

The background features a large, light blue watermark of the Indiana Department of Transportation logo, which includes a map of Indiana and the text "INDIANA DEPARTMENT OF TRANSPORTATION". To the right of the logo, there are several vertical icons: an airplane, a train, a car, and a bus.

ADA for Construction Inspection

INDOT Construction Management

January, 2019

Constructing ADA Accessible Facilities

- **Current “Law of the land” is PROWAG**
 - Public Rights-of-Way Accessibility Guidelines
- **PROWAG Guidelines Must be Followed**
 - Exception: Prior to letting an approved Technical Inquiry or Technical Infeasibility should have been approved. A note in the curb ramp details should be in the plans.
 - If it is determined after the letting, a curb ramp cannot be built as shown in the plans, the Area Engineer should contact the INDOT ADA Technical Advisory Committee (TAC) for any inquiries.
 - Designer may also need to be contacted before the TAC
- **Curb Ramps are not “cookie cutter”**
 - Every situation is different
 - Contractor and inspection team should discuss nuances of every ramp prior to construction
 - The proposed design may need to be adjusted. If adjustments are needed the designer should be contacted.

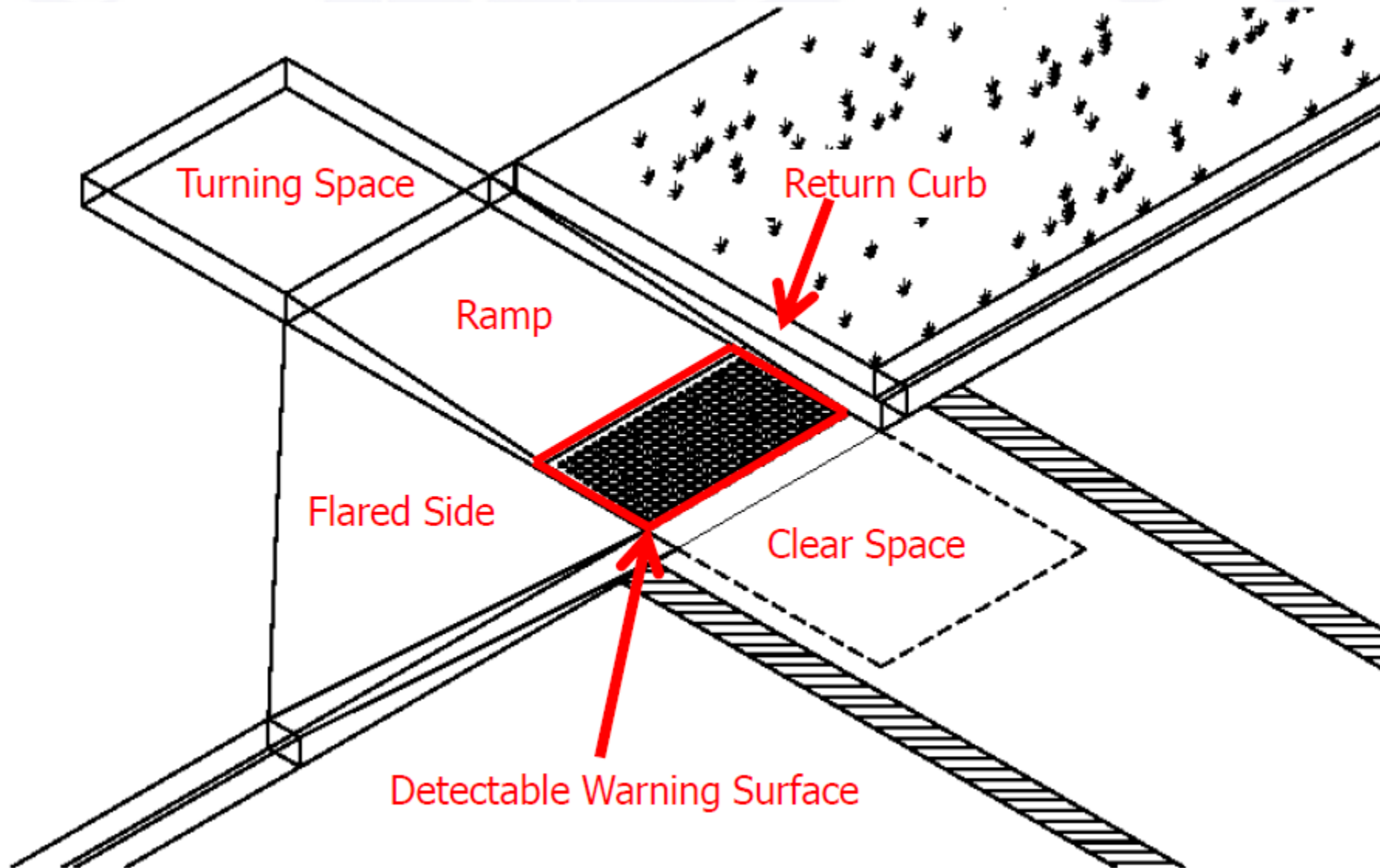
INDOT Standards

- **INDOT Standard Specifications**
 - SS 604
- **INDOT Standard Drawings**
 - 604-SWCR
 - 604-SDWK
- **Indiana Design Manual**
 - IDM Chapter 51 Section 51-1.0
- **GIFE Section 22**

Key Elements

- Ramps: width, cross slope, running slope
- Turning Space: width, length, cross slope, running slope
- Detectable warning Surface (aka Truncated Domes)
- Gutter: counter slope
- Push button size, placement, accessibility features
- Pedestrian MOT
- Constructability & technical infeasibility

Curb Ramp Components



Essential Tools for Inspection



- **2 ft Level and Straightedge or 2 ft Smartlevel (calibrated)**
- Tape measure
- There is no construction tolerance for cross slope, e.g. 2.01% is out of compliance for a 2.00% maximum slope.
- Record largest values for cross slope, running slope, and counter slope after checking multiple locations to the nearest hundredth of a percent.

Ramp Running Slope



8.33% is the maximum running slope for a ramp unless the plans have a note that the TAC has approved a steeper slope.

Slope measured along the direction of pedestrian traffic

Ramp Cross Slope

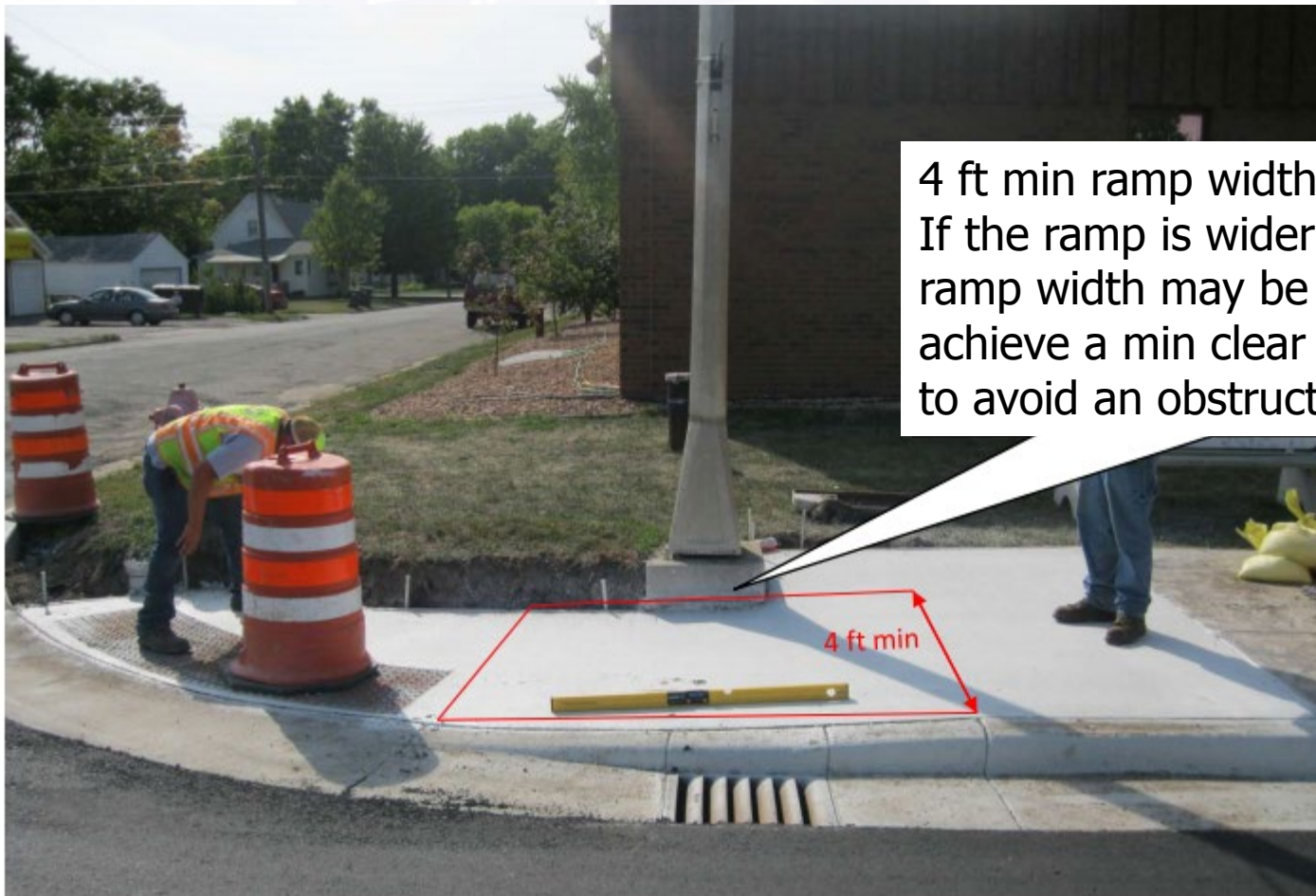


2 % is the maximum Cross slope for a ramp unless the plans have a note that the TAC has approved a steeper slope.

- Slope measured perpendicular to the direction of pedestrian traffic

Ramp and Sidewalk Width

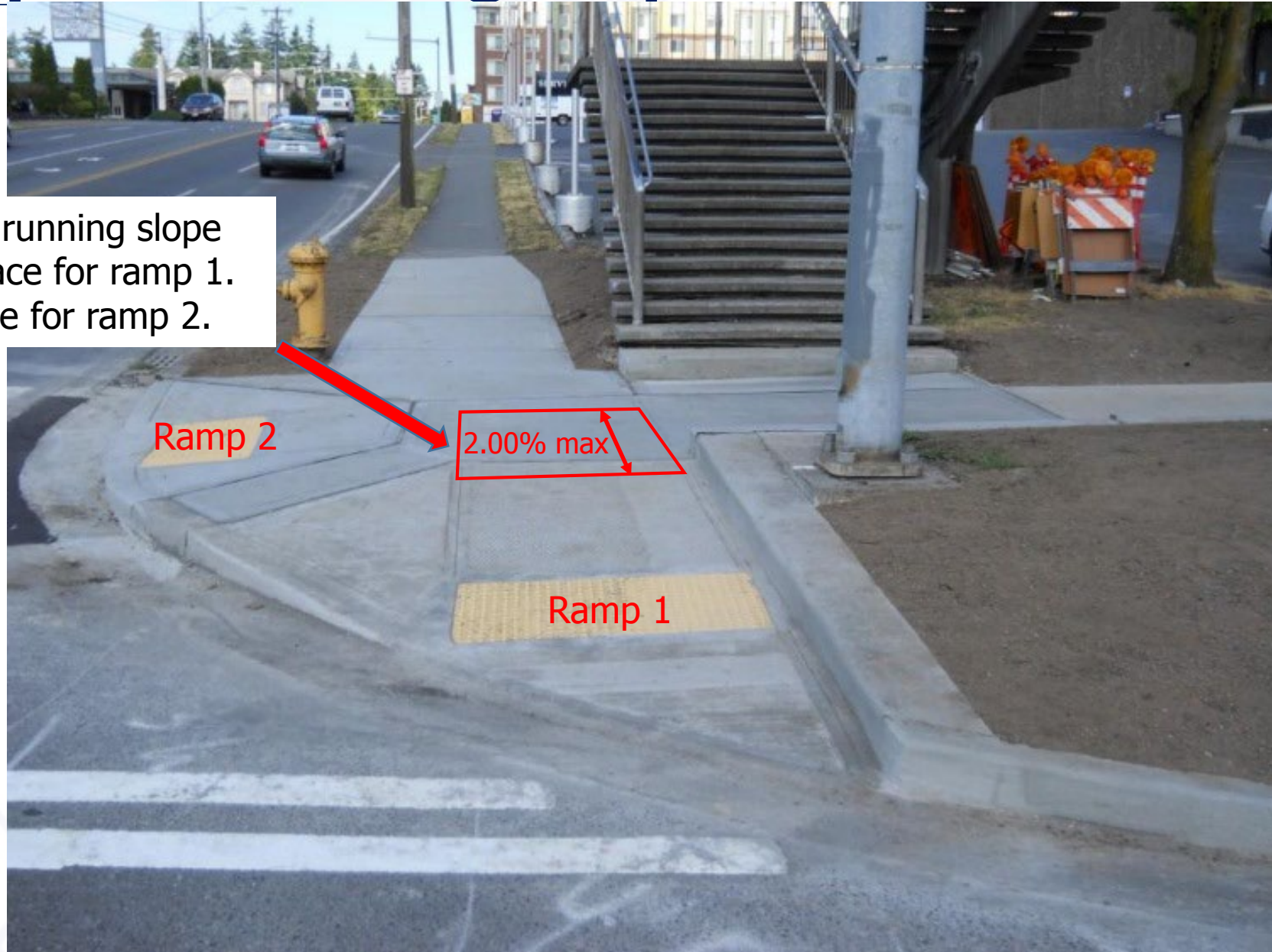
- Minimum ramp width is 4 ft. Exceptions to this are shown on Standard Drawing E 604-SWCR Series, where a minimum of 5 ft is required in order to provide a passing space.



4 ft min ramp width is required. If the ramp is wider than 4 ft, the ramp width may be reduce to achieve a min clear width of 4 ft to avoid an obstruction.

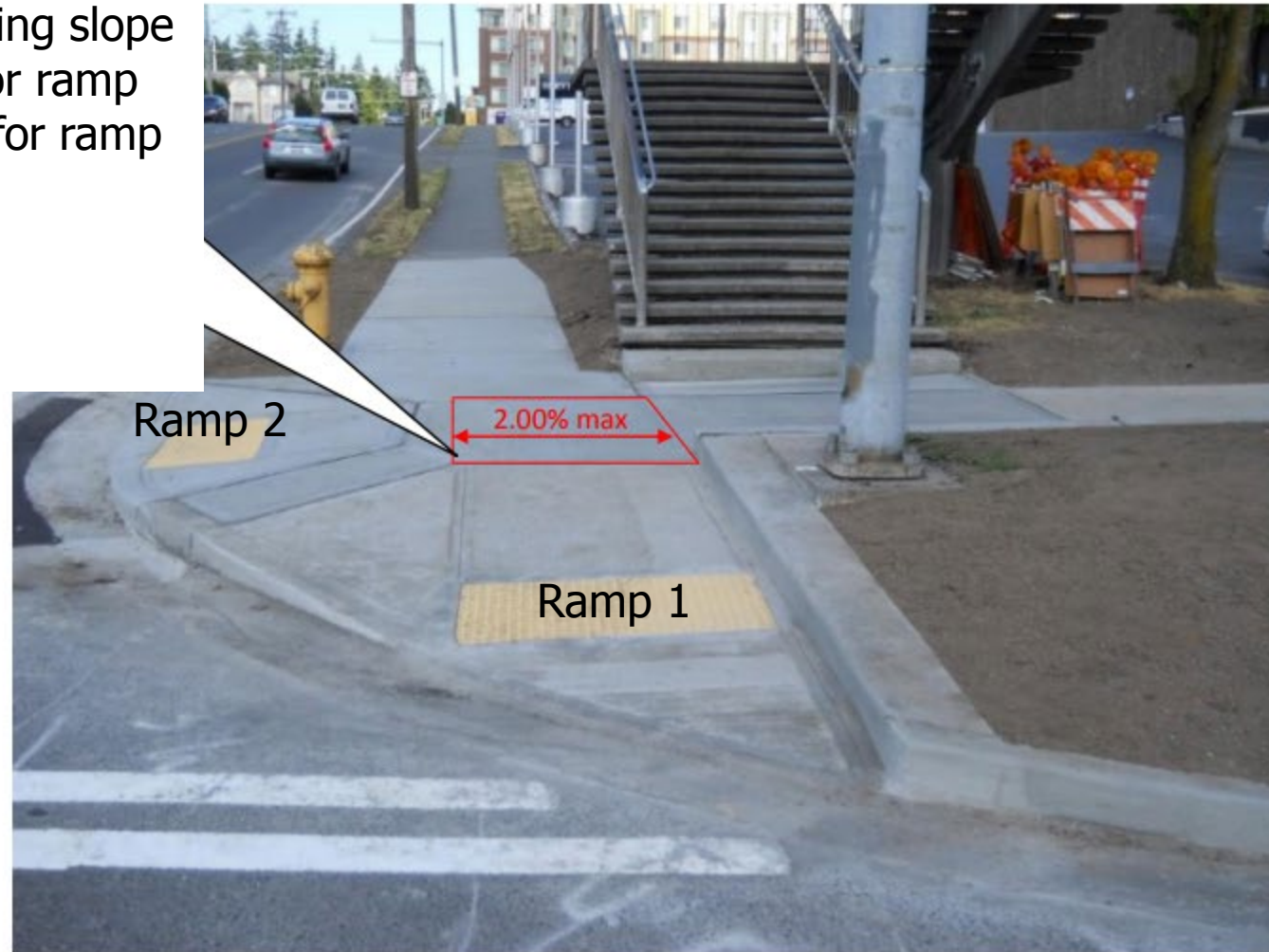
Turning Space Running Slope

2.00% is the max running slope for the turning space for ramp 1. It is the cross slope for ramp 2.



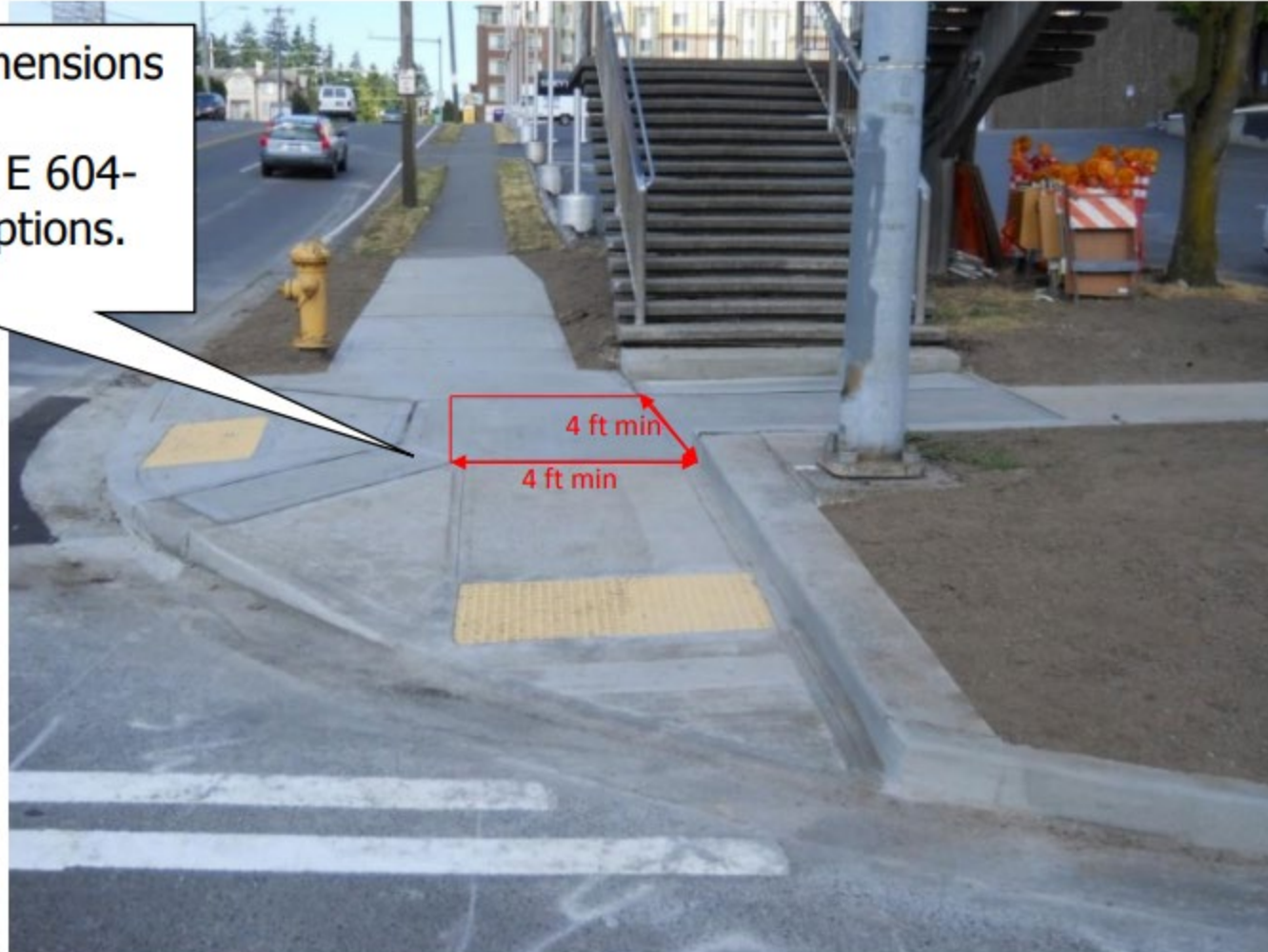
Turning Space Cross Slope

2.00% is the max running slope for the turning space for ramp 2. It is the cross slope for ramp 1.



Turning Space Area

Minimum clear dimensions of 4 ft x 4 ft. See Standard Drawing E 604-SWCR-01 for exceptions.



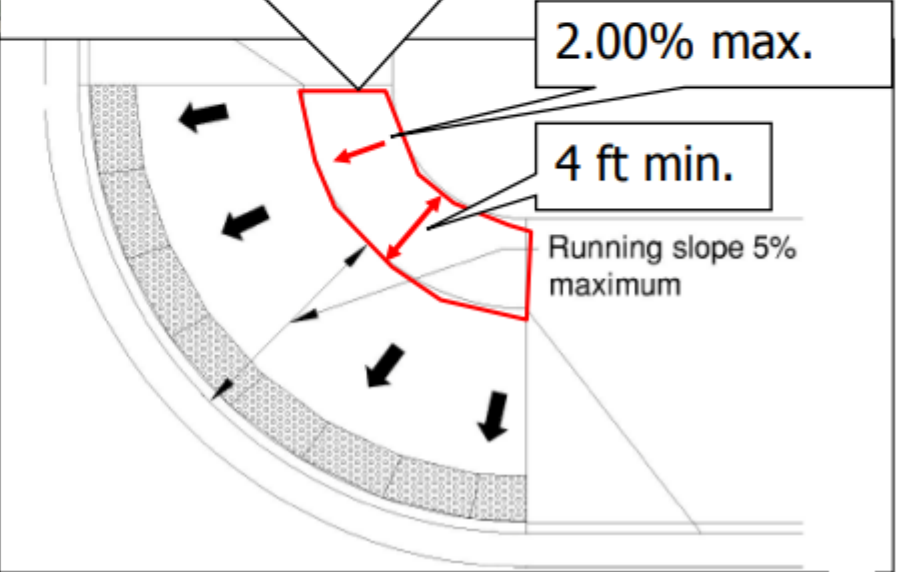
Blended Transition Running Slope



No sidewalk above the blended transition.

Where a minimum 4 ft sidewalk width, with a 2.00% maximum cross slope is above the blended transition, the maximum running slope of the blended transition may be 5.00%.

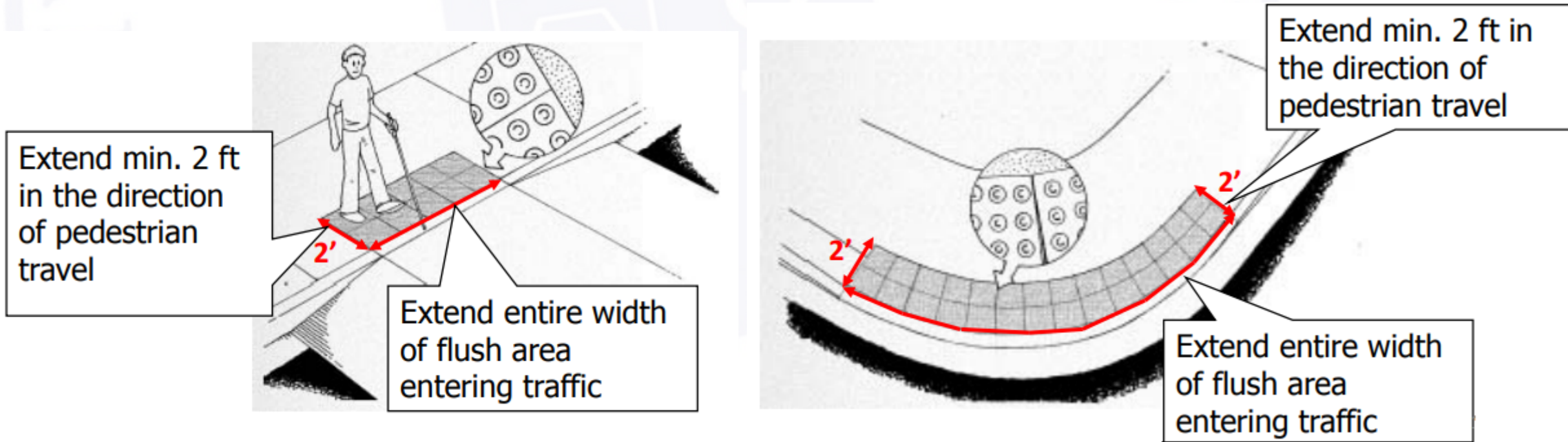
2.00% maximum running slope where there is not a 4 ft sidewalk above the blended transition.
See Standard Drawing E 604-SWCR-09 for exceptions.



Detectable Warning Surface Placement

Per standard always extends a minimum 2' in the direction of pedestrian travel

- Extends the full width of a flush area entering traffic
- Surfaces do not indicate directionality, only serve as a warning for entering traffic
- See Standard Drawings E 604-SWCR-12, -13, and -14. The domes must meet the min and max spacings as shown on drawing. Contact TAC if it doesn't meet along a cut edge.



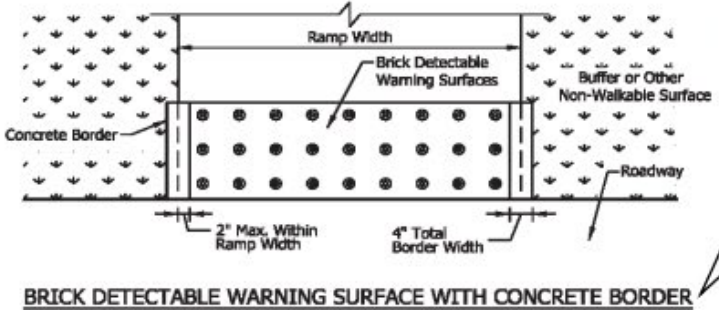
Detectable Warning Surface Placement



The DWS is the entire width of the ramp and extends 2 ft in the direction of pedestrian travel. This DWS is compliant.



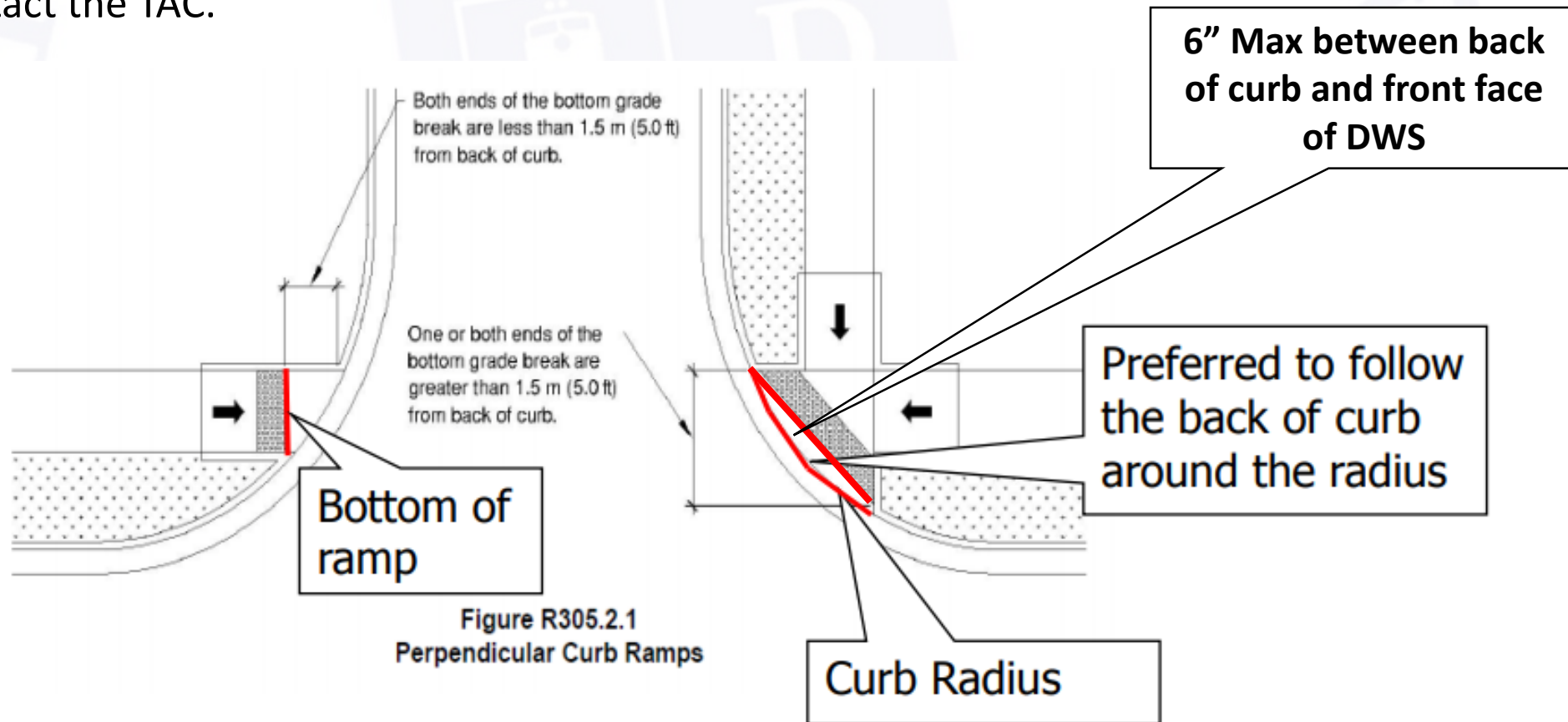
Both borders are greater than 2". This is not compliant.



If a border is needed it can only encroach 2 inches from either side of the entry to traffic. See STD DWG E 604-SWCR-14

Detectable Warning Surface Placement

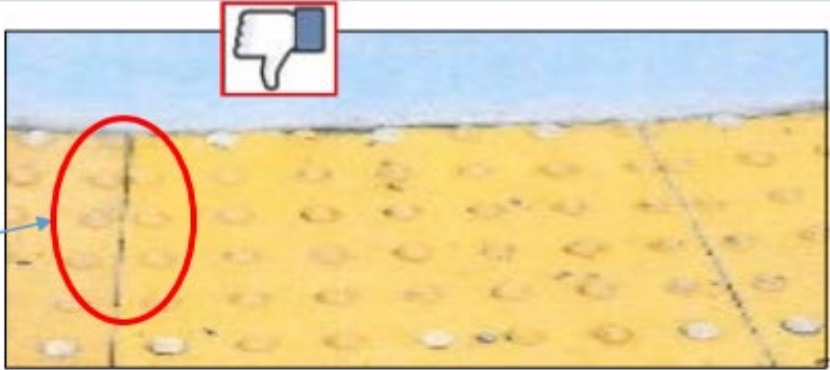
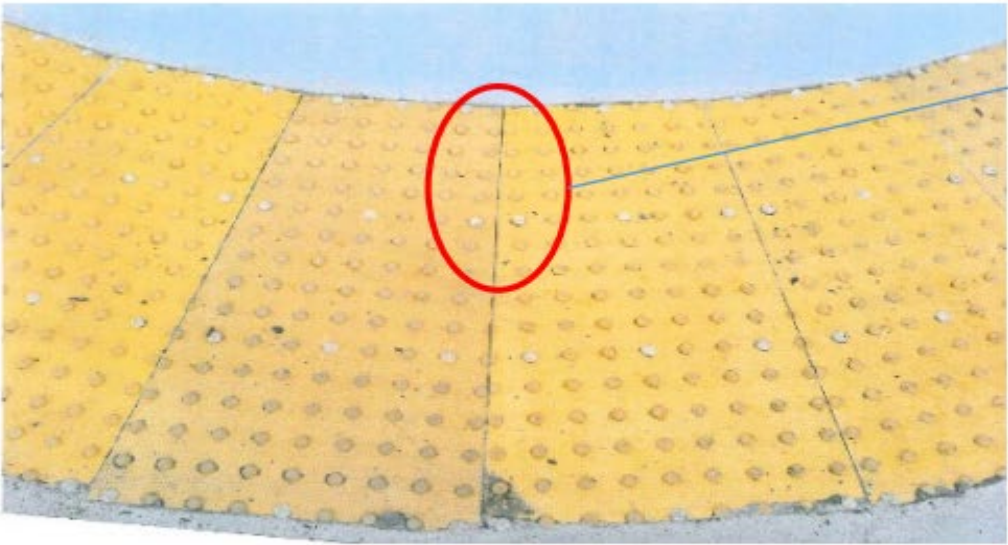
If distance between back of curb and detectable warning surface is less than 5ft, the DWS can be placed at the bottom of the ramp, perpendicular to the direction of pedestrian travel. If the distance is greater than 5ft, the DWS should be placed along the radius at the back of curb. If this distance is greater than 6" contact the TAC.



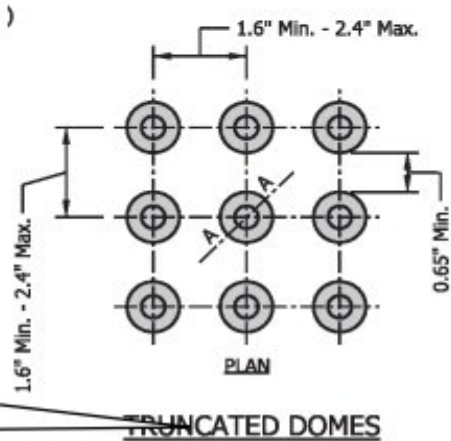
Detectable Warning Surface Placement

Where detectable warning surfaces are placed around radii by setting multiple plates, the minimum and maximum truncated dome spacing shown on Standard Drawing E 604-SWCR-14 must be met.

Contact the TAC for direction if domes spacings don't meet the min and max requirements.



Dome Spacing
Standard Drawing E 604-SWCR-14



Detectable Warning Surface Placement

Where multiple plates are used for a detectable warning surfaces the plate ends should complete touch, no concrete should be visible between the plates.



Change of Grade

If the change of grade is greater than 11% a 2 ft level area is required prior to the counter slope. See Standard Drawing E 604-SWCR-14. The changed of grade shall not be greater than 13.33%.

Calculate Change of Grade:
Ramp running slope + Counter slope = Change of Grade
 $4.71\% + 0.67\% = 5.38\%$



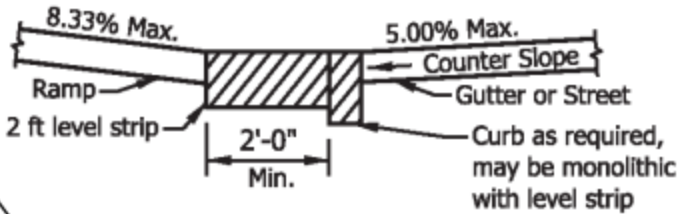
Measure the ramp running slope, 4.71%



Measure the gutter slope (counter slope), 0.67%



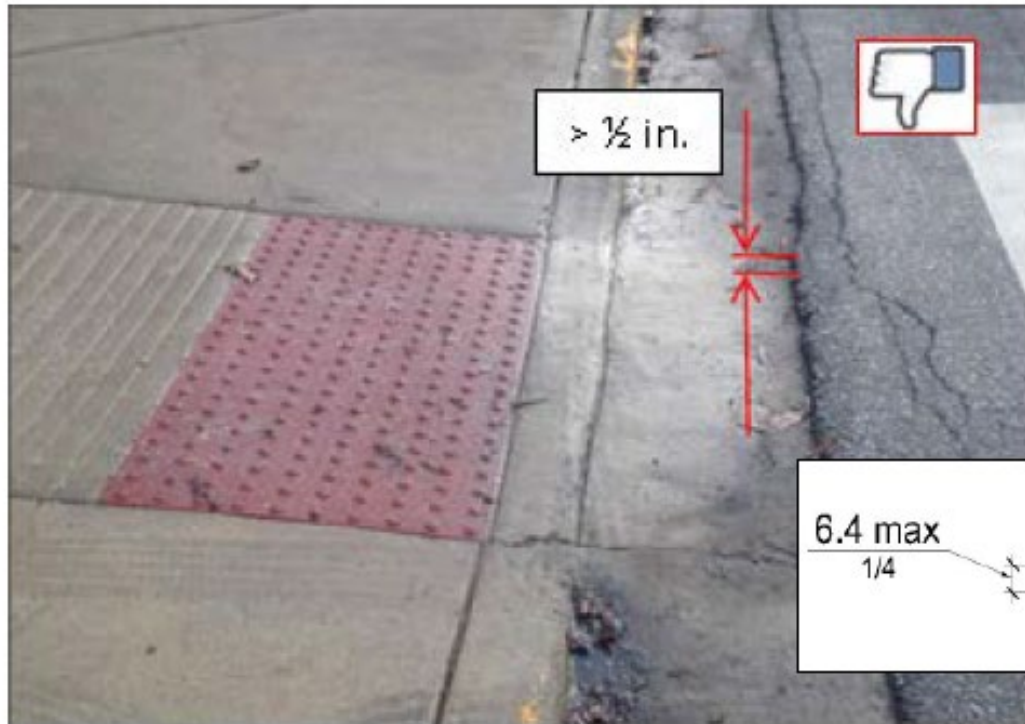
2 ft level area for Change of Grade > 11%, Standard Drawing E 604-SWCR-14



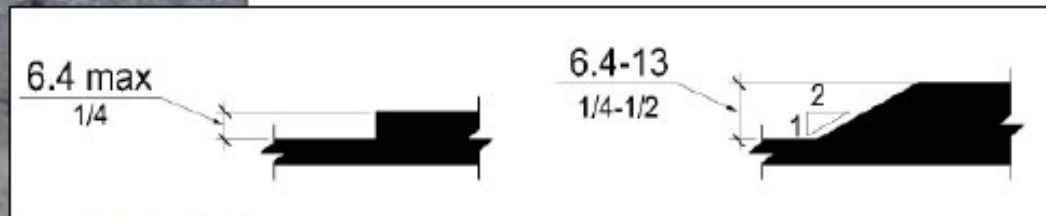
CHANGE OF GRADE > 11% ⑤

Vertical Surface Discontinuities

Where the curb ramp meets the roadway it shall be flush, no vertical discontinuities allowed.

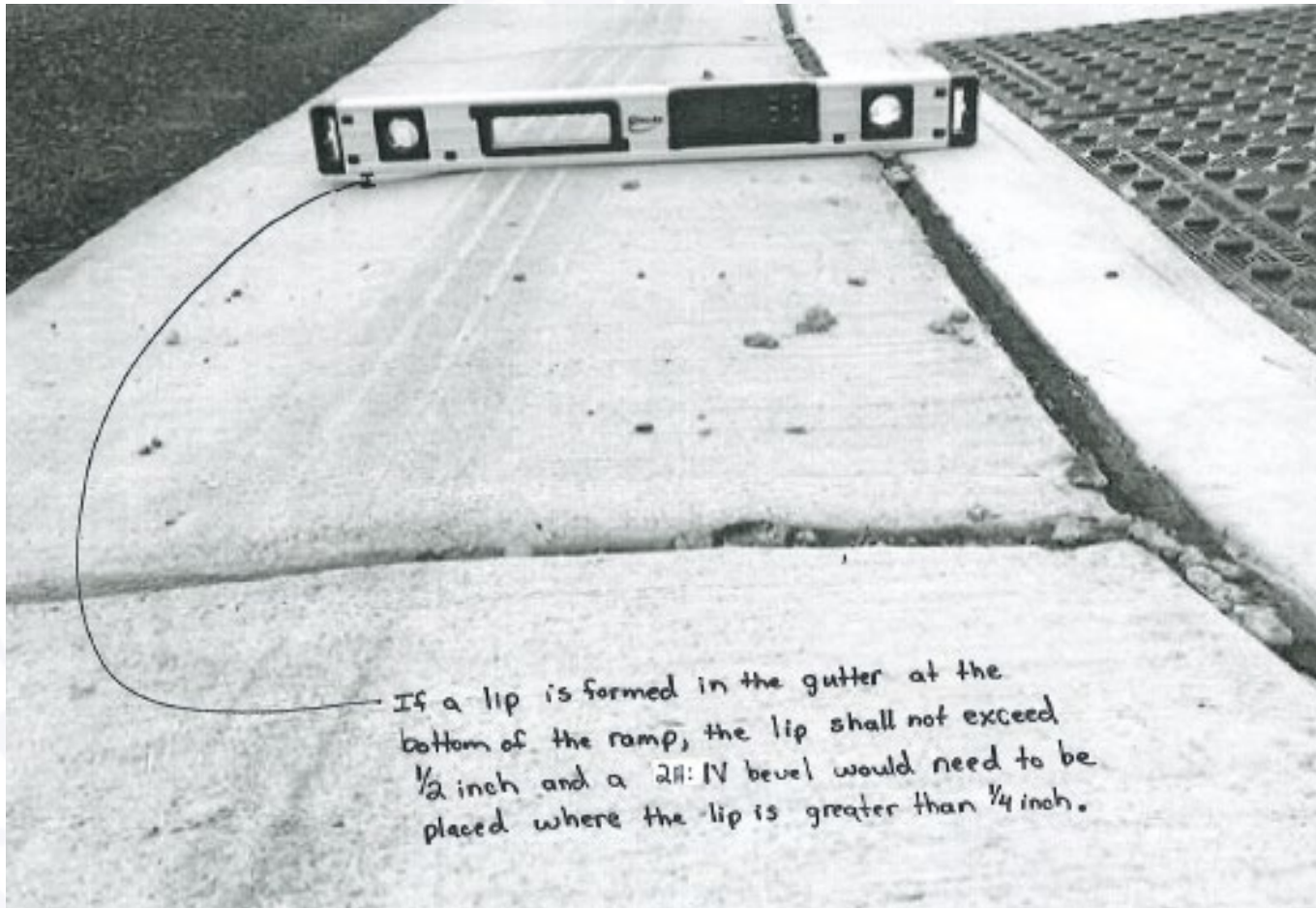


This curb ramp is flush at the curb line, but an overlay has created a vertical discontinuity.



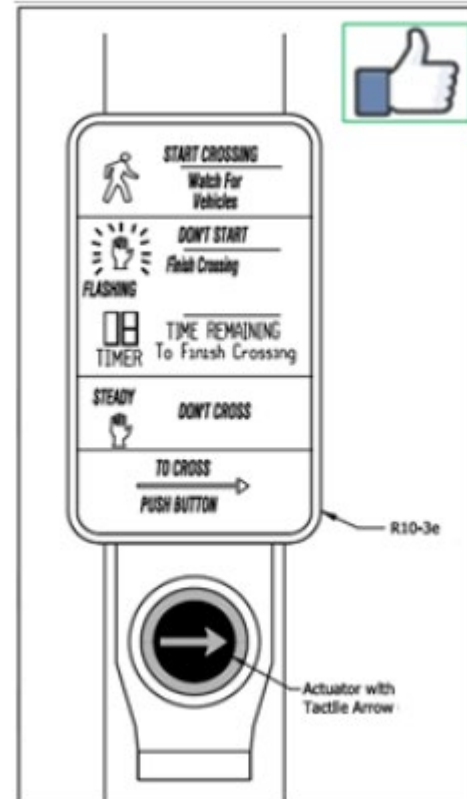
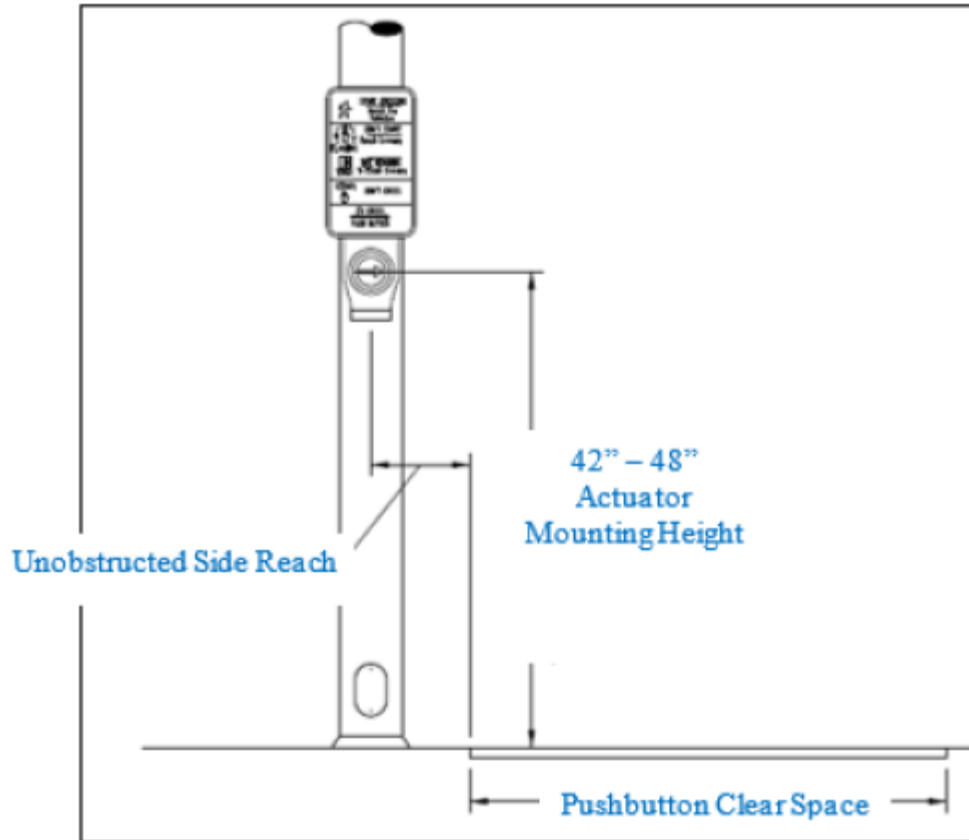
Vertical Surface Discontinuities

When construction a new curb ramp no lip should be present between the curb ramp and street. This area should always be flush. No lip is allowed.



Pedestrian Signals/Push Buttons

- The actuator must be mounted between 42 and 48 inches and the unobstructed side reach must be 10 inches or less.
- The actuator must be at least 2 ins. in diameter with a tactile arrow (for APS) and contrast with the housing.
- Fingertip pushbuttons are not acceptable.



Pedestrian Signals/Push Buttons

- A clear space, similar to a curb ramp turning space must be provided adjacent the pushbutton assembly.
- Minimum dimensions are 4 ft by 4 ft and maximum cross slope and running slopes of 2.00%.
- The pushbutton clear space may overlap a curb ramp turning space.
- Where a pushbutton clear space does overlap a turning space, the pushbutton clear space is subject to the same cross slope exceptions as the turning space noted on E604-SWCR-01.



Construction tolerance

- No tolerance for ranges
- Conventional industry tolerance for absolute values

E.g.:

- 0-2% slope means no more than 2% (2.1 does not comply!)
- 4' minimum width means no less than 4' (3.9' does not comply!)
- 42"-48" mounting height means no less than 42", no more than 48"

Pedestrian MOT

Pedestrian MOT should be shown in the plans

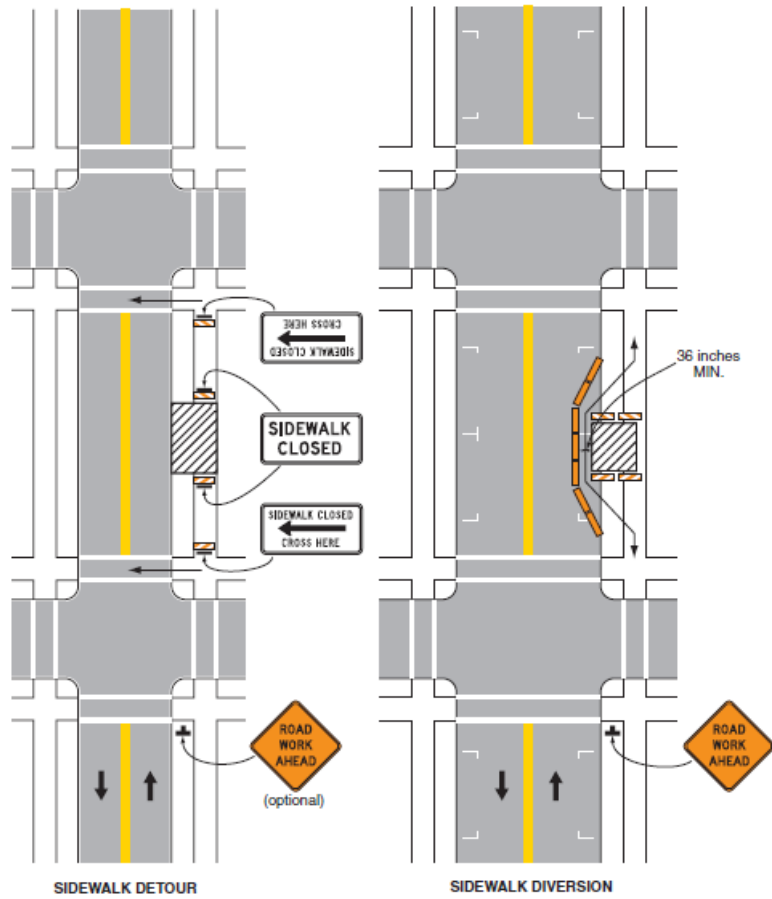
- Note crossing locations prior to actual closure.
- Address vertical lip caused by milling/paving.

Barricades should:

- Be a high visibility color (orange/yellow).
- Be detectable by cane, as long as the bottom of the bottom surface is 2" or less above the ground and the top of the top surface is 32" or more, that barrier would be detectable.
- Shield both work area and roadway.

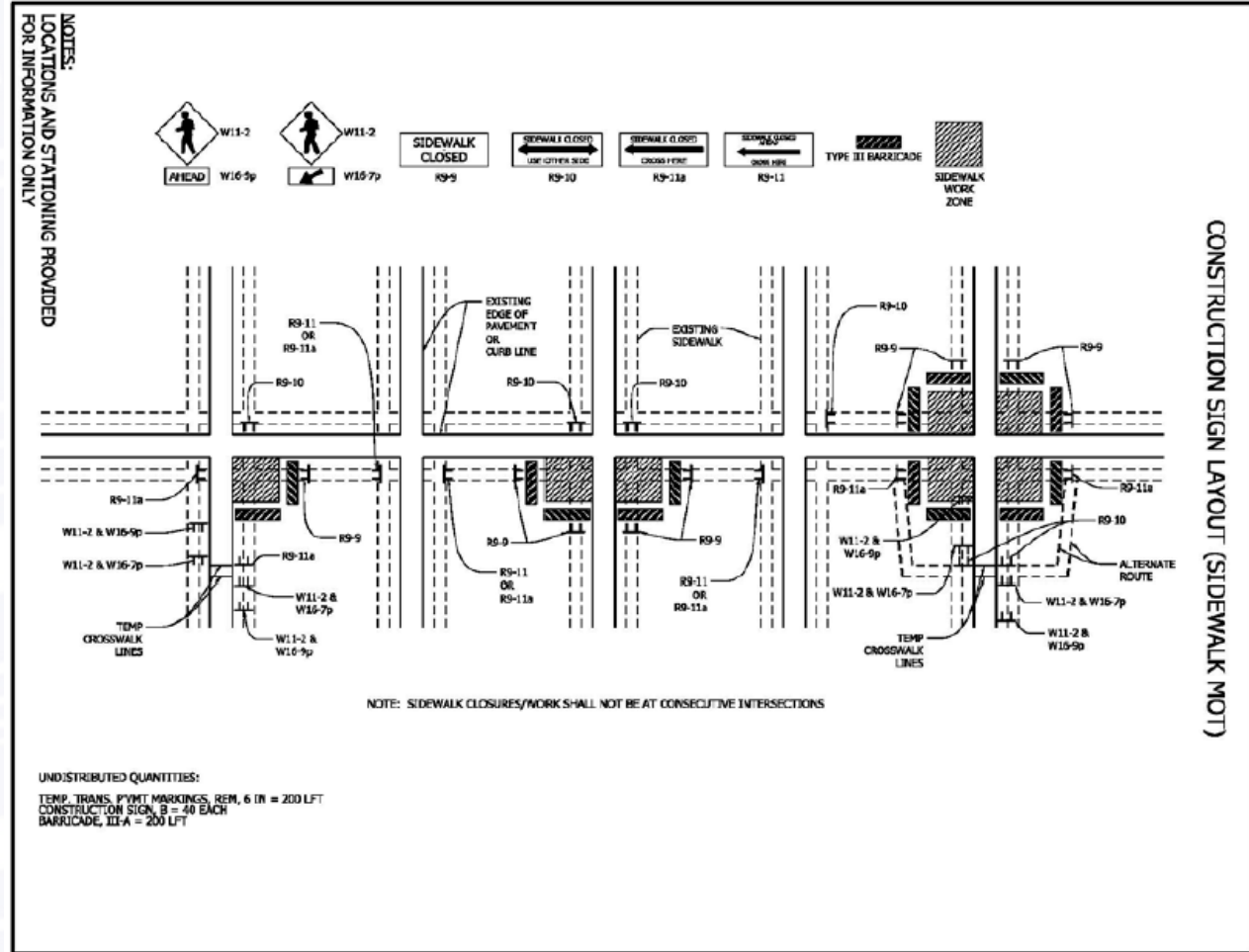
Pedestrian MOT Detail

Figure 6H-28. Sidewalk Detour or Diversion (TA-28)



Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.



Pedestrian MOT

Pathway

- Walkways shall be 5' in clear width
- If less than 5', passing Spaces of 5' x 5', every 200'
- Intrusion free



Pedestrian MOT

This is not a detectable barricade for Pedestrian MOT



Pedestrian MOT

Detectable barricades for Pedestrian MOT



Pedestrian MOT



Pedestrian MOT

**Audible
Information
Device
mounted to a
Vertical Panel**



Pedestrian MOT

Surface

Broken,
Interrupted, or
Changes in Levels:

- Surface < 1/2" max
- Use ramp for broken surfaces > 2"
- Cross-slope shall be 2% max



Pedestrian MOT

Temporary Ramps



Technical Inquiry or Infeasibility

- When an element of the PAR can't be constructed in full compliance with ADA Standards
- A Technical Inquiry exists if an element of PAR can't fully comply due to an existing physical constraint which makes it impractical, within scope of work.
- A Technical Infeasibility exists if an element of PAR can't fully comply due to an existing constraint that cannot be removed or adjusted.

Technical Inquiry or Infeasibility

If the plans do not accurately reflect the field conditions encountered:

- PE/S should work through the AE and the designer to examine alternative solutions.
- ADA Technical Advisory Committee can provide technical assistance (ADA@indot.in.gov).
- If an alternative that meets the ADA requirements cannot be found, the PE/S should have the designer document the alternatives considered and request a determination of technical inquiry or infeasibility.

Changes from previous INDOT practice

1. Designers have been directed to fully detail curb ramps on the construction plans.
2. **There is no construction tolerance for cross slope.**
3. **There is no construction tolerance for running slope.**
4. The Standard Drawings no longer identify curb ramps by a letter type. They are identified by configuration – either perpendicular, parallel, blended transition, depressed corner, or diagonal.
5. All curb ramps are paid for as a single pay item Curb Ramp, Concrete.
6. Detectable Warning Surfaces (truncated domes) are paid for separately. The area of detectable warning surfaces is not subtracted out of the Curb Ramp, Concrete quantity.
7. Detectable Warning Surfaces, Retrofit was added as a pay item. This would be place where a curb ramp is fully compliant but just needs the DWS added, for example.

Construction

Yellow Paint on curb is no longer required.



Construction

- Grooves or transverse corrugations on a ramp are no longer required and should not be placed on INDOT projects. LPA projects may still choose to place the grooves.

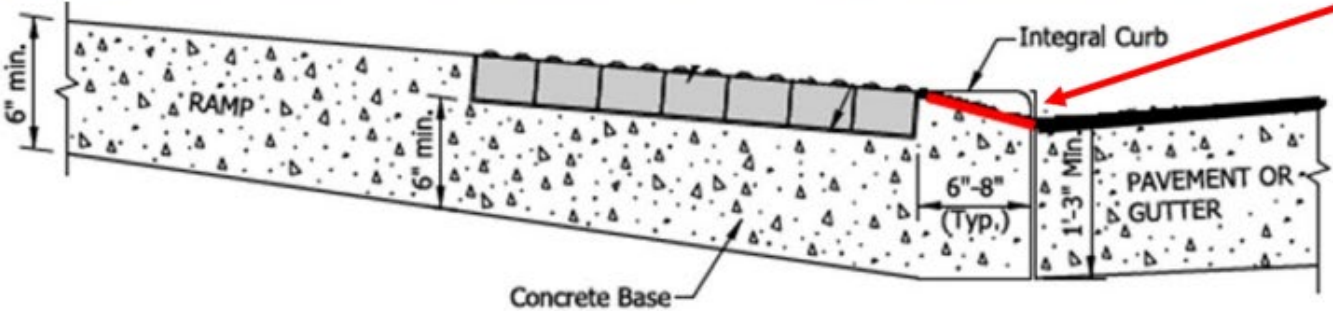


Grooves or transverse corrugations are not required.

Construction



Leaving a 1/4" lip at the edge of the curb for drainage is not legal. Curb shall be built as shown in the drawing during construction



TYPICAL RAMP AND BRICK SURFACE CONSTRUCTION DETAIL

Compliant or Not

This ramp is compliant. The DWS is set the entire width of the ramp, the DWS is less than 5ft from the back of curb, all slopes are less than maximum, and the casting is not within the DWS.



If a casting is within the limits of the pedestrian path or ramp area, warning surface may be placed as shown here. NOTE: casting must be completely flush with path.

Compliant or Not

This ramp is not compliant because the casting is in the DWS.

Options to comply:

- Casting should be relocated
- Curb ramp should be shifted to avoid the casting.



Compliant or Not

This ramp is not compliant because the clear width is less than the Minimum 4 ft.



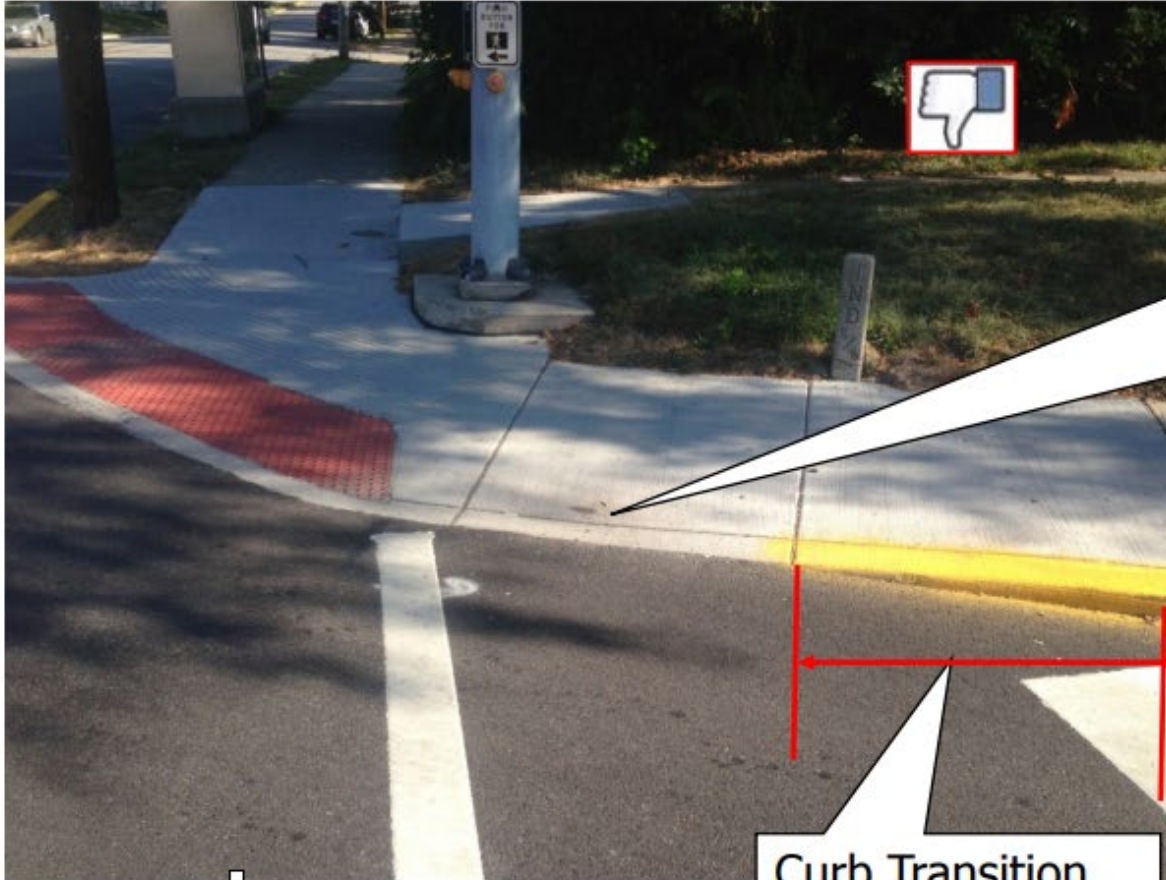
Options to comply:

- Move sign
- Remove building curb if curb is not necessary.
- Modify the curb line with a sidewalk bulge out next to on-street parking.



Compliant or Not

This ramp is not compliant because the DWS has not been provided the entire width of the ramp where it is flush with the street.



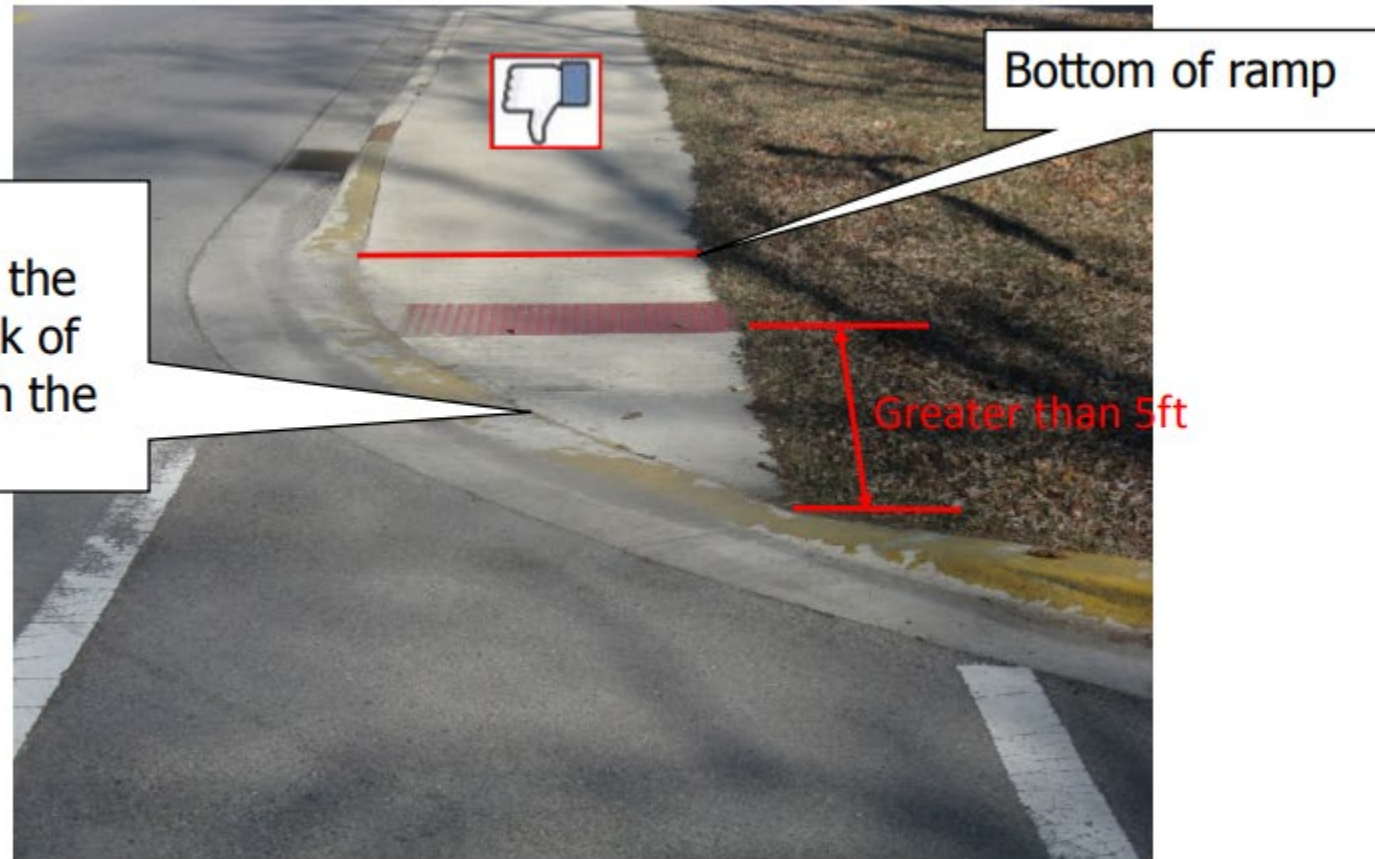
Curb Transition

Options to comply:

- Extend the DWS
- Move the curb transition to remove the flush area not covered by the DWS.

Compliant or Not

This ramp is not compliant because the DWS is not at the bottom of the ramp and has been placed greater than 5 ft from the back of curb.



Options to comply:

- Move the DWS to behind the radius and follow the back of curb where it is flush with the street

Compliant or Not

This ramp is compliant. The DWS is set the entire width of the ramp, a turning space is provided, all slopes are less than maximum, and the curb height of 3" minimum has been provided between the two ramps.

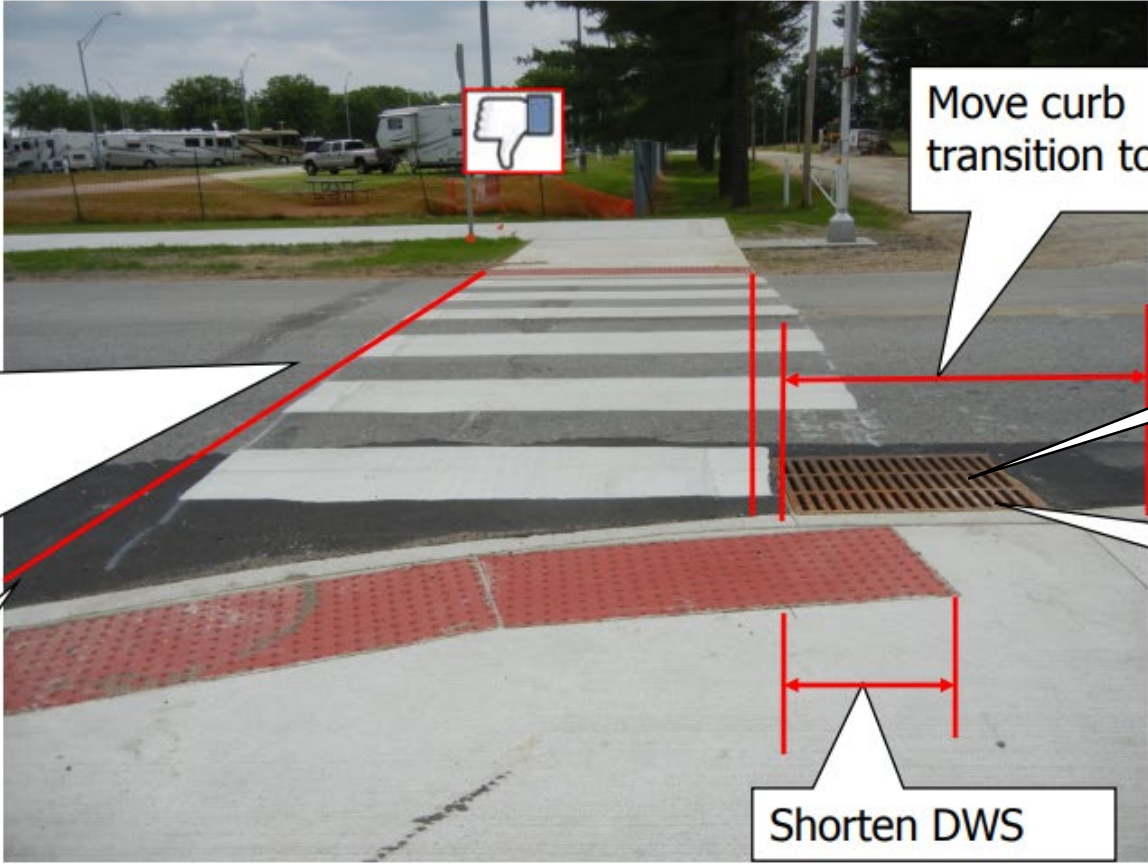


Since a 3" minimum curb height is provided between the ramps, a continuous DWS is not required around the radius.

Compliant or Not

This ramp is not compliant because the inlet is within the crosswalk and the grate is not traversable in all directions. To be traversable the grate openings must be $\frac{1}{2}$ inch x $\frac{1}{2}$ inch. These are $\frac{1}{2}$ inch by 4 inches.

- Options to comply:
- Move curb transition to cover the inlet, shorten the DWS, and skew the crosswalk. (inlet could remain in place for this option)
 - Replace the grate if the INDOT hydraulics section approves.
 - Move the inlet out of the crosswalk.



Skew the crosswalk

Shorten DWS

Move curb transition to here

Grate openings shall be ADA compliant

OR change grate
OR move inlet

Compliant or Not

This ramp is not compliant because there should not be standing water within the curb ramp area.



solution to comply:
Work with grade of the roadway to drain water away from the curb ramp.

Drainage though the ramp area is critical. Even if only a ¼" of water ponds, when this turns to ice, it becomes a huge safety hazard. Consider taking elevations at numerous points in order to get drainage.

Compliant or Not

Minimum dimensions are 4 ft by 4 ft. The pushbutton clear space may overlap a curb ramp turning space. ***Be on the lookout for obstructions such as curb, slopes, guardrail, or unimproved surfaces that may obstruct access to the pushbutton assembly.***



Compliant or Not

The lowest edge of object mounted on pole in Pedestrian Access Route shall be 6.7 ft minimum above finish surface.



6.7ft min

Compliant or Not



Barrier and the toe plate were used

Compliant or Not



Curb Ramp Check List

1. Compare field conditions to plans before beginning construction.
2. Familiarize yourself with INDOT Standards.
3. All work must follow PROWAG requirements unless an approved technical infeasibility or technical inquiry determination allows for non-compliance of a specific feature.
4. Contact the designer if the curb ramp design needs to be adjusted due to field conditions in order to meet PROWAG criteria.
5. If plans do not include a pedestrian MOT plan, contact designer.
6. Construction sequencing might not be included in the plans or Contract Information Book, but might be necessary

Curb Ramp Check List

7. When checking quality of construction, run slope checks as soon as possible on any given section of sidewalk or specific curb ramp, e.g. when forms are set. Do not construct most of the project, and then begin checking these items. This will allow corrections to be made early and will eliminate the need to remove large amounts of work.
8. Make sure castings will not fall within the limits of detectable warning surface.
9. Castings that fall within pedestrian path or curb ramp limits must be flush with surrounding area.
10. Check to see if water will pond in a ramp or directly in front of it, contact the designer.
11. Check counter slope between ramp and roadway. If the algebraic difference between the counter slope and curb ramp slope is greater than 11% contact the designer.

Curb Ramp Links

- INDOT Standard Drawings: – <http://www.in.gov/dot/div/contracts/standards/drawings/sep16/e/600e/e600%20combined%20pdfs/E604-SWCR.pdf>
- INDOT 2018 Standard Specifications: – <http://www.in.gov/dot/div/contracts/standards/book/sep17/sep.htm>
- PROWAG: – <http://www.access-board.gov/guidelines-and-standards/streetssidewalks/public-rights-of-way/proposed-rights-of-way-guidelines>
- GIFE: - <https://www.in.gov/dot/div/contracts/standards/GIFE/GIFEindex.html>
- Design Manual: <https://www.in.gov/dot/div/contracts/design/IDM%20Complete%202013.pdf>

ADA INFORMATION:

INDOT Intranet

Business Apps & Tools

ADA Technical Advisory Committee Docs

ADA Technical Advisory Committee

Technical Advisory Committee Advisory Opinions & Policies

ADA Resources & Training for Construction Design & Maintenance Personnel

- Accessible Pedestrian Signal (APS) Policy & Request Form
 - [APS Request Form - Fillable](#)
 - [Operations Memo 14-01 - APS Studies-LNG Notes](#)
 - [Signed APS Policy & Transmittal Letter-Highlight](#)
- ADA PowerPoint Presentations
 - [2014 ADA Construction Inspection Fall 2014 Training](#)
 - [ADA 10-23-13 Revised by ES 1-20-14](#)
 - [ADA Construction Inspection E. Seef Comm Revised 2.18.14](#)
- Design Standards
 - [2010 ADA Standards prt](#)
 - [MUTCD Part 6](#)
 - [PROWAG nprm](#)
- [2014 ADA Construction Inspection, Fall 2014 Training Handout](#)
- [805-T-202 140301](#)
- [Acceptance Joint Technical Assistance Memo 10-31-13](#)
- [ADA Resources 11-7-14](#)
- [Alterations Design Memo](#)
- [Pedestrian Checklist MOT](#)
- [Sample Curb Ramp Inspection Form](#)

ADA Technical Infeasibility Requests & Determinations

- [ADA Technically Infeasible Form Instructions 1st Draft](#)
- [Executed Technical Infeasibility Policy](#)
- [Technical Infeasibility Request Form](#)

Questions?

