



## ADA PROWAG TRAINING



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## DISCLAIMER:

The teachings contained here within this presentation are derived from guidance published by the United States of America Access Board, and can be found within the document title “Public Rights-of-Way Accessibilities Guidelines” (PROWAG) version 2011. As current, the proposed guidelines are currently waiting official legislation to enact them as ‘Law’. The American Concrete Pavement Association offers this presentation as our view and understanding of the proposed guidelines, but disclaims any, and all, liability regarding the application of these thoughts. PROWAG is a federal publication, and as such, is generally created to express the ‘minimum’ for compliance. Agencies throughout the country may at any time chose to propose their own set of rules that meet, or exceed, those established by the federal government. The material, thoughts, and opinions contained here within are only thoughts and opinions of the presenters themselves, and in no way should be construed as legal absolutions.

## WHY IS ADA COMPLIANCE IMPORTANT

- **The Human Factor:**
  - 1 of 5 Americans currently live with a Disability.
  - Barriers prevent the disabled from safe travel.
    - ✓ Barriers also decrease safety for various other users.
  - Excessive cross-slopes make travel exhausting to impossible.
    - ✓ 3% cross-slope requires 50% more exertion on a wheelchair users countering arm. Think about pushing a wheel barrel overloaded on one side.
- ▲ **The Legal Factor:**
  - Failure to Comply has resulted in agencies nationwide receiving Court mandates to allocated up to 20% of their annual budgets to ADA improvements.

## ACCESS = SAFETY



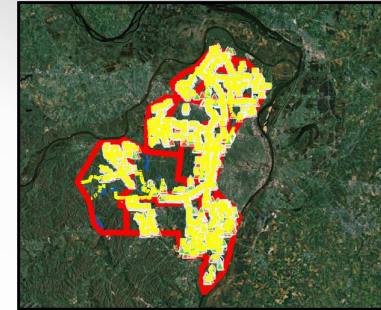



## ADA TRANSITION PLAN

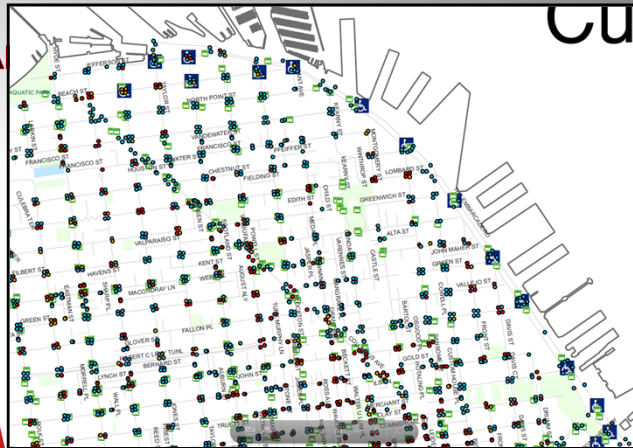
- In accordance with federal law, this transition plan must include a schedule for providing access features, including curb ramps for walkways. 28 CFR §35.150(d)(2). The schedule should first provide for pedestrian access upgrades to State and local government offices and facilities, transportation, places of public accommodation, and employers, followed by walkways serving other areas. 28 CFR §35.150(d)(2). The transition plan should accomplish the following:
- Identify physical obstacles in the public agency's facilities that limit the accessibility of its programs or activities to individuals with disabilities;
- Describe in detail the methods that will be used to make the facilities accessible;
- Specify the schedule for taking the steps necessary to upgrade pedestrian access to meet ADA and Section 504 requirements in each year following the transition plan; and
- Indicate the official responsible for implementation of the plan. 28 CFR §35.150(d)(3).



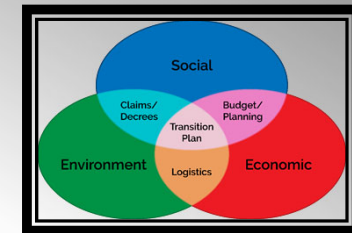
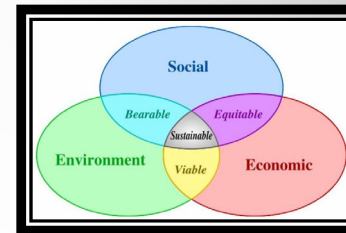
## ADA Transition Plan – Complete Survey of Unincorporated St. Louis County



## TRA



## SUSTAINABILITY = TRANSITION PLAN “THE SWEET SPOT”



### PRETTY GOOD – JUST ONE ERROR – WHO CAN FIND IT.....?



### HERE IS WHY YOU DON'T SEE MORE WHEELCHAIR USERS ON THE SIDEWALK

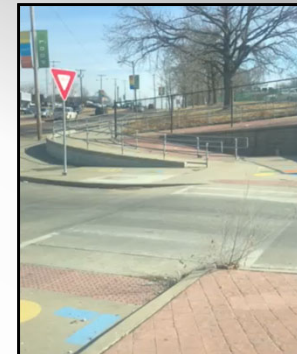
#### Perpendicular Grade Breaks

❑ Both wheels must hit the break at the same time for stability (especially manual wheelchairs)

UNITED STATES ACCESS BOARD 47

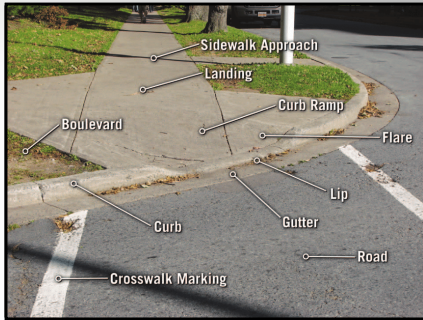


### GOOD ENGINEERING MUST: FAVOR THE MOST VULNERABLE USER FIRST



## GETTING ON THE SAME PAGE

- Sometimes 95% right is *'technically speaking'* way wrong?



## ADAAG vs PROWAG

### TWO BOOKS – TWO VERY DIFFERENT OUTCOMES!!!

- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
  - First rules published and enforced for R/W construction but were largely designed for buildings and building access.
- Public Rights-of-Way Accessibility Guidelines (PROWAG)
  - Second set of rules/"guidance" published and was specific to R/W facilities and provided for terrain tolerances!



## I KNOW WHAT YOU'RE THINKING JOB SECURITY ON THE LEFT 😊

ADAAG

30' – FLAT – 30' FLAT – 30' – FLAT.....



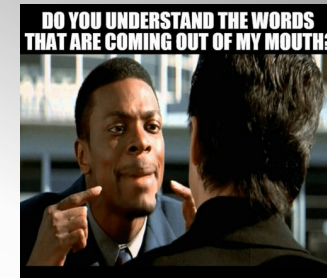
PROWAG

ROAD GRADE ALLOWANCE



## "LEARNING TO SPEAK THE LANGUAGE - COMMON TERMINOLOGY

- Pedestrian Access Route (PAR)
- Curb Ramp
- Ramp
- Grade Break
- Running Slope
- Cross Slope
- Street Crossings
- Detectable Warning
- Turning Space
- Clear Space
- Tabled Roadway
- Transitional Segments



## PEDESTRIAN ACCESS ROUTE (PAR)

- Pedestrian Access Route is the pedestrians equivalent of a traffic lane.
- Does This Make Sense?



- PAR is a 4 foot "MINIMUM" wide "CLEAR" path that is **continuous** through side streets, driveways, medians, curbs, grass, roadways, etc.

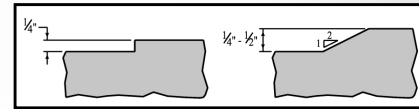


- Then How Can This?



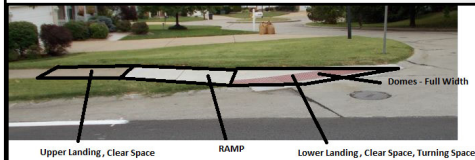
## GENERAL REQUIREMENTS

- **Surfacing:** PROWAG requires all surfaces to be firm, stable, and slip resistant (R302.7)
- **Changes in Level:** Changes in level, including bumps, utility castings, expansion joints, etc. shall be a maximum of 1/4 inch without a bevel or up to 1/2 inch with a 2:1 bevel. Where a bevel is provided, the entire vertical surface of the discontinuity shall be beveled (R302.7.2)



## CURB RAMP ANATOMY

- **Curb Ramps Include the Following Parts:**
  - Landings?
    - Perpendicular Ramps = Landing at Top
    - Parallel Ramps = Landing at Bottom
  - Clear Spaces (4' X 4' Minimum)
  - Domes (2' Deep, Entire Width of the Opening)
  - Ramp (8.33% Maximum Running Slope "unless" greater than 15 feet)
- **Grade Break** (one at the top and one at the bottom of every ramp)
- **Turning Spaces** (2% X 2% at Stop Controlled Intersection, 5% X 5% at Signalized or Free Flow Intersections)
- **Sometimes Flares** (10% maximum – if needed)
- **Sometimes Curbs** (To Help with Direction or Hold Grade)



## CURB RAMPS – TECHNICAL REQUIREMENTS

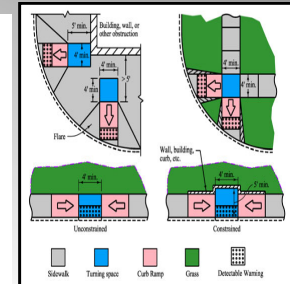
- **Cross Slope:** The maximum cross slope is 2.0% with a

**R302.5.1 Pedestrian Street Crossings.** Where pedestrian access routes are contained within pedestrian street crossings, the grade of the pedestrian access route shall be 5 percent maximum.

**R302.6 Cross Slope.** Except as provided in R302.6.1 and R302.6.2, the cross slope of pedestrian access routes shall be 2 percent maximum.

**R302.6.1 Pedestrian Street Crossings Without Yield or Stop Control.** Where pedestrian access routes are contained within pedestrian street crossings without yield or stop control, the cross slope of the pedestrian access route shall be 5 percent maximum.

**R302.6.2 Midblock Pedestrian Street Crossings.** Where pedestrian access routes are contained within midblock pedestrian street crossings, the cross slope of the pedestrian access route shall be permitted to equal the street or highway grade.



surface of curb ramp runs and turning spaces. (R304.5.2)



**DOES RAMP WIDTH  
'HAVE TO' = WALK  
WIDTH**

- No – not in the Public Right of Way Circulation Paths (Sidewalk PAR's)
- Per PROWAG – Only on Shared Use Paths does the Ramp or Blended Transition Have to Equal the Width of the SUP

**R304.5 Common Requirements.** Curb ramps and blended transitions shall comply with R304.5.

**R304.5.1 Width.** The width of curb ramps and blended transitions shall comply with 304.5.1.1 or 304.5.1.2, as applicable. If provided, flared sides of curb ramp runs and blended transitions shall be located outside the width of the curb ramp run or blended transition.

**R304.5.1.1 Pedestrian Circulation Paths Other Than Shared Use Paths.** In pedestrian circulation paths other than shared use paths, the clear width of curb ramp runs, blended transitions, and turning spaces shall be 1.2 m (4.0 ft) minimum.

**R304.5.1.2 Shared Use Paths.** In shared use paths, the width of curb ramps runs and blended transitions shall be equal to the width of the shared use path.

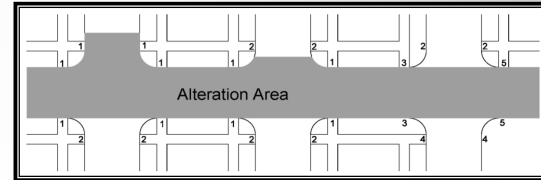


**CURB RAMP IN ALTERATIONS – MINIMUM REQUIREMENTS**

ALTERATION RULES

- 1. Required.
- 2. Strongly recommended.
- 3. Required due to barriers in the path of travel between the sidewalk on one side of the street to the sidewalk on the other side of the street.
- 4. Recommended, but not required because it is outside the alteration area. Consider based on pedestrian usages safety, and land development.
- 5. Install both sides or remove the existing one, based on pedestrian usage, safety, and land development.

**CONCRETE OR ASPHALT OVERLAY PROJECT**



**GRADE BREAK(S)**

- A Construction Joint, Perpendicular to the Pedestrian Path of Travel, that signifies the beginning and ending of the ramp slabs.



**RUNNING SLOPE**

- The slope or grade parallel to the direction of pedestrian travel
- When building in the R/W, Grade of Pedestrian Access Route can equal the General Grade of the Adjacent Roadway
- On Ramps, the Running Slope is between 5% and 8.333% maximum, unless you are chasing grade, in which the ramp only needs to be 15+ Feet and the grade can then exceed 8.333%



## CROSS SLOPE

The Slope or Grade perpendicular to pedestrian travel.

- 2% or less everywhere except:
  - Allowable 5% cross slope at street crossings without yield or stop control.
  - At Midblock Crossings Only – Cross slope of Ramp can equal Grade of road.



## PEDESTRIAN STREET CROSSING

### Cross Slope:

The longitudinal grade of a street becomes the cross slope for a pedestrian street crossing. PROWAG has maximum limits for the cross slope of pedestrian street crossings.

### 1) Intersection Legs with Stop or Yield Control:

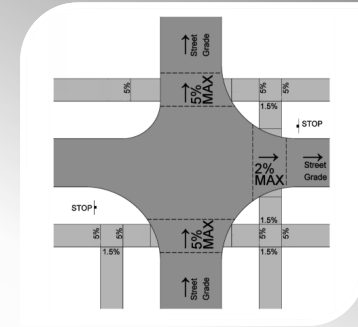
For pedestrian street crossings across an intersection leg with full stop or yield control (stop sign or yield sign), the maximum cross slope is 2.0% (maximum 2.0% street grade through the crossing).

### 2) Intersection Legs without Stop or Yield Control:

For pedestrian street crossings across an intersection leg where vehicles may proceed without slowing or stopping (uncontrolled or signalized), the maximum cross slope of the pedestrian street crossing is 5.0%.

### 3) Midblock Pedestrian Street Crossings:

At midblock crossings, the cross slope of the pedestrian street crossing is allowed to equal the street grade.



## FOR 🦯'S & GIGGLES AND THIS COMES FROM....

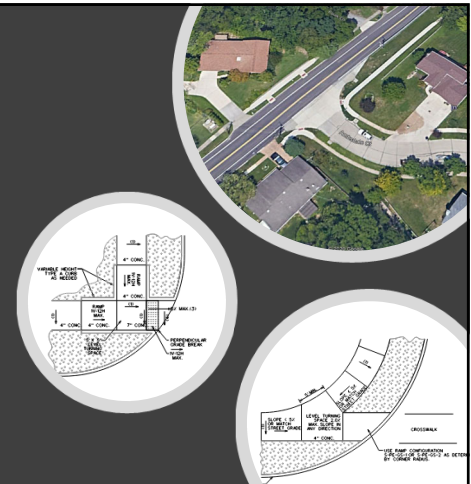
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- **WHAT IS THE LEGAL DEFINITION OF A CROSSWALK?**
- The 2000 *Uniform Vehicle Code and Model Traffic Ordinance* (Uniform Vehicle Code) (Section 1-112) defines a crosswalk as: <sup>(1)</sup>
  - a. "That part of a roadway at an intersection included within the connections of the lateral lines of the sidewalks on opposite sides of the highway measured from the curbs, or in the absence of curbs, from the edges of the traversable roadway; and in the absence of a sidewalk on one side of the roadway, the part of a roadway included within the extension of the lateral lines of the existing sidewalk at right angles to the centerline.
  - b. Any portion of a roadway at an intersection or elsewhere distinctly indicated for pedestrian crossing by lines or other markings on the surface."



## BE CAREFUL.....!!!!

- If you build the bottom two instead of allowing both street crossings – The United States Access Board says you must install a sign prohibiting anyone from crossing at this location.



## DETECTABLE WARNING

- Color of M
- Must Cov
- Placed at median
- Must be 2

through






Count on CONCRETE

ACPA

## DOMES ON RAMP VS RADIUS


- Domes on Radius
  - Domes are placed on the lower landing Radius when the distance from Domes to Ramp is greater than 5 feet.
  - When this is required, the bottom grade break starts behind the domes, and thus – the domes are on a flat plane (2% x 2% or 5% x 5% max)
  - Domes are placed on the Ramp when the furthest distance from bottom of ramp to face of curb is less than 5 feet.
  - Here, the bottom grade break starts in front of the domes.
- Domes on Ramp

Count on CONCRETE

ACPA

## A CLOSER LOOK AT DOMES ON THE RADIUS



Count on CONCRETE

ACPA

## TURNING SPACE

- A 2% X 2% maximum sloped space at stop or yield controlled intersections to allow user to change directions on a relatively level surface.
- A 5% X 5% maximum sloped space at intersections without stop or yield control.



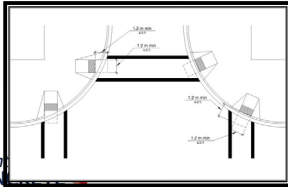

Count on CONCRETE



## CLEAR SPACE

- R304.5.5 Clear Space.

Beyond the bottom grade break, a clear space 1.2 m (4.0 ft) minimum by 1.2 m (4.0 ft) minimum shall be provided within the width of the pedestrian street crossing and wholly outside the parallel vehicle travel lane.



Count on  
CONCRETE



## TABLED PEDESTRIAN CROSSING

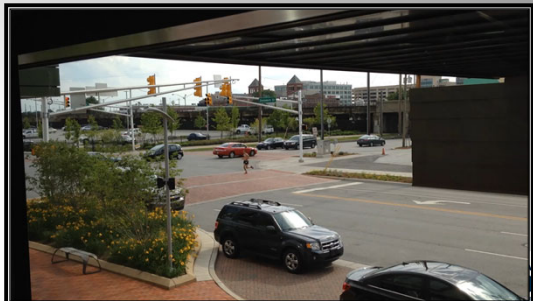
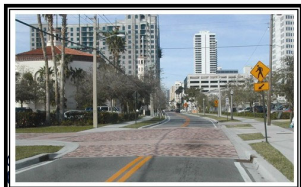


Count on  
CONCRETE



## TABLED INTERSECTION

THE ACT OF BREAKING THE GRADE OF A ROADWAY TO ALLOW FOR AN ACCESSIBLE PEDESTRIAN ROUTE TO SAFELY CROSS



**STRAIGHT FROM PROWAG – UNDER SECTION TITLED  
 “IMPACTS ON STATE AND LOCAL GOVERNMENTS”**

- The requirements in the proposed guidelines in Table 2 will have no impacts on state and local transportation departments compared to the requirements in the DOJ 2010 Standards and industry practices, except for the 2 percent maximum cross slope requirement for pedestrian access routes contained within pedestrian street crossings with stop or yield control where vehicles slow or stop before proceeding through the intersection (see R204.3 and R302.6). **This requirement will have more than minimal impacts on the design and construction of new tabled intersections in hilly urban areas that contain pedestrian street crossings with stop or yield control.**



**TRANSITIONAL SEGMENTS**



R202.3.2 Transitional Segments. Transitional segments of pedestrian access routes shall connect to existing unaltered segments of pedestrian circulation paths and shall comply with R302 to the extent practicable.



**WHAT ABOUT TRAILS.....?**



**Yup! ADA Compliance Matters Here Too**



## WE CAN'T HAVE THIS EITHER.....? TRAILS REALLY NEED TO BE CONCRETE IF WE WANT TO KEEP ADA COMPLIANCE



## HELPFUL TOOLS AND LESSONS LEARNED

- Always double check the setting on your smart level – some default to degrees instead of percent.....expensive mistake. MUST BE SET TO "PERCENT"

GOOD



BAD



### Push Bu

- Placed 1.5 Feet from Entrance
- Maximum 5 Feet from Entrance
- 10 Feet Separation between one is not
- Button must be on products list



## THE GOOD, THE BAD & THE UGLY



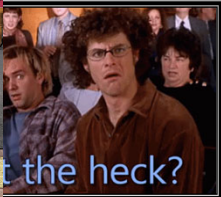
### CAN A WHEELCHAIR FIT THROUGH?



### BECAUSE ACCESS IS A UTILITY!



### TRY AND 'C... SM?



### WISH WE HAD CORNER ACCESS



### EXCESSIVE OVERLAYS CAN LEAVE US SWIMMING IN NONCOMPLIANCE.....!



I GUESS WE CAN CALL THIS THE SCENIC ROUTE....?



### BEFORE AND AFTER...THIS IS WHAT WE ARE TRYING TO ACHIEVE!!!



### ADA & Concrete Overlay Thoughts

#### The Obvious:

- Raised Crosswalks
- Raised Intersections

#### The Not As Obvious:

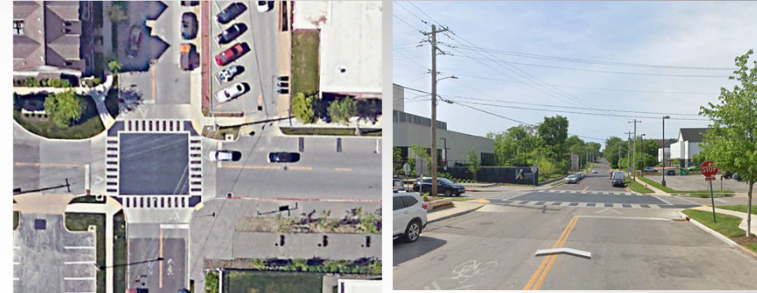
- Sidewalks



### Raised Pedestrian Crossing



### Raised Intersection



### THE LESS OBVIOUS – SIDEWALKS

- Huge economic burden on agencies most pre 2010 sidewalks are out of compliance
- ADA Law requires sidewalks brought into compliance...25 years ago..... 😊
- Cost to Remove and Replace a 4" Slab with 4" Agg Base running \$40-60 / Square Yard.
- BUT.....Where Grades Allow, What Would It Cost to Place a Nonwoven Geo Fabric Down and Place 2.5 inchs.
  - No agg base, no removal costs, easy formlines, plus 2.5" PCC on 4" PCC is a far superior product.....THINK ABOUT IT ENGINEERS....#ConcreteSustainableSolutions



### ULTIMATE GOAL - WE CAN GET THERE!



**"LIFE, LIBERTY AND THE PURSUIT OF  
HAPPINESS.....FOR ALL"**



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