

# Intro



## ADA Operations Contact Info

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<http://www.dot.state.mn.us/ada/construction.html>

*Your Destination... Our Priority*





# MnDOT ADA Training

## Curb Ramp Construction 2017

### Module I

*Your Destination...Our Priority*



# ADA Construction

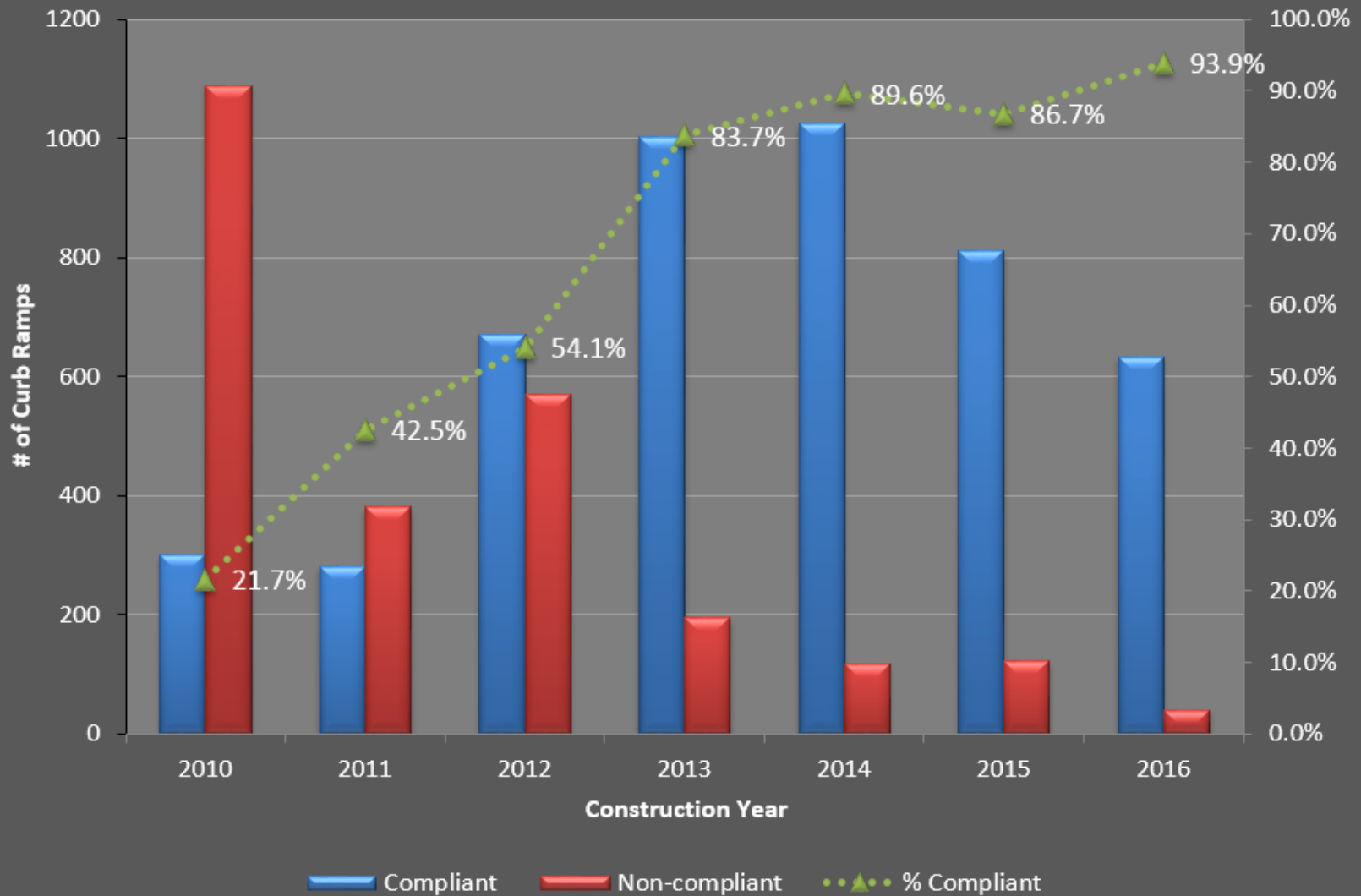
## Construction Lessons Learned



# ADA Construction



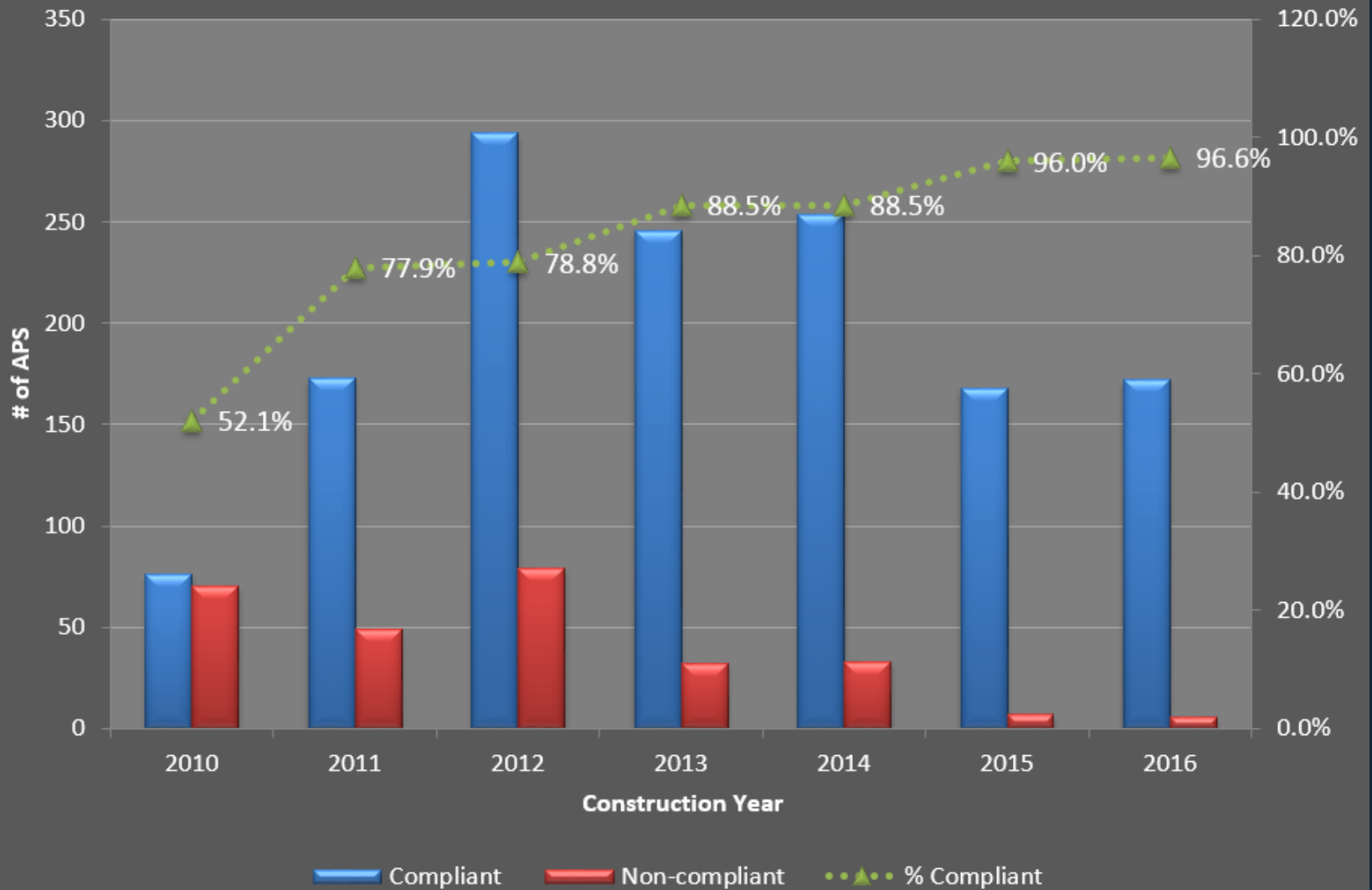
## Curb Ramps Compliance by Year [District ALL]



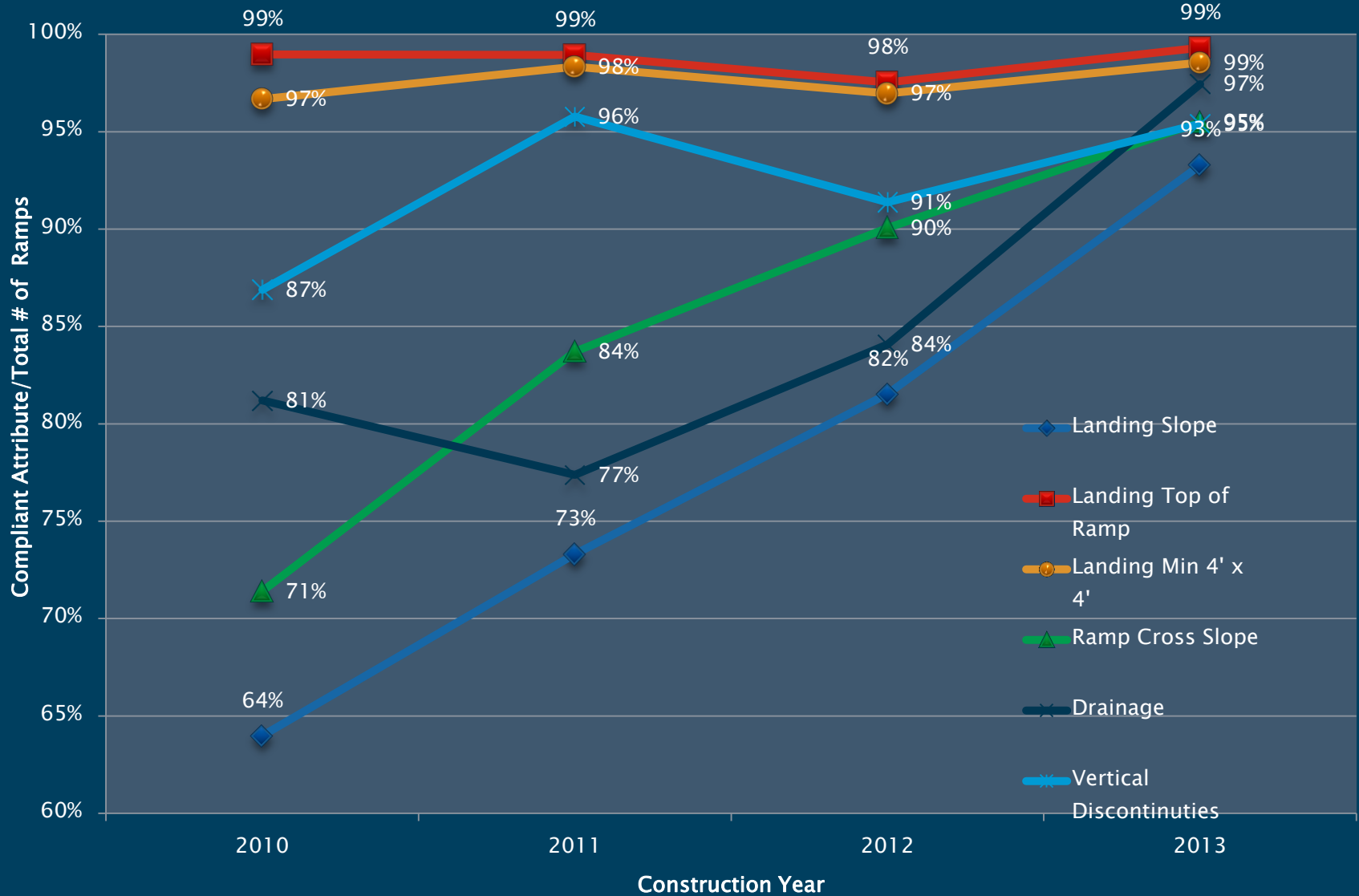
# ADA Construction



## APS Compliance by Year [District ALL]



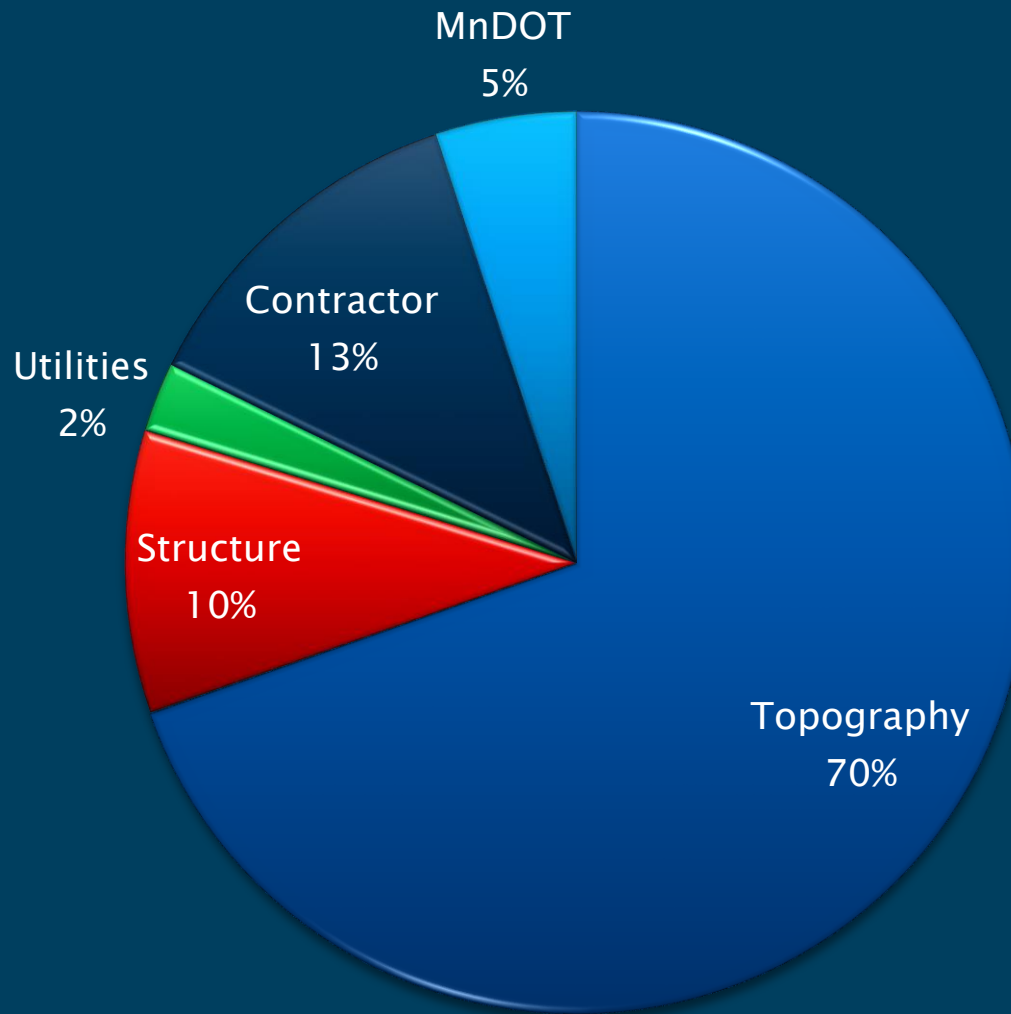
# Compliant Curb Ramp Attributes by Percentage



\*2014 data incomplete – not included

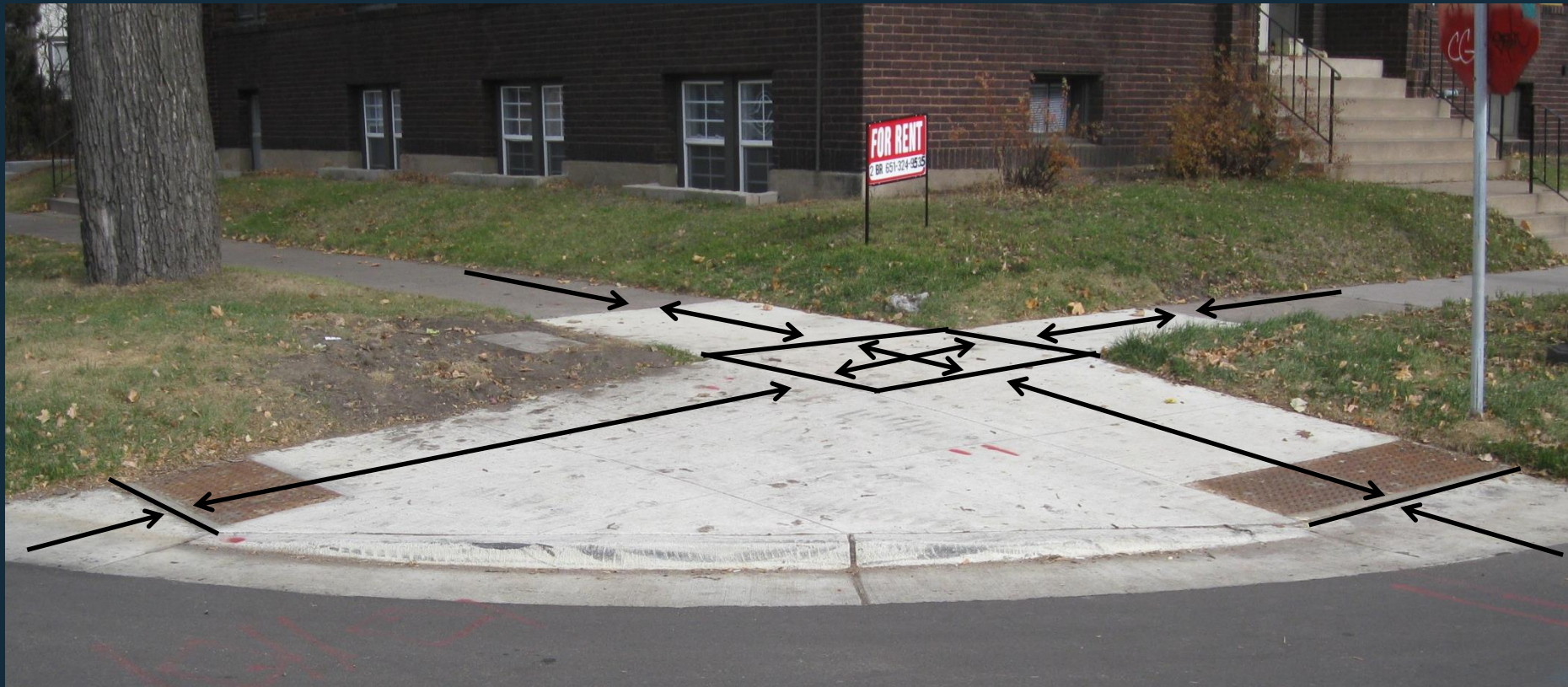


# REASON FOR NON-COMPLIANT RAMPS IN 2014



# ADA Construction Grade Breaks

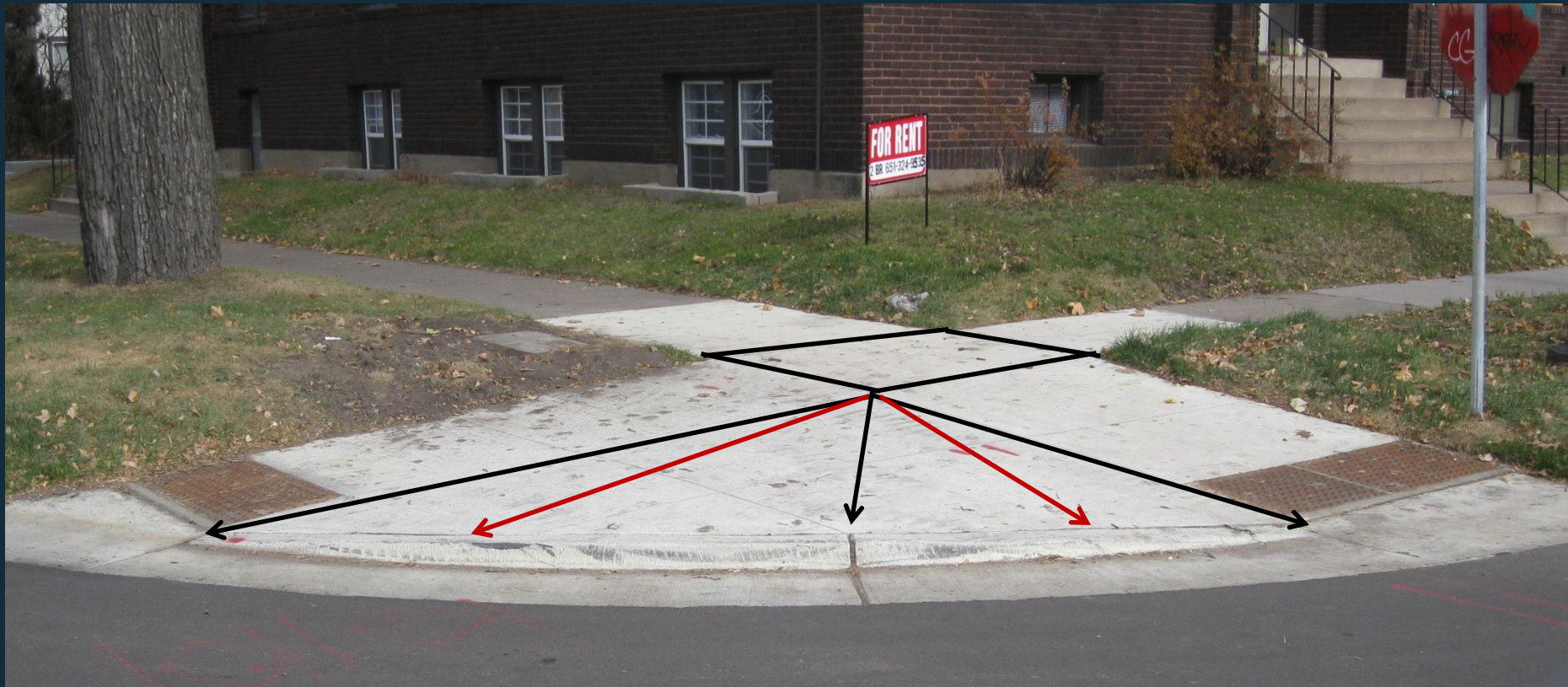
- Specifications for Construction 2521.3D2
- Provide vertical and straight joints parallel with or at right angles to the walk centerline





# ADA Construction Grade Breaks

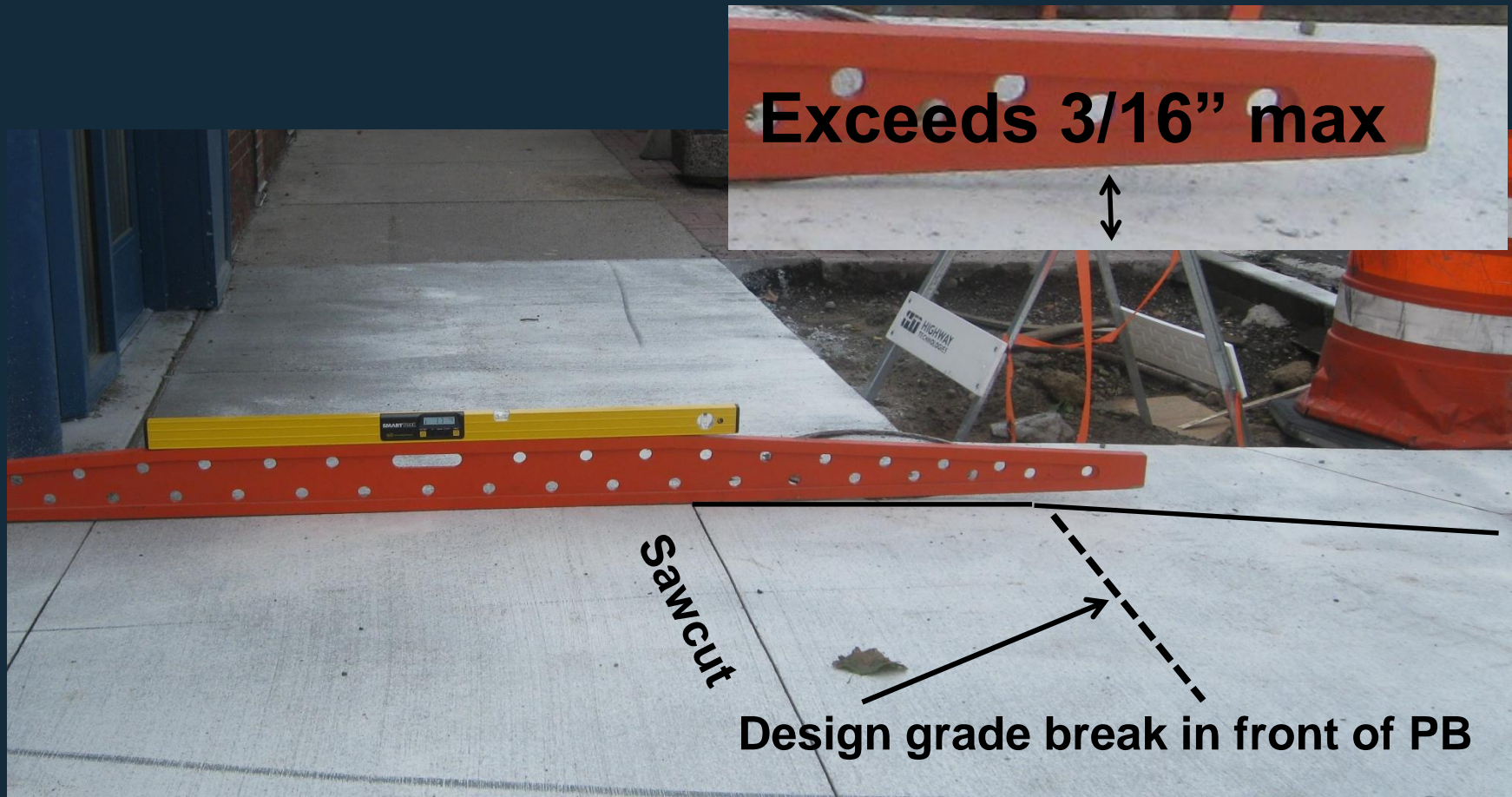
- Specifications for Construction 2521.3D2
- Align the joints with joints in adjoining work unless isolated by a  $\frac{1}{2}$ " preformed joint filler.



# ADA Construction Grade Breaks



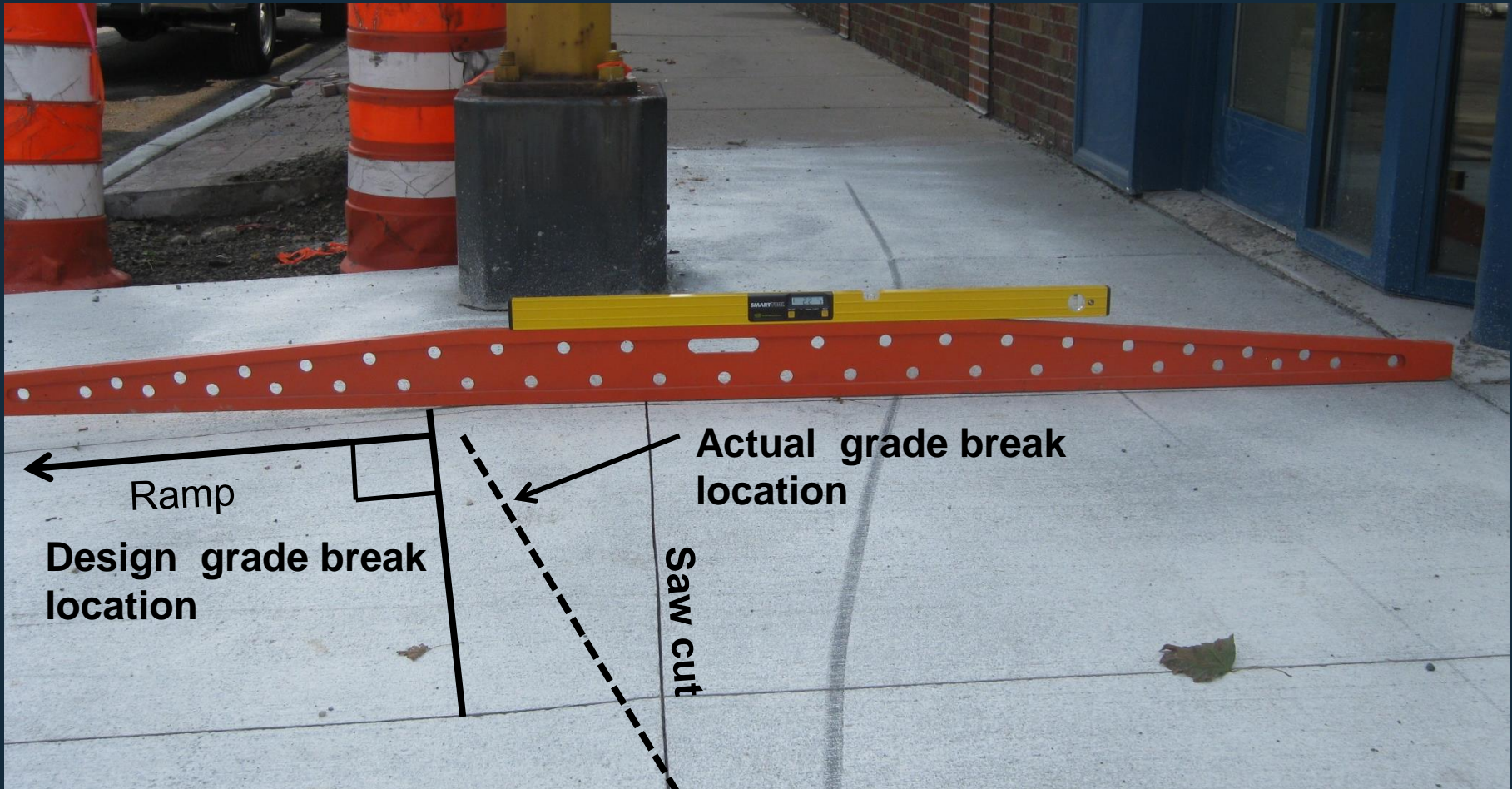
Contraction joints shall be constructed along all grade breaks in the PAR ( See Notes Standard Plans sheets 1 & 2 )



# ADA Construction Grade Breaks



All grade breaks within the PAR shall be perpendicular to the path of travel ( See Notes Standard Plans sheets 1 & 2 )



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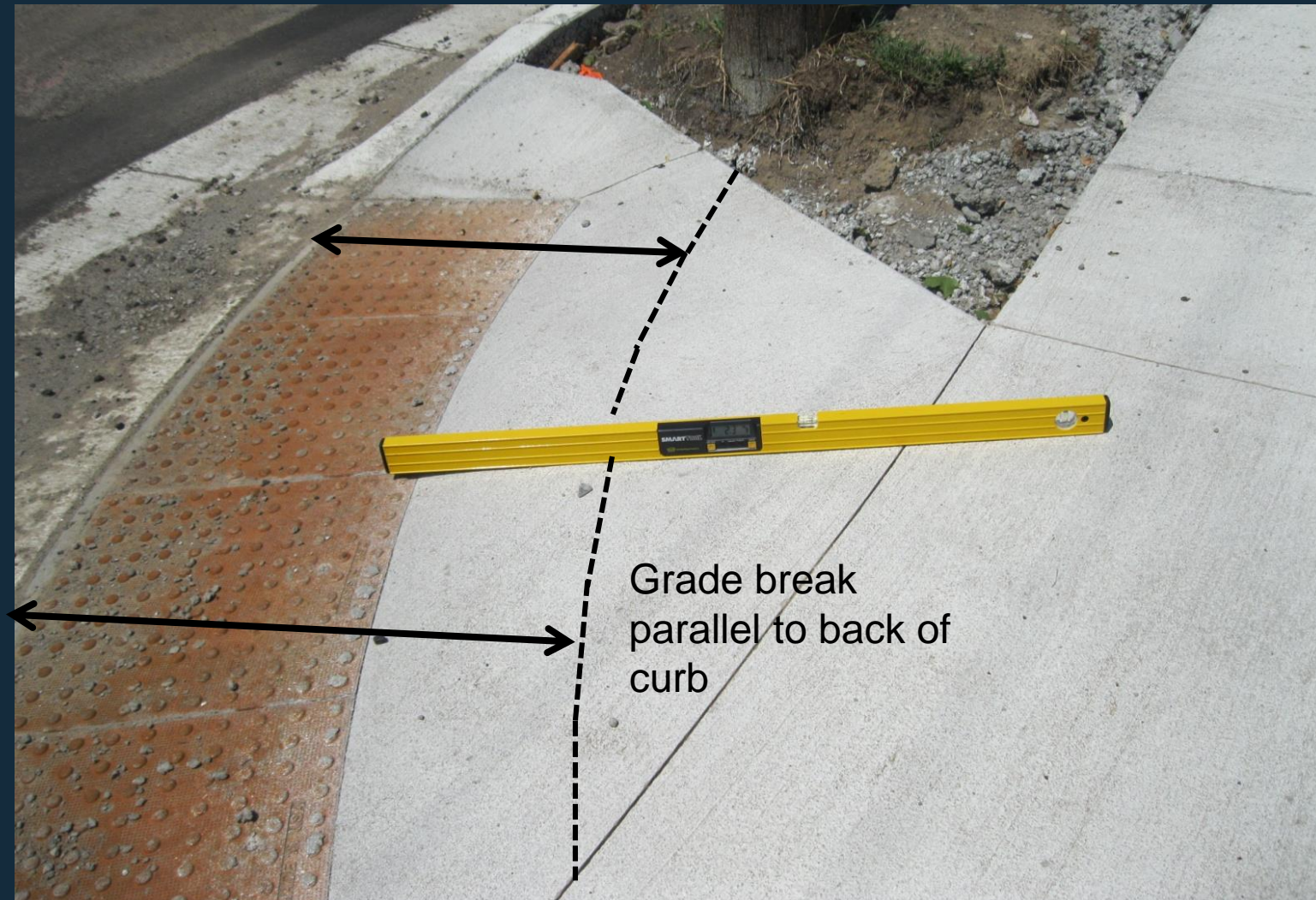
All grade breaks within the PAR shall be perpendicular to the path of travel ( See Notes Standard Plans sheets 1 & 2 )



# ADA Construction Grade Breaks



Fan Ramp constructed with incorrect grade break  
(not perpendicular to the path of travel)



# ADA Construction Grade Breaks



Fan Ramp constructed with incorrect grade break (grade break needs to be parallel to back of curb).





# ADA Construction Grade Breaks



Fan Ramp constructed with incorrect grade break (not perpendicular to the path of travel, grade break needs to be parallel to back of curb)



# ADA Construction Grade Breaks



Fan Ramp constructed with incorrect grade break. 3' Fan Ramp to accommodate push button at 5' back of curb. Constructed with an undefined grade break at 4'?



# ADA Curb Ramp Construction



2% ramp was constructed with landing lower than top of curb.



# ADA Curb Ramp Construction



Flat ramp created a drainage valley/swale.

This ramp should have risen up to better match 4" curb height to maintain better drainage and eliminate v-curb.



# Concrete Walk ADA Landings

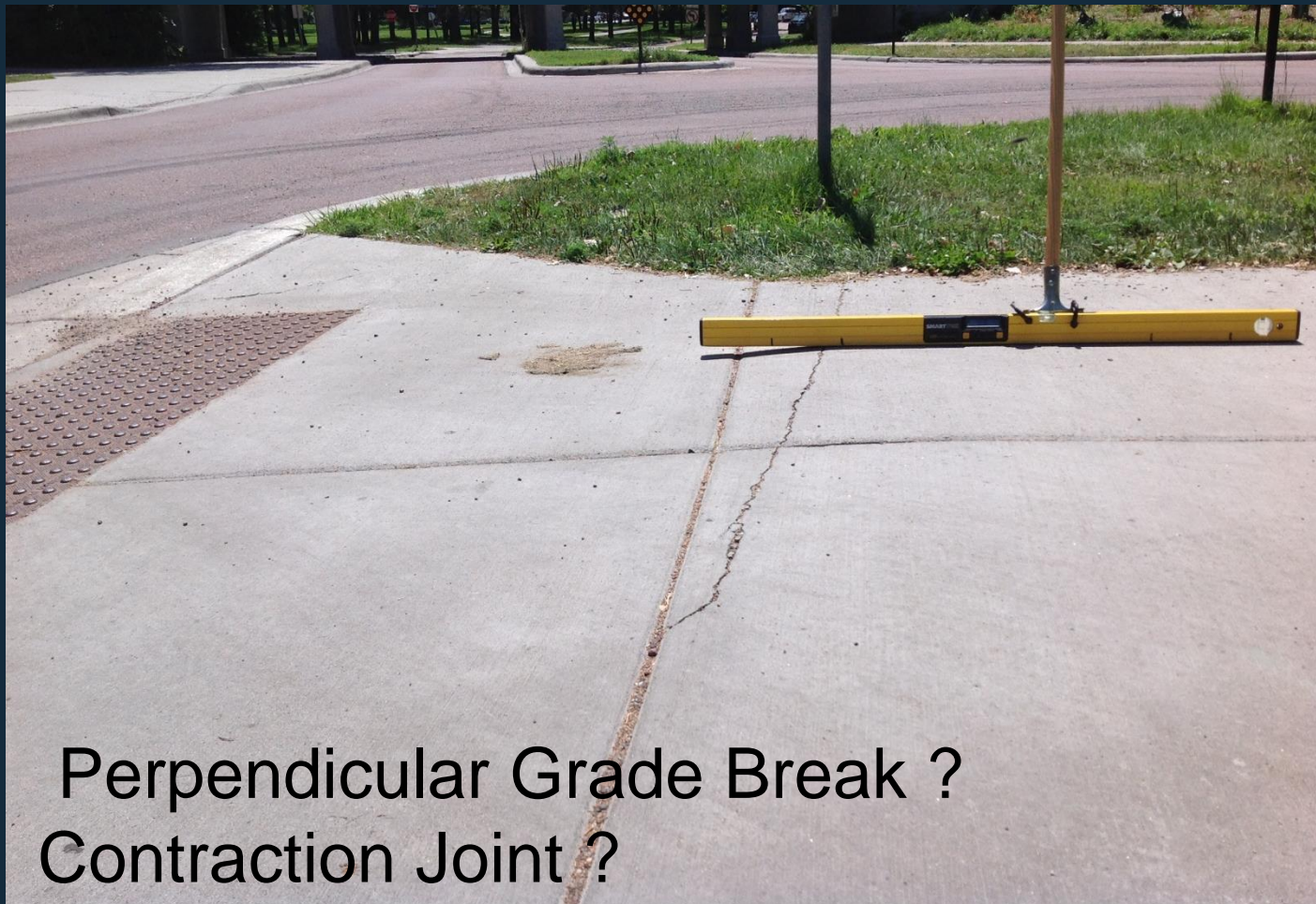
Standard Plans Sheets 1&2

To ensure initial ramps and initial landings are properly constructed, landings shall be cast separately



# Concrete Walk ADA Landings

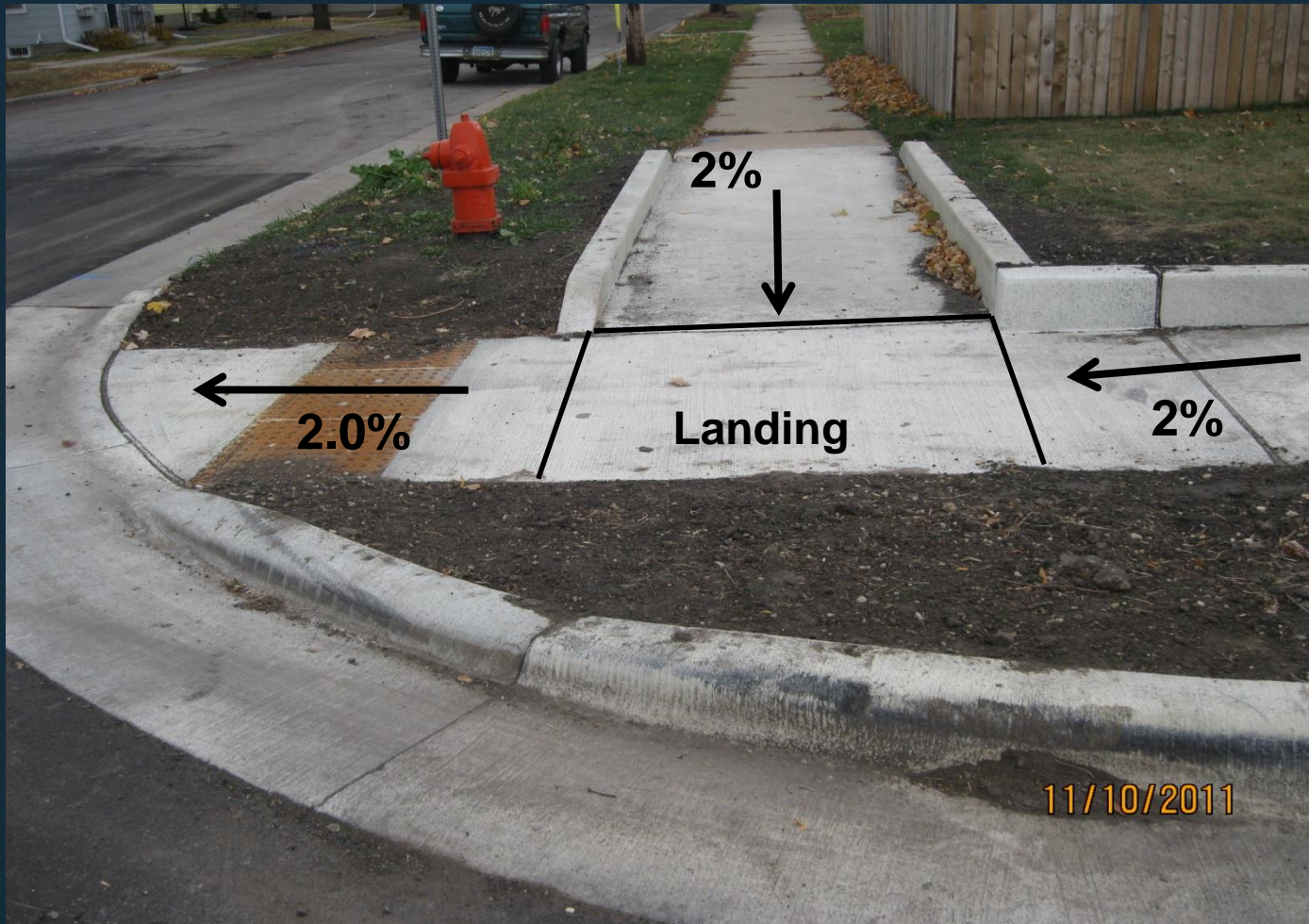
To ensure initial ramps and initial landings are properly constructed, landings shall be cast separately.



Perpendicular Grade Break ?  
Contraction Joint ?

# Curb Ramp Construction

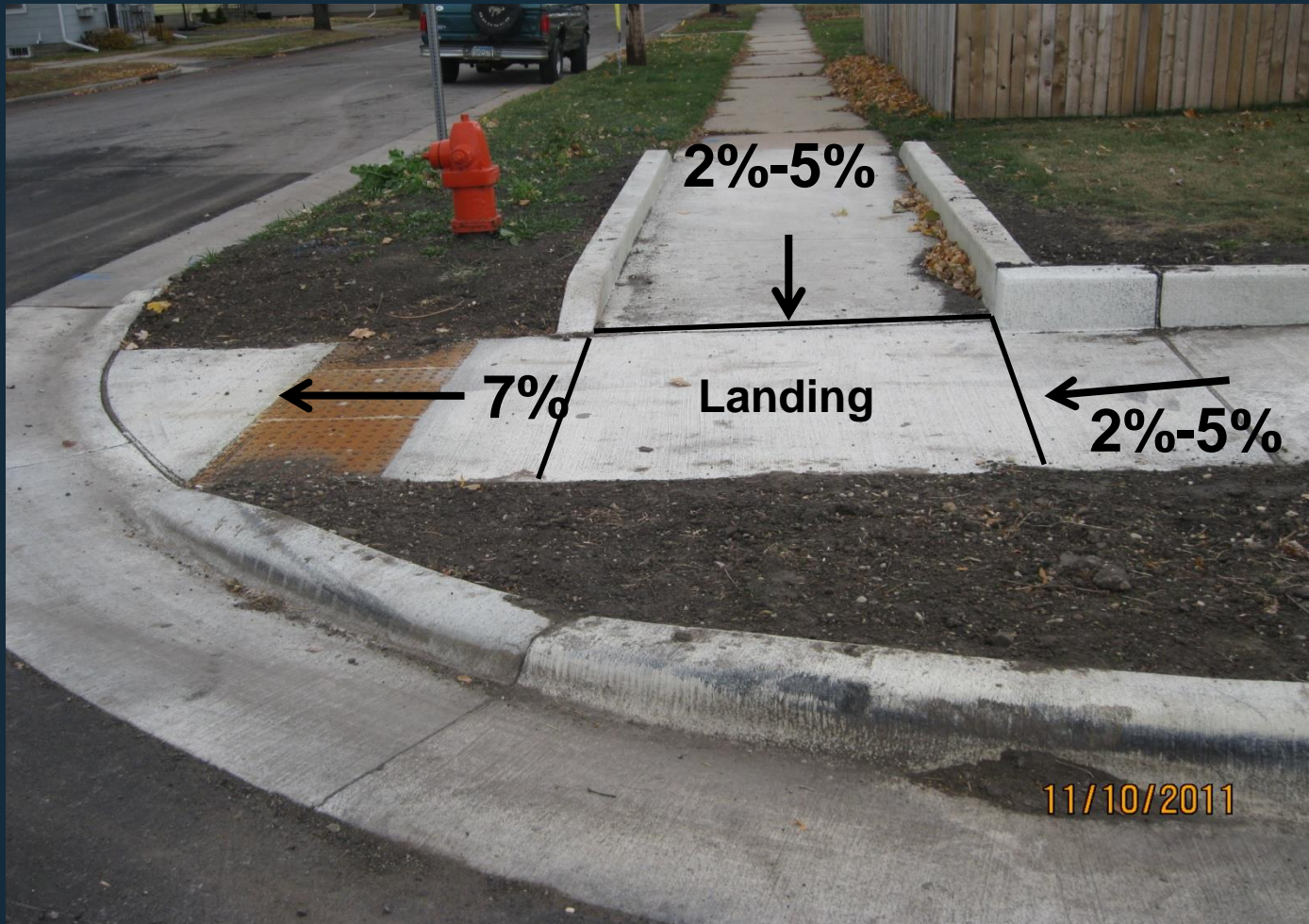
- Curb ramp is complaint, but it fits poorly into its surroundings, and will be difficult to maintain.



# Curb Ramp Construction



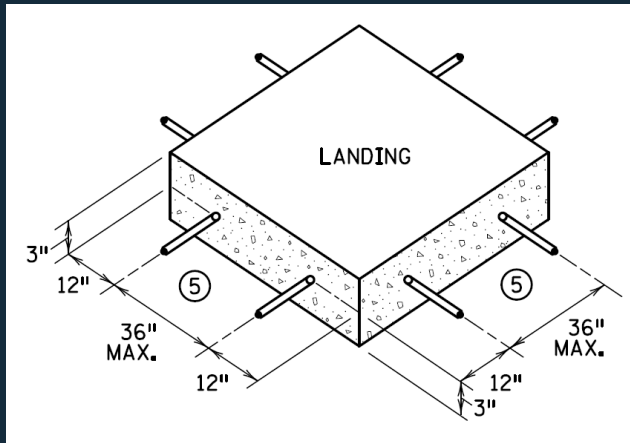
- Slopes shown are preferred and side slopes could have been grade flush, thus eliminating V-curb.





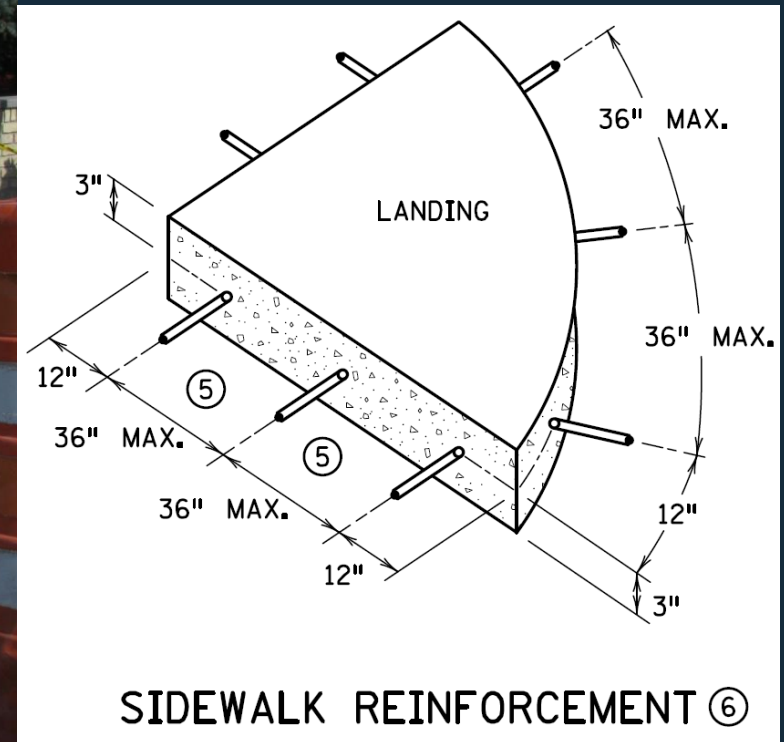
# Separate Landing Reinforcement

To ensure ramps and landings are properly constructed, landings shall be cast separately. Follow sidewalk reinforcement detail.



# Separate Landing Reinforcement

Separate Landing pour Fan Ramp options with sidewalk reinforcement.



# Standard Plans Legend

## Standard Plans 2017

### LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

 INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

 INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

 LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

# ADA Curb Ramp Standard Plans



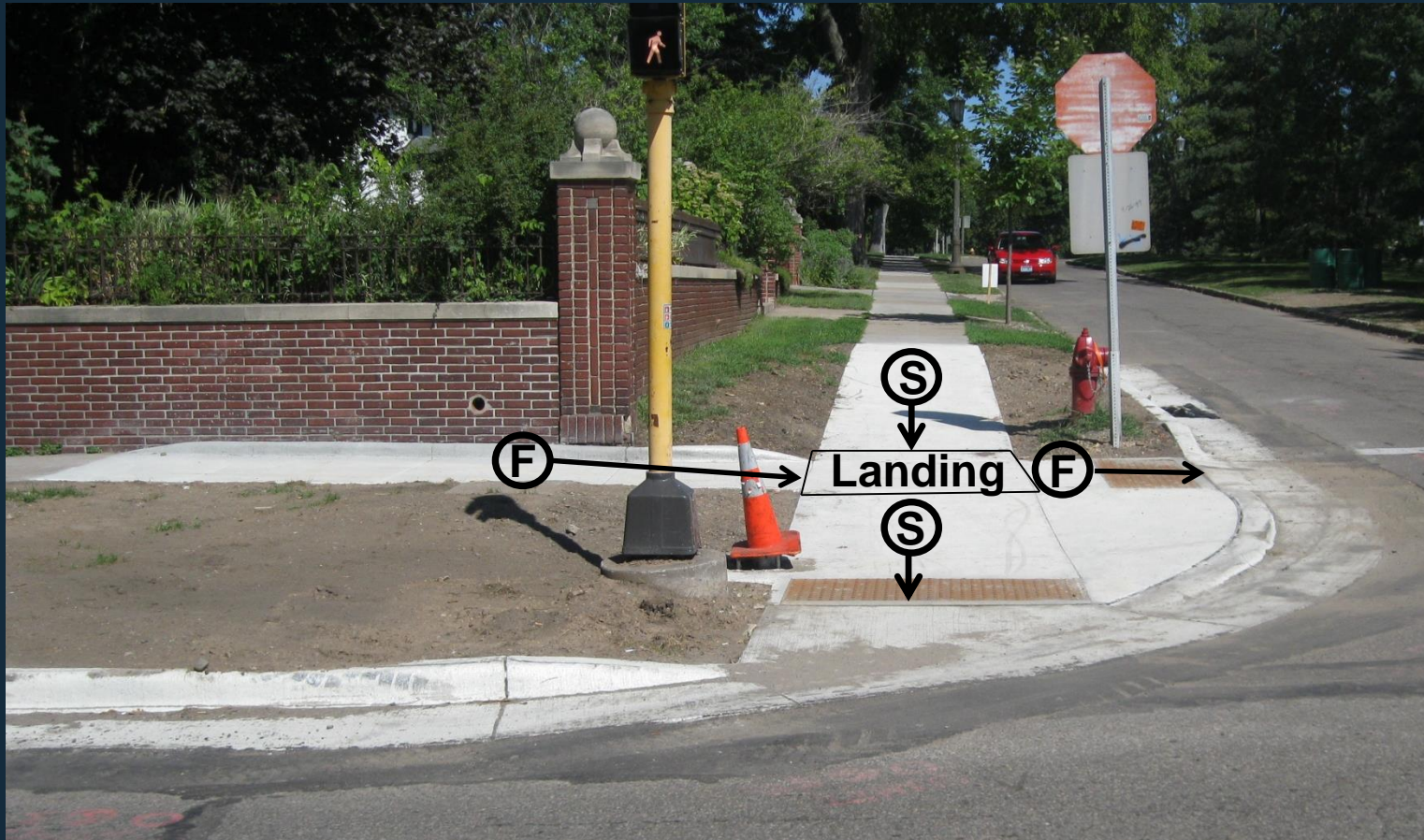
Ⓢ Indicates pedestrian ramp – slope shall be between 5% minimum and 8.3% maximum in the direction shown and the cross slope shall not exceed 2%.



# ADA Curb Ramp Standard Plans



**F** Indicates pedestrian ramp – slopes shall be greater than 2% and less than 5% in the direction shown and cross slope shall not exceed 2%.



# Special Provisions

## Prosecution of Work (ADA)

3) After the curb has been correctly poured, the Contractor has set the sidewalk forms, and prior to placing the concrete curb ramps/sidewalks, the Contractor shall verify the requirements in S-1.1B will be achieved.

In addition, the longitudinal slopes shown in the Construction Plans and the Standard Plans shall be utilized unless these conditions cannot be met. The starting point for setting the forms on the controlling ramp leg should be the following:

Steep (S) = 7%

Flat (F) = 4%

Landing = 1.5%

Sidewalk Cross Slope = 1.5%

Fan ramp = 4%



# ADA Curb Ramp Construction



Table curb if necessary. Determine controlling elevation (usually lowest elevation) and set at 7%.



# ADA Curb Ramp Construction



Verify ramp length, landing dimensions, push button location, and perpendicular grade breaks.





# ADA Curb Ramp Construction



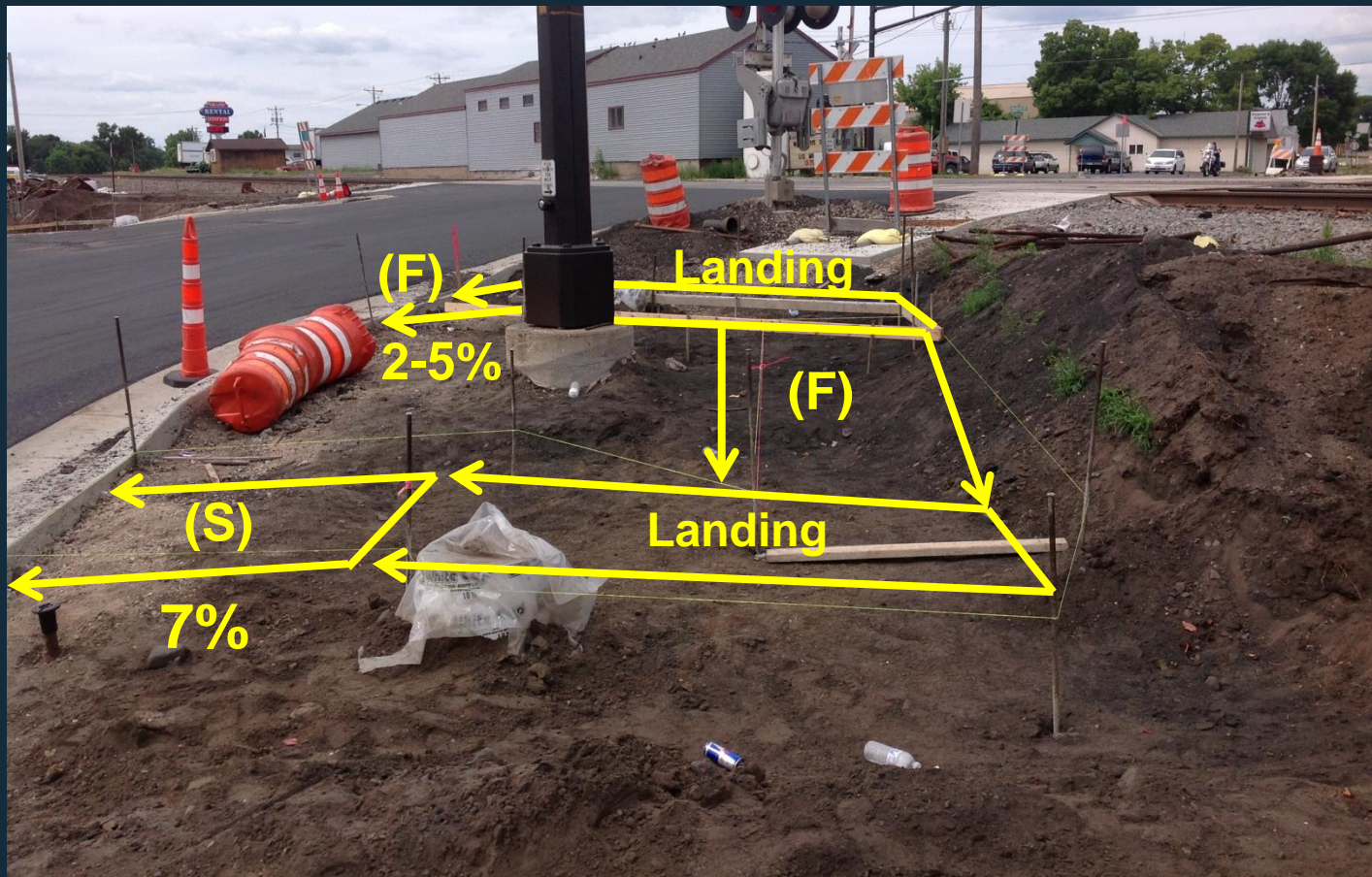
Verify landing is connected to the PAR with perpendicular grade breaks.



# Curb Construction

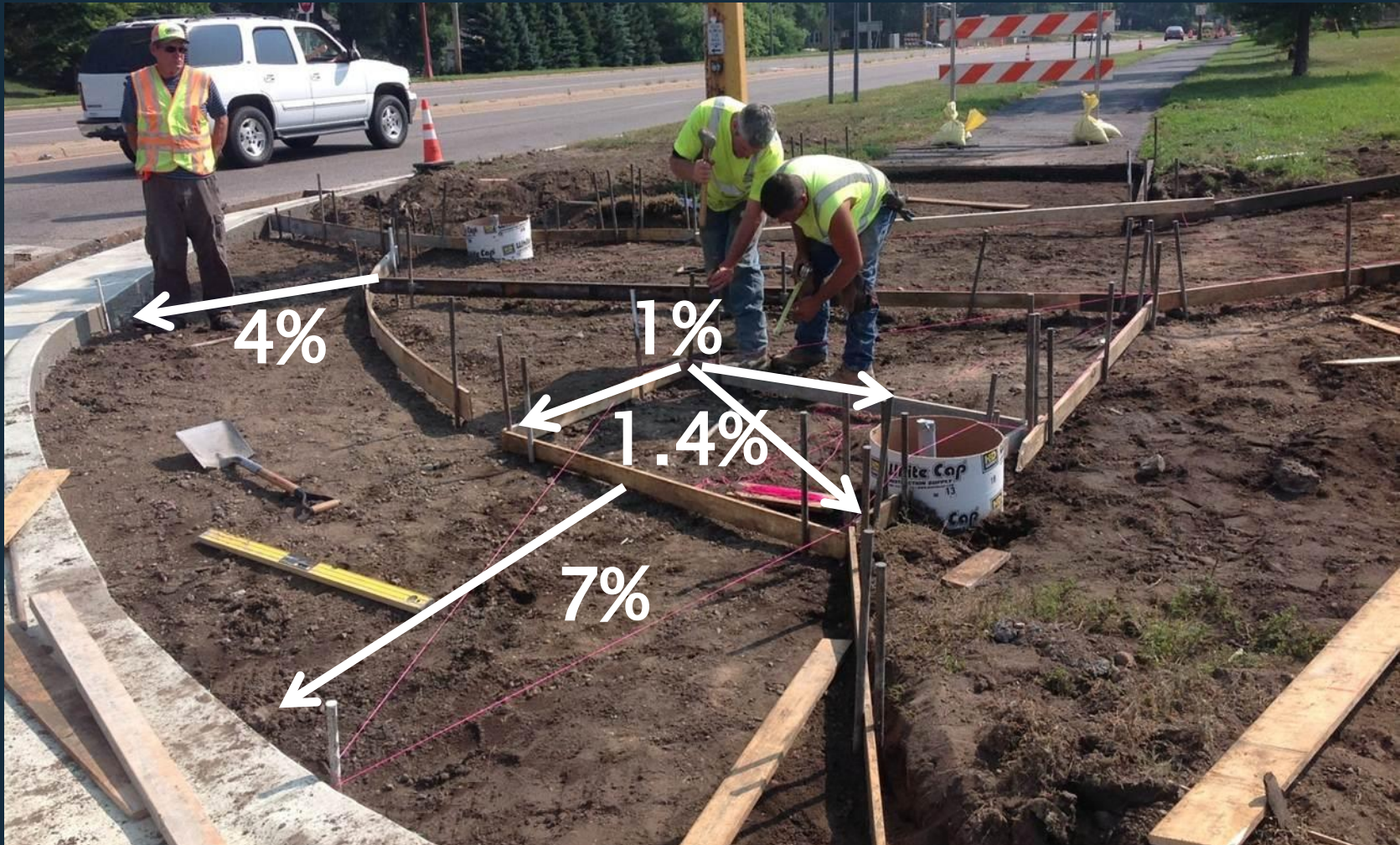


Establish both landings with perpendicular grade breaks, verify second ramps is between 2% and 5%.



# ADA Curb Ramp Construction

Whenever possible set grades to work within concrete finishing tolerances.



# ADA Curb Ramp Construction



Use of Steep and Flat slopes helps us match into surrounding topography and maintain positive boulevard drainage.

# Concrete Curb Placement

When placing curb, check the plan for secondary landings and adjust top of curb to match landing grades.



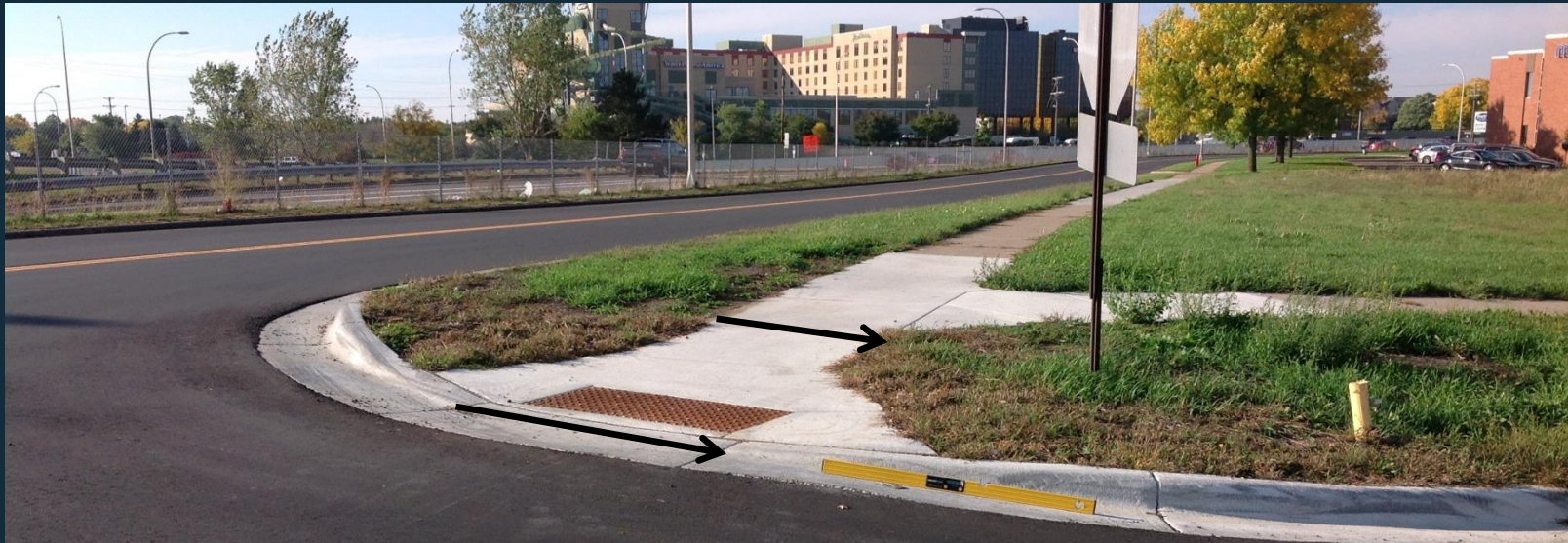
# Concrete Curb Placement

When placing curb, check for doorways, steps, bus stops, or any other features that requires a landing at the back of curb.



# ADA Curb Ramp Construction

## ADA Preferred Construction Cross Slopes



Ramp

Min. 0.5%

Max. 2.0%

Preferred 1%

Gutter Flow lines

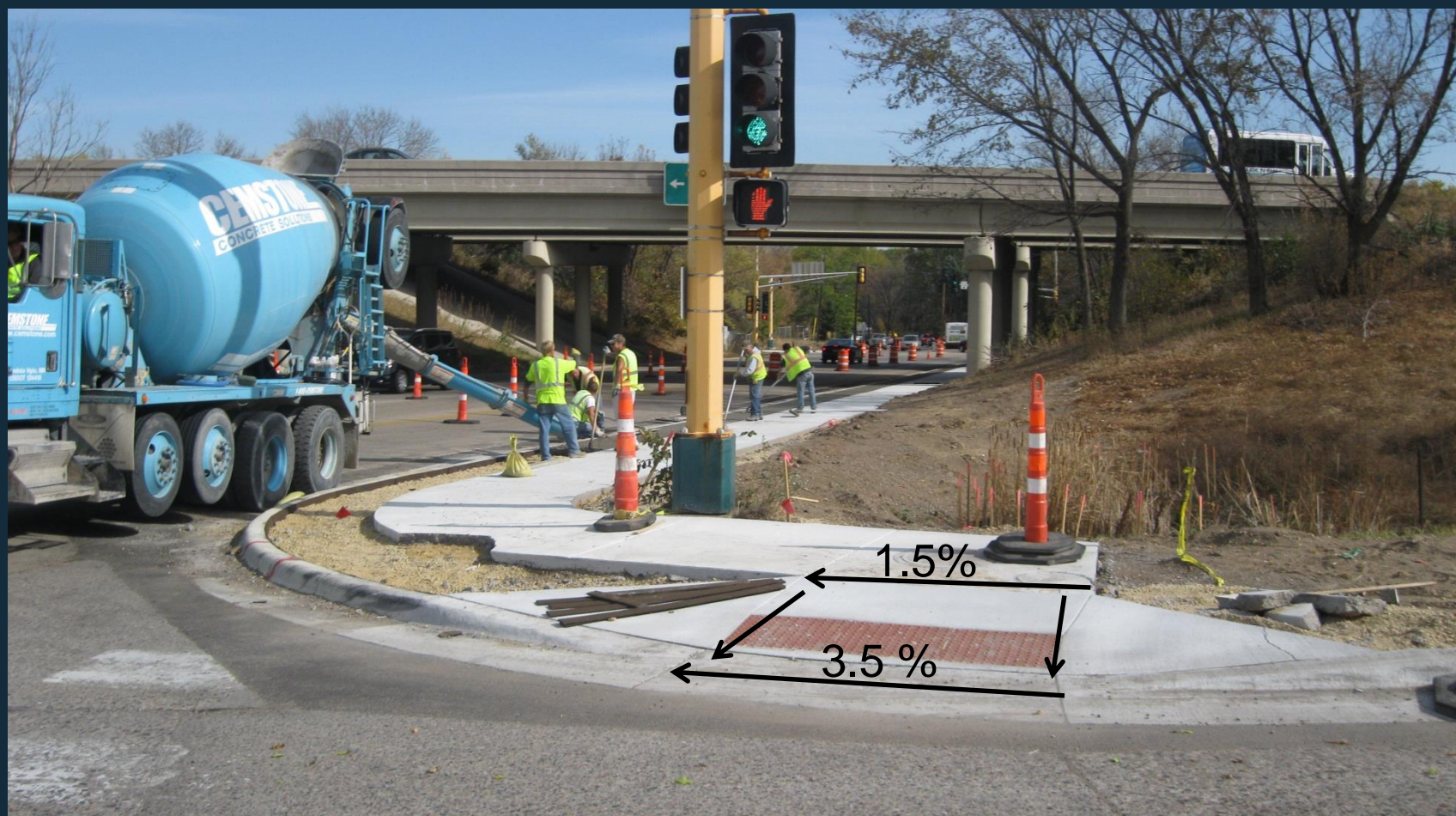
Min. positive flow

Max. 2%

Preferred 1%

# ADA Curb Ramp Construction

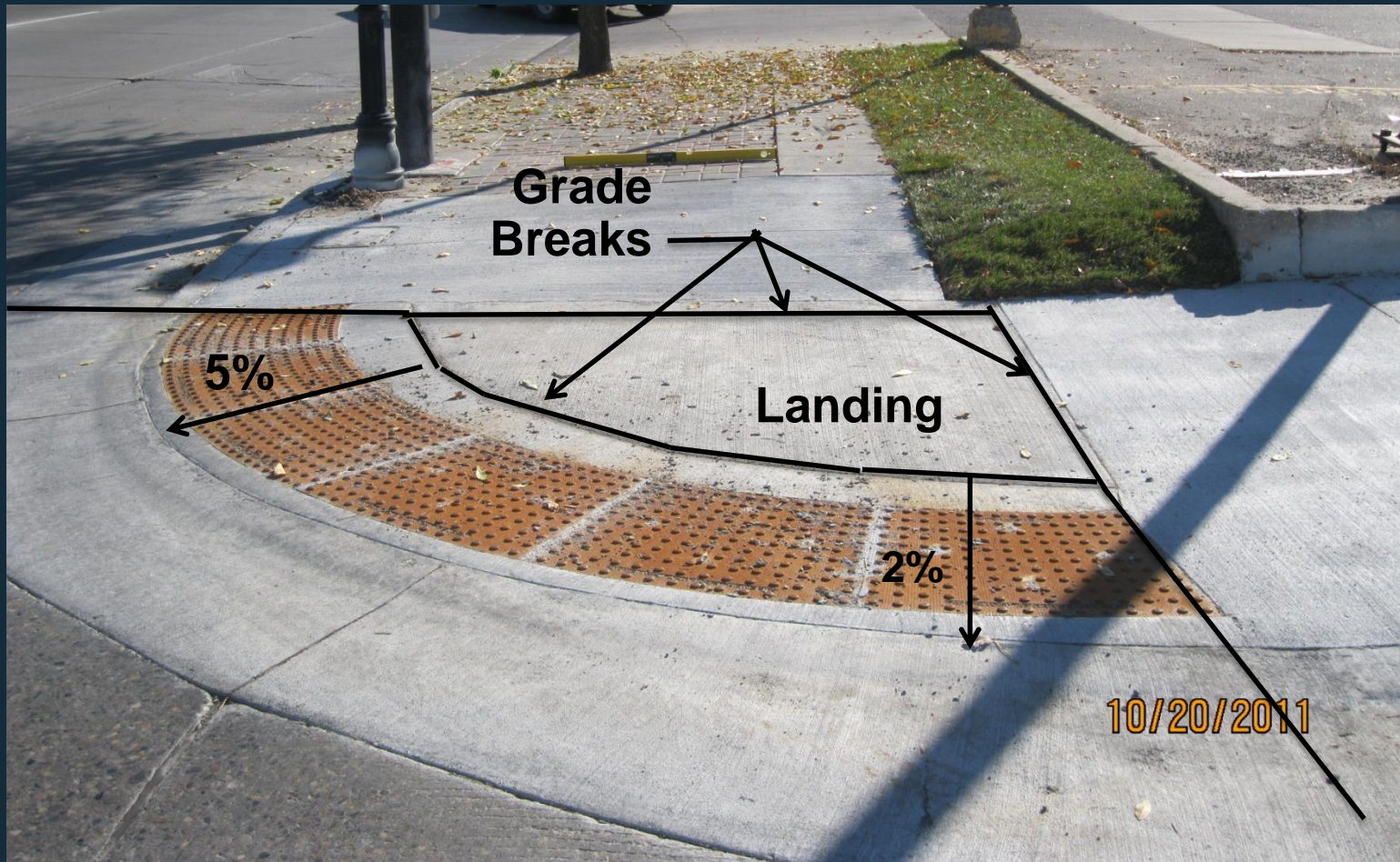
Ramp adjacent to concrete pavement with gutter flow line that exceeds 2%. Make correction over the entire length of the ramp.





# ADA Curb Ramp Construction

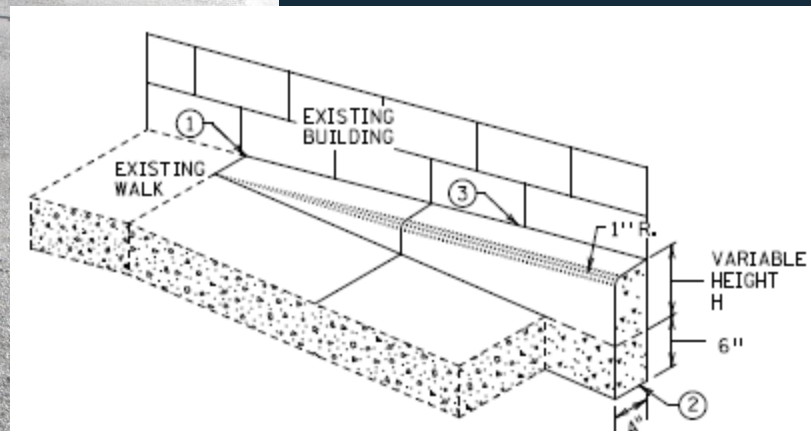
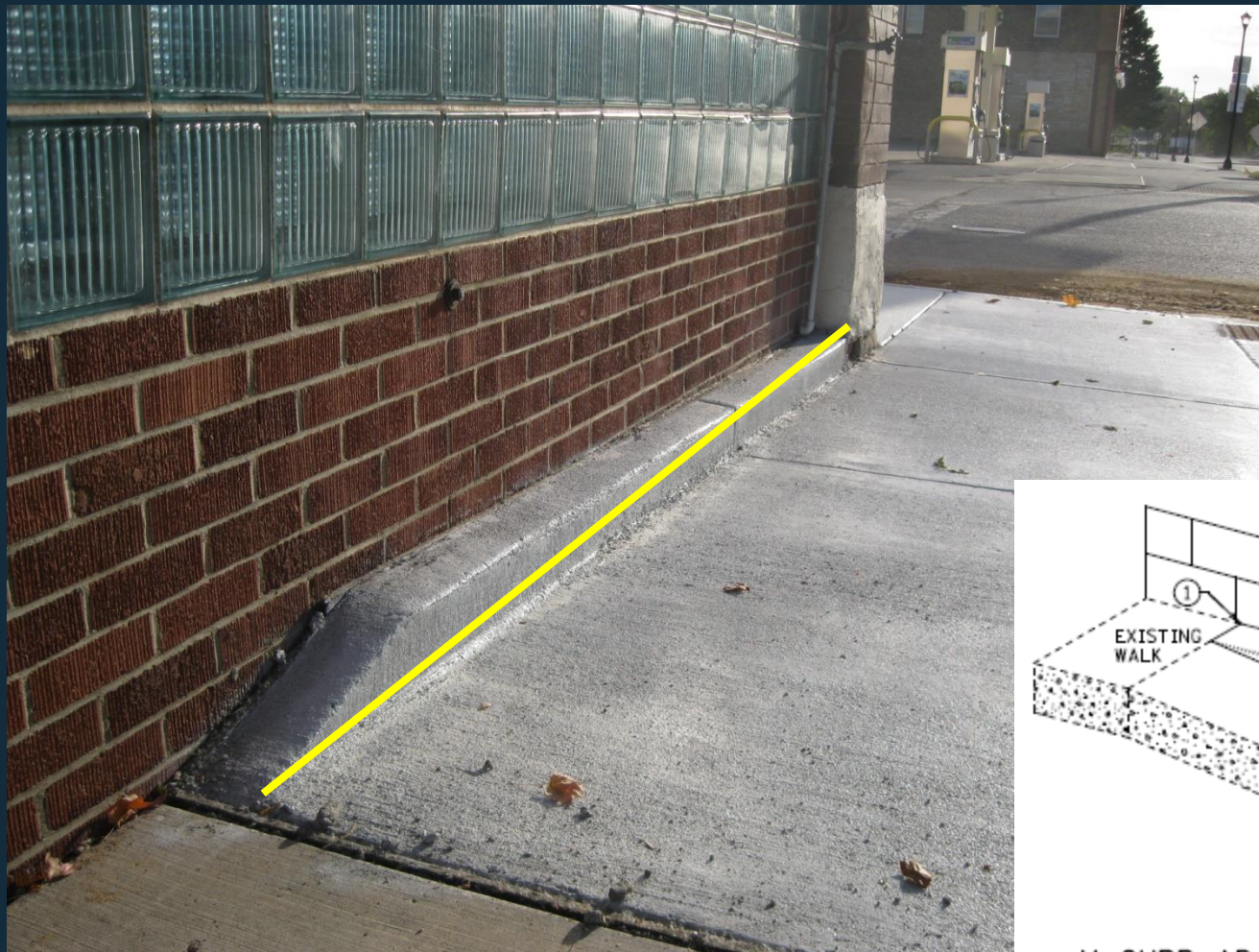
Fan Design with greater than 2% flow line adjacent to concrete pavement.



# ADA Curb Ramp V-Curb



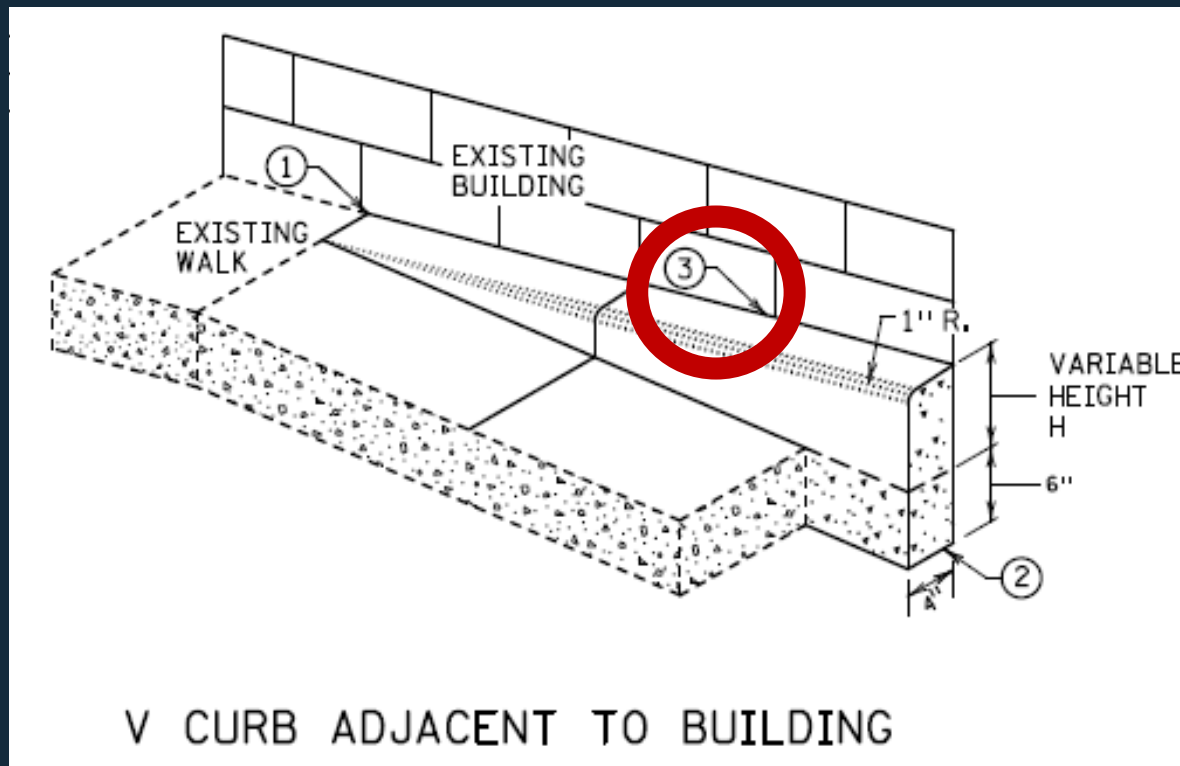
- V-curb follow standard plans (sheet 5 of 5) for design and construction.



V CURB ADJACENT TO BUILDING

# ADA Curb Ramp V-Curb

- Note (3) edge between new v-curb and in-place structure shall be sealed and bond breaker shall be used between existing structure and placed v-curb.



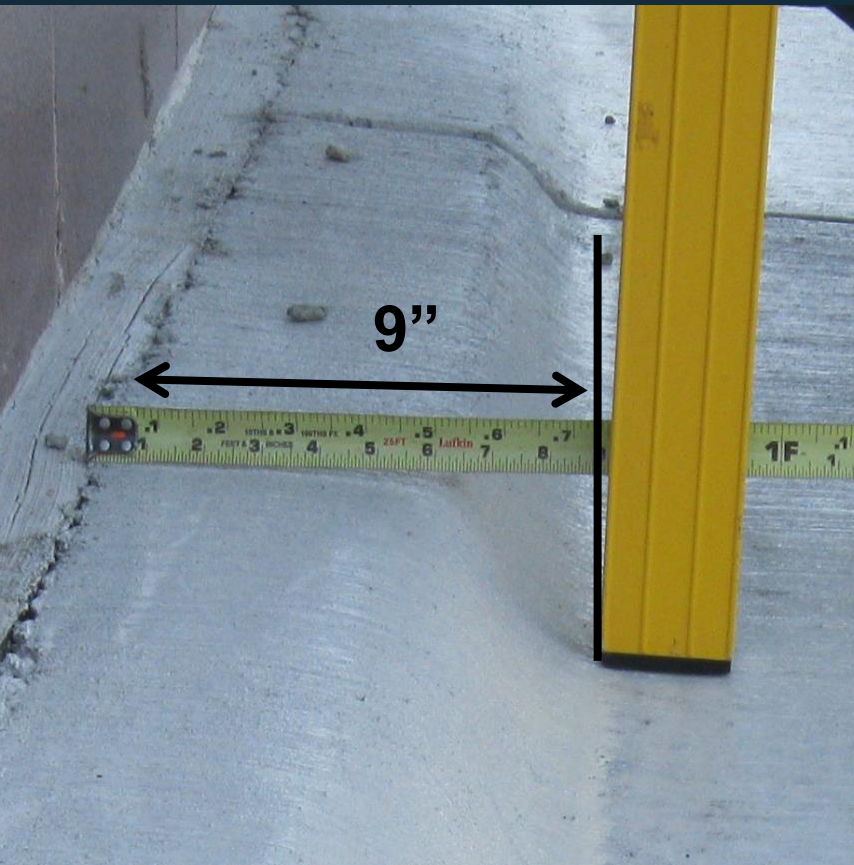
# ADA Curb Ramp V-Curb

- Work next to existing building or structures.



# ADA Curb Ramp V-Curb

- Constructed with a vertical face.
- Always 4" width v-curb when adjacent to building.



# ADA Curb Ramp V Curb

- V-curb adjacent to landscaping curb within sidewalk limits with 1:3 curb tapers



# ADA Removal limits

Prosecution of Work (ADA) The contractor shall use the appropriate ramp details in the plan and identify the removal limits for sidewalk and curb and gutter.



# ADA Removal limits



If the Contractor determines the removal limits are not adequate to meet PROWAG / MnDOT specifications the Contractor shall stop work on that quadrant immediately and consult the Engineer.





# ADA Removal limits

Landings required if the approaching sidewalk is inverse grade, also avoid “Tenting” of sidewalk.

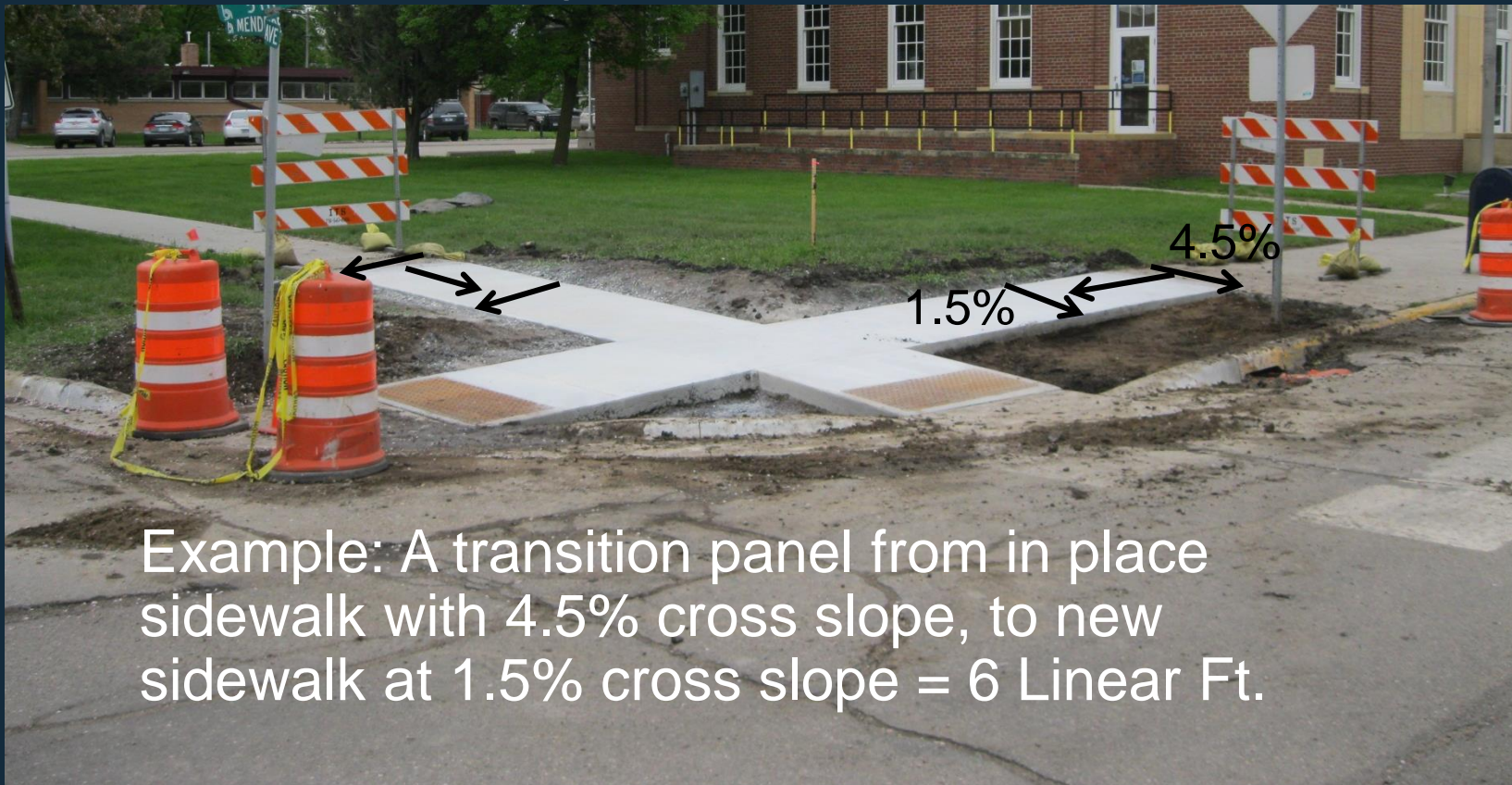


# ADA Removal limits Transition Panels



Standard Plans Sheet 5 of 6.

The transition panels cross slope corrections should be 1 linear Ft. of sidewalk per 0.5% per of cross slope. When PAR width is greater than 6' or over 5% running slope double the calculated transition length.

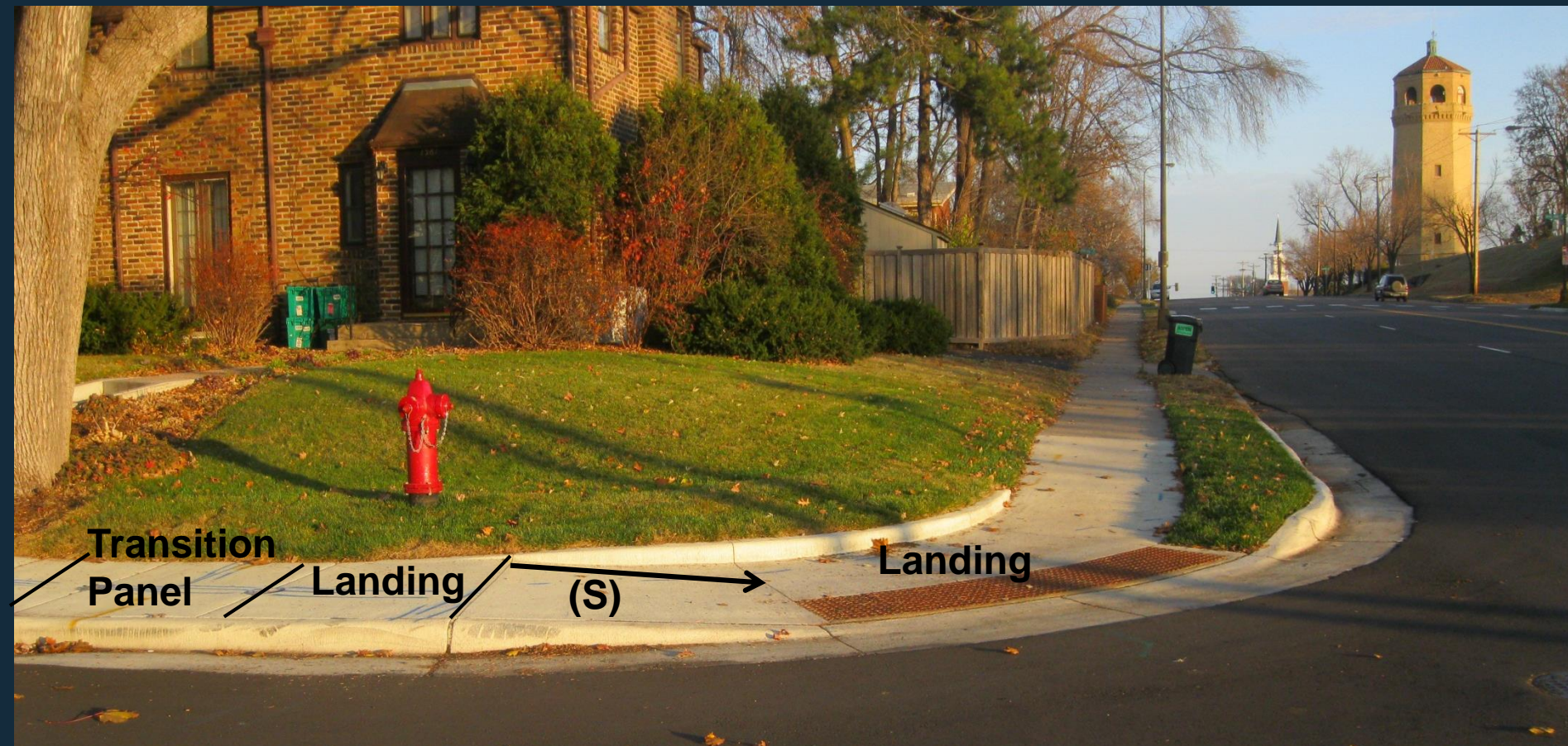


Example: A transition panel from in place sidewalk with 4.5% cross slope, to new sidewalk at 1.5% cross slope = 6 Linear Ft.

# ADA Removal limits



If a secondary landing is necessary, check to see if a transition panel will also be needed to make the landing compliant.



# ADA Removal limits



Verify removal limits will provide positive drainage as well as maintain existing drainage patterns.



# ADA Removal limits

Once the Engineer and Contractor reach agreement on how to proceed the contractor may finish removals.



# ADA Construction



Questions ?