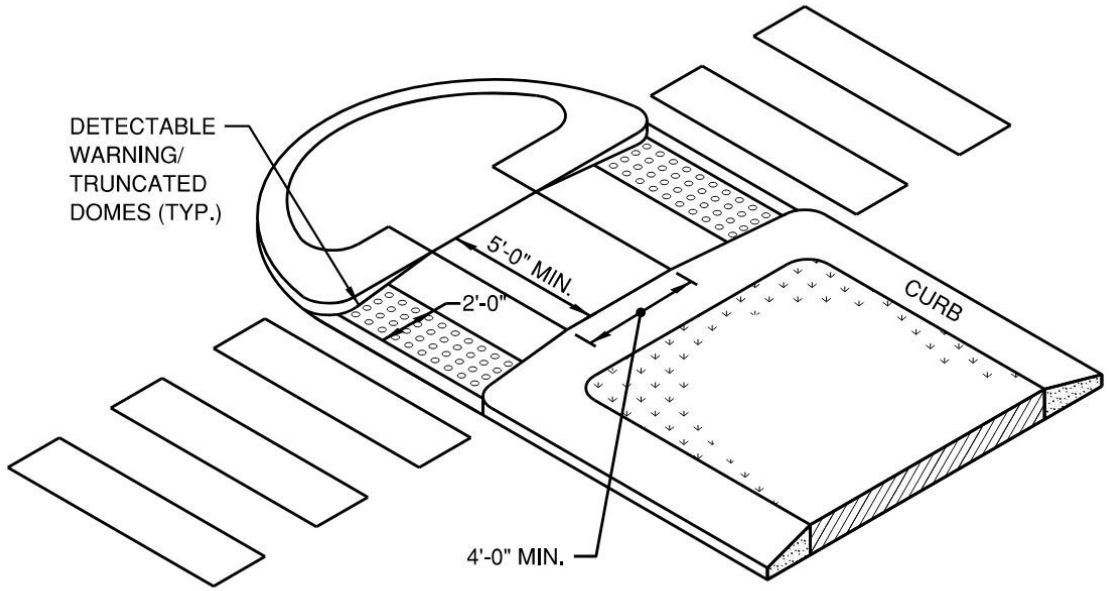


UNDESIRABLE
RAMP DIRECTIONALITY

Pedestrian Connection Median Application



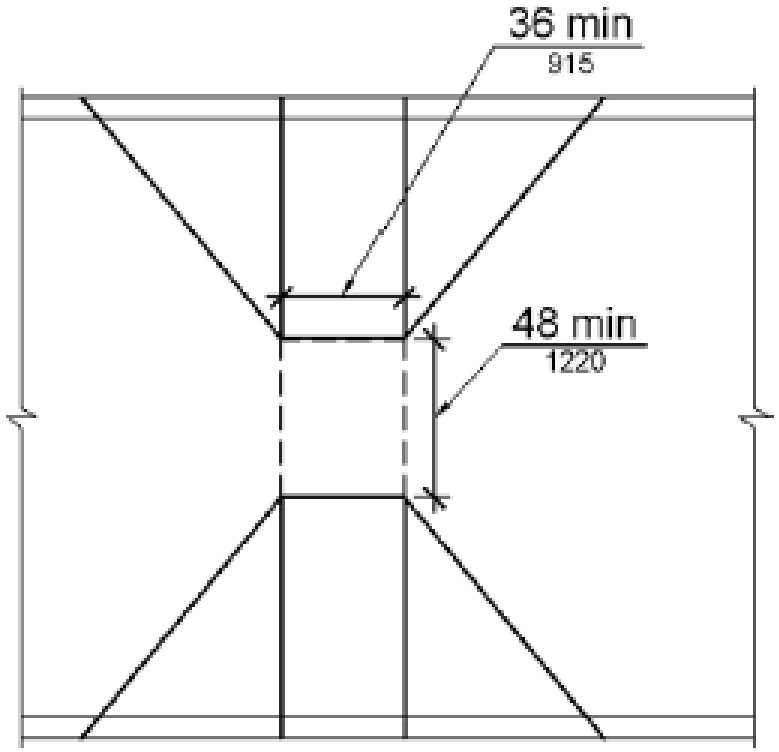
Cut-Through Application



Ramped Application

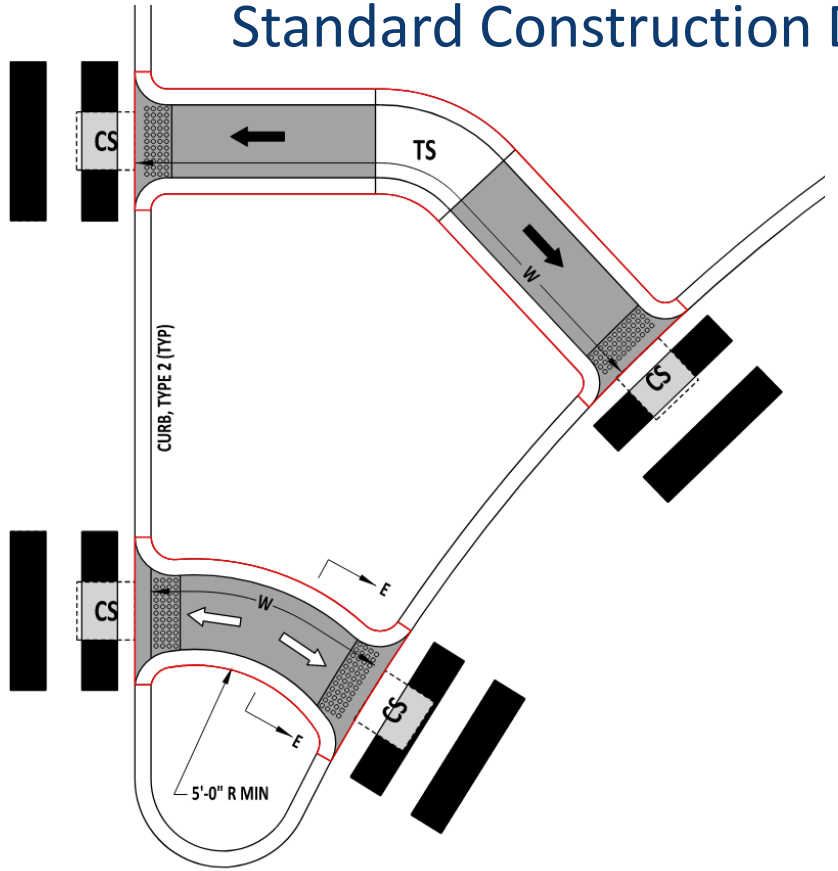
Pedestrian Connection Median Application

406.7 Islands



(b)
curb ramp at island

Standard Construction Detail



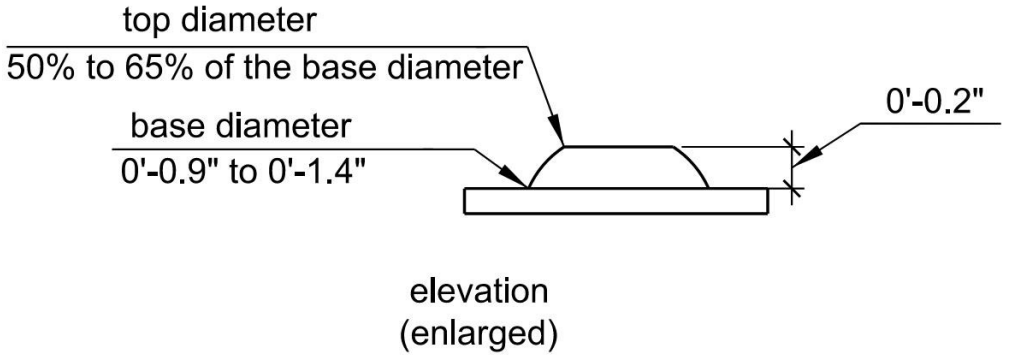
2). A CUT-THROUGH LEVEL WITH THE STREET IS THE PREFERRED TREATMENT FOR ISLANDS. RAMPS OR BLENDED TRANSITIONS CAN BE USED WHERE THE ISLAND IS OF SUFFICIENT SIZE TO ACCOMMODATE THEM. PROVIDE POSITIVE DRAINAGE FOR EITHER TREATMENT.

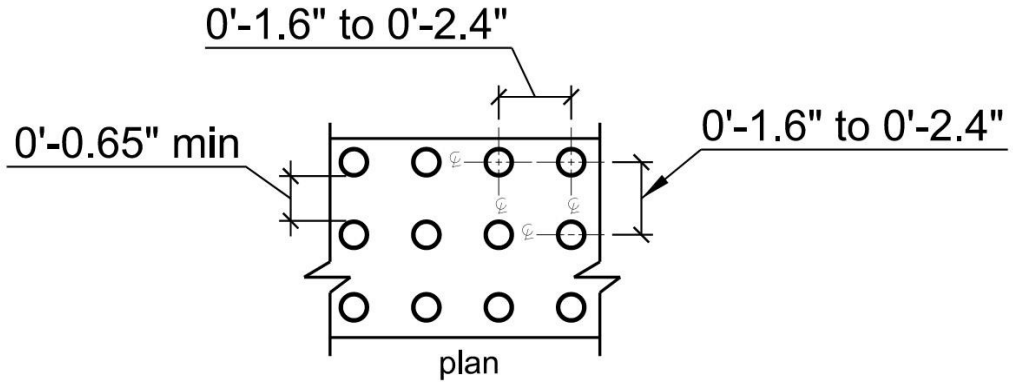
Ramped Application

3). A TURNING SPACE IS REQUIRED TO BE PLACED BETWEEN THE TOP OF RAMPED SEGMENTS.

Detectable Warnings (Truncated Domes)

- Advisory: On pedestrian access routes, detectable warning surfaces indicate the boundary between pedestrian and vehicular routes where there is a flush rather than a curbed connection. (Advisory R208.1)
- Detectable warning surfaces are not intended to provide wayfinding for pedestrians who are blind or have low vision. (Advisory R208.1)





Detectable Warning Surface (DWS) Placement

Detectable Warning Surface (DWS) Placement

Detectable warning surfaces complying with Section 3.3 shall be provided at the following locations on pedestrian access routes and at transit stops:

1. **Curb ramps and blended transitions at pedestrian street crossings;**
2. **Pedestrian refuge islands except as provided in Section 3.3.2.4;**
3. **Pedestrian at-grade rail crossings not located within a street or highway;**
4. **Boarding platforms at transit stops for buses and rail vehicles where the edges of the boarding platform are not protected by screens or guards; and**
5. **Boarding and alighting areas at sidewalk or street level transit stops for rail vehicles where the side of the boarding and alighting areas facing the rail vehicles is not protected by screens or guards. (R208.1 & R208.2)**

Guidance: Detectable warning surfaces should not be provided at crossings of residential driveways since the pedestrian right-of-way continues across residential driveway aprons. However, where commercial driveways are provided with yield or stop control, detectable warning surfaces should be provided at the junction between the pedestrian route and the vehicular route.

Detectable Warning Surface (DWS) Placement

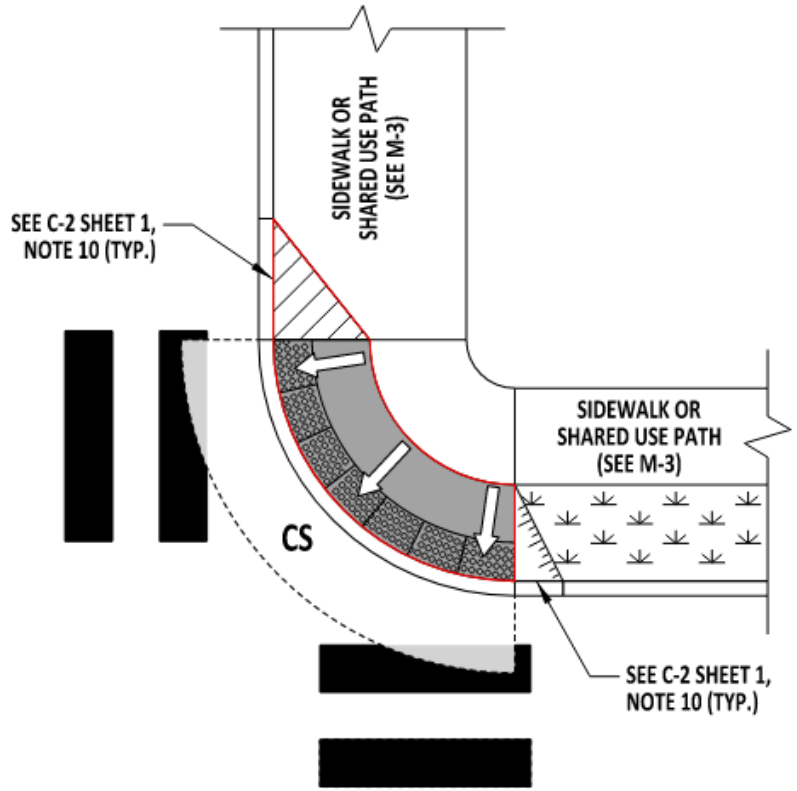
- Should not be overused as it can cause confusion for pedestrians with visual impairments.
- Should not be provided where the sidewalk continues across residential driveways.
- Can be used with engineering judgement at the following locations:
  - Entrances with yield or stop control.
  - Locations with inadequate sight distance for pedestrian access route users or oncoming vehicles,
  - Complicated turning movements where driver or pedestrian access route user decision making may be more challenging, and
  - Entrances with characteristics similar to minor streets (e.g., speeds of 25 mph or greater and/or ADT greater than about 400 vehicles per day).
- Large traffic generating facilities that have returned curbs should provide street level pedestrian connections with truncated dome detectable warning surfaces.

Detectable Warning Surface (DWS) Placement

Detectable Warning Surface (DWS) Placement

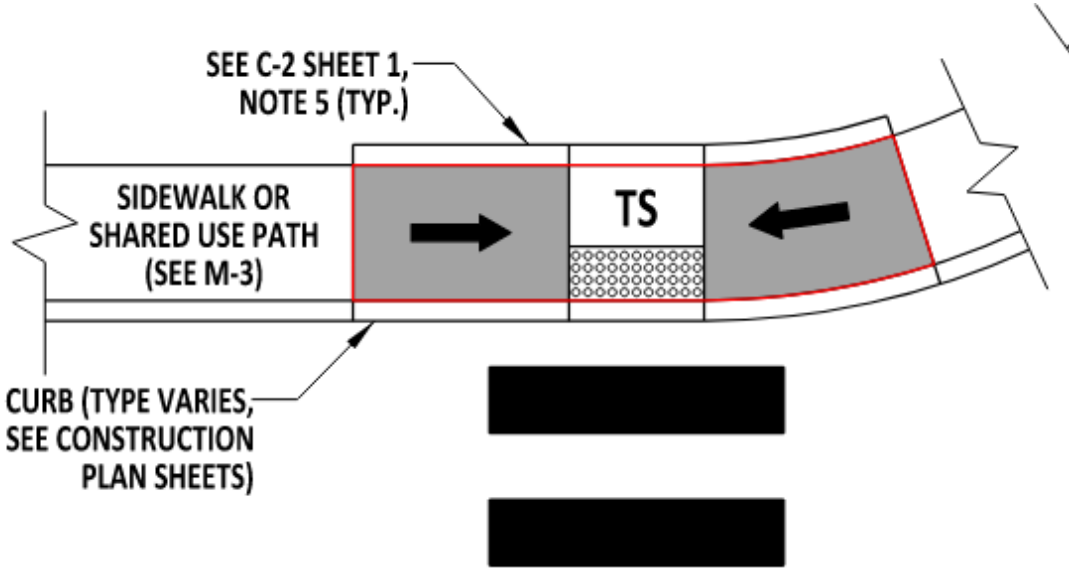
Detectable Warning Surface (DWS) Placement

Pedestrian Connection DWS Placement



CORNER BLENDED TRANSTION WITH SIDEWALK
SEE NOTE 3

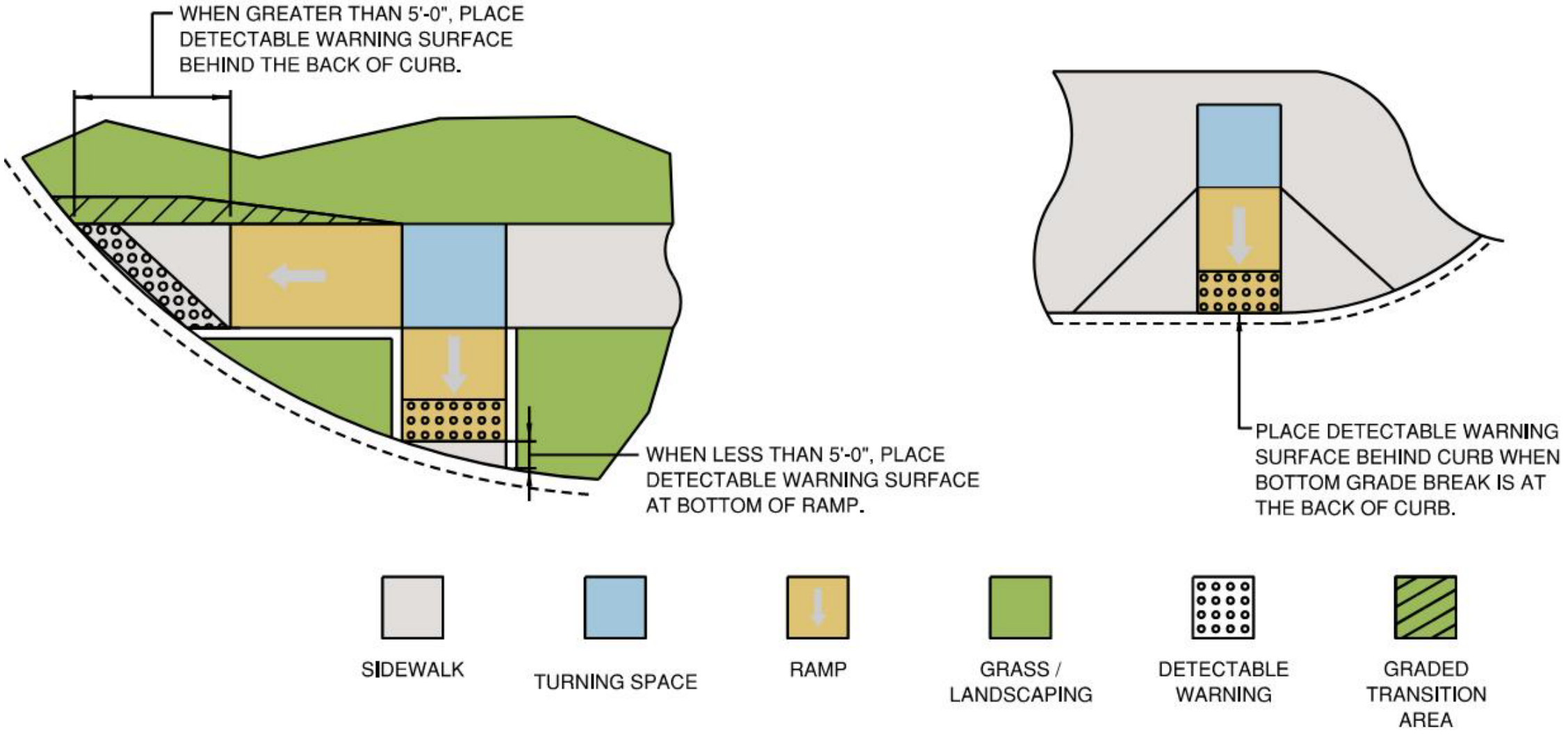
Depressed Corner – Place at the back of curb along the entire length of the depressed curb.



DUAL APPROACHES ON TANGENT SECTION

Parallel Curb Ramps – Place at the back of curb along the entire length of the depressed curb.

Pedestrian Connection DWS Placement



Perpendicular – Place as shown.

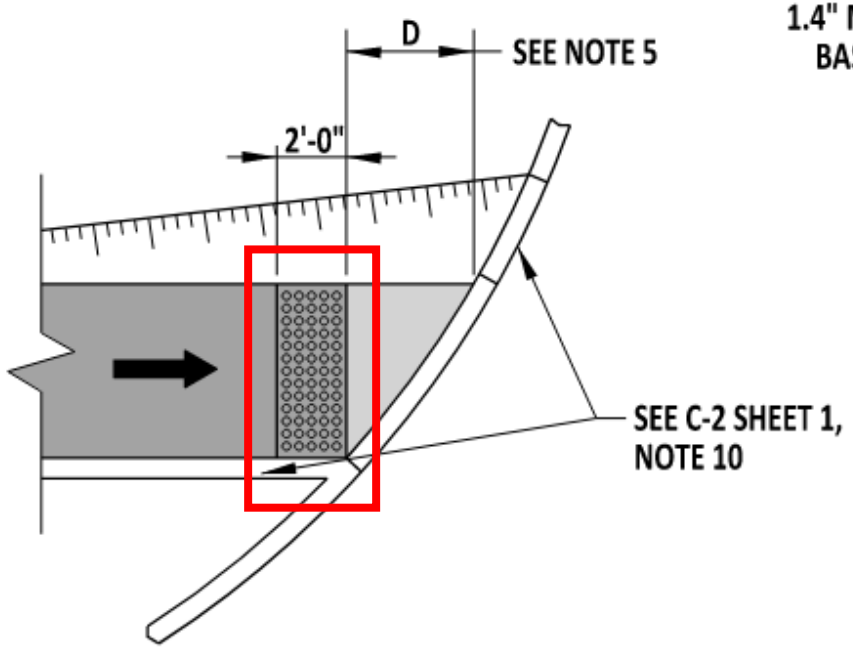
Pedestrian Connection DWS Placement

- **Standard: At cut-through pedestrian refuge islands, detectable warning surfaces shall be placed at the edges of the pedestrian island and shall be separated by a 2’-0” minimum length of surface without detectable warnings. (R305.2.4)**
- ***Exception: Detectable warning surfaces are not required at pedestrian refuge islands that are cut-through at street level and are less than 6’-0” in length in the direction of pedestrian travel. (R208.2)***

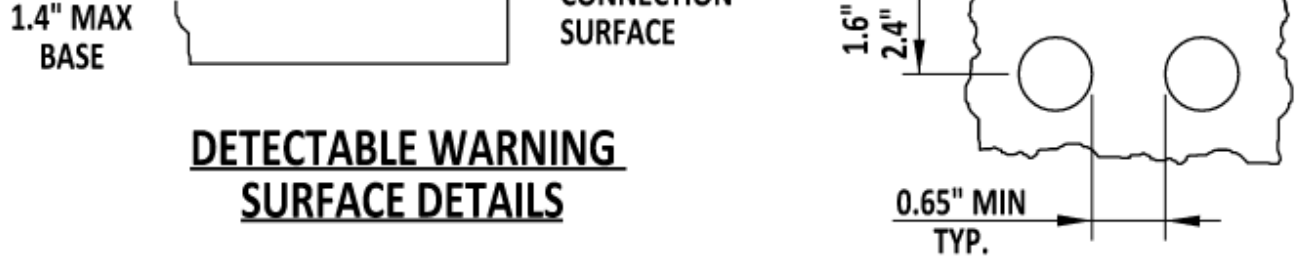
3). WHERE THERE IS NO DEPRESSED CURB AT A MEDIAN CUT-THROUGH OF PEDESTRIAN CONNECTION, INSTALL THE DETECTABLE WARNING SURFACE A MINIMUM OF 8" FROM THE PAVEMENT EDGE.

that are less than 6’-0” in length would compromise the effectiveness of detectable warning surfaces. (Advisory R208.2)

- *Guidance: Where a cut-through pedestrian refuge island is less than 6’-0” in length and the pedestrian street crossing is signalized, the signal should be timed for a complete crossing of the street. (Advisory R208.2)*



DETECTABLE WARNING SURFACE PLACEMENT FOR PERPENDICULAR CURB RAMPS



DETECTABLE WARNING SURFACE DETAILS

DETECTABLE WARNING SURFACE NOTES:

1). THE DETECTABLE WARNING SURFACE SHALL EXTEND A MINIMUM OF 2'-0" IN THE DIRECTION OF PEDESTRIAN TRAVEL AND EXTEND THE FULL WIDTH OF THE DEPRESSED CURB.

2). THE DETECTABLE WARNING SURFACE SHALL NOT BE PLACED ACROSS A GRADE BREAK.

3). WHERE THERE IS NO DEPRESSED CURB AT A MEDIAN CUT-THROUGH OF PEDESTRIAN CONNECTION, INSTALL THE DETECTABLE WARNING SURFACE A MINIMUM OF 8" FROM THE PAVEMENT EDGE.

4). DETECTABLE WARNING SURFACE MAY BE OMITTED WITH APPROVAL OF THE ENGINEER AT CUT-THROUGH LOCATIONS WHERE THE DETECTABLE WARNING SURFACE WILL BE SEPARATED BY 2'-0" OR LESS.

5). PLACE DETECTABLE WARNING SURFACES AS FOLLOWS:

A). PERPENDICULAR CURB RAMPS - SEE ABOVE FIGURE FOR PERPENDICULAR CURB RAMP APPLICATIONS. WHERE D IS LESS THAN OR EQUAL TO 5'-0", PLACE THE DETECTABLE WARNING SURFACE PERPENDICULAR TO THE RAMP AT THE BOTTOM GRADE BREAK. WHERE D IS GREATER THAN 5'-0", PLACE AT THE BACK OF CURB.

B). PARALLEL CURB RAMPS - PLACE AT THE BACK OF CURB ALONG THE ENTIRE LENGTH OF THE DEPRESSED CURB.

C). DEPRESSED CORNERS - PLACE AT THE BACK OF CURB ALONG THE ENTIRE LENGTH OF THE DEPRESSED CURB.

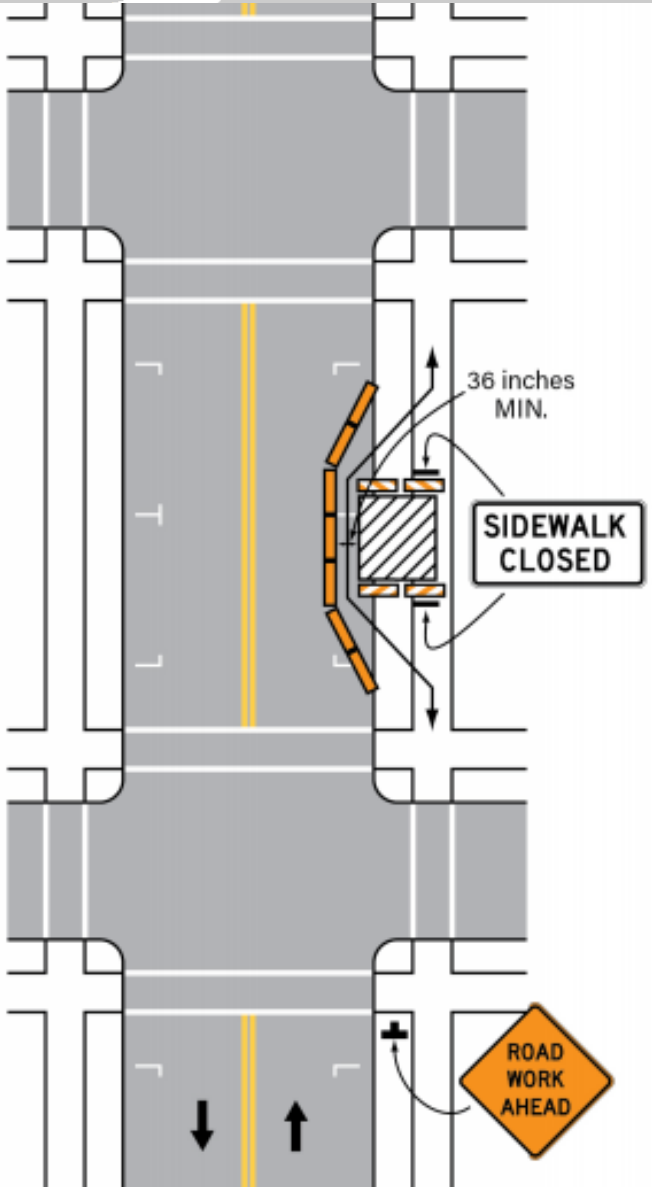
Temporary Access Route Objectives

1. Separate pedestrians from conflicts with work site vehicles, equipment, and operations.
2. Separate pedestrians from conflicts with mainline traffic moving through or around the work site.
3. Provide pedestrians with a safe, accessible, and convenient travel path that duplicates as nearly as possible, the most desirable characteristics of the existing paths.

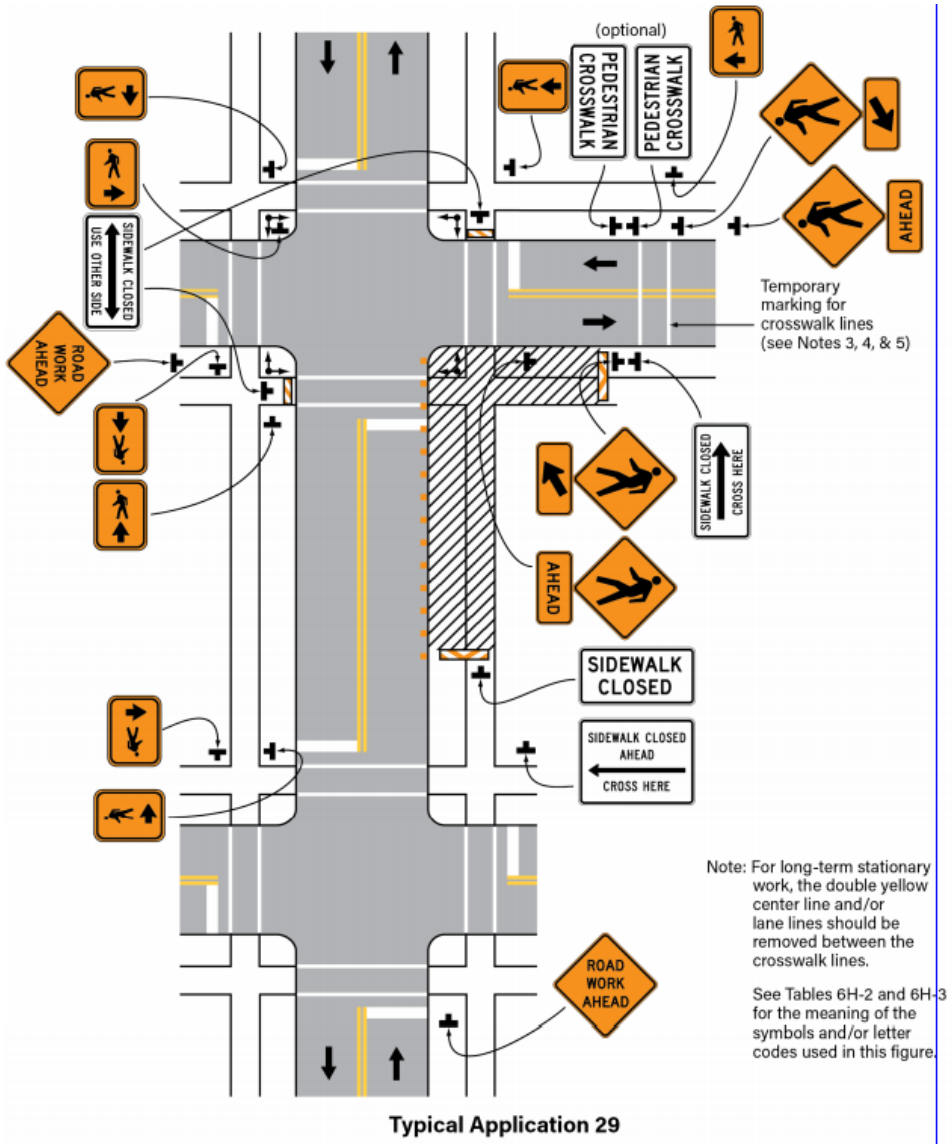
Temporary Conditions Alternatives

1. Utilize existing facilities.
   - Pedestrian flaggers can be used to maintain access.
2. Maintain same side access through either channelization or a temporary pedestrian access route.
   - Ideal to provide same-side site travel as much as practical.
     - Less pedestrian exposure to traffic.
     - Maintains access to adjacent land uses.
   - Fence off dangerous locations.
   - Provide smooth transitions.
3. Maintain same side access by shifting the access route to an existing shoulder or parking lane.
   - Further discussion upcoming.
4. Provide a pedestrian detour.
   - Detour route must have similar accessibility features to that of the existing route.
5. Provide a shuttle service or other method to not reduce network usability.

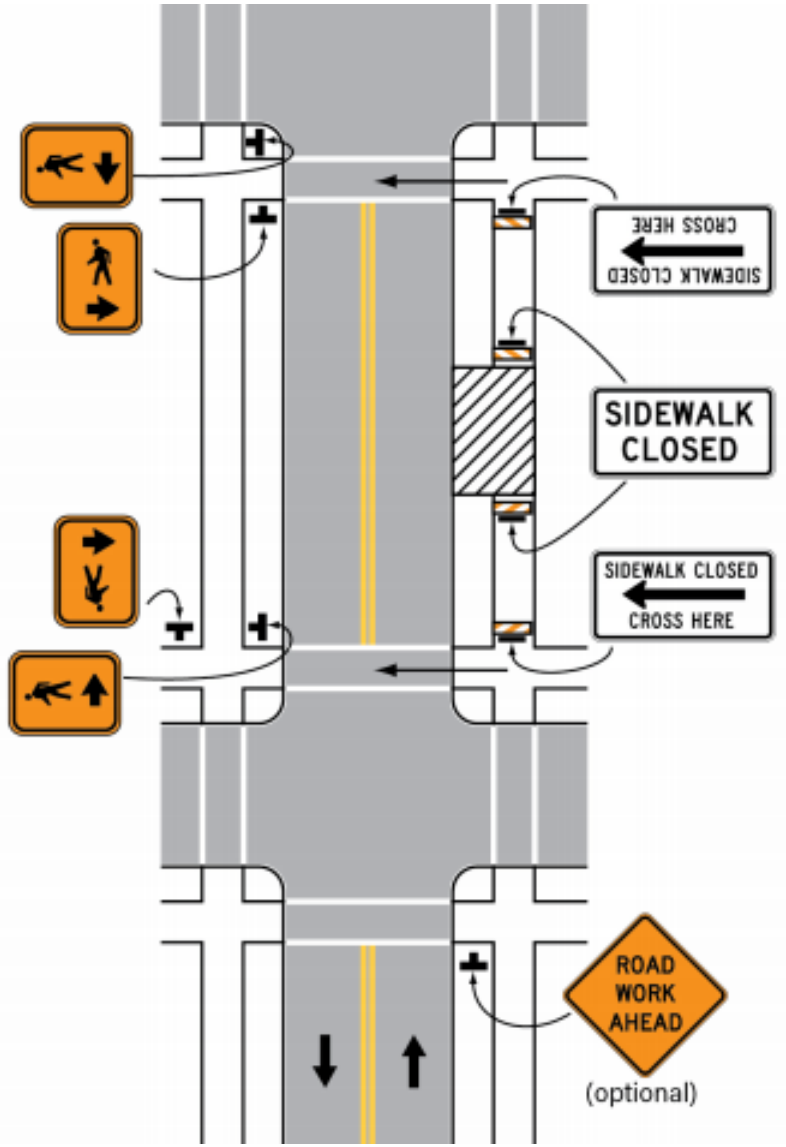
Re-routing PAR into Shoulder or Parking Lane



Provide Pedestrian Detour



Typical Application 29



ADA Compliant Work Zone

On-Street Parking

- Municipalities typically administer the parking “program”:
  - The ADA responsibility of the parties should be addressed through the town agreement process.
- DelDOT still has a responsibility to coordinate (Q&A #4 from DOJ/DOT).
  - “If the public entity does not control sufficient right-of-way, it should seek to acquire the necessary right-of-way. If a complaint is filed, the public entity will likely need to show that it made reasonable efforts to obtain access to the necessary right-of-way.”
- Project Type:
  - New Construction – If provided, the parking must meet the standards.
  - Alterations - Need to provide to the maximum extent feasible.
- Coordinate with the DelDOT Title II Coordinator.
- Document in the Town Agreement.

Accessibility Standards Not Covered

- Surface Requirements (Section 3.1.5)
  - Vertical alignment (Section 3.1.5.1)
  - Vertical Surface discontinuities (Section 3.1.5.2)
  - Horizontal Openings (Section 3.1.5.3)
  - Flangeway Gaps (Section 3.1.5.4)
- Protruding Objects (Section 3.4)
  - Protrusion Limits (Section 3.4.1)
  - Post-Mounted Limits (Section 3.4.2)
  - Vertical Clearance (Section 3.4.3)
  - Required Clear Width (Section 3.4.4)
- Transit Stops and Transit Shelters (Section 3.10)
- Passenger Loading Zones (Section 3.12)
- Facilities Note Common in the Public Right-of-Way (Section 3.13)

List of SCDs Updated

Standard No.	Title	Update
C-1, Sheet 1	PCC Curb	Minor note updates.
C-1, Sheet 2	Integral PCC Curb & Gutter	Minor note updates.
C-1, Sheet 3	Integral PCC Curb & Gutter (For Use at Pedestrian Connections Only)	Incorporated accessibiility buffer and made minor note updates.
C-2, All Sheets	Pedestrian Connection	Replaced with new sheets.
C-3, Sheet 1	Entrances	Incorporated accessibiility buffer and made minor note updates.
C-5, Sheet 1	Curb / Sidewalk Opening	Incorporated accessibiility buffer and made minor note updates.
C-6, Sheet 1	Curb Retaining Wall	Incorporated accessibiility buffer and made minor note updates.
M-3, Sheet 1	Shared-Use Path & Sidewalk	Incorporated accessibiility buffer, made minor note updates, updated Department design sidewalk widths.
M-9, Sheet 1	Bus Stop Pad, Types 1, 2 & 3	Incorporated accessibiility buffer and made minor note updates.
M-9, Sheet 2	Bus Stop With Shelter, Types 1 & 2	Incorporated accessibiility buffer and made minor note updates.
M-13, Sheet 1	Temporary Pedestrian Pathway	Minor note updates.
T-18, Sheet 1	Pedestrian Pushbutton Location - Pushbutton Assembly Location on	Changed mounting heights and added Note #3.

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Section Home

Information

News & Updates

- Bridges and Structures
- CADD
- Construction
- Cost Estimating & Project Timing
- Environmental
- Example Plans
- Highway Design
- Hydrology & Hydraulics
- Pavement & Materials
- Planning
- Project Management
- ProjectWise
- Right-of-Way
- Stormwater

Guidelines | Manuals | Forms | Related Links

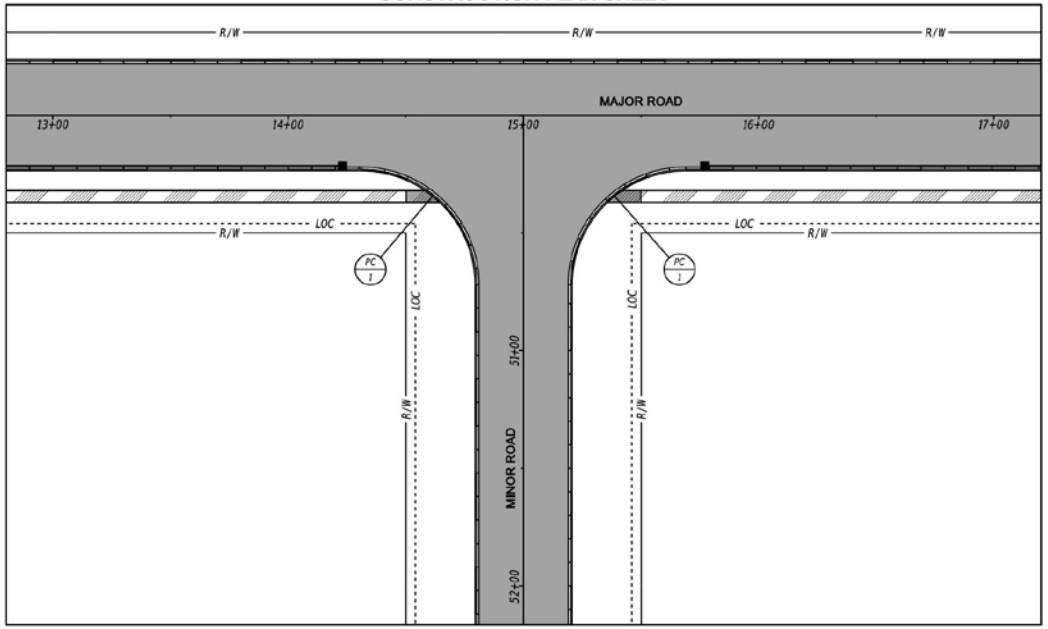
- Approved Maintenance of Traffic (MOT) Notes
- Approved Project Notes 2001 Specifications
- Approved Project Notes 2016 Specifications
- Approved Project Notes 2020 Specifications

Engineering Instructions

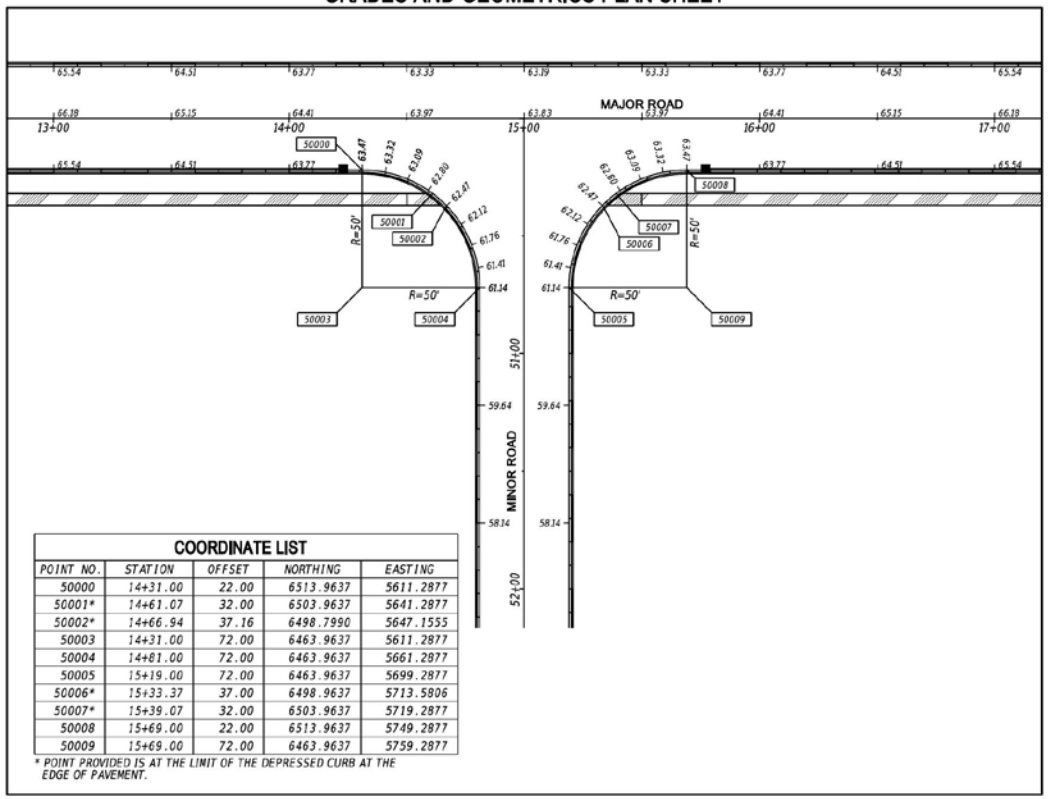
- PM-09-001: Construction Plan Set Sheet Labels and Sequencing
  - Index of Sheets Template
- PM-09-003: Electronic File Structure on the Shared Drive (Y-Drive)
- PM-09-004: Change Order Reason Codes
- PM-12-001: File structure on the Active Contracts Drive (V-Drive)
- PM-16-001: Surveying Standards, Requirements and Deliverables
- PM-16-002: Coordinate Geometry (COGO) Usage for DelDOT Projects
- PM-16-003: Electronic File Availability for DelDOT Design Data
- PM-18-001: Pedestrian Connection Plan Preparation and Documentation
- PM-18-002: Creating Seal, Signature and Date Stamps in Adobe Acrobat
- PM-19-001: Creating Seal, Signature and Date Stamps in Bluebeam Revu

Unconstrained Pedestrian Connection

CONSTRUCTION PLAN SHEET



GRADES AND GEOMETRICS PLAN SHEET



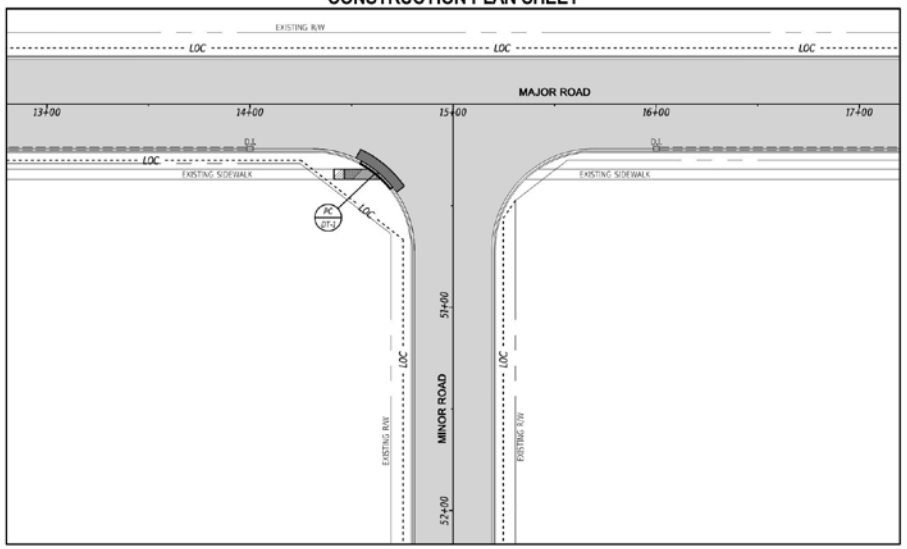
COORDINATE LIST

POINT NO.	STATION	OFFSET	NORTHING	EASTING
50000	14+31.00	22.00	6513.9637	5611.2877
50001*	14+61.07	32.00	6503.9637	5641.2877
50002*	14+66.94	37.16	6498.7990	5647.1555
50003	14+31.00	72.00	6463.9637	5611.2877
50004	14+81.00	72.00	6463.9637	5661.2877
50005	15+19.00	72.00	6463.9637	5699.2877
50006*	15+33.37	37.00	6498.9637	5713.5806
50007*	15+39.07	32.00	6503.9637	5719.2877
50008	15+69.00	22.00	6513.9637	5749.2877
50009	15+69.00	72.00	6463.9637	5759.2877

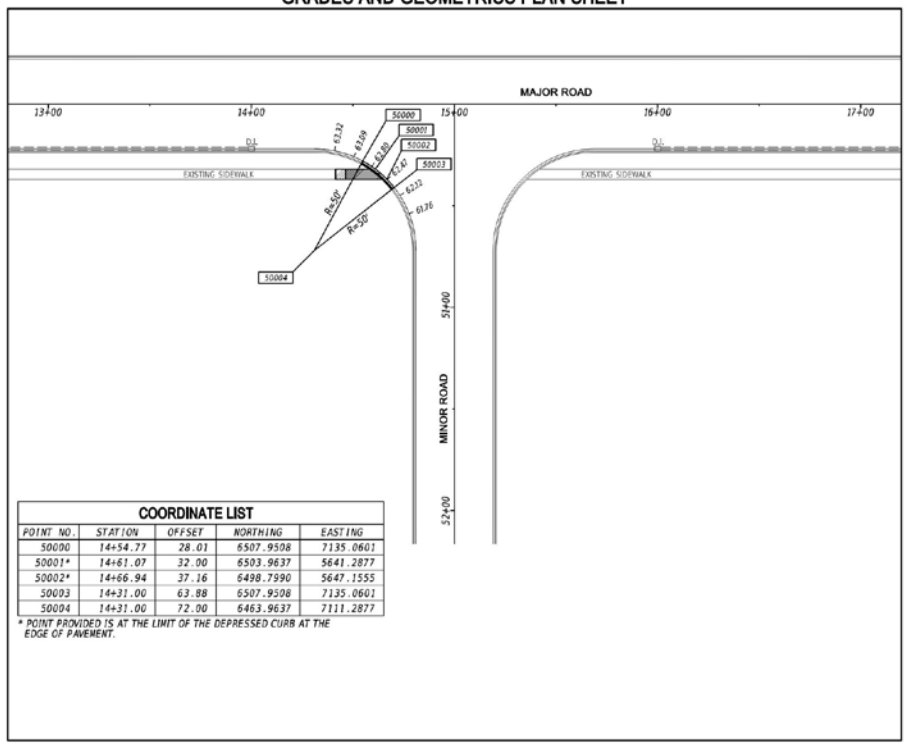
* POINT PROVIDED IS AT THE LIMIT OF THE DEPRESSED CURB AT THE EDGE OF PAVEMENT.

Right-of-Way Constrained Pedestrian Connection

CONSTRUCTION PLAN SHEET



GRADES AND GEOMETRICS PLAN SHEET

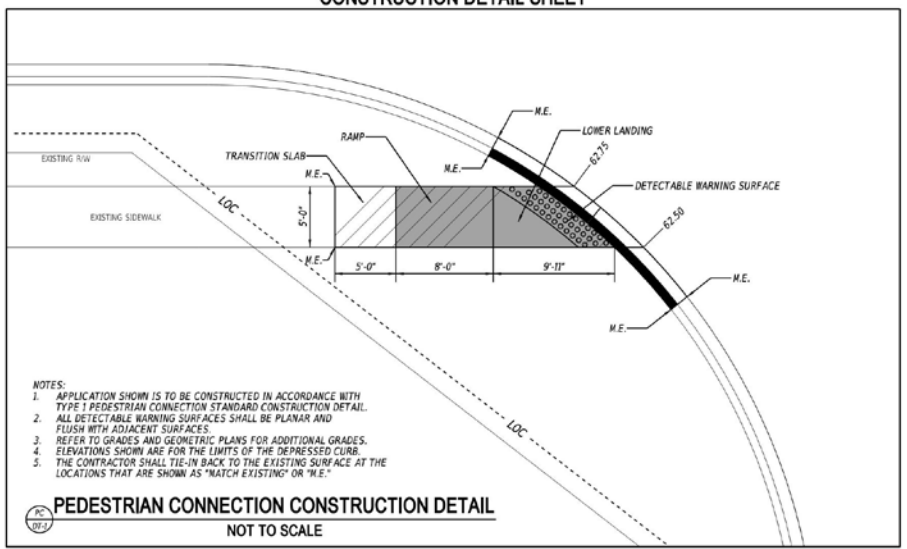


COORDINATE LIST

POINT NO.	STATION	OFFSET	NORTHING	EASTING
50000	14+54.77	28.01	6507.9508	7135.0601
50001*	14+61.07	32.00	6503.9637	5641.2877
50002*	14+66.94	37.16	6498.7990	5647.1555
50003	14+31.00	63.88	6507.9508	7135.0601
50004	14+31.00	72.00	6463.9637	7111.2877

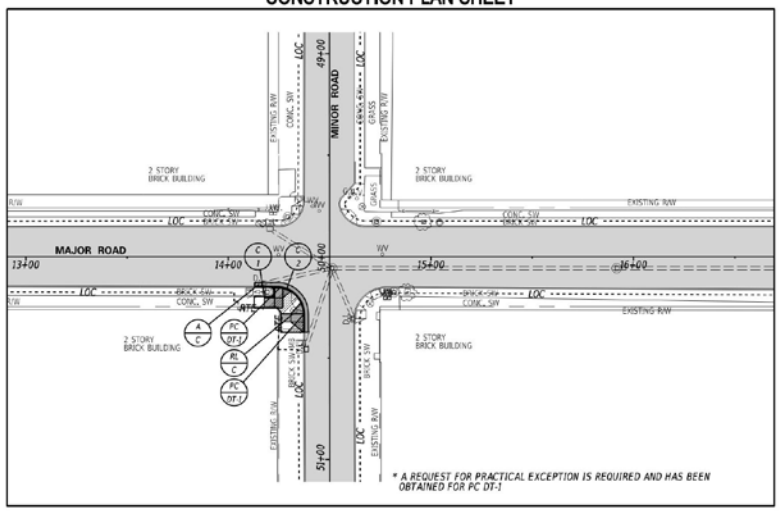
* POINT PROVIDED IS AT THE LIMIT OF THE DEPRESSED CURB AT THE EDGE OF PAVEMENT.

CONSTRUCTION DETAIL SHEET

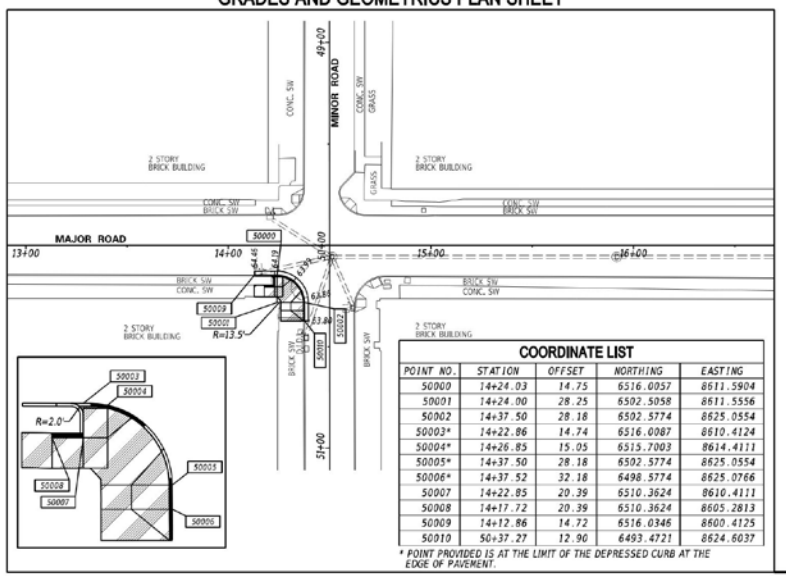


Feature Constrained Pedestrian Connection

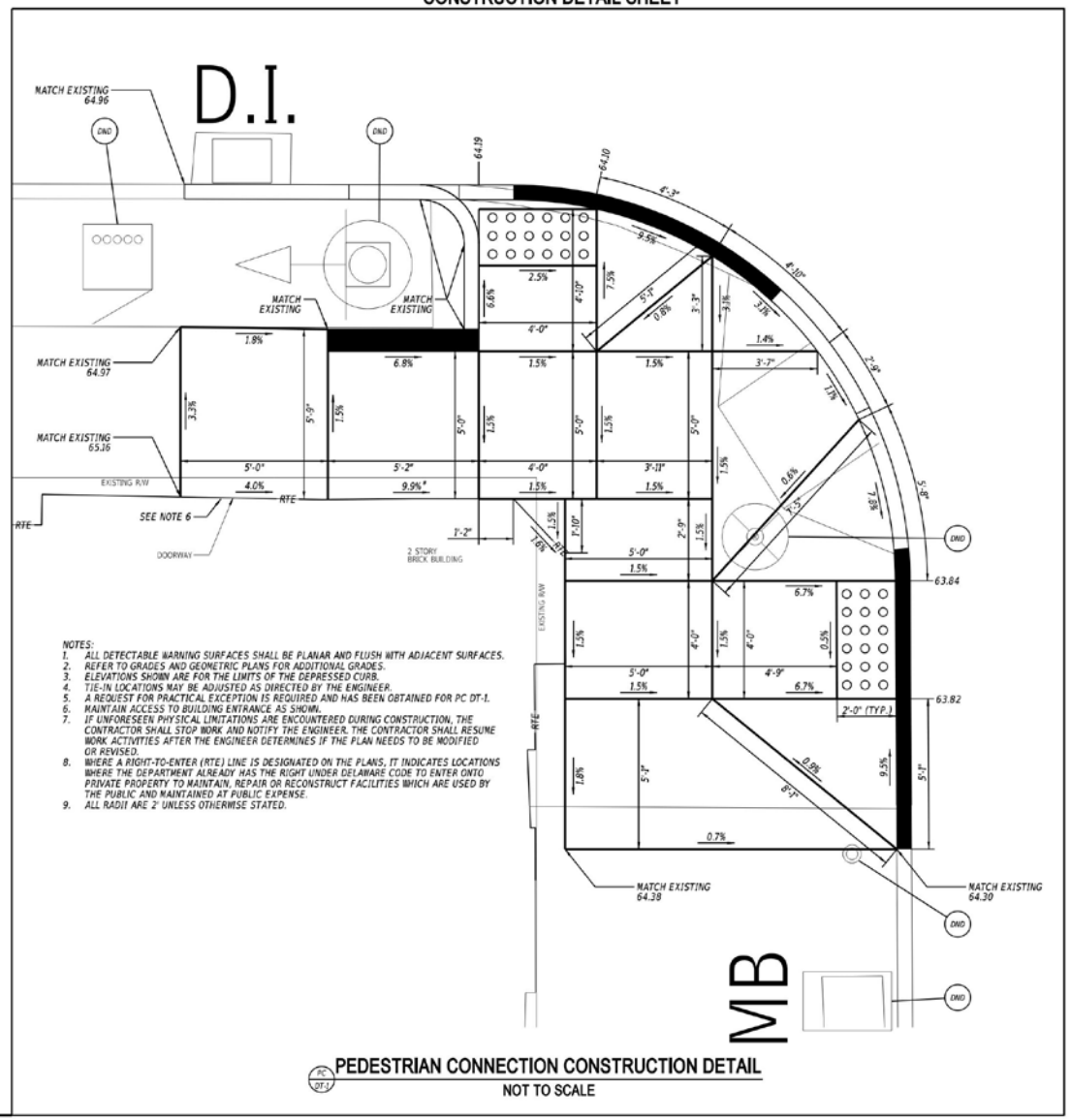
CONSTRUCTION PLAN SHEET



GRADES AND GEOMETRICS PLAN SHEET



CONSTRUCTION DETAIL SHEET



PEDESTRIAN CONNECTION CONSTRUCTION DETAIL
NOT TO SCALE

Design Implementation

Will the contract be advertised ahead of

Will detailed design have occurred prior to

Design the contract in accordance with the design standards

Note: Click icon for MicroStation DGN file format

C-1 - PCC Curb

- C-1 (2020) - 1 - PCC Curb
- C-1 (2020) - 2 - Integral PCC Curb & Gutter
- C-1 (2020) - 3 - Integral PCC Curb & Gutter (For Use At Pedestrian Connections Only)
- C-1 (2020) - 4 - PCC Roundabout and Guardrail Median Curb

Advertise the contract using the current accessibility design standards.

contract to supersede the proposed updated standard construction details.

Chapter 5:

ADA Inspection and Acceptance Criteria

DelDOT

ADA Inspection and Acceptance Criteria

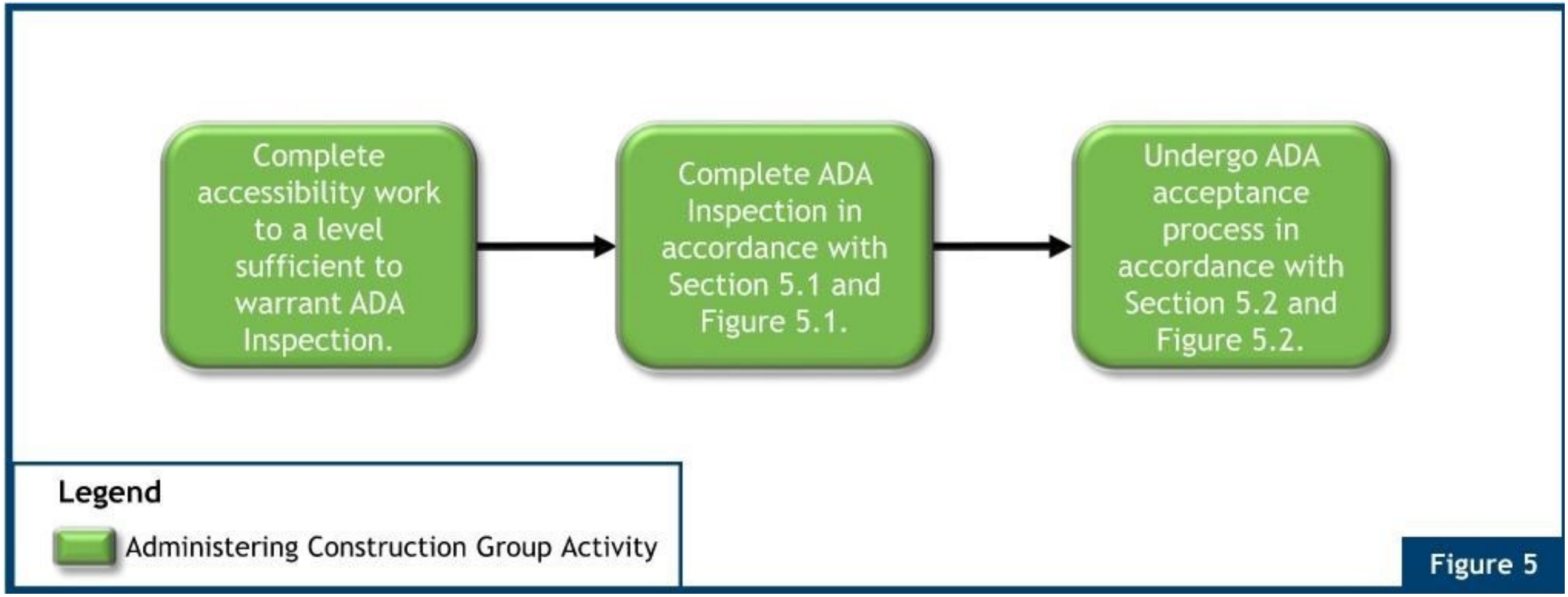
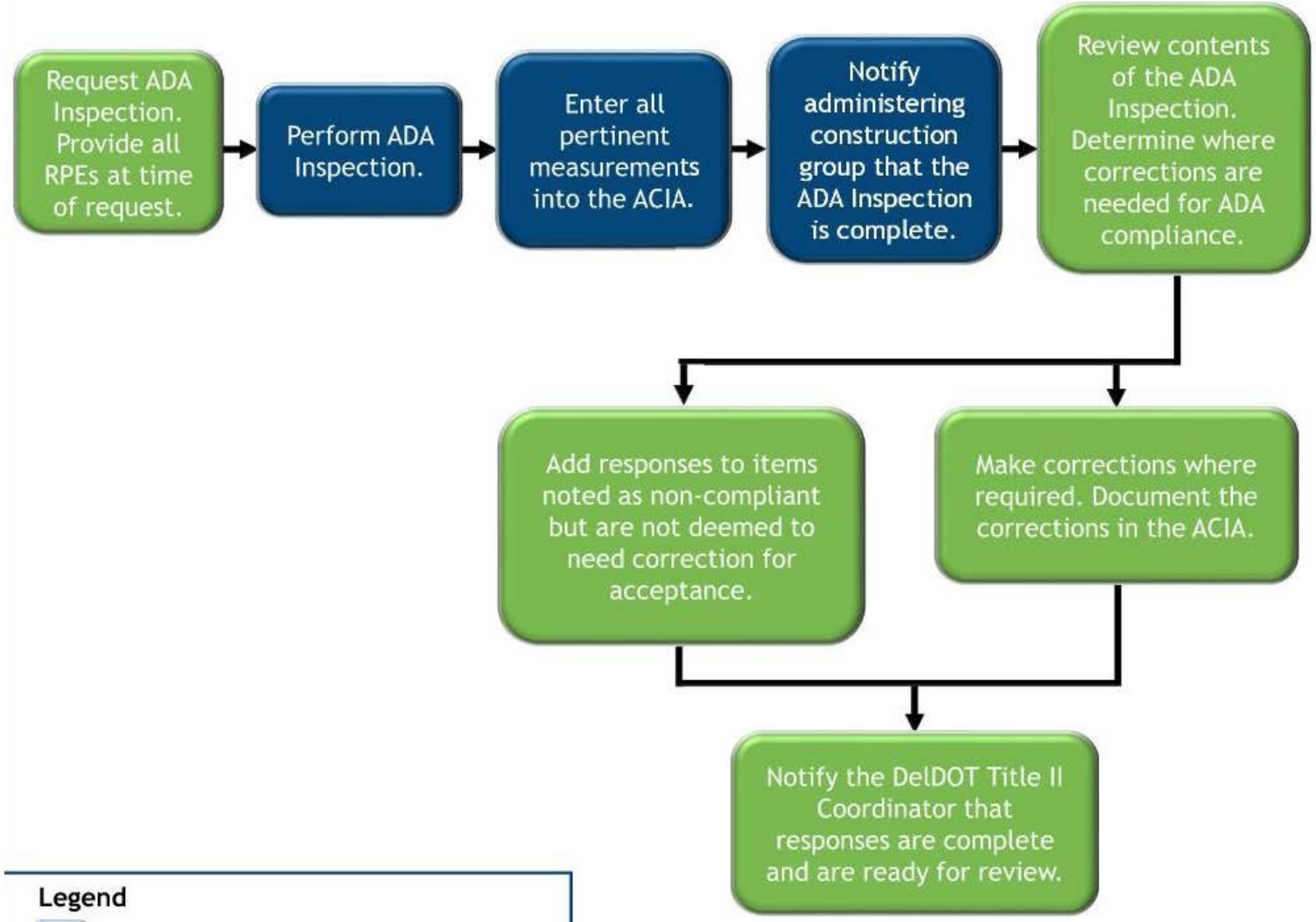
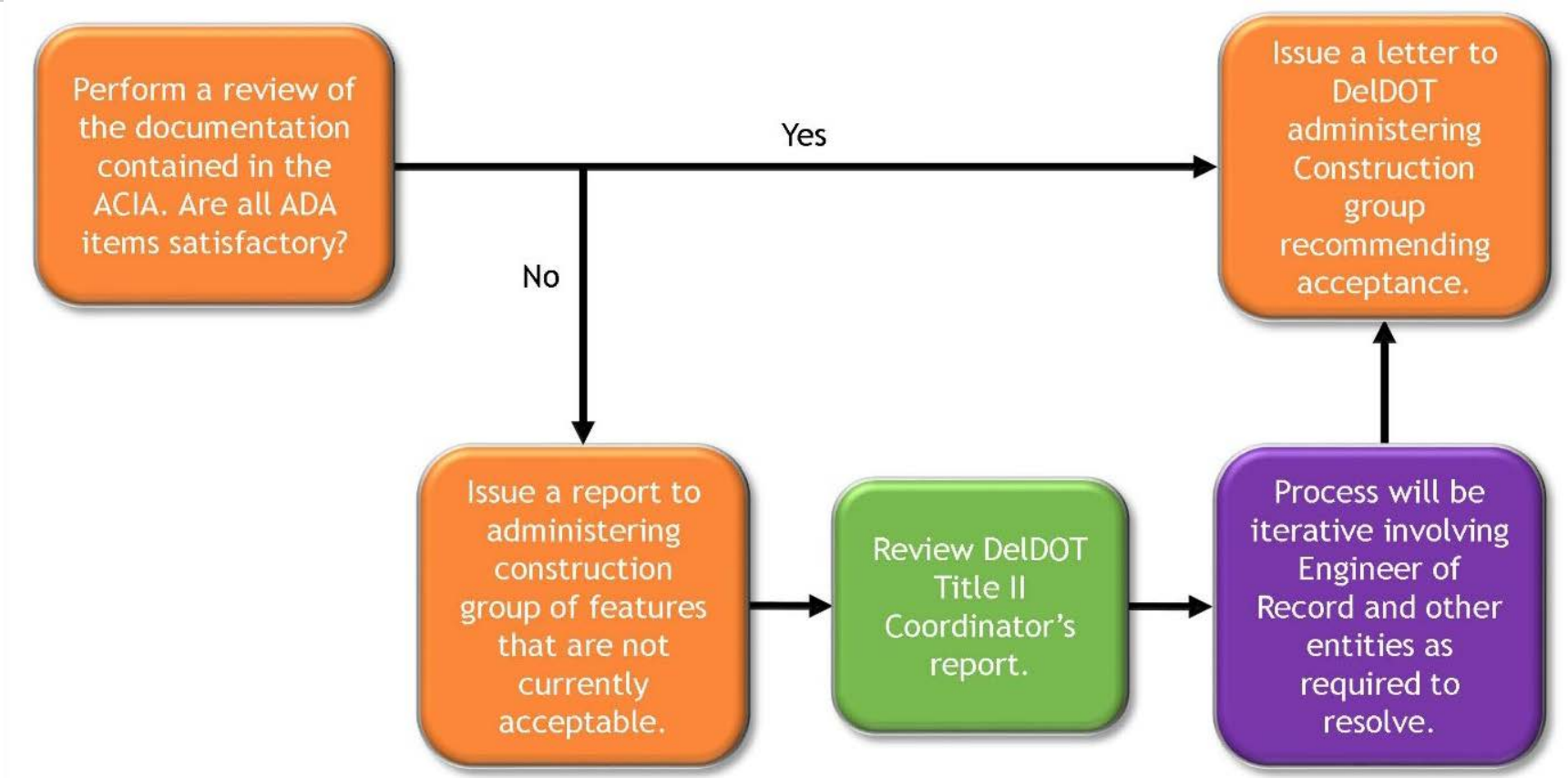


Figure 5

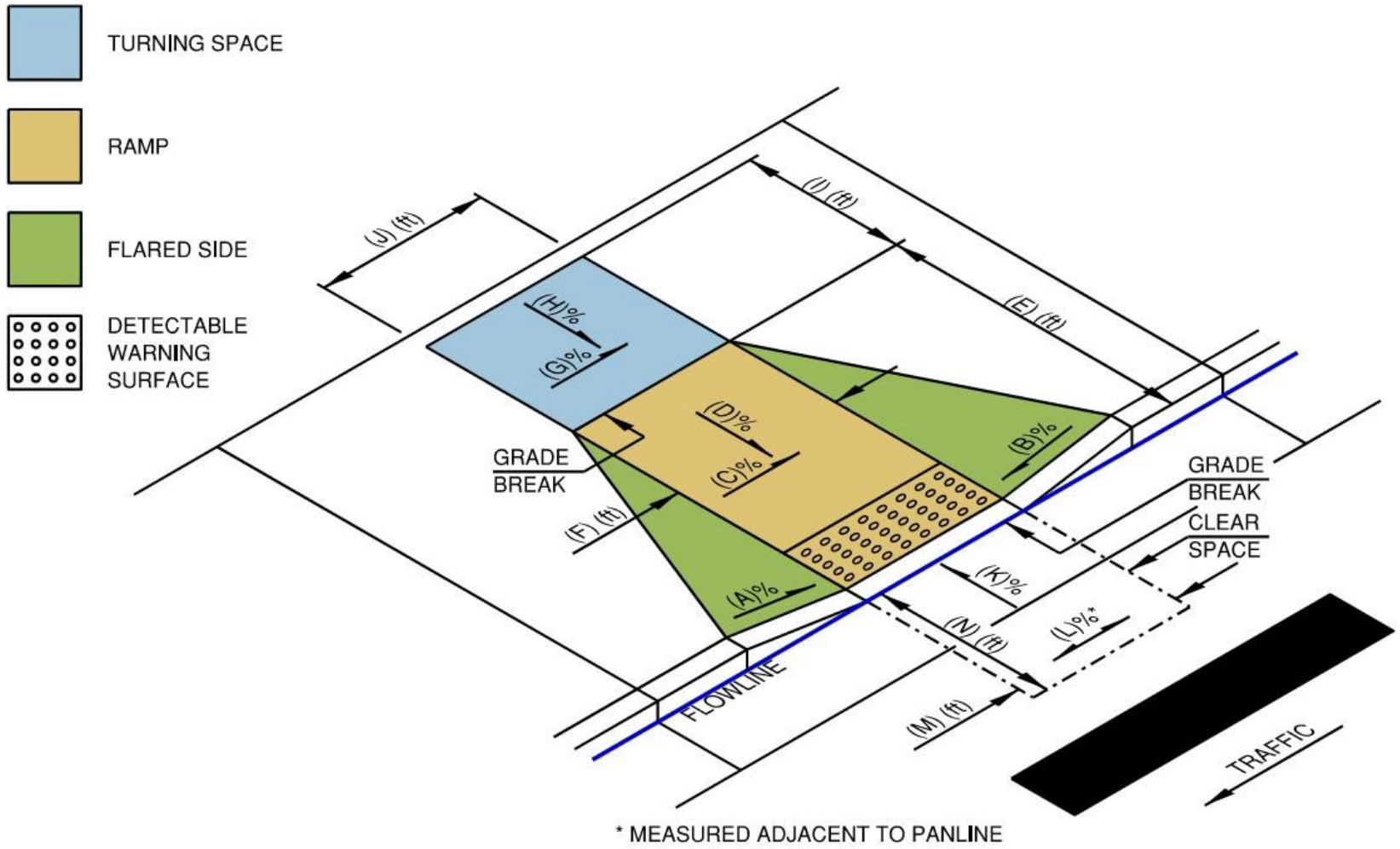
ADA Inspection



Acceptance Process



Facility Inspection



Facility Inspection

Dimension	Measure	Measurement Notes	Required
A (%)	Right Flare Slope	Record at back of the depressed curb	10.0% max.
B (%)	Left Flare Slope	Record at back of the depressed curb	10.0% max.
C (%)	Curb Ramp Cross Slope	Record at middle of ramp	Equal to the street or highway grade
D (%)	Curb Ramp Running Slope	Record at middle of ramp	8.3% max.
E (ft)	Curb Ramp Length	Record at middle of ramp	NA
F (ft)	Curb Ramp Width	Record at middle of ramp	4’-0” min.
G (%)	Turning Space Cross Slope	Record at middle of turning space	2.0% max.
H (%)	Turning Space Running Slope	Record at middle of turning space	2.0% max.
I (ft)	Turning Space Length	Record at middle of turning space	4’-0” min. if unconstrained. 5’-0” min. if constrained.
J (ft)	Turning Space Width	Record at middle of turning space	4’-0” min.
K (%)	Gutter Counter Slope	Record at middle of curb ramp	5.0% max.
L (%)	Roadway Grade	Record in front of the middle of the curb ramp	NA
M (ft)	Clear Space Width	Record in front of the bottom curb ramp grade break	4’-0” min.
N (ft)	Clear Space Length	Record in front of the bottom curb ramp grade break	4’-0” min.

Chapter 6:

Requests for Practical Exceptions

DelDOT

Chapter 6: Request for Practical Exceptions

- 28 CFR 35.151 allows for exceptions to meeting the standards. Must meet to maximum extent feasible.
- (2) *Exception for structural impracticability.*
- (i) Full compliance with the requirements of this section is not required where a public entity can demonstrate that it is structurally impracticable to meet the requirements. Full compliance will be considered structurally impracticable only in those rare circumstances when the unique characteristics of terrain prevent the incorporation of accessibility features.
- (ii) If full compliance with this section would be structurally impracticable, compliance with this section is required to the extent that it is not structurally impracticable. In that case, any portion of the facility that can be made accessible shall be made accessible to the extent that it is not structurally impracticable.
- (iii) If providing accessibility in conformance with this section to individuals with certain disabilities (*e.g.,* those who use wheelchairs) would be structurally impracticable, accessibility shall nonetheless be ensured to persons with other types of disabilities, (*e.g.,* those who use crutches or who have sight, hearing, or mental impairments) in accordance with this section.
- (b) *Alterations.* (1) Each facility or part of a facility altered by, on behalf of, or for the use of a public entity in a manner that affects or could affect the usability of the facility or part of the facility shall, to the maximum extent feasible, be altered in such manner that the altered portion of the facility is readily accessible to and usable by individuals with disabilities, if the alteration was commenced after January 26, 1992.

RPE Documentation Requirements

- RPEs are intended to become an archivable document that summarizes the challenges, the decision-making process, and the rationale used at a specific location.
- RPEs must be written so that a reader with limited knowledge of the location can come to the same reasonable conclusion.
- Write RPEs to be clear and succinct and sufficiently document the following items:
  - A discussion of the project scope,
  - The site-specific warrant(s) for the creation of an RPE,
  - The feature(s) that will not meet the applicable accessibility standards contained in this manual,
  - The alternative proposed for implementation as well as a discussion of any other alternatives that were considered,
  - The analysis and subsequent decision-making process that led to the selection of the alternative that is proposed for implementation, and
  - A discussion that summarizes how the proposed solution does not lead to a decrease in facility usability.

RPE Warrants

- **Pedestrian and Vehicular Safety** – A location where adopting the minimum standard contained in this manual could present a safety hazard to the public, both driver and/or pedestrian.
- **Operational Effects** – A location where adopting the minimum standard contained in this manual could severely hinder the operation of the transportation network.
- **Existing Site Topography** – A location where adopting the minimum standard contained in this manual is not practical due to the natural terrain or manmade surfaces of the adjacent street, sidewalk, or other adjacent land uses.
- **Right-of-Way Availability** – A location where adopting the minimum standard contained in this manual would require purchasing additional right-of-way and the project scope would not otherwise require the purchase of additional right-of-way.
- **Structures** – A location where adopting the minimum standard contained in this manual would result in detrimental impacts to existing structural facilities including bridges, foundations, buildings, vaults, or other underground structures.
- **Utilities** – A location where adopting the minimum standard contained in this manual would require the relocation of existing utility facilities and the relocation is considered infeasible.

RPE Warrants Continued

- **Drainage** – A location where adopting the minimum standard contained in this manual would be impractical due to the presence of adjacent drainage facilities, including to drainage structures and drainage pipe.
- **Environmental or Cultural Impacts** – A location where adopting the minimum standard contained in this manual would threaten or adversely affect any of the following: air quality, Clean Water Act permits, endangered species, underground storage tanks, and hazardous materials.
- **Historic Features and Historic Property Impacts** – A location where adopting the minimum standard contained in this manual would threaten, adversely affect, or destroy historically significant features of a qualified historic facility. In these cases, coordination must be performed with the State Historic Preservation Office or Advisory Council on Historic Preservation and compliance is required to the extent that it does not threaten or destroy historically significant features of the facility.
- **Other Physical Constraints** – A location where other physical constraints prevent adopting the minimum standard contained in this manual.

RPE Types

- Design Phase Request for Practical Exception
  - The goal is to have all required RPEs be documented during the design phase.
  - All required RPEs should be submitted to the Department at the Semi-Final Plan submission milestone or equivalent development point.
- Construction Phase Request for Practical Exception
  - During construction when it is determined that the minimum standards can not be met, a Construction Phase RPE is required.
  - Review intent of the design with the Design Team. If the Design Team concurs that the standard cannot be met, then an RPE is required.
  - Design Team will lead all investigations at this point.
- Administrative Request for Practical Exception
  - A process where the DelDOT Civil Rights Section creates and approves an RPE.
  - Only to be used at locations where an RPE does not fit readily into the design or construction phase RPEs.

RPE Documentation Requirements

RPE ID:

Request for Practical Exception (RPE)
Cover Sheet and Executive Summary

Contract Name: Contract No.:
Project Purpose: Include a brief statement of the project's proposed objective
Project Type: (from Chapter 2 of PAS Manual)
Pedestrian Facility Type: Examples include sidewalk, street level pedestrian connection, on-street parking etc.
Location Description: Provide description of location including intersecting roads.
Non-compliant element(s): Examples include cross slope, running slope, clear space, turning space etc.

Select all of the reasons why compliance is impracticable:

	Pedestrian and vehicular safety		Operational effects
	Existing site topography		Right-of-way availability
	Structures		Utilities
	Drainage		Environmental or cultural impacts
	Historic features and historic property impacts		Other physical constraints

Describe the constraints or features that made compliance impracticable:

Describe the constraints or features that made compliance impracticable in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

Describe the evaluation process:

Describe the evaluation process in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

Describe the recommended alternative and summarize how the alternative will not decrease the usability of the facility:

Describe the recommended alternative and summarize how the alternative will not decrease the usability of the facility in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

List the required and provided measurements for all non-compliant elements associated with the feature:

List the required and provided measurements for all non-compliant elements associated with the feature in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

Prepared by: _____ Date: _____

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____
Title II Coordinator

Select all enclosures included:

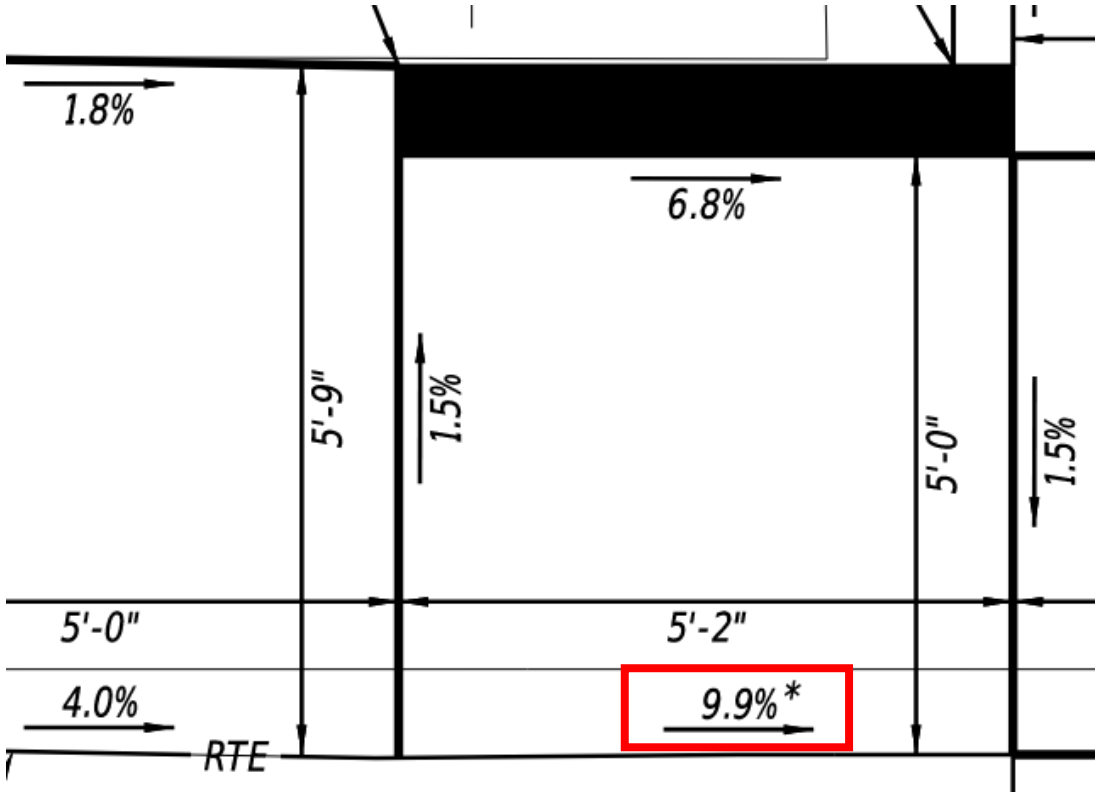
	Location map		Existing site photo(s)
	Schematic of existing location		Schematic of proposed design
	Additional written justification		Other (list below)

List other enclosures in 200 characters. Ensure list of enclosures remains inside the text box.

Future Considerations (to be completed by the DelDOT Title II Coordinator):

☐ This facility could not be made compliant within this project but should be added to the ADA Transition Plan to be made compliant in the future.

☐ The constraints causing non-compliance are not a condition of project scope. It cannot be made compliant in the foreseeable future.



Note: A request for practical exception is required and has been obtained for PC DT-01.

RPE Form

Contract Name: Contract No.:

Project Purpose: Include a brief statement of the project's proposed objective

Project Type: (from Chapter 2 of PAS Manual)

Pedestrian Facility Type: Examples include sidewalk, street level pedestrian connection, on-street parking etc.

Location Description: Provide description of location including intersecting roads.

Non-compliant element(s): Examples include cross slope, running slope, clear space, turning space etc.

Select all of the reasons why compliance is impracticable:

	Pedestrian and vehicular safety		Operational effects
	Existing site topography		Right-of-way availability
	Structures		Utilities
	Drainage		Environmental or cultural impacts
	Historic features and historic property impacts		Other physical constraints

Describe the constraints or features that made compliance impracticable:

Describe the constraints or features that made compliance impracticable in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

- General project information.
- Non-compliant feature description.
- Check boxes and description of reasons why compliance is impracticable.

RPE Form

Describe the evaluation process:

Describe the evaluation process in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

Describe the recommended alternative and summarize how the alternative will not decrease the usability of the facility:

Describe the recommended alternative and summarize how the alternative will not decrease the usability of the facility in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

List the required and provided measurements for all non-compliant elements associated with the feature:

List the required and provided measurements for all non-compliant elements associated with the feature in 500 characters or less. Strive to be as succinct and concise as possible. Supporting documentation may be enclosed when necessary.

Select all enclosures included:

	Location map		Existing site photo(s)
	Schematic of existing location		Schematic of proposed design
	Additional written justification		Other (list below)
List other enclosures in 200 characters. Ensure list of enclosures remains inside the text box.			

- This section is intended to show and document how compliance was attempted and to demonstrate how the location is not in violation of the federal requirements.
- List all enclosures included.

RPE Form

Prepared by: _____ Date: _____

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

Title II Coordinator

- Sign RPE form in accordance with Engineering Instructions PM-18-002 or PM-19-001.
- Prepared by: The person performing the design and preparing the RPE.
  - Can either be the Engineer of Record or a staff member under the supervision of the Engineer of Record.
- Reviewed by: a DelDOT staff member who is professionally competent in the subject matter.
  - Preferably a staff member in the same section.
- Approved by: Always DelDOT Title II Coordinator.

DOTS Project Accessibility Reviews

Delaware Department of Transportation

ADA Plan Review Checklist for Department Administered Contracts

The Department's Title II Coordinator or their appointed designee will provide a review of all Department administered contracts at major plan submission milestones for accessibility compliance in accordance with the current DelDOT PAS Manual. This review is to take place at both the Preliminary Plan and Semi-Final Plan Submission milestones. The Department's Title II Coordinator may also request a review take place at the Final Plan submission milestone based on the number of comments from previous reviews or the accessibility complexity of the design. This checklist has been created to promote a consistent and thorough plan review process that focuses on the ADA features associated with a proposed improvement.

Directions for Completing Checklist

- This checklist specifies the content that is to be checked by the Title II Coordinator or their designee for ADA compliance and consistency at major plan submission milestones.
- This checklist is to be completed by the DelDOT Title II Coordinator or their designee. The Office of Civil Rights will keep the completed checklist on file as an archival record and may provide to other entities at their sole discretion.
- The reviewer is to strikethrough checklist items that are either not applicable to the contract or have not been included in the reviewed documents due to the submission stage milestone requirements.
- All accessibility deficiencies discovered during the plan review are to be noted in the "Discussion of Plan Review Results" field and shall be carried over and documented on appropriate forms and/or using current enterprise systems.
- The content of the ADA Plan Review Checklist may be updated by the Office of Civil Rights periodically as practices change and as issues are discovered.

Project Information	
Contract Number:	
Contract Name:	
Designer/ Engineer of Record:	
DelDOT Project Manager:	
Plan Submission Milestone:	
Contact Name of Reviewer:	

Delaware Department of Transportation

ADA Plan Review Checklist for Department Administered Contracts

Review of Applied Standards		
This portion of the review is intended to verify that the proposed work will meet all required technical accessibility standards		
Does the contract meet the following PAS Manual standard or other relevant Department or Federal standard?	Yes	No
Typical Sections: Do the Typical Sections provide appropriate cross slopes?	☐	☐
Construction Plans: Are the pedestrian connections that are identified as a standard construction detail application able to be constructed with the standard construction detail identified?	☐	☐
Construction Plans: Will the project create any acceptable pinch points that will not violate the PAS Manual allowance?	☐	☐
Construction Plans: Will the project create any unacceptable pinch points that will violate the PAS Manual allowance?	☐	☐
Construction Plans: Will the proposed pedestrian access route violate any relevant surface requirements (firm, stable, slip-resistant, vertical surface discontinuities, horizontal openings)?	☐	☐
Construction Plans: Will the project violate any protrusion limit requirements or grouping of obstruction requirements (sign placement, street furniture, utilities etc.)?	☐	☐
Construction Plans: Does the project provide adequate provision for passing spaces?	☐	☐
Construction Details: Are all location specific construction details provided compliant?	☐	☐
Construction Phasing: Are adequate accommodations provided for temporary pedestrian access routes proposed during construction?	☐	☐
Profiles: Will any proposed crosswalk location violate cross slope standards?	☐	☐
Profiles: Will any proposed pedestrian facilities violate the running slope standards?	☐	☐
Grades and Geometrics: Will any proposed crosswalk locations violate running slope standards?	☐	☐
Grades and Geometrics: Do the plans propose any local sumps in the pedestrian access route?	☐	☐
Signing and Striping: Is the crosswalk striping coordinated with the pedestrian access route so that the clear space will be contained wholly within the crosswalk striping?	☐	☐
Signing and Striping: Does the crosswalk striping extend the width of the pedestrian connection?	☐	☐
Signing and Striping: Are traffic signs located in a way that will not obstruct the required Pedestrian Access Route's horizontal and vertical clearance requirements?	☐	☐
General: Are there any locations that require the generation of an RPE that is not disclosed on the plans?	☐	☐
Discussion of Plan Review Results:		

Department “Champions”

- Steve Sisson, PD North
- James Osborne, Planning
- Craig Blowers, Construction
- Thad McIlvaine, PD South
- Mike Beulah, Pave & Rehab
- Scott Neidert, Traffic
- Jantzen Burton, Engineering Support
- Maria Gieske, Engineering Support
- Brian Urbanek, M&O
- Bill Williamson, DTC
- Bryce Baker, Bridge

DelDOT Title II Coordinator: Tom Nickel

DOT.ADASupport@delaware.gov

Review Learning Objectives

- Understand the Department's ADA obligations.
- Discuss recent Department Standard, Guidance, policy updates.
- Understand how to apply the Department's updated PAS Manual.
- Discuss the application of several of the common elements in the public right-of-way.
- Discuss the Department's revised ADA inspection and Acceptance process.

Thank you!

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302-203-6093

mnauman@gpinet.com

DelDOT