DESIGNING IN CONTEXT OF COMPLETE STREETS

DESIGN

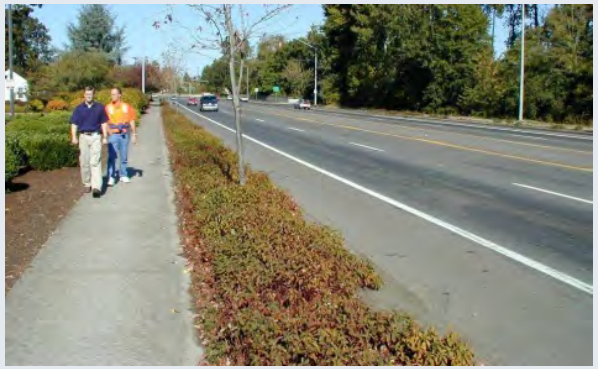
Module 3

Design for Non-motorized Modes Along the Road

WALKING ALONG THE ROAD

Shoulders and Sidewalks

- Walking along the road accounts for 10-15% of fatal pedestrian crashes:
  - Fewer in urban areas
  - More in rural areas
- They're easily preventable



- Paved shoulders reduce pedestrian crashes by 70% (CRF)
  - CMF = 0.3
    - Gan et al. study
- Sidewalks reduce pedestrian crashes by 88% (CRF)
  - CMF=0.12
    - McMahon Study

WALKING ALONG THE ROAD

Shoulders enhance safety for all users

For motorists: room to avoid crashes

WALKING ALONG THE ROAD

Shoulders enhance safety for all users

For bicyclists: a place to ride

WALKING ALONG THE ROAD

Shoulders enhance safety for all users

For pedestrians: a place to walk

CMF = 0.3 (CRF = 70%)

Walking Along the Road: Canyonville OR

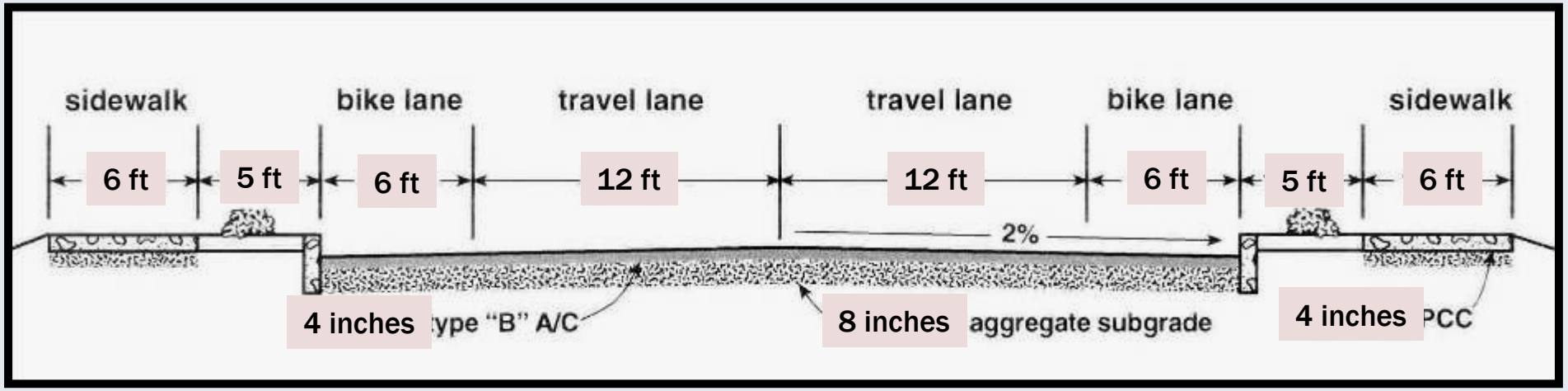
At a certain point, sidewalks are needed.

Walking Along the Road: Manitou Springs CO

“Goat trail” indicates sidewalks are needed

Quote from 2011 AASHTO Green Book 4.17.1 Sidewalks

The 2011 AASHTO "Green Book" states: "Sidewalks are an integral parts of city streets"



Sidewalks are not added to streets, they are <u>part of the street</u>

Walking Along the Road: Bellevue WA

Sidewalks reduce pedestrian crash risk by 88%.

WALKING ALONG THE ROAD

Curbs & sidewalks slow traffic more than speed limit signs.

Sidewalks define an urban street.

WALKING ALONG THE ROAD

Discussion:

Why are sidewalks discontinuous?

WALKING ALONG THE ROAD

Discussion:

Why are sidewalks on one side not okay?

Brawley CA

Answer: Pedestrians walk in street, or cross twice

WALKING ALONG THE ROAD

Sample implementation strategy to retrofit existing streets with sidewalks.

Develop a program to fill in missing sidewalks over 20 years

WALKING ALONG THE ROAD

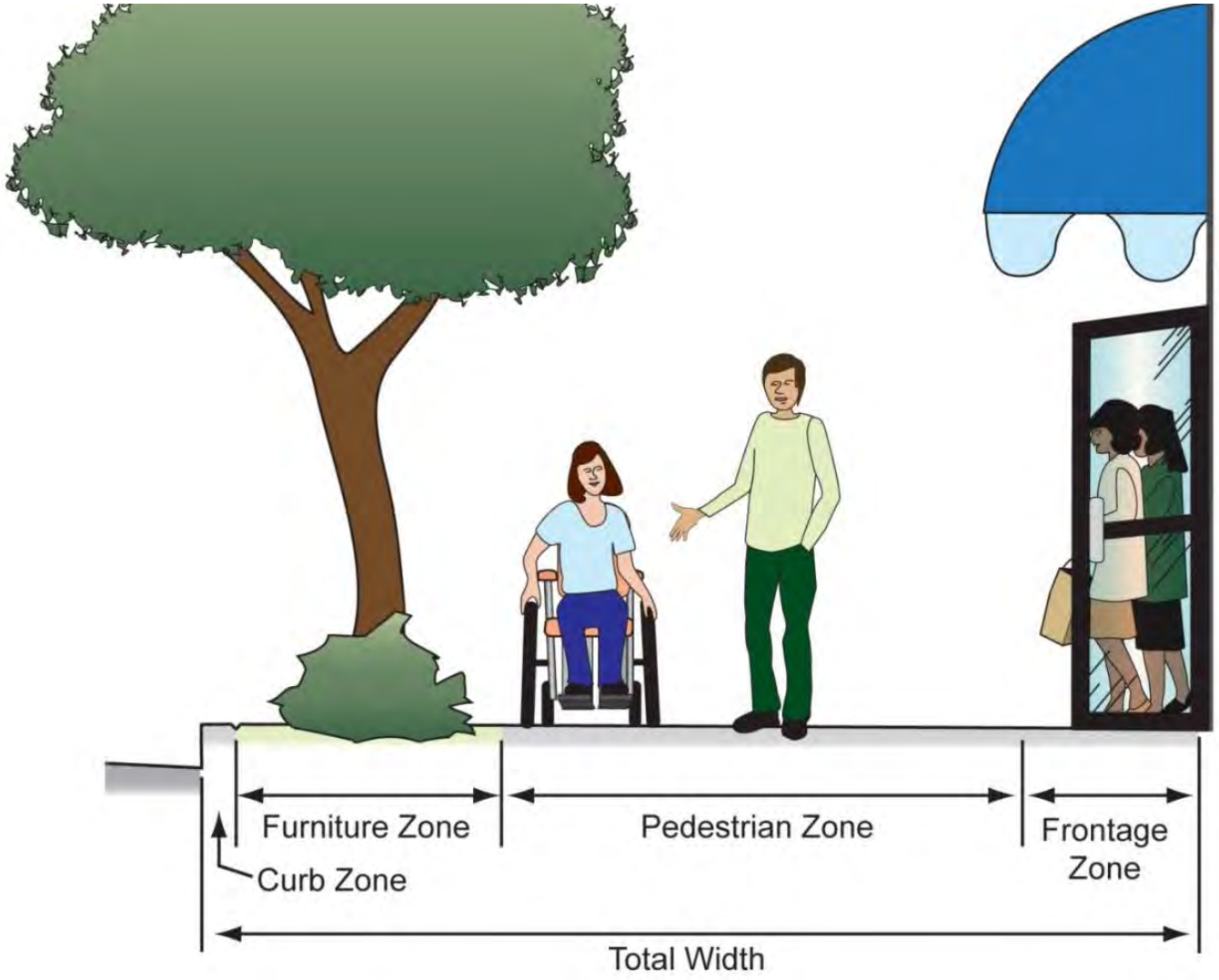
Duck, NC

No barrier between pedestrians and traffic, but a painted buffer is provided.

SIDEWALK - ZONE SYSTEM DESIGN

The sidewalk corridor extends from the edge of roadway to the right-of-way and is divided into 4 zones:

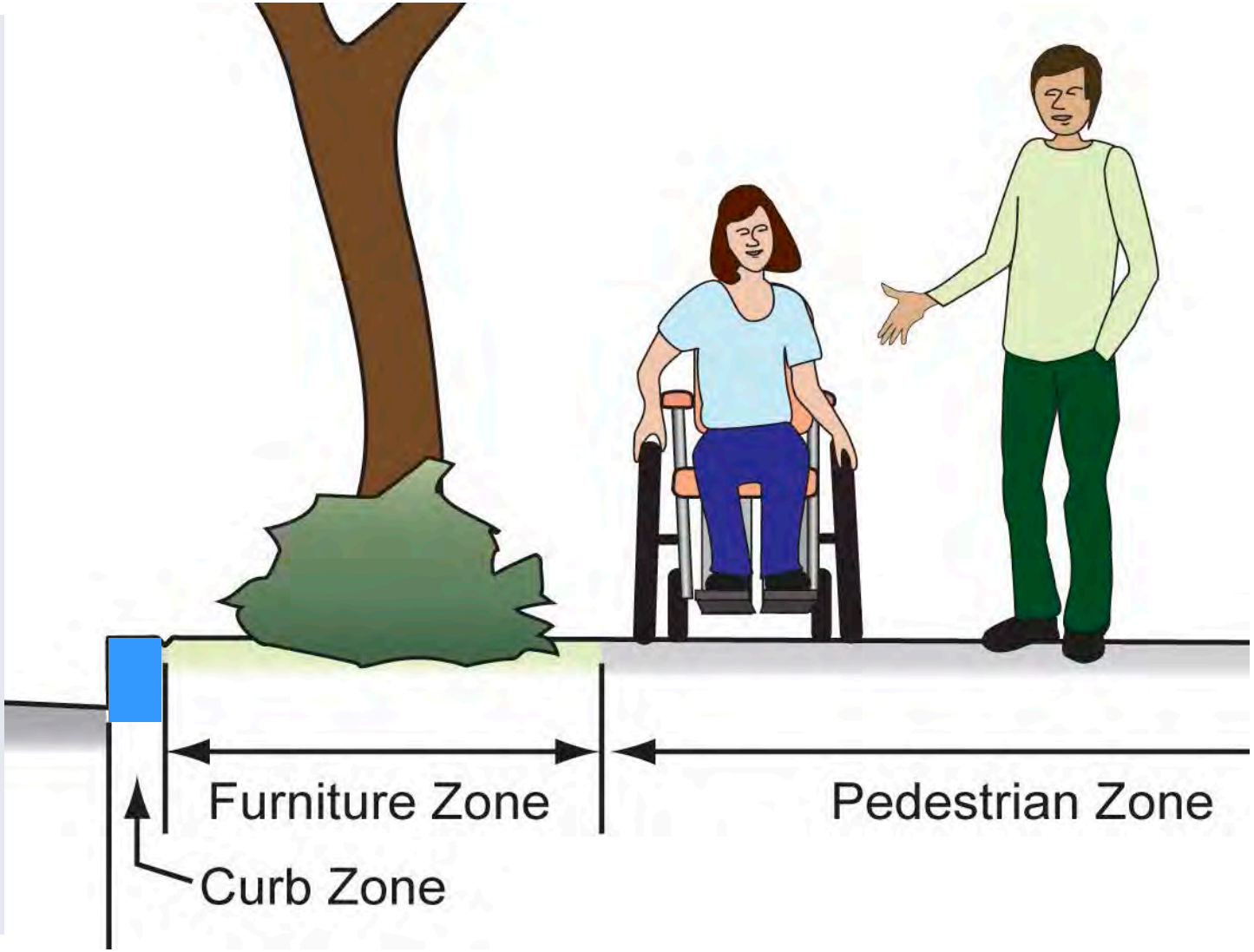
- Curb zone
- Furniture zone
- Pedestrian zone
- Frontage zone



SIDEWALK - ZONE SYSTEM DESIGN

Curb Zone

Typically 6 inches

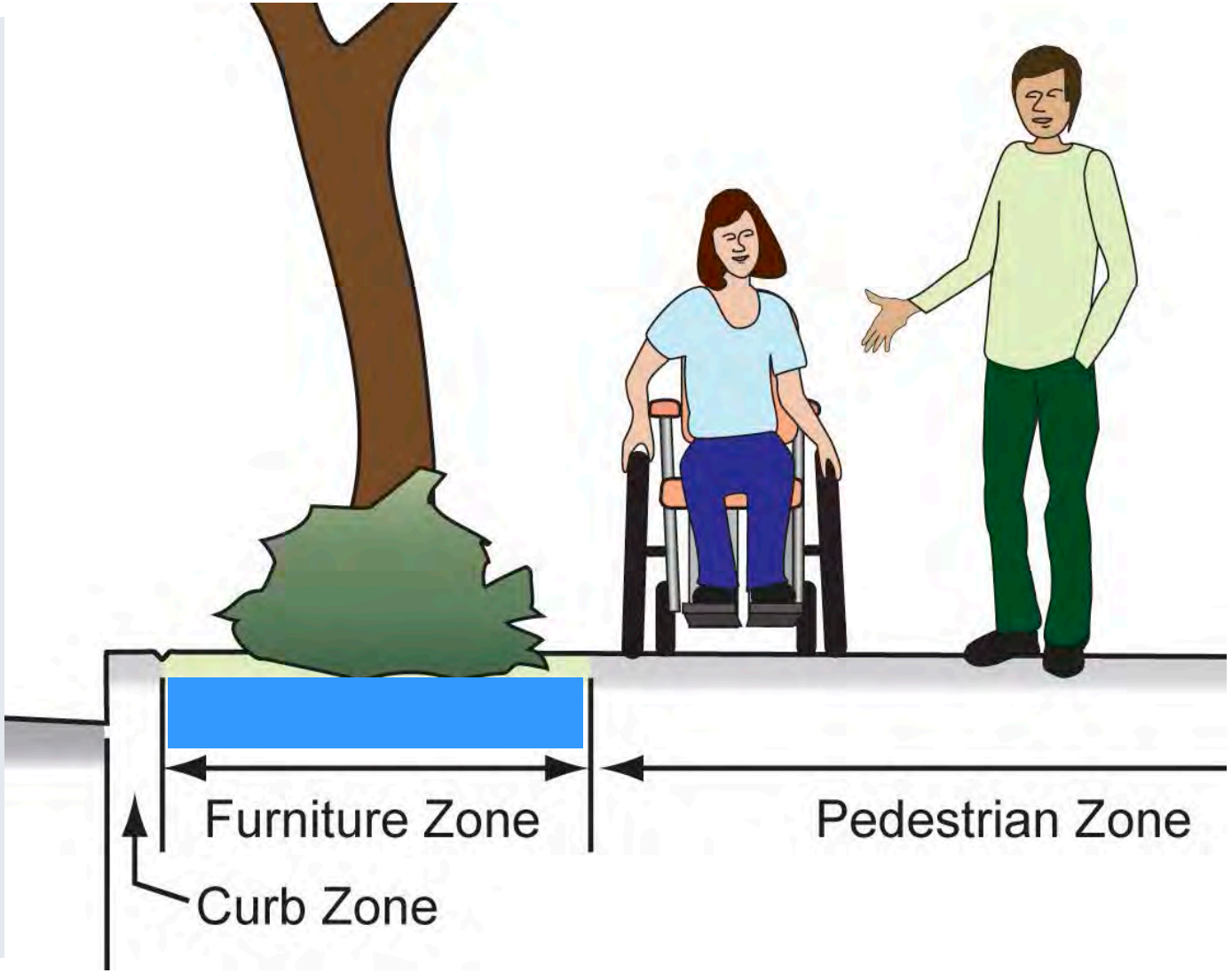


Why the curb zone matters: Sloping mountable curbs are inappropriate on local streets.

SIDEWALK - ZONE SYSTEM DESIGN

Furniture Zone

- Local or collector streets 2 to 4 ft
- Arterial or major streets 4 to 6 ft



Sidewalk Zone System Design: Jacksonville OR

The furniture zone keeps the sidewalk clear.

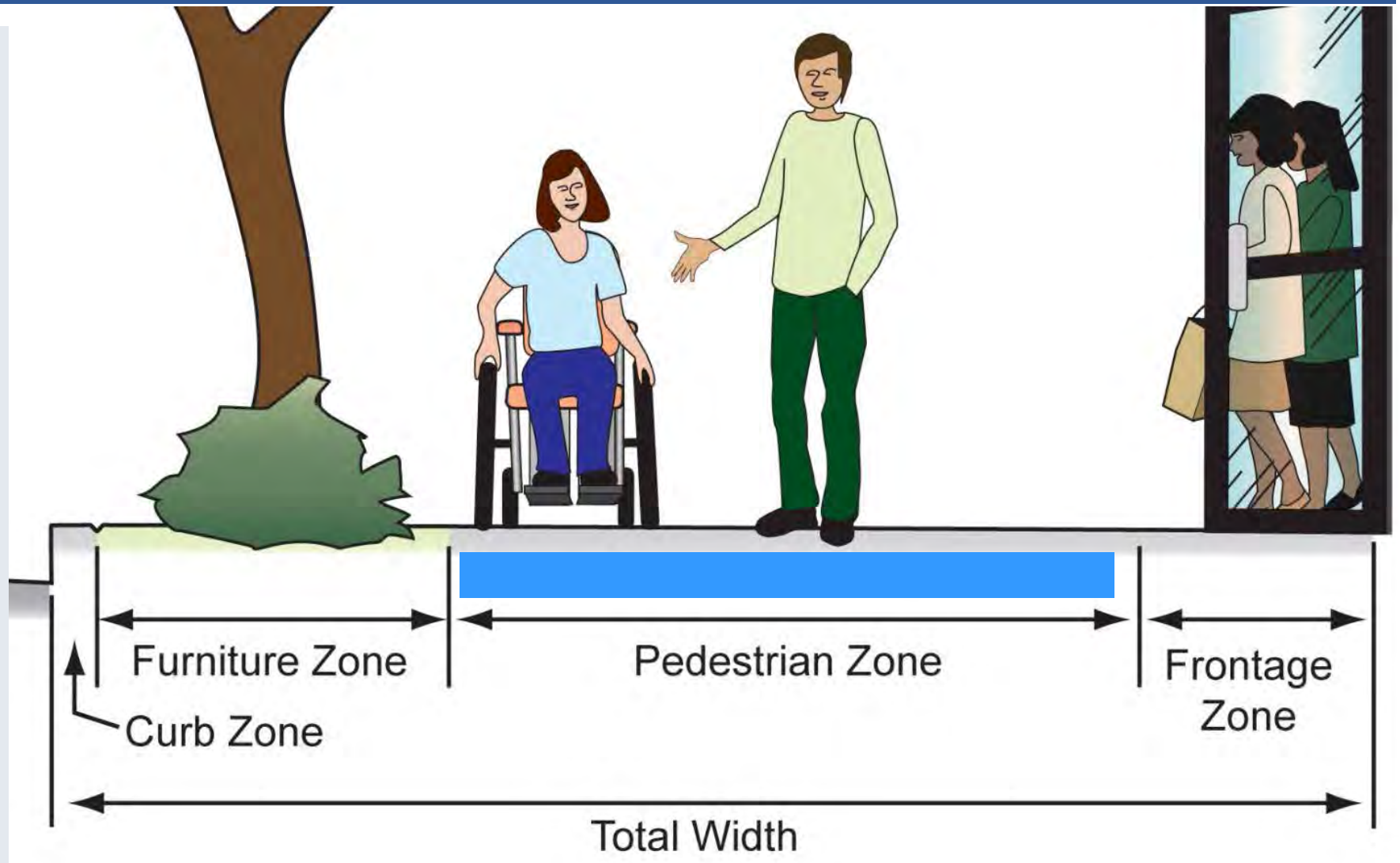
Sidewalk with furniture zone is pleasant to walk on.

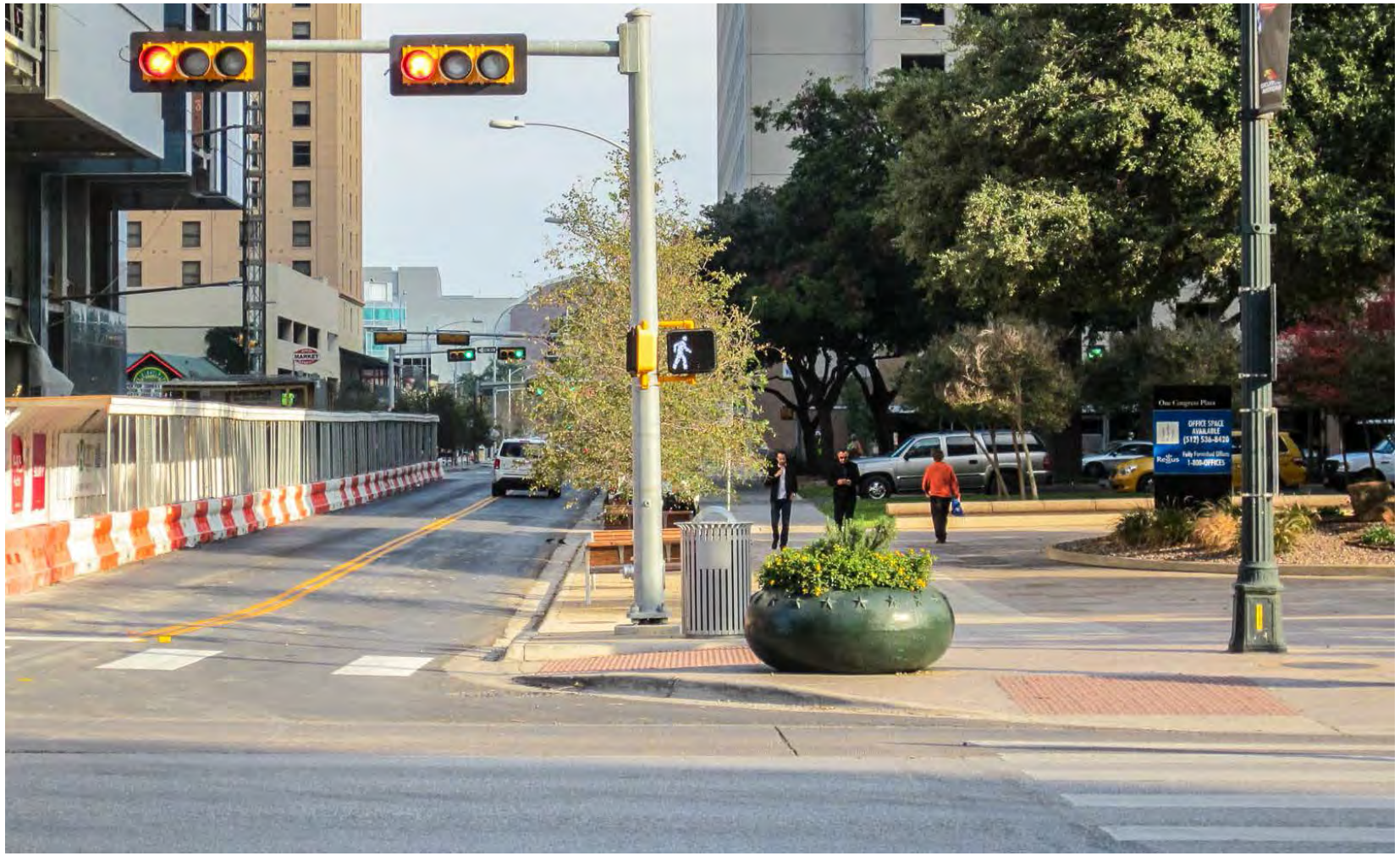
Pedestrian Zone System Design: Corvallis OR

Planter strip helps define driveways, it's easier for drivers to find them and they're more likely to yield to pedestrians.

SIDEWALK - ZONE SYSTEM DESIGN

Pedestrian Zone





Pedestrian Zone System Design: Austin, TX

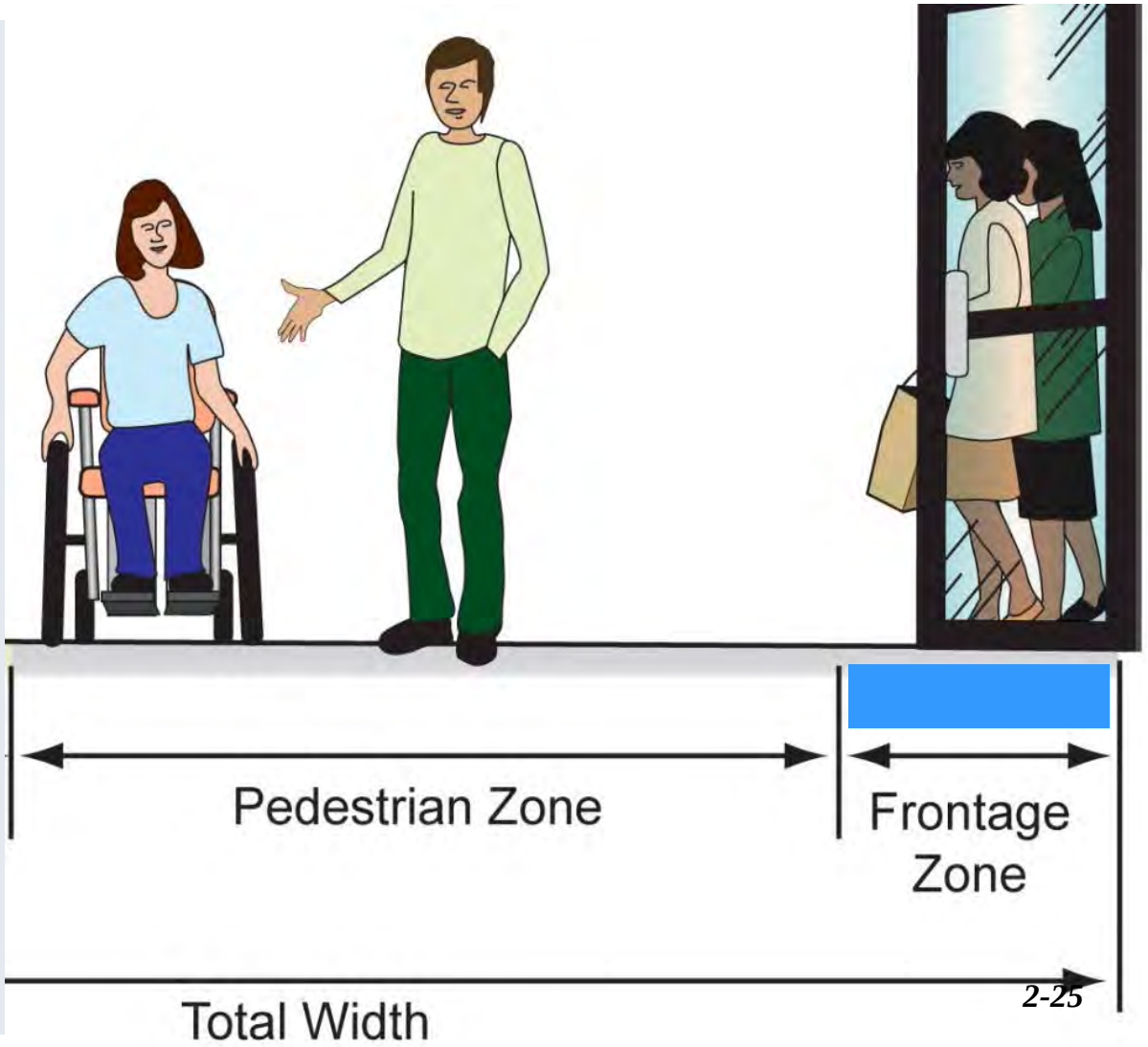
Sidewalk should be as wide as needed to serve anticipated pedestrian use (use HCM ped LOS).

Randomly placed street furniture clutters sidewalk.

SIDEWALK - ZONE SYSTEM DESIGN

Frontage Zone

- Doors, planters, etc…
  - 3 feet
- Café seating
  - 8 feet



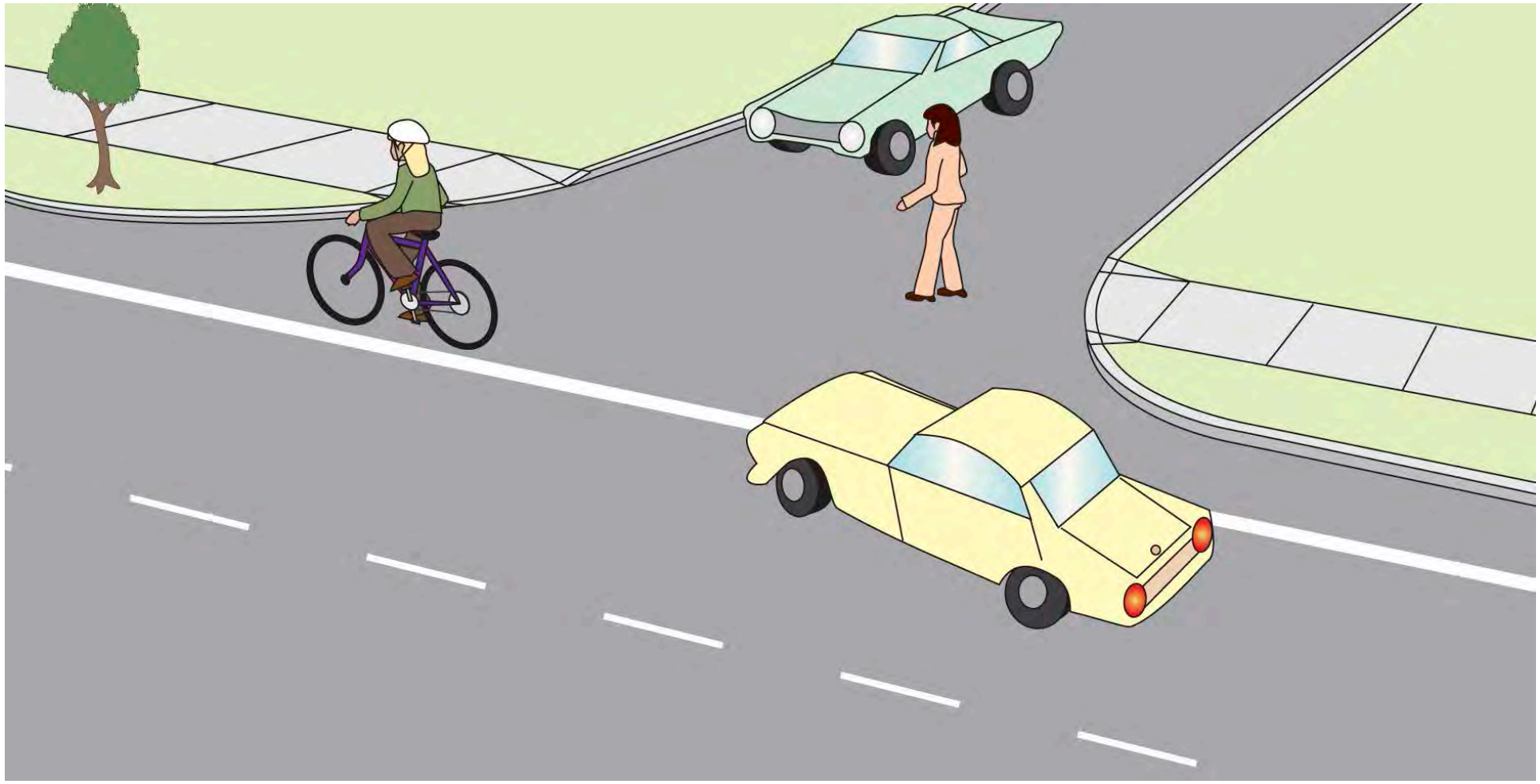
An interesting facade makes narrow sidewalks feel wider.

Fence placement and type impacts pedestrian comfort: the sidewalk on the left is wider, but feels narrow due to high and adjacent chain link fence.

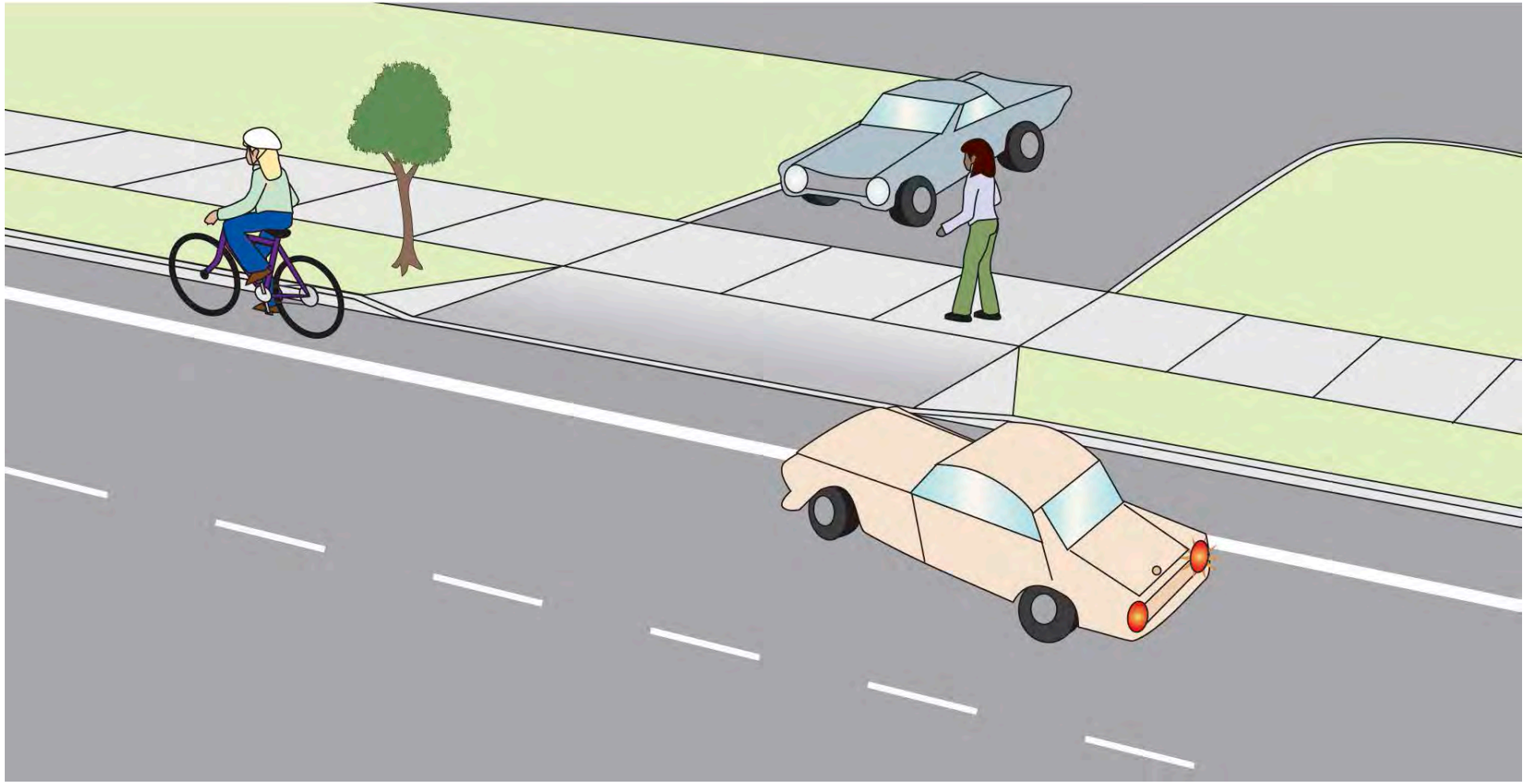
Take into account “shy distance”

DRIVEWAYS

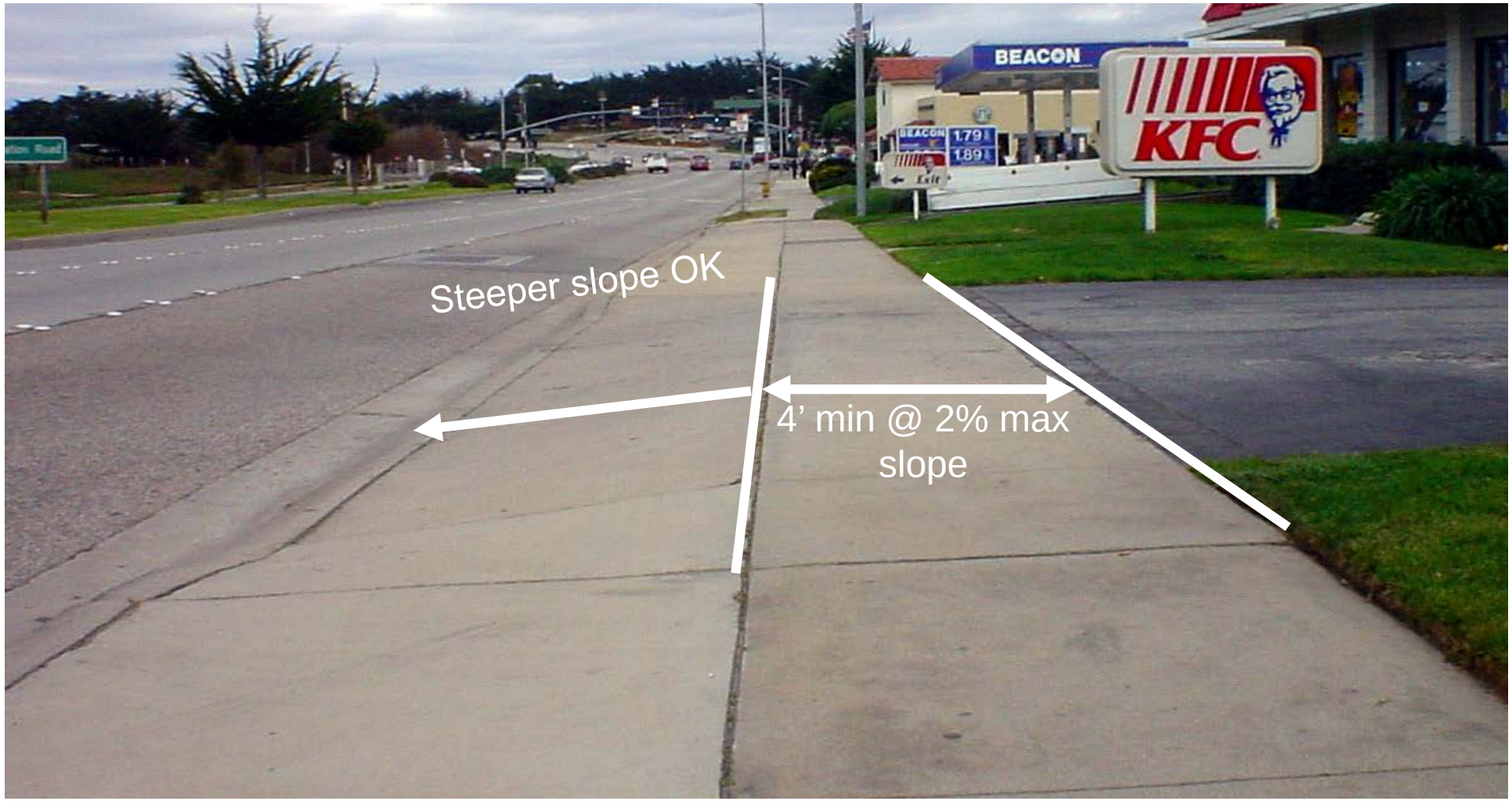
Driveways are the source of most conflicts with motor vehicles on sidewalks



Driveways built like intersections encourage high-speed turns.



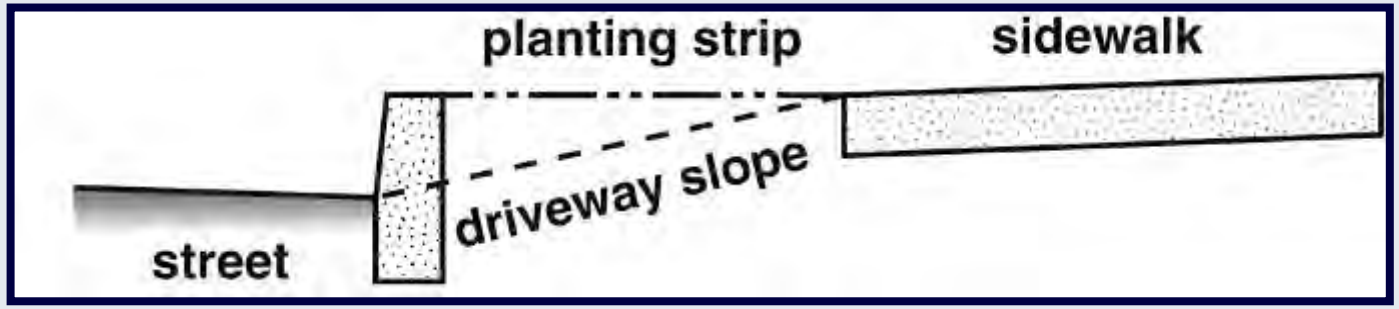
Driveways built like driveways encourage slow-speed turns.

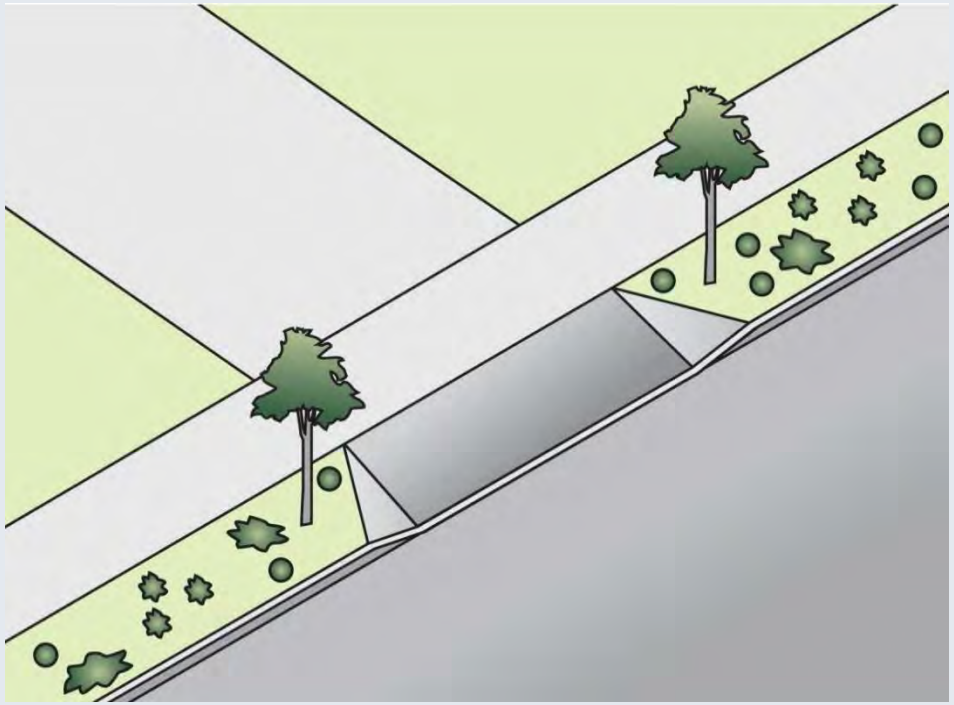


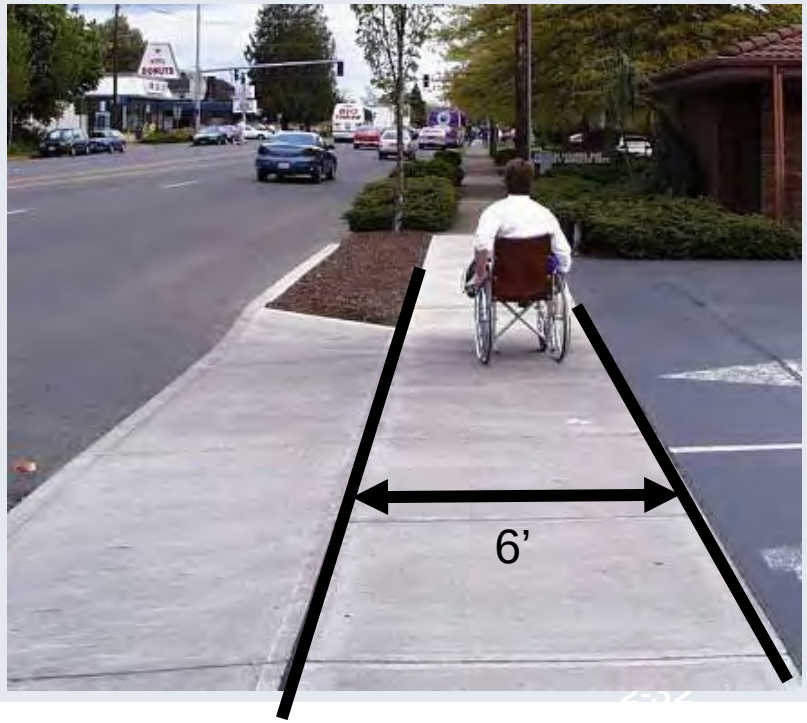
ADA requirements for driveways: minimum pedestrian access route of 3’ (soon to be 4’) at 2% max cross-slope.

DRIVEWAYS

Easier to maintain level access with separated sidewalks





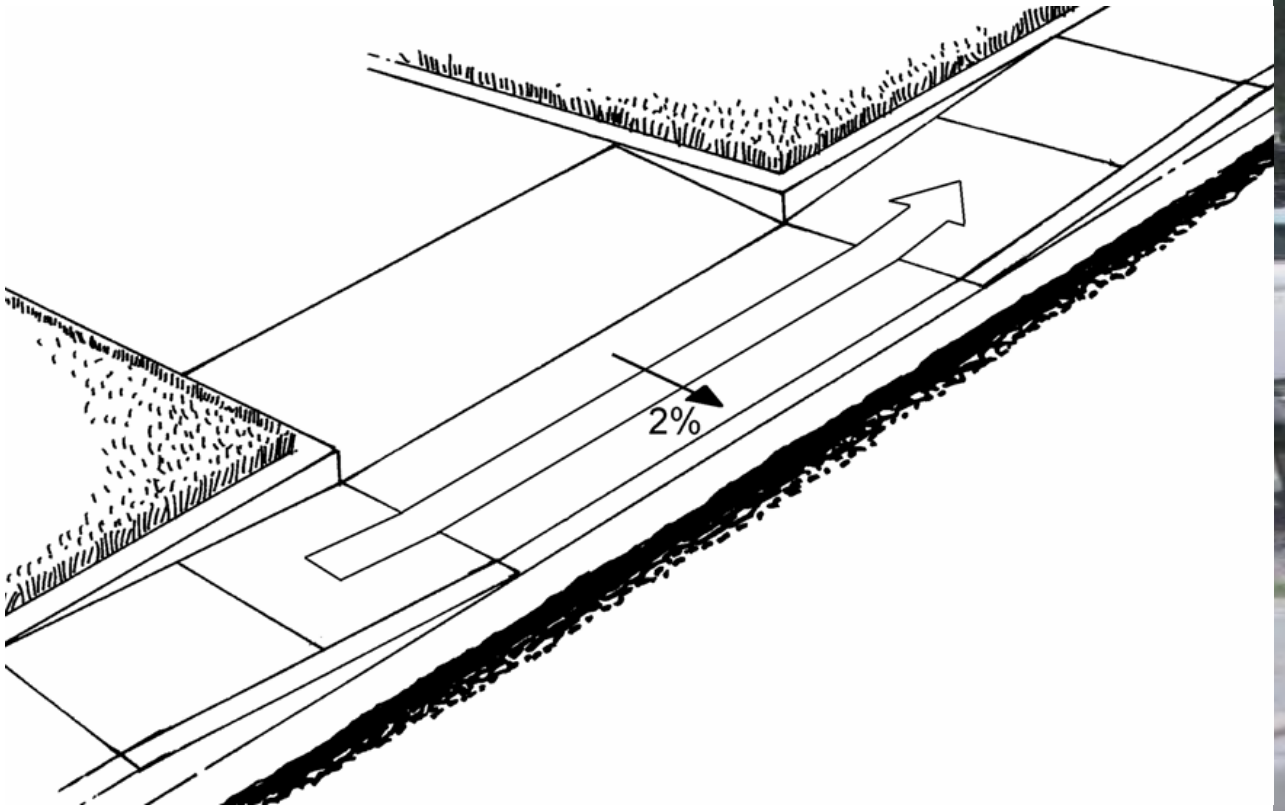


DRIVEWAYS

Driveway Rollercoaster

Most common reason given by wheelchair users using the street

- Driveways are not flat



For narrow curbside sidewalks

Fully lowered sidewalk

WALKING ALONG THE ROAD – LET'S RECAP

1. Sidewalk Design: The zone system

   What are the 4 zones?

   1. The curb zone
   2. The furniture/planter/buffer zone
   3. The pedestrian/walking zone
   4. The frontage zone

WALKING ALONG THE ROAD – LET'S RECAP

2. Sidewalk Design: Key characteristics

How should the walking zone be designed?

- Smooth
- Separated from traffic
- Clear of obstructions
- Level cross-slope (max 2%)
- Wide enough to accommodate expected pedestrian volumes