Designing Pedestrian Facilities for Accessibility

Laws, Regulations and Pedestrian Characteristics

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Federal Highway Administration

ACECNJ/NJDOT/FHWA 2013 DESIGN SUMMIT
Legal Background

- Architectural Barriers Act (ABA - originated 1968)
- Rehabilitation Act (1973) - Section 504 (49 CFR Part 27)
- Civil Rights Restoration Act (1987)
- Americans with Disabilities Act (ADA) (1990)
Five Titles of ADA

Title I   Employment
Title II  State & Local Governments (28 CFR Part 35)
Title III Public Accommodations (retail, commercial, sports complexes, movie theaters, et al) (28 CFR Part 36)
Title IV  Telecommunications
Title V   Misc., including requirements for the U.S. Access Board to develop design guidelines
Basic Requirements:

- Must ensure that individuals with disabilities are not excluded from programs, services and activities (pedestrian facilities are an example of a program)
Title II - State and Local Governments

Basic Requirements:

- Designate an ADA Coordinator
- Development & postings of an ADA Policy Statement
- Development & postings of Grievance Procedures/Complaint Procedures
- Complete a self-evaluation
- Development of a Transition Plan
Transition Plan Elements

- Identify/list physical obstacles and their location
- Describe in detail the methods the entity will use to make the facilities accessible
- Provide a schedule for making the access modifications
- Provide a yearly schedule if the transition plan is more than one year long
- Name/position of the official who is responsible for implementing the Transition Plan
Pedestrian right-of-way facilities:
- Curb ramps (required)
- Sidewalks
- Parking lots
- Pedestrian signals
- Bus stops
- Shared use trails
- Parks/recreational facilities
New Construction 28 CFR 35.151

- New construction (and altered facilities) must be designed and constructed to be accessible to and usable by persons with disabilities.
Title II - Alterations

Alterations - 28 CFR 35.151

- DOJ and court decisions consider roadway resurfacing an alteration (1993)
- Roadway resurfacing triggers requirement for curb ramp installations/retrofits (to current standards)
Title II - Existing Facilities

Existing Facilities - 28 CFR 35.150

Goal for structural modifications and program access is a level of usability that balances:

- User needs
- Constraints of existing conditions
- Available resources
Title II - Existing Facilities

Alterations to existing facilities must meet minimum design standards to the extent practicable to do so.
Undue Burden 28 CFR 35.150(a)(3)

- Based on all resources available for a program
- Claims must be proven and accompanied by a written statement of reasons and signed by the head of the public entity
- What constitutes undue burden will often be decided in courts

BEFORE

AFTER
28 CFR 35.133

- State & local governments must maintain the accessible features of facilities in operable working conditions

- Maintenance examples: sidewalks that are in disrepair, overgrown landscaping, snow accumulation, broken elevator, work zone accessibility (if construction activity affects pedestrian facilities - provide alternate route if more than temporary disruption)
• Developed primarily for buildings & on-site facilities
• Do not address all situations (especially those that are unique to the public right-of-way)
Public Right-of-Way Accessibility Guidelines (PROWAG)

- Originally intended to supplement the ADAAG to provide standards specific to public rights-of-way; most recently formatted as a stand-alone document
- Applicable to new construction and alterations (of existing facilities)
- Undergoing the rulemaking process (2011 Notice of Proposed Rule Making published w/ updated guidelines.)
Departures from particular technical and scoping requirements of this guideline by the use of other designs and technologies are permitted where the alternative designs and technologies used will provide substantially equivalent or greater access to and usability of the facility.
Issues in draft PROWAG not adequately addressed in ADAAG

- Pedestrian Access Route (e.g., allows sidewalk running slope to match roadway grade)
- Curb ramps - more design options
- Detectable warnings
- Crosswalks
- APS (Accessible Pedestrian Signals)
- On-street parking
- Roundabouts
References

• Title II of ADA, with analysis
  - http://www.ada.gov/taman2.html

  - http://www.access-board.gov/prowac/nprm.htm

• FHWA memo - Clarification of FHWA’s Oversight Role in Accessibility, September 12, 2006

• AASHTO Guide for Planning, Design, and Operation of Pedestrian Facilities

• Public ROW Access Advisory Committee’s Report on “Accessible Public ROW Planning & Designing for Alterations” - July 2007
ADA TITLE II PROGRAM
COURT CASES

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Chrystal Section
New Jersey Department of Transportation
May 21, 2013
COURT CASES

- ADA has impacted case law that significantly shapes budgets, alterations and how improvement contracts are structured.
Court Cases

- Major cases to be aware of
  - CDR v. Chicago (2007)
  - CDR v. Caltrans (2009 settlement agreement)
Court Cases, Kinney v. Yerusalem

- 1993
- Court Appeals for the Third Circuit
- Established “alteration”
- City of Philadelphia was resurfacing streets but not installing curb ramps
- Court established broad definition of “alteration”
Court Cases, Barden v. Sacramento

- 2004
- Beyond curb ramps—removal of barriers, narrow pathways, abrupt level changes, excessive slopes, overhanging obstructions and improvement of crosswalk access
20% of annual Transportation Fund for 30 years allocated to make pedestrian ways accessible

Upgrade to ramps as part of alterations would be outside of the 20%
Court Cases, CDR v. Chicago

- Will spend $50,000,000 over the next 5 years ($10,000,000 per year) in new money to repair or replace curb ramps and sidewalks.
- $18,000,000 each year installing curb ramps and sidewalks.
- The City shall install curb ramps at intersections of each cross street at its intersection with the alteration or resurfacing so that altered or resurfaced intersections are fully accessible to mobility-impaired persons with disabilities.
Court Cases, CDR v. Caltrans

- 2008
- Californians for Disability Rights v. CA DOT
- Ninth Circuit Court addressed Sovereign Immunity, finding that ADA’s language overrides the 11th Amendment to the Constitution
- CDR asserted Caltrans failed to survey its 2500 miles of sidewalk and therefore could not know what access barriers exist
- Lack of a Transition Plan constituted a violation of ADA
Court Cases, CDR v. Caltrans

- Settlement agreement filed December 2009—pending court approval
- $1.1 Billion over 30 years
- Caltrans will pay $3.75–$8.75 million in court fees
- $25–$45 million/year commitment
- Install 10,000 curb ramps
- Retrofit 50,000 existing ramps
- Reconstruct hundreds of miles of sidewalk
- Modify 15,000 intersection pedestrian crossings (audible signals for the blind and temporary pedestrian routes)
ADA PRESENTATION (CURB RAMPS)

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Warren Howard
New Jersey Department of Transportation
May 21, 2013
ADA Curb Ramps

- NJDOT wants curb ramps to be designed & constructed properly
- Curb ramps are not a new concept
- Requirements contained in:
  - NJDOT’s Standard Construction Details
  - The Roadway Design Manual
Corrective Action Notice No. CAN082  
(Released 6/28/2012):

• Revised Roadway Design Manual Section 5.7.4
• Defines project types requiring curb ramps
  • New construction
  • Reconstruction
  • Major rehabilitation
  • Widening
  • Resurfacing
  • Etc.
Corrective Action Notice No. CAN082 (Released 6/28/2012):

• Defines project types exempt from curb ramp construction
• Roadway Preservation and Preventative Maintenance Projects (These normally do not modify a pedestrian route)
  • Bridge deck patching
  • Pavement non-structural thin surface overlays
  • Fiber optics
  • Guide rail
  • Signing and striping
  • Etc.
If ADA compliance is technically infeasible, compliance to the standards shall be to the extent practicable.

Reasons for providing accessibility to the extent practicable may include:

- Impacts not included in the original scope or project limits
- Limited right-of-way
- Existing utilities
- Environmental or historical impacts
- Roadway profile impacts
Proper Attention To Curb Ramps Is Vital During The Project Design Phase

• Designer must visit the project site
• Difficult/impossible to design from plans alone
Proper Attention To Curb Ramps Is Vital During The Project Design Phase

• Must identify/observe constraints:
  • Traffic signal poles
  • Junction boxes
  • Meter cabinets
  • Lighting standards
  • Utility poles
  • Right-of-way
  • Physical characteristics of corner
Proper Attention To Curb Ramps Is Vital During The Project Design Phase
Curb Ramp Types

- Identify if a standard curb ramp can be used (7 types) & specify
- Develop Specific details that are site specific
Curb Ramp Types 1-4 & 7
Curb Ramp Types 5 & 6

Curb Ramp Type 5
(Crossing Parallel to Highway Only)

Curb Ramp Type 6
(Crossing Parallel to Highway Only)
Curb Ramp Requirements

• Required where sidewalks cross a curb at a street or driveway
• Where crosswalks encounter dividers or islands, walkway openings or curb ramps are required unless the island nose is relocated
Curb Ramp Requirements

- Required in order to make all traffic signal pedestrian pushbuttons accessible, including providing sidewalk up to the pedestrian pushbutton.
- Two curb ramps are preferred at each corner (where there is a crossing of each roadway), however, one curb ramp constructed at the center of the curb radius is acceptable when warranted by field conditions.
- Detectable Warning Surfaces (DWS) must be specified.
• Explore all options for full ADA compliance. If full compliance cannot be achieved, the DESIGNER MUST DOCUMENT NONCOMPLIANCE.
Detectable Warning Surfaces Placement

- Perpendicular to curbline for curb ramp types 1-4 & 7
Detectable Warning Surfaces Placement

- New detail being developed for curb ramp Types 5 & 6
Detectable Warning Surfaces Placement

- Not required at most driveway crossings
Proper Attention To Curb Ramps Is Vital During Construction

This Applies To:

- Contractors
- Resident Engineers
- Inspectors
What’s Next?

• Section 5 of the NJDOT Roadway Design Manual being modified
• Standard Roadway Construction Details being modified
• Curb ramp write up and sample details being added to the NJDOT Sample Plans
• Training will be provided for:
  • Designers
  • NJDOT Project Managers
  • Contractors
Traffic Signal Layouts

Today’s ADA

Chris Barretts, P.E. - NJDOT
Lynn LaMunyon, P.E., PTOE – Maser Consulting
Governing Documents

Manual on Uniform Traffic Control Devices for Streets and Highways
2009 Edition
Including Revision 1 dated May 2012
and Revision 2 dated May 2015

2010 ADA Standards for Accessible Design

Department of Justice
September 15, 2010
Governing Documents

- Draft Guidelines prepared by the US Access Board for application of ADA requirements to Public Right-of-Way
- Expected to be adopted in 2014
Resurfacing Projects

NJDOT Baseline Document Change

- For all resurfacing projects, must add sidewalk from Existing Pedestrian Pushbuttons to the ADA Ramp

PROWAG

- Resurfacing is considered a structural improvement to the road and requires ADA compliant ramps
Ramp Types

Perpendicular

Parallel
Ramp Types

Perpendicular/Separated
- 2 Ramps, 2 Crosswalks
- Preferred
- Directional Guidance
- Easier for PB location (reach)

Diagonal/Combined
- 1 Ramp, 2 Crosswalks
- Discouraged
- Turning space is typically in the street
Ramp Considerations

Clear Space

- 4’x4’ clear space that is 2% maximum cross slope and running slope
- Must be outside parallel vehicle travel path
  - Don’t provide the clear space in the roadway if shoulders are not present
Operational Considerations

Location of Separated Ramps

- Consider how far away from the intersection you place the ramp.
- Is the turning vehicle now expecting the pedestrian conflict?
Operational Considerations

Fixed Time Operation

- Don’t need Pushbuttons!
- Is your intersection in a closely spaced grid system where volumes are consistent?
- Still need an active audible assembly to direct the visually impaired to and through the correct crossing
Toolbox Options

Number of Crossings

- PROWAG allows a three approach leg design
- MUTCD provides signing guidance

Other considerations

- Consider an Advance Walk Signal
- Restrict Right-on-Red Movement
- Redesign a Right Turn Channelized Island
- Design an exclusive pedestrian phase – all red to all vehicular movements
Push Buttons

### Americans with Disabilities Act (ADA 2010)

- Must provide a maximum reach of 10” to PB

### According to MUTCD Section 4E.08

- If audible used, PB shall include a locator tone and a tactile arrow
- PB shall be accompanied by a diagrammatic sign that directs pedestrians to crosswalk (typically with message or arrow)
- PB must be unobstructed and adjacent to Landing Area (4’ x 4’ area that is 2% in all directions)
Push Buttons

According to MUTCD Section 4E.08 (Cont’d)

• Face of the PB must be parallel to the crosswalk to be used
• Mounting height 3.5’ - 4’ (max) above sidewalk grade
• When two PBs are provided on the same corner, the PBs should be separated by a distance of at least 10’
• Max. 5’ between the extended crosswalk line & the PB
• Between 1.5’ and 6’ from the edge of the curb to PB
  - Where there are physical constraints that make it impractical, it should not be farther than 10 feet from the edge of curb, shoulder or pavement
Push Buttons

Figure 4E-3. Pushbutton Location Area

Legend:
- Downward slope

Recommended area for pushbutton locations
Push Buttons

Figure 4E-4. Typical Pushbutton Locations (Sheet 1 of 2)

A - Parallel ramps with wide sidewalk
B - Parallel ramps with narrow sidewalk
C - Parallel ramps with narrow sidewalk and tight corner radius
D - Perpendicular ramps with crosswalks far apart

Legend:
- Downward slope
- Pedestrian pushbutton
- Detectable warning (per ADAAG)
- Landing area (per ADAAG)

Figure 4E-4. Typical Pushbutton Locations (Sheet 2 of 2)

E - Perpendicular ramps with crosswalks close together
F - Perpendicular ramps with sidewalk set back from road with crosswalks far apart
G - Perpendicular ramps with sidewalk set back from road with crosswalks close together
H - Perpendicular ramps with sidewalk set back from road with continuous sidewalk between ramps

Legend:
- Downward slope
- Pedestrian pushbutton
- Detectable warning (per ADAAG)
- Landing area (per ADAAG)
If two APS PBs are placed less than 10’ apart or on the same pole, each accessible pedestrian pushbutton shall be provided with the following features (see Sections 4E.11 through 4E.13):
- A pushbutton locator tone
- A tactile arrow
- A speech walk message for the WALKING PERSON (symbolizing WALK) indication
- A speech pushbutton information message
- Braille Features???
Design Tip #1

Signal Designers = ADA Ramp Experts

- Curb Ramp Design and Traffic Signal Layout must be designed concurrently. As you consider vehicular indication placement, you need to be considering potential pole locations and how it relates the ramps.
- Be involved during the planning process if possible to maximize accessibility:
  - Make sure adequate survey is obtained.
  - Propose shorter curb height or transition in advance of corners.
  - Grass Buffers can help design.
  - Street Furniture (e.g., Trash Cans, Light Poles, etc.) can help design.
  - Make sure traffic analysis accounts for recessed, separated crosswalks (e.g., Longer Clearance Intervals, Queue Lengths, etc.)
  - Wider sidewalks will allow more room to place equipment and maintain clear path.
Design Tip #2

Standard Details

• Make sure the detail is appropriate to the design and that it provides contractors with adequate information to build
• Each corner should be unique (especially when Traffic Signals are present)
• Flared ramps may not be your friend
• Utilize header/cheek walls when possible
• Include signal equipment and utilities in the details to make sure you account for them
Design Tip #2

Examples of Curb Ramp Details
Design Tip #2

Examples of Curb Ramp Details
Design Tip #2

Examples of Curb Ramp Details
Design Tip #3

Proper PB Placement

• Sometimes extremely challenging to locate the pole/PB while maintaining the following parameters (especially on an existing modification):
  - MUTCD offsets from curb
  - Making sure the PB is adjacent to landing areas
  - Maintaining the Pedestrian Access Route and the 4’ Clear Path
  - Maintaining the 10’ preferred separation between PBs
Design Tip #3

Potential Solution (from NJDOT)

NOTES:
1. ALL SIGNS AND PUSH BUTTONS SHALL BE ADA COMPLIANT.
2. REGULATORY SIGN TO BE RIGIDLY FIXED TO METAL PLATE FASTENED TO POST AT MINIMUM OF TWO POINTS.
3. DISTANCE BETWEEN FULLY DEPRESSED PUSH BUTTON AND FACE OF GUIDE RAIL OR OTHER OBSTRUCTION SHALL BE A MAXIMUM OF 24”.
4. DISTANCE OF BUTTON OF PUSH BUTTON ASSEMBLY ABOVE FINISHED GRADE SHALL BE A MAXIMUM OF 36” AND A MINIMUM OF 30”.
5. WHEN THIS INSTALLATION IS IN EARTH WITHOUT SIDEWALK, SET TOP OF FOUNDATION 3’ ABOVE EXISTING GRADE.
6. FOUNDATION TO BE 1’6” X 1’6” X 1’10” OF CLASS ‘A’ CONCRETE.
Design Tip #4

Know your Equipment and Foundations

- Using a larger foundation inherently violates the 10” maximum reach
- The use of header/cheek walls violates the 10” maximum reach
- Guiderail installations often cause violations of 10” maximum reach
Design Tip #4

STF Foundation

1.5' DIA  1.25'' +
Design Tip #4

Foundation next to a header

10" +

8"

1.5' Width
Design Tip #4

Poles behind Guide Rail

Diagram showing the placement of poles behind a guide rail with a measurement of +/- 15".
Design Tip #4

Use PB extensions
Design Tip #5

Sound Construction Inspection

• Review Stake-Out and Forms prior to concrete pours
• Proper Detectable Warning Surface Placement
• Push Button Orientation
• Push Button Mounting Height – Installation should occur after construction
The MUTCD
- Does not mandate APS
- Provides rules and guidance on how to appropriately design APS

The PROWAG
- When new pedestrian signals are installed, APS is required
- APS is required to be installed at existing traffic signals when modifications include signal controller and software alterations, or signal head replacements

“An Accessible Pedestrian Signal and Pedestrian Pushbutton is an integrated device that communicates information about the WALK and DON'T WALK intervals at signalized intersections in non-visual formats (i.e., audible tones and vibrotactile surfaces) to pedestrians who are blind or have low vision.”

- PROWAG Section R209: “Accessible Pedestrian Signals and Pedestrian Pushbuttons”