DESIGNING IN CONTEXT OF COMPLETE STREETS
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%)

6’ width preferred
At a certain point, sidewalks are needed
“Goat trail” indicates sidewalks are needed
The 2011 AASHTO “Green Book” states: “Sidewalks are an integral parts of city streets”

Sidewalks are not added to streets, they are part of the street.
Sidewalks reduce pedestrian crash risk by 88%
Curbs & sidewalks slow traffic more than speed limit signs.

Sidewalks define an urban street
Discussion:
Why are sidewalks discontinuous?
Discussion:
Why are sidewalks on one side not okay?

Answer: Pedestrians walk in street, or cross twice
Sample implementation strategy to retrofit existing streets with sidewalks.

Develop a program to fill in missing sidewalks over 20 years
WALKING ALONG THE ROAD

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

Typically 6 inches
Why the curb zone matters: Sloping mountable curbs are inappropriate on local streets
Furniture Zone
- Local or collector streets 2 to 4 ft
- Arterial or major streets 4 to 6 ft
The furniture zone keeps the sidewalk clear
Sidewalk with furniture zone is pleasant to walk on
Planter strip helps define driveways, it’s easier for drivers to find them and they’re more likely to yield to pedestrians
Pedestrian Zone

<table>
<thead>
<tr>
<th>Furniture Zone</th>
<th>Pedestrian Zone</th>
<th>Frontage Zone</th>
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<tbody>
<tr>
<td>Curb Zone</td>
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Total Width
Sidewalk should be as wide as needed to serve anticipated pedestrian use (use HCM ped LOS)
Randomly placed street furniture clutters sidewalk
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 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
Most common reason given by wheelchair users using the street: Driveways are not flat.
For narrow curbside sidewalks
Fully lowered sidewalk
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
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