

# **HOW SCDOT IMPLEMENTS *PROWAG- 2005* ON THE STREETS AND ROADS OF THE STATE SYSTEM**

ACEC

DECEMBER 7, 2016

TOM DODDS, PE

PEDESTRIAN AND BICYCLE ENGINEER, SCDOT

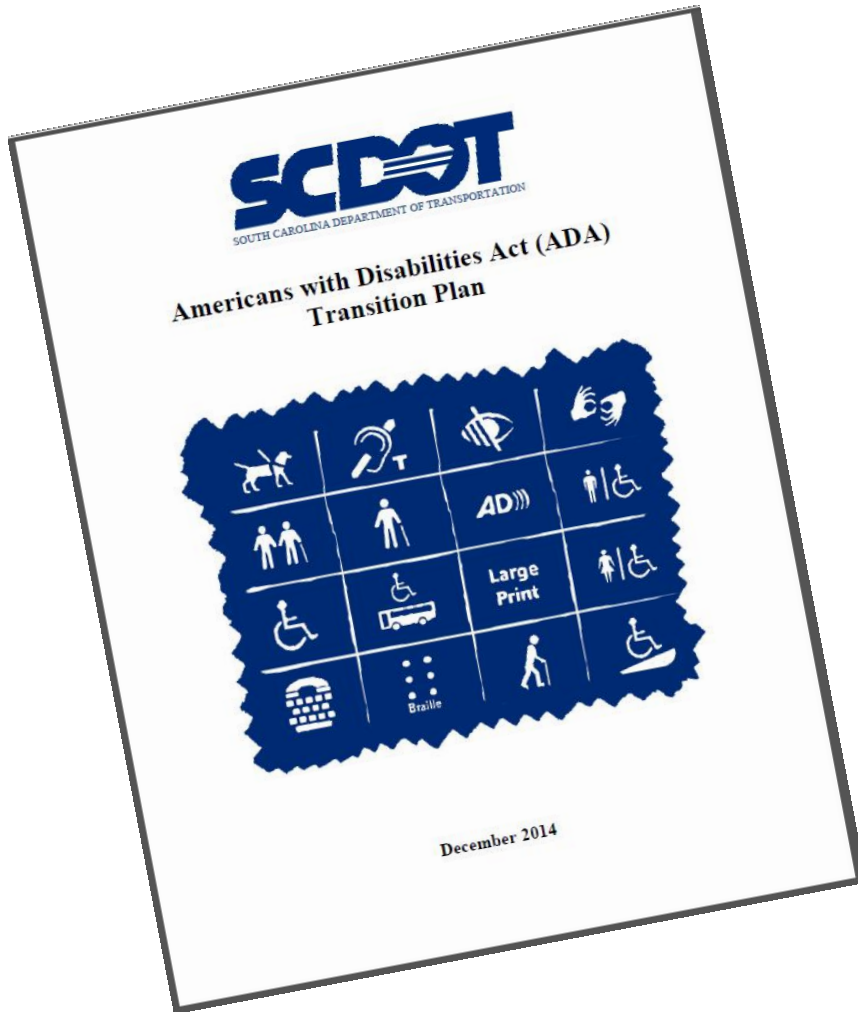
## Introduction /

# Signing of the Americans with Disabilities Act July 26<sup>th</sup>, 1990

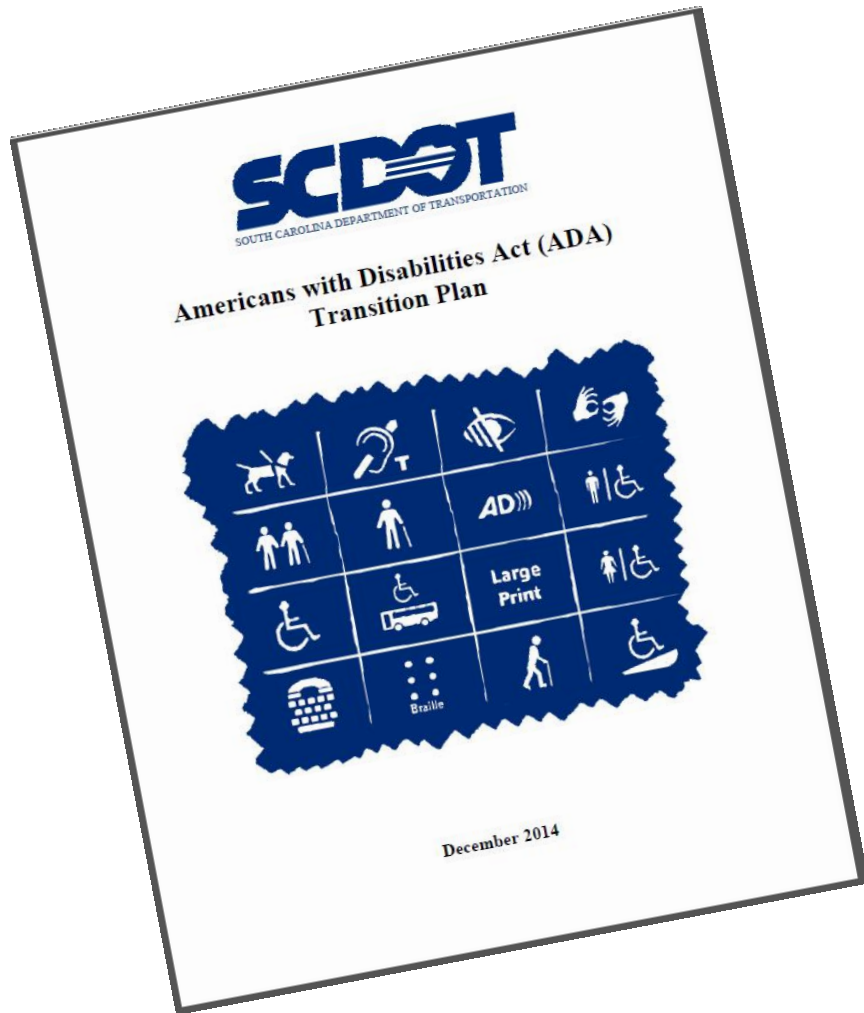


Introduction /

Originally written in 1994, SCDOT's ADA Transition Plan was updated in 2005 and most recently in 2014.



## Introduction /



The Transition Plan covers four areas.

- BUILDINGS & RELATED SITE ELEMENTS
- COMMUNICATIONS (INTERNET & TELECOMMUNICATIONS)
- PUBLIC RIGHT-OF-WAY
- MASS TRANSIT

## ADA Transition Plan Steps

- (1) designating an ADA Coordinator,
- (2) providing notice to the public about ADA requirements,
- (3) establishing a grievance procedure,
- (4) developing internal design standards, specifications, and details,
- (5) assigning personnel for the development of a Transition Plan and completing it,
- (6) approving a schedule and budget for the Transition Plan, and
- (7) monitoring the progress on the implementation of the Transition Plan.

## ADA Transition Plan Steps

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## Introduction /

- (4) developing internal design standards, specifications, and details,

### PUBLIC RIGHTS-OF-WAY

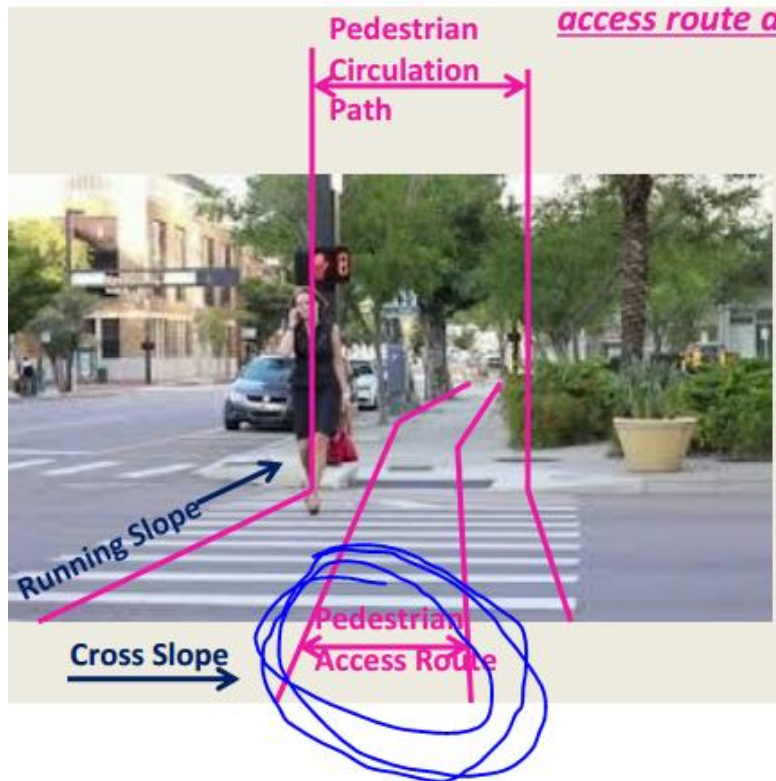
#### ADA Criteria

In the SCDOT's first Transition Plan (December 17, 1993) the Department adopted the draft language of Chapter 14 (Public Rights-of-Way) of the *Americans with Disabilities Act Accessibility Guidelines (ADAAG)*, as published in the *Federal Register* (Vol. 57, No. 245) of December 21, 1992, as the technical standard that this agency would follow in its efforts to comply with the American with Disabilities Act (ADA) in the public rights-of-way. While a chapter dealing with public rights-of-way, as of this writing some 15 years later, has yet to be included in the finalized body of the *ADAAG*, successive evolutions of a guidance document for public rights-of-way have been advanced. The SCDOT will follow the latest document available: the *United States Access Board's Revised Draft Guidelines for Accessible Public Rights-of-Way (November 23, 2005, hereinafter the 2005 Revised Draft Guidelines)* as its criteria. This document may be found on-line at: <http://www.access-board.gov/prowac/draft.htm>

That is— *PROWAG-2005*



# COVERED ITEMS:



## Pedestrian Access Route (PAR)

*But more on this later!*



**COVERED ITEMS:**



***Alternate*** Pedestrian Access Route

**COVERED ITEMS:**



Pedestrian crossing of streets and rail tracks

*Chapter R2 / Covered Items*

**COVERED ITEMS:**



<- Curb Ramps

Blended  
Transitions ->



***COVERED ITEMS:***



Accessible Pedestrian Signals (APS)

***COVERED ITEMS:***

Protruding Objects →





***COVERED ITEMS:***



Pedestrian signs



Chapter R2 / Covered Items

**COVERED ITEMS:**



**Street furniture**

*Chapter R2 / Covered Items*

***COVERED ITEMS:***

**Bus stops →**





*Chapter R2 / Covered Items*

**COVERED ITEMS:**



**On-street parking**

Chapter R2 / Covered Items

**COVERED ITEMS:**



ESCALATORS



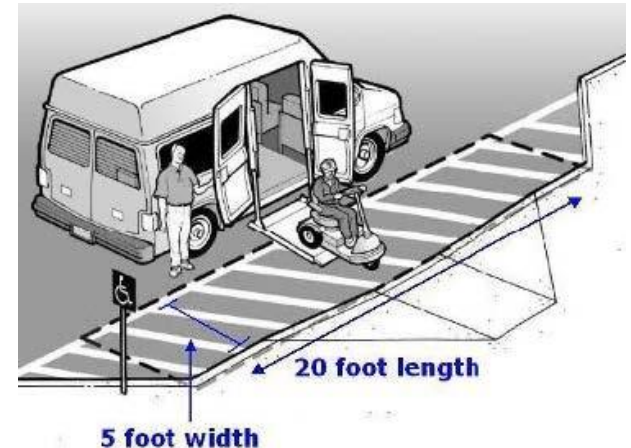
CALL BOXES



DOORS



TRANSIT PLATFORMS



PASSENGER LOADING ZONES

Miscellaneous other things

# PAR

Pedestrian Access Route

# Chapter 3

Primary technical chapter

R301 PAR



# PAR definition

...is the designated accessible route  
in the public right-of-way

# PAR definition

...is the designated accessible route  
in the public right-of-way

...occurs within, or coincides with  
a pedestrian facility

**PAR is not a physical element**

**PAR is not a physical element**

**PAR is a concept**

# PAR is the sum of the parts

sidewalk, curb ramp, ramp, cross walk, underpass, overpass—  
and sometimes the road shoulder

**Most elements described in  
PROWAG relate to PAR**



**Most elements described in  
PROWAG relate to PAR**

**Use PAR as an organizing element  
to get your arms around PROWAG**

# PAR Basics

# WIDTH SLOPE SURFACE

/ PAR can be boiled down to three concepts/

# PAR WIDTH

48" MINIMUM

---

# CROSS SLOPE



# RUNNING GRADE

=

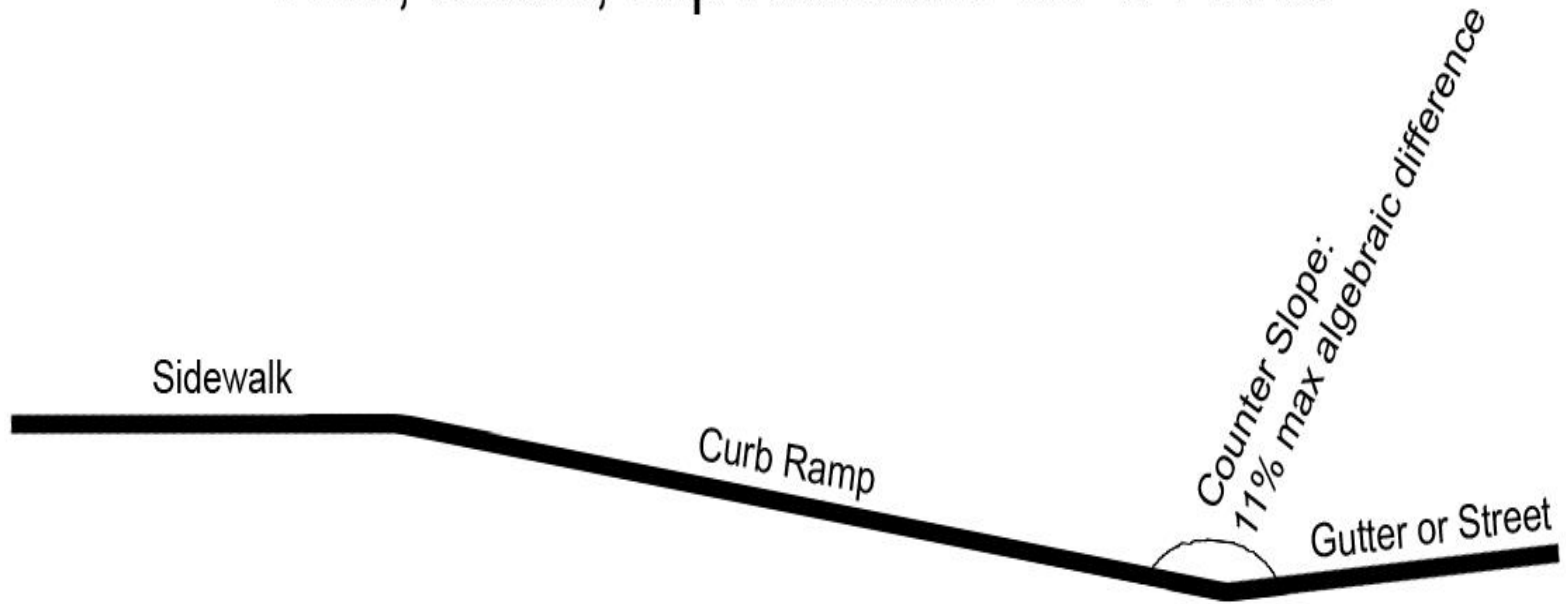
STREET GRADE/ HIGHWAY GRADE

/ Where the sidewalk PAR departs the street or highway, then it may not exceed 5%/



# SURFACE

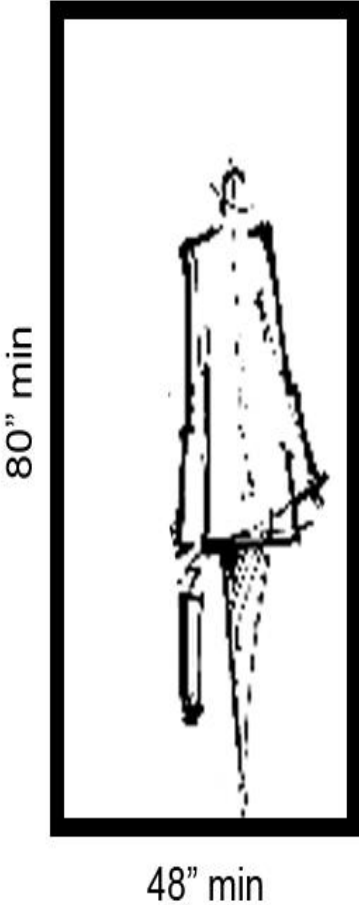
Firm, Stable, Slip Resistant .... & Planar



/ Grade breaks are perpendicular to the path of travel and occur at either end of a ramp/

**Expand on the basics....**

**WIDTH**

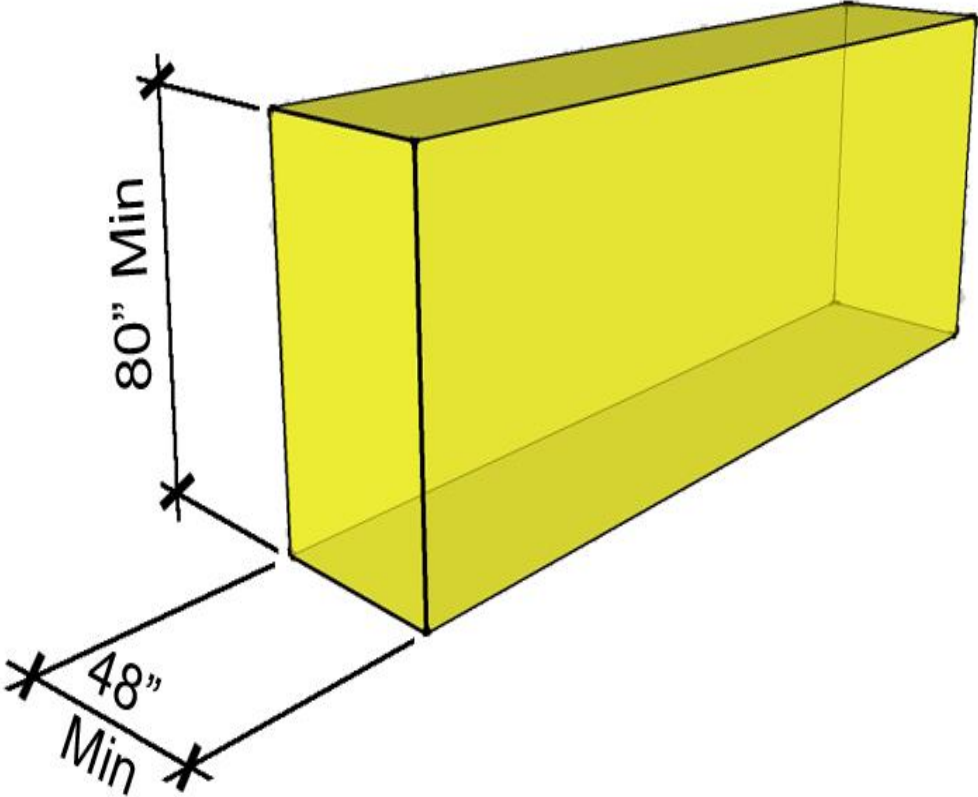


# Width

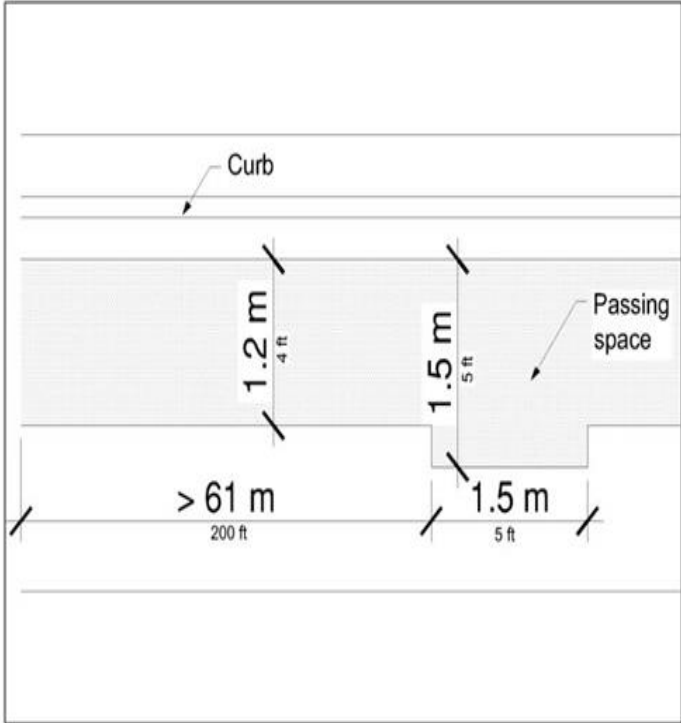
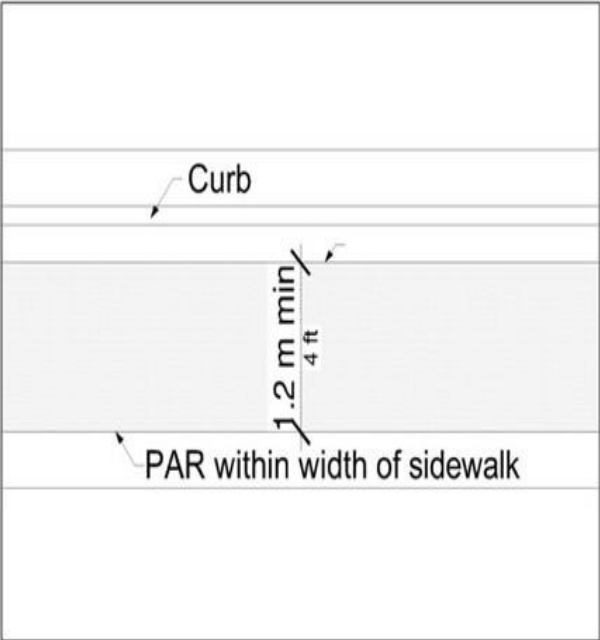
PAR is a volume

/ elements may not encroach or overhang into the PAR/

# Width

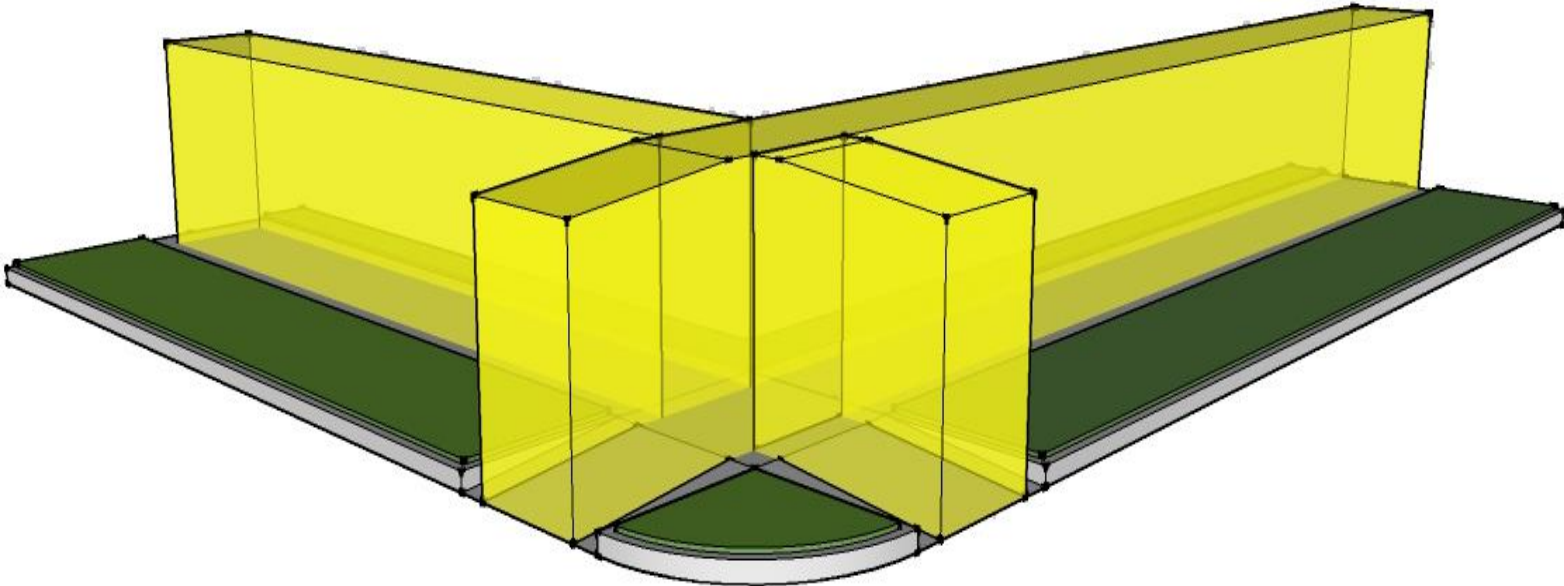


# Width

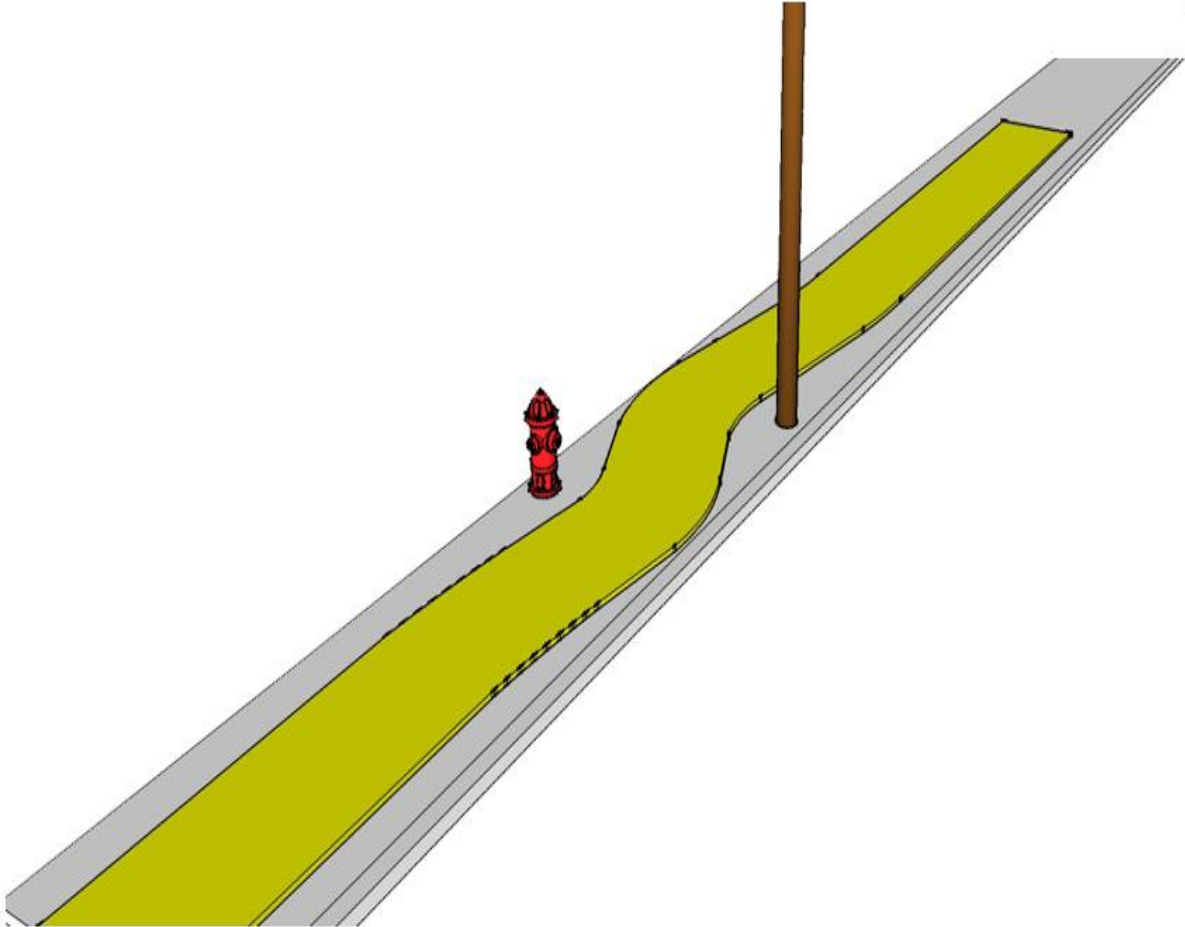


/ PROWAG's technical description of width/

# Width

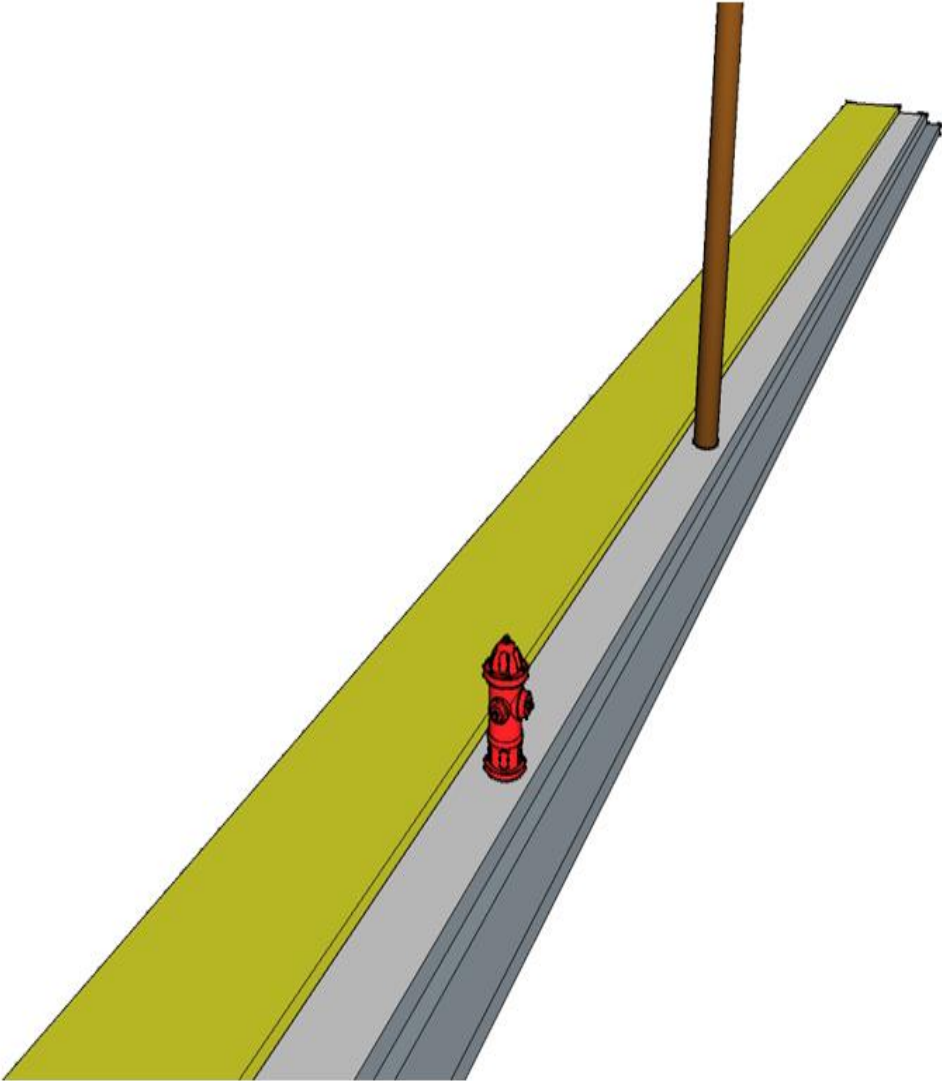


# Width



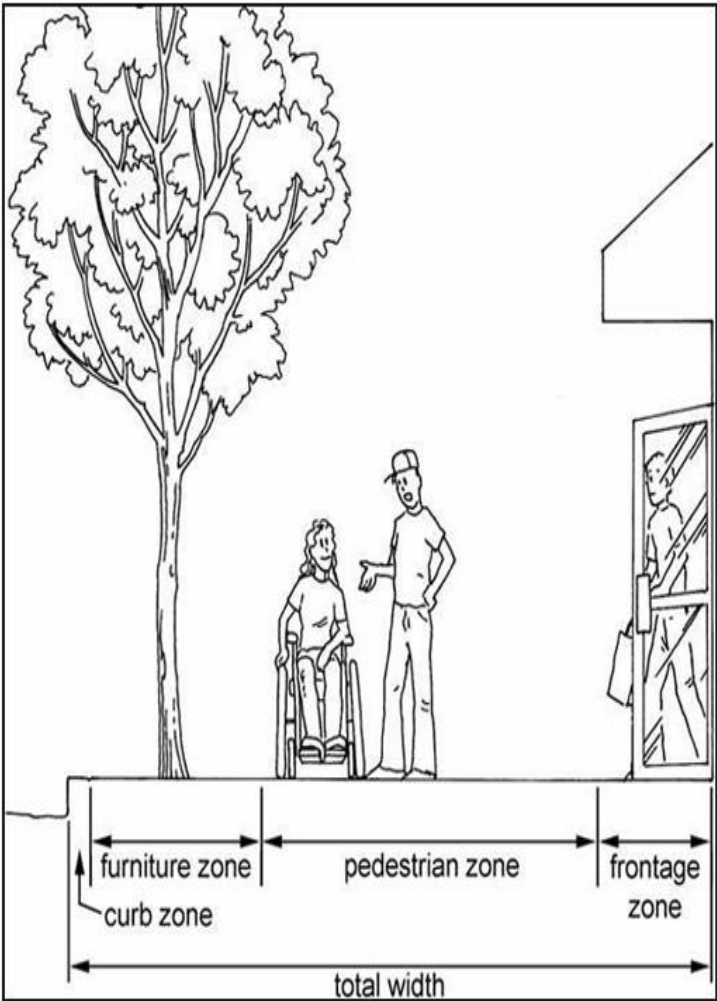


# Width



/ zone system/

# Width zones

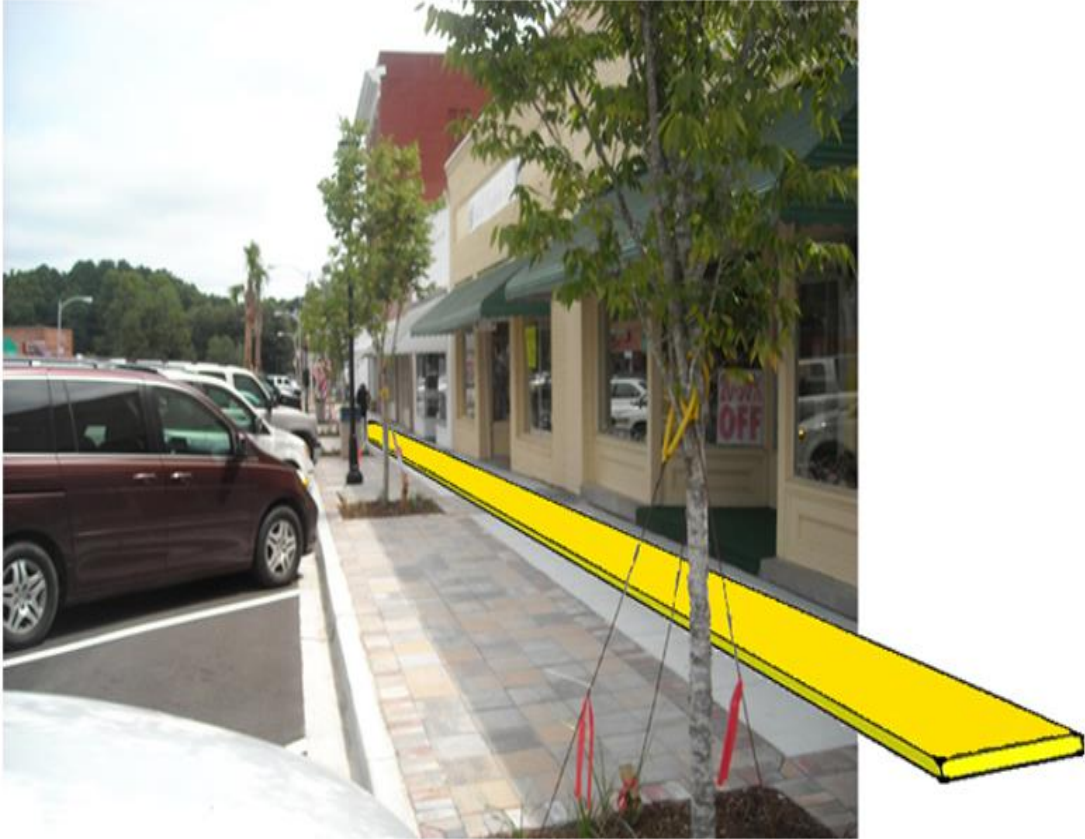


/ zones/ PAR does not have to comprise the full width of pedestrian circulation path/

# Width zones



# Width



/R202.3.1 recommends greater cross slope at street edge so that PAR will have lesser cross slope along building edge/  
/there are no width, slope or surface requirements outside of the PAR/ trees and street furniture occurs in the pedestrian circulation route/

**SLOPE**



Chapter R3/ R301.4.2 Street or Highway Grade

Slope  
= street grade



# Slope

supported slope = 5% maximum





# Slope

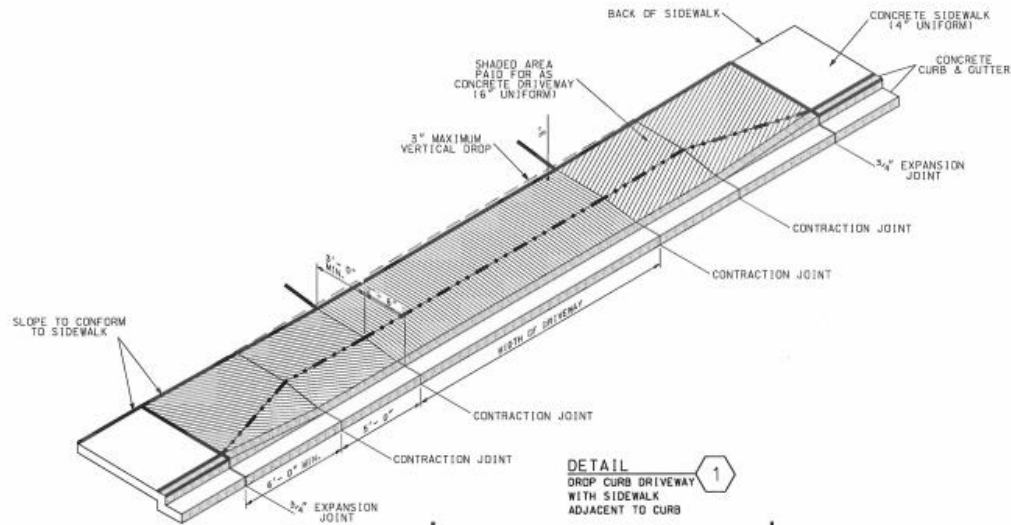
This path contained within highway border



# Slope Driveways



/standard drawings/ DWS/ driveways that function like street/ curb return/ stop control/



SLOPE TO CONFORM TO SIDEWALK

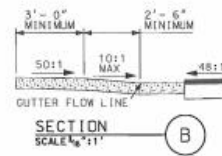
**DETAIL 1**  
DROP CURB DRIVEWAY WITH SIDEWALK ADJACENT TO CURB

**NOTES:**

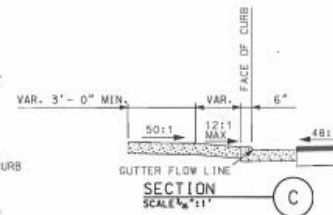
1. PROVIDE ADDITIONAL CONTRACTION JOINTS WITHIN DRIVEWAY WIDTH AS SPECIFIED IN SCDOT STANDARD SPECIFICATIONS, SECTION 720.
2. DRIVEWAYS TO BE CONSTRUCTED WHERE DESIGNATED BY THE RESIDENT.
3. CONCRETE CURB THROUGH DRIVEWAY TO BE MEASURED AND PAID FOR AS CURB & GUTTER EVEN WHEN CURB IS DROPPED.
4. ALL SIDEWALKS ARE TO BE CONSTRUCTED ON A 50:1 MAX. GROSS SLOPE. ALL OTHER SLOPES OF RAMPS AND DRIVEWAYS ARE TO BE A 12:1 MAX UNLESS NOTED OTHERWISE.
5. SIDEWALK SHALL BE BUILT IN ACCORDANCE WITH THE REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY (NOVEMBER 23, 2005).
6. METAL KEYWAY STYLE JOINTS MAY BE INSTALLED BETWEEN DRIVEWAY APPROACH AND SIDEWALK TO ACHIEVE LINE AND GRADE. KEEP METAL JOINT MATERIAL FLUSH WITH OR BELOW ELEVATION OF CONCRETE.
7. FOR CURB OR INTEGRAL CURB DETAILS SEE STANDARD DRAWING NO. 720-105-00.
8. THE PAY ITEMS SHALL BE:  
7205000 CONCRETE DRIVEWAY (6\"/>



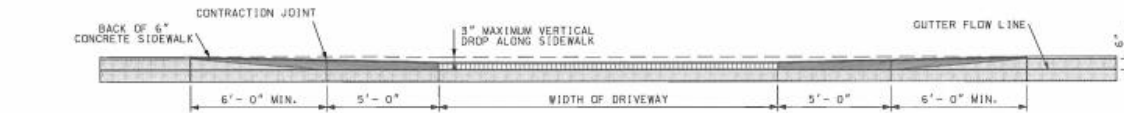
**DETAIL 2**  
SCALE 1/4\"/>



**SECTION B**  
SCALE 1/4\"/>

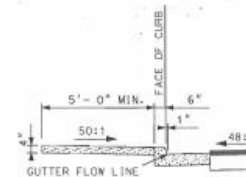


**SECTION C**  
SCALE 1/4\"/>



6' MINIMUM IS ONLY IF CURB LINE IS ON 0% GRADE. THIS FIGURE WILL VARY WITH GRADE AND SHOULD BE DETERMINED BY SHAPE OF ROADWAY.

**SECTION A**  
SCALE 1/4\"/>



**SECTION D**  
SCALE 1/4\"/>

**REFERENCES**

NATIONAL DOCUMENTS  
REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY (NOVEMBER 23, 2005)

SCDOT DOCUMENTS

RELATED DRAWINGS & KEYWORDS

PRECONSTRUCTION  
SUPPORT ENGINEER



*[Signature]*  
SIGNATURE  
MARCH 24, 2009  
DATE

6			
5			
4			
3			
2			
1			
0	3/2009	USD	GENERAL REVISIONS
#	DATE	CHK.	DESCRIPTION

**SCDOT**  
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DESIGN STANDARDS OFFICE  
955 PARK STREET  
ROOM 405  
COLUMBIA, SC 29201

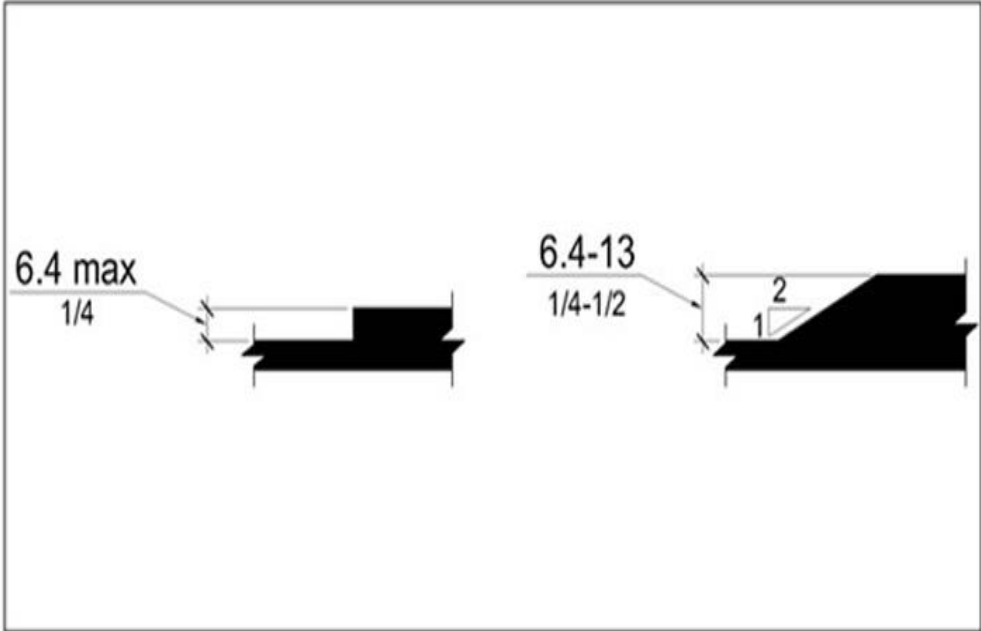
STANDARD DRAWING

DRIVEWAY WITH SIDEWALK ADJACENT TO CURB

720-405-00  
EFFECTIVE LETTING DATE: MAY, 2009

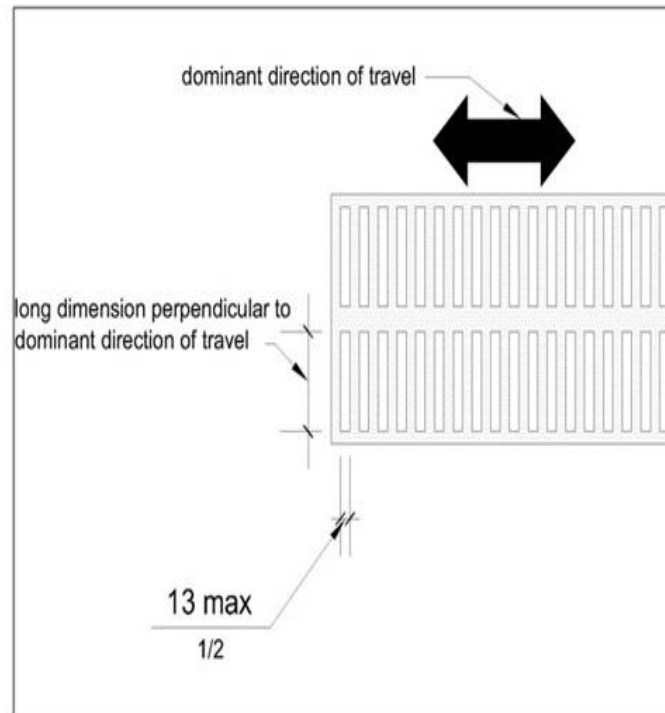
**SURFACE**

# Surface



/firm, stable, slip resistant/ vertical alignment planar/ surface discontinuities 1/2" max beveled/ 1/4" max vertical/

# Surface grates and joints



/ 1/2" sphere/ openings perpendicular to direction of travel/ railroad flange gaps 2.5" max non freight & 3" max freight/

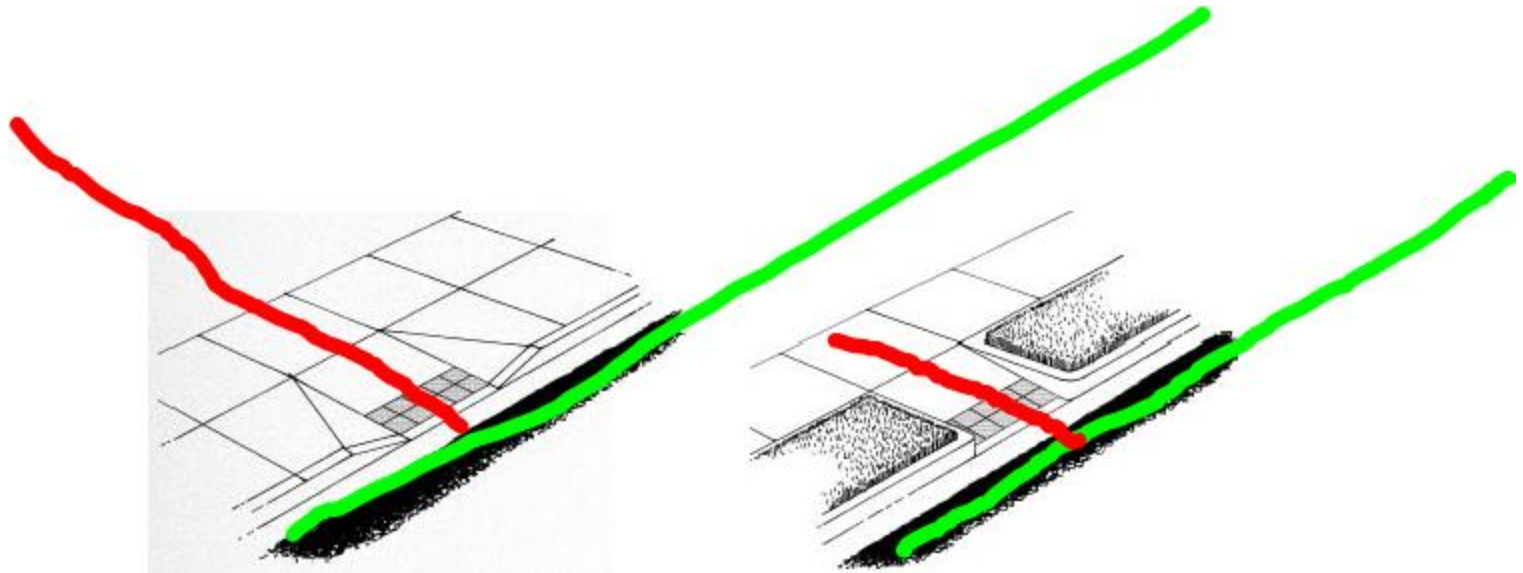
# Surface



/R303.3.3 — shall not be located on curb ramps, blended transitions, landings, or gutters within the PAR/

**And now for a  
few more items  
which are  
covered in  
*PROWAG-2005***

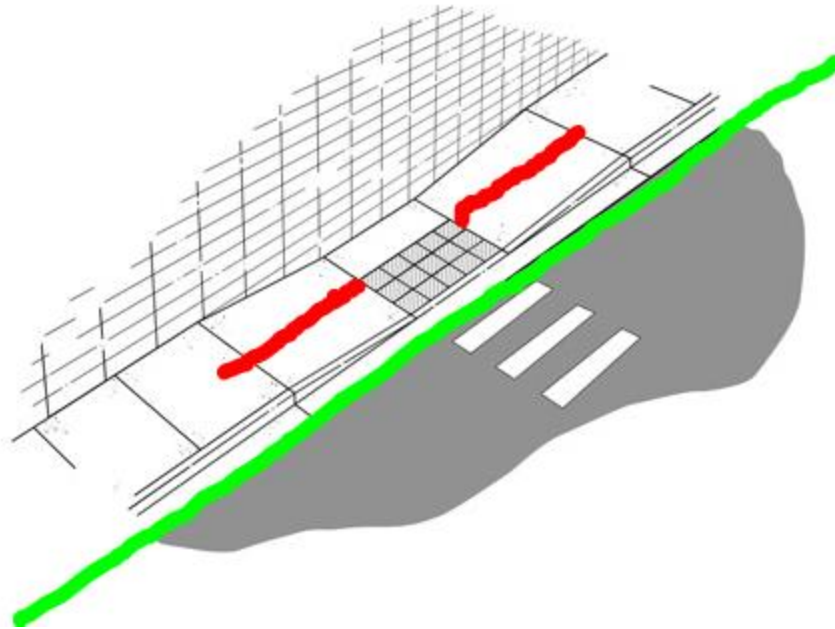
## PERPENDICULAR CURB RAMPS



The **RAMP (red line)** is PERPENDICULAR to the **CURB LINE (or EDGE OF PAVEMENT)** (green line).



## PARALLEL CURB RAMPS

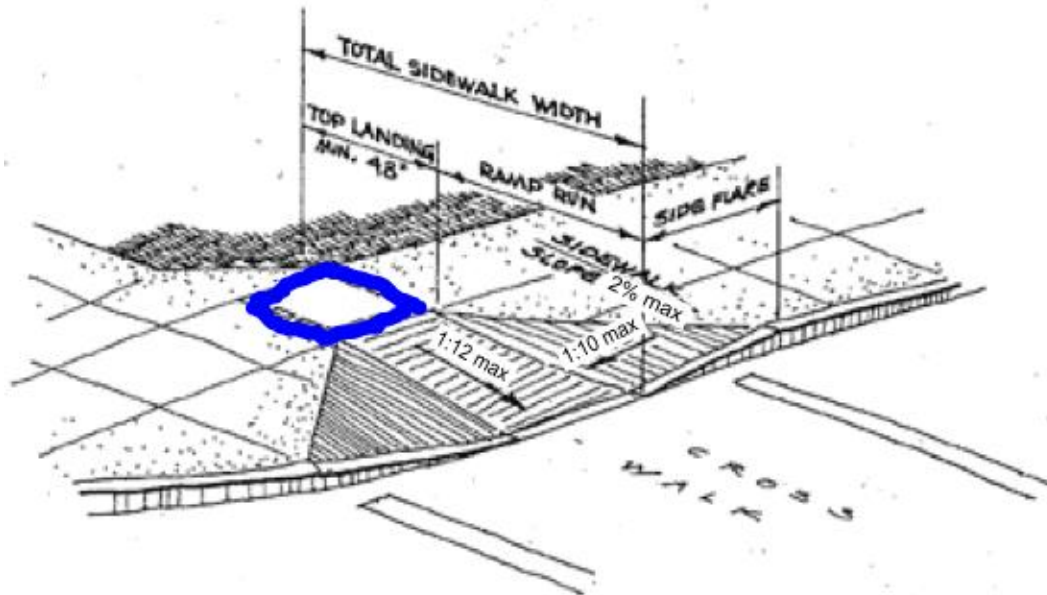


The **RAMP (red line)** is PARALLEL to the **CURB LINE (or EDGE OF PAVEMENT)** (green line).

## PERPENDICULAR & PARALLEL CURB RAMPS

### PERPENDICULAR CURB RAMPS

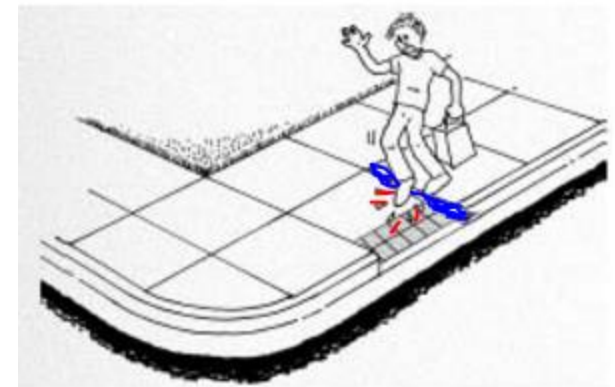
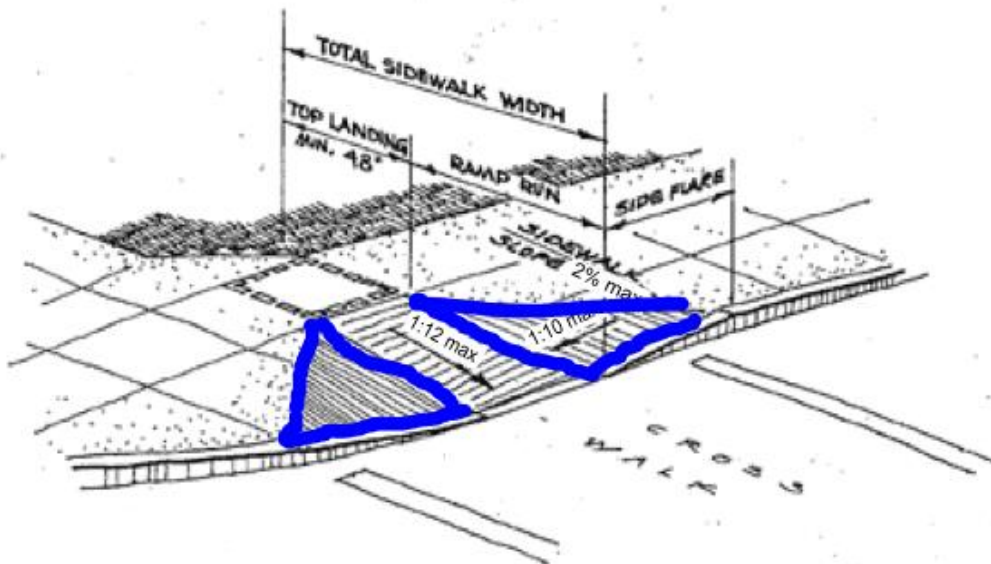
- A Landing, 4-ft x 4-ft MINIMUM, with a 2% cross slope MAXIMUM (any direction) is require at the TOP of the curb ramp.



## PERPENDICULAR & PARALLEL CURB RAMPS

### PERPENDICULAR CURB RAMPS

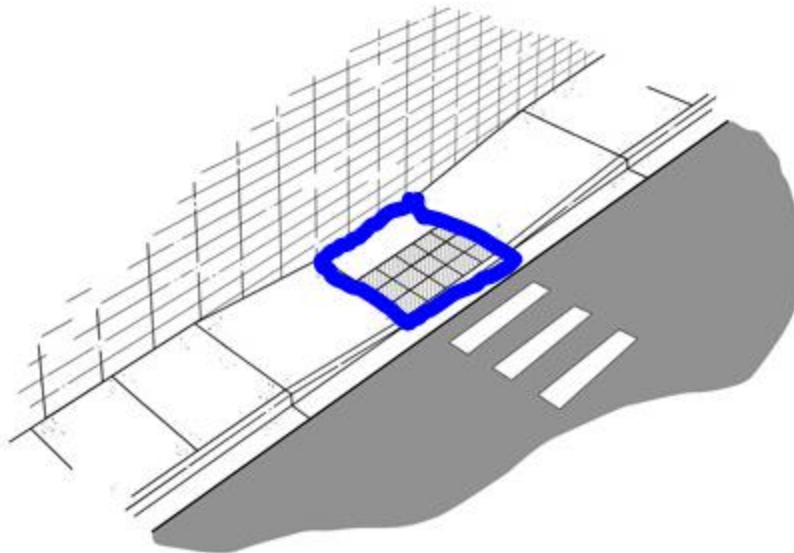
- Flared Sides (slope of 10% MAXIMUM) are required when the ramp can be 'crossed' to prevent users from tripping



## **PERPENDICULAR & PARALLEL CURB RAMPS**

### **PARALLEL CURB RAMPS**

- A Landing, 4-ft x 4-ft MINIMUM, with a 2% cross slope MAXIMUM (any direction) is required at the BOTTOM of the curb ramp.



## **PERPENDICULAR & PARALLEL CURB RAMPS**

### **Common elements to both:**

- Running slope between 5% and 8.3%
- In achieving the least possible slope, a length of ramp is capped at 15.0 feet
- Cross slope is 2.0% MAXIMUM

## **BLENDED TRANSITIONS**

A RAMP that is not a RAMP (less than 5% slope).



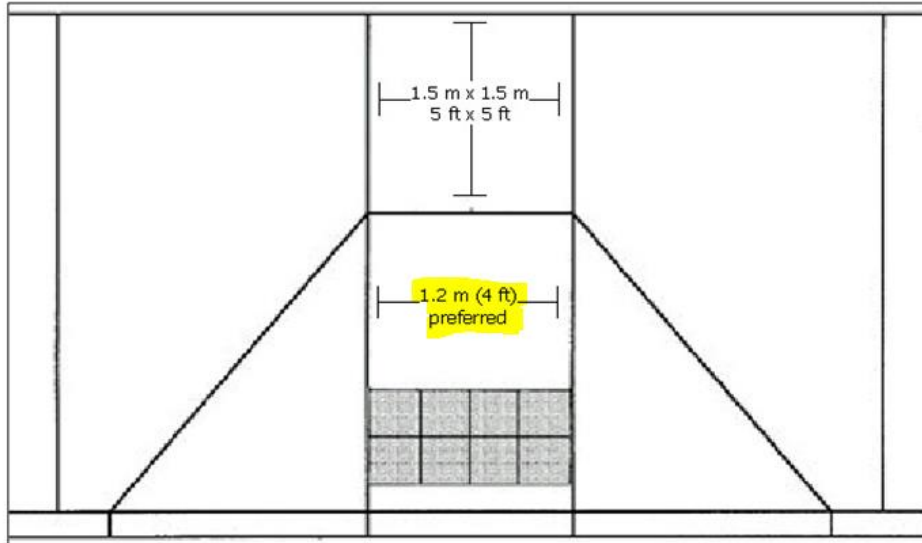


# IV. *PROWAG-2005*, Chapter R3

## Curb Ramps (& Blended Transitions) R303

*What they all are to have in common:*

- Minimum width of **4 feet**



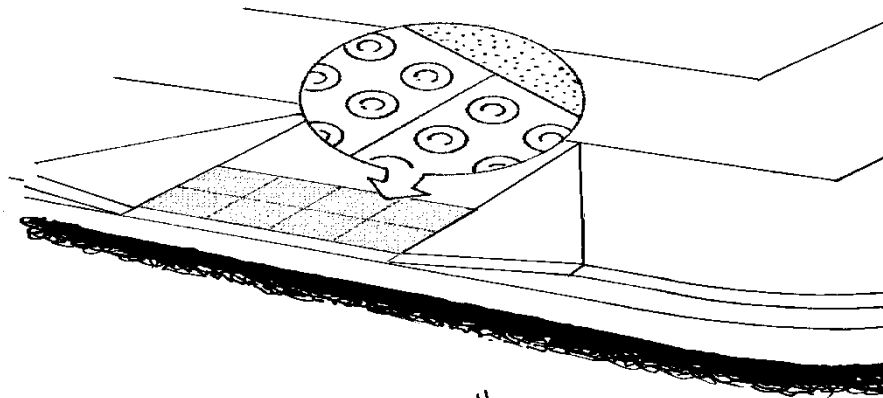


# IV. *PROWAG-2005*, Chapter R3

## Curb Ramps (& Blended Transitions) R303

*What they all are to have in common:*

- Detectable warning surface (DWS)



# IV. PROWAG-2005, Chapter R3

## Curb Ramps (& Blended Transitions) R303

*What they all are to have in common:*

- Surface requirements



STABLE, FIRM AND  
SLIP-RESISTANT,  
NO GRATINGS,  
ACCESS COVERS,  
GRADE BREAKS,  
OR OTHER  
APPURTENANCES

NO VERTICAL DISCONTINUITIES >0.25 INCH

NO SURFACE DISCONTINUITIES >0.50 INCH

# IV. *PROWAG-2005*, Chapter R3

## Curb Ramps (& Blended Transitions) R303

*What they all are to have in common:*

**NO BRICKS OR  
OTHER UNIT  
PAVERS ON  
RAMPS**

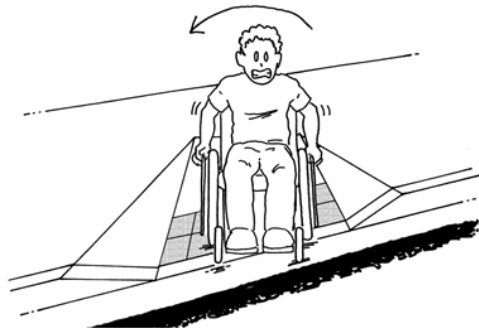


# IV. PROWAG-2005, Chapter R3

## Curb Ramps (& Blended Transitions) R303

What they all are to have in common:

### GRADE BREAKS

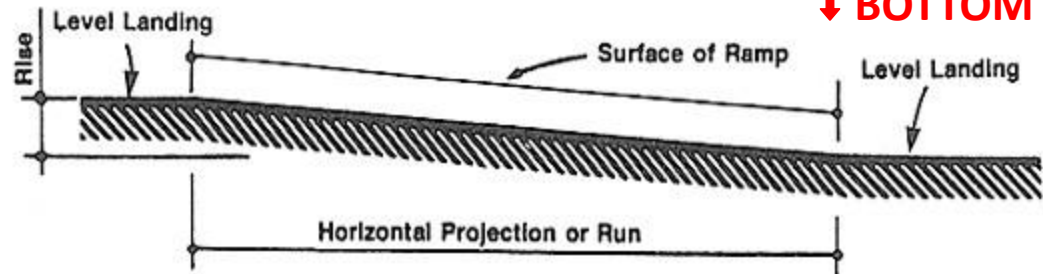


GRADE BREAKS MUST BE PERPENDICULAR TO THE DIRECTION OF TRAVEL—TO THE CURB

ONE AT  
THE  
↓ TOP

**NONE**  
IN THE MIDDLE

ONE AT THE  
↓ BOTTOM



Slope	Maximum Rise		Maximum Horizontal Projection	
	in	mm	ft	m
1:12 to < 1:16	30	760	30	9
1:16 to < 1:20	30	760	40	12

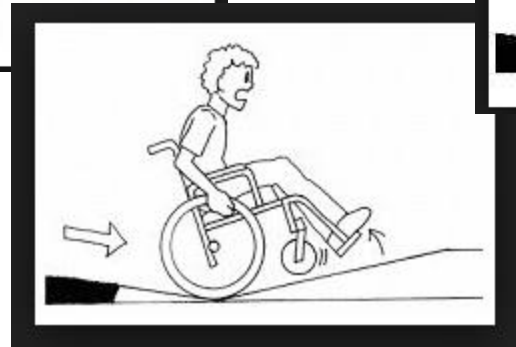
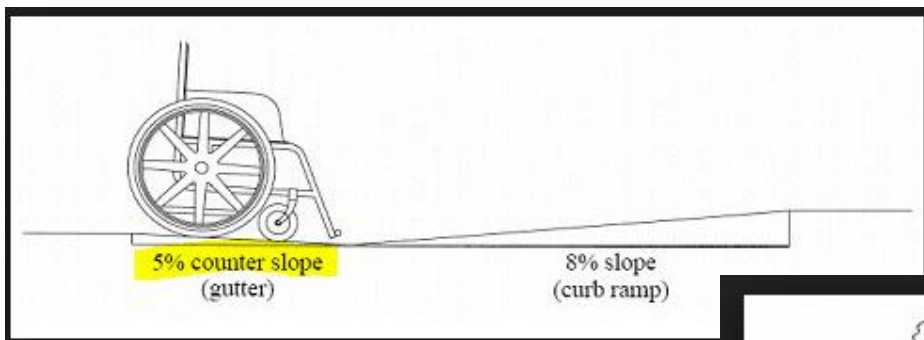


# IV. PROWAG-2005, Chapter R3

## Curb Ramps (& Blended Transitions) R303

*What they all are to have in common:*

**COUNTER SLOPES LIMITED TO 5%**



# IV. *PROWAG-2005*, Chapter R3

## Curb Ramps (& Blended Transitions) R303

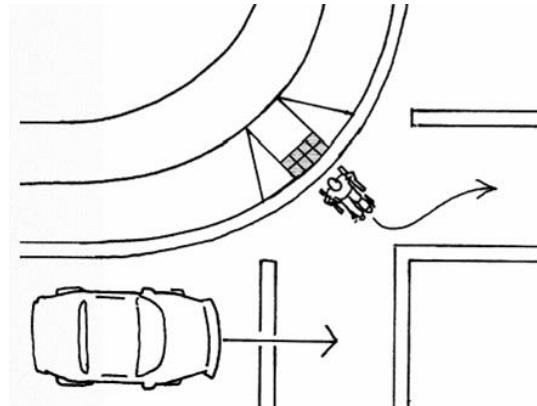
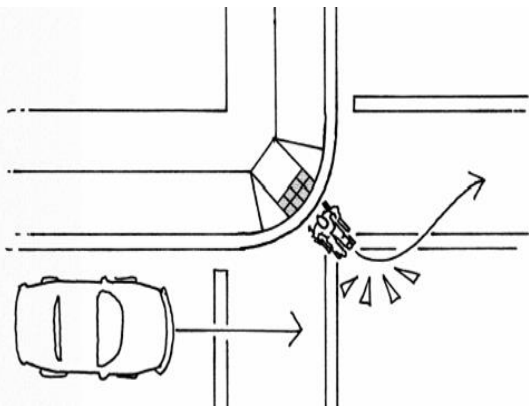
What they all are to have in common:

**CLEAR SPACE 4 FT MIN X 4 FT MIN**

*BEYOND* the Curb Face;

*INSIDE* the Crosswalk lines;

*OUTSIDE* the Parallel Vehicle lines(path of travel)



# CLEAR SPACE 4 FT MIN X 4 FT MIN



# IV. *PROWAG-2005*, Chapter R3

## Detectable Warning Surfaces (DWS) R304

- Surface details (dome size, spacing, etc.) reviewed by Roadway Standards Engineer.
- *SCDOT Standard Drawings* provide guidance on various applications.
- Those used on our jobs or our R/W must be on the SCDOT Qualified Products List (QPL).

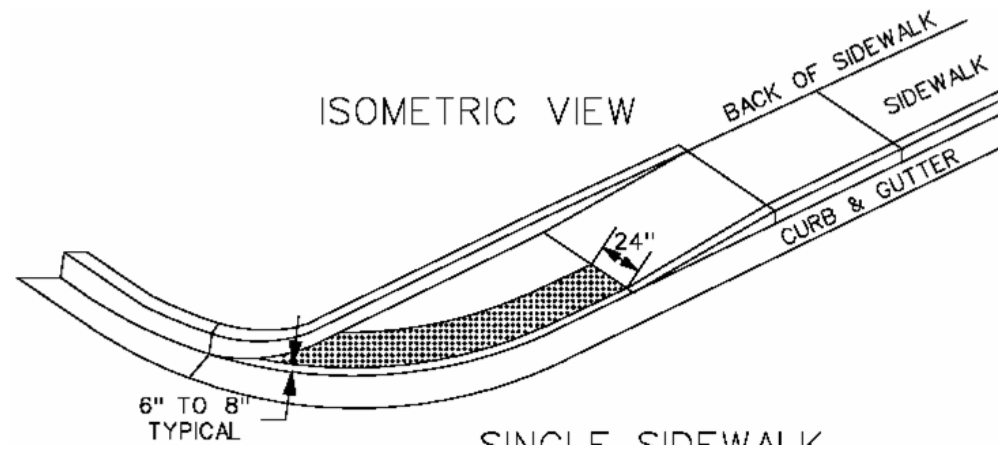
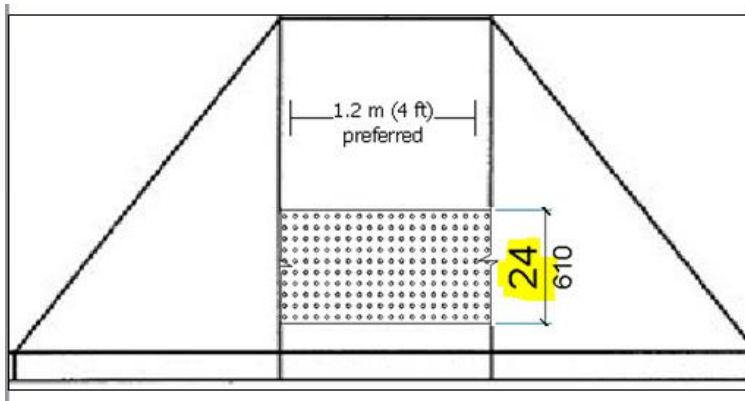






# IV. PROWAG-2005, Chapter R3

## Detectable Warning Surfaces (DWS) R304



DWS extends for 24 inches in the direction of the ramp across the entire width (where there is zero curb height)

# IV. *PROWAG-2005*, Chapter R3

## Detectable Warning Surfaces (DWS) R304

Must contrast visually with adjacent surfaces either light-on-dark, or dark-on-light.

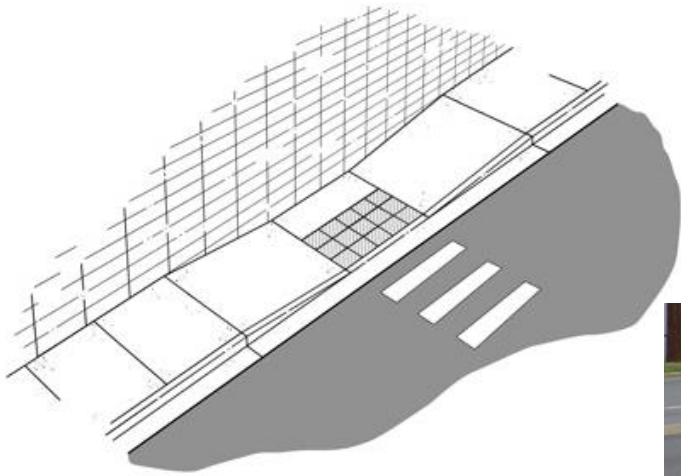




# IV. *PROWAG-2005*, Chapter R3

## Detectable Warning Surfaces (DWS) R304

← CROSSWALKS MUST LEAD TO A RAMP

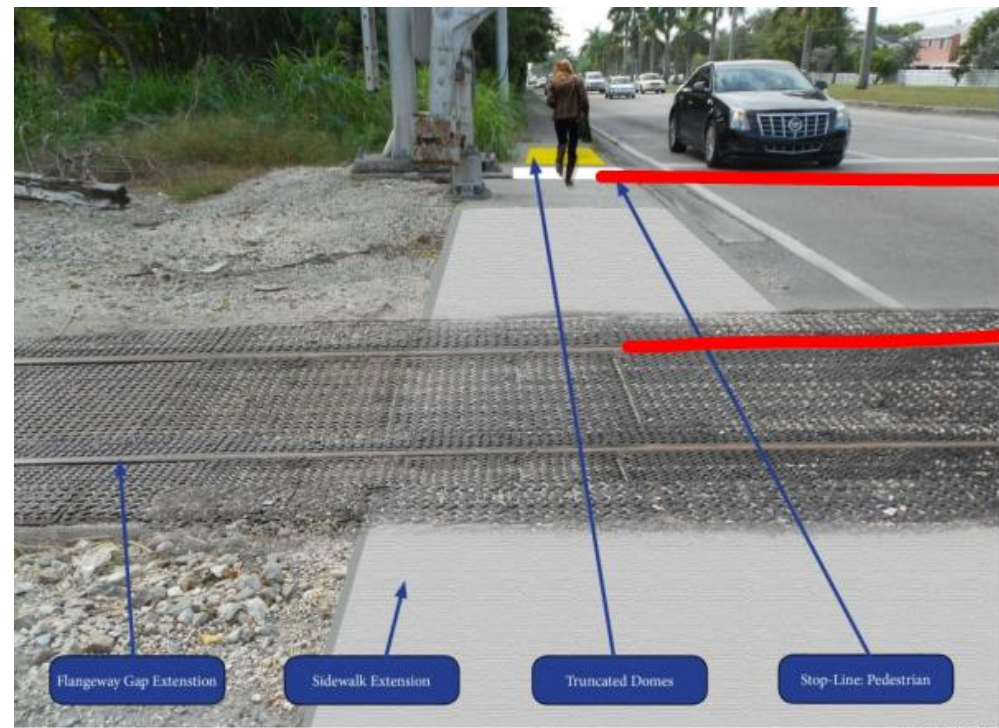


DWS ARE NOT INTENDED  
TO SHOW CROSSWALK  
LOCATIONS →

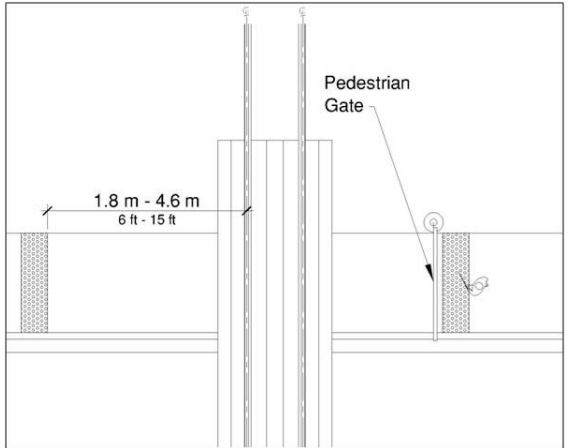


# IV. PROWAG-2005, Chapter R3

## Detectable Warning Surfaces (DWS) at Grade Crossings R304



6 FT MIN



AT RAIL GRADE CROSSINGS INSTALL DWS SUCH THAT NEAREST EDGE OF DWS IS 6 FEET MIN, 15 FEET MAX FROM NEAREST RAIL.

# IV. *PROWAG-2005*, Chapter R3

## Detectable Warning Surfaces (DWS) R304

### DWS AT **DRIVEWAYS**?

- ALWAYS? --NO
- NEVER? --NO
- SOMETIMES --WHEN THE DRIVEWAY MIGHT FUNCTION AS A PRIVATE STREET (SIGNALIZATION LIKELY; PUBLIC WOULD BE HARD PRESSED TO CALL IT A DRIVEWAY)





# IV. *PROWAG-2005*, Chapter R3

## Pedestrian Crossings R305



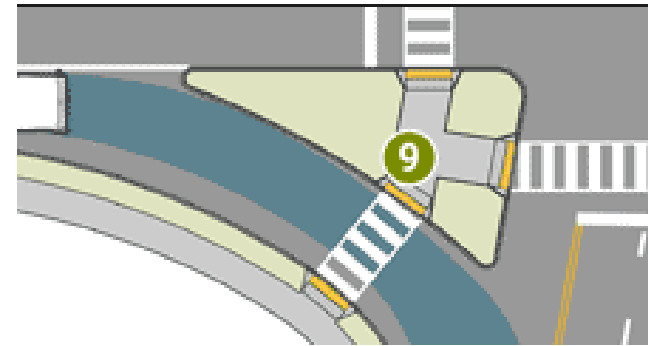
WHEN MARKED, CROSSWALKS MUST BE A MINIMUM OF 6 FEET WIDE. IDEALLY, THE WIDTH OF THE WALKWAYS THAT IT CONNECTS.

# IV. *PROWAG-2005*, Chapter R3

## Pedestrian Crossings R305

### MEDIANS AND PEDESTRIAN REFUGE ISLANDS

- Shall contain the PAR
- To provide 'refuge' island must be 6 –feet wide in direction of pedestrian travel.
- If a genuine 'refuge' island, entry and exit points must have DWS at the curb line.



# IV. *PROWAG-2005*, Chapter R3

## Pedestrian Crossings R305

### PEDESTRIAN OVERPASSES AND UNDERPASSES

- Shall contain a PAR
- If the approach slope exceeds 5%, it shall be a RAMP (details later), or
- You can provide an ELEVATOR or PLATFORM LIFT





# IV. *PROWAG-2005*, Chapter R3

## Pedestrian Crossings R305

### ROUNDBABOUTS

- Where pedestrian facilities provided, they shall **contain a PAR**
- **SEPARATION**— where crossing is not desired, a *detectable edge* must be provided
  - This can be a CURB, or
  - If other than a curb is used (e.g., chains, fencing, railings), a **BOTTOM ELEMENT**, 15 inches **MAXIMUM** above the PAR, is required.
- **SIGNALS**—at multilane pedestrian crossings (where 2 or more lanes exist between points of refuge) a pedestrian activated signal complying with R306 shall be provided for each segment of such crosswalk, including splinter islands. Signals shall clearly identify which crosswalk segment is being served.

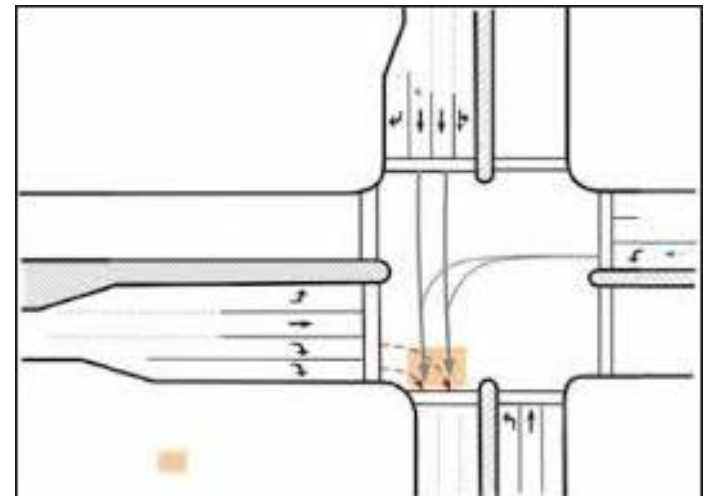


# IV. *PROWAG-2005*, Chapter R3

## Pedestrian Crossings R305

### CHANNELIZED TURN LANES AT INTERSECTIONS— THE REQUIREMENT FOR A SIGNAL

- a. Where PAR is present both sides (a crosswalk exists)
- b. And where pedestrian would be crossing two lanes., and
- c. Where there are pedestrian signal indications, a pedestrian actuated signal must be provided



# IV. PROWAG-2005, Chapter R3

## Street Furniture R307

**Street Furniture** refers to the sidewalk equipment or furnishings (used by the public).

Such as:



Mailboxes



Benches & Bus Shelters



Kiosks



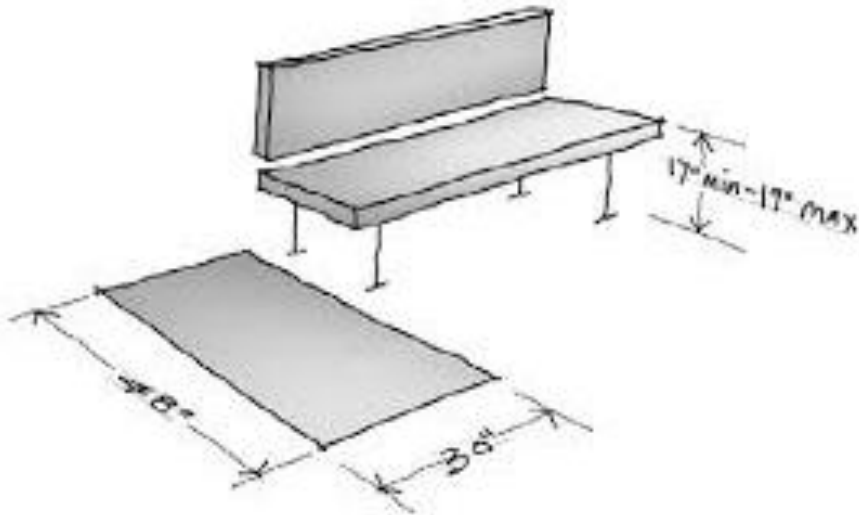
Bollards

# IV. *PROWAG-2005*, Chapter R3

## Street Furniture R307

### BENCHES (R307.6.3)

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← where benches are placed without tables, at least 50% of them (but no < 1) shall provide a space at the end for a wheel chair; AND

...at least 50% (but no < 1) shall have a seat height at the front edge of 17 inches MINIMUM and 19 inches MAXIMUM.



# IV. *PROWAG-2005*, Chapter R3

## On-Street Parking R308

### Parallel (ADA) Spaces

with regular(<14ft) sidewalks

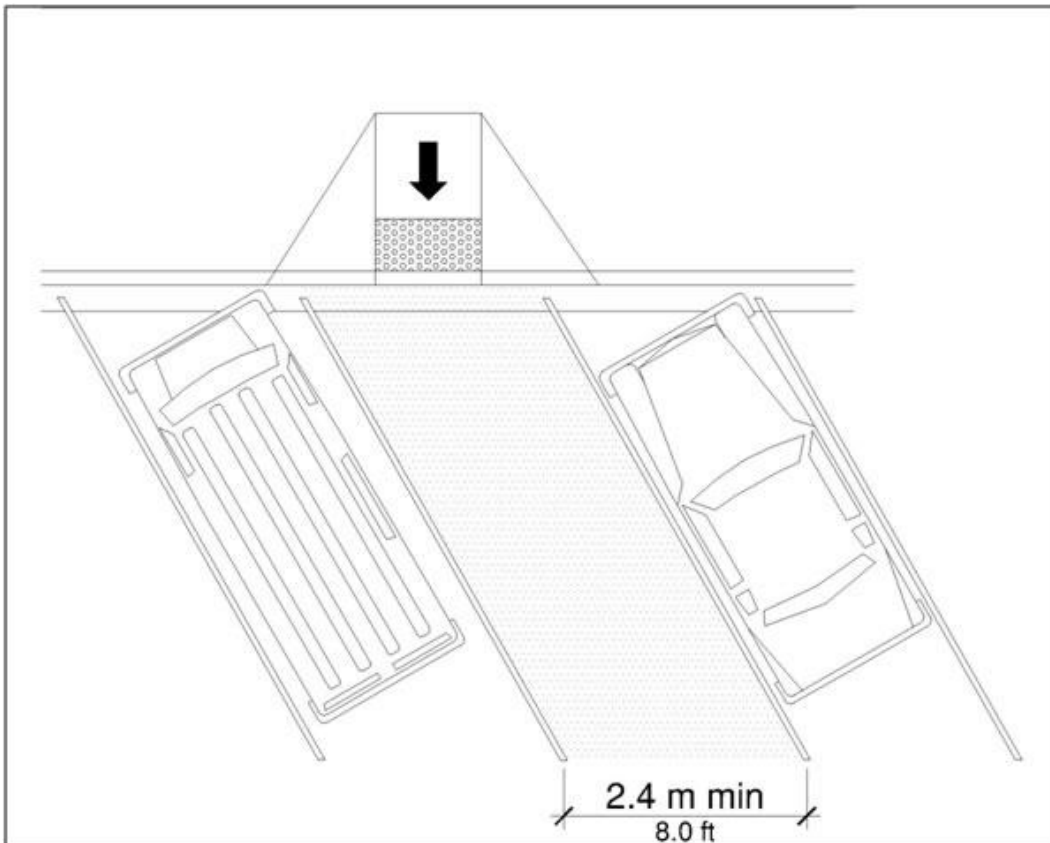
- No access aisle is required
- The space shall be at either end of the block face.



# IV. *PROWAG-2005*, Chapter R3

## On-Street Parking R308

### Perpendicular or Angled (ADA) Spaces

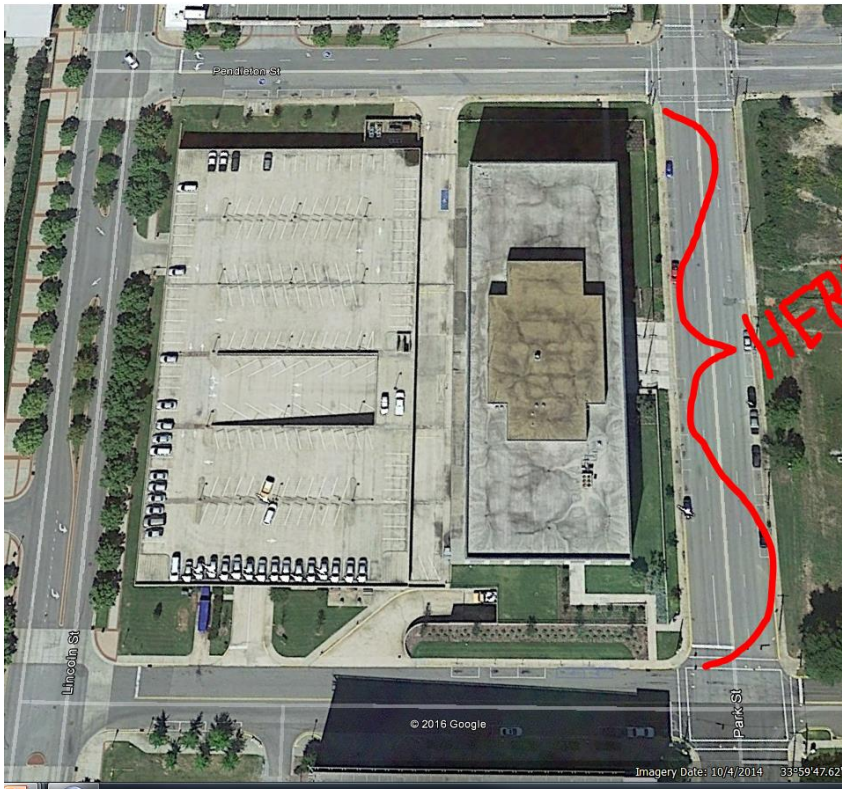


- shall have an 8-foot MINIMUM width access aisle at street level the full length of the space connecting to the PAR
- Where street level access aisles are required, a curb ramp shall connect the access aisle to the PAR.
- Space shall be designated by a sign.





*Chapter R2 / Covered Items / On-Street Parking R216*



**Per R216, would a project on the indicated street need to provide any accessible spaces?  
If so how many?  
Assume no changes to the other 3 sides.**

**Checking PROWAG Table R216:**

**Table R216 Accessible Parking Spaces**

**Total Number of Marked or Metered  
Parking Spaces on the Block Perimeter**

**Minimum Required Number of  
Accessible Parking Spaces**

1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 and over	4% of total

OK!

So a project on that street would not need to provide any accessible spaces since there were already (2) accessible spaces on the block face—1 more than is required.

6 SPACES, 0 OF WHICH ARE ACCESSIBLE



9 SPACES, 0 OF WHICH ARE ACCESSIBLE

0 SPACES

5 SPACES, 2 OF WHICH ARE ACCESSIBLE

***IN TOTAL: THERE ARE 20 SPACES, OF WHICH 2 ARE ACCESSIBLE, 10%.***

# QUESTIONS?

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