



TRANSIT

Module 9

Learning Outcomes

2

At the end of this module, you will be able to:

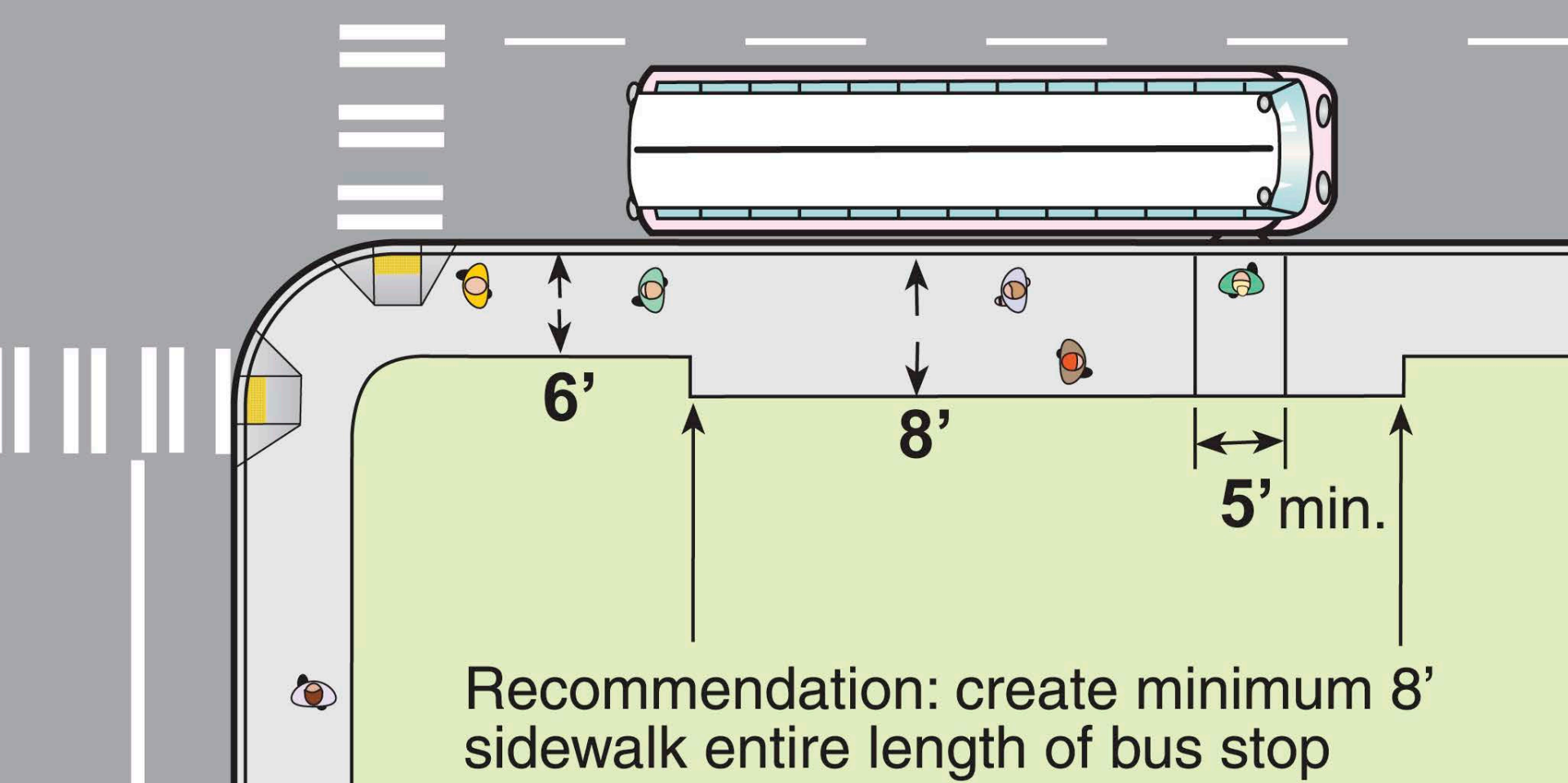
- Describe why transit stops must be convenient and accessible
- Apply techniques to help transit users cross the street at transit stops (many pedestrian crashes are associated with transit stops)
- Assess if transit operators concerns are met
- Assess the needs of other road users



Transit: Bus is most common mode



Transit: Only choice for many people



Sidewalks should be wide enough to provide space for waiting, boarding & passing.

Widen beyond ADA 5' X 8' minimum landing



6

Honolulu HI

Narrow curbside sidewalk provides insufficient space

Especially when bus comes & people board



Wide sidewalk is full while people board, blocking access to other pedestrians, but empties out soon



Bus shelter is an important amenity



Shelters must be accessible
(grass makes it inaccessible)



Good news: they fixed it!
(after attending this course)



11

Eugene OR

Separated sidewalk: Shelter placed in planter strip

Transit Safety & Operation Concerns:

12

- Pedestrian Crossings
 - Bus Stop Location
 - Bus Pullouts



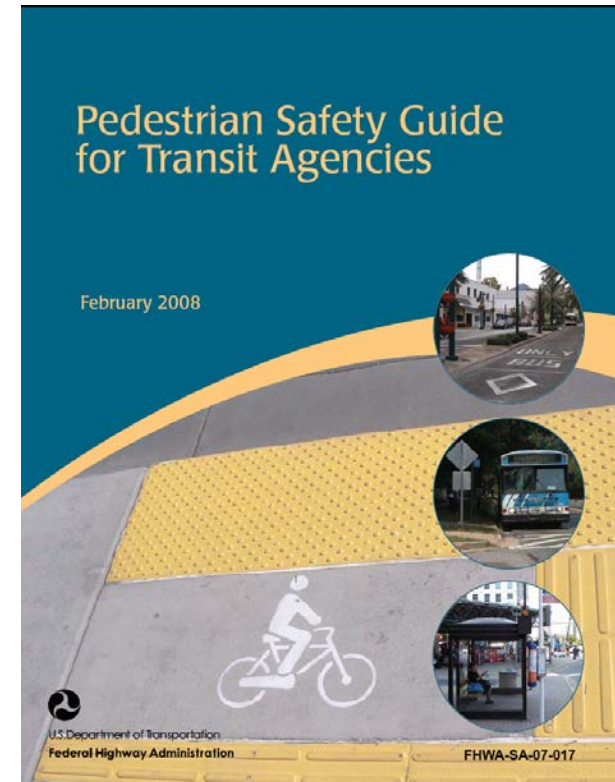
**Discussion:
Name the crossing
techniques shown**

All previously discussed crossing techniques apply to transit stops

Pedestrian Safety Guide for Transit Agencies

14

- Intended to provide transit agency staff and transit agency partners with an easy-to-use resource for improving pedestrian safety.
- Emphasizes the importance of solving pedestrian safety issues through partnerships between transit agencies and state and local transportation agencies municipalities, and consumer interest



Guide Includes

- Common pedestrian safety issues near transit stations, bus stops, and other transit facilities.
- Descriptions of specific engineering, education, and enforcement programs that have been effectively applied by transit agencies.
- Background information about pedestrian safety and access to transit.
- References to publications, guides and other tools that can be used to identify pedestrian safety problems.



Place crosswalks
behind bus stop!

1. Peds can see traffic
2. Bus driver can move forward
3. Bus doesn't run over peds

Farside generally preferred at intersections because:

17

Salem OR

Bus Driver Concern: Farside or Nearside Stops?

- Driver can pull across intersection before light turns red
- Nearside can mean waiting an extra signal cycle
- Farside ensures pedestrians cross behind bus



Farside: Patrons cross behind



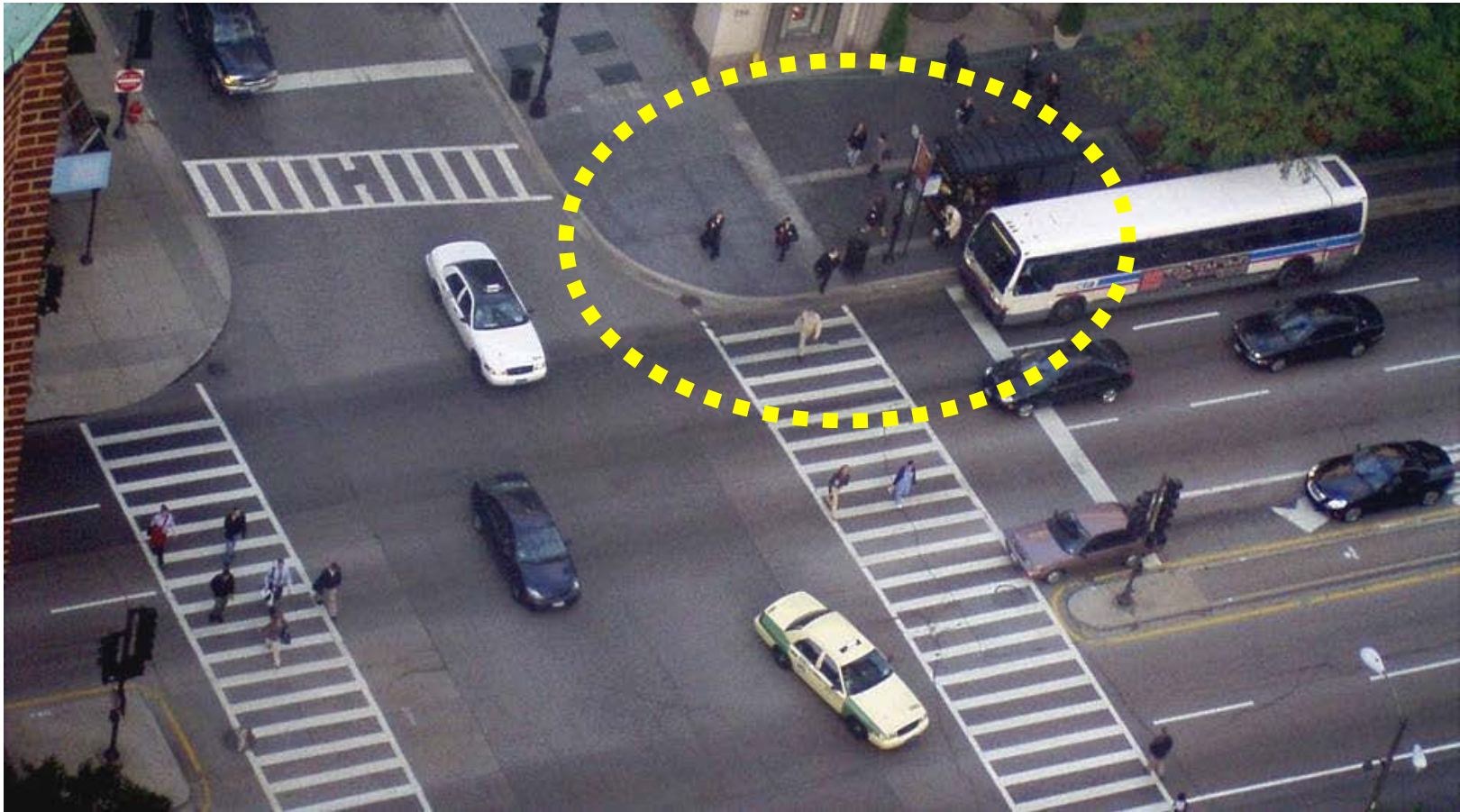
Nearside: Patrons cross in front

There are operational reasons to place stop nearside

18

Chicago IL

1. Bus user convenience

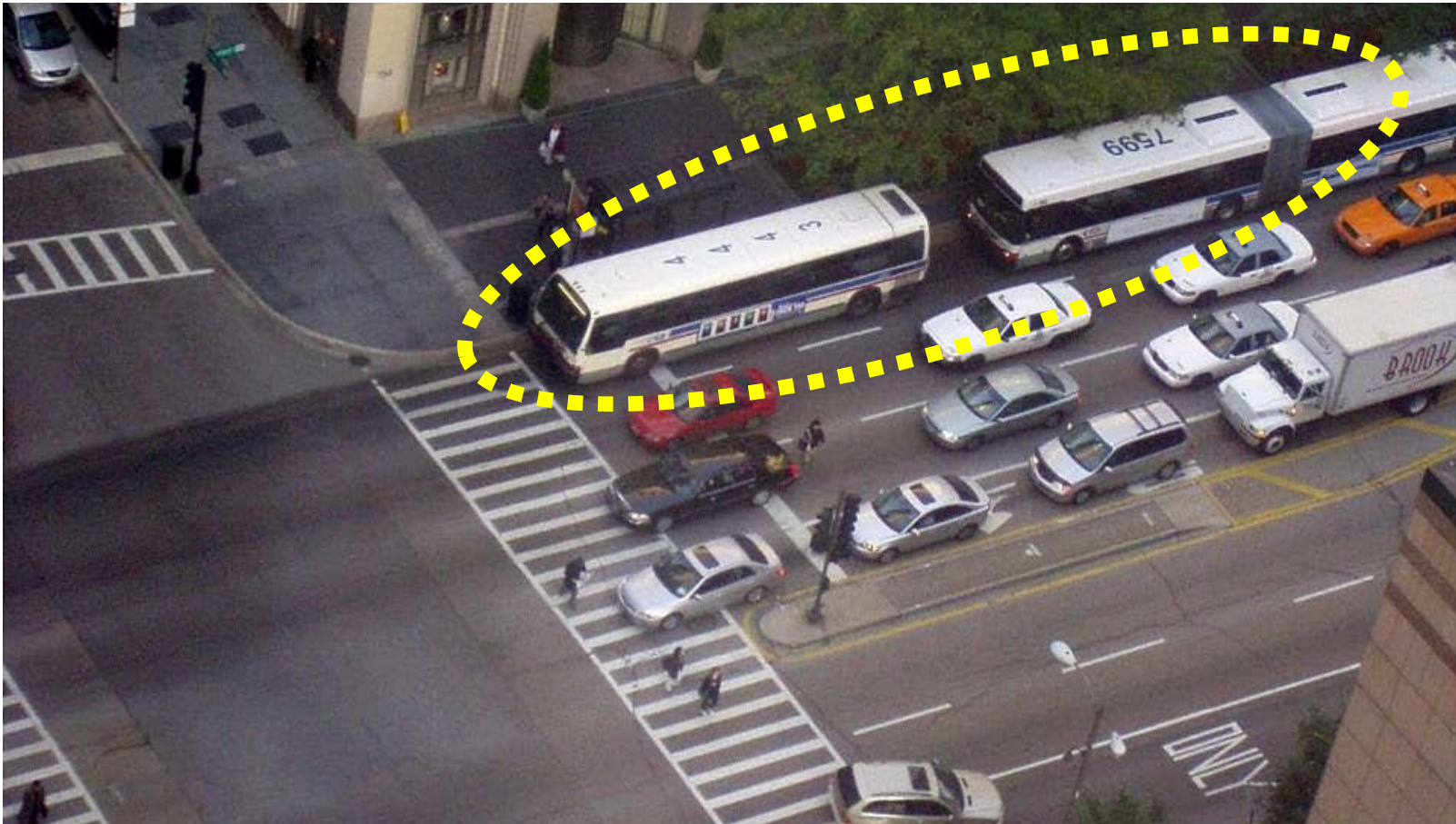


There are operational reasons to place stop nearside

19

Chicago IL

2. Nearside allows for bus queuing



There are operational reasons to place stop nearside

20

Salem OR

3. If bus makes a right turn

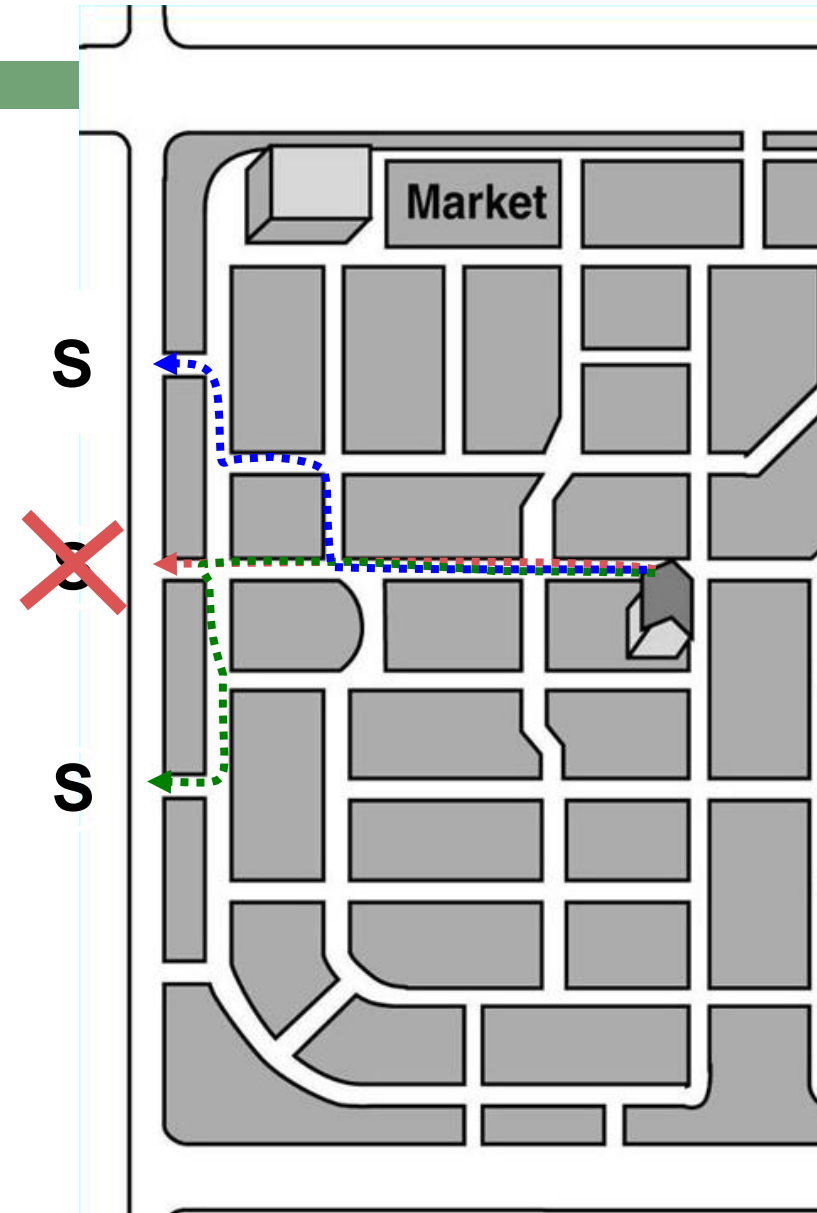


Moving, Eliminating, Consolidating Bus Stops

21

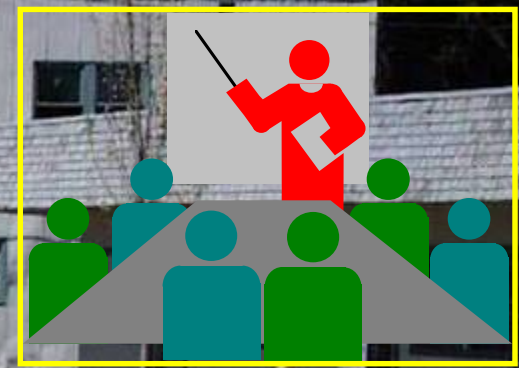
Considerations:

- Improve safety by placing bus stops near good crossings
- Adds walking time for users, but
- Reduces transit operator delay (fewer stops)
- Trade-offs:
 - 2-3 minute longer walk?
 - 10-15 minute shorter bus ride?



22

Bus Pullouts



Bus pullouts may create tension between through traffic and bus operation

Why?

23

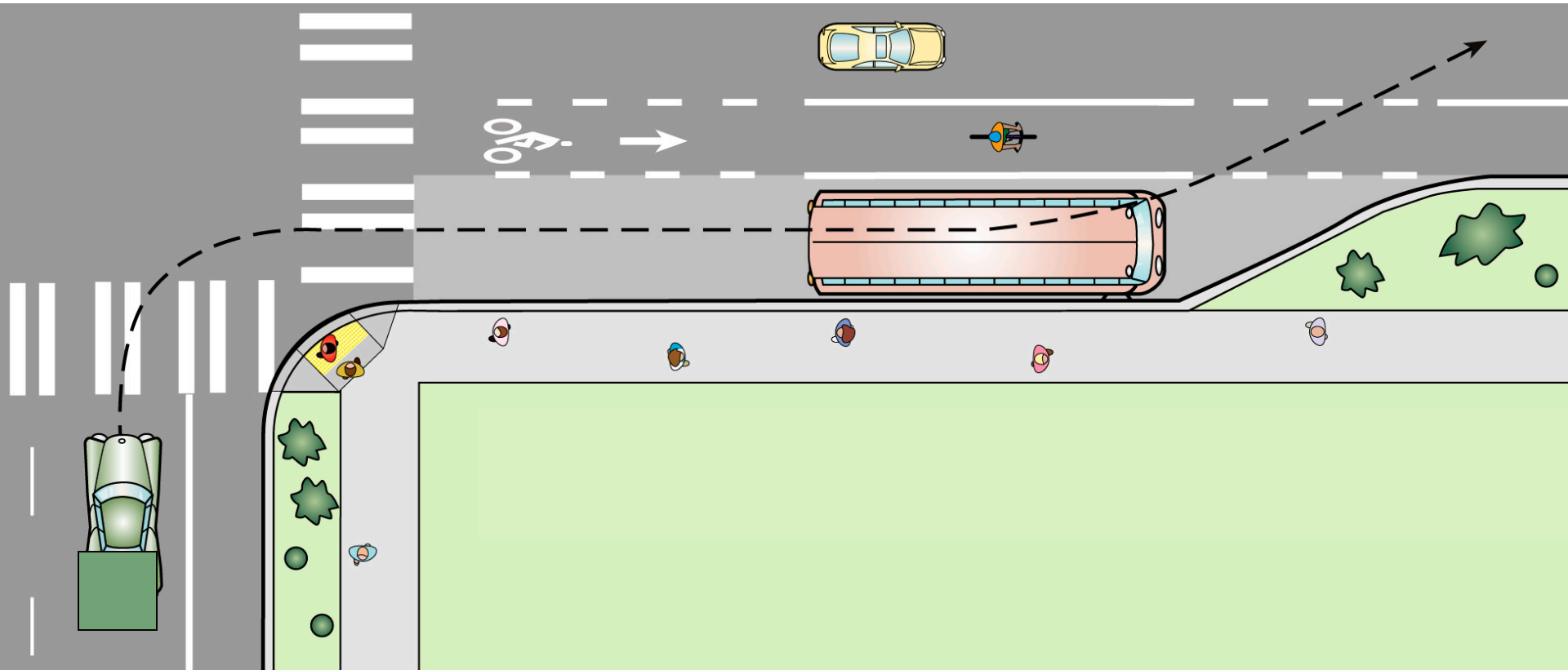
Salem OR

- ❑ They help traffic flow, but...
- ❑ Make it harder for bus drivers to reenter the traffic stream



- ❑ Operational fix:
- ❑ YIELD signs on buses (must be supported by law)

Bus pullouts must work for peds, cyclists & drivers

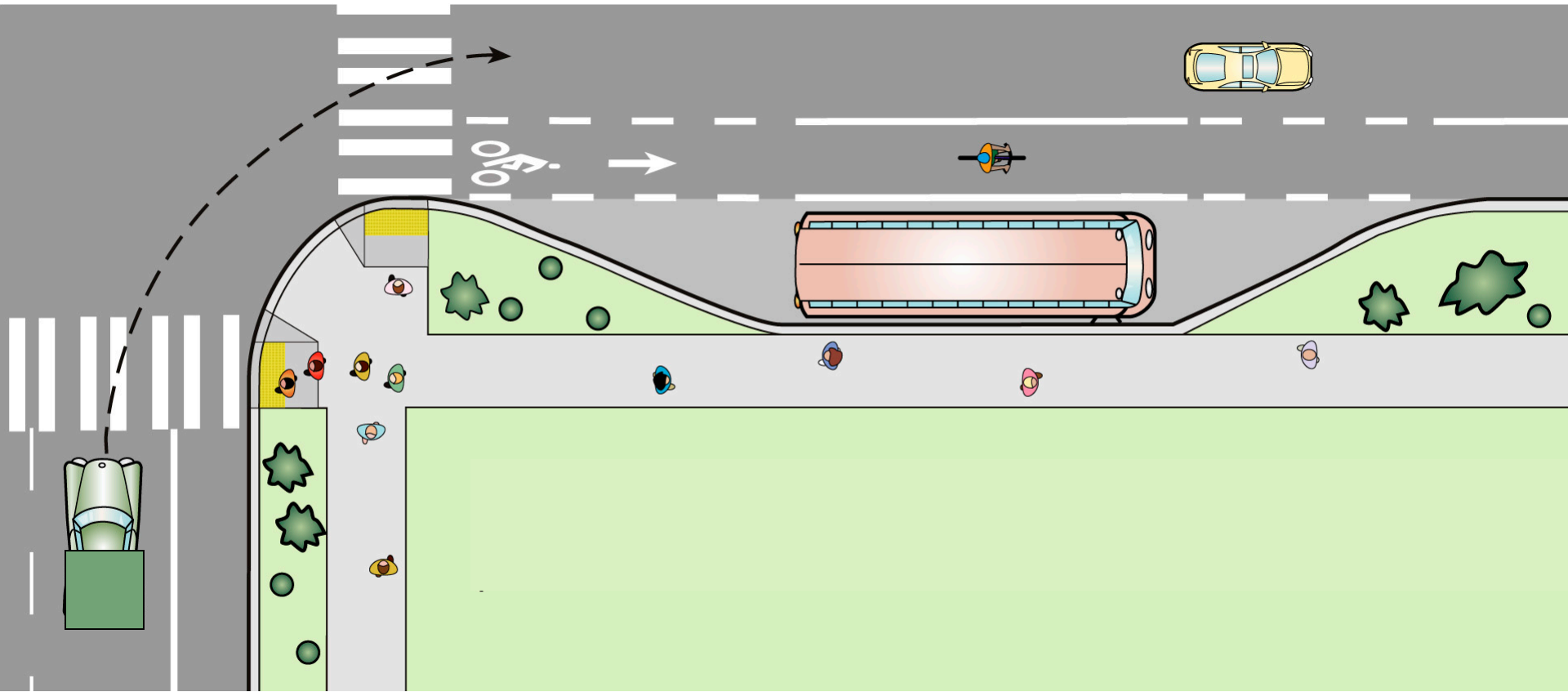


- A far side pullout can be used as an acceleration lane, endangering other users



This far side pullout allows drivers make right turns at high speed, endangering pedestrians

Bus pullouts must work for peds, cyclists & drivers



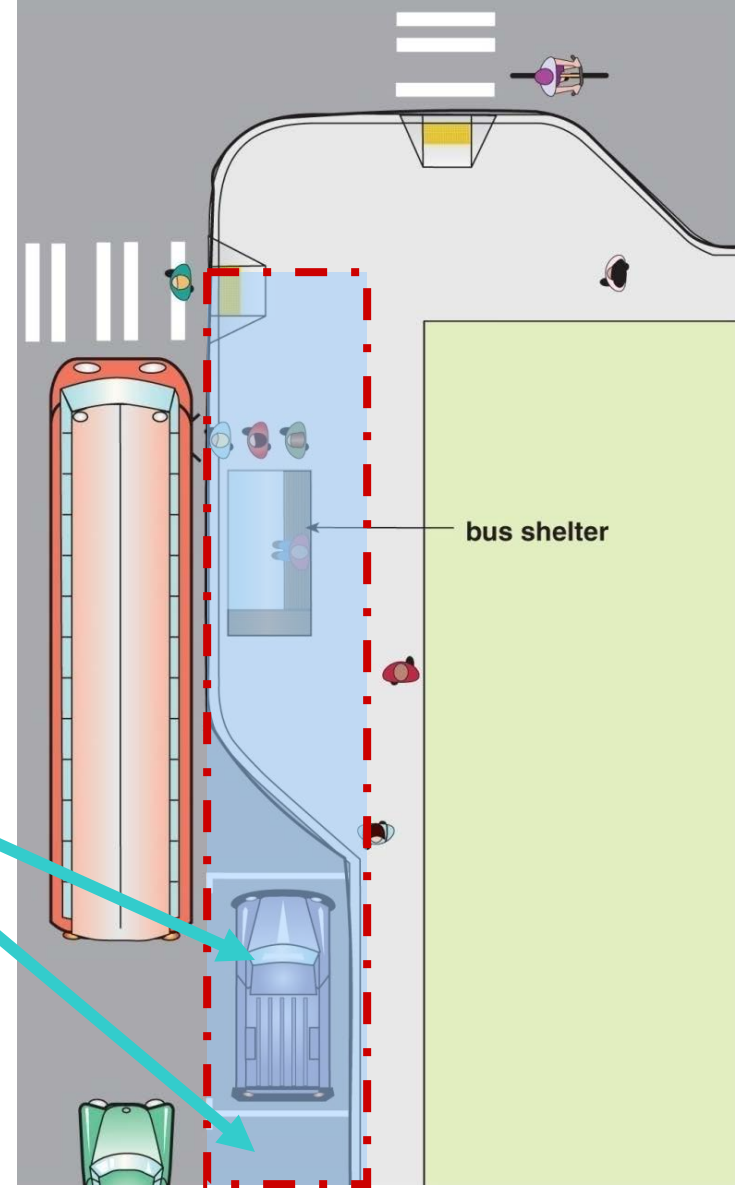
- With curb extension, drivers will turn cautiously.
- Pedestrians and bicyclists are better served



Slows drivers making right-turn Protects pedestrians

On streets with on-street parking, “bus bulbout” retains parking spots.

These two spots would be prohibited if bus has to pull up to normal curb line.





- ❑ Bus bulbout reduces dwell time because the bus does not need to reenter traffic and patrons board rapidly
- ❑ 10 seconds saved per stop adds up to minutes over an entire route

Let's Recap

31

- What is the ped safety concern at every transit stop?
 - The need to safely cross the street
- What are the main consideration for transit stop location?
 - User convenience, accessibility, and safety
- What are some transit operators concerns?
 - The ability to move into traffic
- What are some other road users needs?
 - Pedestrians, bicyclists and motorists need to navigate safely around transit stops

Learning Outcomes:

32

You should now be able to:

- Describe why transit stops must be convenient and accessible
- Apply techniques to help transit users cross the street at transit stops (many pedestrian crashes are associated with transit stops)
- Assess if transit operators concerns are met
- Assess the needs of other road users

33

Questions?