ACCESSIBLE DESIGN FOR PERMANENT CONSTRUCTION

Disclaimer

These materials are intended to assist road agencies, and others as they strive to improve accessibility in public rights of way. The following presentation is based on guidance from the DOJ, FHWA, and best practices approved for use on federal aid projects by the FHWA Michigan Division office. All of the following presentation content is for training purposes only.

- 2010 ADAAG – Buildings and Facilities
- Final Ruling PROWAG – Public Rights of Way.

When Do I need to Upgrade Ramps?

- "New" Road Construction – Full Compliance
- Road Alterations – Upgrade
- Road Maintenance – Upgrade Optional

Alteration vs. Maintenance
(2013 DOJ/FHWA Joint Technical Advisory)

- Road Alteration:
  - Reconstruction
  - Rehabilitation
  - Open-Graded Surface Course
  - Micro surfacing
  - HMA Overlays (regardless of thickness)
  - Cape Seal
  - Double Chip Seal
  - In-place Asphalt Recycling
- Road Maintenance:
  - Crack Filling and Sealing
  - Surface Sealing
  - Chip Seals
  - Slurry Seal
  - Fog Seal
  - Scrub Seal
  - Joint Crack Seals
  - Joint Repairs
  - Dowel Retrofit
  - Spot High Friction Treatments
  - Diamond Grinding
  - Pavement Patching

Combined Maintenance Treatments

STILL MAINTENANCE UNLESS TWO OR MORE TREATMENTS CONTAIN AGGREGATE AND/OR FILLER.

Examples:

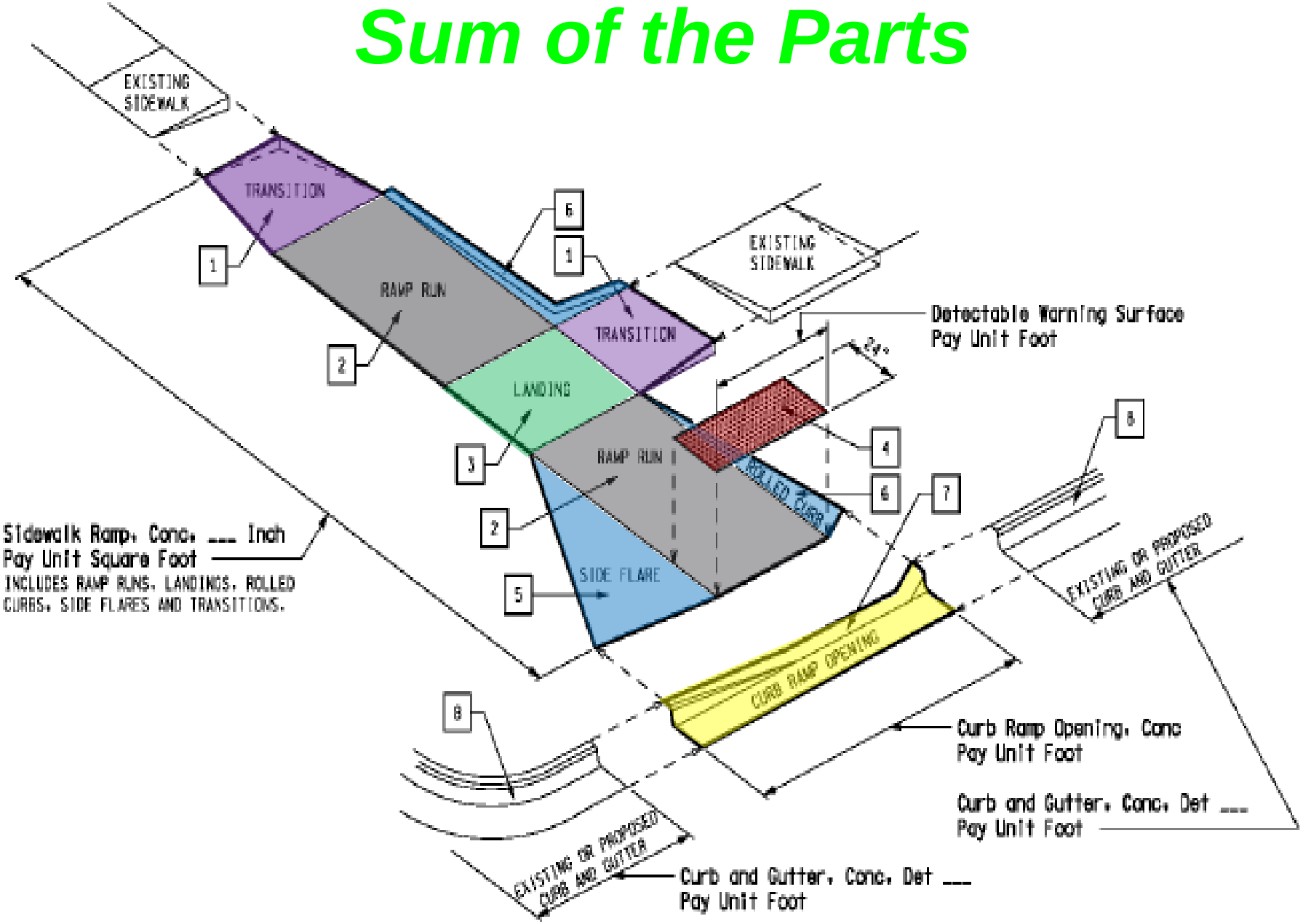
- Alteration
  - Chip Seal + Slurry Seal
  - Double Chip Seal
- Maintenance
  - Chip Seal + Fog Seal
  - Flood Coat

Ramps to Nowhere?
(Absence of Sidewalk)

1. Are there pedestrian signals?
   - *Provide access to crossing and to pedestrian activated signals.*
2. Is there evidence of travel (worn path)?
   - *Provide curb cut.*
3. None of the above?
   - *No treatment required.*

Where Do I Start?

Sum of the Parts



Site Investigation

Survey –. Accurate elevations are critical for design and field layout.

Site Assessment - Look for obstacles and problems that may not show up on the plans.

Ramp Alignment – Line up origin and destination. Don't misdirect.

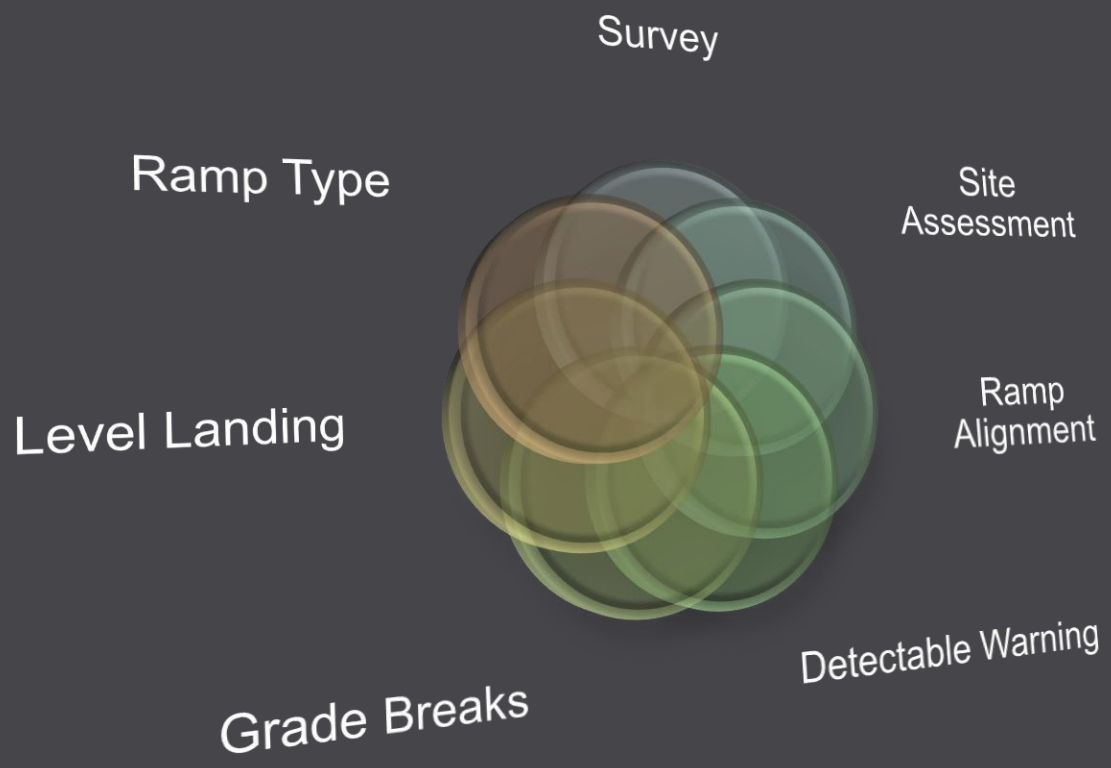

Check Site Drainage


Obstructions

Accessible Grate


Underground Vault
Chicken Shack
LIQUOR

Design Considerations



NO CONSTRUCTION TOLERANCE ON MAX OR MIN.

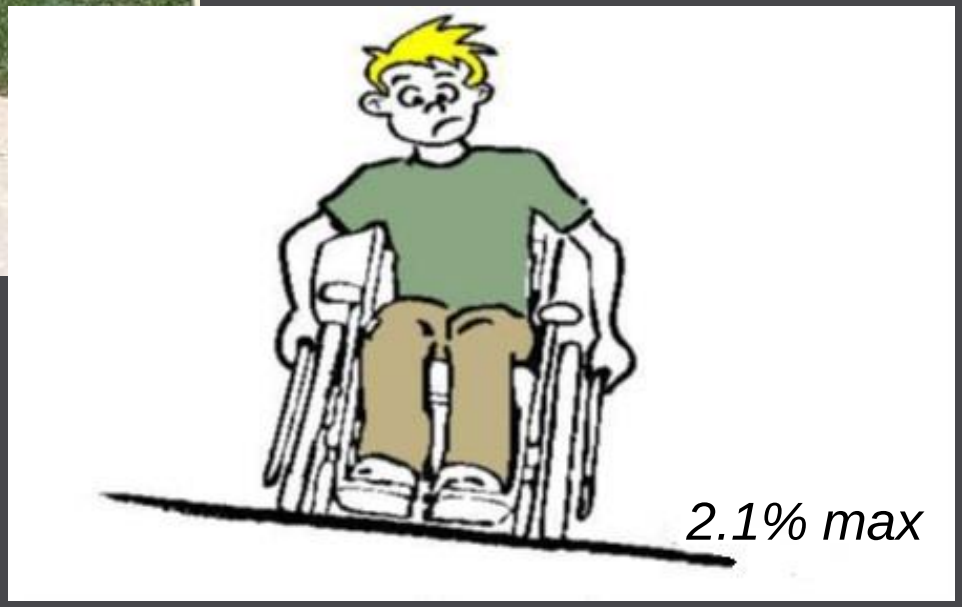
Allow for finishing inconsistencies.

Running Slope & Counter Slope

8.33% MAXIMUM RUNNING SLOPE

5.0 % MAX. COUNTER SLOPE

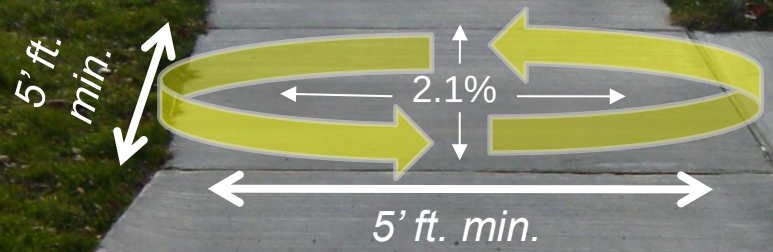
CROSS SLOPE




MINIMUM RAMP WIDTH 5 FT.
5 FT. MIN
Can be reduced to 4 ft. if 5 ft. is not feasible.

Landings

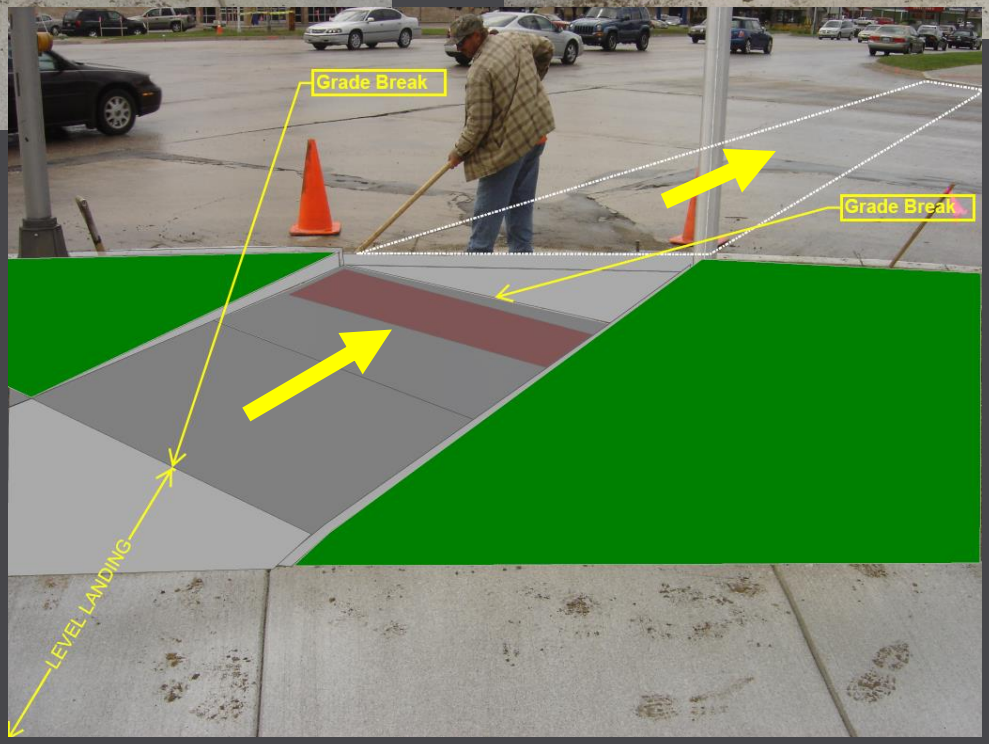
(Can be reduced to 4ft. x 4ft. if 5ft is not feasible.)



Detectable Warnings
Why do we need them?

- **Advises of a change from pedestrian path to vehicular path.**
- **<u>It is not a way finding device.</u>**
- **See MDOT Qualified Products List**

Use ramp orientation for way finding

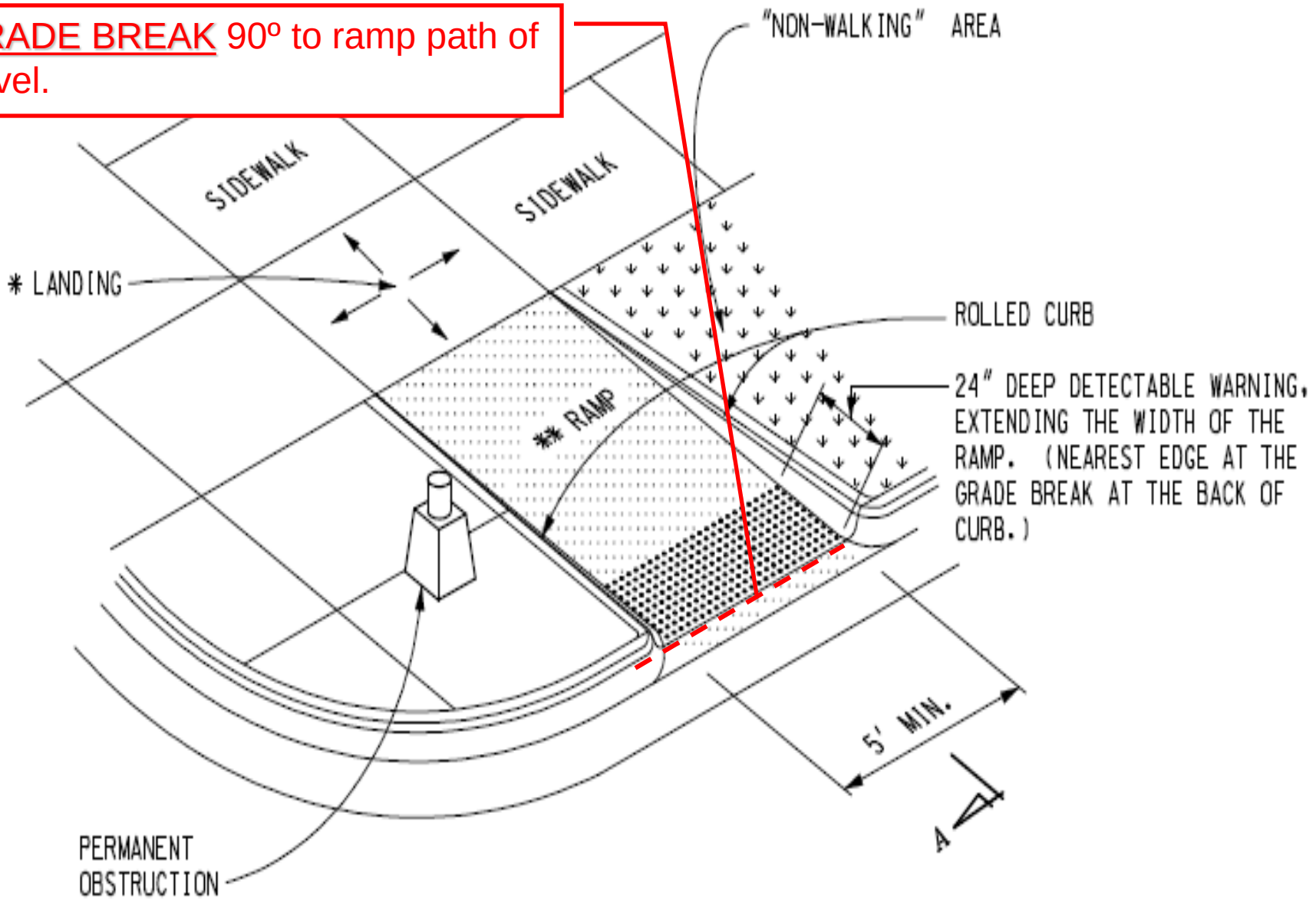



Full Width of Ramp
2 FT.

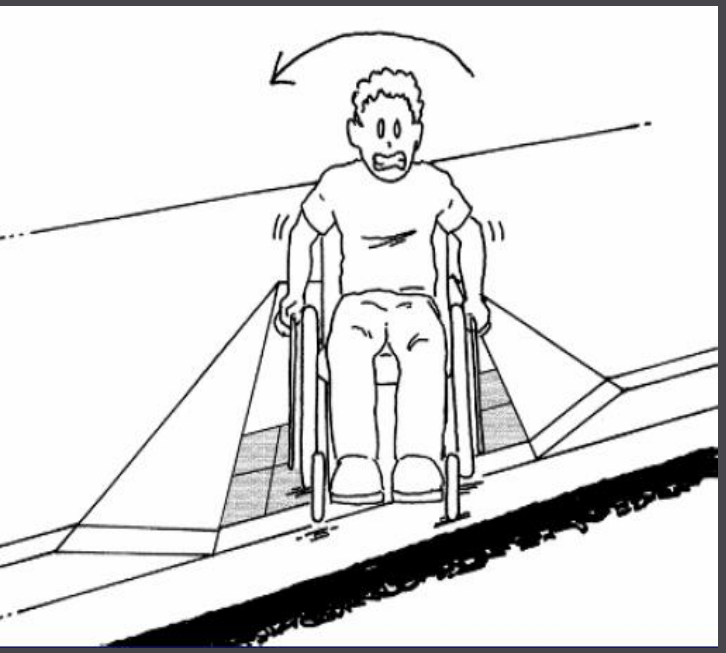
DETECTABLE WARNING PLACEMENT

- WHERE'S THE GRADE BREAK?

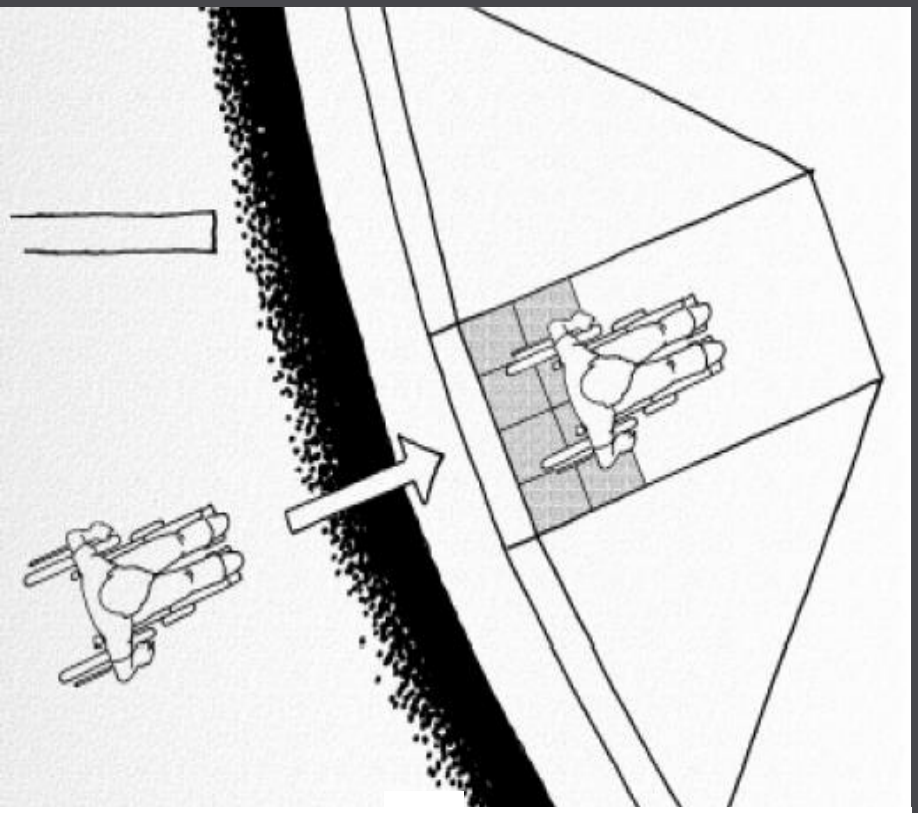
GRADE BREAK 90º to ramp path of travel.



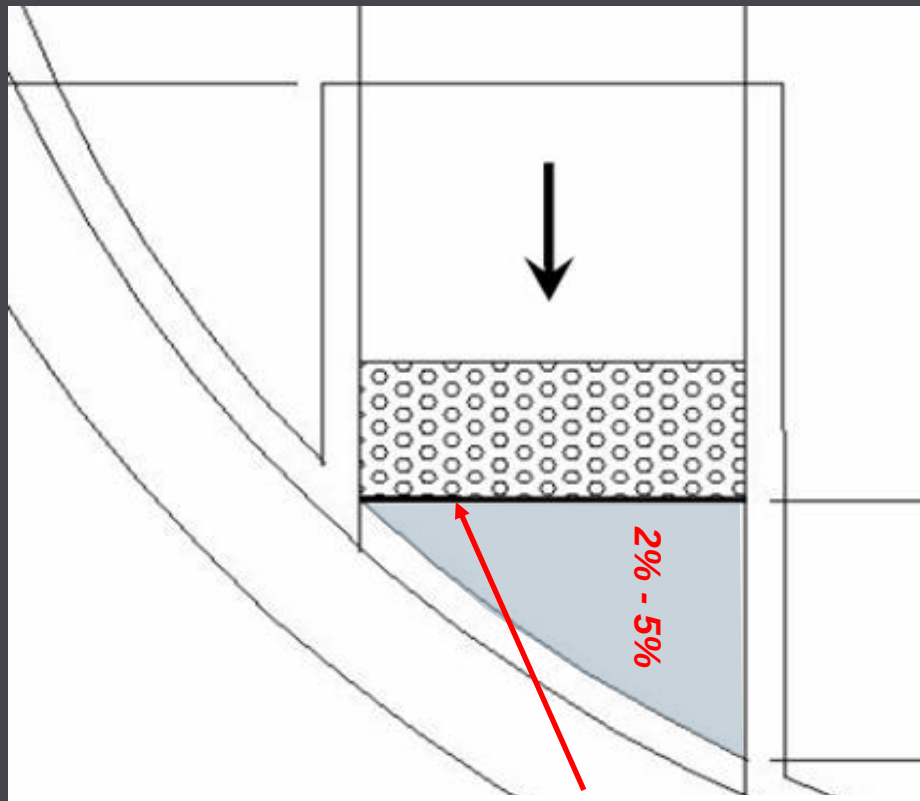
SKEWED GRADE BREAKS



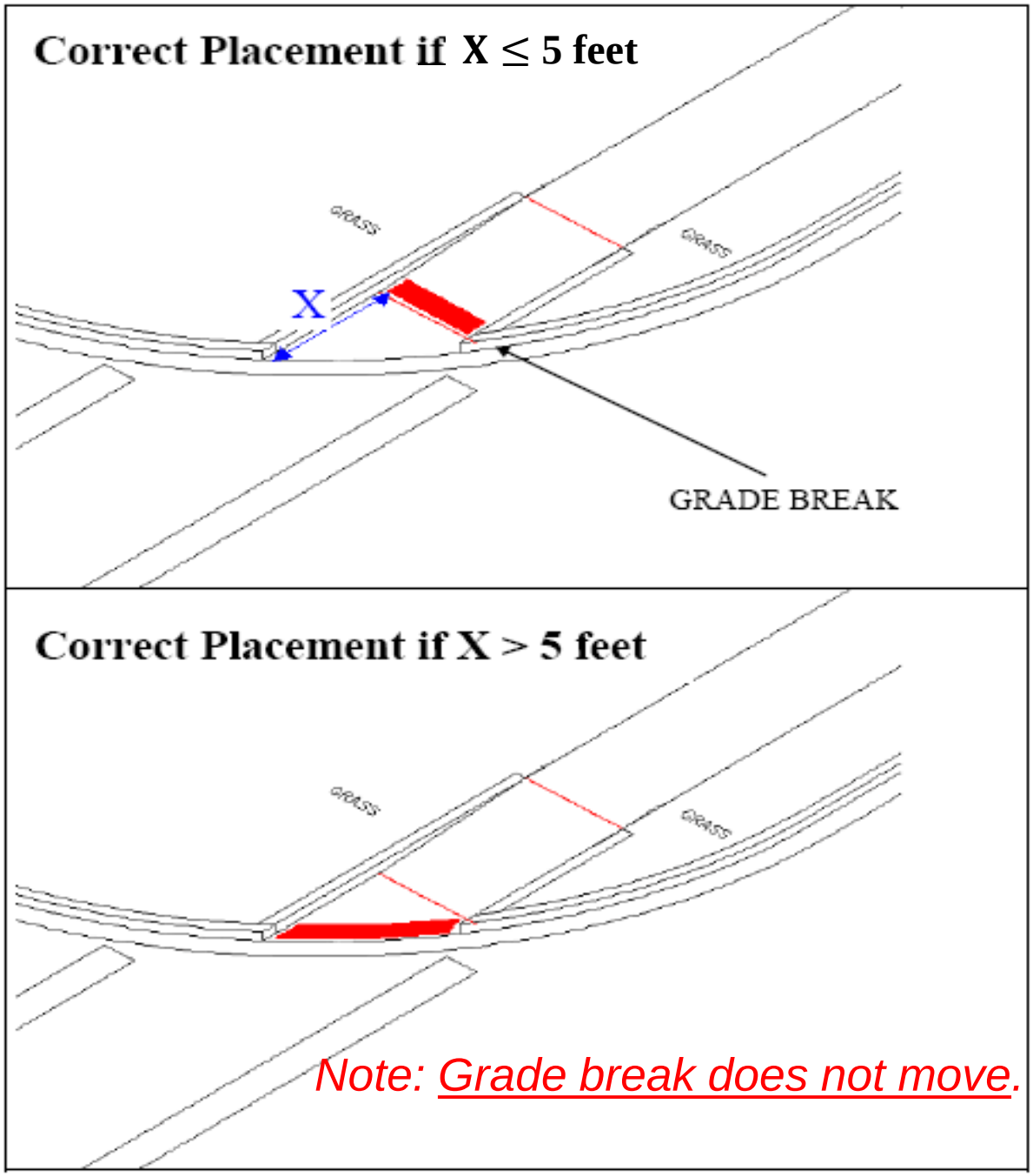
ACHIEVING 90º on A Radius



AlignThe Ramp

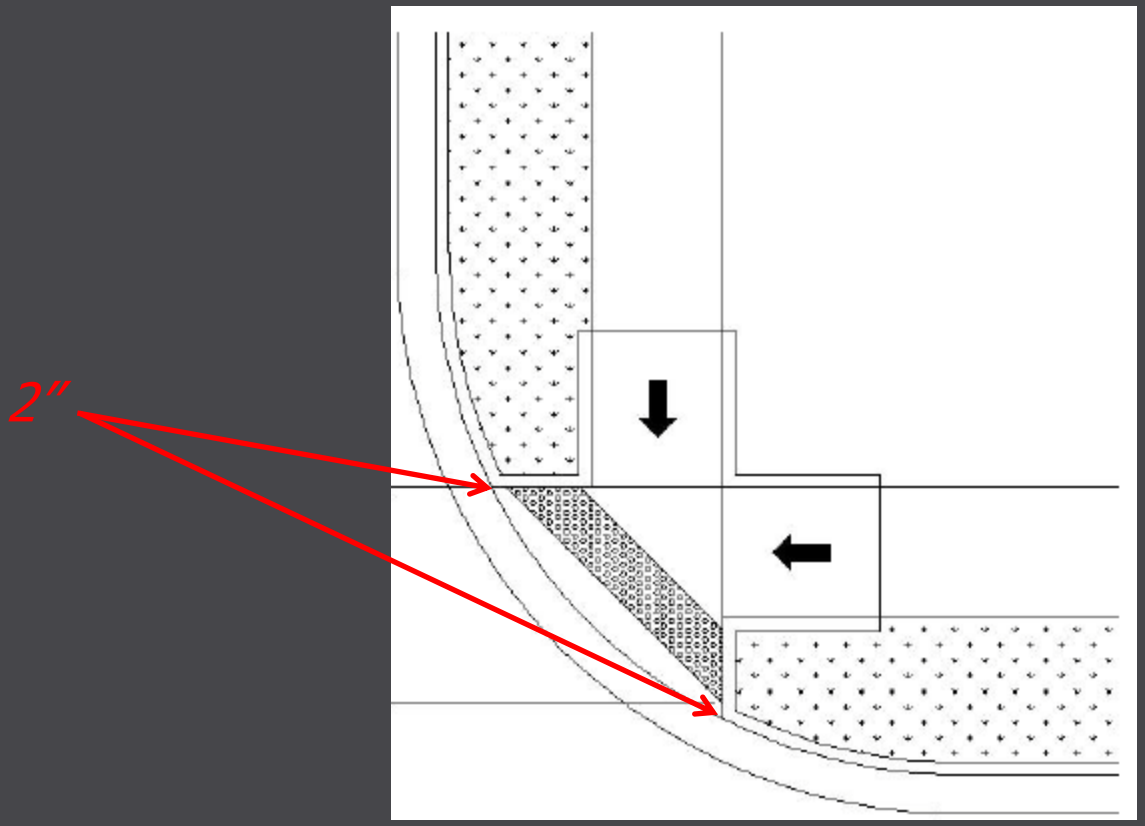


Move the Grade Break



Detectable Warning Placement and Orientation

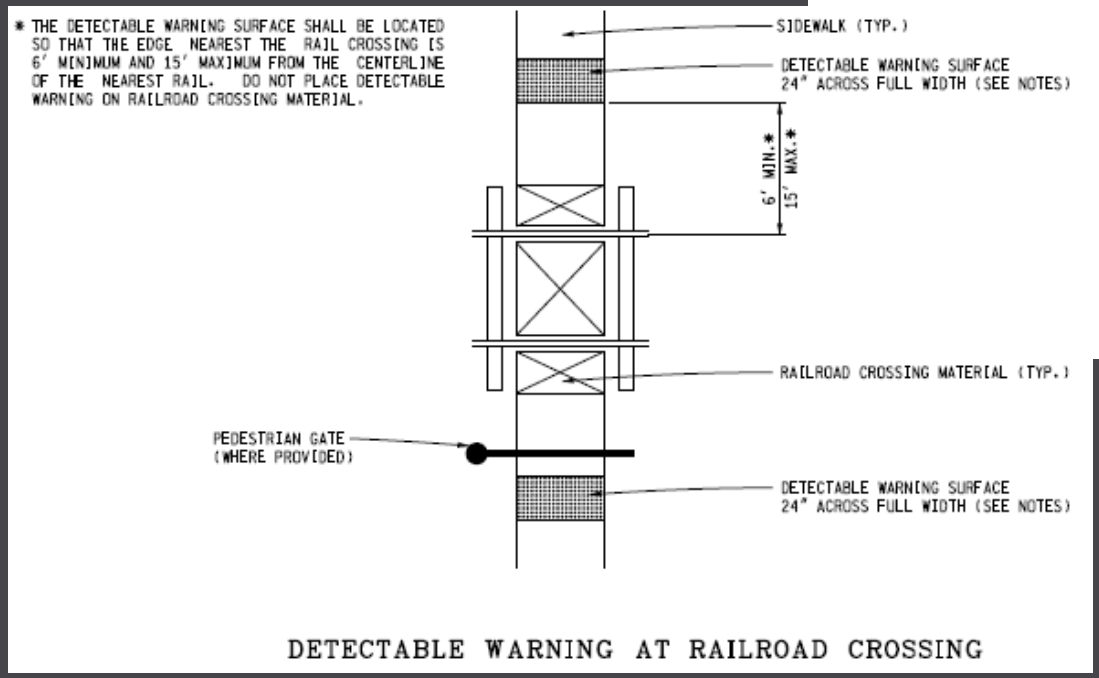
Back of Curb Offset



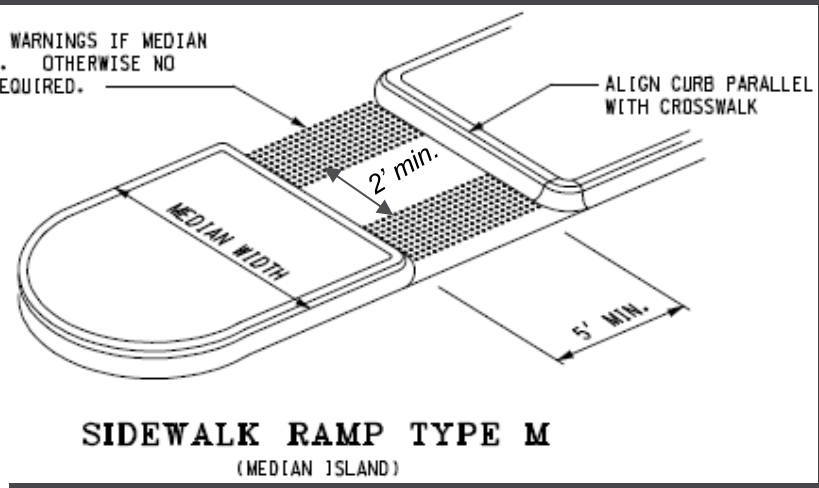
2 INCHES AT THE ENDS OF RADIUS

FULL CONTINUOUS COVERAGE

Medians and Railroad X-ings



DETECTABLE WARNING AT RAILROAD CROSSING



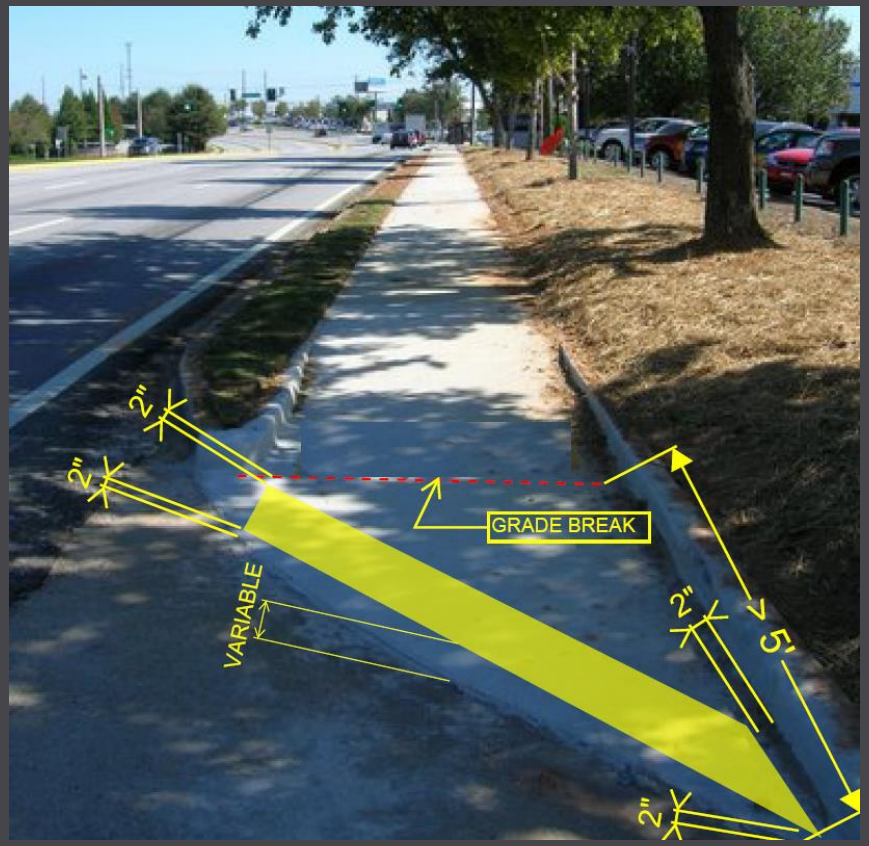
SIDEWALK RAMP TYPE M
(MEDIAN ISLAND)

Medians < 6 ft., No Detectable Warning.

6' min. and 15' max. from rail.


OVER STEPPING
Staggered Coverage

Location, Location, Location



CONTRAST

"LIGHT ON DARK OR DARK ON LIGHT"


LOW VISION

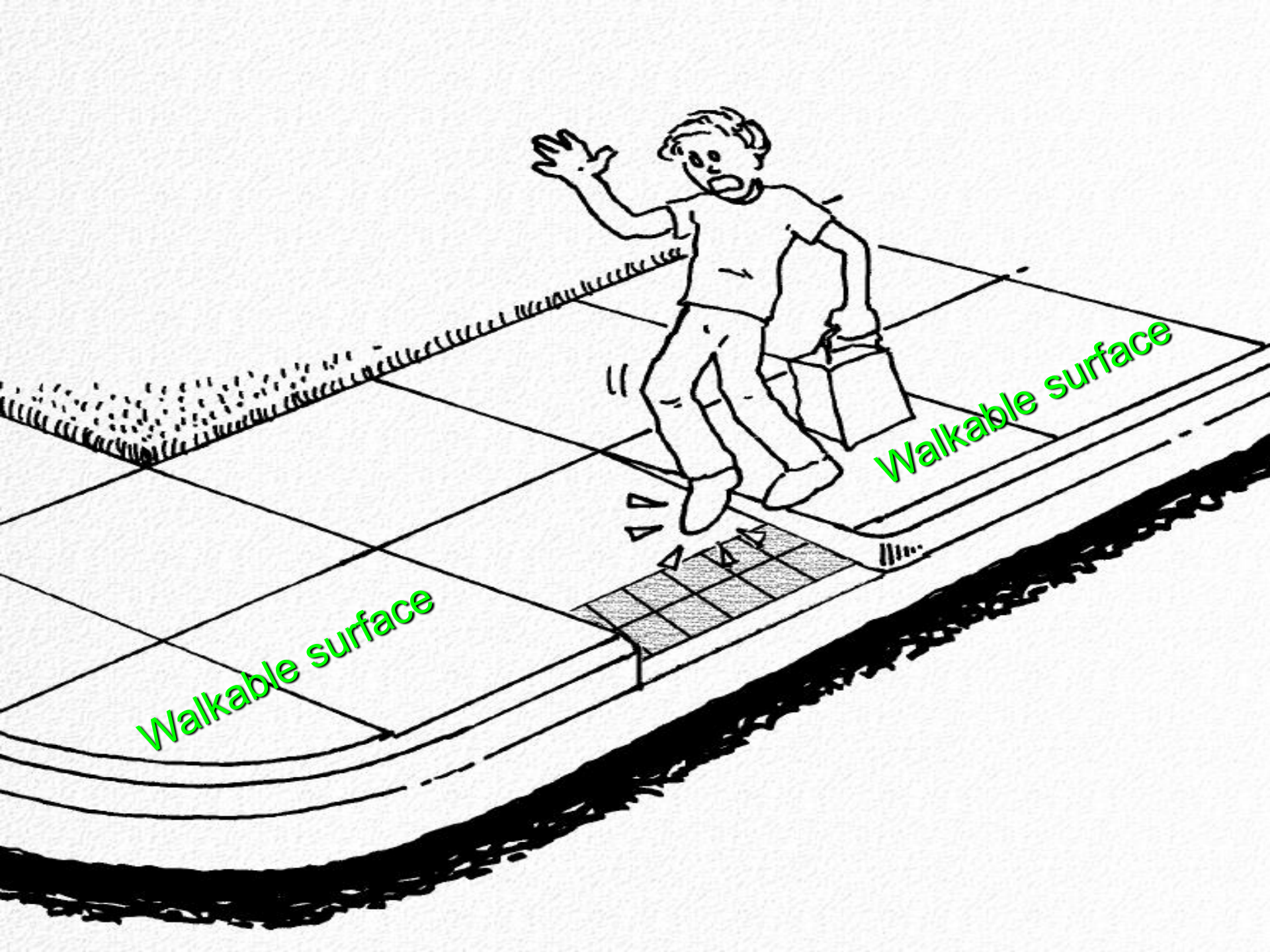

Low Vision at a Distance


Low Contrast
JUL 9 2010

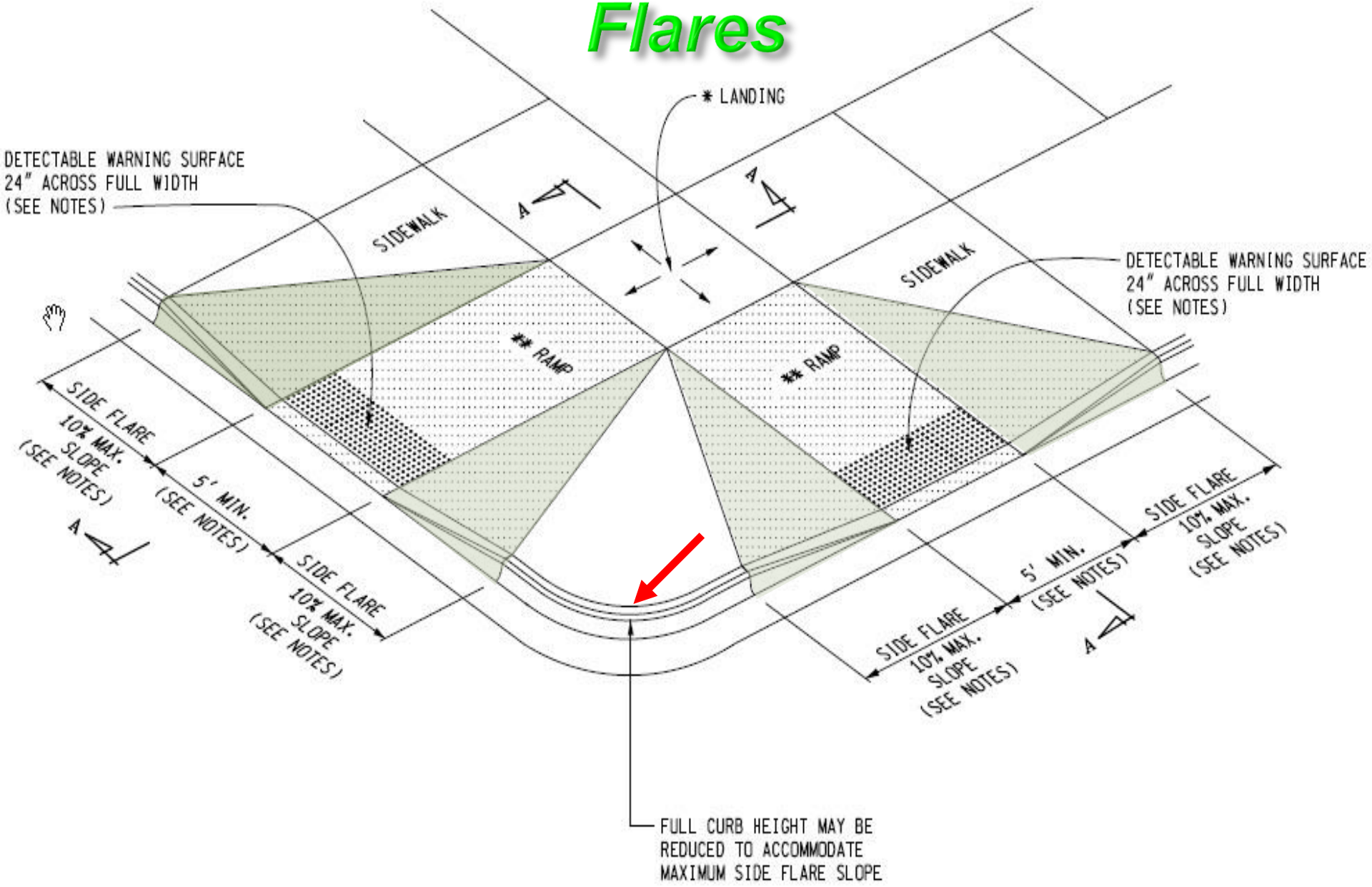
Better Contrast

Rolled Curbs and Flares


Rolled Curb
Permanent object
Non-walking surface

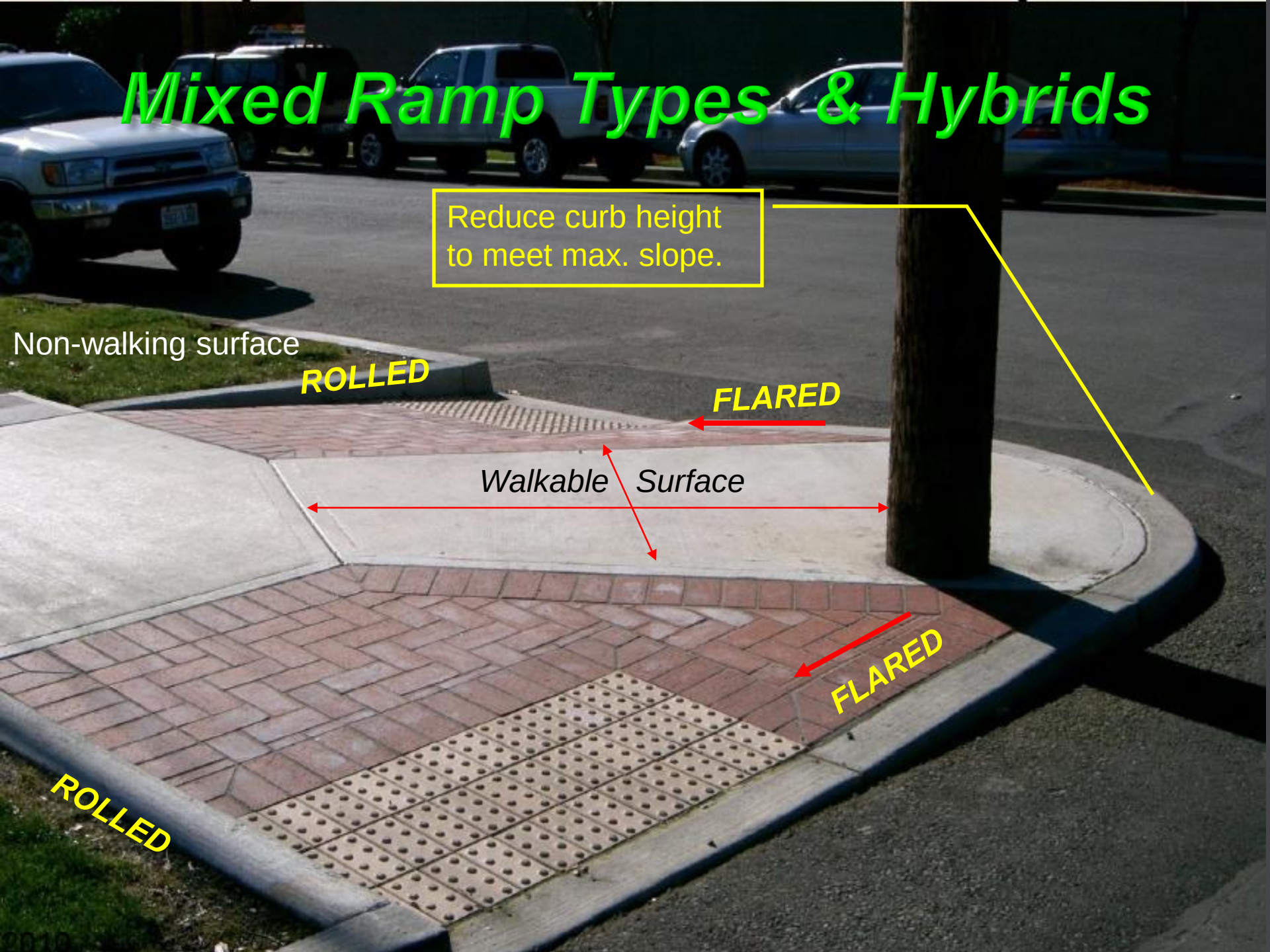

Walkable surface
Walkable surface

Flares



SIDEWALK RAMP TYPE F

(FLARED SIDES, TWO RAMPS SHOWN)


Mixed Ramp Types & Hybrids
Reduce curb height to meet max. slope.
Non-walking surface
ROLLED
FLARED
Walkable Surface
FLARED
ROLLED

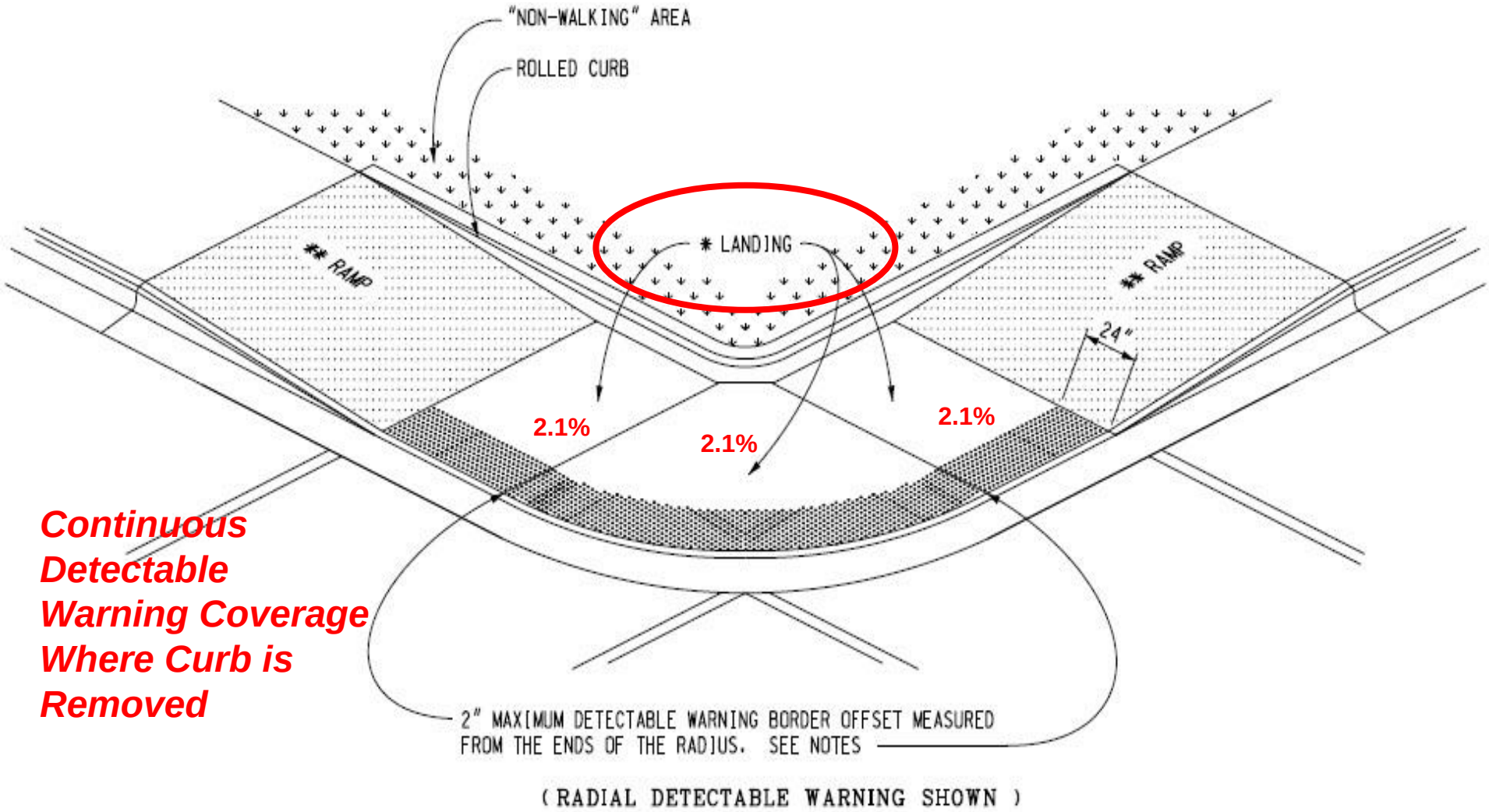
Ramp Types


Directional Ramps
Preferred for Optimal Way finding


Blended Transition
When Directional Ramps Don't Fit

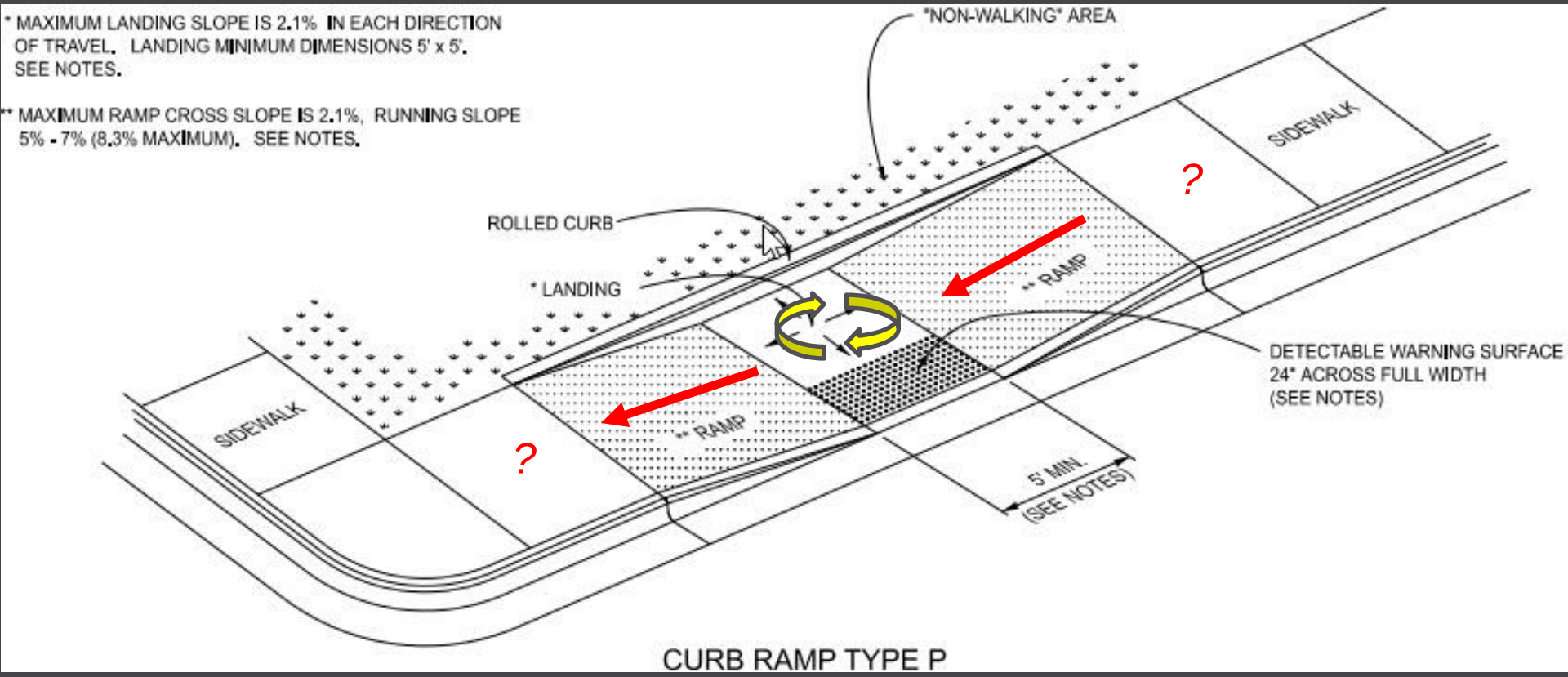
MDOT Depressed Corner (Type D)

Use when directional ramps don't fit



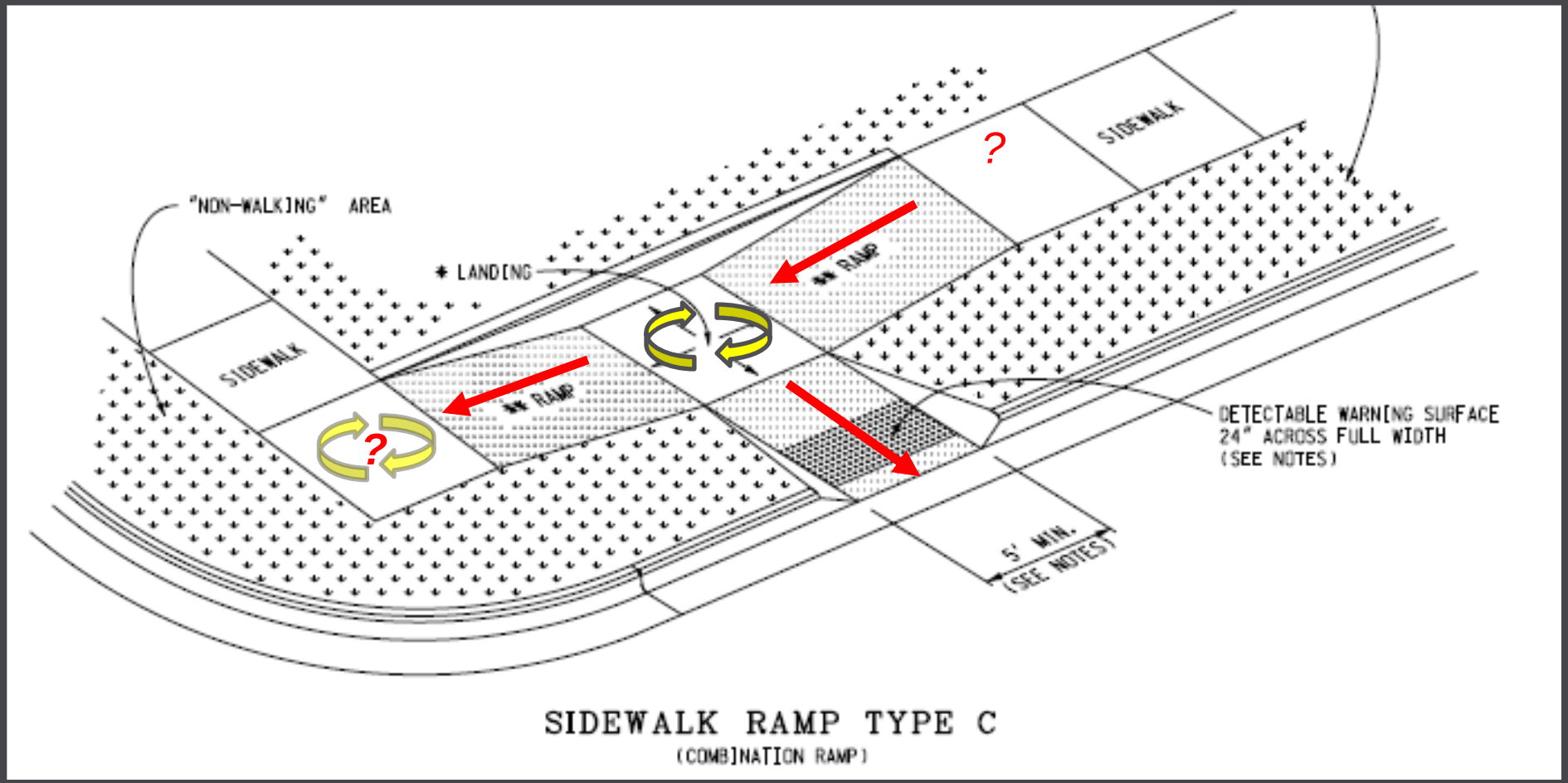
Continuous Detectable Warning Coverage Where Curb is Removed

Parallel Ramp – Type P

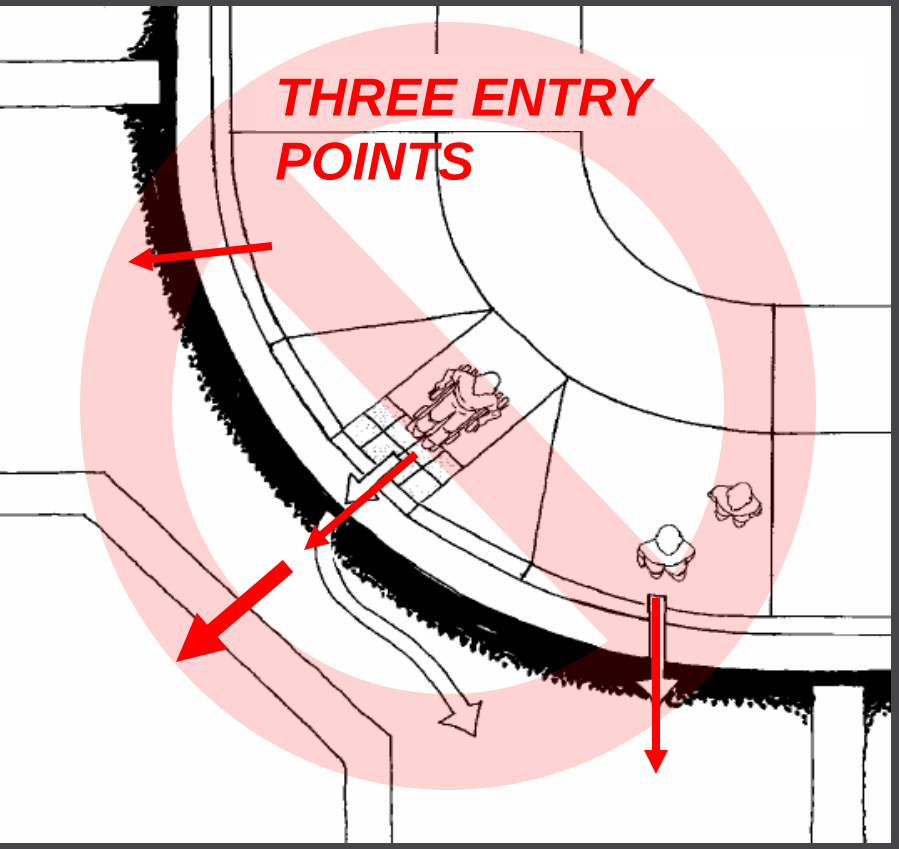


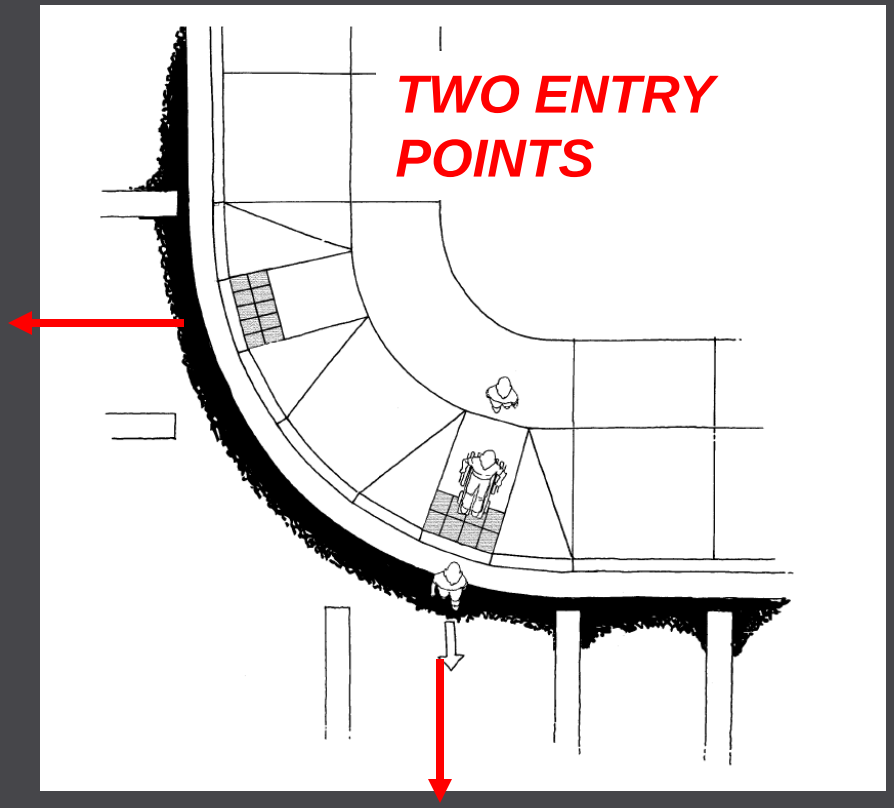
Combination Ramp - Ramp Type C

"Combination" of parallel and perpendicular ramps



Diagonal Ramps allowed only in alterations
NOT FOR NEW CONSTRUCTION





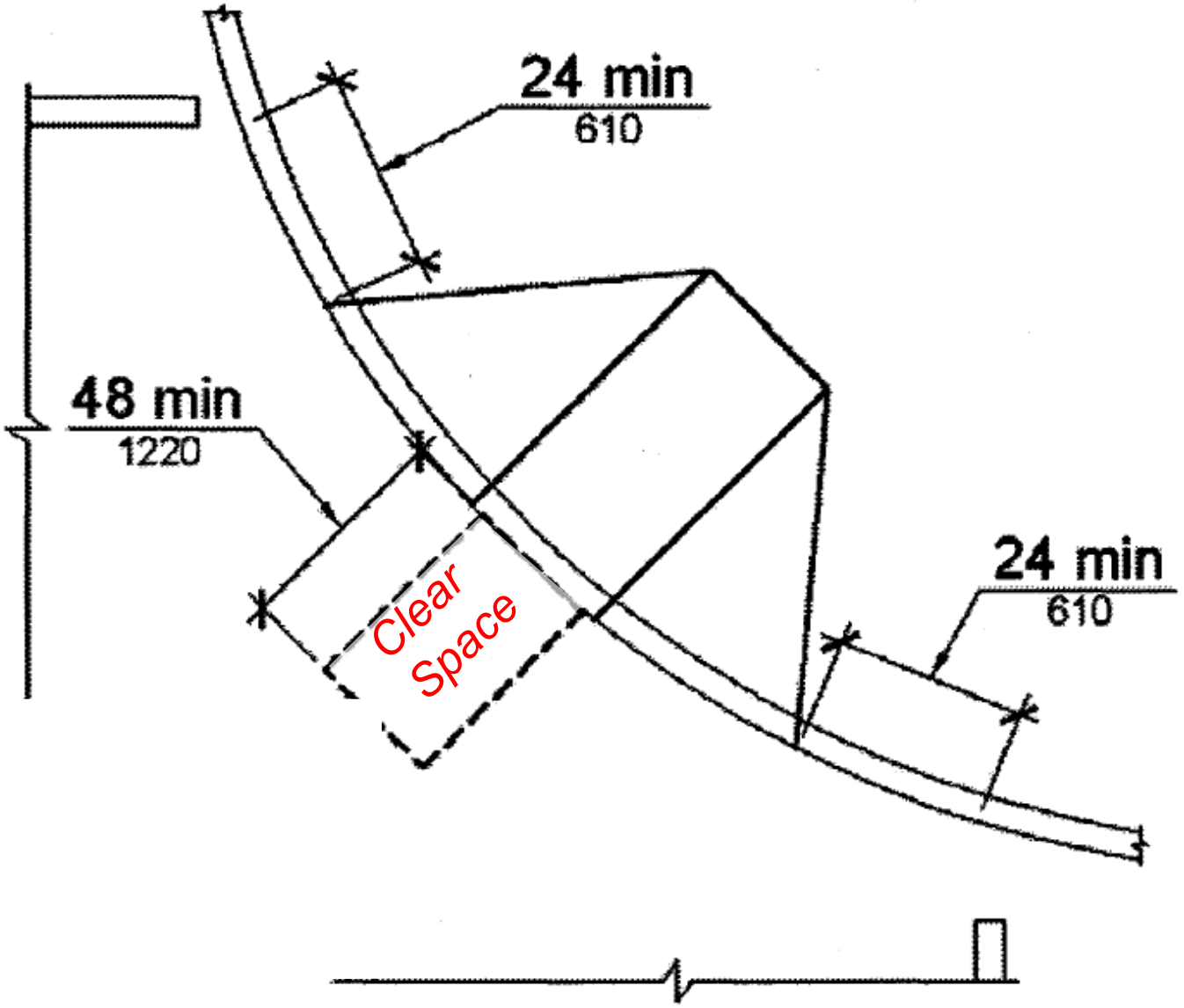
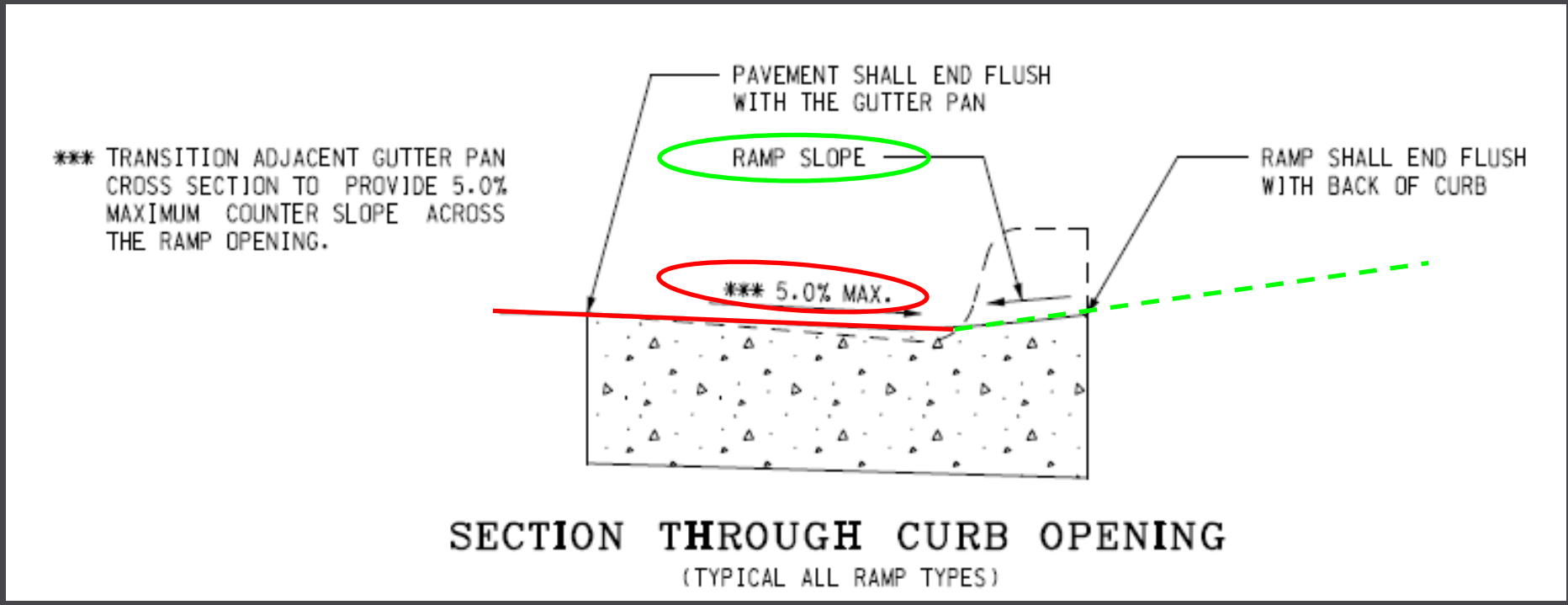


Figure 406.6
Diagonal or Corner Type Curb Ramps

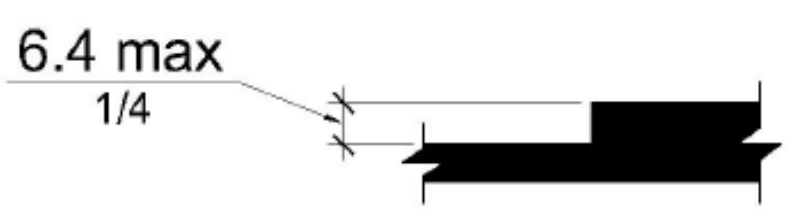
The Curb Opening (Counter Slope)

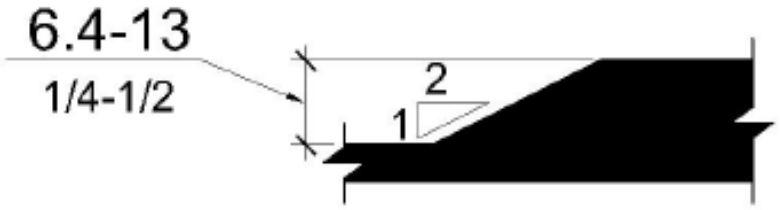


Transition Gutter Slope

Back of Curb Lip

Vertical Surface Discontinuities





¼ inch- no treatment

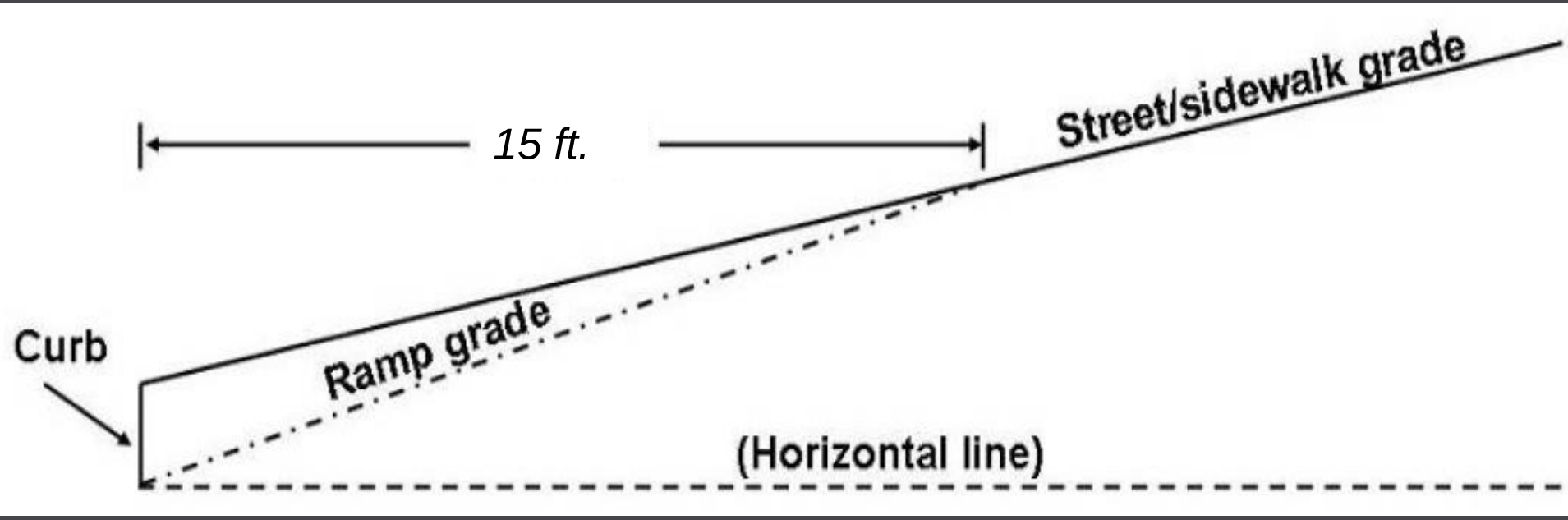
¼ to ½ inch - beveled

> ½ inch - ramped

Flush Transitions

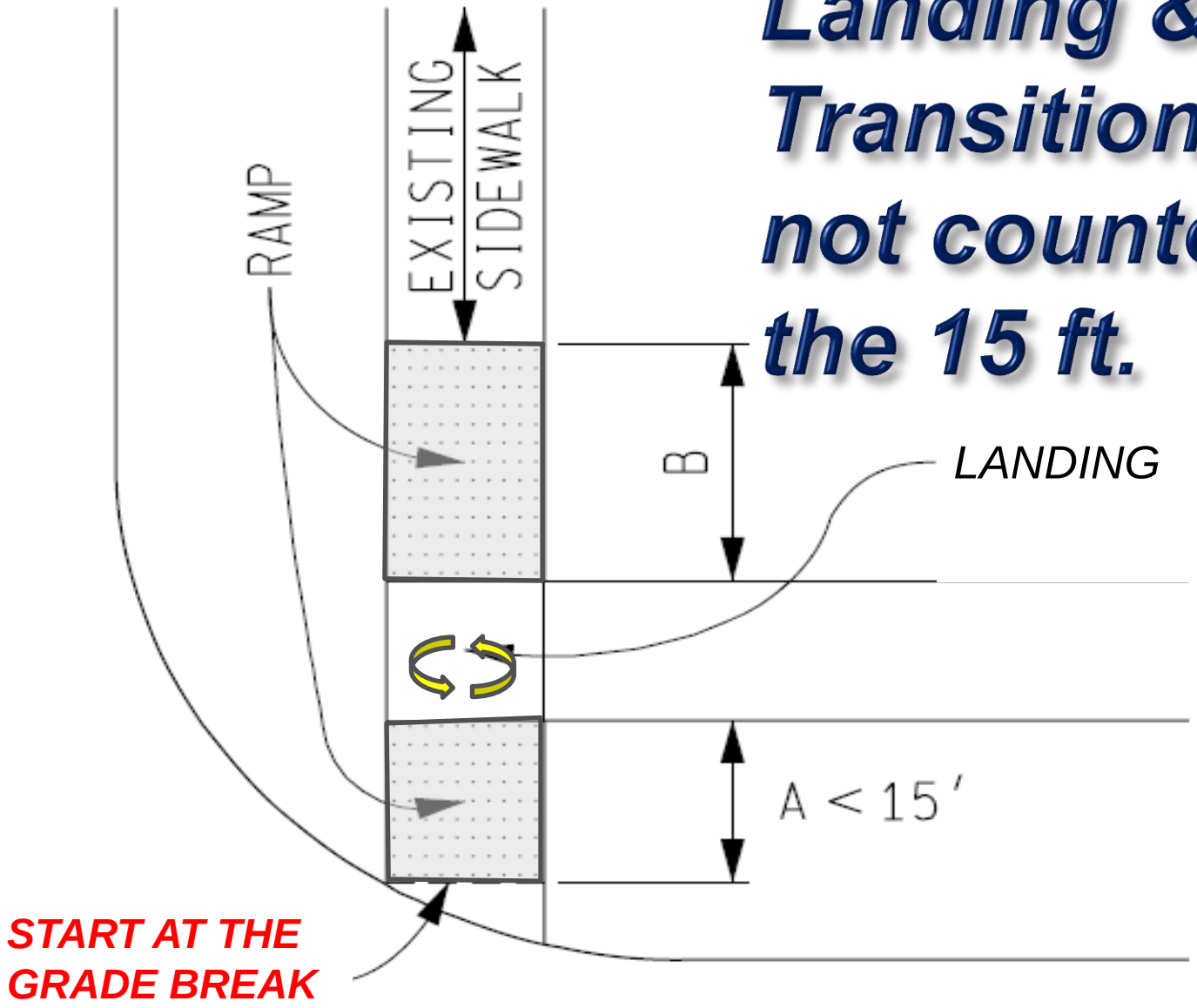
CHASING GRADES

THE 15 FT. RULE



- Maximum ramp slope is 8.3%. However, it shall not require the ramp length to exceed 15 feet.
- You may exceed 8.3% if it would otherwise take more than 15 ft. to match existing sidewalk.
- 15ft. Is not an absolute maximum. Consider reasonable increases in distance to achieve a compliant running slope.

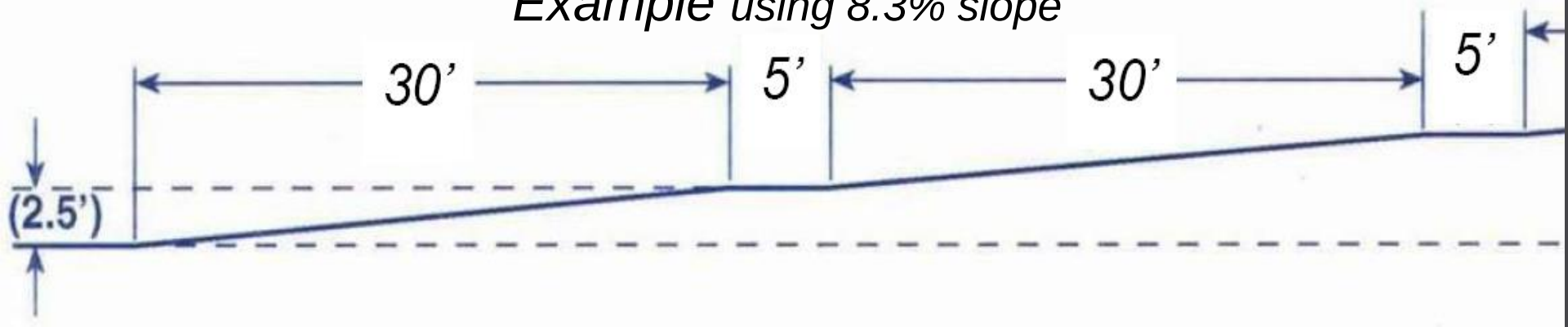
Landing & Transitions are not counted in the 15 ft.



Sidewalk Grade

- *5% maximum sidewalk grade.*
- *5% can be exceeded to match the existing road profile grade.*
- *If you exceed 5 % and the road profile grade, ramp rules apply.*
  - *8.3% maximum slope*
  - *30” maximum rise*
  - *5’ X 5’ Landing*

Example using 8.3% slope

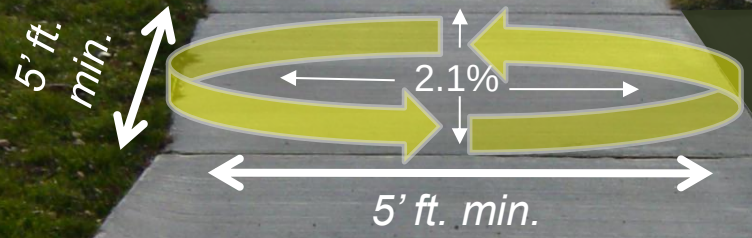


Landings

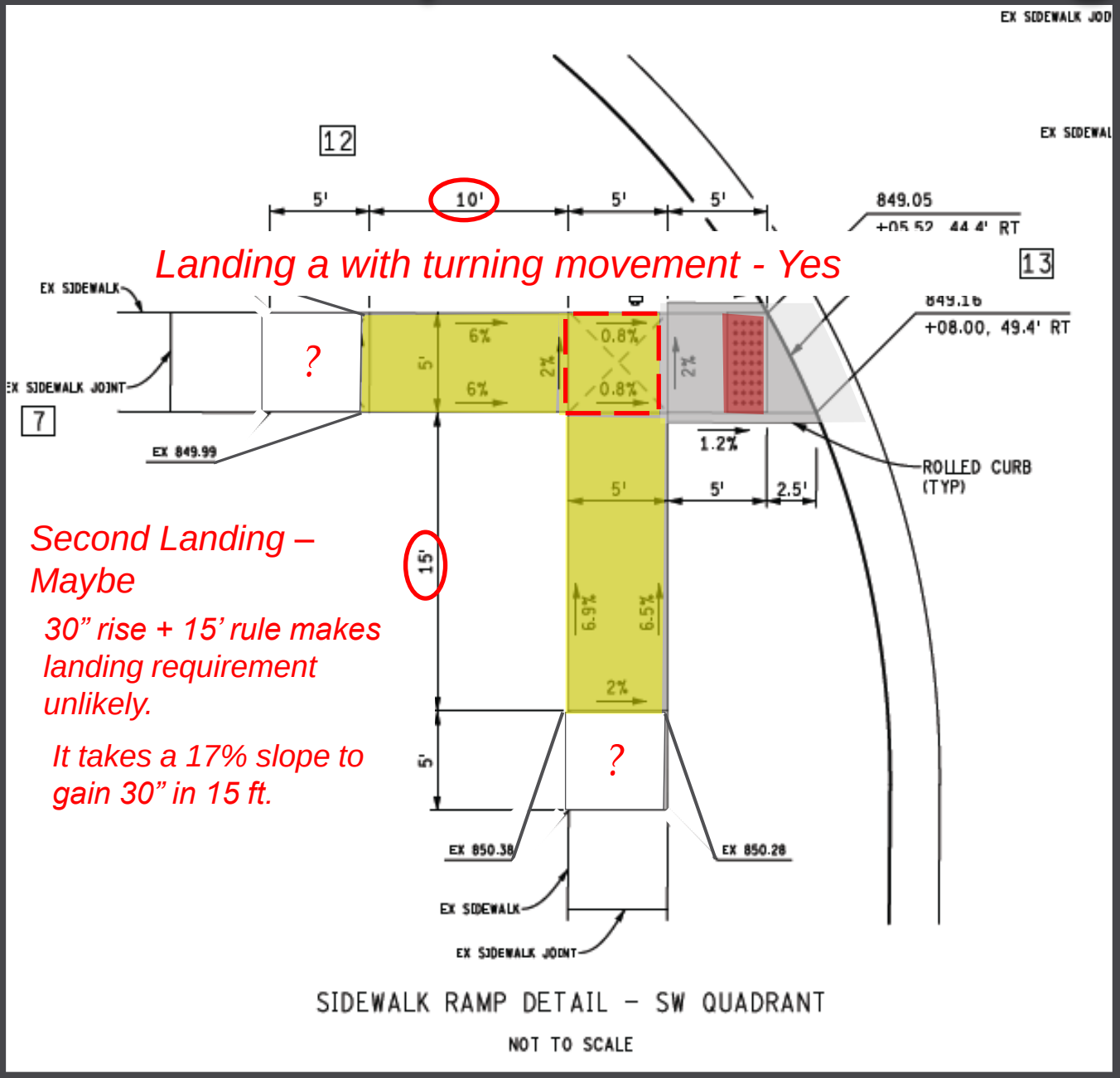
Landings

- *A LANDING MAY BE REQUIRED. FOLLOW THE SIDEWALK RULES.*
- *NOT REQUIRED AT "BLENDED TRANSITIONS" (ramps < 5%)*

(Can be reduced to 4ft. x 4ft. if 5ft is not feasible.)

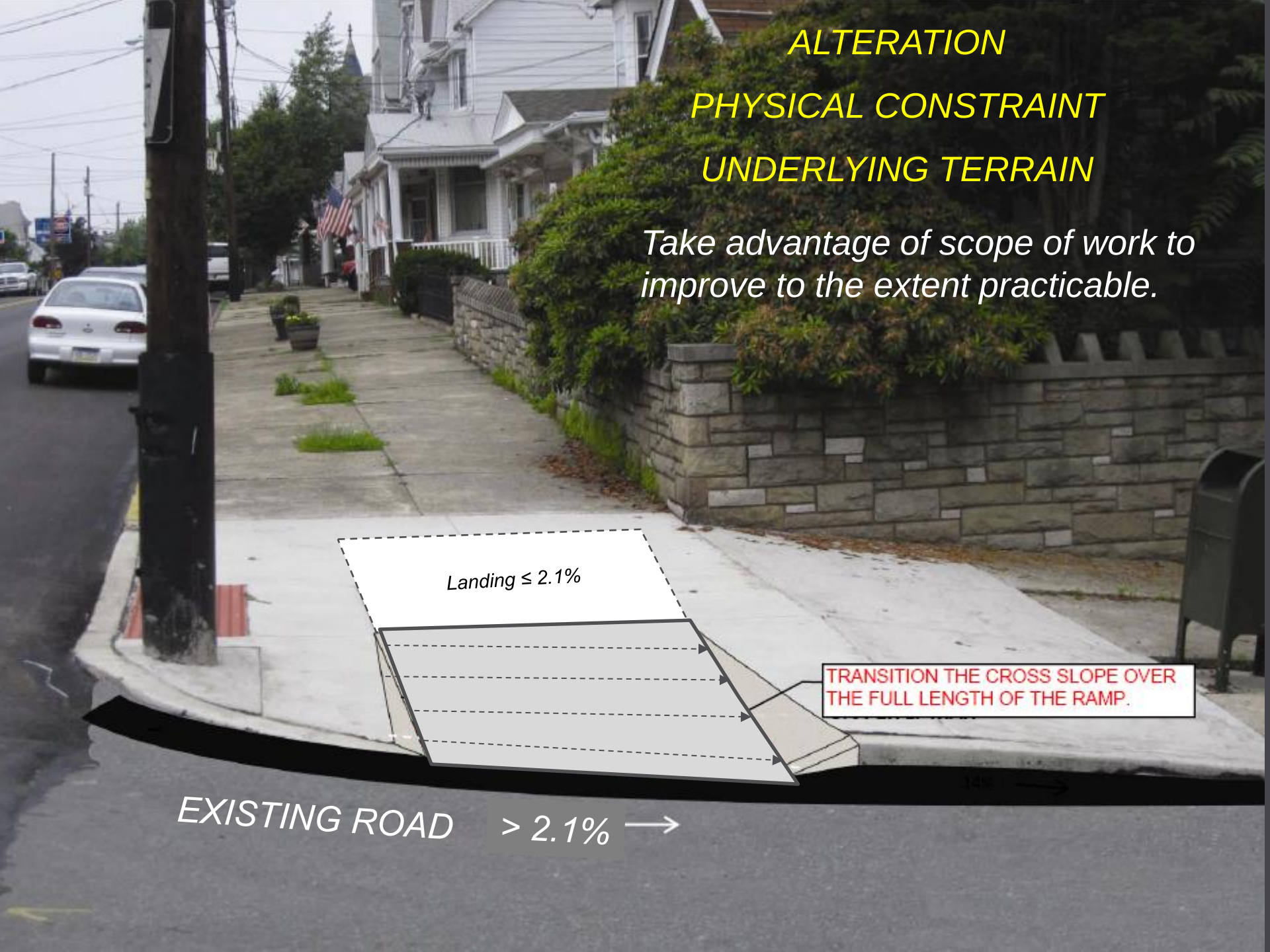


Do Curb Ramps Need "Landings"?



Matching Cross Slopes to Road Grades

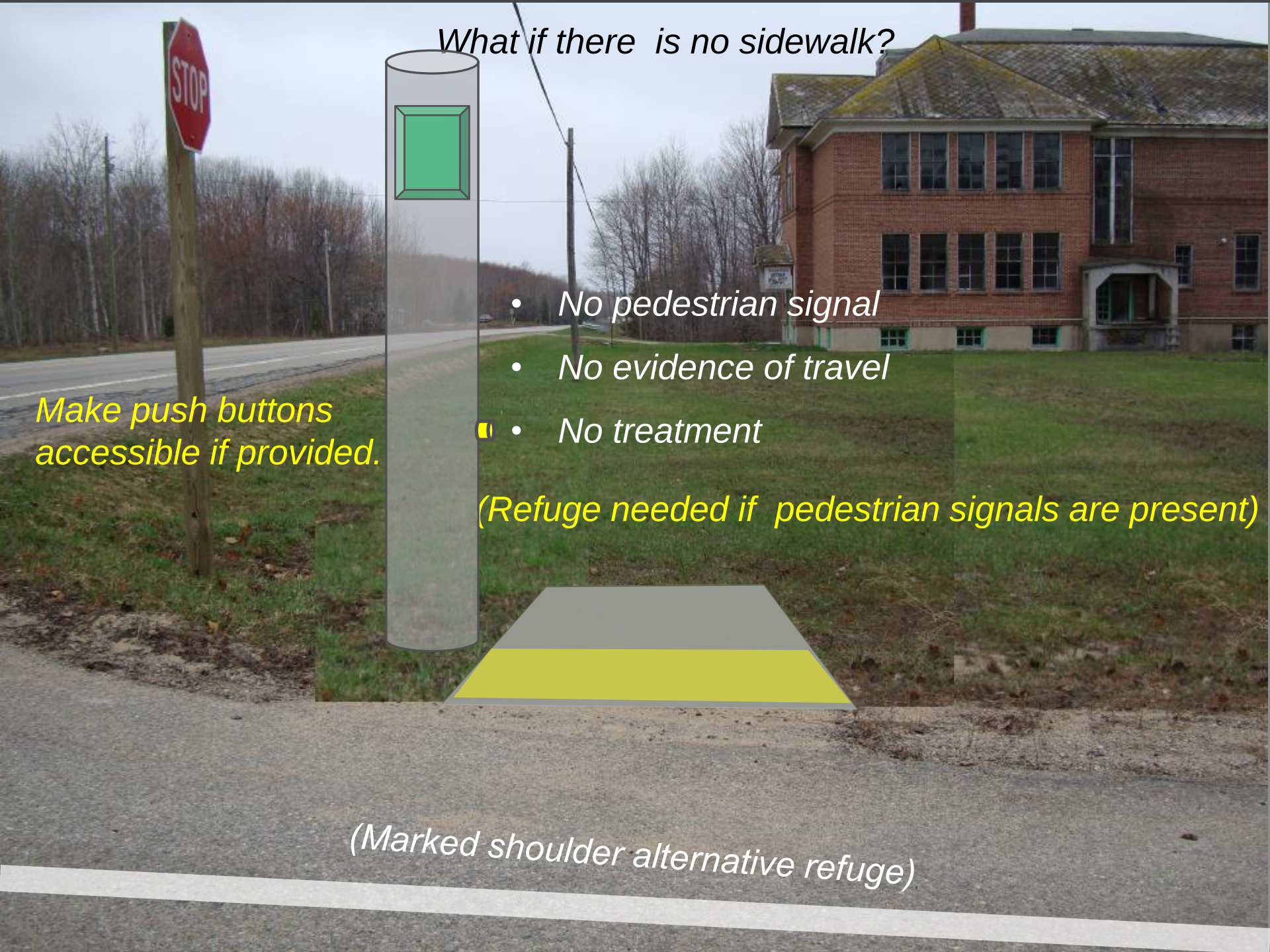
- *NEW ROADWAY*
  - *Full Compliance Crosswalk.*
    - *2.1% maximum at stop signs*
    - *5% maximum at signalized or uncontrolled intersections.*
    - *Match road grade at mid block crossings.*
- *EXISTING ROADS*
  - *Transition to meet existing road grade. Adjust crosswalk to the extent feasible to reduce cross slope if new construction standard are infeasible.*


ALTERATION
PHYSICAL CONSTRAINT
UNDERLYING TERRAIN
Take advantage of scope of work to improve to the extent practicable.
Landing ≤ 2.1%
TRANSITION THE CROSS SLOPE OVER THE FULL LENGTH OF THE RAMP.
EXISTING ROAD
> 2.1%

Path of Travel

- *Path leading to Accessible Features*
  - *Buildings – Yes*
  - *Public Rights of Way - No*


STOP
Do I need a “ramp”?
Do I fix the sidewalk?
Detectable Warning & Pad -Yes
New Sidewalk - No


What if there is no sidewalk?
STOP
• No pedestrian signal
• No evidence of travel
• No treatment
Make push buttons accessible if provided.
(Refuge needed if pedestrian signals are present)
(Marked shoulder alternative refuge)

Push Buttons

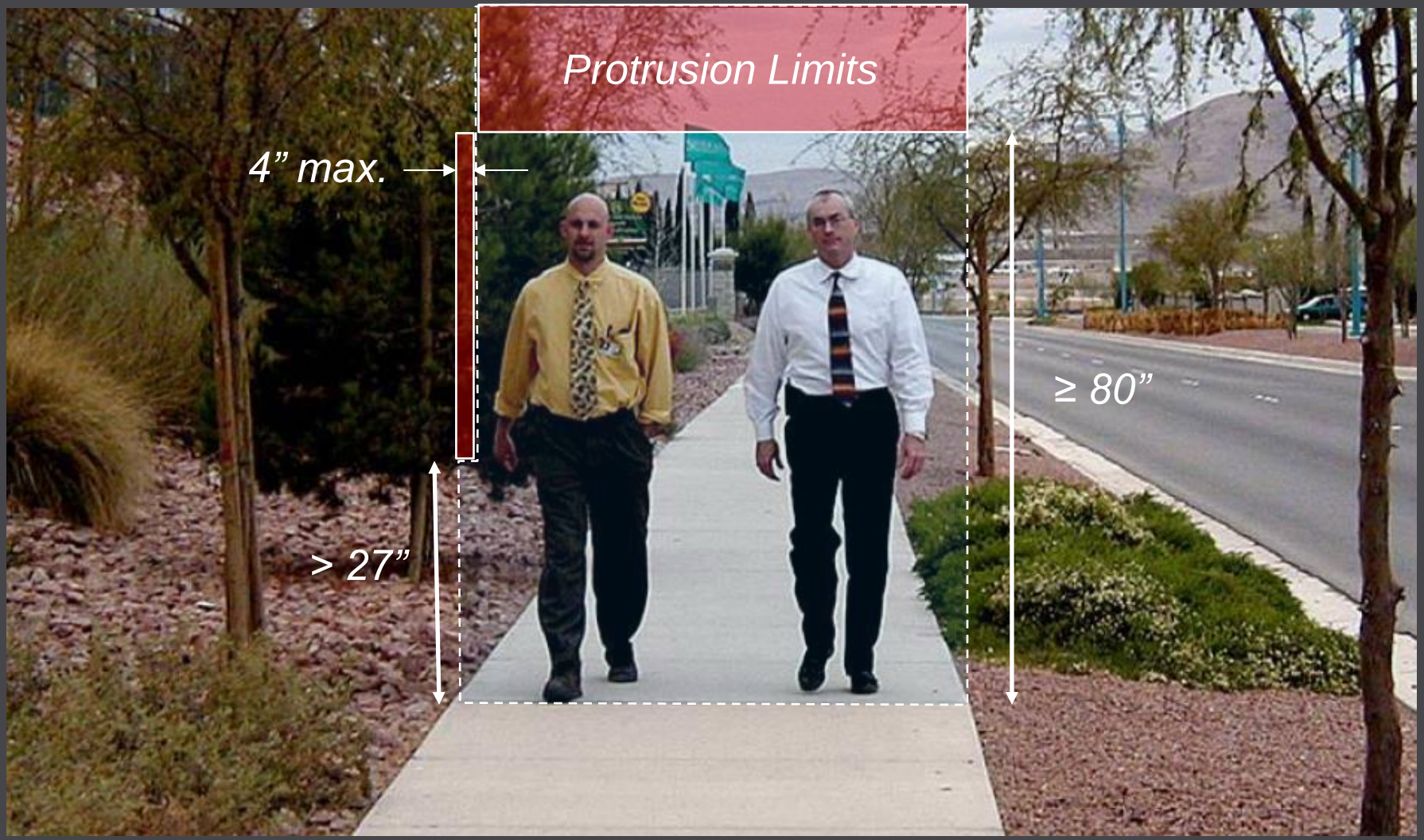
RAMPS, DETECTABLE WARNINGS & DRIVEWAYS


DETECTABLE WARNINGS AT SIGNALIZED OR
STOP/YIELD CONTROLLED DRIVEWAYS ONLY
CASUAL MALE XL

Cross Slopes at Driveways

Sidewalk Zones

Clear Width



- Not less than 4 ft.
- Strive for 5 ft. or better.
  - Otherwise provide 5’X5’ passing space every 200 ft.

Cross Slope

PHYSICAL CONSTRAINTS

R202.3 In *alterations*, where existing physical constraints make compliance with applicable requirements technically infeasible, compliance with these requirements is required to the maximum extent feasible. Existing physical constraints include, but are not limited to, underlying terrain, underground structures, adjacent *developed* facilities, drainage, or the presence of a significant natural or historic feature.

Must be Documented

- Constraint argument only valid for alterations.
  - Not for new construction
- Undue cost burden is a difficult justification.
- Scope of work might be a consideration.
  - (ROW, Utilities, Terrain, etc.)
- DOCUMENTATION

Michigan Department of Transportation
0370 (12/2023)

ADA STATEMENT OF ACCESSIBILITY CONSTRAINTS

Clear Form

ROUTE	CS/PRN	JOB NUMBER

INTERSECTION & QUADRANT

DESCRIBE REASON FULL COMPLIANCE IS INFEASIBLE

- ☐ Structural (Bridge beams, buildings, basements, foundations, etc.)
- ☐ Obstructions (Utilities, drainage, etc.)
- ☐ Historic Preservation (Historic buildings, districts, monuments, etc.)
- ☐ Steep Existing Grades (Maximum ramp slope requires runs to exceed 15 ft., road grade exceeds ramp cross slope maximum, etc.)
- ☐ Right of Way (Project scope would not otherwise require R.O.W.)
- ☐ Pedestrian Signals (Offset to roadway, height, reach, separation between buttons, etc.)
- ☐ Other

ATTRIBUTES	STANDARD	MAXIMUM EXTENT FEASIBLE
☐ Ramp Running Slope	8.3% maximum	
☐ Ramp Width	5 ft. (4 ft. minimum)	
☐ Ramp Cross Slope	2.1% maximum	
☐ Ramp Flares	10% maximum (where walkable surface is adjacent to ramp)	
☐ Counter Slope (gutter pan)	5% maximum with flush transition	
☐ Landing Space	Dimension: 5'x5' (4'x4' minimum) Slope: 2% maximum (parallel and perpendicular to path of travel)	
☐ Grade Break	Flush & 90° to direction of ramp travel	
☐ Detectable Warning	Required per standard	
☐ Pedestrian Signals	Offset to roadway, height, side reach, lateral offset to crossing, separation between buttons, level surface access, button orientation	
☐ Other		

COMMENTS (Continue on next page if needed)

COMPLETED BY	DATE
REVIEWED BY	DATE

Accessibility First

When full compliance is not feasible, think in terms of maximum accessibility first, then balance the requirements.

- Do NOT make it less accessible.

DON'T MAKE THINGS WORSE!

Summary

- No Construction Tolerance on Max or Min
- DWS – Are not for way finding
- 90° Grade Break
- Directional Ramps are Ideal
- 15’ rule for chasing grades
- Think Accessibility First
- Document, Document, Document

QUESTIONS ?