ADA Training

Federal Highway Administration

PART 2 – Inspection and Measurement

11-18-2010

Presented by:
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Federal Highway Administration – Idaho Division

Inspection and Measurement

- Example ADA Ramp Inspection Form
  - Characteristics that pertain to the ADA compliance and acceptance of a ramp

Example Ramp Inspection Form

DRAFT FORM

ADA Ramp Inspection Form

Project Number	Key Number	Project Name		
District	City	County	State Route	Segment Code
Milepost	Cross Street or Mid-block Description		☐ Cross Street is a State Route	Ramp ID

Inspection Date	Location Type	Corner or Side		Ramp Type
Inspected By	☐ Corner ☐ Mid-block	☐ N ☐ E ☐ NW ☐ NE ☐ S ☐ W ☐ SW ☐ SE	☐ Sidewalk ☐ Curb and Gutter ☐ Park Strip	Number of Ramped Areas

Ramp Details

	Ramped Area 1	Ramped Area 2	Ramped Area 3	Ramped Area 4	Ramped Area 5	Ramped Area 6
Ramp Direction	☐ N/S ☐ E/W ☐ Diagonal	☐ N/S ☐ E/W ☐ Diagonal	☐ N/S ☐ E/W ☐ Diagonal	☐ N/S ☐ E/W ☐ Diagonal	☐ N/S ☐ E/W ☐ Diagonal	☐ N/S ☐ E/W ☐ Diagonal
*Ramp Width (in.)						
*Running Slope (%)						
*Cross Slope (%)						
*Flare Slope A (%)						
*Flare Slope B (%)						
*Discontinuities	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

Landing Details

*Landing Provided	☐ Yes ☐ No
*4x4 Minimum	☐ Yes ☐ No
Landing Width (in.)	
Landing Depth (in.)	
*Max Slope (%)	

Detectable Warning Details

Truncated Dome Type: Cast-in-Place (Inlaid) ☐ Polymer Composite ☐ Concrete composite ☐ Polymer Tiles ☐ Cast Iron Surface Applied: ☐ Surface Applied Polymer	*Detectable Warning Depth (in.)	
	*Detectable Warning Spans Curb Cut	☐ Yes ☐ No
	*Within 8" of the Curb Line	☐ Yes ☐ No
	Detectable Warning Color	
	*Color Contrast	☐ Yes ☐ No
	*Dome Dimensions are Correct	☐ Yes ☐ No

Transition Details

*Lip Present (≥.5")	☐ Yes ☐ No
*Gutter Counter Slope (%)	
*Gutter Flowline Slope at Ramp (%)	

Pedestrian Crossing Details

Traffic Control: ☐ None ☐ Yield ☐ Stop ☐ Signal	Marked Crosswalk	☐ Yes ☐ No
	Clear Space	☐ Yes ☐ No
	Pedestrian Signal	☐ Yes ☐ No
	Pushbutton Height within 15 to 48"	☐ Yes ☐ No
	Pushbutton within 10" of landing	☐ Yes ☐ No

Ramp Comments:

☐ **Ramp Accepted**	**Approval**

* These fields must meet the ADA criteria in the instruction sheet for acceptance.

** A copy of this form must be sent to the Headquarters EEO Office.

Inspection and Measurement Equipment

- Digital Level
  - Essential for constructing a ramp with correct slopes
  - Readily available and relatively inexpensive
  - We recommend a 24” or 48” level
  - 24” SmartTool Level
    - American Construction Supply and Rental
  - Empire 24” Digital Laser Level
    - Home Depot
  - Husky 24” Digital Laser Level
    - Home Depot

Inspection and Measurement Equipment

- Digital levels must be calibrated regularly
  - Recommend at least once a day
  - Not all levels can be calibrated, accuracy varies

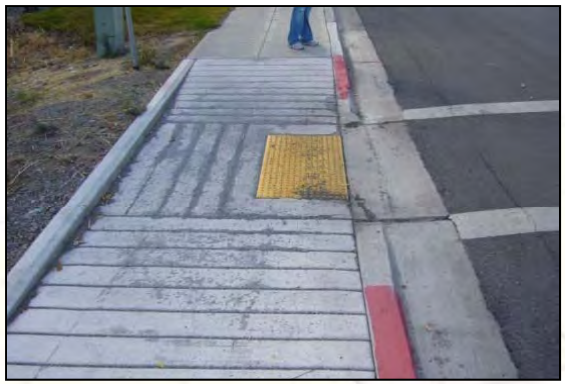
Inspection and Measurement Equipment

- Broom
- Measuring Tape
- Surveying Equipment
  - Digital Level
  - GPS for exact location

Location Information

- Location Type - Corner or Mid-block

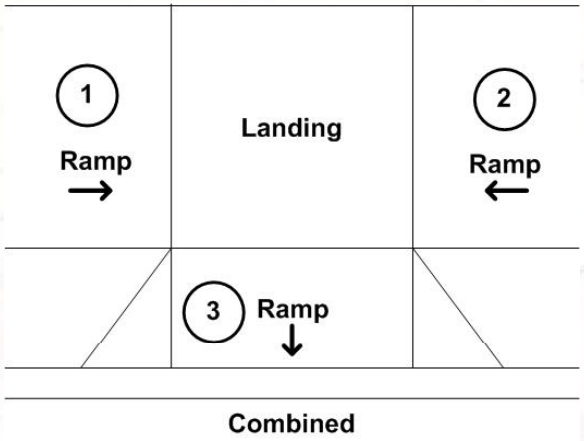
Mid-block locations include mid-block crossings and ends of sidewalk.

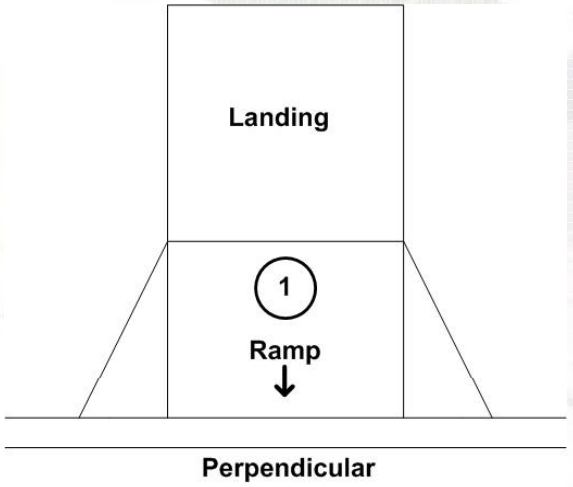


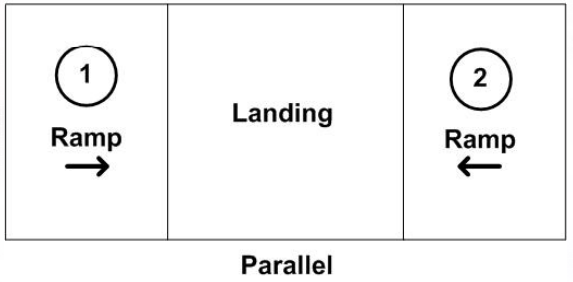
Corner locations include intersections with streets, alleys and major driveways.

Ramp Information

- Number of Ramped Areas
  As a general rule
  - Parallel: 2 ramps
  - Perpendicular: 1 ramp
  - Combination: 3 ramps







Surface Discontinuities

- Horizontal Openings/Walkway Joints and Gratings
  - free of surface discontinuities greater than half an inch.
    - R301.7.1 Openings shall not allow the passage of a sphere more than 0.5-inch in diameter (13mm)

J-Boxes

Vaults

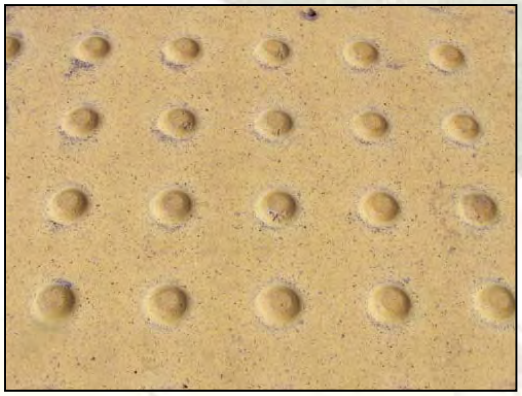
Water Meters / Valves

Surface Discontinuities

- Vertical Discontinuities
  - Surface discontinuities are NOT allowed (ITD)
  - R 301.5.2 Surface discontinuities shall not exceed 0.5 inch (13mm) maximum.
  - Vertical discontinuities shall not exceed 0.25 inch (6.4mm)
  - Vertical discontinuities between 0.25 inch and 0.50 inch maximum shall be beveled at 1:2 minimum
  - The bevel shall be applied across the entire level change

Detectable Warning Types

Polymer Composite Panel – Cast in Place



Concrete Composite

Cast Iron

Surface Applied Polymer

Detectable Warning Information

- Depth
  - Measure the depth of the detectable warning surface in the direction of pedestrian travel. (24 inches Minimum)
- Detectable Warning Spans Curb Cut
  - Detectable warning surface to span the entire width of the curb cut (A 1.5-inch tolerance on each side is allowable for forms and stakes – ITD standard).

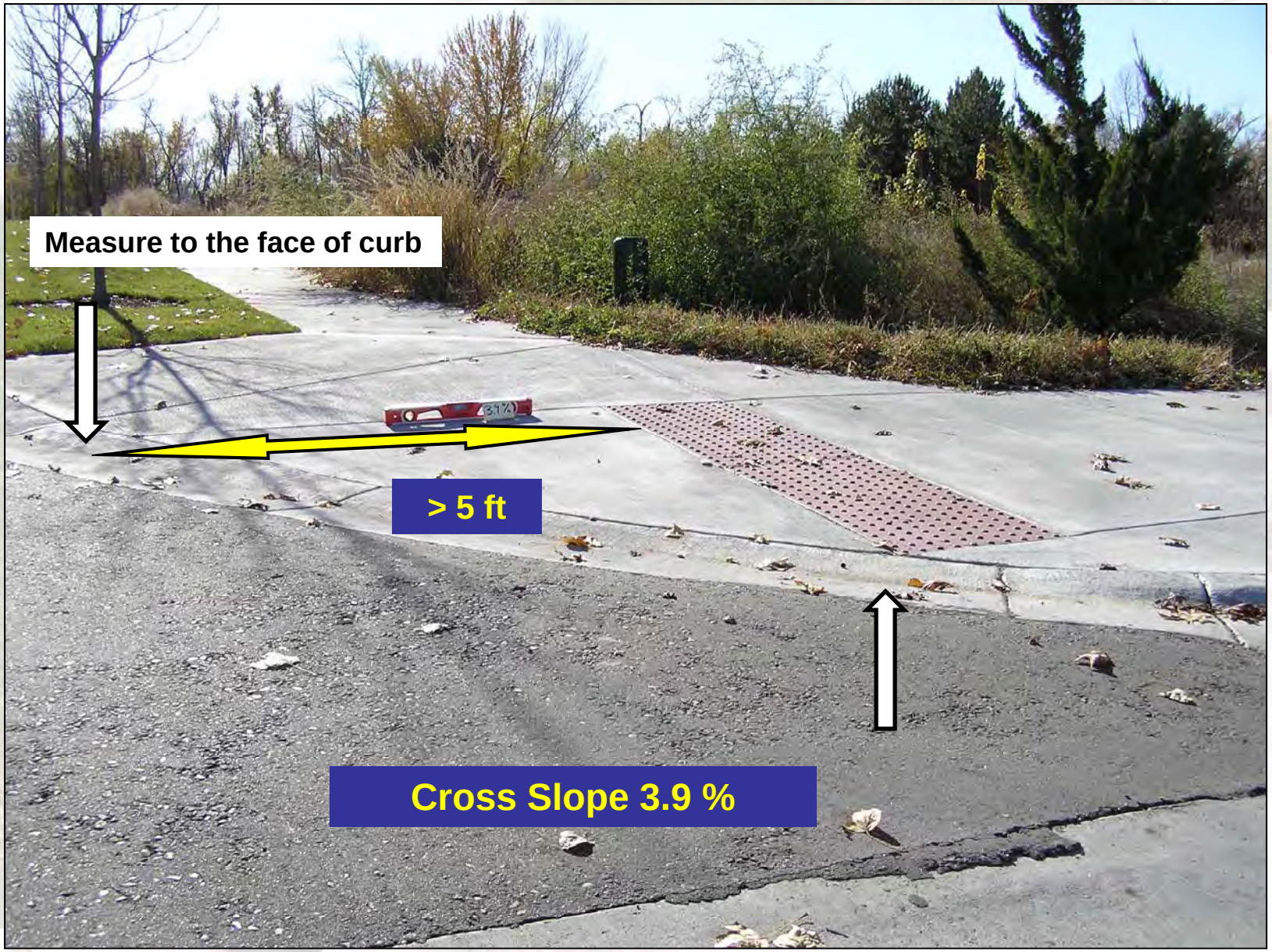
Detectable Warning Information

- Within 8 Inches of the Curb Line (face of curb)
  - The detectable warning surface has at least one corner of the leading edge (edge nearest to the street) within 8 inches of the curb line (face of curb)
  - Or, similarly, within 2 inches of back of curb
- Color
  - Color of the detectable warning must contrast the ramp surface. Common colors include yellow, black, red, and green.
- Contrast Formula
  - Contrast = [(B1-B2)/B1] x 100
  - B1 = light reflectance value of lighter area (LRV)
  - B2 = light reflectance value of Darker Area (LRV)

Detectable Warning Information

- Color Contrasts with Surrounding Surface
  - The color of the detectable warning surface contrasts either light-on-dark or dark-on-light with the adjacent walking surface. Safety yellow color is widely used.
- Dome Dimensions
  - Check the dome dimensions

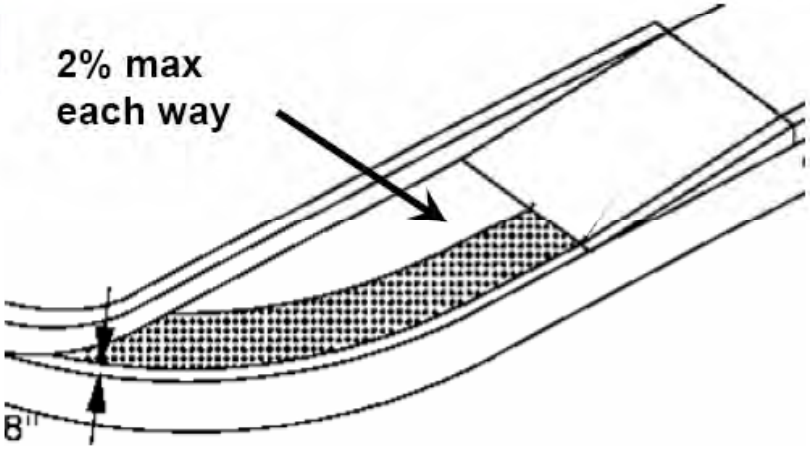
History


Measure to the face of curb
> 5 ft
Cross Slope 3.9 %

Detectable Warning Option

- Parallel-type ramp is a possible solution to this non-compliant ramp

This type of ramp is very difficult to build correctly.



R304.2 Location and Alignment

R304.2.3 Rail Crossings. The detectable warning surface shall be located so that the edge nearest the rail crossing is 6 ft minimum and 15 ft maximum from the centerline of the nearest rail. The rows of truncated domes in a detectable warning surface shall be aligned to be parallel with the direction of wheelchair travel.

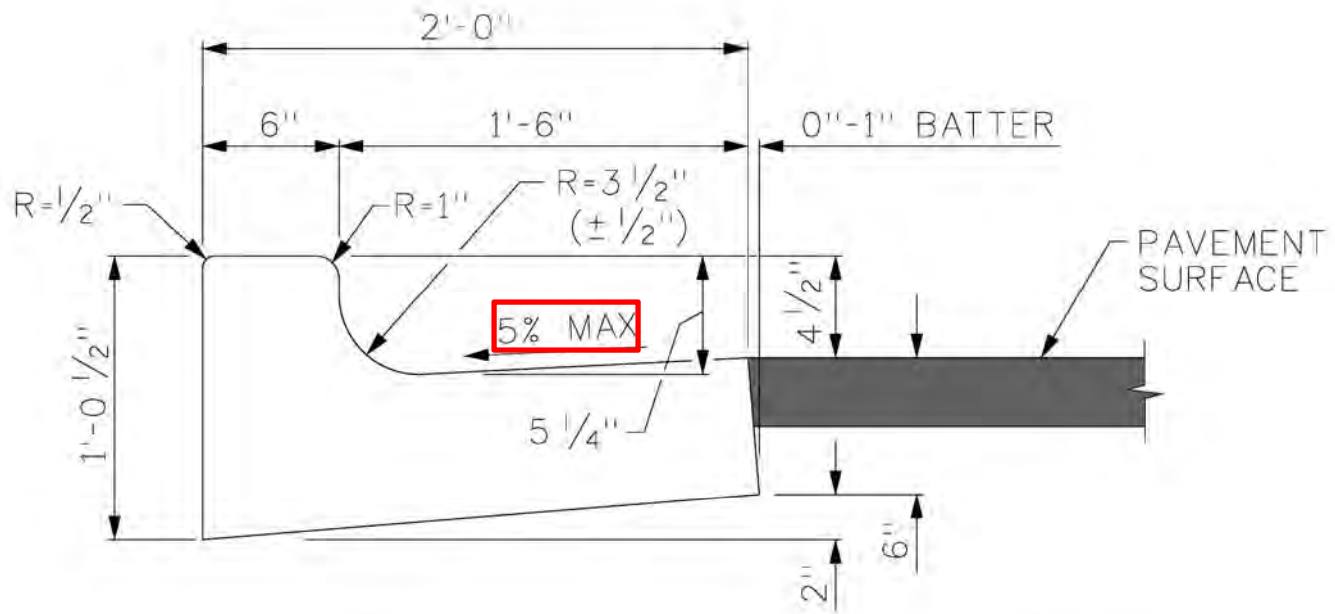

Detectable warnings to be 6’ to 15’ from centerline of the tracks

Transition Information

- Lip
  - The transition area should be free of lips greater than half an inch. This could be at the flow line or where the edge of the gutter pan meets the asphalt.
  - Lips are NOT allowed.

Transition Information

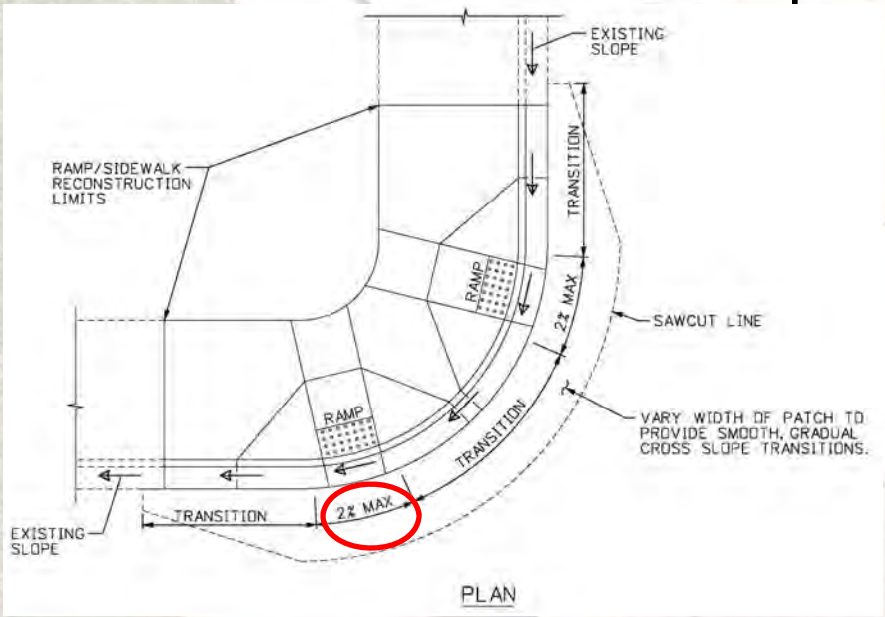
- Gutter Counter Slope
  - Gutter counter slope (5% Maximum)

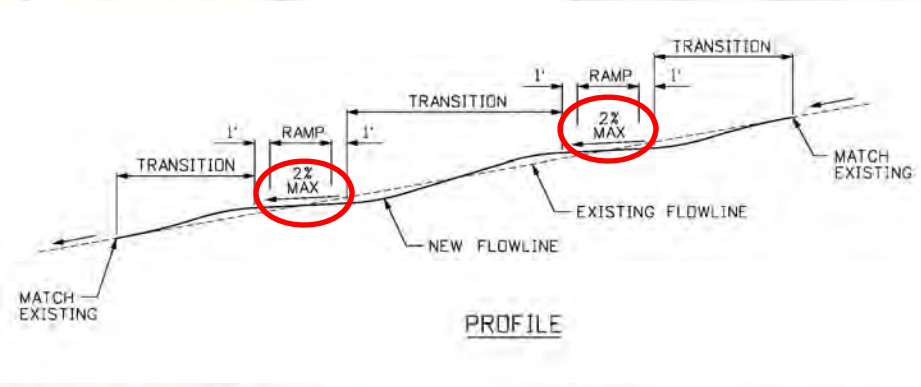


6" VERTICAL CURB AND GUTTER

Transition Information

- Gutter Flow line Slope at Ramp
  - The flow line of curb slope across the ramp (2% Maximum, suggest 1.5%)
  - This is the cross slope of the ramp at the gutter





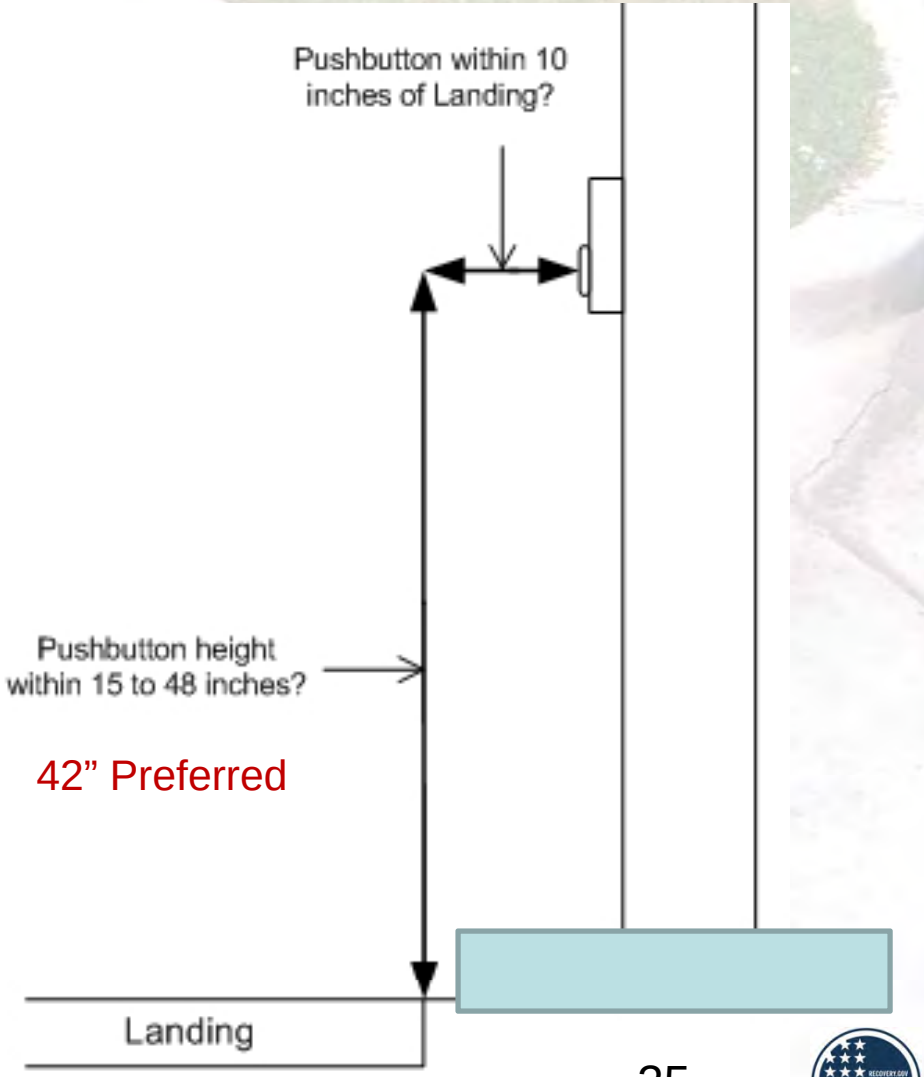
Pedestrian Crossing Information

- Intersection Traffic Control
  - Types of traffic control present at the intersection or mid-block crossing. The options are none, yield, stop and signal
- Marked Crosswalk
  - Is there a marked crosswalk present
  - MUTCD requires a crosswalk to be a minimum of 6 feet wide
- Clear space within Crosswalk (Single Diagonal ramp)
  - Is there a 4'x4' minimum clear space within the crosswalk area.

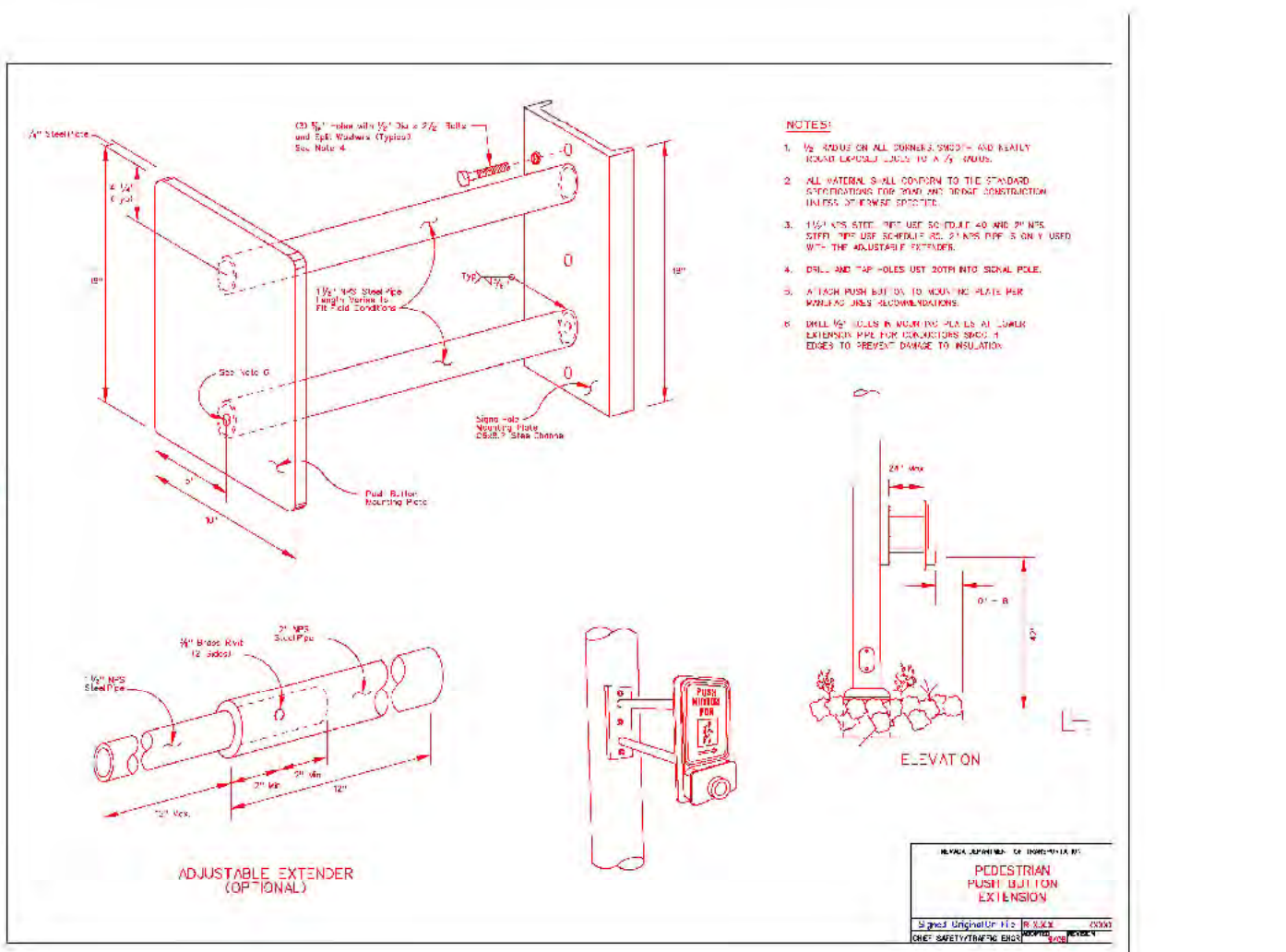
Pedestrian Crossing Information

- Pedestrian Pushbutton
  - Does the intersection or mid-block crossing have pedestrian pushbuttons?
- Pushbutton Height
  - 42” to 48” is allowed, but 42” is preferred
- Pushbutton Horizontal Location
  - Is the pushbutton within 10 horizontal inches reach of the landing?

Pedestrian Signal



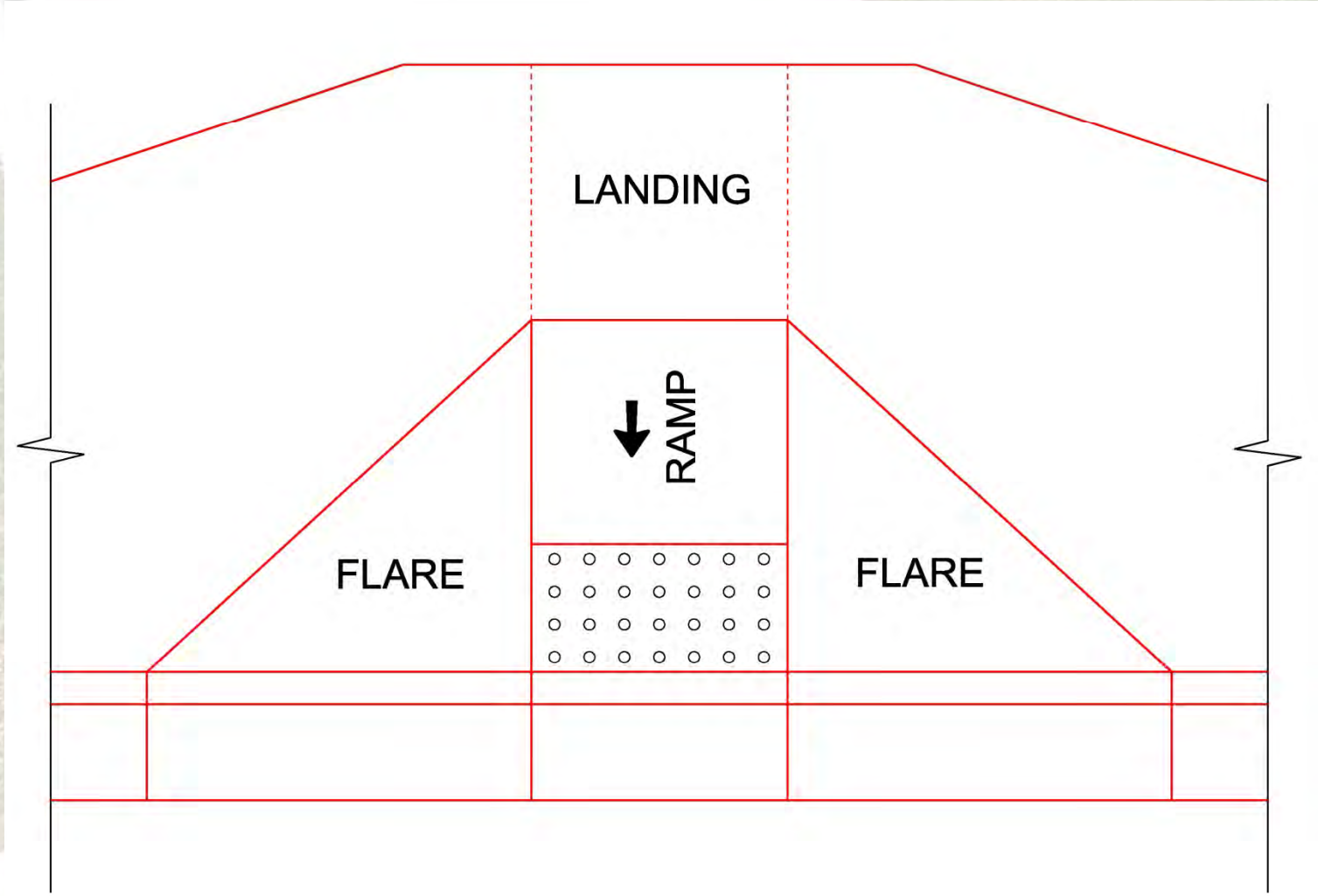
Retrofits are possible



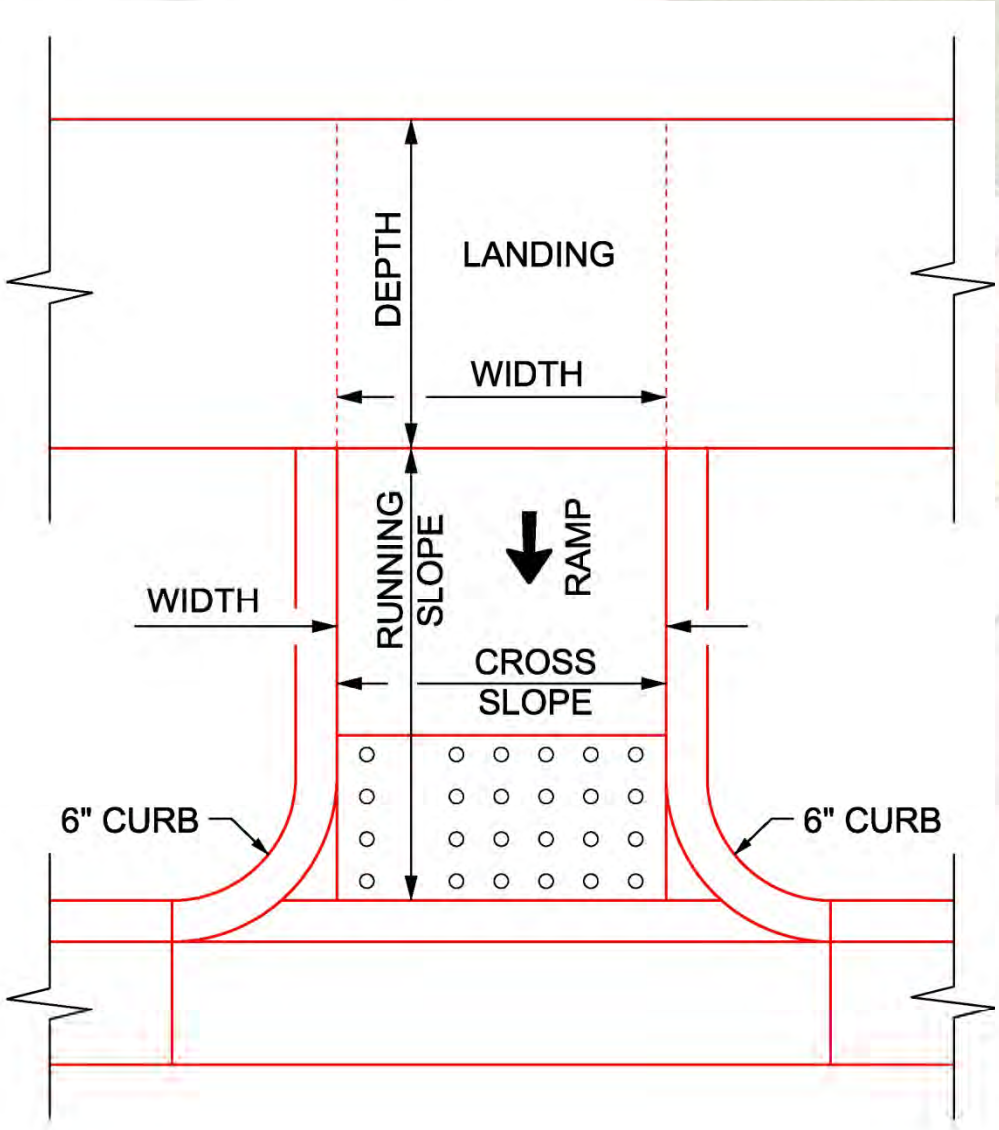
Types of Curb Ramps

1. Perpendicular Curb Ramp
2. Double Perpendicular
3. Curb Ramps In line with sidewalk
4. Parallel Curb Ramp
5. Blended Transitions
6. Single Diagonal

1. Perpendicular

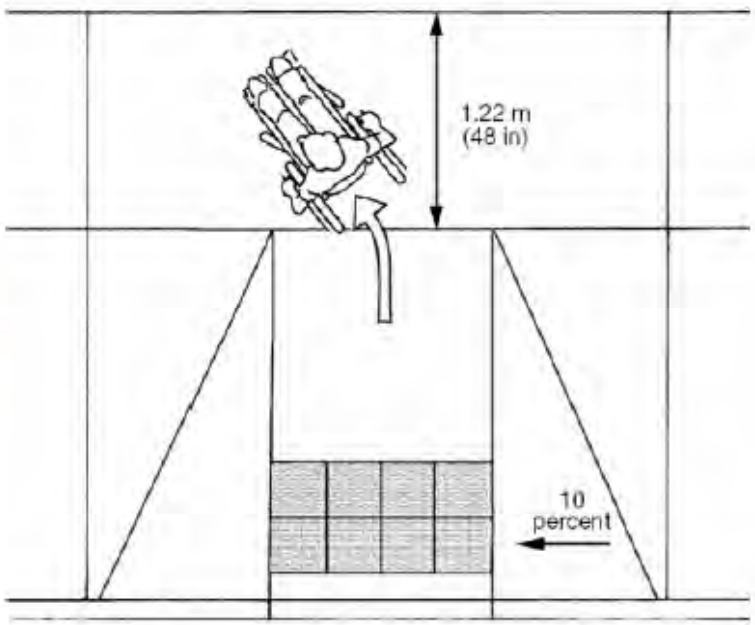


Perpendicular Ramp



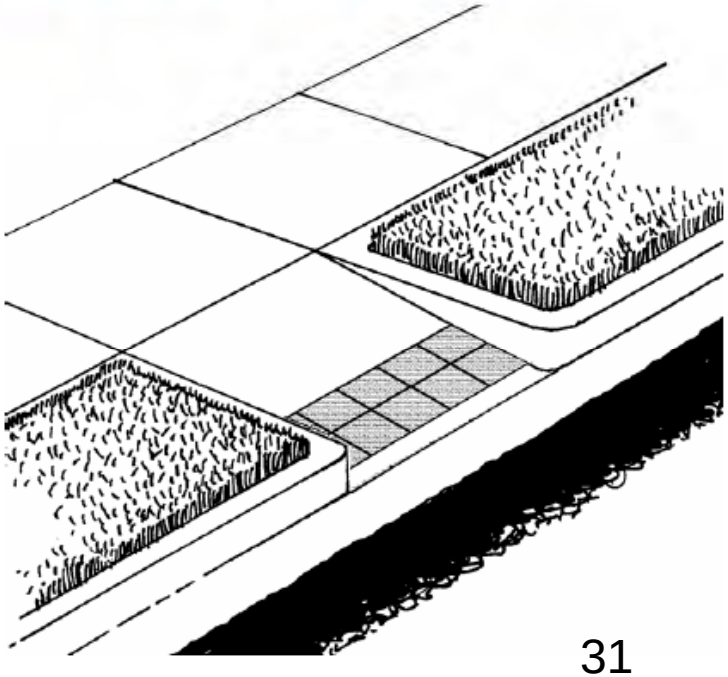
Flares

- Not part of the accessible route
- Flares should be used on all curbside sidewalks
- Flare slope: 10% (1:10) max. (ADAAG 4.7.5)

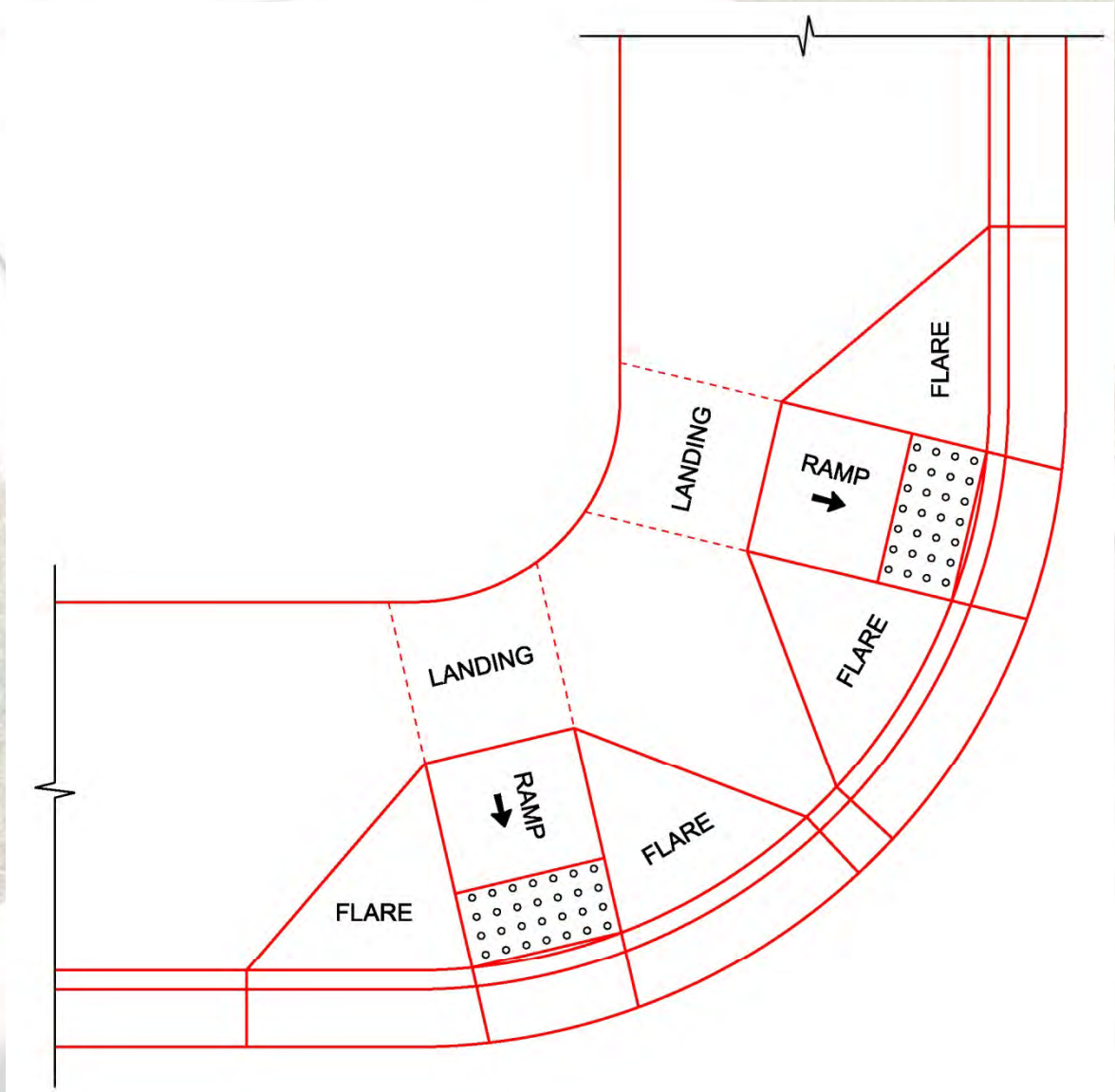


No Flare Curb Ramps

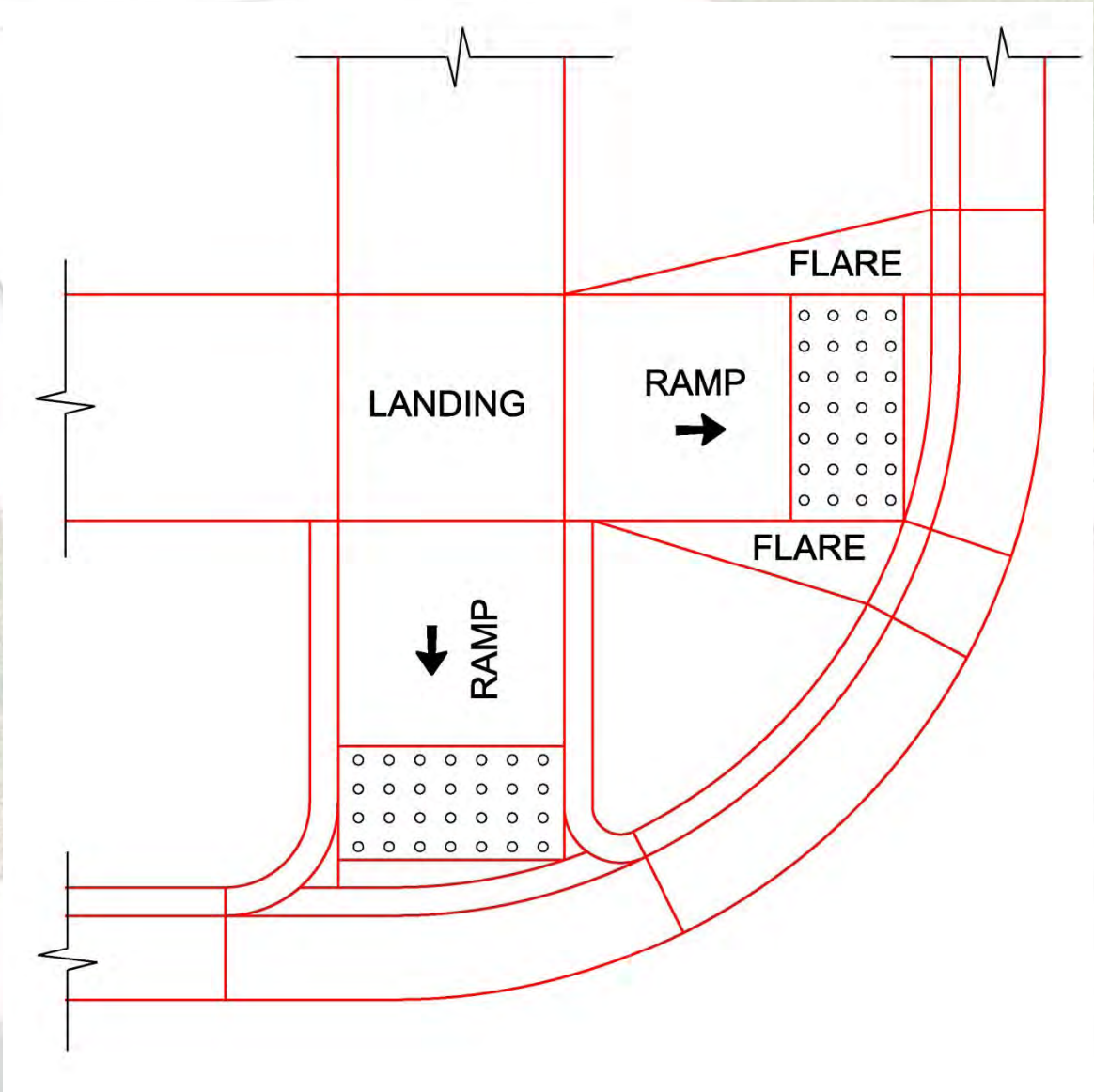
- Flares are not necessary where furniture zone is landscaped - curbs are sufficient (ADAAG 4.7.5).
- Curbs help guide users down the ramp. Protecting the sides of curb ramps with planting, signs, or street furniture allow curbs to be used to help promote wayfinding



Double Perpendicular Ramps

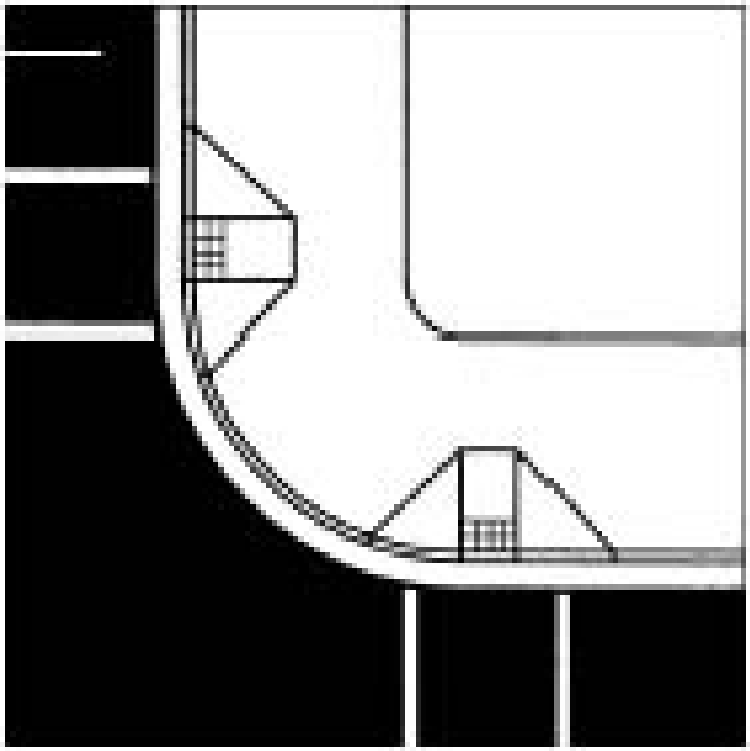


Double Perpendicular Ramps



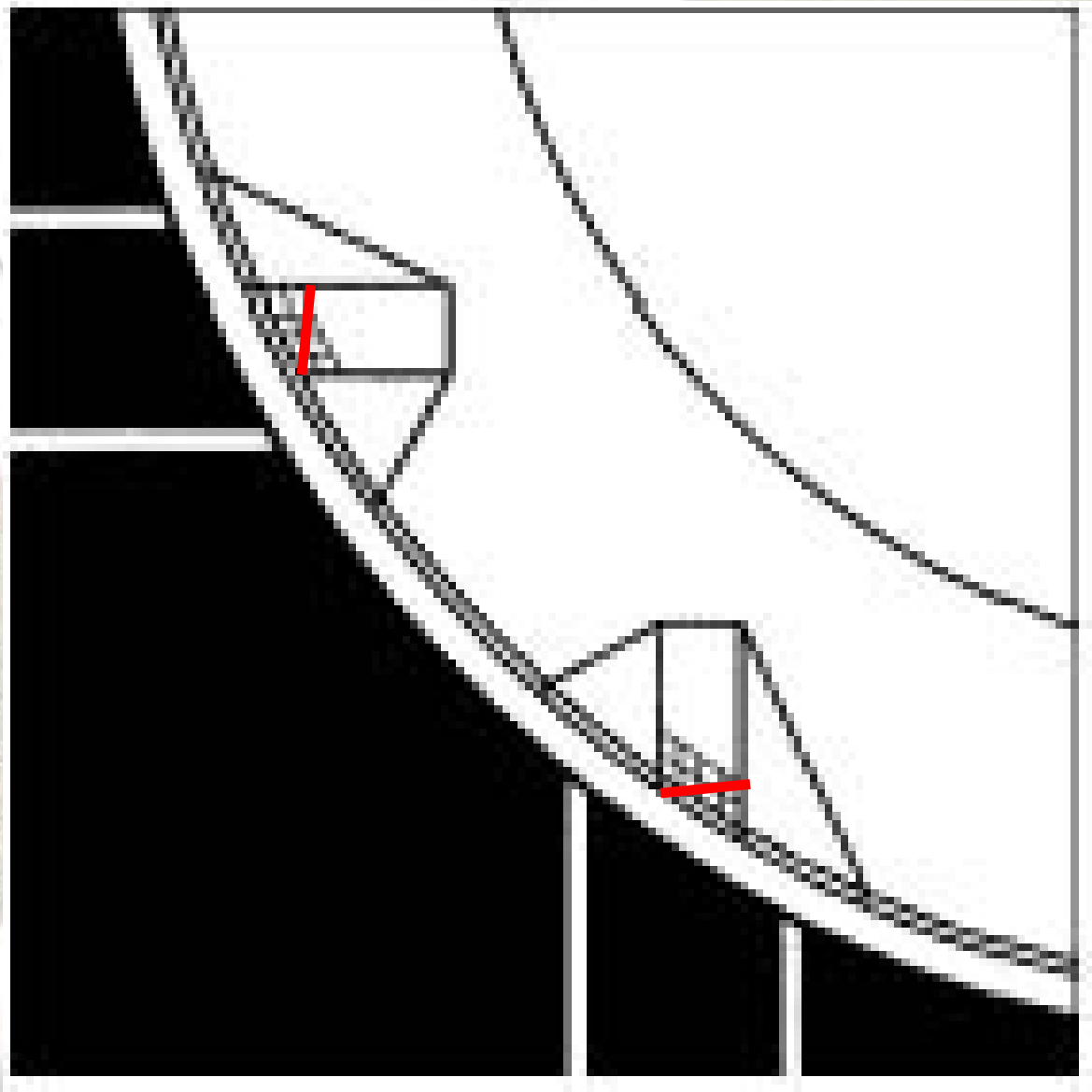
2. Double Perpendicular Curb Ramps w/flares & level landing

- Inline with curb
- For Small Radii

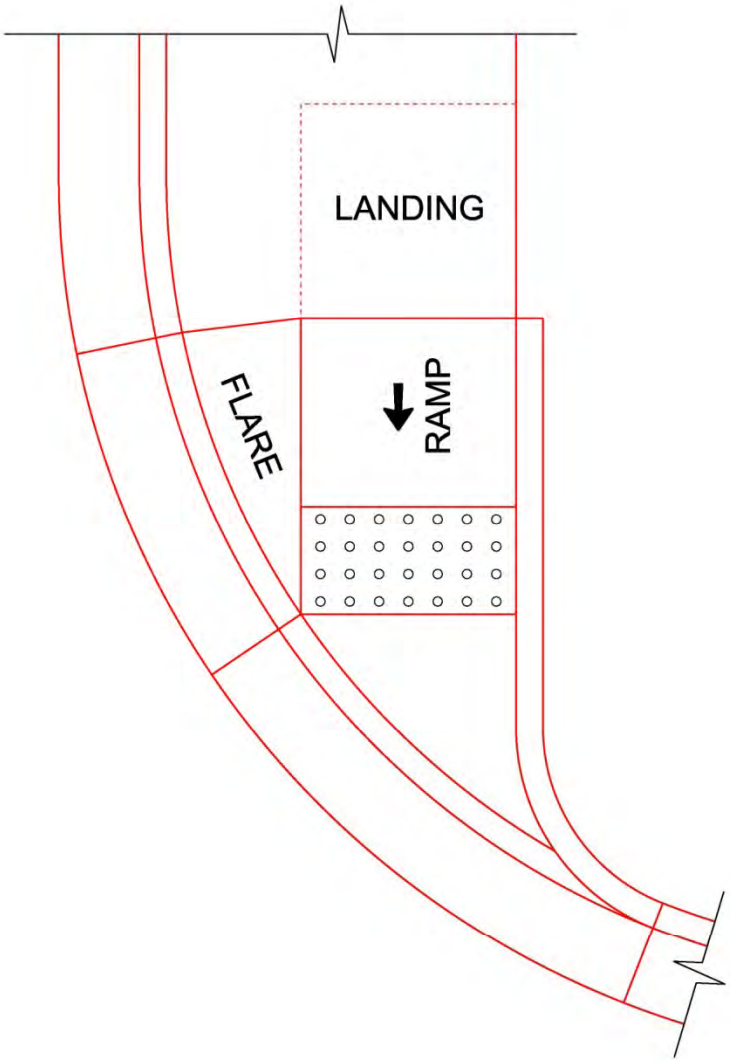


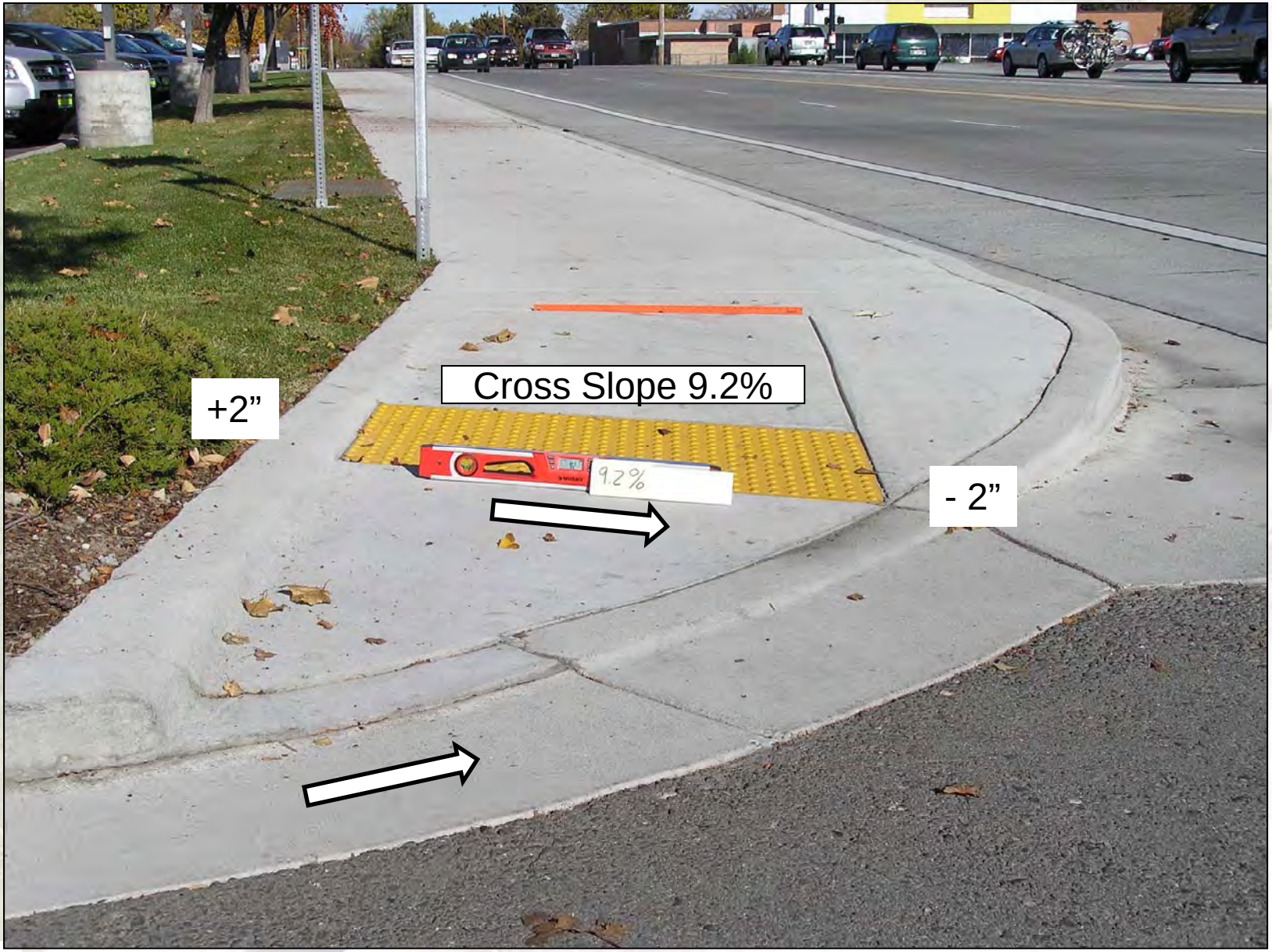

34
IDAHO
SPEED
LIMIT
25

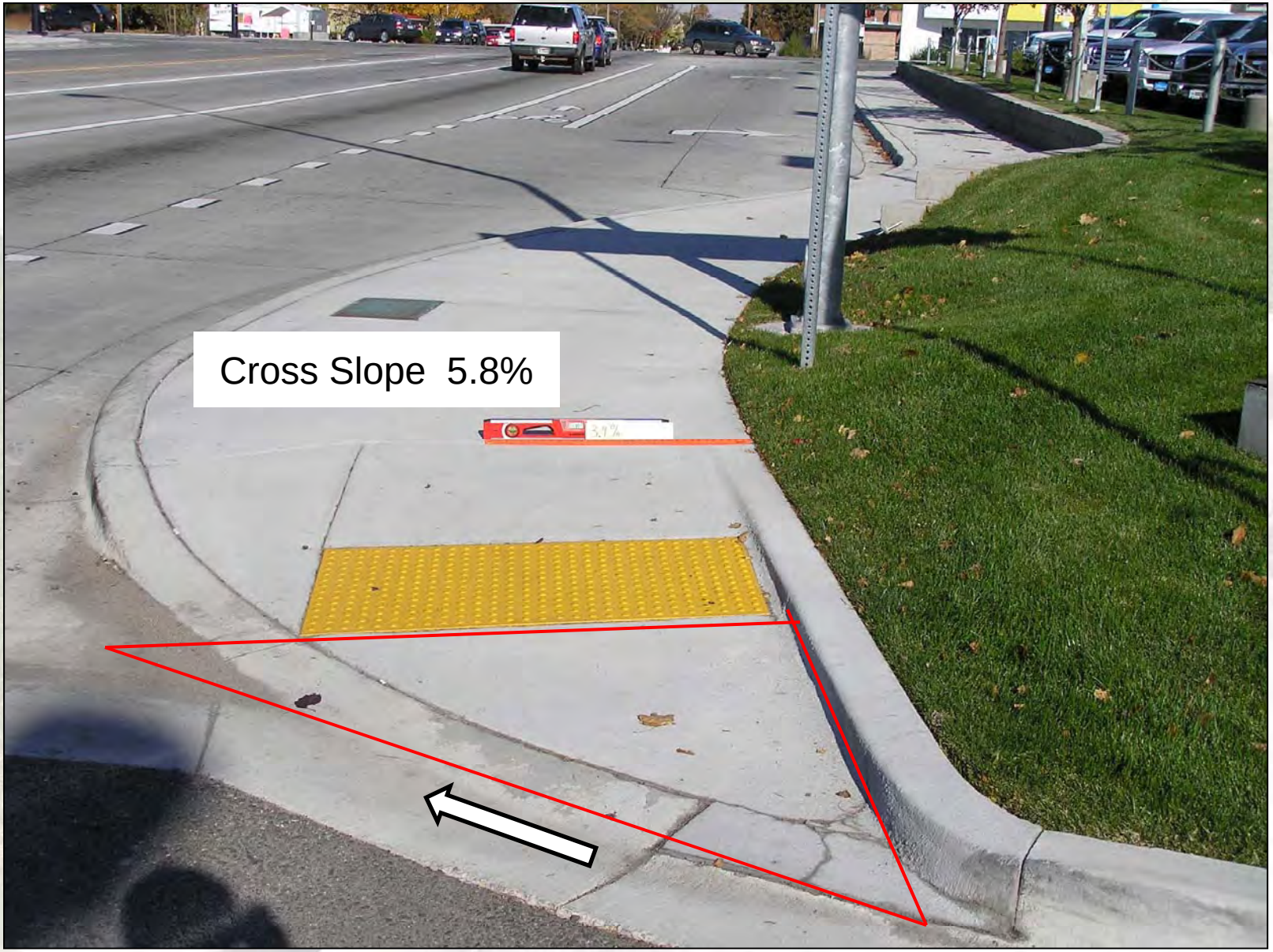
- **3Curb Ramps –In line with crosswalk**



Ramps in line with sidewalks



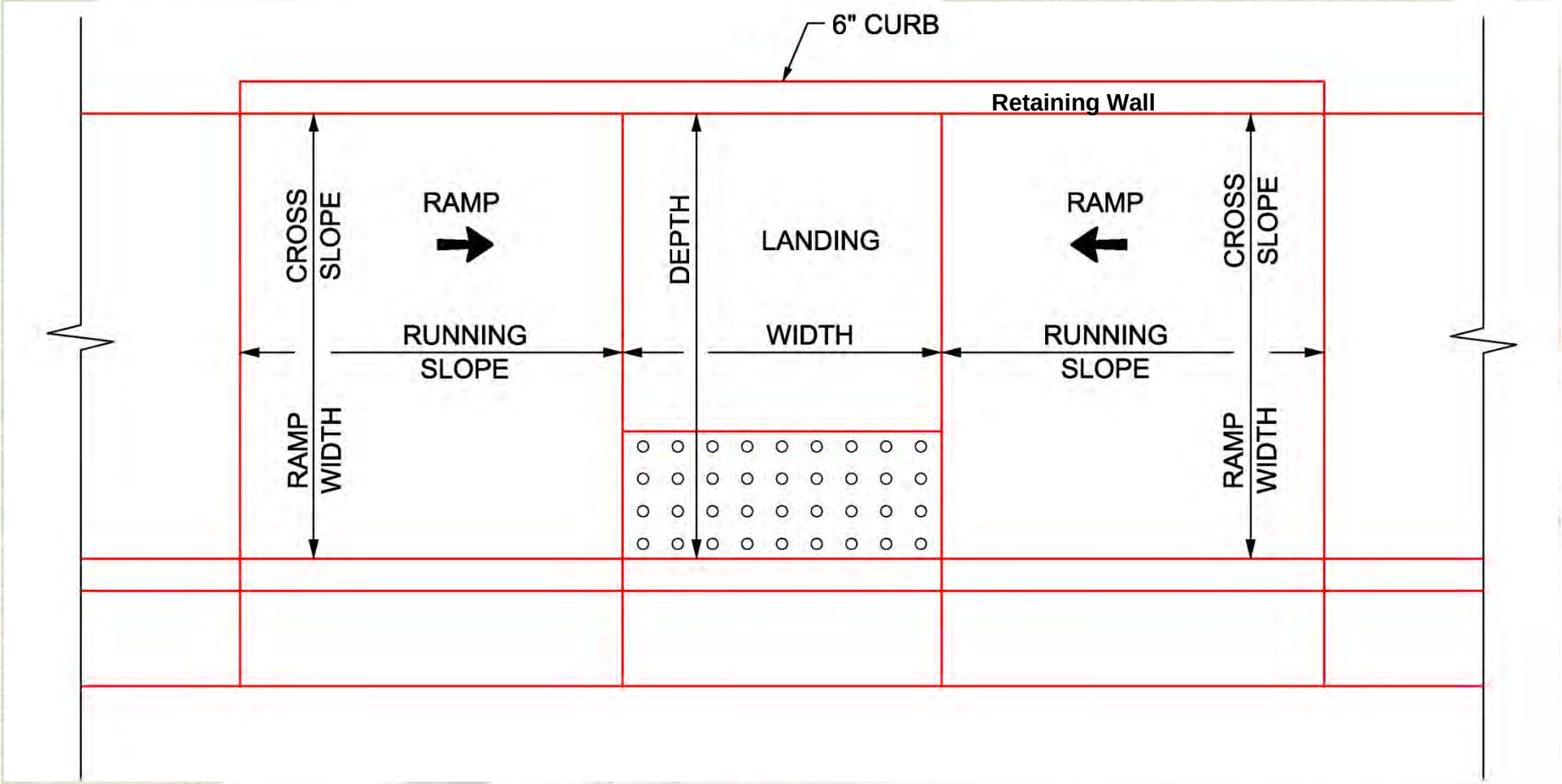

Cross Slope 9.2%
+2”
- 2”
9.2%


Cross Slope 5.8%


0.6% Cross Slope
0.6%

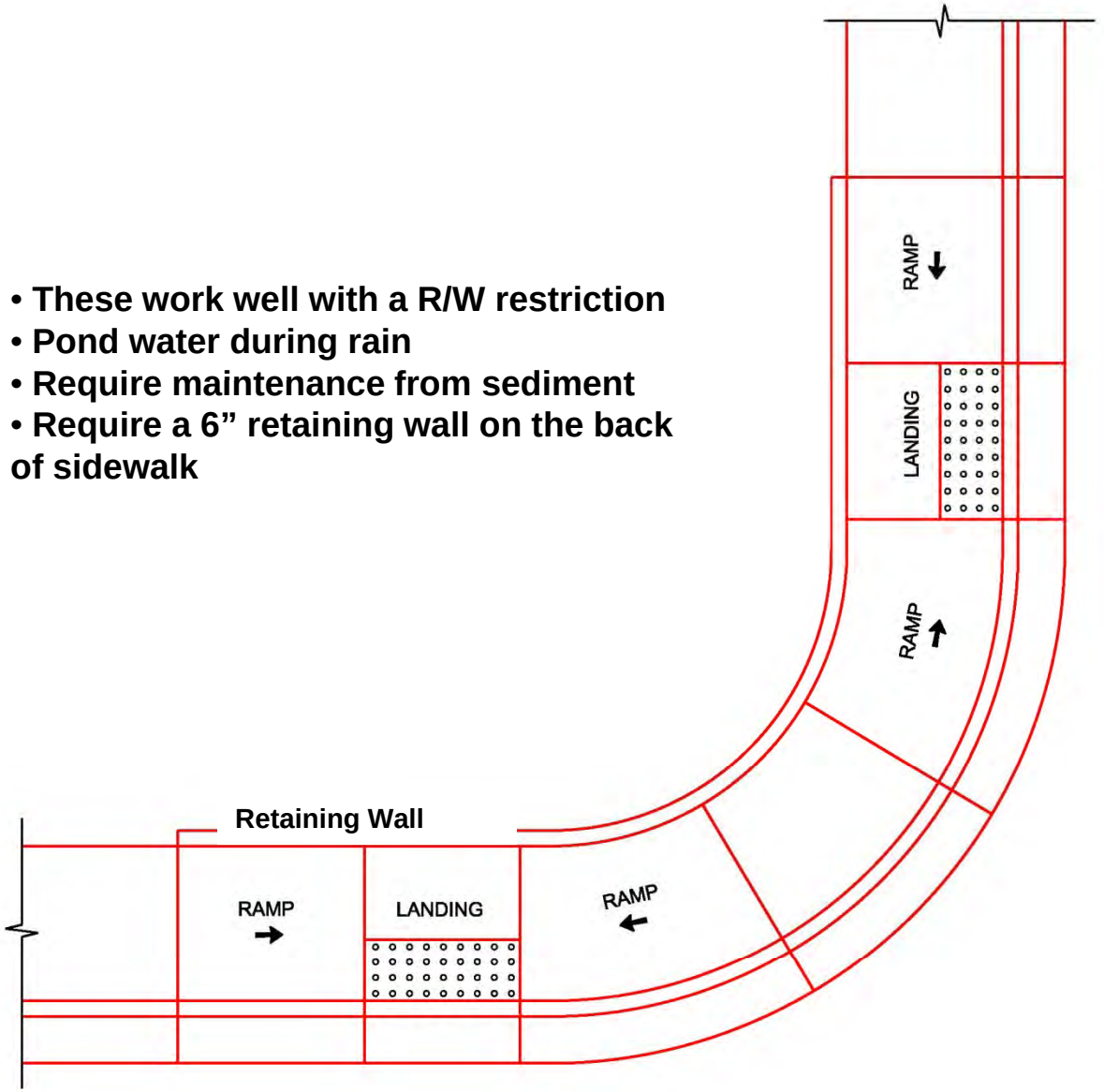

0.2% Running Slope

Parallel Ramp



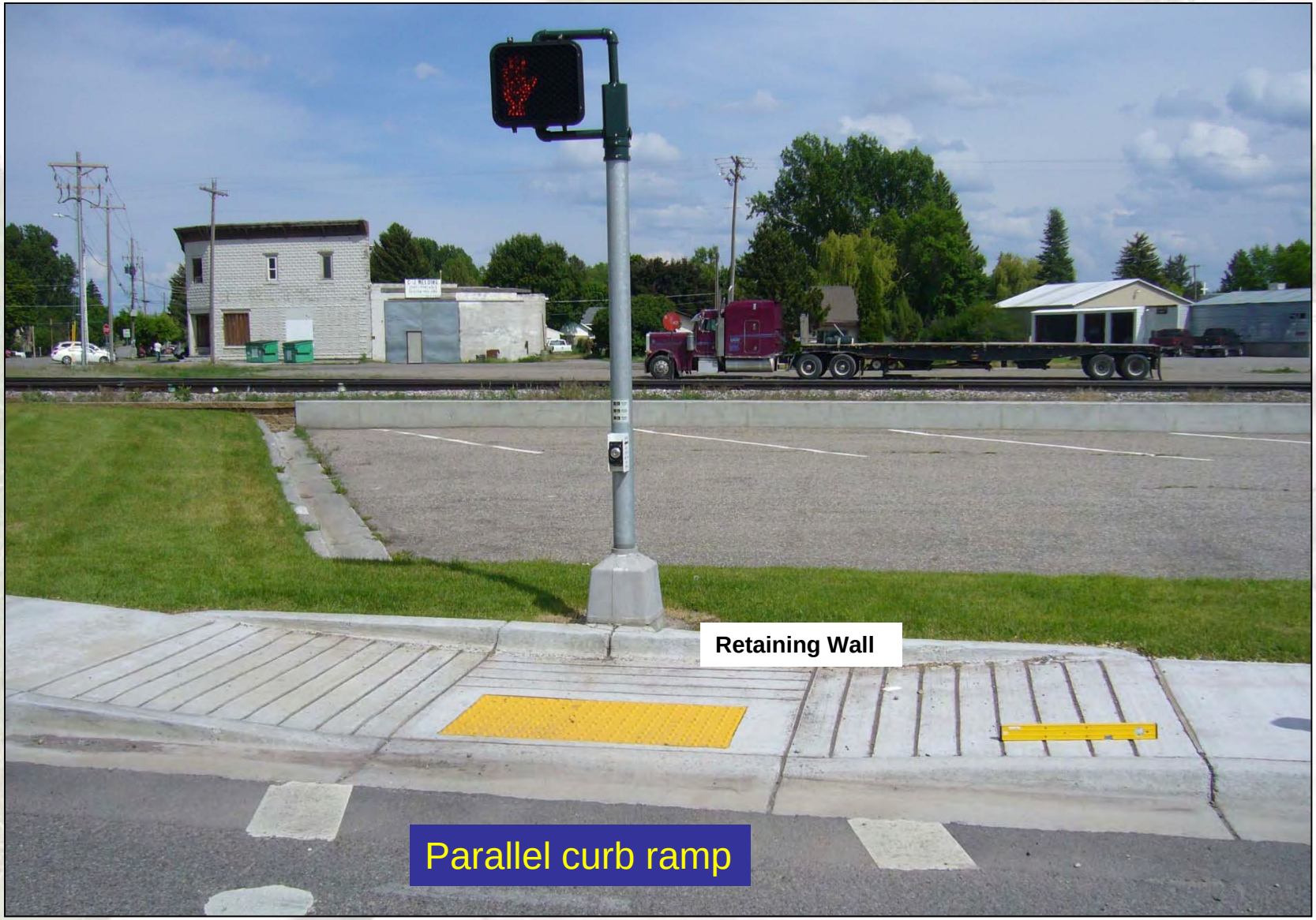
Double Parallel Ramps

- **These work well with a R/W restriction**
- **Pond water during rain**
- **Require maintenance from sediment**
- **Require a 6” retaining wall on the back of sidewalk**



Parallel Curb Ramp with retaining Wall

Parallel curb ramp with retaining wall


Retaining Wall
Parallel curb ramp

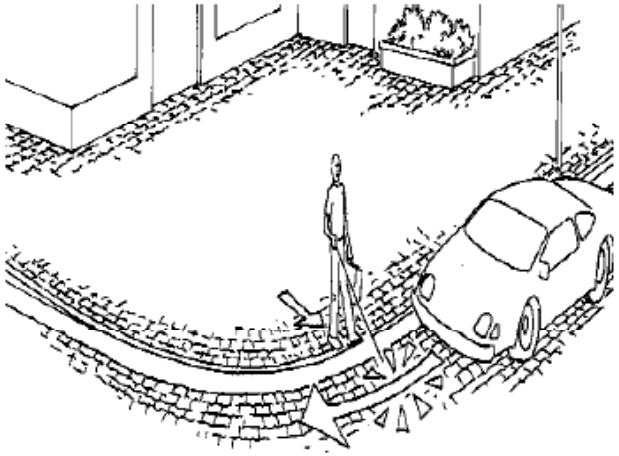
Parallel curb ramp with no access to the pedestrian push button

R303.2.3 Blended Transitions

- Blended transitions shall comply with R303.3. Running slope shall be 5 percent maximum and cross slope shall be 2 percent maximum.

Blended Transitions

- Disadvantages
  - Children, persons with cognitive impairments, guide dogs may not distinguish street edge
  - May allow turning vehicles to encroach onto sidewalk



- Detectable warnings may need to be a special order to fit the radius and are expensive

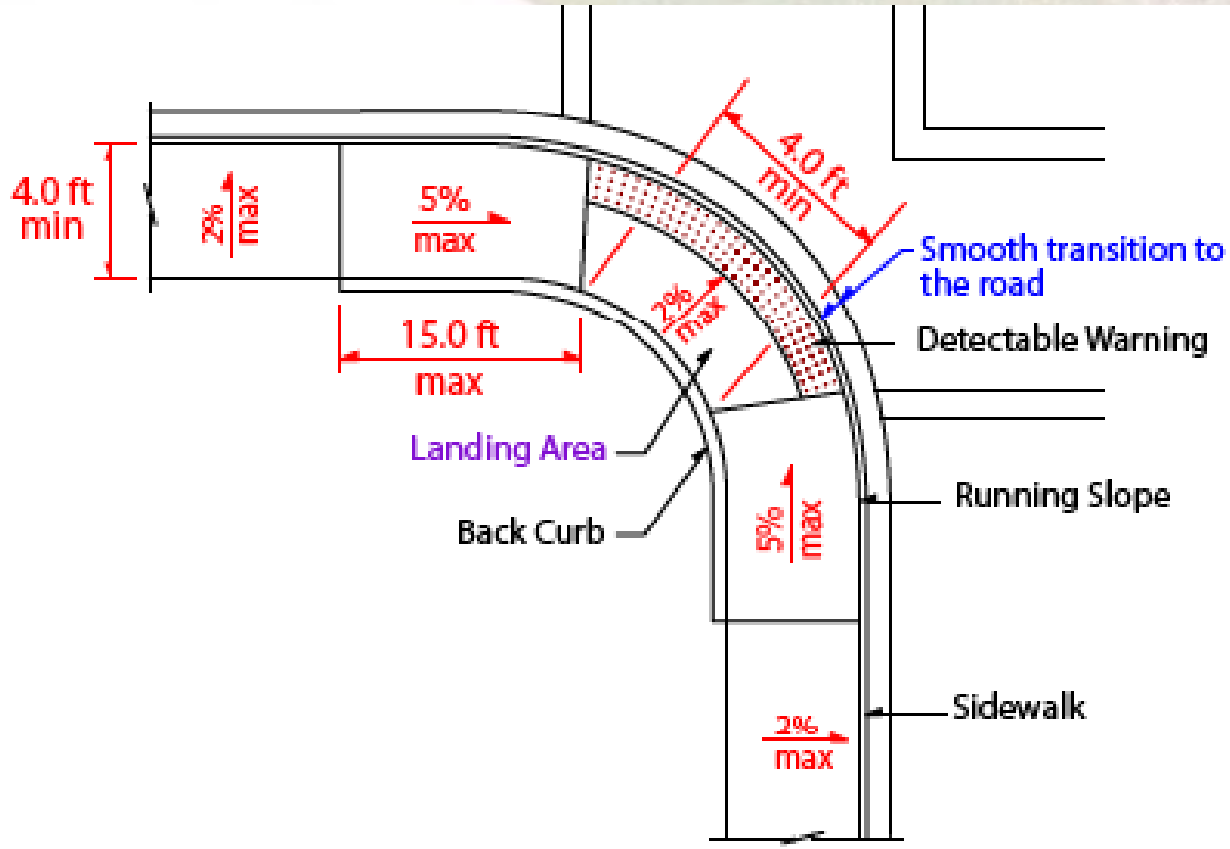
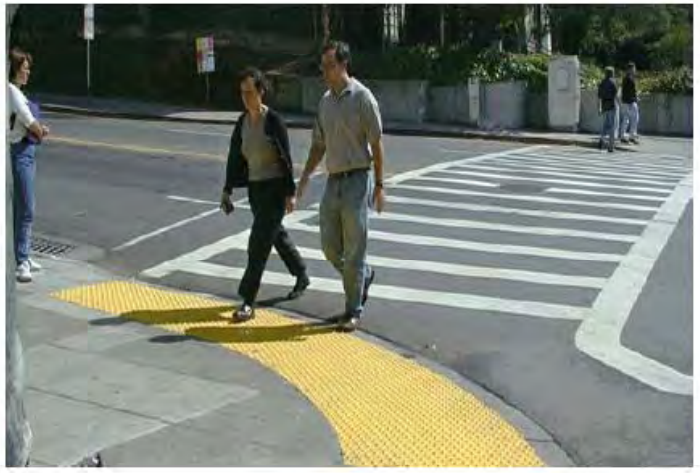


Figure 12

Running Slope shall be 5% maximum but shall not require the ramp length to exceed 15.0 ft.

The cross slope shall be 2% maximum.

Blended Transitions

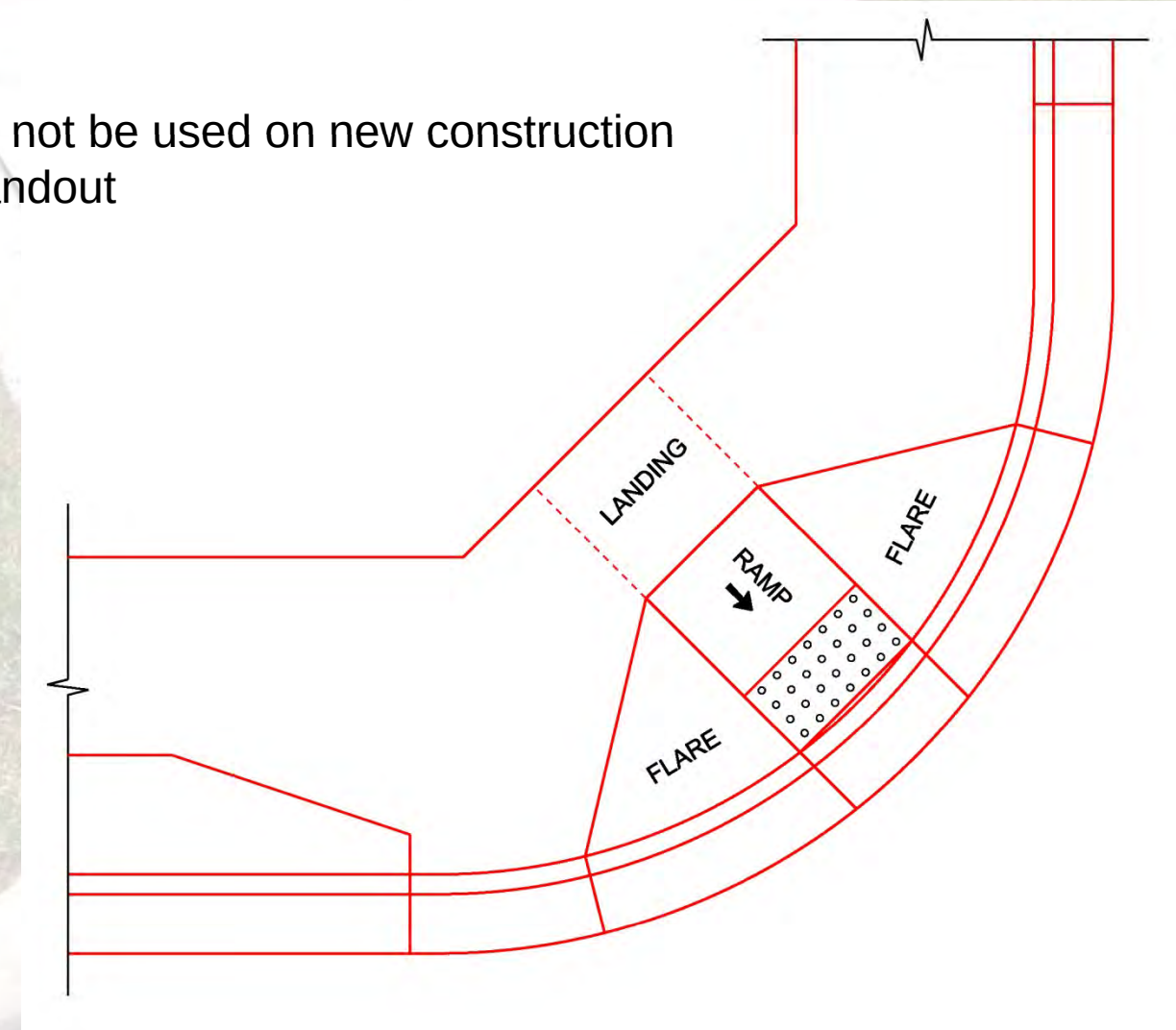


Mid Block Pedestrian Crossing – meets all ADA standards


• No flat landing at the pedestrian push button
• No detectable warnings

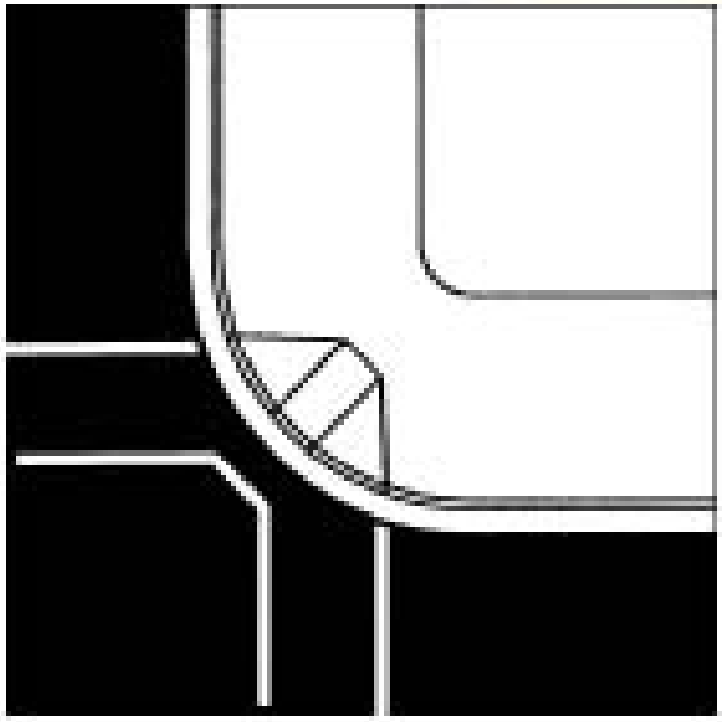
Single Diagonal Ramp: Least Preferred

- Should not be used on new construction
- See handout



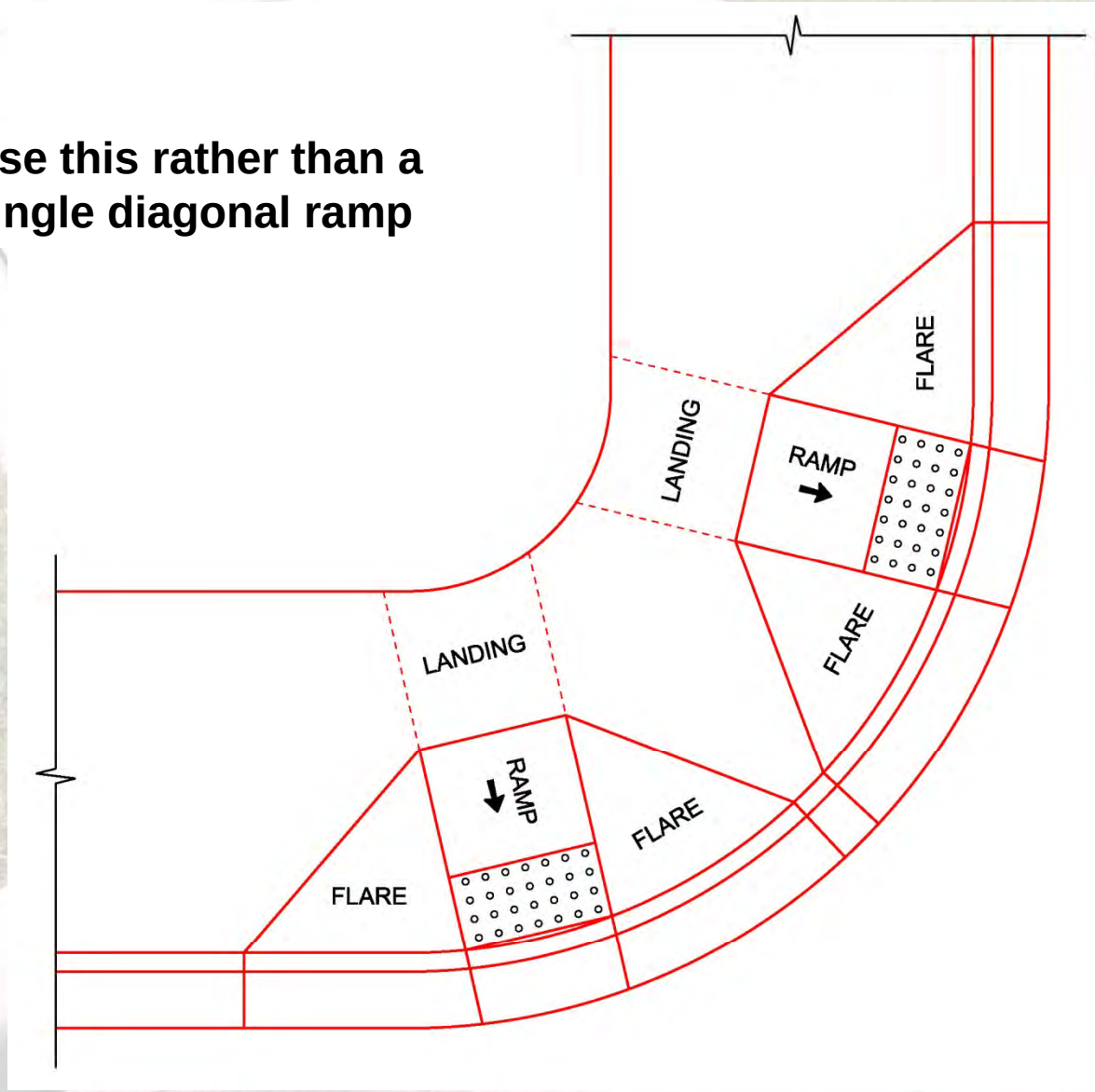
Single Diagonal Ramp

- Diagonal curb ramp with flares and a level landing need at least 1.22 m (48 in) of clear space.



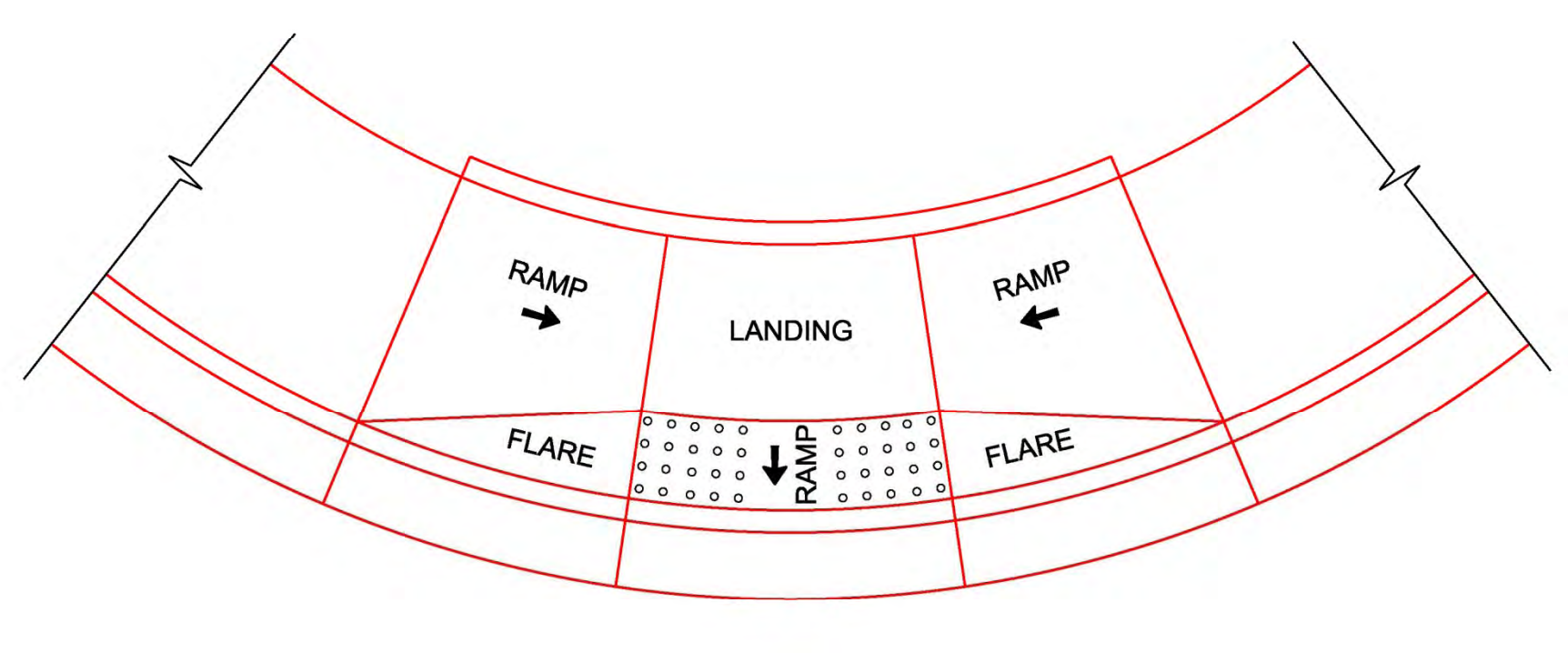
Double Perpendicular Ramps

Use this rather than a single diagonal ramp



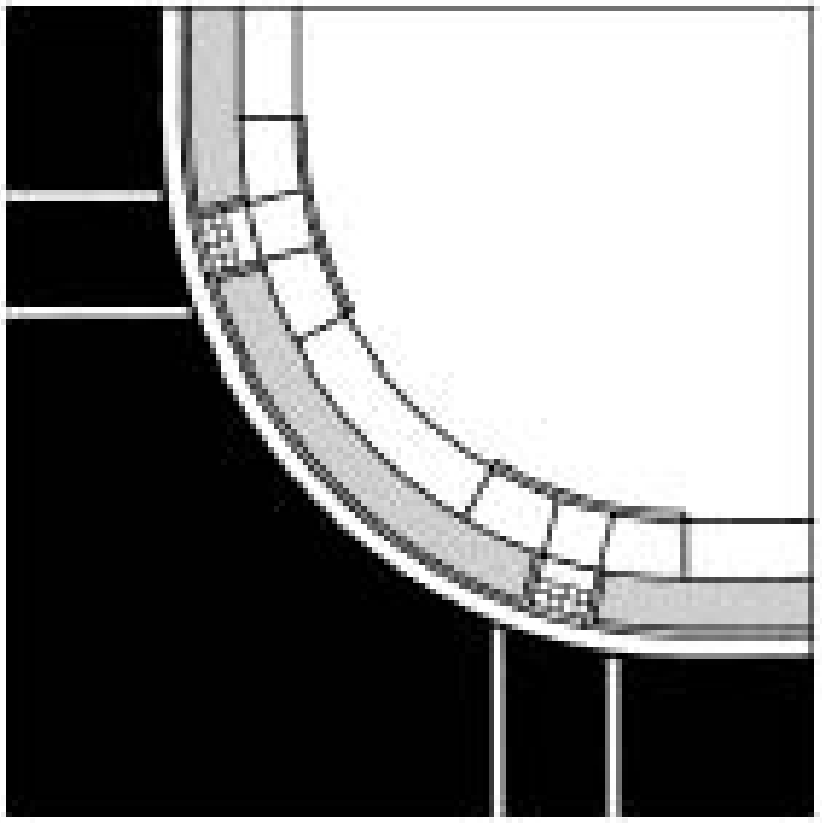

6.2% Cross Slope
A good location to use a combination ramp

Corner Combination Ramp

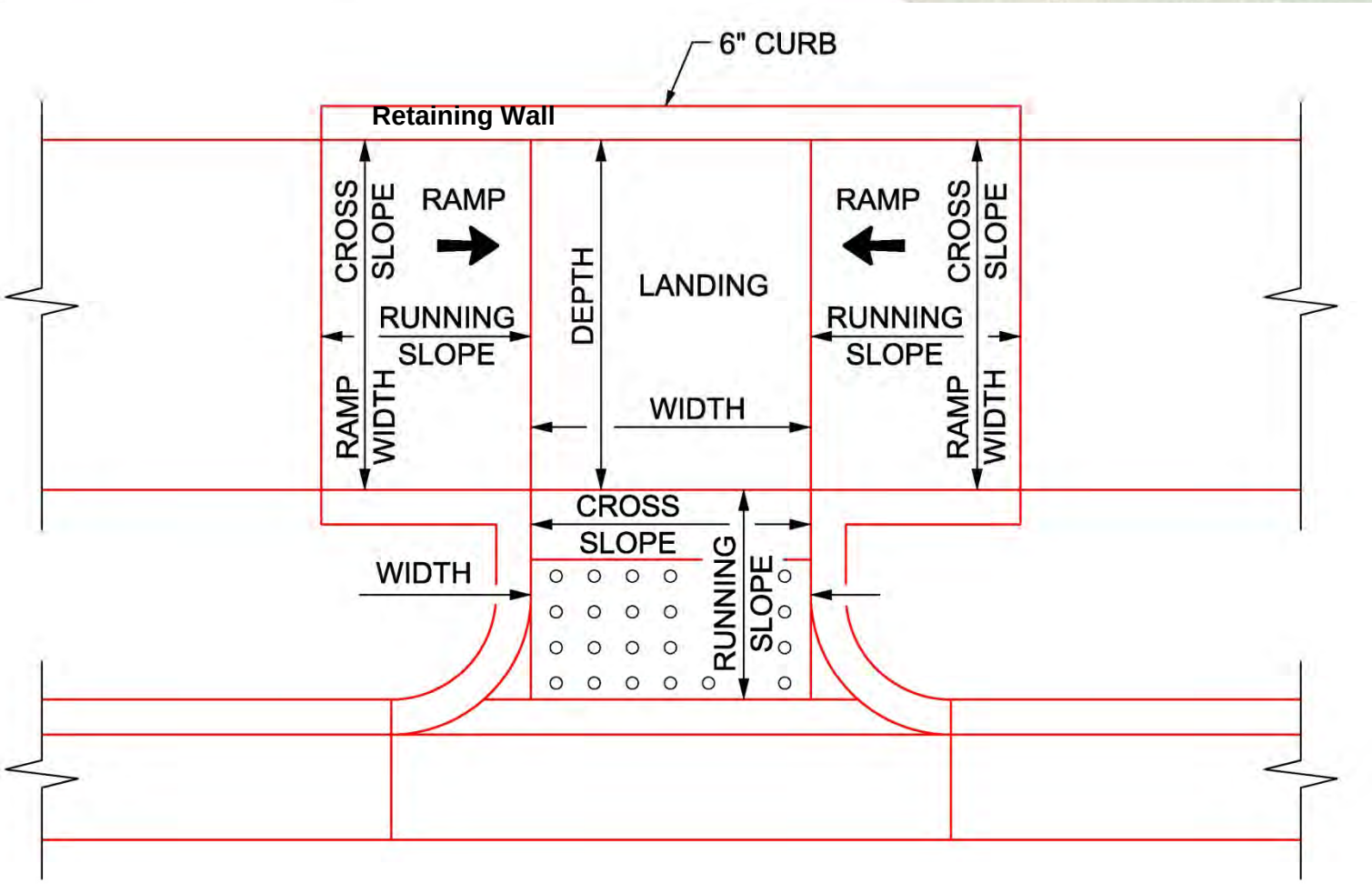


Combination Curb Ramps On Corner

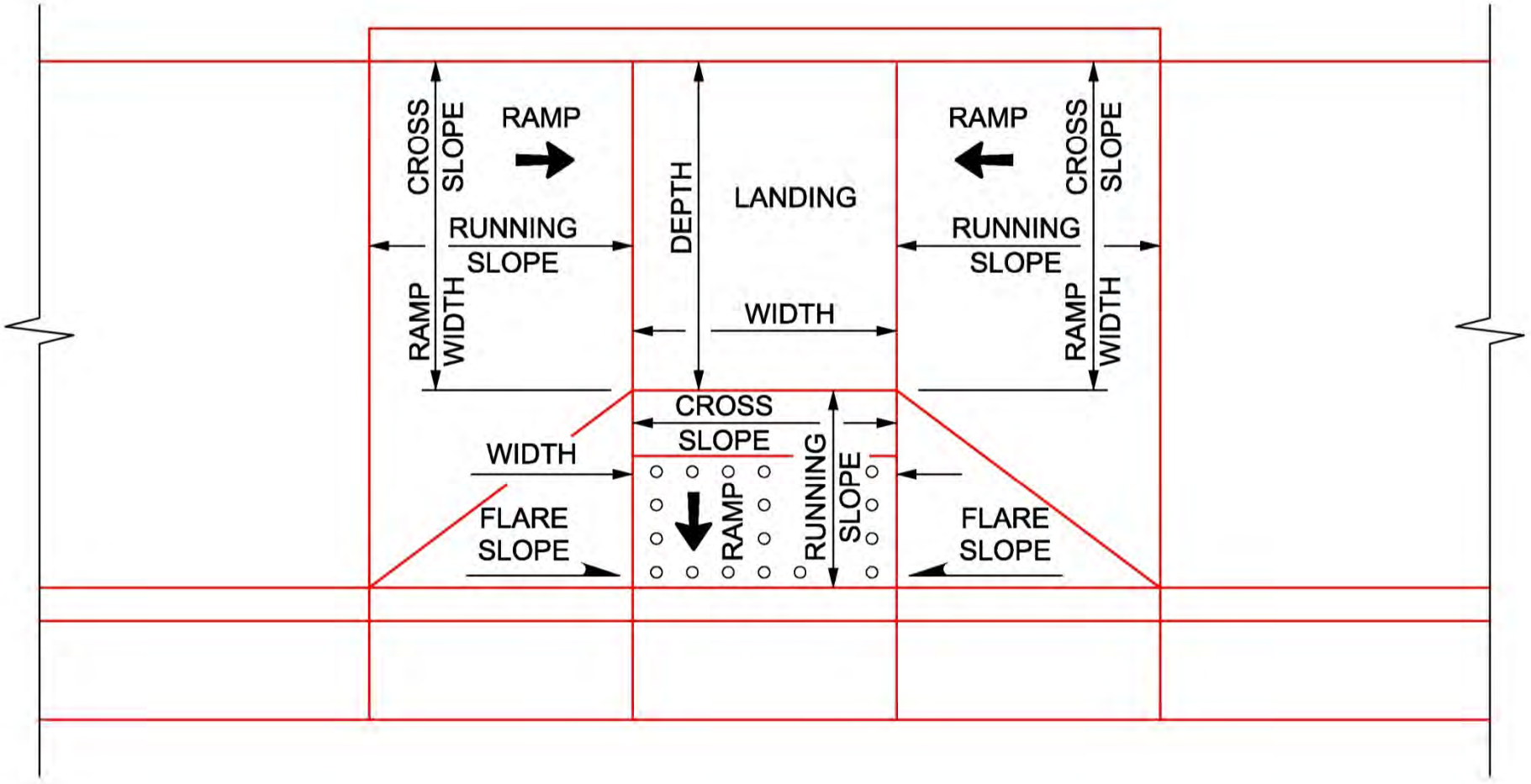
- With a wide turning radius.



Combination Ramp with Vertical Curb



Combination Ramp with Flares



Combination Ramp with flare slopes

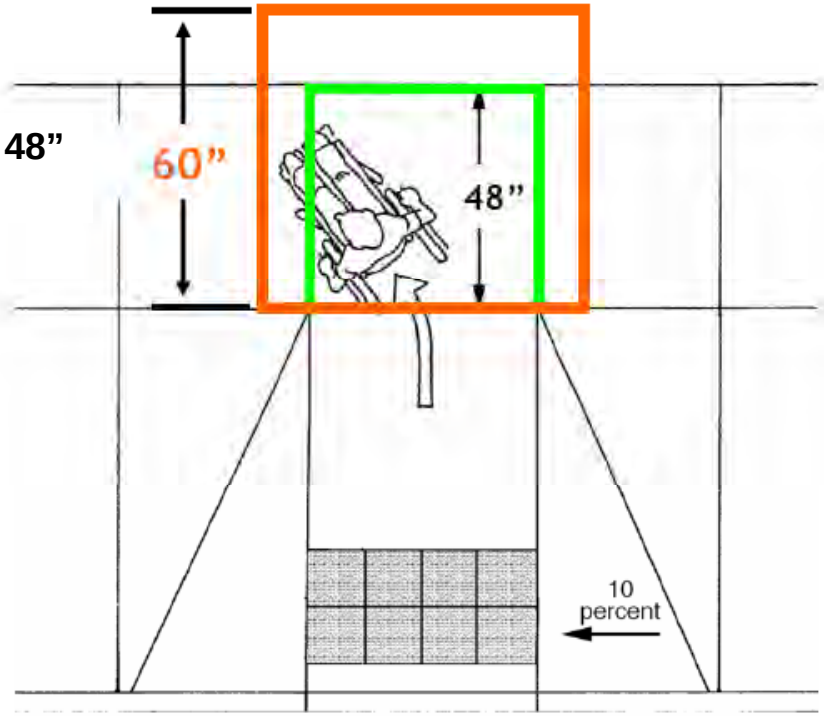
Level Landings

Planter strip & small radius make it easy to place 2 ramps per corner lined up with sidewalks, obstacle-free, and with landings

Landing Dimension and Slope

- Landing should be the width of the ramp and at least 48” deep.
- Landing slope: 2.0% max. in any direction
- Landings may overlap or serve multiple ramps

Minimum size of landings is 48” by 48”
Recommended size is 60” by 60”



Level Landings

Without landing, user must turn while climbing, which is difficult for many users

END PART 2

Questions?

Thank You !

Jason Giard, PE
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