

An aerial photograph of a crowded pedestrian bridge spanning a river. The bridge is filled with people, and a large American flag is being hoisted by a crane. The surrounding area includes buildings, parking lots, and mountains in the background. The image has a blue tint.

# *CDOT* PEDESTRIAN FACILITY DESIGN TRAINING

## SUPPLEMENTAL MATERIALS

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# Preamble

Roadways are part of the Colorado life experience. Every day, people use our roadways to commute to work and to school. They're used for traveling to the mountains our out to the plains. Colorado roadways play an important part in a community's vitality and often reflect the natural surroundings nearby. Coloradans have come to expect a high quality of life, and building and maintaining roads for the transportation, recreation, health and economic development of a community is paramount. While we measure success based on safety, we also must value the many purposes a roadway fulfills and respect the transportation choices of all users.

We need transportation systems that allow residents and visitors alike places to gather, conduct business, recreate, and travel. In addition to motorized vehicle infrastructure, we need systems that support other choices, such as walking, bicycling and connections with transit. Every workday in Colorado nearly 80,000 people walk to work as their primary mode of transportation (2023 ACS 5-year estimates). The Colorado Department of Transportation (CDOT), the Colorado Office of Economic Development and International Trade (OEDIT), and the Colorado Department of Public Health and Environment (CDPHE) estimated in their 2016 report "Economic and Health Benefits of Bicycling and Walking" that 2 million of the 5 million residents in Colorado are regular walkers. In 2016 in Colorado, 85% of residents reported taking a walk. Even people driving a vehicle are ultimately pedestrians as they approach or leave their vehicles. Additionally, pedestrians are our most vulnerable street users and need robust infrastructure to keep them safe on our streets.

Multimodal transportation is a key element of CDOT's mission in providing improvements to the statewide transportation system. CDOT has adopted a Policy Directive and a Procedural Directive to improve the accommodation of bicyclists and pedestrians in CDOT programs. Additionally, federal surface transportation law places a strong emphasis on creating a seamless transportation system that persons of all ages and abilities can utilize for safe and convenient access to jobs, services, schools and recreation.

The following materials are intended to provide practitioners with a toolbox of best practices for designing and building pedestrian-friendly roadways and infrastructure. The concepts are taken from Chapter 13 of the CDOT Roadway Design Guide, local examples and along with leading design guidance issued by national organizations and agencies around the United States.

## CDOT POLICY DIRECTIVE 1602.0

It is the policy of the Colorado Transportation Commission to provide transportation infrastructure that accommodates bicycle and pedestrian use of the highways in a manner that is safe and reliable for all highway users. The needs of bicyclists and pedestrians shall be included in the planning, design and operation of transportation facilities, as a matter of routine.

## CDOT PROCEDURAL DIRECTIVE 1602.1 (EXCERPTS)

The full policy is available in **Policy + Procedural Directives** on page 47.

### Planning

“Provide Bicycle and Pedestrian technical support and education assistance to the Transportation Planning Regions (TPRs) and Metropolitan Planning Organizations (MPOs) to ensure Bicycle and Pedestrian accommodations are included in all planning efforts.”

### Design

“Ensure that Bicycle and Pedestrian accommodation is included in both design scoping meetings and scoping summaries; as well as consideration in project characteristics, Field Inspection Review (FIR) and Final Office Review (FOR) meetings and notes.”

### Construction

“During project construction, ensure that reasonable accommodations and access for bicyclist and pedestrian use have been made, including signed detour routes or alternate transportation for the length of the project.”

### Maintenance

“Bikeways within the right-of-way of state highways will be maintained by the Department, except where a maintenance agreement provides otherwise. Where new projects are being considered, maintenance agreements shall be in place prior to construction.”

### Education

CDOT shall continue its on-going programs that support education for motorists, bicyclists, pedestrians and law enforcement personnel regarding their shared responsibilities, as well as programs that provide design and planning instruction to internal and external audiences. The Department will continue to publish a Colorado Bicycle Manual and Colorado Bicycling Map to provide guidance on shared roadway usage.



# Resources

The sections that follow serve as an overview of pedestrian facility design treatments from the training session. Not all topics of discussion are included in this classroom supplement. This document is a quick reference to help you in addressing design issues, but is not in itself a substitute for a thorough evaluation of facility improvements. The following standards and guidelines are referred to in this supplement and should be consulted for any facility design.

2023 CDOT Roadway Design Guide, Chapter 12, 13  
[https://www.codot.gov/business/designsupport/bulletins\\_manuals/2023-cdot-roadway-design-guide](https://www.codot.gov/business/designsupport/bulletins_manuals/2023-cdot-roadway-design-guide)

CDOT Policy Directive 1602.0 Elevating Bicycle and Pedestrian Opportunities in Colorado  
<https://www.codot.gov/programs/bikeped/design-policy>

Updated Procedural Directive 1602.1 Elevating Bicycle and Pedestrian Opportunities in Colorado  
<https://www.codot.gov/programs/bikeped/design-policy>

CDOT's Bicycle and Pedestrian Design Resources  
<https://www.codot.gov/programs/bikeped/design-policy.html>

2023 Manual on Uniform Traffic Control Devices (MUTCD)  
[https://mutcd.fhwa.dot.gov/kno\\_11th\\_Edition.htm](https://mutcd.fhwa.dot.gov/kno_11th_Edition.htm)

2016 FHWA Small Town and Rural Multimodal Networks Guide  
[https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/small\\_towns/fhwahep17024\\_lg.pdf](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/fhwahep17024_lg.pdf)

2018 AASHTO A Policy on Geometric Design of Highways & Streets (Greenbook) can be purchased at <https://store.transportation.org/item/collectiondetail/180>

2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities  
Purchase at <https://store.transportation.org/item/collectiondetail/224>

2024 Mitigation Strategies for Design Exceptions  
[https://highways.dot.gov/sites/fhwa.dot.gov/files/Design%20Exceptions%20Mitigation\\_Strategies%20Guide\\_508.pdf](https://highways.dot.gov/sites/fhwa.dot.gov/files/Design%20Exceptions%20Mitigation_Strategies%20Guide_508.pdf)

2014 NCHRP 783: Evaluation of the 13 Controlling Criteria for Geometric Design  
<http://www.trb.org/Publications/Blurbs/171358.aspx>

2013 NACTO Urban Street Design Guide  
<https://nacto.org/publication/urban-street-design-guide/>

2024 United States Access Board, Public Right-of-Way Accessibility Guidelines  
<https://www.access-board.gov/prowag/>

2023 NCHRP 1043 Roundabouts Guide, 3rd Edition  
<https://nap.nationalacademies.org/catalog/27069/guide-for-roundabouts>

FHWA "Accommodating Bicycle and Pedestrian Travel: A Recommended Approach – A US DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure"  
[https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/design.cfm](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design.cfm)

2005 Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations  
<https://www.fhwa.dot.gov/publications/research/safety/04100/ref.cfm>

2021 CDOT Region 4 Bicycle and Pedestrian Safety Study  
<https://www.codot.gov/projects/archives/study-archives/region4bikepedestrianstudy>

2023 CDOT Region 1 Bicycle and Pedestrian Safety Study  
<https://bit.ly/4shCv6n>

2025 CDOT Statewide Active Transportation Plan  
[https://www.codot.gov/programs/bikeped/planning/Bike\\_Ped\\_Plan](https://www.codot.gov/programs/bikeped/planning/Bike_Ped_Plan)

2023 Colorado Vulnerable Road User Safety Assessment  
<https://oitco.hylandcloud.com/CDOTRMPop/docpop/docpop.aspx?clienttype=html&docid=18974635>



# ACCOMMODATING PEDESTRIANS

DESIGN NEEDS OF PEDESTRIANS  
COMMON CRASH TYPES  
IMPACT OF VEHICLE SPEEDS

# Design Needs of Pedestrians

Pedestrians have a variety of characteristics and the trail network should accommodate a variety of needs, abilities, and possible impairments.

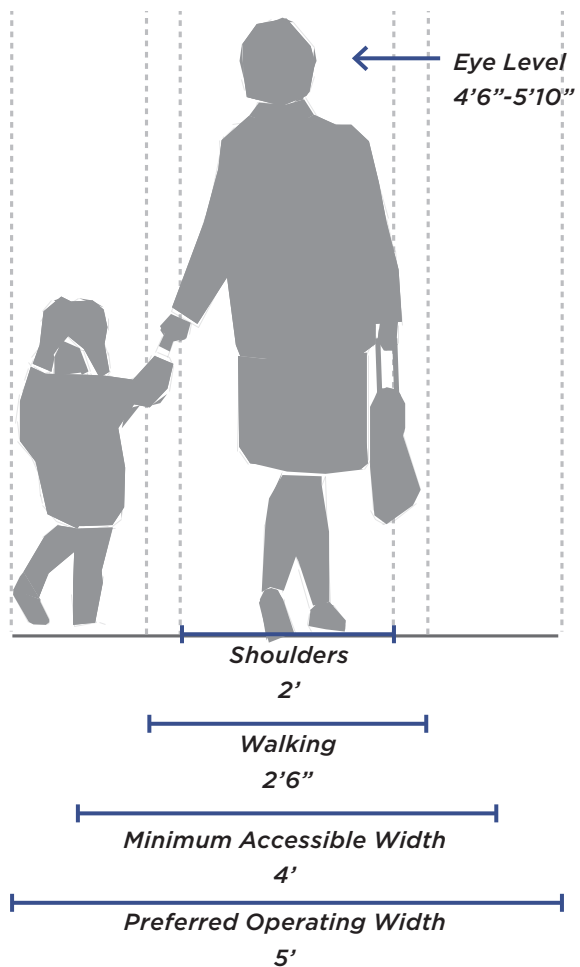
Pedestrians have a variety of characteristics and the transportation network should accommodate a variety of needs, abilities, and possible impairments. Age is one major factor that affects pedestrians' physical characteristics, walking speed, and environmental perception. Children have low eye height and walk at slower speeds than adults. They also perceive the environment differently at various stages of their cognitive development. Older adults walk more slowly and may require assistive devices for walking stability, sight, and hearing. The table below summarizes common pedestrian characteristics for various age groups.

The MUTCD recommends a normal walking speed of 3.5 feet per second when calculating the pedestrian clearance interval at traffic signals. The walking speed may drop to under 3 feet per second for areas with older populations and persons with mobility impairments. While the type and degree of mobility impairment varies greatly across the population, the transportation system should accommodate these users to the greatest reasonable extent.

## PEDESTRIAN CHARACTERISTICS BY AGE

AGE	CHARACTERISTICS
0-4	<ul style="list-style-type: none"> <li>Learning to walk</li> <li>Requires constant adult supervision</li> <li>Developing peripheral vision and depth perception</li> </ul>
5-8	<ul style="list-style-type: none"> <li>Increasing independence, but still requires supervision</li> <li>Poor depth perception</li> </ul>
9-13	<ul style="list-style-type: none"> <li>Susceptible to "darting out" in roadways</li> <li>Insufficient judgment</li> <li>Sense of invulnerability</li> </ul>
14-18	<ul style="list-style-type: none"> <li>Improved awareness of traffic environment</li> <li>Insufficient judgment</li> </ul>
19-40	<ul style="list-style-type: none"> <li>Active, aware of traffic environment</li> </ul>
41-65	<ul style="list-style-type: none"> <li>Slowing of reflexes</li> </ul>
65+	<ul style="list-style-type: none"> <li>Difficulty crossing street</li> <li>Vision loss</li> <li>Difficulty hearing vehicles approaching from behind</li> </ul>

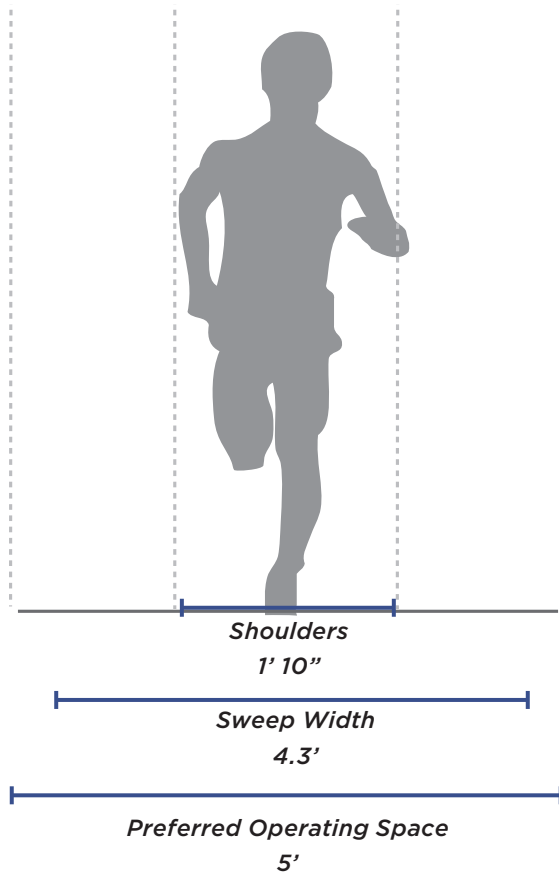
## Pedestrian - Typical Dimensions



Source: AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities, Exhibit 2-1.* 2022.

## DESIGN NEEDS OF RUNNERS

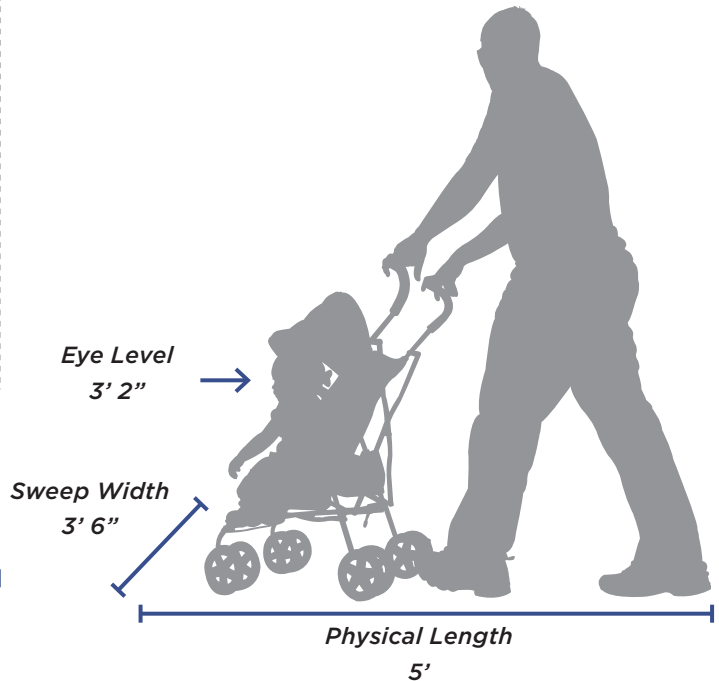
Running is an important recreation and fitness activity commonly performed on shared use paths. Many runners prefer softer surfaces (such as rubber, bare earth or crushed rock) to reduce impact. Runners can change their speed and direction frequently. If high volumes are expected, controlled interaction or separation of different types of users should be considered.



## DESIGN NEEDS OF STROLLERS

Strollers are wheeled devices pushed by pedestrians to transport babies or small children. Stroller models vary greatly in their design and capacity. Some strollers are designed to accommodate a single child, others can carry 3 or more. Design needs of strollers depend on the wheel size, geometry and ability of the adult who is pushing the stroller.

Strollers commonly have small pivoting front wheels for easy maneuverability, but these wheels may limit their use on unpaved surfaces or rough pavement. Curb ramps are valuable to these users. Lateral overturning is one main safety concern for stroller users.



### FOR MORE INFORMATION

*CDOT Roadway Design Guide, Chapter 13, Section 13.4.1.2*

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

*2024 United States Access Board, Public Right-of-Way Accessibility Guidelines*

## DESIGN NEEDS OF WHEELCHAIR USERS

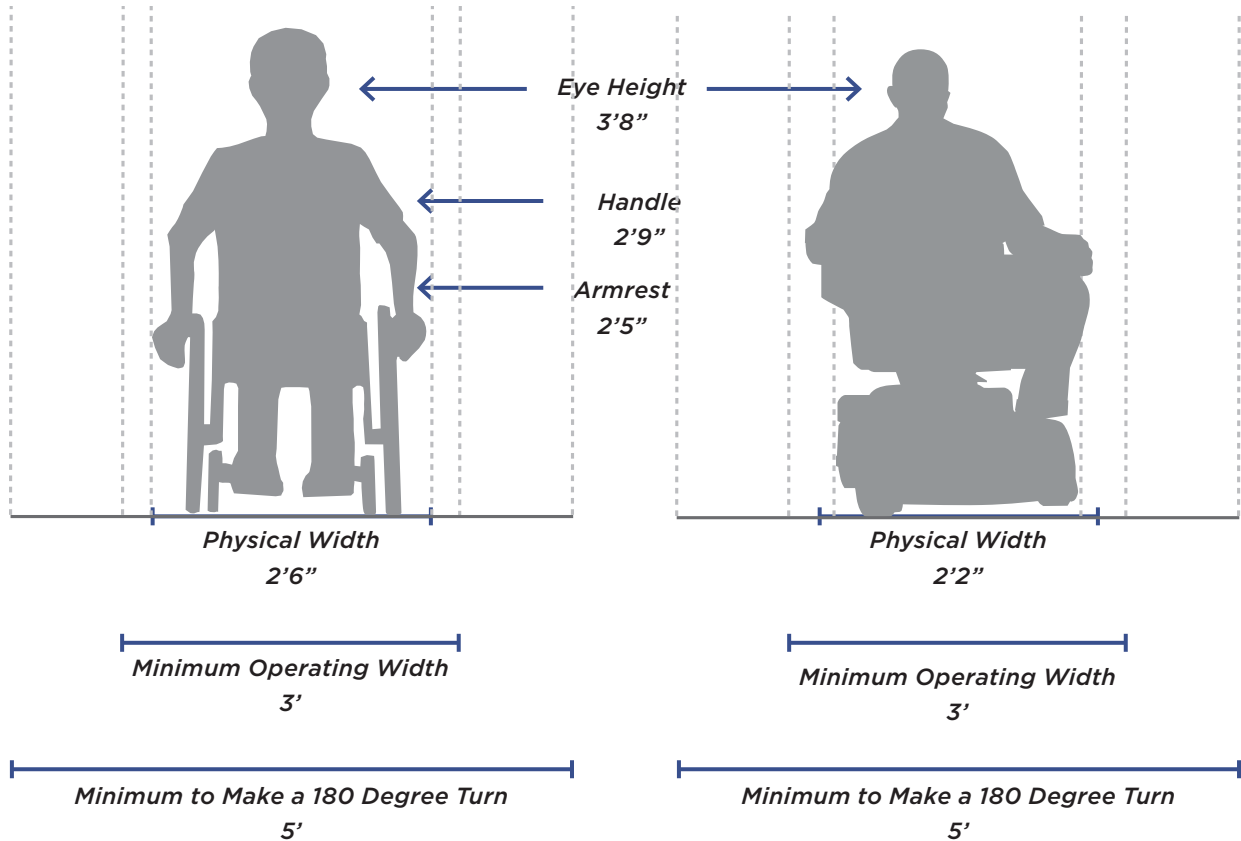
As the American population ages, the number of people using mobility assistive devices (such as manual wheelchairs, powered wheelchairs) increases.

Manual wheelchairs are self-propelled devices. Users propel themselves using push rims attached to the rear wheels. Braking is done through resisting wheel movement with the hands or arm. Alternatively, a second individual can control the wheelchair using handles attached to the back of the chair.

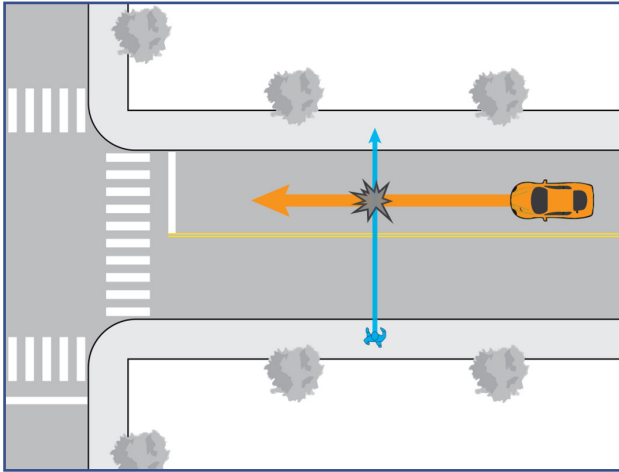
Power wheelchairs use battery power to move the wheelchair. The size and weight of power wheelchairs limit their ability to negotiate obstacles without a ramp. Various control units are available that enable users to control the wheelchair movement, based on their ability (e.g., joystick control, breath controlled, etc).

Maneuvering around a turn requires additional space for wheelchair devices. Providing adequate space for 180 degree turns at appropriate locations is an important element of accessible design.

EFFECT ON MOBILITY	DESIGN SOLUTION
Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
Cross-slopes cause wheelchairs to veer downhill.	Cross-slopes of less than two percent.
Require wider path of travel.	Sufficient width and maneuvering space.

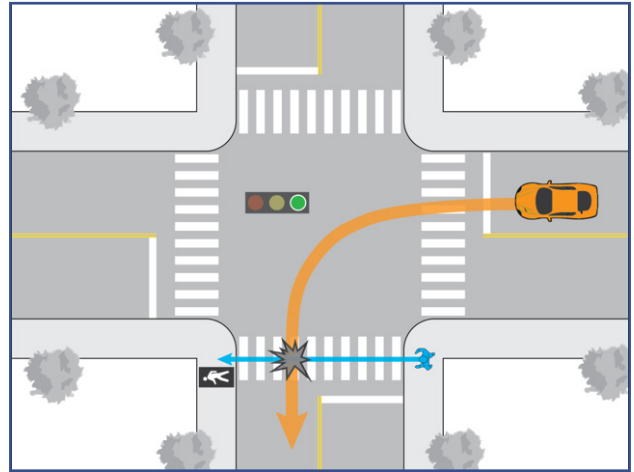


# Common Crash Types

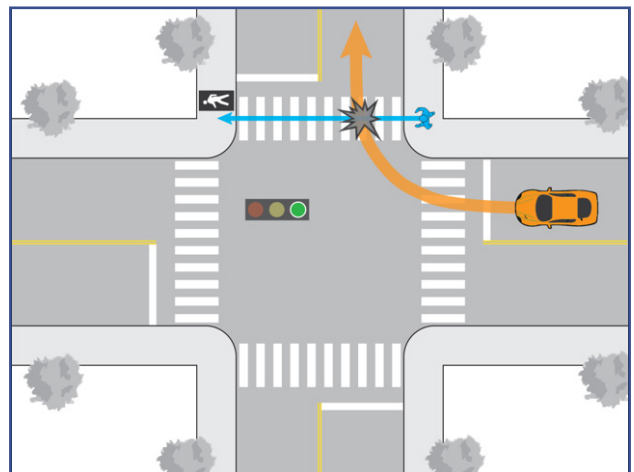


## 1. Midblock Crossings

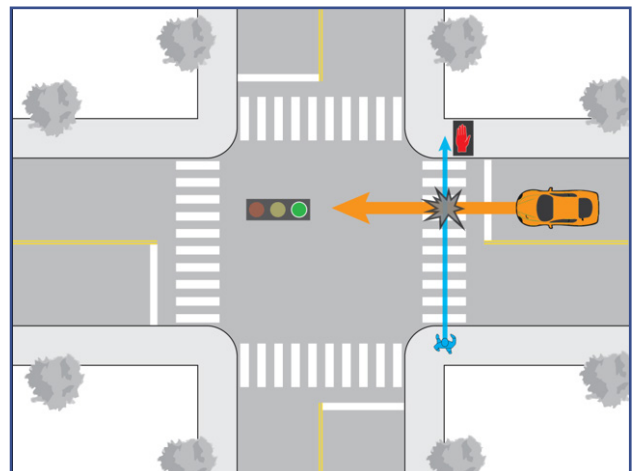
Crash type with highest percent resulting in fatality or serious bodily injury (in 2016 Denver Study)



## 2. Left Hooks



## 2. Right Hooks



## 3. Pedestrian Crossing Against Signal (Sometimes Called "Dash")

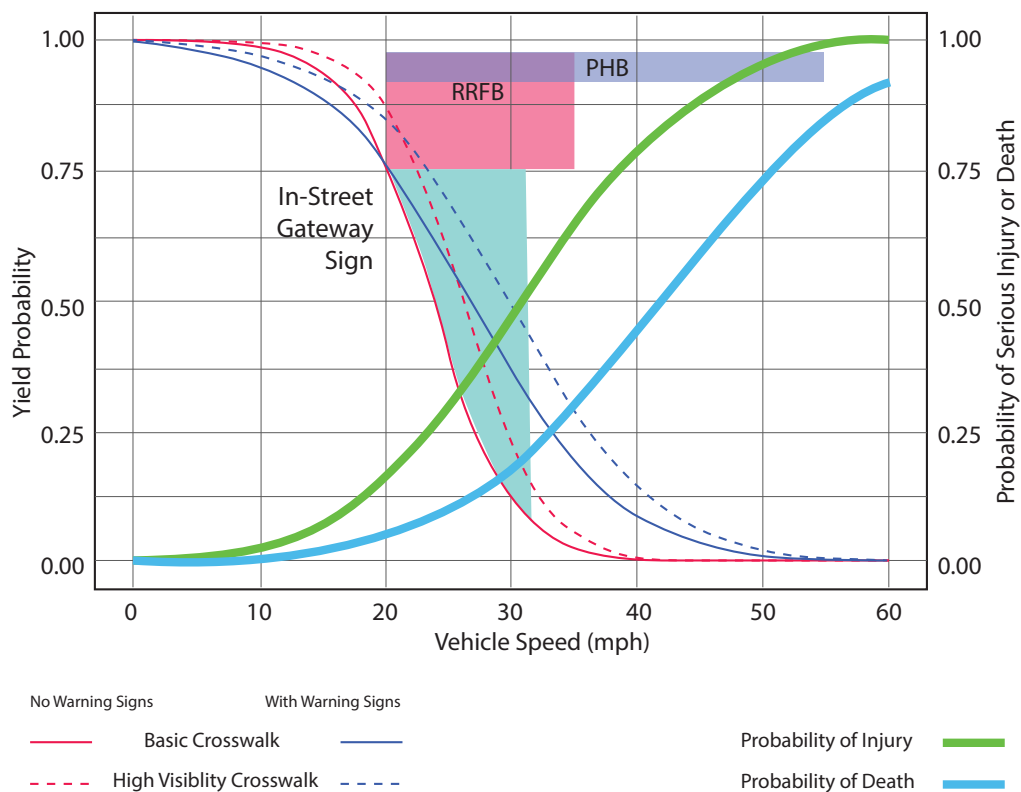
### FHWA TOP PEDESTRIAN CRASH TYPES

- |   |                                                                      |
|---|----------------------------------------------------------------------|
| 1 | Midblock - Other (no clear type)                                     |
| 2 | Left and Right Hook Crashes                                          |
| 3 | Midblock Dash (pedestrian running across street)                     |
| 4 | Pedestrian Not in Roadway (driveways, sidewalks, parking lots, etc.) |
| 5 | Pedestrian Walking Along Road                                        |
| 6 | Intersection Dash (Pedestrian Crossing Against Signal)               |
| 7 | Intersection - Other (no clear type)                                 |
| 8 | Backing Vehicle                                                      |

# Impact of Vehicle Speed

Vehicle speed is the most critical element in whether someone survives a traffic crash. As vehicle speeds increase, the driver’s field of vision narrows, limiting the ability to react to mistakes. The likelihood of a person walking or biking surviving a traffic collision is only 35% if the vehicle is going 45 mph. If that speed is reduced to 25 mph, the chance of survival is 89%.

## Pedestrian Safety at Uncontrolled Crossings



## References

US Department of Transportation. Crosswalk Marking Selection Guide. Schroeder et al. 2023. [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/resources/crosswalk\\_marking\\_selection\\_guide.pdf](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/resources/crosswalk_marking_selection_guide.pdf)

AAA Foundation for Traffic Safety. Impact Speed and a Pedestrian's Risk of Severe Injury or Death. Tefft, B.C. 2011. <https://aaaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/>

TTexas Transportation Institute; Center for Transportation Safety. Will You Stop for Me? Roadway Design and Traffic Control Device Influences on Drivers Yielding to Pedestrians in a Crosswalk with a Rectangular RapidFlashing Beacon. Fitzpatrick et al. 2016. <https://tti.tamu.edu/tti-publication/will-you-stop-for-me-roadway-design-and-traffic-control-device-influences-on-drivers-yielding-to-pedestrians-in-a-crosswalk-with-a-rectangular-rapid-flashing-beacon-final-report/>

US Department of Transportation. Safety Countermeasures - Pedestrian Hybrid Beacon Guide - Recommendations and Case Study. Redman T. 2014. <https://highways.dot.gov/safety/pedestrian-bicyclist/safety-countermeasures/pedestrian-hybrid-beacon-guide-recommendations>



# SIDEWALK DESIGN

SIDEWALK ZONES

SIDEWALK WIDTHS

SIDEWALK OBSTRUCTIONS + DRIVEWAYS

# Sidewalk Zones

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. In fact, sidewalks have been shown to reduce vehicle pedestrian crashes by up to 88% in studies. A variety of considerations are important in sidewalk design. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved safety, and the creation of social space.



PARKING LANE/ ENHANCEMENT ZONE	FURNISHING ZONE	PEDESTRIAN THROUGH ZONE	FRONTAGE ZONE
<p>The parking lane can act as a flexible space to further buffer the sidewalk from moving traffic. Curb extensions and bike corrals may occupy this space where appropriate.</p> <p>In the <b>edge (or curb) zone</b> there should be a 6 inch wide curb.</p>	<p>The furnishing zone buffers pedestrians from the adjacent roadway, and is also the area where elements such as street trees, signal poles, signs, and other street furniture are properly located.</p>	<p>The through zone is the area intended for pedestrian travel. This zone should be entirely free of permanent and temporary objects.</p> <p>Wide through zones are needed in downtown areas or where pedestrian flows are high.</p>	<p>The Frontage Zone allows pedestrians a comfortable “shy” distance from the building fronts. It provides opportunities for window shopping, to place signs, planters, or chairs.</p> <p>Not applicable if adjacent to a landscaped space, unless a fence exists.</p>

# Sidewalk Widths

The width and design of sidewalks will vary depending on street context, functional classification, and pedestrian demand. Below are preferred widths of each sidewalk zone according to general street type. Standardizing sidewalk guidelines for different areas of the city, dependent on the above listed factors, ensures a minimum level of quality for all sidewalks.



STREET CLASSIFICATION	PARKING LANE/ ENHANCEMENT ZONE	FURNISHING ZONE	PEDESTRIAN THROUGH ZONE	FRONTAGE ZONE	TOTAL
<b>Local/Residential Streets</b>	7 feet (if used)	2 - 5 feet	4 - 6 feet	1+ feet	6.5 - 11 feet
<b>Town/Main Street Areas</b>	7 feet (if used)	4 - 6 feet	6 - 12 feet	2.5 - 10 feet	11 - 28 feet
<b>Suburban Arterials</b>	7 feet (if used)	6+ feet	6+ feet	Varies	12+ feet
<b>Urban Arterials</b>	7 feet (if used)	4 - 6 feet	6 + feet	Varies	10+ feet

↑  
Areas that have significant accumulations of snow during the winter may prefer a wider furnishing zone for snow storage.

↑  
Six feet enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass each other comfortably

**FOR MORE INFORMATION**

*CDOT Roadway Design Guide, Chapter 13, Section 13.4.2.4*

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

*2013 NACTO Urban Street Design Guide*

# Sidewalk Obstructions & Driveways

Obstructions to pedestrian travel in the sidewalk corridor typically include driveway ramps, curb ramps, sign posts, utility and signal poles, mailboxes, fire hydrants and street furniture.

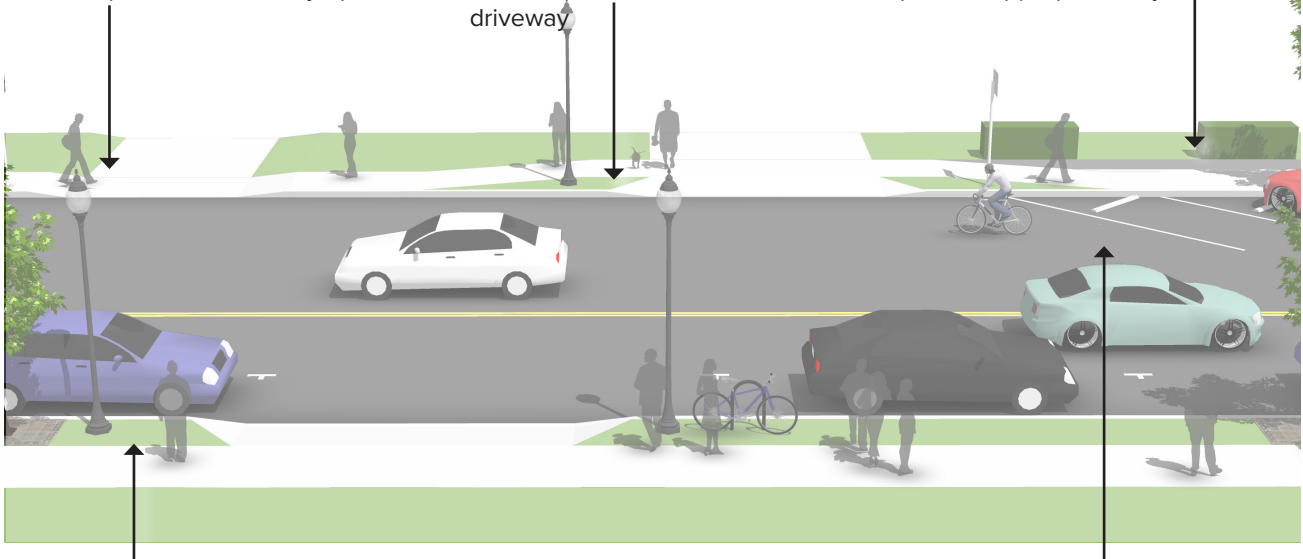
Reducing the number of access points reduces the need for special provisions. This strategy should be pursued first.

Obstructions should be placed between the sidewalk and the roadway to create a buffer for increased pedestrian comfort.

Dipping the entire sidewalk at the driveway approaches keeps the cross-slope at a constant grade, but allows faster vehicle turning. This is the least-preferred driveway option.

Placing the sidewalk behind the driveway eliminates the need for curb ramps and typically reduces the speed at which vehicles exit and enter the driveway.

When sidewalks abut hedges, fences, or buildings, an additional two feet of lateral clearance (frontage zone) should be added to provide appropriate shy distance.



Planter strips allow sidewalks to remain level, with the driveway grade change occurring within the planter strip.

When sidewalks abut angled on-street parking, wheel stops should be used to prevent vehicles from overhanging in the sidewalk.

## DRIVEWAYS

Driveways are a common sidewalk obstruction, especially for wheelchair users. When constraints only allow curb-tight sidewalks, dipping the entire sidewalk at the driveway approaches keeps the cross-slope at a constant grade. However, this may be uncomfortable for pedestrians and could create drainage problems behind the sidewalk.

### FOR MORE INFORMATION

*CDOT Roadway Design Guide, Chapter 13, Section 13.4.2.3*

*2024 United States Access Board. Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG)*

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

# Review Questions

1. Which two pedestrian zones should street furnishings (trees, utility poles, lighting, etc) be located? (pick two)

- Frontage Zone
- Pedestrian Zone
- Furniture Zone
- Enhancement Zone

2. What is the needed road side width of a suburban arterial street? (pick one)

- 6.5 - 11 ft
- 10+ ft
- 11 - 28 ft
- 12+ ft

3. The presence of sidewalks can reduce pedestrian crash risk by \_\_\_\_ percent.

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# UNIVERSAL DESIGN

PRINCIPLES  
CURB RAMP TYPES

# Universal Design

Universal Design is the concept of meeting the needs of all potential users to the greatest extent possible while considering the physical, cognitive, emotional and social changes that people experience over the course of a lifetime.

## PRINCIPLES

The Center for Universal Design at North Carolina State University developed the seven principles of Universal Design. The following are intentionally broad to guide a wide range of design disciplines including environments, products, and communication:

- 1. Equitable Use** - Useful to people with diverse abilities
- 2. Flexibility In Use**-The design accommodates a wide range of individual preferences and abilities
- 3. Simple and Intuitive Use**-Easy to understand regardless of language, abilities, knowledge, or concentration level
- 4. Perceptible Information**-The design communicates information effectively to the user regardless of the user's sensory abilities
- 5. Tolerance For Error**-The design minimizes hazards and the adverse consequences of accidental or unintended actions
- 6. Low Physical Effort**-The design can be used efficiently and comfortably and with a minimum of fatigue
- 7. Size and Space For Approach and Use**- Appropriate size and space is provided for approach and use of facility regardless of user's body size, posture, or mobility

## LEGAL REQUIREMENTS

### American with Disabilities Act (ADA)

Passed in 1990 and updated in 2010, states that "If a public entity has responsibility or **authority over streets, roads, or walkways**, its transition plan shall include **a schedule for providing curb ramps** or other sloped areas where pedestrian walks cross curbs, **giving priority to walkways serving entities covered by the Act**, including State and local government offices and facilities, transportation, places of public accommodation, and employers, followed by walkways serving other areas."

### PROWAG (Public Right-of-Way Access Guidelines)

- Federal standards finalized by the United State Access Board for use in the public rights-of-way (roadways)
- CDOT has adopted these standards

### CDOT

- CDOT has updated their M&S ADA standards
  - 10 Standard Curb Ramp Types and Modified Options



# Universal Design (Continued)

## DESIGN CONSIDERATIONS

Most of the following information is expanded upon elsewhere within this document. CDOT considers the below items critical in achieving universal design.

**Vertical Clearances** – Where the vertical clearance to an obstruction is less than 80 inches, guardrails or other barriers shall be provided. The leading edge of such guardrail or barrier shall be located not more than 27 inches above the sidewalk. (*CDOT Design Guide Ch. 13*)

**Curb Ramps** – Perpendicular and Parallel Curb Ramps are recommended over Diagonal Curb Ramps. *Follow CDOT M&S Standards.*

**Width of Accessible Route** – ADAAG states the minimum clear width shall be 3 feet and the PROWAG states it shall be 4 feet in constrained locations. If an accessible route has less than 5 feet clear width, then passing spaces at least 5 feet x 5 feet shall be located at reasonable intervals not to exceed 200 feet (*ADAAG*). The minimum width of sidewalks on CDOT projects is 5 feet exclusive of the curb head. It should be noted that a 6-foot sidewalk width is desired to allow two pedestrians to walk side by side and allow pedestrians with mobility aids to more easily pass each other.

**Protruding Objects** – Objects located between 27 inches and 80 inches from the ground should not protrude more than 4 inches into the corridor. Objects longer than 4 inches should be placed no lower than 80 inches (*CDOT Roadway Design Guide*).

**Sidewalk Surface** – Avoid decorative pavement within the pedestrian zone (*CDOT RDG*). Concrete surfaces shall have a broom finish to increase skid resistance. (*CDOT Ch. 13*)

**Grade** – The grade of the walkway will generally follow the grade of the roadway and should ideally be no greater than 5% (*ADAAG*). Provide rest areas and periodic landings to lessen impact of steep grades.

**Changes in Level** – When possible, changes in level should be prevented through good design and active maintenance. If it exists, follow the *ADAAG* requirements for changes in level.

**Cross-Slopes** – Maximum is 2% plus/minus 0.2% construction tolerance (*CDOT RDG*).

**Driveways** – Design using the accessible route Criteria: cross-slope of 2%, flush changes in level and a minimum of 3-foot in width (*CDOT RDG*).

**Gaps, Grates, and Openings** – Maximum of 0.5 inch gap for grating and joints. For rail crossing flangeway gaps, there shall be a maximum of 2.5 inch gap for non-freight rail and maximum of 3.0 inch gap for freight rail. The long dimension of the opening should be perpendicular or diagonal to the dominant direction of travel (*ADAAG*).

**Doorway openings** – Follow the Appendix D, Section 404 of 36 CFR Part 1191 (*ADA*) for requirements for clear space to provide accessible route to and around doorway openings.

### FOR MORE INFORMATION

*CDOT Roadway Design Guide, Chapters 12, 13, Multiple Sections*

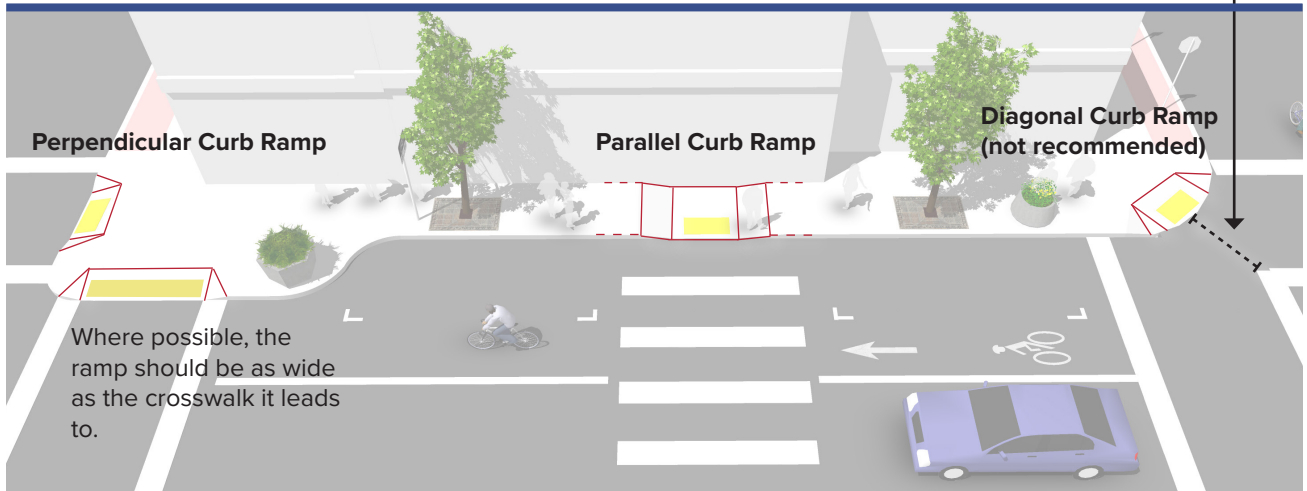
*2024 United States Access Board. Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG)*

*AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

# Curb Ramp Types

People with mobility impairments, especially wheelchair users, rely on the availability of curb ramps to transition from the sidewalk to the street. Without curb ramps, sidewalks are not usable for many people.

Diagonal ramps shall include a clear space of at least 48" within the crosswalk for user maneuverability



Crosswalk spacing not to scale. For illustration purposes only. CDOT designs all curb ramps to PROWAG requirements.

## PERPENDICULAR

Perpendicular curb ramps, also known as directional ramps, are the most common type of curb ramp and if designed correctly, they are also the best design for pedestrians. Perpendicular curb ramps are located in pairs at the corner and are perpendicular to the pedestrian's path of travel.

## PARALLEL

A parallel curb ramp has two ramps leading down towards a center level landing. Parallel ramps are desirable because they can be installed on very narrow sidewalks without forcing the pedestrian to travel perpendicular to the curb ramp and its flares. The disadvantages of a parallel curb ramp is that it requires users continuing along the sidewalk to negotiate two ramp grades.

## DIAGONAL

Diagonal curb ramps are located at the apex of the corner. Diagonal curb ramps are less desirable than perpendicular curb ramps because they require the pedestrian to maneuver from the curb ramp into the crosswalk. Diagonal curb ramps are not permitted by PROWAG for new construction.

## DEPRESSED/BLENDED CURB RAMPS

Blended corners gradually lower the level of the sidewalk, through an almost undetectable change in slope, to meet the grade of the street. Although depressed/blended corners eliminate the need for a curb ramp, there are very significant drawbacks, including:

- Children, pedestrians with cognitive or vision impairments, and guide animals may not be able to detect the curb ramp.
- Motor vehicles may travel up onto the sidewalk.



# Review Questions

**1. Providing accessible pedestrian facilities means: (pick the most correct statement)**

- “people with disabilities are not discriminated against by denying them a service that is available to able bodied pedestrians”
- “more expensive projects due to increase design and equipment costs”
- “that only new construction projects be made fully accessible by law”
- “designers should consult PROWAG, but because it isn’t fully law yet, it is more of a suggestion than a rule”

**2. Which is the best ramp design for pedestrians, if designed correctly?**

- Perpendicular
- Parallel
- Diagonal

**3. Are Accessible Pedestrian Signal push button assemblies valuable if the pedestrian signal is set to recall each and every cycle?**

- Yes - If yes, why? \_\_\_\_\_
- No - If no, why? \_\_\_\_\_

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# INTERSECTIONS

PRINCIPLES  
CORNER RADII  
CROSSWALKS

CURB EXTENSIONS  
CROSSING ENHANCEMENTS  
CHANNELIZED RIGHT TURNS

# Intersection Design Principles

## COMPACTNESS

- **Minimize intersection size** through the addition of curb extensions and medians.
- Reduce pedestrian crossing distance.



## RIGHT SIZING

- Where traffic volume data reveals excess vehicle capacity, **reduce the number of lanes** along a corridor, **consolidate excess turn lanes**, and **eliminate slip lanes**.



## MULTI-MODAL

- **Reallocate excess space for pedestrians and bicyclists by widening** narrow sidewalks and adding bikeways

## PUBLIC SPACE

- Utilize excess asphalt from the reconfiguration to **create additional public space**

## INCREASE AWARENESS

Increasing awareness means making the path of travel of pedestrian obvious and to give visual queues so that motorists expect to see and look for bicyclists and pedestrians.

## ISOLATE CONFLICTS

Isolating conflicts means reducing the potential for crashes by reducing exposure and/or reducing the number of conflicts.



## INCREASE CONSPICUITY

Increasing conspicuity means putting pedestrians in places where they are easily seen by motorists as they approach.

## CLEARLY ASSIGN PRIORITY

Clearly assigning priority means using signage and pavement markings so users of all modes know who has priority and who should yield.



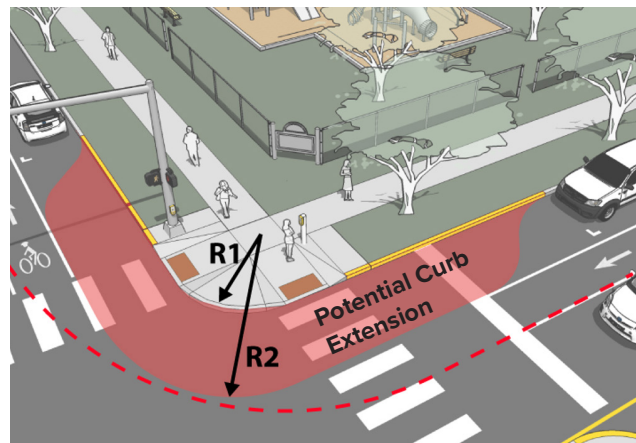
# Corner Radii

The size of a curb's radius can have a significant impact on pedestrian comfort and safety. A smaller curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crossing distance and requires vehicles to slow more on the intersection approach. During the design phase, the chosen radius should be the smallest possible for the circumstances.

## CORNER RADIUS VS EFFECTIVE TURN RADIUS

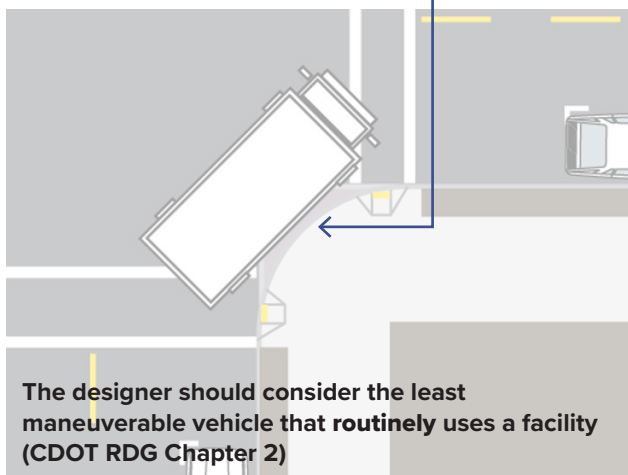
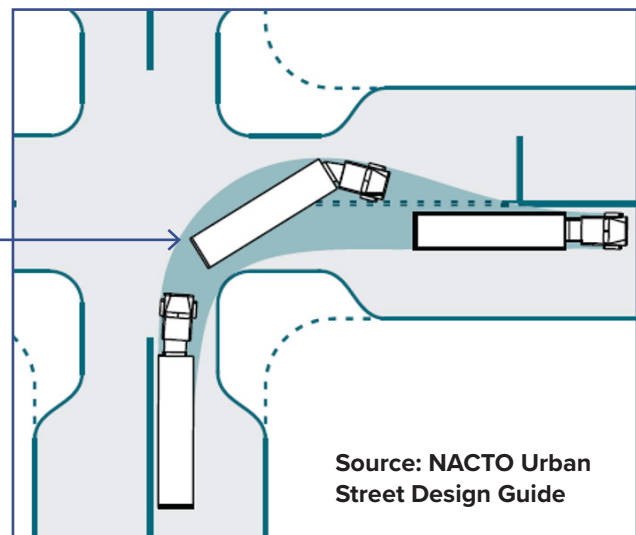
When considering corner radii, there are two numbers to be aware of:

- **Corner Radius** - This is the constructed radius of the build corner. (R1)
- **Effective Turn Radius** - This is the clear area a vehicle uses to make turns. (R2)



## LARGE VEHICLE TURNS

Drivers of large vehicles may maneuver around corners with small curb radii by using the adjacent lane occupying the full intersection of the cross street. If large vehicles are infrequent, and bicycles and pedestrians are prioritized, a paved **corner apron** can provide adequate clearance for longer vehicles like trucks and school buses. This strategy achieves dual benefits as smaller vehicles utilize the smaller corner radius.



### FOR MORE INFORMATION

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

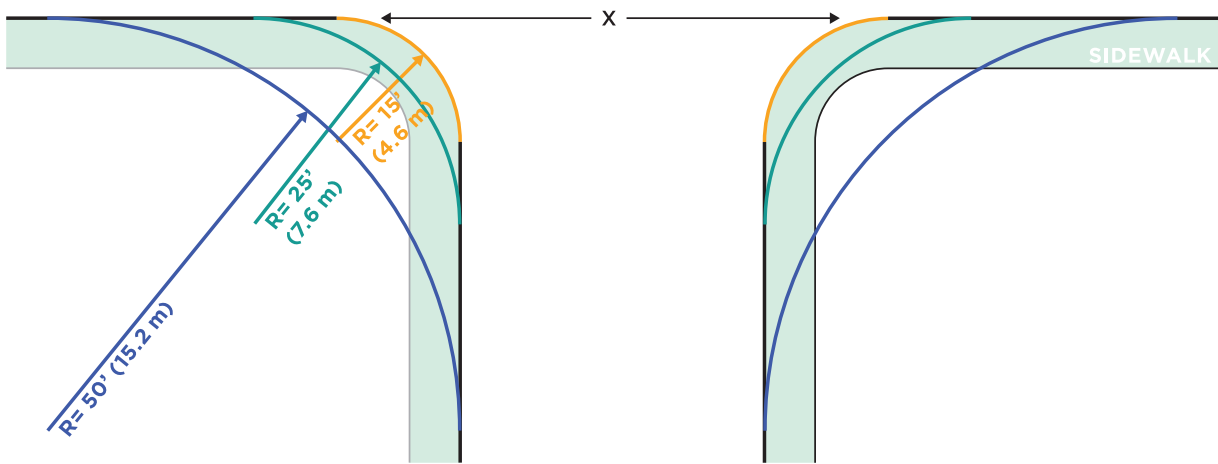
*2018 AASHTO A Policy on Geometric Design of Highways and Streets*

*2013 NACTO Urban Street Design Guide*

*CDOT Roadway Design Guide 8.6.2.1*

## CORNER RADII INFLUENCE ON CROSSING DISTANCE

There are multiple design guidance documents that equate the effective corner radius and potential for vehicle speed to pedestrian safety and exposure. FHWA has multiple publications that draw this reference including their PEDSAFE Countermeasure Selection System under “Curb Radius Reduction”, the Signalized Intersections: Informational Guide, and the Selecting Pedestrian Safety Improvements Library as a treatment for several types of intersection related safety issues.



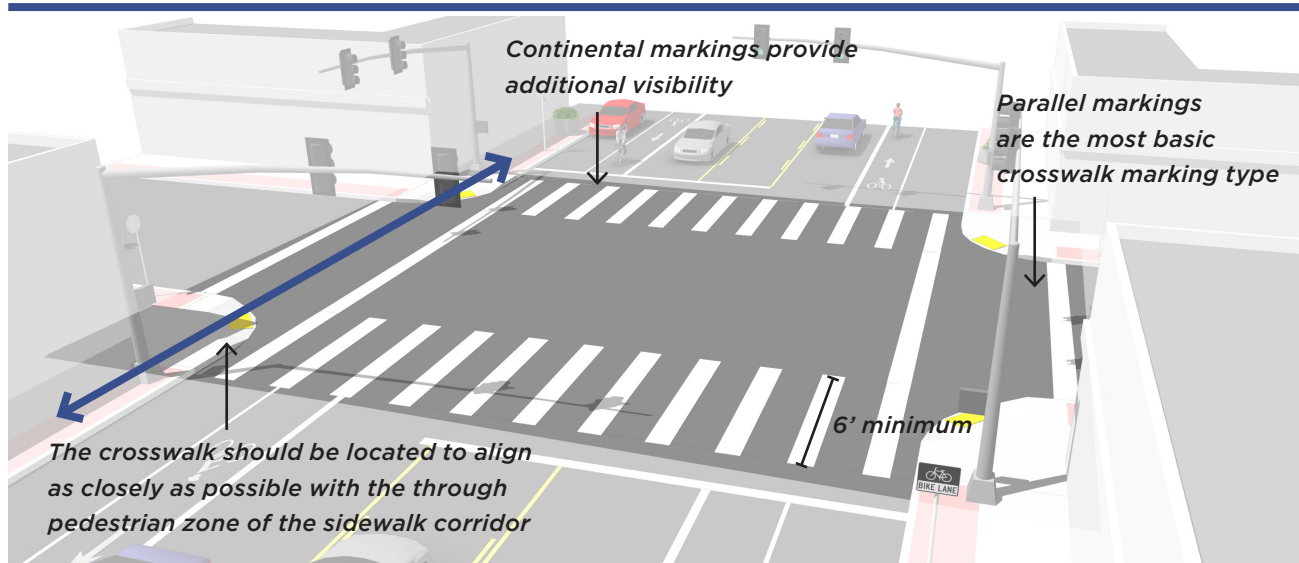
Curb Radius ( $R_1$ )	Crossing Distance (X)	Crossing Time*	Effective Turning Radius ( $R_2$ )**	Vehicle Turning Speed***
15 ft	37 ft	10.6 seconds	41 ft	14 mph
25 ft	50 ft	14.3 seconds	52 ft	16 mph
50 ft	89 ft	25.4 seconds	74 ft	18 mph

\*Assumes an average crossing speed of 3.5 fps

# Crosswalks

A marked crosswalk signals to motorists that they must stop for pedestrians and encourages pedestrians to cross at designated locations. Installing crosswalks alone will not necessarily make crossings safer especially on multi-lane roadways.

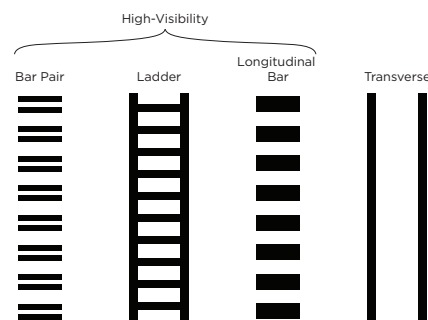
At mid-block locations, crosswalks can be marked where there is a demand for crossing and there are no nearby marked crosswalks.



## GUIDANCE

At signalized intersections, all crosswalks should be marked. At un-signalized intersections, crosswalks may be marked under any of the following conditions:

- At a complex intersection, to orient pedestrians in finding their way across.
- At an offset intersection, to show pedestrians the shortest route across traffic with the least exposure to vehicular traffic and traffic conflicts.
- At an intersection with visibility constraints, to position pedestrians where they can best be seen by oncoming traffic.
- At an intersection within a school zone on a walking route.
- At intersections that serve pedestrian attractors or where pedestrian activity exists.



### FOR MORE INFORMATION

*2023 FHWA Manual on Uniform Traffic Control Devices, Chapter 3C*

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

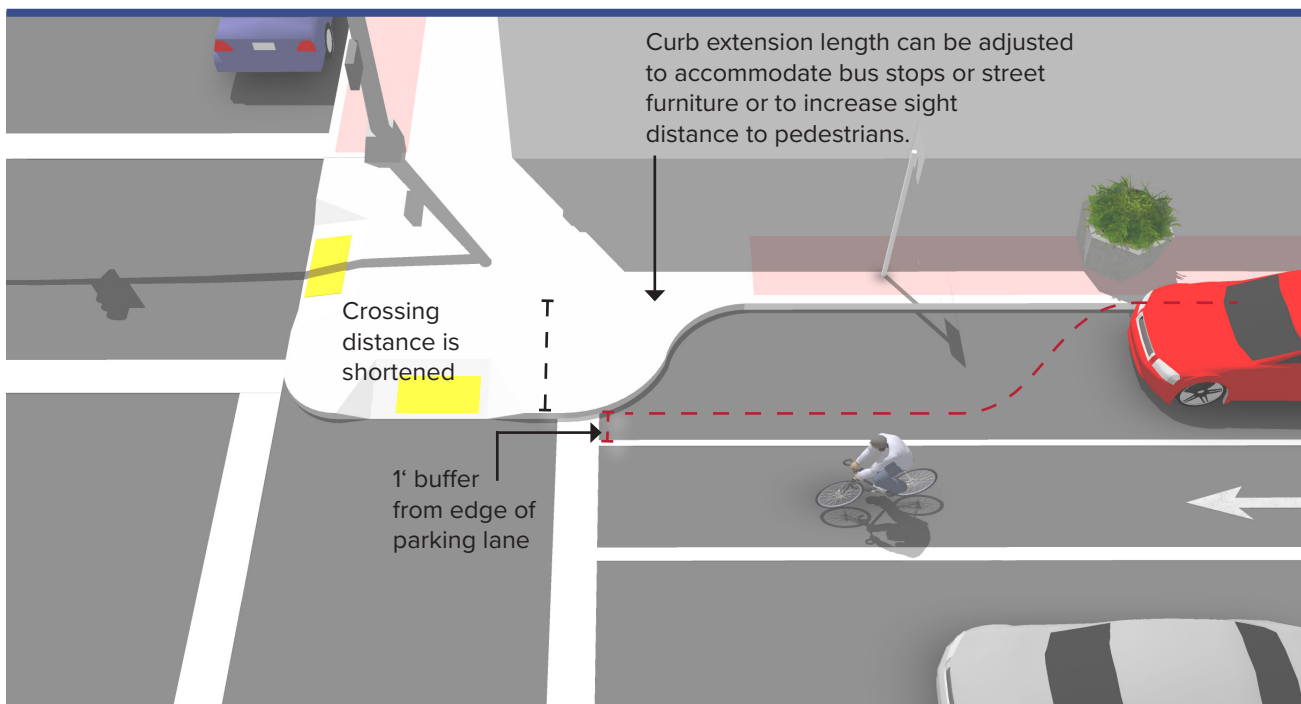
*2005 FHWA Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations*

*2010 FHWA Crosswalk Marking Field Visibility Study*

*2013 NACTO Urban Street Design Guide*

# Curb Extensions

Curb extensions minimize pedestrian exposure during crossing by shortening crossing distance and giving pedestrians a better chance to see and be seen before committing to crossing. They are appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb. Curb extensions also increase the available space for street furniture, benches, plantings, and street trees. They may be implemented on downtown, neighborhood, suburban, and residential streets, large and small.



## TYPICAL APPLICATION

- In most cases, the curb extensions should be designed to transition between the extended curb and the running curb in the shortest practicable distance.
- For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition is 10 ft and the two radii should be balanced to be nearly equal.
- Curb extensions should terminate one foot short of the parking lane to maximize bicyclist safety. Various measures to improve the visibility of the curb extension such as paint or other delineators may be used.

- If there is no parking lane, adding curb extensions may be a problem for bicycle travel and truck or bus turning movements.

### FOR MORE INFORMATION

*CDOT Roadway Design Guide, Chapter 13, Section 13.4.8 and 13.4.9.4*

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

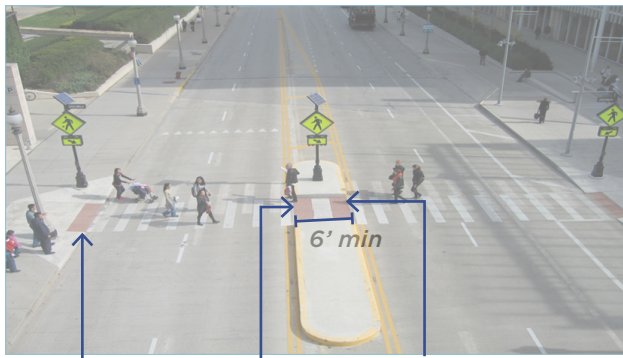
*2018 AASHTO A Policy on Geometric Design of Highways and Streets*

*2013 NACTO Urban Street Design Guide*

# Crossing Enhancements

## MEDIAN REFUGE ISLAND

Median refuge islands provide added comfort and should be angled to direct users to face oncoming traffic. Refuge islands simplify the pedestrians' decision-making process by splitting the crossing into two phases, and may communicate presence of crossing to motorists.



*Include detectable warning surface at curbs and edge of each island to delineate the "safe" areas vs roadways*

*Seek as great as storage capacity as possible in design*

Typical application is on streets with a median or two-way left turn lane. They can also be installed by narrowing lanes or shoulders at the crossing. Median refuge islands are a particularly important pedestrian safety countermeasure in areas where pedestrians access a transit stop or other clear origins/destinations are across from each other.



*The angled crosswalk "turns" pedestrians so they can more easily see oncoming traffic in the second half of the roadway.*

## CURB EXTENSIONS

Curb extensions minimize pedestrian exposure during crossing by shortening crossing distance and giving pedestrians a better chance to see and be seen before committing to crossing. They are appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb.

Curb extensions perform several functions:

- They reduce the pedestrian crossing distance
- They improve sight distances for the pedestrian and motorist
- They visually narrow the roadway, giving it a more "livable" feel
- They provide more space for curb ramps



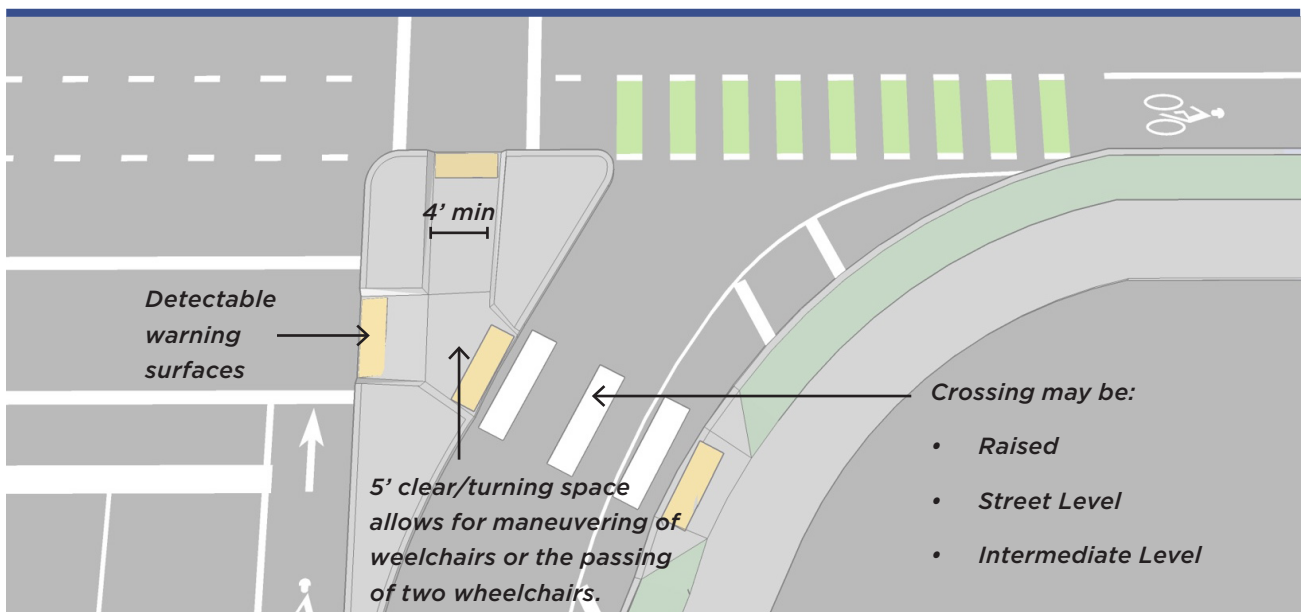
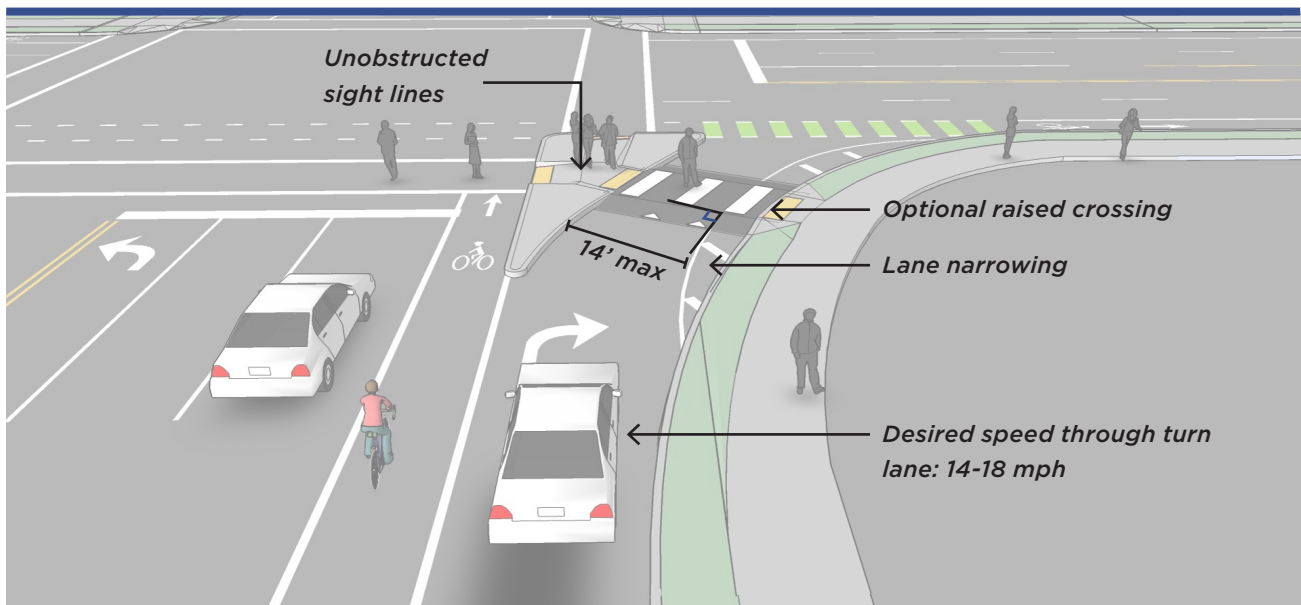
### Guidance

- In most cases, the curb extensions should be designed to transition between the extended curb and the running curb in the shortest practicable distance.
- For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition is 10 ft and the two radii should be balanced to be nearly equal.

# Channelized Right Turn Lanes

In some intersections of arterials streets, design vehicle requirements or intersection angles may result in wide turning radii at corners. Configuring the intersection as a channelized (or free-right) turn lane with a raised refuge island can improve conditions for pedestrians trying to cross the street.

To improve safety and comfort for pedestrians, measures to slow traffic at the pedestrian crossing are recommended such as provision of a raised crosswalk, signalized pedestrian walk phase, high visibility crosswalk, and/or pedestrian crossing signage. Corner aprons may be used where larger turn radius is required based on volume of large vehicles.



## Review Questions

1. According to Colorado State Statutes, a painted crosswalk is needed at an intersection to require vehicles to yield to pedestrians when crossing the street.

- True
- False

2. Which is the best definition of a “design vehicle” when designing intersections? (select one)

- Largest infrequent user of the intersection
- A WB-67 semi-truck
- Largest routine user of the intersection
- Passenger vehicles - which make up to 95% of the vehicle mix

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# UNCONTROLLED CROSSINGS



CROSSWALKS

RECTANGULAR RAPID FLASHING BEACONS (RRFBs)

PEDESTRIAN HYBRID BEACONS (PHBs)

# Uncontrolled Crossings

Uncontrolled pedestrian crossings may be necessary where there are existing pedestrian desire lines or walking distance to the nearest signalized crossing is excessive. The CDOT Pedestrian Crossing Installation Guide recommends 300 ft as a threshold between crossings. Depending on volumes and speeds, treatments at those crossings can range from a marked crosswalk to full signalization.

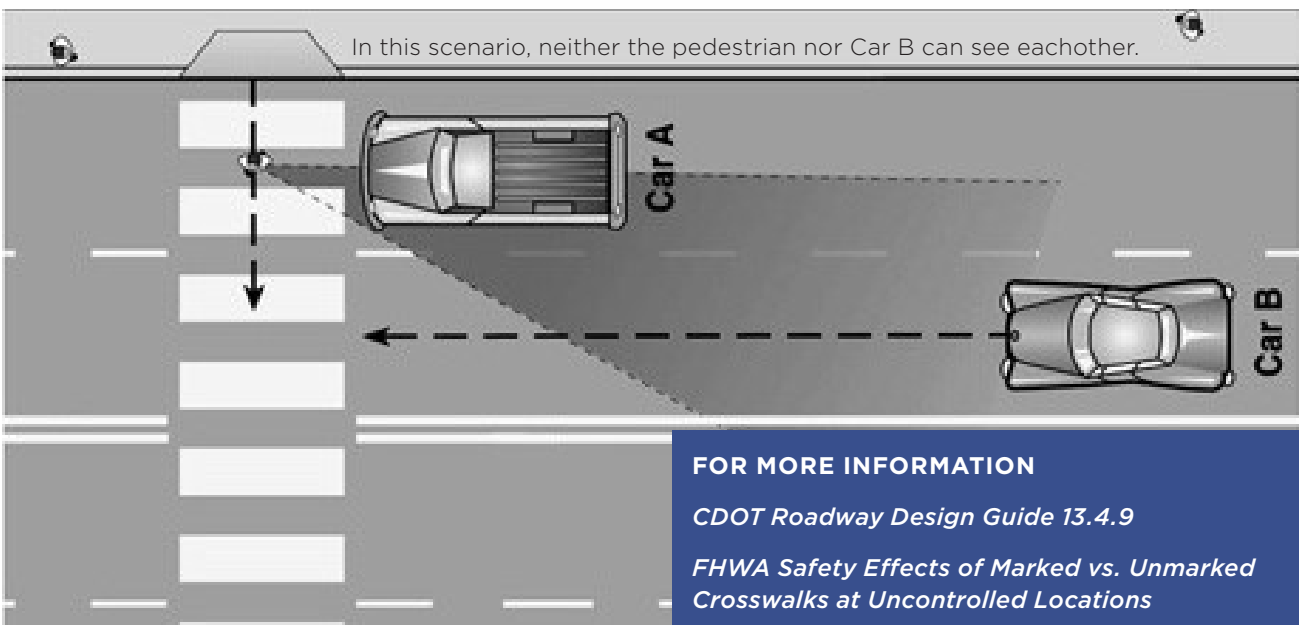
Alternatives which exist along this continuum vary in motorist compliance rate, cost, and delay. These alternatives include marked crosswalks, median refuge islands, rectangular rapid flashing beacons (RRFB), pedestrian hybrid beacons (PHB), and full signalization. The MUTCD dictates markings and signage used with each type, but engineering judgement, along with guidance from the CDOT Roadway Design Guide 13.4.9 should be used to determine the appropriate design solution.

## MULTIPLE THREAT

A “Multiple Threat” crash (also referred to as a double or dual-threat crash) occurs when one vehicle yields to a pedestrian in a crosswalk, but the vehicle in the adjacent lane does not yield, striking the crossing pedestrian. Advance yield lines shown to increase likelihood of yielding to a pedestrian in a multiple threat scenario by 61% due to improved sight lines.

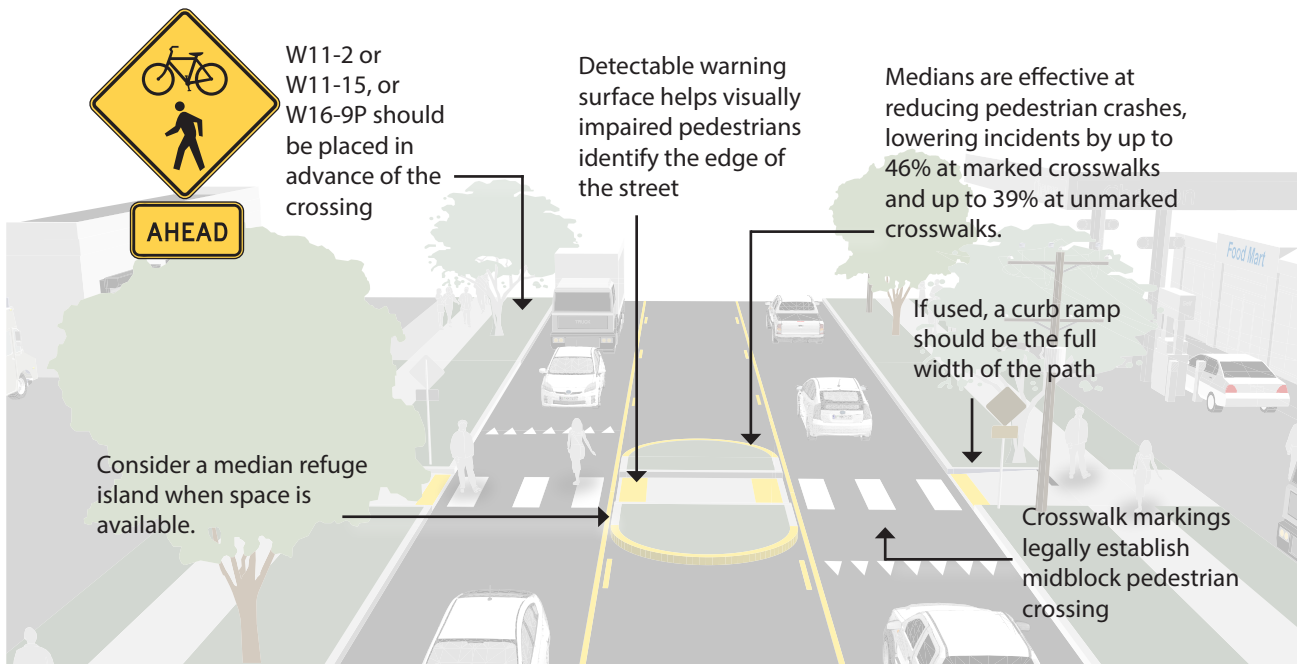
## LIGHTING

Lighting is important: providing adequate corridor lighting can improve driver perception/reaction time, improve visual contrast of pedestrians and reduce glare if properly configured. Good corridor lighting can reduce fatal pedestrian crashes by up to 78%.



# Crosswalks

Marked/un-signalized crossing typically consists of a marked crossing area, signage and other markings to slow or stop traffic. When space is available, using a median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time. Medians are effective at reducing pedestrian crashes, lowering incidents by up to 46% at marked crosswalks and up to 39% at unmarked crosswalks.

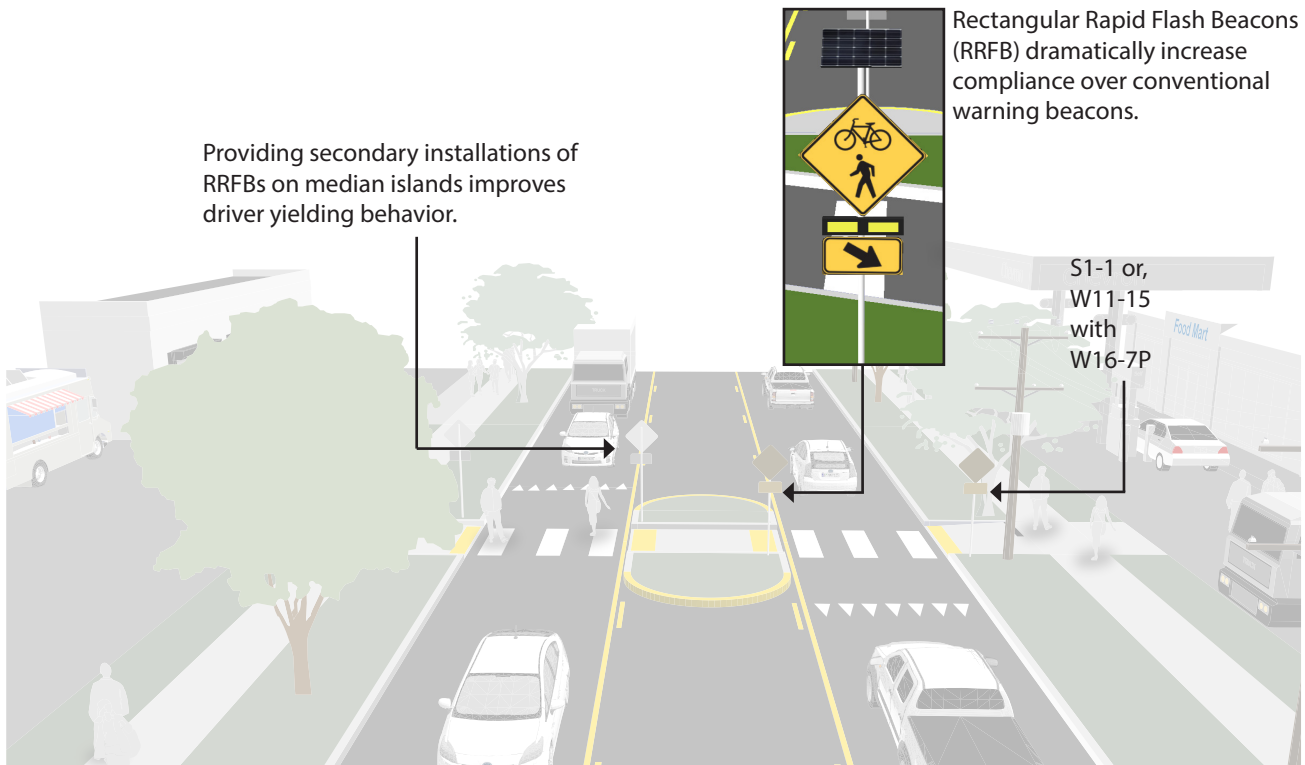


## Typical Application

- Maximum traffic volumes
  - ≤9,000-12,000 Average Daily Traffic (ADT) volume
  - Up to 15,000 ADT on two-lane roads, preferably with a median
  - Up to 12,000 ADT on four-lane roads with median
- Maximum travel speed
  - 35 MPH
- Minimum line of sight
  - 25 MPH zone: 155 feet
  - 35 MPH zone: 250 feet
  - 45 MPH zone: 360 feet
- Refer to CDOT Chapter 13 Section 13.4.9.3 for guidance for traffic control selection at midblock crossings.
- Where the speed limit exceeds 40 miles per hour, marked crosswalks alone should not be used at unsignalized locations.
- Crosswalks should not be installed at locations that could present an increased risk to pedestrians, such as where there is poor sight distance, complex or confusing designs, a substantial volume of heavy trucks, or other dangers, without first providing adequate design features and/or traffic control devices.

# Rectangular Rapid Flashing Beacons (RRFBs)

Active warning beacons are user-actuated amber flashing lights that supplement warning signs at un-signalized intersections or uncontrolled crosswalks. Beacons can be actuated either manually by a push-button or passively through detection. Rectangular Rapid Flash Beacons (RRFBs), a type of active warning beacon, use an irregular flash pattern similar to emergency flashers on police vehicles and can be installed on either two-lane or multi-lane roadways.



## Typical Application

- Usually implemented at high-volume pedestrian crossings where full traffic control is unwarranted.
- Guidance for marked/un-signalized crossings applies.
- Warning beacons shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals; except for crosswalks across the approach to or egress from a roundabout.
- Warning beacons shall initiate operation based on user actuation and shall cease operation at a predetermined time after the user actuation or, with passive detection, after the user clears the crosswalk.
- Beacons may be used to supplement warning signs mounted on poles/pedestals or overhead

- warning signs including the W11-2 (Pedestrian), S1-1 (School), or W11-15 (Trail) crossing warning sign.
- If high pedestrian volumes are present, beacon may be in an activated state frequently to a point detrimental to traffic operations. Consider Hybrid Beacons as an alternative treatment in these cases.

### FOR MORE INFORMATION

*CDOT Roadway Design Guide 13.4.9.3*

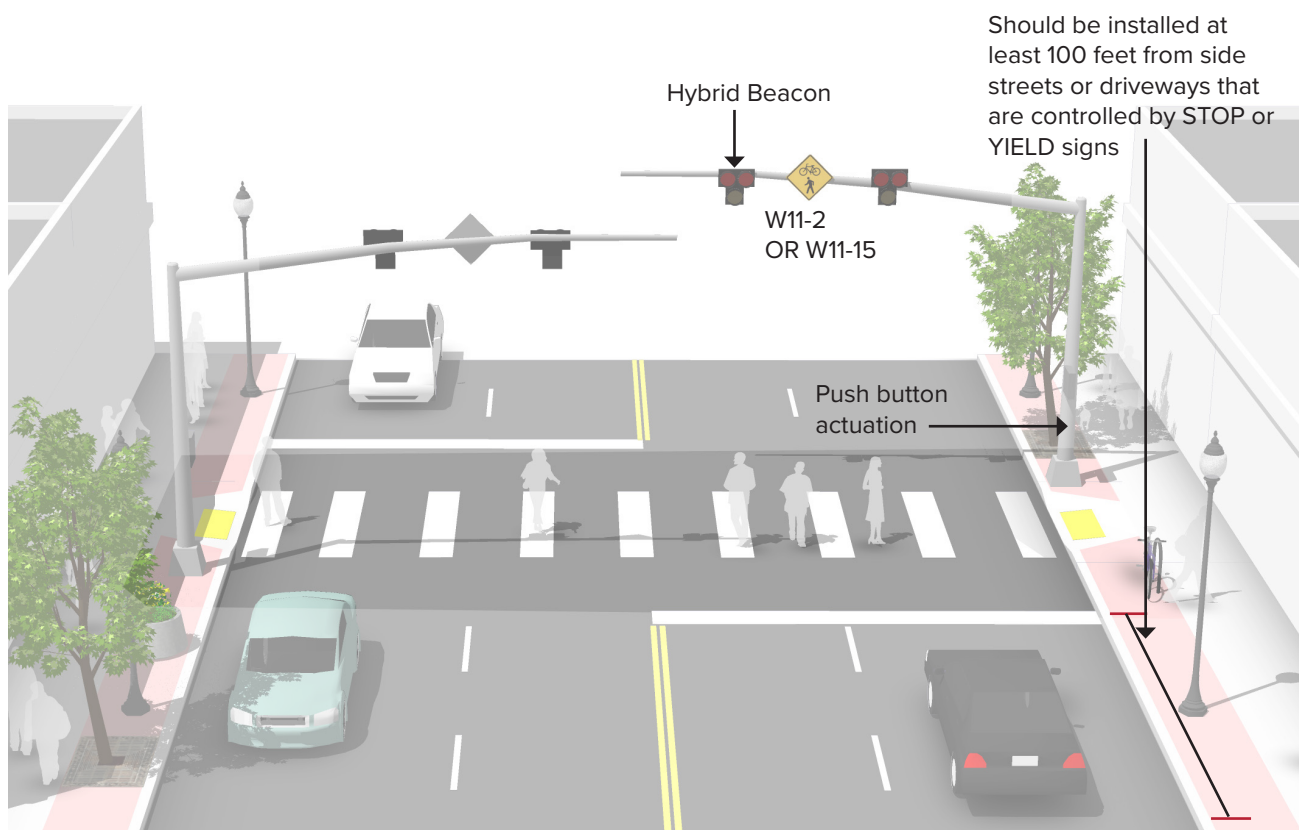
*2025 NACTO Urban Bikeway Design Guide*

*2023 FHWA Manual on Uniform Traffic Control Devices*

# Pedestrian Hybrid Beacons (PHBs)

A hybrid beacon, formerly known as a High-intensity Activated Crosswalk (HAWK), consists of a signal-head with two red lenses over a single yellow lens on the major street, and pedestrian and/or bicycle signal heads for the minor street. There are no signal indications for motor vehicles on the minor street approaches.

Hybrid beacons are used to improve non-motorized crossings of major streets in locations where side-street volumes do not support installation of a conventional traffic signal or where there are concerns that a conventional signal will encourage additional motor vehicle traffic on the minor street. Hybrid beacons may also be used at mid-block crossing locations.



## Guidance

- Hybrid beacons may be installed without meeting traffic control signal warrants if roadway speed and volumes are excessive for comfortable user crossing.
- If installed within a signal system, signal engineers should evaluate the need for the hybrid signal to be coordinated with other signals.
- Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk to provide adequate sight distance.

### FOR MORE INFORMATION

*CDOT Roadway Design Guide 13.4.9.3*

*2025 NACTO Urban Bikeway Design Guide*

*2023 FHWA Manual on Uniform Traffic Control Devices*

## Review Questions

1. According to Colorado State Statutes, a pedestrian can cross a street at any point away from an intersection if they yield to vehicles (as long as the pedestrian is not between two signalized intersections).

- True
- False

2. What would be legally needed if a designer wanted to give pedestrians priority at a mid-block location when crossing?

- A median refuge
- Curb extensions
- A crosswalk
- RRFBs

3. Medians can reduce crashes by up to \_\_\_\_\_ percent with a marked crosswalk.

4. Which of the following is NOT a true statement?

- “Driver yielding percentage declines with an increase in speed”
- “Vehicle stopping distance increases with higher speed”
- “Higher speed roadways may require more substantial interventions to provide acceptable levels of driver stopping/yielding for pedestrian crossings”
- “An RRFB is will provide acceptable driver yielding at speeds up to 55mph”

4. Good roadway lighting can reduce fatal pedestrian crashes by up to \_\_\_\_\_ percent.



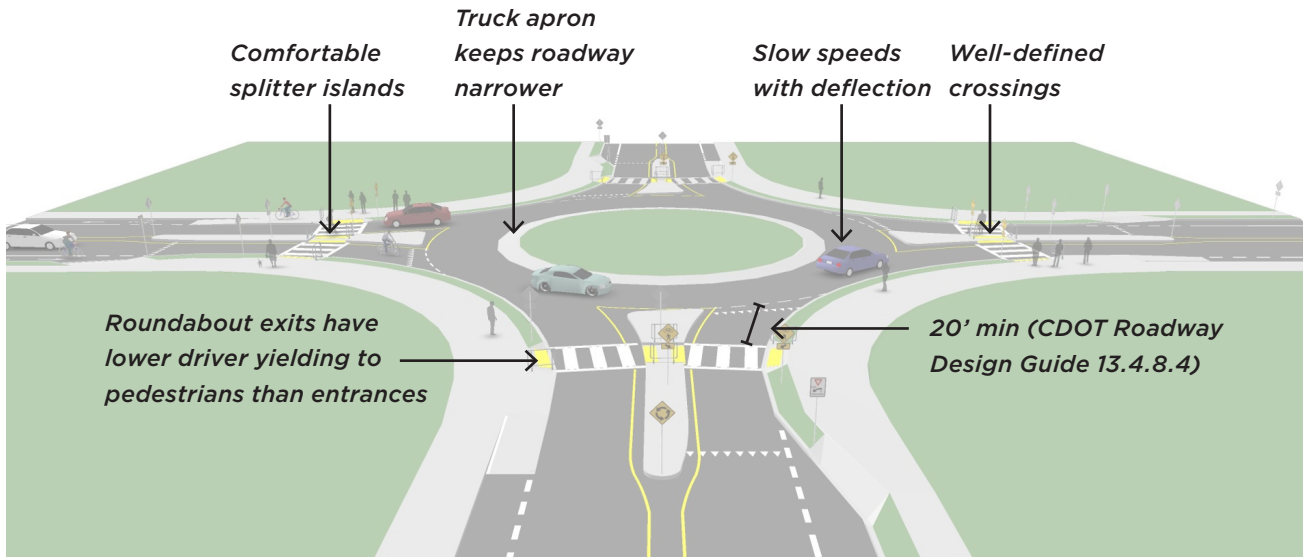
# ROUNDAABOUTS

APPLICATION

MULTI-LANE ROUNDAABOUTS

DESIGNING ACCESSIBLE ROUNDAABOUTS

# Roundabouts



## TYPICAL APPLICATION

- 25 mph maximum circulating design speed.
- Design approaches/exits to the lowest speeds possible.
- Maximize yielding rate of motorists to pedestrians and bicyclists at crosswalks.

## MULTI-LANE ROUNDABOUTS

Multilane roundabouts involve higher vehicle speeds and a more complicated environment for all users.

Potential enhancements include:

- Per PROWAG, either RRFBs, PHBs, raised crosswalks or full signals must be used to improve yielding at dual lane exit/entrances.

### FOR MORE INFORMATION

*CDOT Roadway Design Guide 13.4.8.4*

*2023 NCHRP 1043 Roundabouts Guide, 3rd Edition*

*2024 United States Access Board, Public Right-of-Way Accessibility Guidelines*

## DESIGN ROUNDABOUTS THAT ARE SAFE AND ACCESSIBLE TO PEDESTRIANS WITH VISION IMPAIRMENTS

Designing roundabouts that are safe and accessible to people with vision impairments requires significant future research. Until the research is conducted, the decision to install a roundabout should be weighed heavily against the impacts on the visually impaired community.

If a roundabout is going to be installed, the following design guidance can lessen the impacts:

- Install setback, highly-visible crosswalks with detectable warning surfaces and guidance surfaces.
- Install single lane roundabouts with single entry lanes, rather than multi-lane roundabouts.
- Add accessible medians and splitter islands to reduce crossing distances and allow pedestrians to negotiate one direction of traffic at a time.

In addition, traffic engineers should work with people with vision impairments in their community to identify other design strategies and opportunities for compromises early on in the planning process.

# Review Questions

1. Which leg of the roundabout has a higher pedestrian crash risk?

Entry

Exit

Why? \_\_\_\_\_

2. Multi-lane roundabouts present \_\_\_\_\_ risk (more or less) to pedestrians.

Why? \_\_\_\_\_

*This page is intentionally left blank.*

A blue-tinted photograph of a pedestrian signal sign. The sign features a white silhouette of a person walking, which is the standard symbol for a pedestrian crossing. The sign is mounted on a metal structure, and the background shows some mechanical details of the mounting. The overall image has a monochromatic blue color scheme.

# SIGNALIZED INTERSECTIONS

PEDESTRIAN SIGNALS

# Pedestrian Signals

Pedestrian signal indicators demonstrate to pedestrians when to cross at a signalized crosswalk. All traffic signals should be equipped with pedestrian signal indications except where a pedestrian crossing is prohibited by signage.

Countdown pedestrian signals are particularly valuable for pedestrians, as they indicate whether a pedestrian has time to cross the street before the signal phase ends. Countdown signals should be used at all signalized intersections.

## SIGNALIZATION PRINCIPLES

### Keep Cycles Short

Signal cycle length should be kept low to reduce wait time and promote pedestrian and vehicle compliance.

### Prioritize

Prioritize pedestrians, transit, and bicycles. Signals set the tempo of the entire street. Transit signal priority is useful, as is bike-speed progression. But pedestrian safety and accessibility is the key priority.

### Fewer Signal Phases

Minimize the number of phases. Like the cycle length, the number of phases will influence strongly the rate of compliance by pedestrians, bicyclists, and drivers.

### Time to Intended Speed

Progressions should be set based on the speed you want to encourage. If set to the speed limit, any deviation from that limit will then encourage drivers to speed to catch up to the “green wave.”

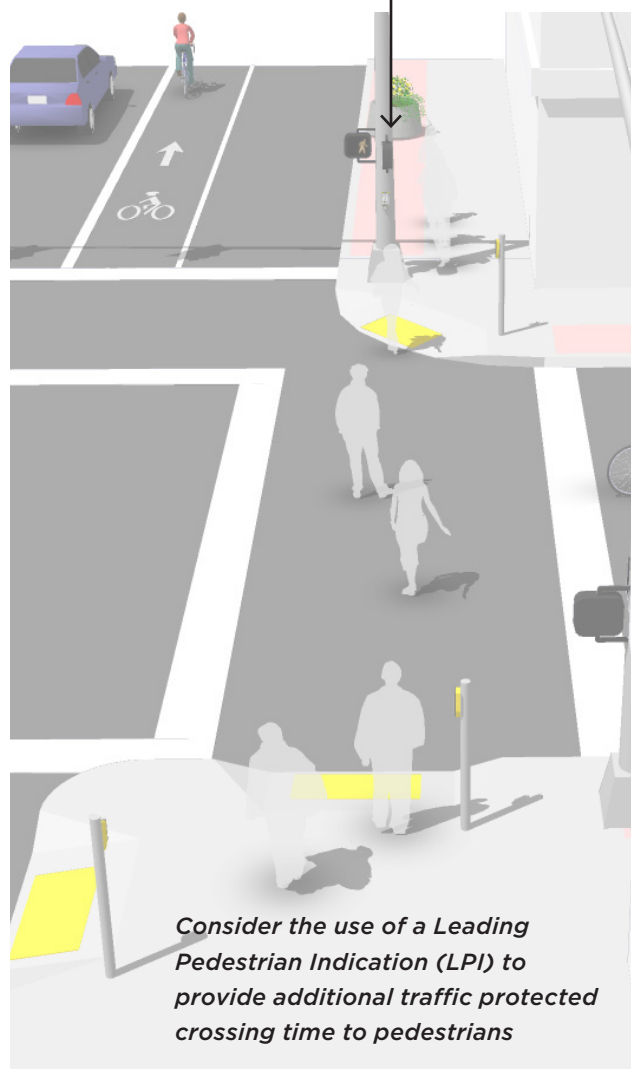
### Adjust by Time of Day

Use time-of-day adjustments to subtly move capacity around based on different needs for the time of day to achieve the safest scenario.

### Use Fixed Timing

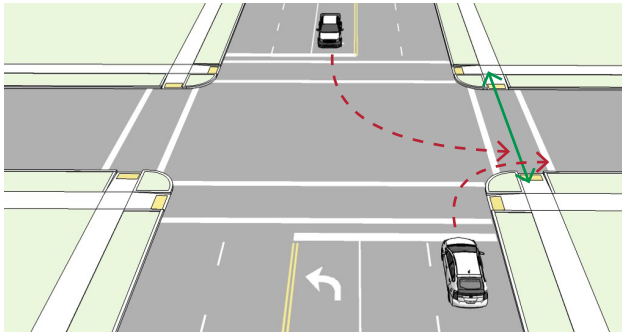
Use pretimed rather than actuated signals in an urban environment to create a predictable pedestrian intersection.

*Audible pedestrian traffic signals provide crossing assistance to pedestrians with vision impairment at signalized intersections*



*Consider the use of a Leading Pedestrian Indication (LPI) to provide additional traffic protected crossing time to pedestrians*

## MITIGATING PEDESTRIAN TURNING CONFLICTS



Two of the most common crash types involving pedestrians are left hooks and right hooks. The conflict occurs when vehicles have a green signal with a permissive left- or right-turn, and pedestrians have a WALK signal. Signal phasing can be improved with the following measures.

### Leading Pedestrian Interval

Pedestrian WALK signal is displayed 2-4 seconds before the vehicular green indication to allow pedestrians time to establish a presence in the intersection before vehicles start turning (also referred to as Pedestrian Lead Time).

### Lagging Lefts (if permissive)

Delay the ability of permissive lefts until mid-way through the phase so that pedestrians are out in the intersection and visible or are completing their crossing.

### Split Phasing

Allow only one approach to proceed at a time, this reduces the number of turning conflicts possible during the pedestrian phase.

### Exclusive Pedestrian Phasing

With an exclusive pedestrian phase, WALK signals are provided without green indications for any conflicting vehicle movements. Scramble pedestrian phasing is one type of exclusive phase during which pedestrians may walk in all directions, including diagonal. Exclusive pedestrian phasing and scramble pedestrian phasing should always include audible

information, because pedestrians with vision impairments cannot rely on the sound of vehicular traffic to identify the start of the WALK phase.

### Reduced Corner Radii

The size of a curb's radius can have a significant impact on pedestrian comfort and safety. A smaller curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crossing distance and requires vehicles to slow more on the intersection approach. During the design phase, the chosen radius should be the smallest possible for the circumstances.

### Advance stop bars

Advance stop bars increase pedestrian comfort and safety by stopping motor vehicles well in advance of marked crosswalks, allowing vehicle operators a better line of sight of pedestrians and giving inner lane motor vehicle traffic time to stop for pedestrians. 10 feet is desirable from the crosswalk.

### Signs

Signs remind motorists of their duty to yield to pedestrians while turning left or right. MUTCD sign R10-15 (see right) is commonly used for this purpose. Blank out signs may be of use where pedestrian volumes are heavy, pedestrian volumes are intermittent, or crash history is documented.

MUTCD R10-15



### FOR MORE INFORMATION

*2024 United States Access Board. Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG)*

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

*2013 NACTO Urban Street Design Guide*

# Review Questions

**1. A Leading Pedestrian Interval ... (choose the correct statement)**

- “reduces pedestrian clearance time by giving pedestrians time up front to complete their crossing”
- “improves pedestrian visibility by giving pedestrians a few seconds in advance of the green signal to gain position in the crosswalk”
- “treats left turn crash types”

**2. Limiting or eliminating permissive left turning can improve safety for all users.**

- True
- False



# GRADE- SEPARATED CROSSINGS

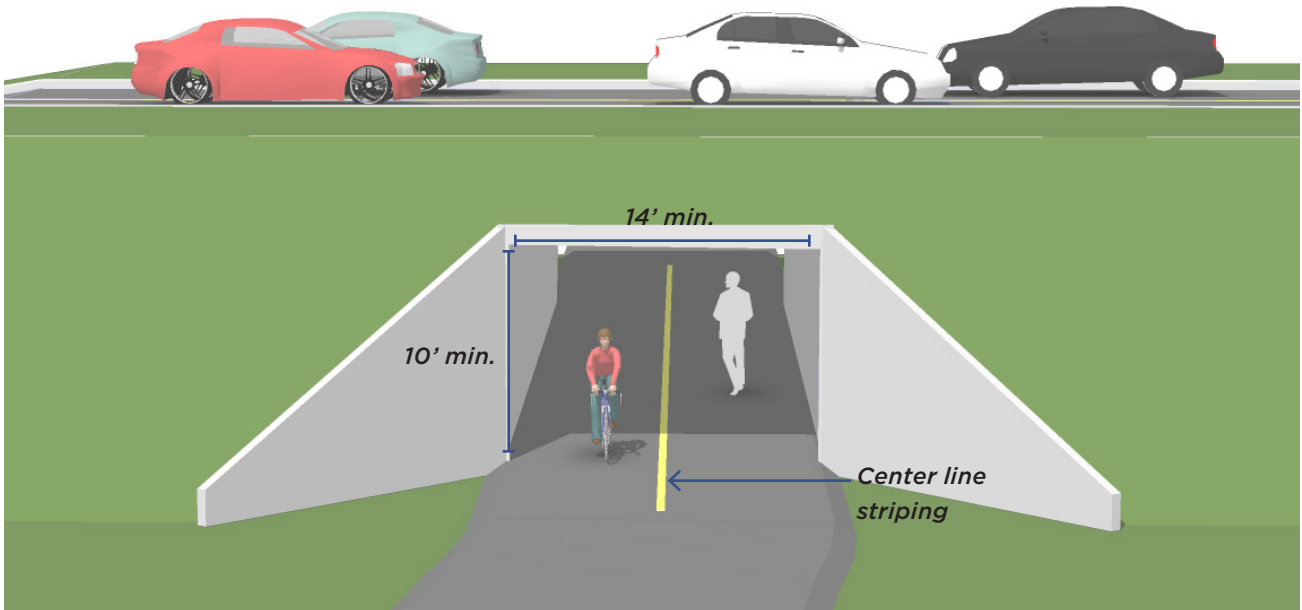
UNDERPASSES  
OVERPASSES

# Underpasses

Bicycle/pedestrian underpasses provide critical non-motorized system links by joining areas separated by barriers such as railroads and highway corridors.

There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group grade separation may be considered in many types of projects.

Safety is a major concern with underpasses. Shared use path users may be temporarily out of sight from public view and may experience poor visibility themselves. To improve the perception of safety, an underpass should be designed to be spacious, well-lit, and the entrance and exit visible throughout its entire length, emergency call phones should be considered.



## Typical Application

- 14 foot minimum width, greater widths preferred for lengths over 60 feet.
- 10 foot minimum height.
- The underpass should have a centerline stripe even if the rest of the path does not have one.
- Lighting should be considered during the design process for any underpass with high anticipated use or in culverts and tunnels.

## Materials and Maintenance

- 14 foot width allows for maintenance vehicle access.
- Potential problems include conflicts with utilities, drainage, flood control and vandalism.

### FOR MORE INFORMATION

*CDOT Roadway Design Guide 13.4.9.6*

*2024 AASHTO Guide for the Development of Bicycle Facilities*

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

# Overpasses

Bicycle/pedestrian overpasses provide critical non-motorized system links by joining areas separated by barriers such as deep canyons, waterways or major transportation corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist.

There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group grade separation may be considered in many types of projects.

Overpasses require a minimum of 17 feet of vertical clearance to the roadway below versus a minimum elevation differential of around 12 feet for an underpass. This results in potentially greater elevation differences and much longer ramps for bicycles and pedestrians to negotiate.



## Accessibility

Overpasses for bicycles and pedestrians typically fall under the Americans with Disabilities Act (ADA), which strictly limits ramp slopes to 5% (1:20) with landings at 400 foot intervals, or 8.33% (1:12) with landings every 30 feet.

Overpasses pose potential concerns about visual impact and functional appeal, as well as space requirements necessary to meet ADA guidelines for slope.

## Guidance

- 8 foot minimum width, 14 feet preferred. If the overpass has any scenic vistas, additional width should be provided to allow for stopping. A separate 5 foot pedestrian area may be provided for facilities with high bicycle and pedestrian use.
- 10 foot headroom on overpass; clearance below will vary depending on feature being crossed.
  - Roadway: 17 feet
  - Freeway: 18.5 feet
  - Heavy Rail Line: 23 feet
- The overpass should have a centerline stripe even if the rest of the path does not have one.

## Materials and Maintenance

- Potential issues with vandalism.
- Overpasses can be more difficult to clear of snow than underpasses.

### FOR MORE INFORMATION

*CDOT Roadway Design Guide 13.4.9.6*

*2024 AASHTO Guide for the Development of Bicycle Facilities*

*2022 AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities*

## Review Questions

**Pedestrian bridges or tunnels often are ineffective because (select correct answers):**

- “They can increase the horizontal distance needed to be walked to cross a street”
- “They can require pedestrians to climb stairs or ramps which takes significant effort”
- “They can present security concerns if isolated or if visibility is poor”
- “Pedestrians don’t mind crossing multi-lane high speed arterials at grade.”

**Which type of grade separation typically requires greater vertical displacement for pedestrians?**

- Underpass
- Overpass



# POLICY + PROCEDURAL DIRECTIVES

The following section contains the CDOT Policy and Procedural Directives and relevant forms. Policy and Procedural Directives are periodically updated, with the latest versions available on the CDOT intranet hub under “Policies and Procedural Directives”. Similarly, look for the latest version of the bicycle and pedestrian variance form (#464bp) on the CDOT Forms Catalog: <https://www.codot.gov/about/forms>.



**COLORADO**  
Transportation Commission  
4201. E. Arkansas Ave.  
Denver, CO 80122

**RELEASE MEMORANDUM**

To: All CDOT Employees  
From: Debra Perkins-Smith / Herman Stockinger  
Re: Updated Policy Directive 1602.0 “Elevating Bicycle and Pedestrian Opportunities in Colorado”  
Date: January 25, 2017

- 
1. Name of Policy Directive: “Elevating Bicycle and Pedestrian Opportunities in Colorado”
  2. Date of Policy Directive this Directive Supersedes: May 19, 2016
  3. Executive Summary: Policy Directive 1602.0 was last adopted by the Commission on May 19, 2016, and established the following criteria for when bicycle and pedestrian accommodation may be exempted:
    - 1) Bicyclists and pedestrians are prohibited by law from using the roadway; or
    - 2) The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. (Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.); or
    - 3) Where scarcity of population or other factors indicate an absence of need.

Since then, in the process of updating the accompanying Procedural Directive 1602.1, it was determined that two new exemption criteria needed to be added to Policy Directive 1602.0. The only changes to this updated PD 1602.0 are the two new exemption criteria which concern resurfacing projects, and they are:

- 4) In a resurfacing project on a state highway, if the only means of accommodating bicycle and pedestrian needs is adding a shoulder, the project shall be automatically exempted on the grounds that under CDOT’s current asset management guidelines, resurfacing money cannot be used for shoulders; or
  - 5) If the resurfacing project on a state highway runs through a town, consideration must be given to restriping that portion within the town to accommodate bicyclists and pedestrians. If the accommodation cannot be made, an exemption must be documented.
4. Office to Contact with Questions: Division of Transportation Development, Bicycle and Pedestrian Program
  5. Effective Date of Updated Policy Directive: January 19, 2017

<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		<b>X POLICY DIRECTIVE</b> <b>□ PROCEDURAL DIRECTIVE</b>	
<b>Subject</b>			<b>Number</b>
<b>Elevating Bicycle and Pedestrian Opportunities in Colorado</b>			<b>1602.0</b>
<b>Effective</b>	<b>Supersedes</b>	<b>Originating Office</b>	
01.19.17	05.19.16	Division of Transportation Development Bicycle and Pedestrian Program	

**I. PURPOSE**

The Transportation Commission supports the Colorado Department of Transportation (“CDOT” or “Department”) in elevating the needs of bicyclists and pedestrians in the planning, design, and operation of transportation facilities as a necessary component of all projects. The Department will promote transportation mode choice by enhancing safety and mobility for bicyclists and pedestrians on or along the state highway system. This includes all aspects of accommodating pedestrians and bicyclists, from planning, programming, design, construction, to operation, maintenance and education.

**II. AUTHORITY**

Transportation Commission pursuant to § 43-1-106(8)(a), C.R.S.

§ 43-1-120, C.R.S. (requiring that exemptions be documented)

See Appendix “A” for additional authority

**III. APPLICABILITY**

This Policy Directive applies to all branches, divisions, regions and offices of CDOT and consultants working for CDOT. All projects overseen by CDOT or within CDOT right-of-way shall adhere to this Policy Directive.

**IV. POLICY**

A. In conformance with § 43-1-120(2)(c), C.R.S., FHWA Guidance, and Procedural Directive 1602.1, the Department shall include the needs of bicyclists and pedestrians in the planning, design, operation and maintenance of transportation facilities as a necessary component of all programs and activities.

B. Any decision of the Department to not accommodate the needs of bicyclists and pedestrians in the planning, design, and operation of transportation facilities shall be documented prior to finalizing the decision. The decision must be based on at least one or more of the following

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exemption criteria herein established by the Commission:

1. Bicyclists and pedestrians are prohibited by law from using the roadway; or
2. The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. (Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.); or
3. Where scarcity of population or other factors indicate an absence of need; or
4. In a resurfacing project on a state highway, if the only means of accommodating bicycle and pedestrian needs is adding a shoulder, the project shall be automatically exempted on the grounds that under CDOT's current asset management guidelines, resurfacing money cannot be used for shoulders; or
5. If the resurfacing project on a state highway runs through a town, consideration must be given to restriping that portion within the town to accommodate bicyclists and pedestrians. If the accommodation cannot be made, an exemption must be documented.

C. The Department shall follow the requirements of the bicycle and pedestrian program set forth more specifically in Procedural Directive 1602.1.

**V. IMPLEMENTATION PLAN**

This Policy Directive shall be effective upon signature.

The Office of Policy and Government Relations shall post this Policy Directive on the CDOT intranet as well as on the CDOT public announcements.

This Policy Directive applies to all projects scoped after the effective date. The Division of Transportation Development Bicycle and Pedestrian Program shall provide a copy of this Policy Directive to applicable CDOT personnel.

**VI. REVIEW DATE**

This Policy Directive shall be reviewed on or before January 2022.

  
 \_\_\_\_\_  
 Herman Stockinger  
 Transportation Secretary

1-19-17  
 \_\_\_\_\_  
 Date of Approval

Subject	Number
<b>Elevating Bicycle and Pedestrian Opportunities in Colorado</b>	1602.0

**Appendix “A”**

**Authority Pertaining to CDOT’s Bicycle and Pedestrian Program**

Fixing America's Surface Transportation Act (“FAST Act”), Pub. L. No. 114-94, 129 Stat. 1312 (2015).

Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21), 2012, 23 U.S.C. 127

23 U.S.C. 104 (Federal funds)

23 U.S.C. 109 (existing routes)

23 U.S.C. 134 and 135 (planning for all modes)

23 U.S.C. 217 (due consideration for bicycles/pedestrians)

23 U.S.C. 402 (highway safety)

23 U.S.C. 652 (bicycle/pedestrian accommodation in projects)

United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations, March 11, 2010

Federal Highway Administration “Accommodating Bicycle and Pedestrian Travel: A Recommended Approach”

[http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/design.cfm](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design.cfm)

Federal Highway Administration: “Bicycle and Pedestrian Provisions of Federal Transportation Legislation”[http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/guidance\\_2015.cfm#bp4](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/guidance_2015.cfm#bp4)

§ 43-1-120, C.R.S. (requiring that exemptions be documented)

**Resolution # TC-17-1-6**

Updated Policy Directive 1602.0 “Elevating Bicycle and Pedestrian Opportunities in Colorado”

**Approved by the Transportation Commission on Jan. 19, 2017.**

**WHEREAS**, under § 43-1-106(8), C.R.S., the Transportation Commission of Colorado has the statutory responsibility to set policies for the Colorado Department of Transportation (“CDOT”); and

**WHEREAS**, § 43-1-120, C.R.S. requires the Department to include the needs of bicyclists and pedestrians in the planning, design, operation and maintenance of transportation facilities as a necessary component of all programs and activities; and

**WHEREAS**, the Transportation Commission has authority under § 43-1-120(2)(c), C.R.S. to set exemption criteria by which the Department will determine and document that the needs of bicyclists and pedestrians not be included in a given project; and

**WHEREAS**, in Policy Directive 1602.0 adopted on May 19, 2016, the Transportation Commission established three such exemption criteria; and

**WHEREAS**, two additional exemption criteria are needed to clarify whether bicycle and pedestrian needs can be included in resurfacing projects carried out by the Department; and

**WHEREAS**, updated Policy Directive 1602.0 includes the two additional exemption criteria set by the Transportation Commission under § 43-1-120(2)(c), C.R.S., thereby establishing a total of five exemption criteria;

**NOW THEREFORE BE IT RESOLVED**, the Commission herein adopts updated Policy Directive 1602.0 “Elevating Bicycle and Pedestrian Opportunities in Colorado.”



Herman Stockinger  
Transportation Secretary

1-19-17

Date of Approval

<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		<input type="checkbox"/> <b>POLICY DIRECTIVE</b> <input checked="" type="checkbox"/> <b>PROCEDURAL DIRECTIVE</b>
<b>Subject</b> <b>Elevating Bicycle and Pedestrian Opportunities in Colorado</b>		<b>Number</b> <b>1602.1</b>
<b>Effective</b> <b>03/03/2017</b>	<b>Supersedes</b> 02/04/2010	<b>Originating Office</b> <b>Division of Transportation Development (DTD)</b> <b>Multimodal Planning Branch Bicycle and Pedestrian Section</b>

**I. PURPOSE**

The purpose of this Procedural Directive is to comply with § 43-1-120, C.R.S. and relevant federal regulations which require the Department to incorporate Bicycle and Pedestrian facilities in CDOT projects. The Colorado Department of Transportation (“CDOT” or “Department”) shall include the needs of bicyclists and Pedestrians in the planning, design, and operation of all transportation facilities. As a means of fulfilling this requirement, the Department will promote transportation mode choice by enhancing safety and mobility for bicyclists and pedestrians on or along the state highway system. This includes accommodating pedestrians and bicyclists during planning, programming, design, construction, operation and maintenance as well as providing education to motorists, bicyclists and Pedestrians.

**II. AUTHORITY**

Executive Director pursuant to § 43-1-105, C.R.S.

§ 43-1-120, C.R.S. (requiring that exemptions be documented)

See Appendix “A” for additional authority

**III. APPLICABILITY**

This Procedural Directive applies to all branches, divisions, regions and offices of CDOT and consultants working for CDOT. All projects overseen by CDOT or within CDOT right-of-way shall adhere to this Procedural Directive.

**IV. DEFINITIONS**

“Bicycle” shall mean a vehicle having two wheels, propelled solely by human power, upon which any person or persons may ride.

“Bike Lane” shall mean a portion of the Roadway designated for preferential or exclusive use by bicyclists through pavement markings and, if used, signs.

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“Bike Route” shall mean a system of Bikeways designating a preferred route for Bicycle travel along which Bicycle guide signs may provide direction or distance information.

“Bikeway” shall mean a generic term for any road, street, or path, which in some manner is specifically designated for Bicycle travel, regardless of whether such a facility is designated for the exclusive use of Bicycles or is to be shared with other transportation modes. These include but are not limited to Bike Lanes, Bike Routes, shoulders and multi-purpose paths.

“Commuter Route” shall mean a transportation facility that provides a reliable, regularly used, continuous route ordinarily structured for access to work, school or other destinations.

“Context Sensitive Solution” shall mean a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.

“Department” (also known as “CDOT”) shall mean the Colorado Department of Transportation pursuant to § 43-1-105, C.R.S.

“Exemption Criteria” shall mean the criteria established by the Transportation Commission in Policy Directive 1602.0 that describes the minimum values or ranges required to meet design standards.

“Exemption” shall mean the same as “exception or variance” and shall mean the Region Transportation Director’s approval of a request for a Bicycle & Pedestrian exemption based on the Exemption Criteria set forth in Policy Directive 1602.0. See CDOT Form 464BP.

“High Priority Bicycle and/or Pedestrian Corridor” shall mean an on-system Roadway or multi-purpose path, identified for its significance to Bicycle and Pedestrian mobility, as well as to resource planning.

“Multi-Purpose Path” (also known as “Trail”) shall mean a paved or unpaved path physically separated from motorized vehicular traffic by an open space or barrier, and specifically designated as being open to non-motorized users.

“Pedestrian” shall mean any person traveling afoot or using a wheelchair.

“Region Bicycle and Pedestrian Representative” shall mean an employee who is designated by the CDOT Regional Transportation Director to act as the region representative and resource in support of Bicycle and Pedestrian related topics within a CDOT region.

“Roadway” shall mean the portion of a highway, including shoulders, intended for vehicular use.

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“Seasonal Path” shall mean a multi-purpose path that is not accessible 12 months of the year due to weather conditions. See Appendix A.

“Sidewalk” shall mean the paved portion of the Roadway right-of-way, beyond the curb or edge of Roadway pavement, which is intended for use by Pedestrians.

**V. PROCEDURE**

**A. General Requirements**

1. In conformance with Policy Directive 1602.0, § 43-1-120(2)(c), C.R.S., and FHWA Guidance, the Department shall include the needs of bicyclists and Pedestrians in the planning, design, operation and maintenance of transportation facilities as a necessary component of all programs and activities.
2. As stated with greater specificity below, any decision of the Department not to accommodate the needs of bicyclists and Pedestrians shall be documented prior to finalizing the decision. The decision must be based on Exemption Criteria established by the Commission in Policy Directive 1602.0 which states at least one or more of the following must apply:
  - a) Bicyclists and Pedestrians are prohibited by law from using the Roadway; or
  - b) The cost of establishing Bikeways or walkways would be excessively disproportionate to the need or probable use (Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.); or
  - c) Where scarcity of population or other factors indicate an absence of need; or
  - d) In a resurfacing project on a state highway, if the only means of accommodating bicycle and pedestrian needs is adding a shoulder, the project shall be automatically exempted on the grounds that under CDOT’s current asset management guidelines, resurfacing money cannot be used for shoulders; or
  - e) If the resurfacing project on a state highway runs through a town, consideration must be given to restriping that portion within the town to accommodate bicyclists and pedestrians. If the accommodation cannot be made, an Exemption must be documented on Form 464BP.
3. The Chief Engineer and the Multimodal Planning Branch Bicycle and Pedestrian Section will oversee the implementation of this Procedural Directive, as well as lead the development of strategy, programs, policies, plans, and initiatives to support Bicycle and Pedestrian activity.

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4. To comply with the Statewide Bicycle and Pedestrian Plan, and to inform decisions regarding resources, the Multimodal Planning Branch Bicycle and Pedestrian Section shall convene and lead a group of stakeholders to determine and make recommendations on High Priority Bicycle and Pedestrian Corridors based on but not limited to the following criteria:

- a) Connectivity of the facility;
- b) All-season facility; and
- c) User data (if available) indicates high use by bicyclists and/or Pedestrians.

The Multimodal Planning Branch Bicycle and Pedestrian Section shall communicate the recommendations to a management review panel comprised of the Deputy Executive Director, the Chief Engineer, the Director of the Division of Highway Maintenance, and the Director of the Division of Transportation Development, who shall approve or deny recommendations.

5. To further support implementation of Policy Directive 1602.0, and the Statewide Bicycle and Pedestrian Plan, each Regional Transportation Director shall identify a Region Bicycle and Pedestrian Representative for the region. Said Representative will act as a point of contact for Pedestrian and/or Bicycle related issues within the region, as well as provide information on project design, operation and maintenance of work zones to accommodate Pedestrians and bicyclists. These responsibilities will be identified in the Representative's Position Description Questionnaire (PDQ).

6. The Multimodal Planning Branch Bicycle and Pedestrian Section will oversee and update, as needed, the Colorado Statewide Bicycle and Pedestrian Plan to provide direction and goals for improving biking and walking throughout Colorado.

**B. Department Responsibilities**

1. Responsibilities of the Chief Engineer

(a) The Chief Engineer shall:

- (1) Ensure that the Regional Transportation Directors ("RTDs") identify a Region Bicycle and Pedestrian Representative for each CDOT Region.
- (2) Ensure that all Region Bicycle and Pedestrian Representatives, Region Traffic Engineers and Design Engineers complete the Bicycle and Pedestrian Facility Design trainings at least once every five years.
- (3) Review and comment on quarterly Bicycle and Pedestrian design Exemption reports provided by the Multimodal Planning Branch Bicycle

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and Pedestrian Section.

2. Responsibilities of the Region Transportation Directors (“RTDs”)

(a) The Region Transportation Directors (“RTDs”) shall:

- (1) Identify an employee working within the region to serve as the Region Bicycle and Pedestrian Representative.
- (2) Ensure that processes to identify and address the needs of Pedestrians and bicyclists are being followed within the region, specifically in project initiation, planning, budgeting, scoping, preliminary and final design activities.
- (3) Review and accept/reject bicycle and pedestrian variance requests as presented by the Program Engineer on CDOT Form 464BP. A response shall be provided to the requestor within 30 days of the date the request was received.

3. Responsibilities of the Region Program Engineers, Resident Engineers and Project Engineers

(a) The Region Program Engineers, Resident Engineers and Project Engineers shall:

- (1) Consult with the Region Planner and the Region Bicycle and Pedestrian Representative to ensure that Context Sensitive Solution practices are utilized when working with local communities to identify the most practicable and feasible solution to a transportation need.
- (2) Ensure that Bicycle and Pedestrian accommodation is included in both design scoping meetings and scoping summaries.
- (3) Ensure that Bicycle and Pedestrian accommodation is considered in project characteristics, as well as Field Inspection Review (FIR) and Final Office Review (FOR) meetings and notes.
- (4) Work with the Region Bicycle and Pedestrian Representative, and the Multimodal Planning Branch Bicycle and Pedestrian Section Engineer or Manager to confirm that any decision to exempt Bicycle and Pedestrian accommodation from a project is based on the Exemption Criteria established by the Commission in Policy Directive 1602.0, § 43-1-120(2)(c), C.R.S., and the CDOT Project Development Manual.
- (5) Document Exemptions on Form 464BP (Bicycle/Pedestrian Design

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Exemption Request) any decision not to accommodate Bicyclists and Pedestrians in a project.

(6) Ensure that Bicycle and Pedestrian accommodation is included in the safety analysis of state Roadways.

(7) Follow recommended and required standards, manuals, guidance, and procedures to maximize the mobility and safety of Pedestrians and bicyclists, including, but not limited to:

- The applicable Federal Highway Administration (“FHWA”) and American Association of State Highway and Transportation Officials (“AASHTO”) Design guides and manuals;
- The Manual on Uniform Traffic Code Devices (“MUTCD”);
- CDOT Roadway Design Guide, Chapter 14; and
- Industry-recognized best practices (National Association of City Traffic Officials (“NACTO”), Institute of Transportation Engineers (“ITE”), etc.).

(8) During project construction, ensure that reasonable accommodations and access for bicyclist and Pedestrian use have been made, including signed detour routes or alternate transportation for the length of the project.

(b) The Program Engineers, Resident Engineers and Project Engineers shall refer all Bicycle and Pedestrian Exemptions to the RTD for final determination.

#### 4. Responsibilities of the Region Bicycle and Pedestrian Representative

(a) The Region Bicycle and Pedestrian Representative shall:

(1) Receive training in Pedestrian and Bicycle accommodation and serve as the de facto Pedestrian and Bicycle subject matter expert in the region.

(2) Be the point of contact for Pedestrian and/or Bicycle related issues within the region.

(3) Act as a region resource to provide guidance on project design, operation, and maintenance of work zones which accommodate Pedestrians and bicyclists.

(4) Follow recommended and required standards, manuals, guidance, and

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procedures to maximize the mobility and safety of Pedestrians and bicyclists, including, but not limited to:

- The Federal Highway Administration (“FHWA”) and American Association of State Highway Traffic Officials (“AASHTO”) Design Manuals and Guidance;
- The Manual on Uniform Traffic Control Devices (“MUTCD”);
- CDOT Roadway Design Guide, Chapter 14; and
- Industry-recognized best practices such as National Association of City Transportation Officials (“NACTO”), Institute of Transportation Engineers (“ITE”), etc.

(5) Distribute information and best practices regarding Bicyclist and Pedestrian accommodation to region staff.

(6) Work with the Region Program Engineer, the Resident Engineer, the Project Engineer, and the Multimodal Planning Branch Bicycle and Pedestrian Section Engineer or Manager, to review any Exemption request regarding Bicycle and Pedestrian accommodation on CDOT Form 464BP (Bicycle/Pedestrian Design Exception Variance Request).

(7) Collect quarterly region exemption data from Form 464BP and distribute it to the Multimodal Planning Branch Bicycle and Pedestrian Section.

(8) Work in collaboration with the Multimodal Planning Branch Bicycle and Pedestrian Section, the Maintenance Superintendents (or their designees), the Region Planners and other stakeholders to develop criteria for and the selection of High Priority Bicycle and Pedestrian Corridors and Seasonal Paths. Selected corridors and paths will be identified and tracked in Appendix B.

5. Responsibilities of the Division of Highway Maintenance

(a) The Division of Highway Maintenance shall:

- (1) Pursue providing budget support for maintenance activities with CDOT’s Chief Financial Officer. This would be part of the Maintenance Level of Service (MLOS) System for CDOT-owned Multi-Purpose Paths.
- (2) Include consideration of Bicycle and Pedestrian mobility and safety when resurfacing and/or restriping a road.
- (3) Include Bicycle and Pedestrian facilities in developing annual level of

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service plans. This shall include, but not be limited to:

(a) Multi-Purpose Paths owned by the state and designated by CDOT management review panel as a High Priority Bicycle and Pedestrian Corridor, shall be designated a level of service category 10 (the same as highway category 10) following the end of a snow storm.

(b) Bikeways within the right-of-way of state highways will be maintained by the Department, except where a maintenance agreement provides otherwise. Where new projects are being considered, maintenance agreements shall be in place prior to construction.

(c) All Bikeways other than those defined above will not be the responsibility of CDOT.

(4) Work in collaboration with the Multimodal Planning Branch Bicycle and Pedestrian Section, the Region Bicycle and Pedestrian Representatives, the Region Planners, and other stakeholders to develop criteria for and the selection of High Priority Bicycle and Pedestrian Corridors and Seasonal Paths. Selected corridors and paths will be identified and tracked in Appendix B.

(5) Ensure that Bicycle and Pedestrian training is included in the Maintenance Academy curriculum.

6. Responsibilities of the Multimodal Planning Branch Bicycle and Pedestrian Section

(a) The Multimodal Planning Branch Bicycle and Pedestrian Section shall:

(1) Provide administration of CDOT Bicycle and Pedestrian programs and initiatives and oversee implementation of this Procedural Directive.

(2) Oversee the “Share the Road Program” together with the Office of Transportation Safety in order to support education for motorists, bicyclists, Pedestrians and law enforcement personnel.

(3) Provide annual Bicycle and/or Pedestrian facility design training to internal and external engineers, designers, planners and interested parties.

(4) Provide Bicycle and Pedestrian technical support and education assistance to the Transportation Planning Regions (TPRs) and Metropolitan Planning Organizations (MPOs) to ensure Bicycle and

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Pedestrian accommodations are included in all planning efforts.

(5) Review Exemption requests and make a recommendation to the Program Engineer as to whether the Exemption shall be granted or denied. A response shall be provided to the requestor within 30 days of the date the request was received.

(7) Work in collaboration with the Maintenance Superintendents (or their designees), the Region Bicycle and Pedestrian Representatives, the Region Planners, and other stakeholders to facilitate the development of criteria for and the selection of High Priority Bicycle and Pedestrian Corridors and Seasonal Paths. Selected corridors and paths will be identified and tracked in Appendix B.

(8) Publish a Colorado Bicycle Manual and Colorado Bicycle and Scenic Byways Map.

(9) Utilizing the information provided by the Region Bicycle and Pedestrian Representative, summarize Exemption requests, and after reviewing, compiling, and storing, disseminate the information on a quarterly basis to the Chief Engineer.

(10) In conjunction with other CDOT divisions and offices, facilitate the development of a tracking system to monitor Bicycle and Pedestrian investments on all projects.

(11) Inform staff, local agencies, and stakeholders of available funding sources, programs and mechanisms which can be used to address Bicycle and Pedestrian accommodation.

7. Responsibilities of the Multimodal Planning Branch and Region Planners

(a) The Multimodal Planning Branch and Region Planners shall:

(1) Ensure Bicycle and Pedestrian needs and considerations are addressed in the Statewide Transportation Plan, the Regional Transportation Plans, and in Policy Directive 14.0.

(2) Work in collaboration with the Multimodal Planning Branch Bicycle and Pedestrian Section, the Region Bicycle and Pedestrian Representatives, the Maintenance Superintendents (or their designees), and other stakeholders to develop criteria for and selection of High Priority Bicycle and Pedestrian Corridors and Seasonal Paths. Selected corridors and paths will be identified and tracked in Appendix B.

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(b) Region Planners will work with Region Engineers to ensure any Bicycle and Pedestrian improvements from MPO and TPR plans are incorporated into new projects.

8. Responsibilities of the Division of Project Support

(a) The Division of Project Support shall:

(1) Support the Multimodal Planning Branch Bicycle and Pedestrian Section in the development and implementation of a cost-tracking mechanism for Bicycle and Pedestrian facility investments.

9. Responsibilities of the Office of Transportation Safety

(a) The Office of Transportation Safety shall:

(1) Promote CDOT’s goal of zero deaths or injuries on all facilities, including Bikeways and Sidewalks, through collaboration with the Colorado State Patrol.

10. Responsibilities of the Division of Traffic Systems Management and Operations (“TSM&O”)

(a) The TSM&O Division shall:

(1) Include bicyclist and Pedestrian safety accommodation as part of the Strategic Highway Safety Plan.

(2) Include consideration of Bicycle and Pedestrian mobility when conducting all duties and responsibilities assigned to the TSM&O Division, including, but not limited to, analyzing, selecting, and programming TSM&O projects.

(3) Ensure that the TSM&O evaluation process is properly accommodating the needs of bicyclists and Pedestrians in accordance with Policy Directive 1602.0.

(b) The Region Traffic Engineer shall:

(1) Ensure that the Region Bicycle and Pedestrian Representative is consulted on all matters related to Bicycle and Pedestrian accommodation, including signing, striping, signals, signal timing, markings, striping, school zones, speed limits, work zones, etc.

Subject <b>Elevating Bicycle and Pedestrian Opportunities in Colorado</b>	Number 1602.1
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- (2) Include consideration of Bicycle and Pedestrian mobility and safety when restriping roads.
- (3) When striping and marking roads, ensure that any project has undergone the TSM&O evaluation process which will include compliance requirements with state and federal laws and governing documents.
- (4) Ensure that projects undergo the TSM&O Evaluation process, including a review of compliance with Pedestrian and Bicycle related laws, policies, and guidance.

11. Responsibilities of the Division of Transit and Rail

(a) The Division of Transit and Rail shall:

- (1) Include consideration of the mobility of bicyclists and Pedestrians in its Statewide Transit Plan and in Regional Transit Plans.

**VI. DOCUMENTS REFERENCED IN THIS PROCEDURAL DIRECTIVE**

Bicycle/Pedestrian Design Exception Variance Request (Form 464BP)

CDOT Roadway Design Guide (*See* Chapter 14)

National Association of City Transportation Officials (NACTO) “Urban Bikeway Design Guide”

National Association of City Transportation Officials (NACTO) “Urban Streets Design Guide”

Manual on Uniform Traffic Control Devices (MUTCD)

American Association of State Highways and Transportation Officials (AASHTO) Roadside Design Guide

Appendix A “Authority Pertaining to CDOT’s Multimodal Planning Branch Bicycle and Pedestrian Section”

Appendix B “CDOT High Use Bicycle and Pedestrian Corridors and Seasonal Paths”

**VII. IMPLEMENTATION PLAN**

- 1. This Procedural Directive shall be effective upon signature.
- 2. This Procedural Directive applies to all projects scoped after the effective date.

Subject <b>Elevating Bicycle and Pedestrian Opportunities in Colorado</b>	Number 1602.1
------------------------------------------------------------------------------	------------------

3. The Multimodal Planning Branch Bicycle and Pedestrian Section, in conjunction with Region Bicycle and Pedestrian Representatives, will develop a tracking system to record all projects exempted pursuant to the process set forth above.
4. The Chief Engineer and the Multimodal Planning Branch Bicycle and Pedestrian Section will oversee the implementation of this Procedural Directive, including reporting annually to executive management on the status of the Procedural Directive’s implementation and Exemption reports.
5. The Multimodal Planning Branch Bicycle and Pedestrian Section will distribute this Procedural Directive to all involved employees and stakeholders within three weeks of its effective date.
6. The Office of Policy and Government Relations shall post the Procedural Directive on the Directive webpage within one week of the effective date.

**VIII. REVIEW DATE**

This directive shall be reviewed on or before March 2022.

\_\_\_\_\_  
Shailen P. Bhatt  
Executive Director

\_\_\_\_\_  
Date of Approval

Subject	Number
<b>Elevating Bicycle and Pedestrian Opportunities in Colorado</b>	1602.1

**Appendix “A”**

**Authority Pertaining to CDOT’s Multimodal Planning Branch Bicycle and Pedestrian Section**

Fixing America's Surface Transportation Act (“FAST Act”), Pub. L. No. 114-94, 129 Stat. 1312 (2015).

Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21), 2012, 23 U.S.C. 127

23 U.S.C. 104 (Federal funds)

23 U.S.C. 109 (existing routes)

23 U.S.C. 134 and 135 (planning for all modes)

23 U.S.C. 217 (due consideration for bicycles/pedestrians)

23 U.S.C. 402 (highway safety)

23 U.S.C. 652 (Bicycle/pedestrian accommodation in projects)

[United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations](#), March 11, 2010

Federal Highway Administration “Accommodating Bicycle and Pedestrian Travel: A Recommended Approach”

[http://www.fhwa.dot.gov/environment/Bicycle\\_pedestrian/guidance/design.cfm](http://www.fhwa.dot.gov/environment/Bicycle_pedestrian/guidance/design.cfm)

Federal Highway Administration: “Bicycle and Pedestrian Provisions of Federal Transportation Legislation”[http://www.fhwa.dot.gov/environment/Bicycle\\_pedestrian/guidance/guidance\\_2015.cfm#bp4](http://www.fhwa.dot.gov/environment/Bicycle_pedestrian/guidance/guidance_2015.cfm#bp4)

§ 43-1-120, C.R.S. (requiring that exemptions be documented)

Subject <b>Elevating Bicycle and Pedestrian Opportunities in Colorado</b>	Number 1602.1
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**Appendix “B”**

**CDOT High Priority Bicycle and Pedestrian Corridors and Seasonal Paths**

This Appendix B will be routinely updated as needed by the Multimodal Planning Branch Bicycle and Pedestrian Section Manager and the Region Bicycle and Pedestrian Representatives, with input from the Chief Engineer, the Regional Transportation Directors, the Maintenance Superintendents, the Traffic Engineers, and other Department stakeholders.

**High Priority Bicycle and Pedestrian Corridors**

C-470 Trail

**Seasonal Paths**

Vail Bike Path (from the Summit west to the boundaries of the town of Vail)

Glenwood Canyon Trail

Beaver Tunnel Trail

COLORADO DEPARTMENT OF TRANSPORTATION <b>BICYCLE &amp; PEDESTRIAN EXEMPTION REQUEST</b> (See PD 1602.0 & 1602.1 for direction & information)		Date	Project Definition (Project #)
		<input type="text"/>	<input type="text"/>
Project Name		Region	Route Number
<input type="text"/>		<input type="text"/>	<input type="text"/>
Project Type <input type="checkbox"/> New Construction <input type="checkbox"/> Reconstruction <input type="checkbox"/> Resurfacing <input type="checkbox"/> Safety <input type="checkbox"/> Enhancement <input type="checkbox"/> Rehabilitation <input type="checkbox"/> Other (Explain): <input type="text"/>		Begin Mile Point	Date Revised
		<input type="text"/>	<input type="text"/>
		End Mile Point	
		<input type="text"/>	

Part 1 - Project & Exemption Information

A. Project Description: <input type="text"/>										
B. Description of Pedestrian & Bicycle accommodations considered by project: <input type="text"/>										
C. Justification for excluding Pedestrian & Bicycle accommodations on project: <input type="text"/>										
D. Select the approved Exemption which applies:  <input type="checkbox"/> Bicyclists or Pedestrians are prohibited by law from using the roadway.  <input type="checkbox"/> The cost of establishing Bikeways or Walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding 20% of the cost of the larger project.  <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Estimated project cost if built with accommodation:</td> <td style="width: 10%; text-align: center;">\$</td> <td style="width: 30%;"><input type="text"/></td> </tr> <tr> <td>Estimated project cost with exemption applied:</td> <td style="text-align: center;">\$</td> <td><input type="text"/></td> </tr> <tr> <td>% Difference in cost:</td> <td style="text-align: center;">%</td> <td><input type="text"/></td> </tr> </table>		Estimated project cost if built with accommodation:	\$	<input type="text"/>	Estimated project cost with exemption applied:	\$	<input type="text"/>	% Difference in cost:	%	<input type="text"/>
Estimated project cost if built with accommodation:	\$	<input type="text"/>								
Estimated project cost with exemption applied:	\$	<input type="text"/>								
% Difference in cost:	%	<input type="text"/>								

CDOT Form #464-BP 03/17

Scarcity of population or other factors indicate an absence of need. Provide justification in the space below.

Exemption based on the fact that this is a resurfacing project on a state highway and the only means of accommodating bicycle and Pedestrian needs is adding a shoulder. Under CDOT's current asset management guidelines, resurfacing money cannot be used for shoulders. (If selected skip Part 2 of this form and submit to RTD for approval)

Consideration was given to restriping the portion of this resurfacing project on a state highway that runs through a town. It was concluded that accommodation could not be made to accommodate Bicyclists and Pedestrians (If selected skip Part 2 of this form and submit to RTD for approval)

F. Other Relevant Information (as needed):

Signature (Project Manager) 	Name (Project Manager) 	Date 
Signature (Program Engineer) 	Name (Program Engineer) 	Date 

**Part 2 (Review & Signatures Required)**

Regional Bicycle/Pedestrian Representative Comment & Recommendation:

Signature (Region Bike/Ped Rep) 	Name (Region Bike/Ped Rep) 	Date 
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DTD Bicycle & Pedestrian Section Representative Comment & Recommendation:		
<div style="background-color: #e6f2ff; height: 100px;"></div>		
DTD (Bike/Ped Section Rep) <small>REQUIRED</small>	Name (Bike/Ped Section Rep)	Date
<div style="background-color: #e6f2ff; height: 20px;"></div>	<div style="background-color: #e6f2ff; height: 20px;"></div>	<div style="background-color: #e6f2ff; height: 20px;"></div>

**Part 3 (Approval)**

RTD Conditions / Comments:		
<div style="background-color: #e6f2ff; height: 100px;"></div>		
<input type="checkbox"/> Approved <input type="checkbox"/> Approved with conditions <input type="checkbox"/> Denied		
Signature (RTD) <small>REQUIRED</small>	Name (RTD)	Date
<div style="background-color: #e6f2ff; height: 20px;"></div>	<div style="border: 1px solid red; background-color: #e6f2ff; height: 20px;"></div>	<div style="border: 1px solid red; background-color: #e6f2ff; height: 20px;"></div>

## STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION  
Office of Government Relations  
4201 East Arkansas Avenue, Room 275  
Denver, Colorado 80222  
(303) 757-9772



**To:** All CDOT Employees

**From:** Heidi Humphreys – DAS / Herman Stockinger – OPGR / Katherine Williams - CRBRC

**Re:** Policy Directive 604.0 “Policy on Non-Discrimination”

**Date:** January 27, 2014

---

**Background** Policy Directive 604.0 “Policy on Non-Discrimination” updates Policy Directive 604.0 “Non-Discrimination in Federally Funded Programs Policy,” adopted July 7, 2004.

**Rationale for Policy Directive** Outlines CDOT’s general non-discrimination policy for all CDOT programs and activities. Also identifies and describes the forms of discrimination that are prohibited by federal law and highlights objectives related to access for persons with disabilities, access for persons with limited English proficiency, principles of environmental justice, and fair competition for federally funded contracts. This directive does not include CDOT’s Equal Employment Opportunity policy, which is set forth in Policy Directive 600.0.

**Individuals/Entities Impacted in Policy Directive** This Policy Directive applies to all operations of CDOT, including all offices, divisions, regions, and branches of CDOT, its contractors and anyone who acts on CDOT’s behalf. This Policy Directive also applies to the operations of any department or agency to which CDOT extends federal financial assistance. Federal financial assistance includes grants, training, use of equipment, donations of surplus property, and other assistance.

**Implementation** The Division of Administrative Services (DAS), Civil Rights and Business Resource Center shall implement this directive.

**Effective Date** January 22, 2014

**Review Date** On or before January 2019

<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		<input checked="" type="checkbox"/> <b>POLICY DIRECTIVE</b> <input type="checkbox"/> <b>PROCEDURAL DIRECTIVE</b>
Subject <b>POLICY ON NON-DISCRIMINATION</b>		Number <b>604.0</b>
Supersedes <b>604 (7/1/04)</b> <b>611 (4/15/10)</b>	Effective <b>1.22.14</b>	Originating Office <b>Civil Rights &amp; Business Resource Center, Division of Administrative Services</b>

**I. Purpose**

To ensure that no person shall, on the ground of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination in the operations of the Colorado Department of Transportation (“CDOT”) or of any department or agency to which CDOT extends federal financial assistance.

**II. Authority**

See Appendix A. This Policy Directive is intended to meet Federal Highway Administration and Federal Transit Authority requirements.

**III. Applicability**

This Policy Directive applies to all operations of CDOT, including all offices, divisions, regions, and branches of CDOT, its contractors and anyone who acts on CDOT’s behalf. This Policy Directive also applies to the operations of any department or agency to which CDOT extends federal financial assistance. Federal financial assistance includes grants, training, use of equipment, donations of surplus property, and other assistance.

**IV. Policy**

1. It is CDOT’s policy that no person shall on the ground of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination in any operation of CDOT or of any department or agency to which CDOT extends federal financial assistance.

A. Examples of prohibited types of discrimination based on race, color, national origin, sex, disability, or age include:

- (1) Denial to an individual any service, financial aid, or other benefit;
- (2) Distinctions in the quality, quantity, or manner in which a benefit is provided;
- (3) Segregation or separate treatment;
- (4) Restriction in the enjoyment of any advantages, privileges, or other benefits provided;

Subject <b>Policy on Non-Discrimination</b>	Number <b>604.0</b>
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(5) Discrimination in any activities related to highway and infrastructure or facility built or repaired; and

(6) Discrimination in employment.

B. Prohibited discrimination may be intentional or unintentional. Seemingly neutral acts that have disparate impacts on individuals of a protected group and lack a substantial legitimate justification are a form of prohibited discrimination. Instances where seemingly neutral acts may result in discrimination include:

(1) Utilizing criteria or methods of administration that have the effect of subjecting persons to discrimination or have the purpose or effect of substantially reducing the likelihood that persons can benefit from the objectives of a program or activity with respect to persons;

(2) Using different standards or requirements for determining whether a person satisfies any admissions, enrollment, quota, eligibility, membership, or other requirement for any service, financial aid, or other benefit; and

(3) Determining the site or location of a facility that has the effect of excluding persons, denying them the benefits of, or otherwise subject to them discrimination.

C. Harassment and retaliation are also forms of discrimination. Harassment includes a wide range of abusive and humiliating verbal or physical behaviors that are directed against a particular person because of race, color, national origin, sex, disability, or age. This Policy Directive prohibits retaliation against any person because he or she has reported alleged discrimination under this Policy Directive or has testified, assisted or participated in any manner in an investigation of such report, or has opposed such discrimination. No one shall intimidate, threaten, coerce, or discriminate against any individual for the purpose of interfering with their rights against discrimination.

D. As part of this Policy Directive, CDOT adheres to the following objectives, which shall not be interpreted in any way to limit the general policy stated above:

(1) Access for Persons with Disabilities – No qualified disabled person shall, solely by reason of his or her disability, be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination. Aids, benefits, and services, to be equally effective, are not required to produce the identical result or level of achievement for disabled and non-disabled persons, but must afford persons with disabilities equal opportunity to obtain the same result, to gain the same benefit, or to reach the same level of achievement, in the most integrated setting that is reasonably achievable. Even if separate or different aid, benefits, or services are available to handicapped persons, a qualified disabled person shall

Subject <b>Policy on Non-Discrimination</b>	Number <b>604.0</b>
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not be denied the opportunity to participate in the programs or activities that are not separate or different.

(2) Access for Persons with Limited English Proficiency – Individuals who have a limited ability to read, write, speak, or understand English are considered limited English proficient (“LEP”). Language for LEP individuals can be a barrier to accessing important benefits or services, understanding and exercising important rights, complying with applicable responsibilities, or understanding other information provided by CDOT. Ignoring LEP populations may constitute discrimination on the basis of national origin. CDOT shall seek to communicate with LEP populations and provide LEP individuals meaningful access to CDOT programs and activities.

(3) Principles of Environmental Justice – CDOT will meaningfully engage all sectors of the public, including low-income and minority populations, potentially affected by CDOT projects. To help ensure the fair distribution of the benefits and burdens associated with CDOT programs and activities, CDOT will be guided by the following environmental justice principles:

(a) To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations;

(b) To ensure the full and fair participation by all potentially affected communities in CDOT’s decision-making process; and

(c) To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

(4) Fair Competition for Federally-Funded Contracts – A Disadvantaged Business Enterprise (“DBE”) is a business that is owned and controlled by a socially and economically disadvantaged individual or individuals. The objectives of CDOT’s DBE program are to:

(a) To ensure nondiscrimination in the award and administration of federally-assisted contracts in CDOT’s highway, transit, and airport programs;

(b) To create a level playing field on which DBEs can compete fairly for federally-assisted contracts;

(c) To ensure that CDOT’s DBE program is narrowly tailored in accordance with applicable law;

(d) To ensure that only firms that fully meet this part’s eligibility standards are permitted to participate as DBEs;

Subject <b>Policy on Non-Discrimination</b>	Number <b>604.0</b>
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(e) To help remove barriers to the participation of DBEs in federally-assisted contracts; and

(f) To assist the development of firms that can compete successfully in the marketplace outside the DBE program.

**V. Implementation Plan**

1. This Policy Directive shall be effective immediately upon approval by the Transportation Committee.

2. The Civil Rights & Business Resource Center (“CRBRC”) shall implement this Policy Directive and will coordinate education and training to ensure compliance with this Policy Directive. All CDOT employees, its contractors, and anyone who acts on behalf of CDOT, including any department or agency to which CDOT extends federal financial assistance, shall be responsible for assuring that the proscribed discrimination does not occur. Should the potential for discrimination be discovered, action to eliminate the potential shall be taken.

3. Notices informing individuals of their rights under this Policy Directive will be posted on CDOT’s internal and external webpages, and be displayed in public office areas. These notices will also be consistent with CDOT’s policy for communicating with LEP populations.

4. As required by federal law, the CRBRC and regional civil rights staff shall be responsible for acquiring non-discrimination assurances, investigating discrimination complaints, conducting reviews of program areas, and preparing required reports.

**VI. Review Date**

This Policy Directive shall be reviewed on or before January 2019.

Herman F. Stookinger III  
Secretary, Transportation Commission

1-22-14  
Effective Date

Subject <b>Policy on Non-Discrimination</b>	Number <b>604.0</b>
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**APPENDIX A: Authority for Policy Directive 604.0**

Federal Statutes

Title VI of the 1964 Civil Rights Act, 42 U.S.C. § 2000d

Age Discrimination Act of 1975, 42 U.S.C. § 6101

Federal Aid Highway Act of 1970, 49 U.S.C. § 306

Federal Aid Highway Act of 1973, 23 U.S.C. § 324

Civil Rights Restoration Act of 1987, Pub. L. No. 100-259, 102 Stat. 28

Title II of the Americans with Disabilities Act of 1990, 42 U.S.C. §§ 12101 – 12213

Rehabilitation Act of 1973 § 504, 29 U.S.C. § 794

Federal Transit Laws, 49 U.S.C. § 5332

Federal Regulations

23 CFR §1.36 – Compliance with Federal laws and regulations

23 CFR pt. 200 – Title VI Program and Related Statutes – Implementation and Review Procedures

23 CFR pt. 771 – Environmental Impact and Related Procedures

28 CFR pt. 35 – Nondiscrimination on the Basis of Disability in State and Local Government Services

28 CFR pt. 36 – Nondiscrimination on the Basis of Disability in Public Accommodations and in Commercial Facilities

28 CFR pt. 42, subpart C – Nondiscrimination in Federally Assisted Programs – Implementation of Title VI of the Civil Rights Act of 1964

49 CFR pt. 21 – Nondiscrimination in Federally-Assisted Programs of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964

49 CFR pt. 26 – Participation By Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs

49 CFR pt. 27 – Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance

<small>Subject</small> <b>Policy on Non-Discrimination</b>	<small>Number</small> <b>604.0</b>
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49 CFR § 37.5 – Nondiscrimination – Transportation Services for Individuals with Disabilities (ADA)

Executive Orders

Exec. Order No. 12898, 59 Fed. Reg. 7629 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Exec. Order No. 13166, 65 Fed. Reg. 50121 – Improving Access to Services for Persons with Limited English Proficiency

**Resolution # TC-3128**

**Approved on January 16, 2014**

**Adoption of Policy Directive 604.0 “Policy on Non-Discrimination” and  
Repeal of Policy Directive 611.0 “Disadvantaged Business Enterprise  
Program”**

**WHEREAS**, pursuant to § 43-1-106(8)(a), C.R.S., the Colorado Transportation Commission is charged with formulating general policy with respect to the management, construction, and maintenance of public highways and other transportation systems in the state; and

**WHEREAS**, The Colorado Department of Transportation (“CDOT”) is required to comply with Title VI of the Civil Rights Act, 42 U.S.C. § 2000d, and related statutes as a recipient of federal funds from the U.S. Department of Transportation; and

**WHEREAS**, CDOT is required to comply with Title II of the Americans with Disabilities Act of 1990, 42 U.S.C. §12101-12213, and related statutes as a recipient of federal funds from the U.S. Department of Transportation; and

**WHEREAS**, CDOT is required to comply with the Civil Rights Restoration Act of 1987, Pub L. No. 100-259, 102 Stat. 28, as a recipient of federal funds from the U.S. Department of Transportation; and

**WHEREAS**, CDOT created the Civil Rights and Business Resource Center to coordinate with regional civil rights staff to ensure compliance with civil rights laws; and

**WHEREAS**, revised Policy Directive 604.0 updates and replaces Policy Directive 604.0, “Non-Discrimination in Federally Funded Programs Policy” adopted on July 1, 2004; and

**WHEREAS**, Policy Directive 604.0 includes the policy specifications regarding the Disadvantaged Business Enterprise Program and thus, replaces the need for Policy Directive 611.0, “Disadvantaged Business Enterprise Program” adopted on April 15, 2010.

**NOW THEREFORE BE IT RESOLVED**, the Commission herein approves updated Policy Directive 604.00 “Policy on Non-Discrimination.”

**BE IT FURTHER RESOLVED**, the Commission repeals Policy Directive 611.0 “Disadvantaged Business Enterprise Program” as its terms have been consolidated into updated Policy Directive 604.0.

Norman J. Stockinger III                      1-22-14  
Transportation Commission Secretary                      Date



**COLORADO**  
Department of Transportation  
Office of Policy and Government Relations  
2829 W. Howard Place, Suite 562  
Denver, CO 80204

**RELEASE MEMORANDUM**

**TO:** All CDOT Employees  
**FROM:** Michael P. Lewis, Executive Director  
**RE:** New Procedural Directive 604.1 “Title VI Non-Discrimination”  
**DATE:** August 3, 2018

1. Name of New Procedural Directive: “Title VI Non-Discrimination”

2. Rationale for New Directive: This new Procedural Directive 604.1 “Title VI Non-Discrimination” is required by FHWA and explains CDOT’s responsibilities in complying with Title VI for non-discrimination related to CDOT’s activities and programs. Many of the responsibilities outlined in PD 604.1 are for specific programs listed in Appendix A, and those programs have already been complying with everything in the PD.

One of the key requirements in PD 604.1 for all employees is to send complaints of discrimination from external entities to CDOT’s Title VI Coordinator in the Civil Rights & Business Resource Center at CDOT. For help in implementing this PD, questions should also be directed to the Title VI Coordinator.

3. Individuals/Entities/Projects Impacted by Procedural Directive: All employees who work in programs that affect external entities.

4. PD 604.1 will be implemented by: Title VI Coordinator in the Civil Rights & Business Resource Center at CDOT Headquarters.



<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		<input type="checkbox"/> <b>POLICY DIRECTIVE</b>
		<input checked="" type="checkbox"/> <b>PROCEDURAL DIRECTIVE</b>
<b>Subject</b>		<b>Number</b>
<b>Title VI Non-Discrimination</b>		<b>604.1</b>
<b>Effective</b>	<b>Supersedes</b>	<b>Originating Office</b>
8/3/18	New	<b>Civil Rights &amp; Business Resources Center</b>

**I. PURPOSE**

The purpose of this Directive is to ensure the public that interacts with CDOT programs and activities are protected against discrimination under Title VI of the Civil Rights Act of 1964 with regard to race, color, national origin, sex, disability, or age. Additionally, this Directive shall be read in conjunction with Policy Directive 604.0 "Policy on Non-Discrimination" with regard to CDOT's compliance with environmental justice.<sup>1</sup>

**II. AUTHORITY**

Executive Director, pursuant to § 43-1-105, C.R.S.

[Policy Directive 604.0 "Policy on Non-Discrimination"](#)

[CDOT Title VI Implementation Plan](#)

[CDOT Limited English Proficiency \("LEP"\) Plan](#)

See Appendix B for a list of federal authority

**III. DEFINITIONS**

"Limited English Proficiency" or "LEP" means an individual whose primary language is not English, and who has limited ability to read, write, speak, or understand English. See CDOT LEP Plan.

"Reasonable Steps" for purposes of LEP services shall mean ensuring meaningful access to CDOT's programs and activities by LEP persons, which is contingent upon a number of factors. While designed to be a flexible and fact-dependent standard, the starting point is an individualized assessment that balances the four following factors: (1) The number or proportion of LEP persons eligible to be served, or likely to be encountered by the program or grantee; (2) the frequency with which LEP individuals come into contact with the program; (3) the nature and importance of the program activity or service provided by the program to people's lives; and (4) the resources available to the grantee/recipient and cost. "Guidance to Federal Financial Assistance Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons," 67 Fed. Reg. 41455, 41459 (June 18, 2002); See Also CDOT LEP Plan;

<sup>1</sup> Procedural Directive 600.6 "Internal Discrimination Complaint Procedures" sets forth the process to be followed for complaints filed by CDOT employees and applicants.

Subject	Number
Title VI Non-Discrimination	604.1

“Synopsis of DOT Guidance to Recipients on Special Language Service to Limited English Proficient (LEP) Beneficiaries,” at [https://www.fhwa.dot.gov/cadiv/docs/special\\_lang.pdf](https://www.fhwa.dot.gov/cadiv/docs/special_lang.pdf).

**IV. APPLICABILITY**

This Procedural Directive applies to all divisions, regions and offices of CDOT. Where stated, specific requirements apply to the CDOT programs identified in Appendix A.

**V. PROCEDURES**

**A. General Requirements**

1. All CDOT Division Directors shall ensure that all contracts and agreements, solicitations for bids and Requests for Proposals regardless of the funding source include the required nondiscrimination language from the USDOT Standard Title VI/Non-Discrimination Assurances, DOT Order No. 1050.2A. See information on this requirement at Civil Rights & Business Resources Center’s (CRBRC) website at [www.codot.gov/business/civilrights/titlevi](http://www.codot.gov/business/civilrights/titlevi).
2. All CDOT employees whose job responsibilities include publishing notices of meetings to which the public is invited shall:
  - a) Include in all notices the language set forth in the LEP Guidance Document (<https://www.codot.gov/business/civilrights/titlevi>). The meeting notice must include Limited English Proficiency interpretation and translation services if the contact person listed in the meeting notice receives a request for translation or interpretation services, the contact person shall consult with the Title VI Coordinator in the CRBRC.
  - b) For questions on this requirement, contact the Title VI Coordinator in the CRBRC.
3. All program managers, division directors and supervisors in the programs identified in Appendix A shall comply with the Title VI Implementation Plan and the requirements of this Directive.
4. All CDOT employees must cooperate with the Title VI Coordinator in providing any and all requested information.
5. All CDOT employees shall notify the Title VI Coordinator of any potential Title VI related issues (i.e., potential discrimination of members of the public engaging in business with CDOT).
6. All CDOT employees, including Regional Civil Rights Managers, shall notify the Title VI Coordinator within three business days of any written or verbal complaints of discrimination they receive from a member of the public engaging in business with CDOT.

Subject	Number
Title VI Non-Discrimination	604.1

- a) A Title VI complaint is the method whereby a person engaging in business with CDOT may allege discrimination based on race, color, national origin, sex, age or disability.
- b) All Title VI complaints must be forwarded to the Title VI Coordinator.
- c) The Title VI Coordinator shall be responsible for managing the investigation process for discrimination complaints. With the exception of FHWA-related complaints, the Title VI Coordinator shall determine whether CDOT is responsible for conducting the investigation. The Title VI Coordinator shall forward all relevant complaints to FHWA.
- d) If CDOT is specifically designated by the respective federal agency as the appropriate party to conduct the investigation, the respective Regional Civil Rights Manager and the Title VI Coordinator shall collaborate on who should conduct an investigation of the complaint. All investigations shall follow the discrimination complaint procedures, which are available at [www.codot.gov/business/civilrights/titlevi](http://www.codot.gov/business/civilrights/titlevi).
- e) After a complaint investigation is completed all relevant documents related to the complaint investigation shall be submitted to the Title VI Coordinator.
- f) All pertinent CDOT employees shall cooperate with the Title VI Coordinator or Regional Civil Rights Manager in the investigation.
- g) If the complaint is communicated verbally, the person shall be offered the option of completing the complaint form on the CRBRC webpage or they may contact the Title VI Coordinator directly (<https://www.codot.gov/business/civilrights/titlevi>). The form is available in Spanish and other languages upon request.

**B. Title VI Coordinator**

The Title VI Coordinator in the CRBRC or his/her designee shall be the Department’s resource on compliance with Title VI requirements. The Title VI Coordinator shall coordinate efforts with respective federal agencies regarding Title VI complaints. The Title VI Coordinator is responsible for the following:

- 1. Updating public notices and disseminating updated notices to the Regional Civil Rights Managers;
- 2. Tracking all complaints submitted to the respective federal agency to note the date forwarded by the Title VI Coordinator. If CDOT is designated by the federal agency to investigate the complaint, the Title VI Coordinator shall track the date that CDOT was notified as the investigating agency, and the date the investigation was concluded;
- 3. Conducting investigations and processing and maintaining a log of all external discrimination complaints in coordination with Regional Civil Rights Managers and the federal agency;

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4. Conducting program area audits for Title VI compliance in accordance with the CDOT Title VI Program Plan;
5. Reviewing and commenting on Title VI/environmental justice issues in Environmental Impact Statements (EIS) and Environmental Assessment (EA) Finding of No Significant Impact (FONSIs);
6. Recommending appropriate action to program managers or the division director as identified in Appendix A where Title VI issues are involved;
7. Providing Title VI/environmental justice training, information, and technical assistance to CDOT staff and programs;
8. Ensuring that Title VI Liaisons are trained to comply with the requirements for collection of demographic data (i.e. at least race and ethnicity);
9. Serving as a contact on Title VI matters for the U.S. Department of Transportation and its federal funding recipients;
10. Conducting subrecipient oversight to ensure nondiscrimination in the award and administration of funds received from CDOT. To such end, CRBRC may conduct desk audits, site reviews, and/or other investigations to ensure compliance with Title VI;
11. Reviewing new policy/procedural directives to comply with Title VI requirements prior to implementation;
12. Advising CDOT employees on Title VI LEP services;
13. Collecting information on minority representation on decision-making and advisory boards;
14. Meeting semi-annually with all program managers or designee to ensure Title VI compliance is met, including any reporting requirements; and
15. Completing annual program reviews and implementing programmatic changes to fulfill annual goals for Title VI compliance in furtherance of ensuring non-discrimination.

**C. Regional Civil Rights Managers**

Regional Civil Rights Managers are responsible for:

1. Title VI Public Notices. Ensuring that CDOT’s English and Spanish non-discrimination notices apprising the public of the protections against discrimination afforded to them by

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Title VI are posted in their respective Region’s facilities. Additional notices may be requested by contacting CRBRC.

2. Access for LEP persons. In the event a member of the public requests LEP services, the Regional Civil Rights Managers shall be notified and the request shall be directed to the HQ Title VI Liaison (see (V)(D) below).

3. Demographic Data Collection. Working with the Title VI Liaison to ensure that demographic data is provided to the Title VI Coordinator.

4. Title VI Complaints. Please see (V)(A)(6) above.

**D. Title VI Liaisons for CDOT Programs Identified in Appendix A**

Division directors for programs included in Appendix A shall be responsible for the following.

1. Pursuant to Policy Directive 604.0 "Policy on Non-Discrimination," incorporate environmental justice evaluations into their processes by following the Federal Highway Administration Environmental Justice Reference Guide and ensure that their respective programs implement and consider the FHWA-identified environmental justice principles in transportation decision-making. Divisions receiving Federal Transit Administration funding shall incorporate environmental justice principles into their processes by following the Federal Transit Administration's Environmental Justice Policy Guidance for FTA Recipients.

2. Develop and maintain a program-specific language assistance plan in accordance with CDOT’s LEP Plan. The measures described in a language assistance plan must be tailored to the needs of LEP individuals affected or likely to be affected by the particular program area.

3. Assign a liaison responsible for carrying out the Title VI responsibilities. The Title VI Liaison shall:

a) Meet at a minimum on a semi-annual basis with the Title VI Coordinator to provide an update on the program area’s Title VI-related initiatives and progress made toward annual goals.

b) Maintain a record of all translated materials and requests for language assistance, including the language requested and assistance provided, and submit such information to the Title VI Coordinator by September 1 of each year.

c) Work with the Title VI Coordinator to comply with the requirements for collection of demographic data (i.e.at least race and ethnicity) by doing the following:

(i) At every meeting where the specific program is attempting to gather input from impacted citizens and affected communities, ensuring that best efforts are made to collect voluntary demographic data (i.e. at least race and ethnicity) from meeting attendees;

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Title VI Non-Discrimination	604.1

- (ii) Collecting the data using the template Data Collection form (attached as Appendix C) or by some other method as approved by the Title VI Coordinator and the respective federal agency;
- (iii) Analyzing the data to determine whether traditionally underserved populations attended the meeting, provided input, and whether modifications should be made to the program’s public involvement strategy;
- (iv) Providing the demographic data to the Title VI Coordinator to determine whether traditionally underserved populations are participating in the decision making and whether modifications should be made to the specific program’s public involvement strategy;
- (v) Coordinating with the Title VI Coordinator to complete a site or location equity analysis during the planning stage of the CDOT facility/project to ensure the location is selected without regard to race, color or national origin, pursuant to 49 C.F.R. 21.5(b)(3);
- (vi) Engaging in outreach to persons potentially impacted by the siting of the facility/project determined on a project by project basis and in coordination with the Title VI Coordinator; and
- (vii) Complying with the Title VI Coordinator’s requests for information as necessary to complete CDOT’s annual program area reviews, implement programmatic changes to fulfill annual goals, and ensure nondiscrimination in the respective program area. As further described in the Title VI Implementation Plan, each Title VI Liaison shall notify the Title VI Coordinator of any potential Title VI related issues.

**VI. DOCUMENTS REFERENCED IN THIS DIRECTIVE**

- [Policy Directive 604.0 "Policy on Non-Discrimination"](#)
- [CDOT Title VI Implementation Plan](#)
- [CDOT Limited English Proficiency \(“LEP”\) Plan](#)

**VII. IMPLEMENTATION PLAN**

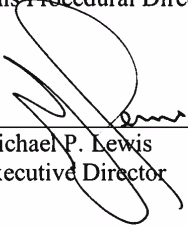
The Office of Policy and Government Relations shall post this Procedural Directive on CDOT’s intranet as well as on public announcements.

Subject Title VI Non-Discrimination	Number 604.1
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The Civil Rights & Business Resources Center shall provide this Procedural Directive to pertinent personnel and ensure the Directive's implementation, including any training on Title VI compliance.

**VIII. REVIEW DATE**

This Procedural Directive shall be reviewed on or before August 2023.

  
\_\_\_\_\_  
Michael P. Lewis  
Executive Director

  
\_\_\_\_\_  
Date of Approval

Subject	Number
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**Appendix A**

The following CDOT divisions or programs must adhere to the requirements of Title VI non-discrimination as set forth in the Title VI Implementation Plan and this Procedural Directive:

- Multimodal Planning Branch, Division of Transportation Development
- Environmental Programs Branch, Division of Transportation Development
- Applied Research and Innovation Branch, Division of Transportation Development
- Safety (which includes Office of Transportation and Safety (OTS) and Transportation Systems Management & Operations (TSM&O))
- Right-of-Way Office, Project Development Branch, Division of Project Support
- Construction (as coordinated by CRBRC staff)

Subject	Number
Title VI Non-Discrimination	604.1

**Appendix B**

**Federal Statutes**

Title VI of the 1964 Civil Rights Act, 42 U.S.C. § 2000d

Age Discrimination Act of 1975, 42 U.S.C. § 6101

Federal Aid Highway Act of 1970, 49 U.S.C. § 306

Federal Aid Highway Act of 1973, 23 U.S.C. § 324

Civil Rights Restoration Act of 1987, Pub. L. No. 100-259, 102 Stat. 28

Title II of the Americans with Disabilities Act of 1990, 42 U.S.C. §§ 12101 – 12213

Rehabilitation Act of 1973 § 504, 29 U.S.C. § 794

Federal Transit Laws, 49 U.S.C. § 5332

**Federal Regulations**

23 C.F.R. §1.36 – Compliance with Federal laws and regulations

23 C.F.R. pt. 200 – Title VI Program and Related Statutes – Implementation and Review Procedures

23 C.F.R. pt. 771 – Environmental Impact and Related Procedures

28 C.F.R. pt. 35 – Nondiscrimination on the Basis of Disability in State and Local Government Services

28 C.F.R. pt. 36 – Nondiscrimination on the Basis of Disability in Public Accommodations and in Commercial Facilities

28 C.F.R. pt. 42, subpart C – Nondiscrimination in Federally Assisted Programs – Implementation of Title VI of the Civil Rights Act of 1964

49 C.F.R. pt. 21 – Nondiscrimination in Federally-Assisted Programs of the Department of Transportation – Effectuation of Title VI of the Civil Rights Act of 1964

49 C.F.R. pt. 26 – Participation By Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs

49 C.F.R. pt. 27 – Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance

Subject	Number
Title VI Non-Discrimination	604.1

49 C.F.R. § 37.5 – Nondiscrimination – Transportation Services for Individuals with Disabilities (ADA)

**Executive Orders**

Exec. Order No. 12898, 59 Fed. Reg. 7629 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Exec. Order No. 13166, 65 Fed. Reg. 50121 – Improving Access to Services for Persons with Limited English Proficiency

**Federal Highway Administration (FHWA)**

“Memorandum: Processing of Title VI Complaints,” from Nichole McWhorter, HCR-20, issued by FHWA, June 13, 2018



**Appendix C**

**TITLE VI PUBLIC INVOLVEMENT SURVEY**

Completing this form is voluntary but encouraged.

You are not required to provide the information requested in order to participate in this meeting. Thank you for your participation.

Title VI of the Civil Rights Act of 1964 requires the Colorado Department of Transportation (CDOT) to provide opportunity for everyone to comment on transportation programs and activities that may affect their community. Title VI specifically states that “No person in the United States shall on the grounds of race, color, or national origin be excluded from participation in, be denied the benefit of, or otherwise be subjected to discrimination under any program, service, or activity receiving federal financial assistance.”

By completing this form you are helping CDOT to comply with Title VI of the Civil Rights Act of 1964 and related statutes, which require the collection of statistical data to aid in assessing CDOT’s outreach efforts among those who are affected or interested in this project. Your participation is voluntary but it helps CDOT ensure that it is inclusive of all members of the community. It will not be used for any other purpose.

Meeting Purpose:		Location of Meeting:				Date:		
<b>Please check all that apply. Check Race/Ethnicity</b>								
	<b>List zip code</b>	<b>Indicate M-Male or F-Female</b>	<b>White</b>	<b>African American</b>	<b>Hispanic/Latino</b>	<b>Native American</b>	<b>2 or more races</b>	<b>Other</b>
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**COLORADO**  
Transportation Commission  
2829 W. Howard Place, Suite 562  
Denver, CO 80204

**RELEASE MEMORANDUM**

To: All CDOT Employees

From: Herman Stockinger / Greg Diehl / Susan Rafferty

Re: Updated Policy Directive 605.0 “Comprehensive Accessibility for Persons with Disabilities”

Date: November 27, 2018

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1. Name of Updated Policy Directive: “Comprehensive Accessibility for Persons with Disabilities”
2. Executive Summary: On November 15, 2018, the Transportation Commission adopted updated Policy Directive 605.0 “Comprehensive Accessibility for Persons with Disabilities.” This PD was last updated in 2012, and states CDOT’s policy to ensure that all new or existing Transportation Facilities, Building Facilities, and other CDOT services are accessible to persons with disabilities. Updated PD 605.0 includes a reference to PD 602.1 “ADA and PWFA Accommodations Procedures” as one of the ways that this policy will be implemented at CDOT, in addition to PD 605.1 “ADA Accessibility Requirements in CDOT Transportation Projects” and the ADA Transition Plan.
3. Office to Contact with Questions: Division of Human Resources, Civil Rights & Business Resource Center
4. Effective Date of Updated Policy Directive: November 15, 2018

<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		<input checked="" type="checkbox"/> <b>POLICY DIRECTIVE</b> <input type="checkbox"/> <b>PROCEDURAL DIRECTIVE</b>
Subject		Number
<b>Comprehensive Accessibility for Persons with Disabilities</b>		<b>605.0</b>
Effective	Supersedes	Originating Office
<b>11/15/18</b>	<b>07/03/2012</b>	<b>Civil Rights and Business Resource Center</b>

**I. PURPOSE**

To ensure that all new or existing Transportation Facilities, Building Facilities and all other services of the Colorado Department of Transportation (“CDOT” or “Department”) are accessible to persons with disabilities in accordance with the authorities set forth herein and any other state or federal laws and regulations.

**II. AUTHORITY**

Colorado Transportation Commission, § 43-1-106(8)(a), C.R.S.

The Americans with Disabilities Act of 1990, Title II, 42 U.S.C. § 12101, *et seq.*, (1990) (“ADA”)

The Rehabilitation Act of 1973, 29 U.S.C. § 701 (1973)

The Civil Rights Restoration Act of 1987, 42 U.S.C. § 2000d-4a, § 6101, *et seq.* (1987), as amended

28 C.F.R. pt. 35

49 C.F.R pt. 27, Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance

FHWA Memorandum, “Clarification of FHWA’s Oversight Role in Accessibility,” dated September 12, 2006 ([http://www.fhwa.dot.gov/civilrights/memo/ada\\_memo\\_clarificationa.htm](http://www.fhwa.dot.gov/civilrights/memo/ada_memo_clarificationa.htm))

Note: Capitalized terms in this Policy are defined in Procedural Directive 605.1 “ADA Accessibility Requirements in CDOT Transportation Projects.”

**III. APPLICABILITY**

This Policy applies to all divisions, branches, regions and offices of the Colorado Department of Transportation (“CDOT” or “Department”) and any entity that receives funding from CDOT for all Transportation Projects, Transportation Facilities, Building Facilities, other services, and all local agency Transportation Projects that interface with Colorado state highways regardless of the funding source.

**IV. POLICY**

It is the Policy of the Colorado Department of Transportation to ensure that all new or existing Transportation Projects, Transportation Facilities, Building Facilities and all other services of the Department are accessible to persons with disabilities in accordance with the authorities set forth herein

Subject	Number
<b>Comprehensive Accessibility for Persons with Disabilities</b>	<b>605.0</b>


and any other state or federal laws and regulations. This Policy shall be implemented through Procedural Directive 602.1 “ADA and PWFA Accommodation Procedures,” CDOT’s ADA Transition Plan, Procedural Directive 605.1 “ADA Accessibility Requirements in CDOT Transportation Projects,” through the ADA Title II Complaint Procedure, and any other methods that CDOT determines may be necessary.

**V. IMPLEMENTATION PLAN**

1. This Policy shall be effective immediately upon approval by the Commission.
2. The Civil Rights and Business Resource Center and Division of Human Resources shall ensure that impacted internal and external customers are aware of this Policy Directive within thirty (30) days of the effective date.
3. The Office of Policy and Government Relations shall post the Policy Directive on Public Announcements and on the CDOT Intranet within one (1) week of the effective date.

**VI. REVIEW DATE**

This Policy Directive shall be reviewed within five years of the effective date.

  
\_\_\_\_\_  
Herman Stockinger, III  
Transportation Commission Secretary

11-15-18  
Date

**Resolution # TC-2018-11-07**

Approval of Updated Policy Directive 605.0 "Comprehensive Accessibility for Persons with Disabilities"

**Approved by the Transportation Commission on November 15, 2018.**

**WHEREAS**, § 43-1-106 (8)(a) C.R.S. gives authority to the Transportation Commission of Colorado ("Commission") to formulate general policy with respect to the management, construction, and maintenance of public highways and other transportation systems in the state; and

**WHEREAS**, the Commission adopted Policy Directive 605.0 "Comprehensive Accessibility for Persons with Disabilities" on July 3, 2012; and

**WHEREAS**, Policy Directive 605.0 states that it is the policy of the Colorado Department of Transportation ("Department") to ensure that all new or existing Transportation Facilities, Building Facilities, and other Department services are accessible to persons with disabilities; and

**WHEREAS**, Policy Directive 605.0 is implemented by Procedural Directive 605.1 "ADA Accessibility Requirements in CDOT Transportation Projects," the CDOT ADA Transition Plan, and Procedural Directive 602.1 "ADA and PWFA Accommodations Procedures"; and

**WHEREAS**, Procedural Directive 605.1 has been updated, and the programs that implement Procedural Directive 602.1 and 605.1 have significantly improved since 2012 when Policy Directive 605.0 was last adopted; and

**WHEREAS**, Policy Directive 605.0 has been updated to include reference to Procedural Directive 602.1 "ADA and PWFA Accommodations Procedures" which was recently updated; and

**WHEREAS**, updated Policy Directive 605.0 has been revised with updated information regarding implementation of the policy.

**NOW THEREFORE BE IT RESOLVED**, the Commission herein approves updated Policy Directive 605.0 "Comprehensive Accessibility for Persons with Disabilities."

  
\_\_\_\_\_  
Herman Stockinger, Secretary  
Transportation Commission of Colorado

11-15-18  
Date



**COLORADO**  
Department of Transportation  
Office of the Executive Director  
4201 East Arkansas Ave, Suite 262  
Denver, CO 80222

RELEASE MEMORANDUM

To: All CDOT Employees

From: Shailen P. Bhatt, Executive Director

Re: Updated Procedural Directive 605.1 “ADA Accessibility Requirements in CDOT Transportation Projects”

Date: April 10, 2017  
**Updated on August 3, 2018: Form #464 references have been deleted from the PD since the form is no longer used for curb ramps**

1. Name of Updated Procedural Directive: PD 605.1 “ADA Accessibility Requirements in CDOT Transportation Projects”
2. Date of Directive Superseded: July 30, 2012
3. Executive Summary: PD 605.1 has been updated to reflect CDOT’s decision to adopt PROWAG (Proposed Right-of-Way Accessibility Guidelines) standards for curb ramps. Detailed requirements for ADA accessibility requirements have been removed and now reside in the updated CDOT ADA Transition Plan, which should be read in conjunction with updated PD 605.1. Updated PD 605.1 also provides the following:
  - An explanation on the difference between Maintenance Treatments and Alteration;
  - The responsibilities of various levels of employees involved in the ADA program, including newly defined responsibilities of the Project Manager, Project Engineer, Resident Engineer, and Program Engineer;
  - Updates to the section on local agency agreement projects; and
  - That with regard to Maintenance Treatment Projects, the Maintenance Superintendents or Traffic Engineers shall consult with the ADA Coordinator in the Civil Rights and Business Resource Center to determine whether a Project that could be categorized as an Alteration is included in the 5 year (FY 2017-2022) ADA Curb Ramp Program initiative.
4. Effective Date: March 31, 2017
5. Office to Contact with Questions: Civil Rights and Business Resource Center



<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		<input type="checkbox"/> <b>POLICY DIRECTIVE</b> <input checked="" type="checkbox"/> <b>PROCEDURAL DIRECTIVE</b>
<b>Subject</b>		<b>Number</b>
<b>ADA Accessibility Requirements in CDOT Transportation Projects</b>		<b>605.1</b>
<b>Effective</b>	<b>Supersedes</b>	<b>Originating Office</b>
<b>03/31/2017</b>	<b>07/30/2012</b>	<b>Civil Rights and Business Resource Center/ Division of Project Support, Standards &amp; Specifications Unit</b>

**I. PURPOSE**

To ensure that Transportation Facilities, Building Facilities, rest areas, and other services of the Colorado Department of Transportation (the “Department” or “CDOT”) are accessible to persons with disabilities in accordance with governing federal regulations set forth below.

**II. AUTHORITY**

Policy Directive 605.0 Comprehensive Accessibility for Persons with Disabilities

Executive Director pursuant to § 43-1-105, C.R.S.

The Rehabilitation Act of 1973, 29 U.S.C. §701 (1973), as amended

The Americans with Disabilities Act of 1990, Title II, 42 U.S.C. § 12101, *et seq.* (1990) (hereinafter “ADA”), as amended; 28 CFR 35 Subpart B

Public Rights-of-Way Accessibility Guidelines (hereinafter “PROWAG”), proposed by the U.S. Access Board (available online at <https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way>)

49 C.F.R. 27 (Nondiscrimination on the Basis of Disability in Programs and Activities Receiving or Benefitting From Federal Financial Assistance)

FHWA’s Memorandum Clarification of FHWA’s Oversight Role in Accessibility dated September 12, 2006

§ 43-2-135, C.R.S.

§ 43-2-107, C.R.S.

**III. APPLICABILITY**

This Procedural Directive applies to all divisions, branches, regions and offices of CDOT and any entity that receives funding from CDOT for all Transportation Facilities, Building Facilities, other services, and all local agency projects that intersect with Colorado State Highways and interstates regardless of the funding source.

Subject	Number
<b>ADA Accessibility Requirements in CDOT Transportation Projects</b>	<b>605.1</b>

**IV. DEFINITIONS**

“Accessibility Feature” shall mean the ADA-compliant features available in the CDOT M & S Standard Plans. The Project Manager must select the most appropriate plan design for the specific location of the Transportation Project from these options.

“Alteration” for the purpose of this Procedural Directive is a change that affects or could affect the usability of all or part of a building or a facility. Alterations of streets, roads, or highways include activities such as reconstruction, rehabilitation, resurfacing, widening, and projects of similar scale and effort. *See Appendix A and B (FHWA Technical Assistance Memorandum).*

“Building Facility” shall mean any building which a member of the public may be expected to enter.

“FHWA” shall mean the Federal Highway Administration.

“Maintenance Treatment” for the purpose of this Procedural Directive means a treatment that serves solely to seal and protect the road surface, improve friction, and control splash and spray because they do not significantly affect the public’s access to or usability of the road. Some examples of the types of treatments that would normally be considered maintenance are: painting or striping lanes, crack filling and sealing, surface sealing, chip seals, slurry seals, fog seals, scrub sealing, joint crack seals, joint repairs, dowel bar retro fit, spot high-friction treatments, diamond grinding, and pavement patching. In some cases, the combination of several maintenance treatments occurring at or near the same time may qualify as an alteration and would trigger the obligation to provide curb ramps. *See Appendix A and B (FHWA Technical Assistance Memorandum).*

“Off System” shall mean any intersection that is not on a state highway or does not intersect with a state highway.

“On System” shall mean any intersection that is on or intersects with a state highway or interstate.

“Technically Infeasible” shall mean when constructing a new Transportation Facility or altering an existing Transportation Facility, CDOT or a local agency shall consider what Accessibility Features must be included within the scope of the project. Whether an Accessibility Feature is Technically Infeasible depends on if there is little likelihood of it being accomplished because existing structural conditions would require removing or altering a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces, or features that are in full and strict compliance with the minimum requirements. If a determination has been made that an Accessibility Feature is Technically Infeasible, then CDOT or the local agency is required to construct the Accessibility Feature to the maximum extent practicable. The Project Manager, Project Engineer, Resident Engineer, and Program Engineer shall follow the procedure set forth in Section V of this Procedural Directive regarding the Curb Ramp Variance Support Document.

“Transportation Facility” shall mean, but may not be limited to, a highway or other roadway, contiguous or detached walkway, shared use pedestrian/bicycle path, sidewalk, curb ramp, street, underpass, overpass, compacted pathway or other enhancement project.

Subject	Number
<b>ADA Accessibility Requirements in CDOT Transportation Projects</b>	<b>605.1</b>

“Transportation Project” or “Project” shall mean, but is not limited to, any CDOT or local agency project involving a highway or other roadway, contiguous or detached walkway, shared use pedestrian/bicycle path, sidewalk, curb ramp, street, underpass, overpass, compacted pathway or other enhancement project.

**V. PROCEDURES**

**A. Adoption of Public Rights-of-Way Accessibility Guidelines (“PROWAG”)**

CDOT has determined to adopt PROWAG standards regarding curb ramps, proposed by the U.S. Access Board.

**B. ADA Transition Plan**

This Procedural Directive shall be read in conjunction with the CDOT ADA Transition Plan, which contains further requirements for compliance with ADA standards.

**C. Alteration versus Maintenance Treatment on a Transportation Facility**

ADA requires state and local governments to provide accessible routes in the public right-of-way. When streets, roadways, or highways are altered, state and local governments must provide curb ramps or street level pedestrian walkways cross curbs. Maintenance Treatments that are considered to be maintenance rather than an Alteration are exempt from the requirement to install curb ramps. See definitions above for Alteration and Maintenance Treatment, and also Appendix A for clarification on addressing curb ramps.

**D. New Construction of or Alteration to a Building Facility or Portion Thereof**

Any entity that receives funding from CDOT for any new construction or alteration to a Building Facility (i.e., a local agency, a private non-profit corporation, or a private contractor) must include Accessibility Features required by the authorities set forth herein. When applying these requirements, the engineer or other responsible person shall follow the applicable CDOT guidance.

**E. Disproportionality**

The disproportionality exception set forth in 28 C.F.R. 35.151(b)(4)(iii)(A) does not apply to Transportation Projects. This section states that “alterations made to provide an accessible path of travel to the altered area will be deemed disproportionate to the overall alteration when the cost exceeds twenty percent of the cost of the alteration to the primary function area.” However, the disproportionality exception applies to Building Facilities.

**F. Right-of-Way Acquisition**

Right-of-Way acquisition in general does not qualify as Technically Infeasible, as defined in this Procedural Directive. Right-of-Way shall be purchased if needed to make a ramp compliant. Case-

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ADA Accessibility Requirements in CDOT Transportation Projects	605.1

by-case situations may be escalated to the Region Transportation Director who may consult with the Civil Rights and Business Resource Center for clarification and/or assistance.

**G. Right-of-Way, Utility and Access Permits**

All right-of-way, access and utility permits shall be issued on the condition that the Permittee complies with the requirements of this Procedural Directive 605.1 and the applicable authorities set forth therein.

**H. Responsibilities**

**1. CDOT Civil Rights and Business Resources Center (“CRBRC”).** The CRBRC shall be responsible for the following:

- a) In conjunction with the Federal Highway Administration (FHWA), Federal Transit Authority, and Federal Aviation Administration, interpreting the relevant federal ADA regulations for inclusion of requirements within the design and construction of CDOT Transportation Projects and Building Facilities.
- b) Upon request of a CDOT Project Manager or Project Engineer, reviewing project sites and project plans to identify where specific ADA requirements must be implemented.
- c) In conjunction with the Division of Project Support, coordinating ADA-related training for CDOT engineers and other appropriate staff, including appropriate written materials.
- d) As needed, reviewing design exceptions with the Project Manager, Project Engineer, and Resident Engineer.
- e) Making random evaluations of project designs, projects under construction, and/or completed projects.
- f) Developing and overseeing the process for data collection and management related to the ADA requirements set forth in this Procedural Directive and the CDOT ADA Transition Plan.

**2. Division of Project Support.** The Division of Project Support shall be responsible for the following:

- a) Developing and disseminating the current version of the CDOT M & S Standard Plans and bulletins that serve as guidance for CDOT engineers and other appropriate staff.
- b) As needed, reviewing design exceptions with the Project Manager, Project Engineer, and Resident Engineer.
- c) Working with the CRBRC in developing and presenting ADA-related training for

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ADA Accessibility Requirements in CDOT Transportation Projects	605.1

CDOT engineers and other appropriate staff.

**3. Project Manager (Design) / Project Engineer (Construction).** The Project Manager / Project Engineer shall be responsible for the following:

- a) Evaluating each project through the project development and project scoping processes to determine which Accessibility Features are required, and adhering to the budget set forth by the Resident Engineer and Program Engineer.
- b) Incorporating ADA requirements into the design and construction of Transportation Projects, referring to CDOT plan details contained in the current version of the CDOT M & S Standard Plans, or by contacting the CDOT ADA Coordinator for guidance in situations where there is uncertainty of requirements.
- c) Preparing the Curb Ramp Variance Support Document for situations where curb ramps or other Accessibility Features cannot be installed without a significant deviation from the current CDOT M & S Standard Plans.
- d) Reviewing the Curb Ramp Variance Support Document with the Resident Engineer to seek approval from the Program Engineer.
- e) Providing documentation to the project file and to CRBRC that demonstrates compliance with all authorities set forth herein.
- f) Monitoring that the local agency completes the specified project(s) in accordance with this Procedural Directive and the authority set forth herein.
- g) Confirming that the design complies with all requirements of this Procedural Directive and the authorities cited herein.
- h) Submitting the signed Curb Ramp Variance Support Document to the CRBRC.

**4. Resident Engineer.** The Resident Engineer shall be responsible for the following:

- a) Determining the appropriate budget for required Accessibility Features by evaluating each project through the project development and project scoping processes.
- b) Providing guidance and consultation to the Project Manager or Project Engineer related to the Curb Ramp Variance Support Document to request approval from the Program Engineer.
- c) Confirming that the design complies with all requirements of this Procedural Directive and the authorities cited herein.
- d) Ensuring the local agency completes the specified project(s) in accordance with this Procedural Directive and the authority set forth herein, and not accepting the project at

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<b>ADA Accessibility Requirements in CDOT Transportation Projects</b>	<b>605.1</b>

final project inspection until all such requirements have been met.

**5. Program Engineer.** The Program Engineer shall be responsible for the following:

- a) Approving or denying the Curb Ramp Variance Support Document, including the budget associated with the Accessibility Feature.
- b) Confirming that the design complies with all requirements of this Procedural Directive and the authorities cited herein.

**6. Maintenance Treatment Projects.** With regard to Maintenance Treatment Projects, the Maintenance Superintendents or Traffic Engineers shall consult with the ADA Coordinator to determine whether a Project that could be categorized as an Alteration is included in the 5 year (FY 2017-2022) ADA Curb Ramp Program initiative.

**7. Local Agency Agreement Projects.** CDOT personnel who work on local agency agreement projects shall ensure the local agencies comply with these requirements below.

- a) For new construction, reconstruction, major rehabilitation, widening, and projects of similar scale and effect, including Safe Routes to School Program projects, projects in public parks, or projects that are not adjacent to a state highway, or other Transportation Projects which impact pedestrian facilities, the local agency must address Accessibility Features required by the authorities set forth herein.
- b) Under the provision of 28 CFR § 35.130(b)(1)(v), CDOT is prohibited from providing significant assistance to any local agency that does not fulfill the requirements of Title II of the ADA.
- c) In practice, FHWA interprets 28 CFR § 35.130(b) as a requirement that CDOT obtain an assurance of compliance from the local agency stating that the local agency will meet all applicable ADA requirements. CDOT shall enforce the local agency’s assurance of compliance.
- d) The agreement between CDOT and any local agency regarding the Transportation Project shall contain language clearly stating that the local agency shall comply with all applicable ADA requirements referenced in this Procedural Directive 605.1 and the CDOT ADA Transition Plan.
- e) Appropriate CDOT staff on each project will ensure that the local agency designs the project(s) specified in the agreement according to the requirements of Procedural Directive 605.1 and the authority set forth therein.
- f) In the course of completing Accessibility Features, the local agency will evaluate the areas adjacent to the newly-installed or retrofitted curb ramp and take reasonable steps to relocate signs or other obstacles when it is within the local agency’s authority to do so.

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<b>ADA Accessibility Requirements in CDOT Transportation Projects</b>	<b>605.1</b>

g) Local Agencies must meet or exceed PROWAG design and construction standards for curb ramps. If the Transportation Facility is Off System, CDOT may permit the local agency to utilize its own alternative specifications regarding curb ramps, detectible warning, and other accessibility designs provided it complies with either the PROWAG guidelines or the most current Americans with Disabilities Act Accessibility Guidelines (ADAAG). If the Transportation Facility is On System, the local agency must utilize CDOT’s specifications for the intersection or intersections On System; however, the Local Agency may be granted the opportunity to utilize alternate specifications if it can demonstrate that the Department of Justice concurs with the Local Agency’s alternate specifications, and CDOT approves the suitability of the alternate specifications. In order to seek approval, the Local Agency must comply with the following:

- (1) Submit the alternate specification proposal concurrently to the CDOT Project Manager, Project Engineer, the Civil Rights and Business Resources Center, and Standards and Specifications Unit.
- (2) Include documentation establishing why the local agency cannot meet the specific ADA requirement.
- (3) Seek approval from the CDOT Project Manager, Project Engineer, the Civil Rights and Business Resource Center, and the Standards and Specifications Unit who shall jointly accept or deny the alternate specifications or may provide alternative options to meet the requirements of the applicable federal regulations and this Procedural Directive 605.1 to the maximum extent technically feasible.

h) CDOT shall not disburse final payment to the Local Agency until the Local Agency has complied with the requirements of this Procedural Directive with regard to the completion of a Transportation Project.

**VI. FISCAL IMPACT**

- A. CDOT will fund and complete required Accessibility Features using funds allotted to the project.
- B. In the circumstance where a specific Transportation Project requires the purchase of right-of-way, an additional fiscal impact may result. Regardless of the fiscal impact, under current federal regulations, the right-of-way required to meet the requirements of this Procedural Directive must be acquired.

**VII. DOCUMENTS REFERENCED**

Curb Ramp Variance Support Document (available on the CRBRC website)

Subject	Number
ADA Accessibility Requirements in CDOT Transportation Projects	605.1

Public Rights-of-Way Accessibility Guidelines (“PROWAG”), available online at <https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way>

Department of Justice/Department of Transportation Joint Technical Assistance on the Title II of the Americans with Disabilities Act Requirements to Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing (2013) (“FHWA Technical Assistance Memorandum”), attached hereto as Appendix B.

Glossary of Terms for DOJ/FHWA Joint Technical Assistance on the ADA Title II Requirements to Provide Curb Ramps When Streets Roads or Highways are Altered Through Resurfacing (2013), attached hereto as Appendix C.

CDOT ADA Transition Plan, available online at:  
<https://www.codot.gov/business/civilrights/accessibility/ada>

**VIII. IMPLEMENTATION PLAN**

- A. This Procedural Directive shall become effective upon signature by the Executive Director.
- B. The Office of Policy and Government Relations shall post this Procedural Directive on CDOT’s internal website as well as on the CDOT Public Announcements.
- C. This Procedural Directive shall be implemented by the Civil Rights and Business Resources Center and the Division of Project Support, with the assistance of the Standards & Specifications Unit.
- D. The Civil Rights and Business Resources Center and the Division of Project Support, Standards & Specifications Unit, shall ensure within thirty (30) days that all CDOT divisions, branches, regions, and offices are aware of this Procedural Directive.

**IX. REVIEW DATE**

This Procedural Directive will be reviewed on or before February 2022.

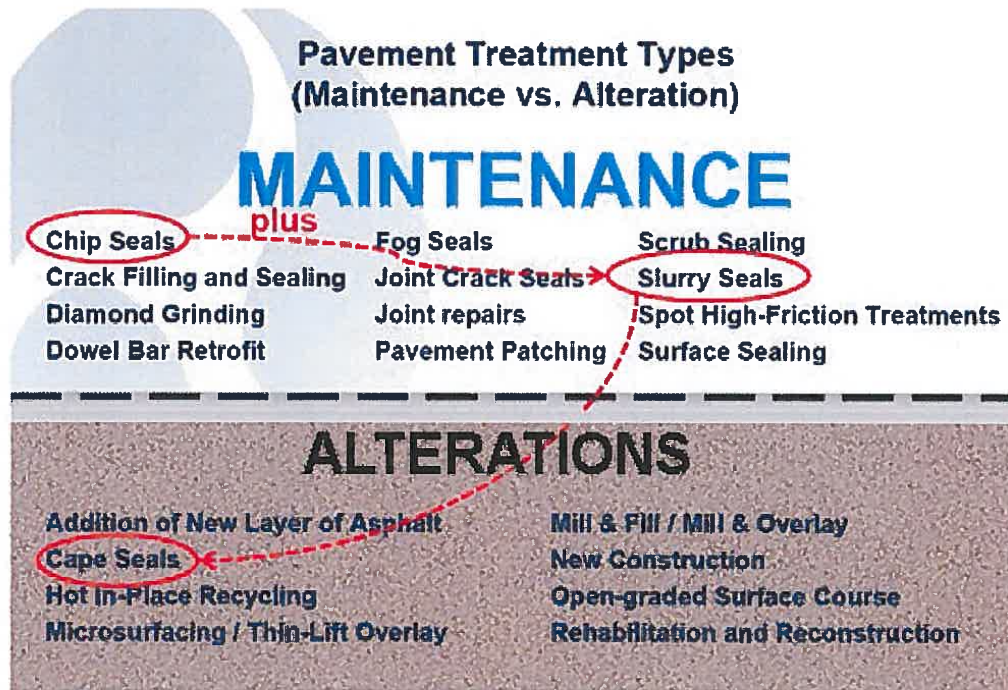
  
\_\_\_\_\_  
Shailen P. Bhatt  
Executive Director

3/31/17  
\_\_\_\_\_  
Date of Approval

Subject	Number
ADA Accessibility Requirements in CDOT Transportation Projects	605.1

Appendix A

[Obtained from FHWA]



Appendix B

U.S. Department of Transportation  
**Federal Highway Administration**  
1200 New Jersey Avenue, SE  
Washington, DC 20590  
202-366-4000

**Civil Rights**

**Civil Rights**



U.S. Department of Justice  
Civil Rights Division  
*Disability Rights Section*



U.S. Department of Transportation  
**Federal Highway Administration**

**Department of Justice/Department of Transportation Joint Technical Assistance<sup>1</sup> on the Title II of the Americans with Disabilities Act Requirements to Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing**

Title II of the Americans with Disabilities Act (ADA) requires that state and local governments ensure that persons with disabilities have access to the pedestrian routes in the public right of way. An important part of this requirement is the obligation whenever streets, roadways, or highways are *altered* to provide curb ramps where street level pedestrian walkways cross curbs.<sup>2</sup> This requirement is intended to ensure the accessibility and usability of the pedestrian walkway for persons with disabilities.

An alteration is a change that affects or could affect the usability of all or part of a building or facility.<sup>3</sup> Alterations of streets, roads, or highways include activities such as reconstruction, rehabilitation, *resurfacing*, widening, and projects of similar scale and effect.<sup>4</sup> Maintenance activities on streets, roads, or highways, such as filling potholes, are not alterations.

Without curb ramps, sidewalk travel in urban areas can be dangerous, difficult, or even impossible for people who use wheelchairs, scooters, and other mobility devices. Curb ramps allow people with mobility disabilities to gain access to the sidewalks and to pass through center islands in streets. Otherwise, these individuals are forced to travel in streets and roadways and are put in danger or are prevented from reaching their destination; some people with disabilities may simply choose not to take this risk and will not venture out of their homes or communities.

Because resurfacing of streets constitutes an alteration under the ADA, it triggers the obligation to provide curb ramps where pedestrian walkways intersect the resurfaced streets. See *Kinney v. Yerusalem*, 9 F 3d 1067 (3rd Cir. 1993). This obligation has been discussed in a variety of technical assistance materials published by the Department of Justice beginning in 1994.<sup>5</sup> Over the past few years, state and local governments have sought further guidance on the scope of the alterations requirement with respect to the provision of curb ramps when streets, roads or highways are being resurfaced. These questions have arisen largely due to the development of a variety of road surface treatments other than traditional road resurfacing, which generally involved the addition of a new layer of asphalt. Public entities have asked the Department of Transportation and the Department of Justice to clarify whether particular road surface treatments fall within the ADA definition of alterations, or

whether they should be considered maintenance that would not trigger the obligation to provide curb ramps. This Joint Technical Assistance addresses some of those questions.

#### **Where must curb ramps be provided?**

Generally, curb ramps are needed wherever a sidewalk or other pedestrian walkway crosses a curb. Curb ramps must be located to ensure a person with a mobility disability can travel from a sidewalk on one side of the street, over or through any curbs or traffic islands, to the sidewalk on the other side of the street. However, the ADA does not require installation of ramps or curb ramps in the absence of a pedestrian walkway with a prepared surface for pedestrian use. Nor are curb ramps required in the absence of a curb, elevation, or other barrier between the street and the walkway.

#### **When is resurfacing considered to be an alteration?**

Resurfacing is an alteration that triggers the requirement to add curb ramps if it involves work on a street or roadway spanning from one intersection to another, and includes overlays of additional material to the road surface, with or without milling. Examples include, but are not limited to the following treatments or their equivalents: addition of a new layer of asphalt, reconstruction, concrete pavement rehabilitation and reconstruction, open-graded surface course, micro-surfacing and thin lift overlays, cape seals, and in-place asphalt recycling.

#### **What kinds of treatments constitute maintenance rather than an alteration?**

Treatments that serve solely to seal and protect the road surface, improve friction, and control splash and spray are considered to be maintenance because they do not significantly affect the public's access to or usability of the road. Some examples of the types of treatments that would normally be considered maintenance are: painting or striping lanes, crack filling and sealing, surface sealing, chip seals, slurry seals, fog seals, scrub sealing, joint crack seals, joint repairs, dowel bar retrofit, spot high-friction treatments, diamond grinding, and pavement patching. In some cases, the combination of several maintenance treatments occurring at or near the same time may qualify as an alteration and would trigger the obligation to provide curb ramps.

#### **What if a locality is not resurfacing an entire block, but is resurfacing a crosswalk by itself?**

Crosswalks constitute distinct elements of the right-of-way intended to facilitate pedestrian traffic. Regardless of whether there is curb-to-curb resurfacing of the street or roadway in general, resurfacing of a crosswalk also requires the provision of curb ramps at that crosswalk.

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<sup>1</sup> The Department of Justice is the federal agency with responsibility for issuing regulations implementing the requirements of title II of the ADA and for coordinating federal agency compliance activities with respect to those requirements. Title II applies to the programs and activities of state and local governmental entities. The Department of Justice and the Department of Transportation share responsibility for enforcing the requirements of title II of the ADA with respect to the public right of way, including streets, roads, and highways.

<sup>2</sup> See 28 CFR 35.151(i)(1) (Newly constructed or altered streets, roads, and highways must contain curb ramps or other sloped areas at any intersection having curbs or other barriers to entry from a street level pedestrian walkway) and 35.151(i)(2) (Newly constructed or altered street level pedestrian walkways must contain curb ramps or other sloped areas at intersections to streets, roads, or highways).

<sup>3</sup> 28 CFR 35.151(b)(1).

<sup>4</sup> 2010 ADA Accessibility Standards, section 106.5.

<sup>5</sup> See 1994 Title II Technical Assistance Manual Supplement, Title II TA Guidance: The ADA and City Governments: Common Problems; and ADA Best Practices Tool Kit for State and Local Governments: Chapter 6, Curb Ramps and Pedestrian Crossings under Title II of the ADA, available at [ada.gov](http://ada.gov).

Page last modified on June 28, 2013.

## Appendix C

U.S. Department of Transportation

### Federal Highway Administration

1200 New Jersey Avenue, SE  
Washington, DC 20590  
202-366-4000

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## Civil Rights

## Civil Rights

### Glossary of Terms for DOJ/FHWA Joint Technical Assistance on the ADA Title II Requirements to Provide Curb Ramps When Streets Roads or Highways are Altered Through Resurfacing

This glossary is intended to help readers understand certain road treatments referenced on page 2 of the DOJ/FHWA Joint Technical Assistance on the ADA Title II Requirements to Provide Curb Ramps When Streets Roads or Highways are Altered Through Resurfacing. The definitions explain the meaning of these terms from an engineering perspective and are provided in the order in which they appear in the Technical Assistance document.

#### Treatments that are considered alterations of the road surface

**Reconstruction** – Reconstruction refers to removing all or a significant portion of the pavement material and replacing it with new or recycled materials. This may include full-depth reclamation, where the pavement surface is demolished in place and new pavement surface is applied. In addition, reconstruction may also include grinding up a portion of the pavement surface, recycling it and placing it back, and then adding a wearing surface, such as in cold in-place asphalt recycling. Reconstruction often includes widening or geometrical changes to the roadway profile.

**Rehabilitation** – Rehabilitation refers to significant repairs made to a road or highway surface, including activities such as full slab replacement, filling voids under slabs (slabjacking), widening, and adding additional structural capacity.

**Open-graded surface course** – Open-graded surface course, also known as “open-graded friction course,” involves a pavement surface course that consists of a high-void, asphalt concrete mix that permits rapid drainage of rainwater through the course and off the shoulder of the road. The mixture consists of either Polymer-modified or rubber-modified asphalt binder, a large percentage of one-sized coarse aggregate, and a small amount of fibers. This treatment prevents tires from hydroplaning and provides a skid-resistant pavement surface with significant noise reduction.

**Microsurfacing** – Microsurfacing involves spreading a properly proportioned mixture of polymer modified asphalt emulsion, mineral aggregate, mineral filler, water, and other additives, on a paved surface. Microsurfacing differs from slurry seal in that it can be used on high volume roadways to correct wheel path rutting and provide a skid resistant pavement surface.

**Thin lift overlays** – Thin lift overlays are thin applications of mixtures of hot mix asphalt. Thin lift overlays may also require some milling along curbs, manholes, existing curb cuts, or other road structures to assure proper drainage and cross slopes.

**Cape seal** – A cape seal is a thin surface treatment constructed by applying a slurry seal or microsurfacing to a newly constructed chip seal. It is designed to be an integrated system where the primary purpose of the slurry is to fill voids in the chip seal.

**In-place asphalt recycling** – In-place asphalt recycling is a process of heating and removing around 1-2 inches of existing asphalt and remixing the asphalt with the addition of a binder additive and possible aggregate to restore the wearing surface for placement and compaction. All of this is performed in a train of equipment.

**Treatments that are considered maintenance of the road surface**

**Crack filling and sealing** – Crack filling and sealing involves placing elastomeric material directly into cracks in pavement.

**Surface sealing** – Surface sealing involves applying liquid sealant to pavement surface in order to stop water penetration and/or reduce oxidation of asphalt products. Sand is sometimes spread over liquid to absorb excess material.

**Chip seals** – Chip Seals involve placing graded stone (chips) on liquid emulsified asphalt sprayed on pavement surface. The surface is rolled to enable seating of chips.

**Slurry seal** – Slurry seals involve spraying a mixture of slow setting emulsified asphalt, well graded fine aggregate, mineral filler, and water on the pavement surface. It is used to fill cracks and seal areas of old pavements, to restore a uniform surface texture, to seal the surface to prevent moisture and air intrusion into the pavement, and to improve skid resistance.

**Fog seals** – Fog seals are a type of surface sealing.

**Scrub sealing** – Scrub sealing is type of surface sealing

**Joint crack seals** – Joint crack seals are usually associated with concrete pavement. This work consists of routing and cleaning existing cracks and joints and resealing to prevent water and non-compressibles from entering into the pavement joints and subgrade materials.

**Joint repairs** – Joint repairs are usually associated with concrete pavement. This work consists of selectively repairing portions of the pavement where the slabs are generally in good condition, but corners or joints are broken. The depth of the patch could be full depth or partial depth.

**Dowel retrofit** – Dowel retrofits are usually associated with concrete pavement. This work involves the installation of dowel bars connecting slabs in existing pavements. Pavement with dowel bar retrofits can have life extensions of as much as 20 years. Its application is almost exclusively on high-speed Interstate highways.

**Spot high-friction treatments** – Spot high-friction treatments involve using epoxy based resin liquids as a binder for an aggregate with high-friction properties. These are used in locations where drivers are frequently braking and the pavement surface has less resistance to slipping.

**Diamond grinding** – Diamond grinding involves using a gang saw to cut grooves in the pavement surface to restore smoothness and eliminate any joint faulting.

**Pavement patching** – Pavement patching involves selectively repairing portions of the pavement where the slabs are generally in good condition, but corners or joints are broken. The depth of the patch could be full depth or partial depth.

Page last modified on February 3, 2013.

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A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.





