



LEE COUNTYWIDE BICYCLE & PEDESTRIAN

Safety Action Plan

Engineering: Transit

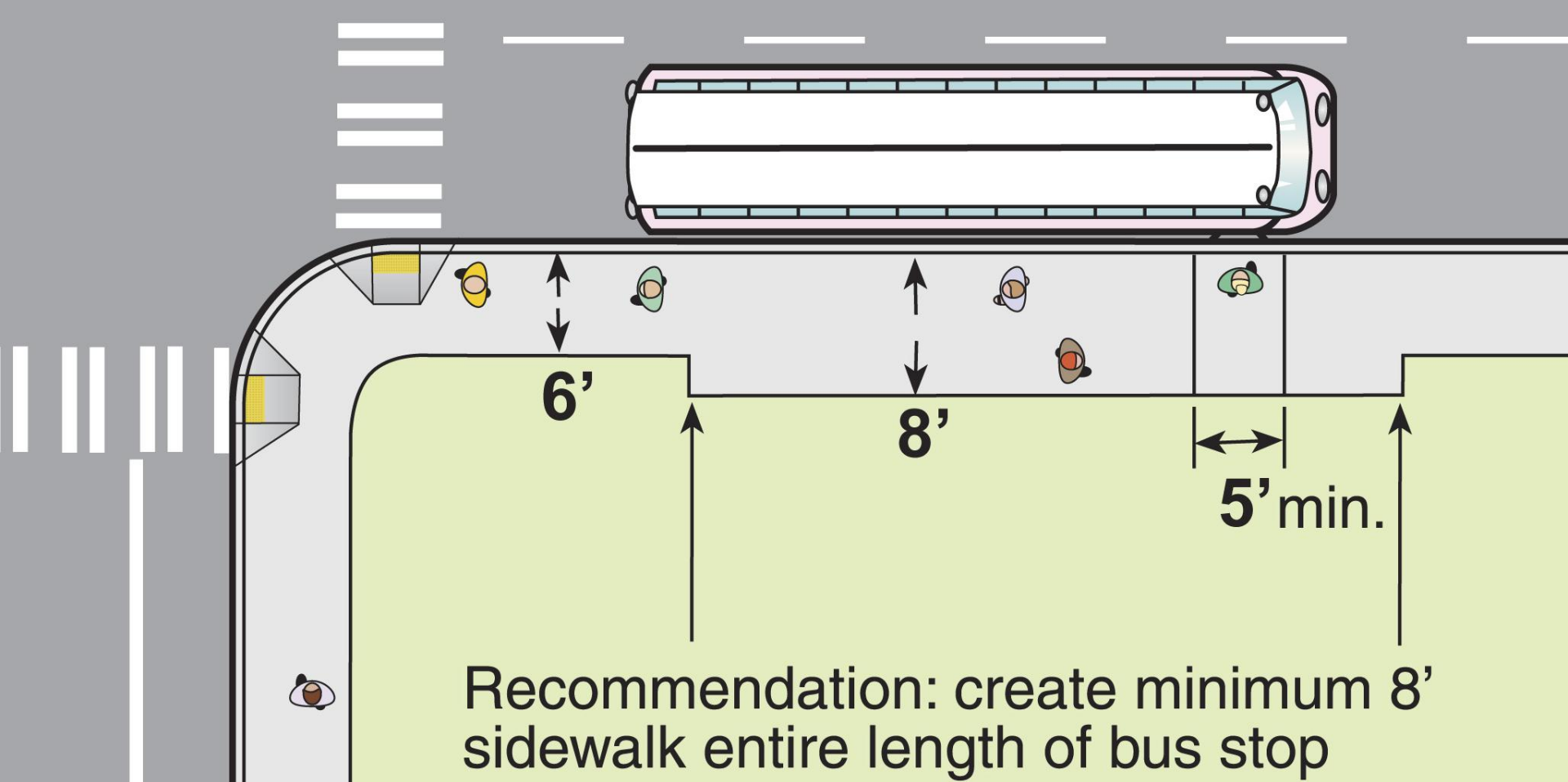




Transit: Bus is most common mode



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



**Narrow curbside sidewalk
provides insufficient space**

Honolulu HI



**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)



Separated sidewalk: Shelter placed in planter strip

Eugene OR

Transit Safety & Operational Concerns:

- **Pedestrian Crossings at Transit Stops**
- **Transit Stop Placement**
- **Bus Pullouts**

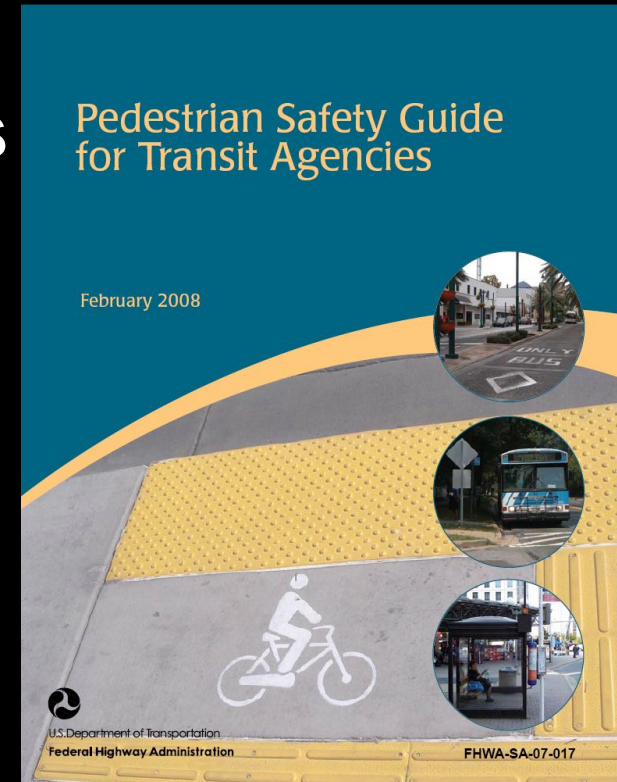


Discussion:
Name the crossing
techniques shown

All previously discussed crossing
techniques apply to transit stops

Pedestrian Safety Guide for Transit Agencies

- 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!**

Why?

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

Bus Driver Concern: Farside or Nearside Stops?

Farside generally preferred at intersections because:

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



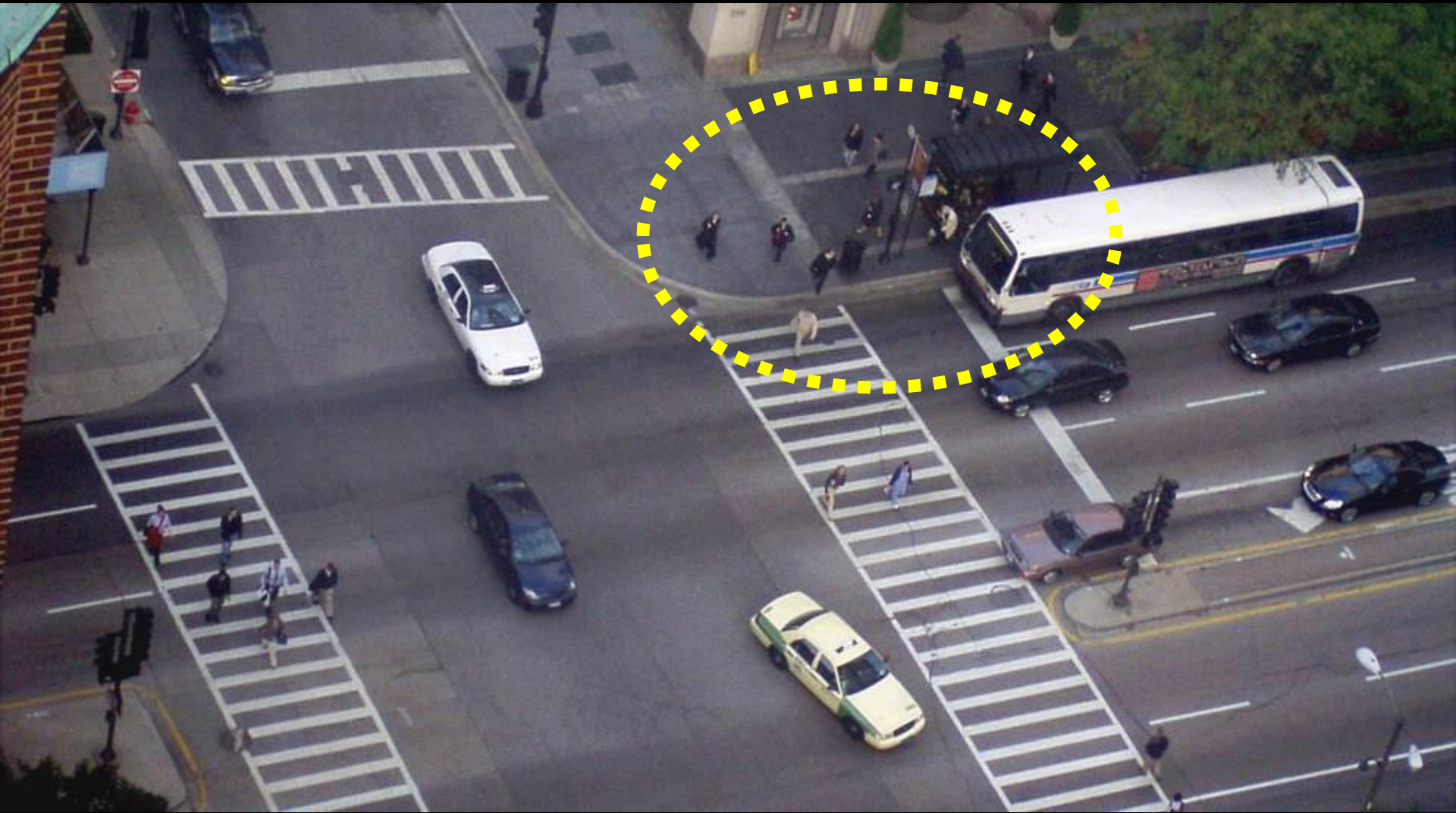
Farside: Patrons cross behind



Nearside: Patrons cross in front

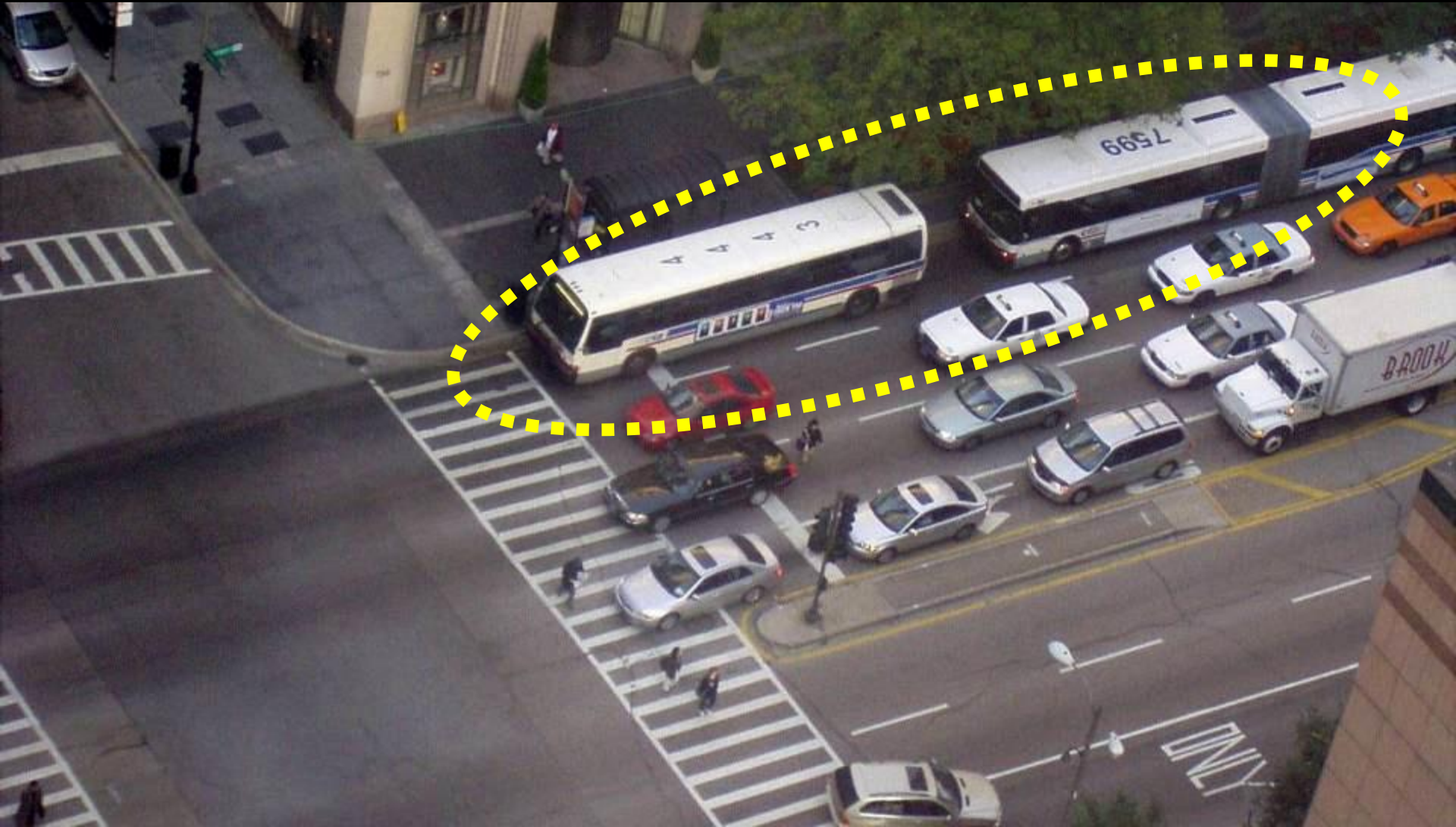
There are operational reasons to place stop nearside

1. Bus user convenience



There are operational reasons to place stop nearside

2. Nearside allows for bus queuing



There are operational reasons to place stop nearside

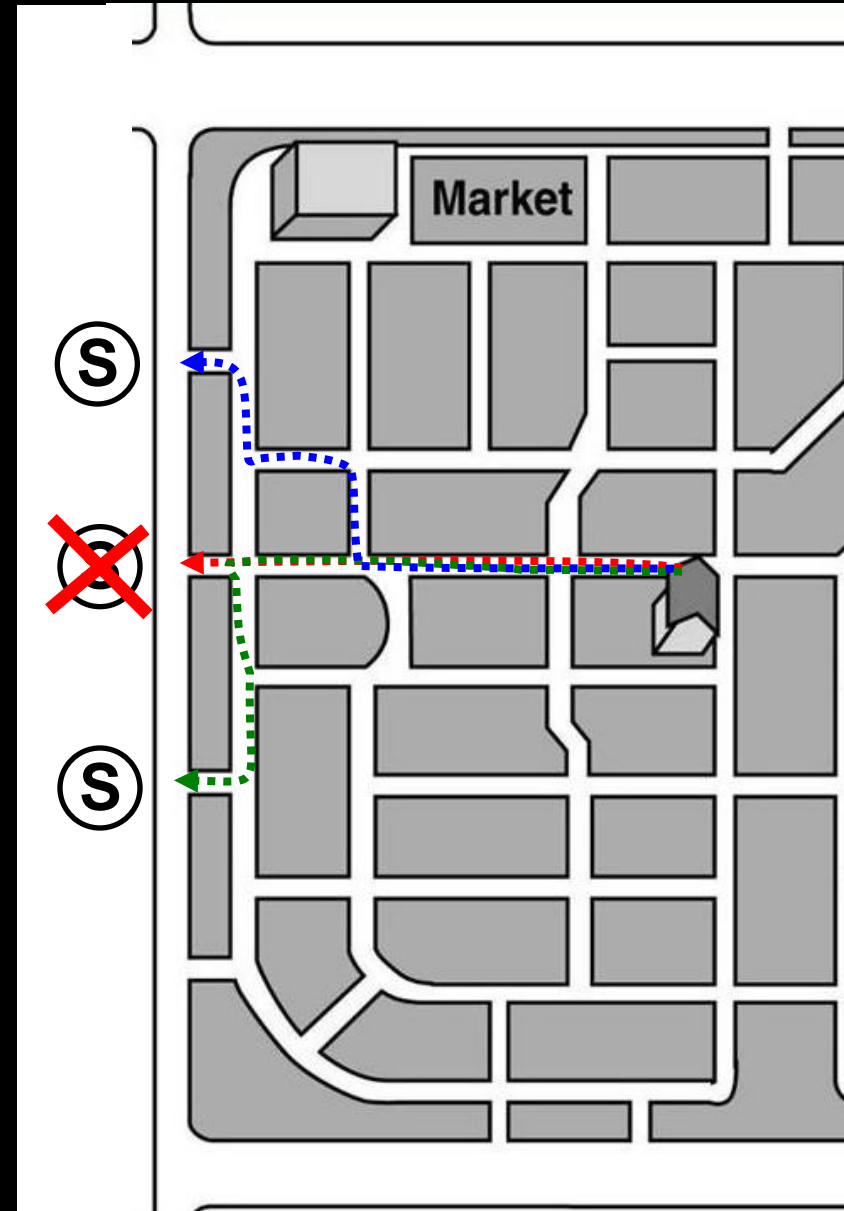
3. If bus makes a right turn



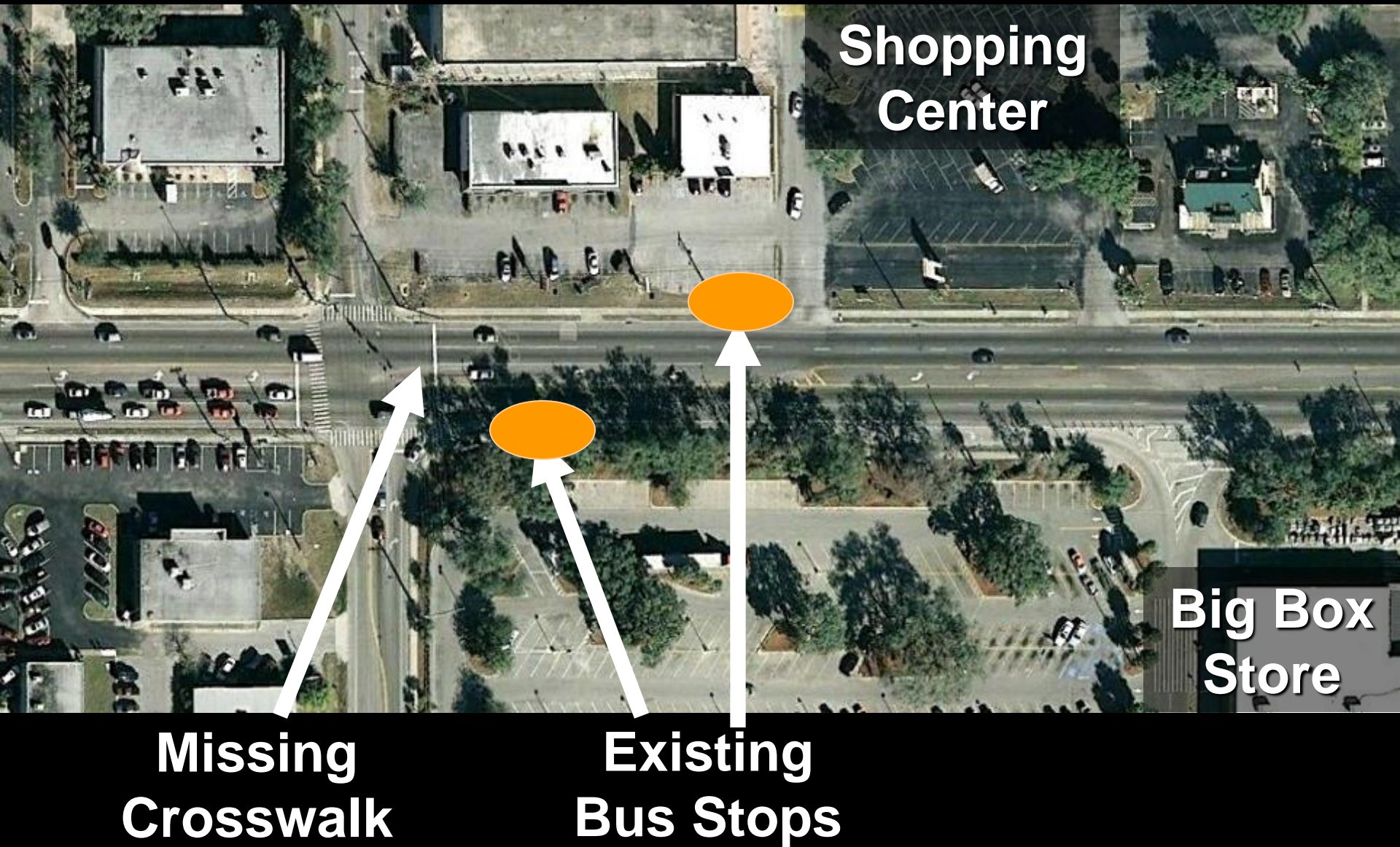
Moving, Eliminating, Consolidating Bus Stops

Considerations:

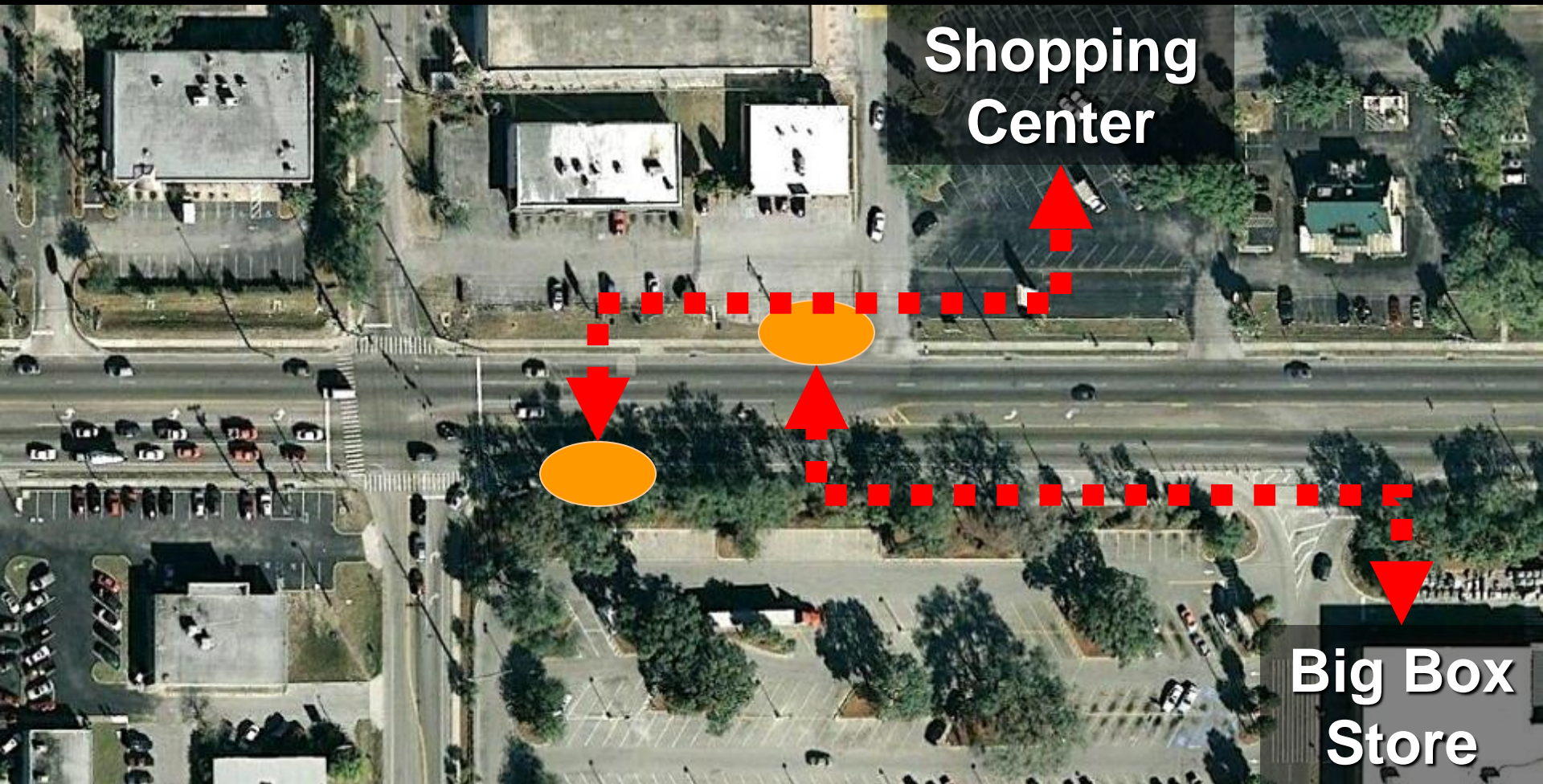
- Improve safety by placing bus stops near good crossings
- Adds walking time for users, but
- Reduces transit operator delay (fewer stops)
- Trade-offs:
 - 2-3 minute longer walk?
 - 10-15 minute shorter bus ride?



Moving, Eliminating, Consolidating Bus Stops



Moving, Eliminating, Consolidating Bus Stops



**Pedestrians unlikely to
“Detour” to use crosswalk**

Moving, Eliminating, Consolidating Bus Stops



Moving, Eliminating, Consolidating Bus Stops



**Relocate stops to
mid-block location**

**Install mid-block island/
appropriate traffic control**

Bus Pullouts



**Bus pullouts may create tension between
through traffic and bus operation**

Why?

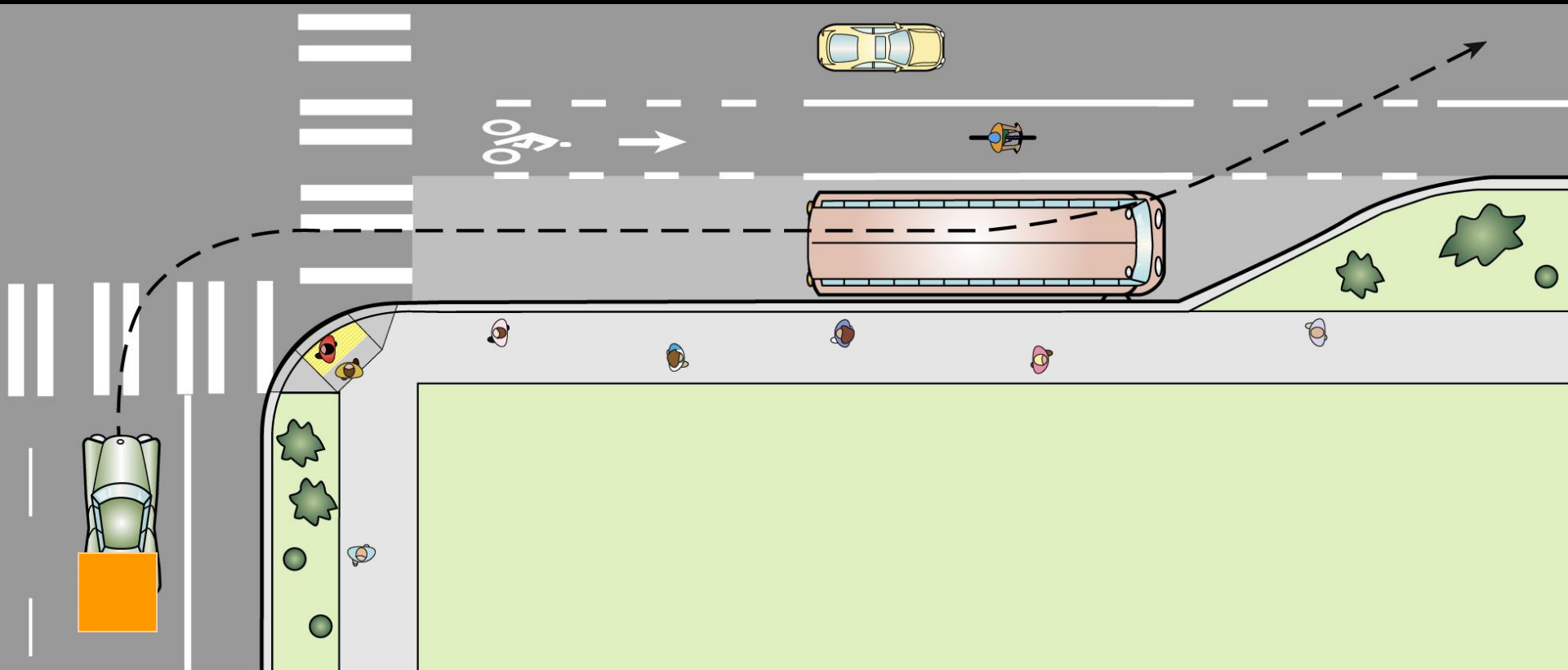
They help traffic flow, but...

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

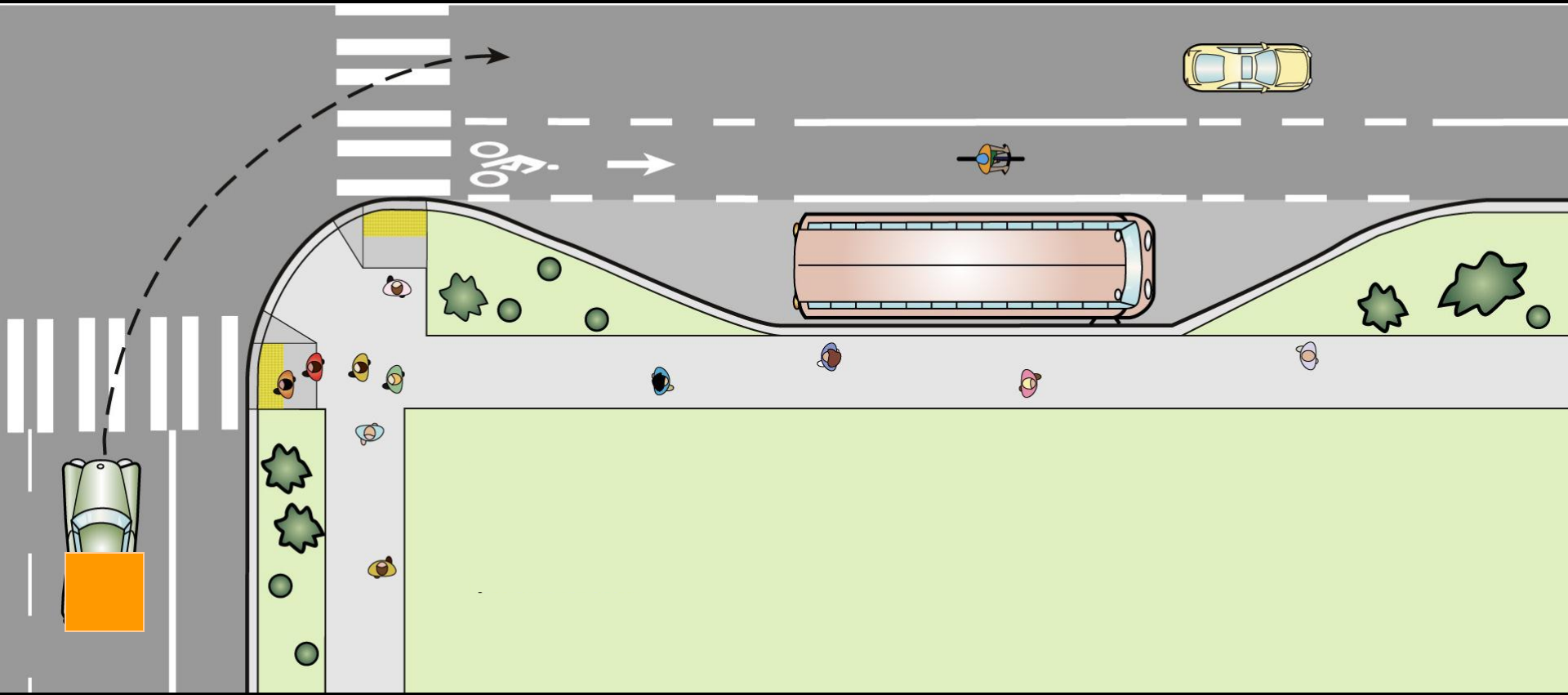


A far side pullout can be used as an acceleration lane, endangering other users



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

Bus pullouts must work for peds, cyclists & drivers



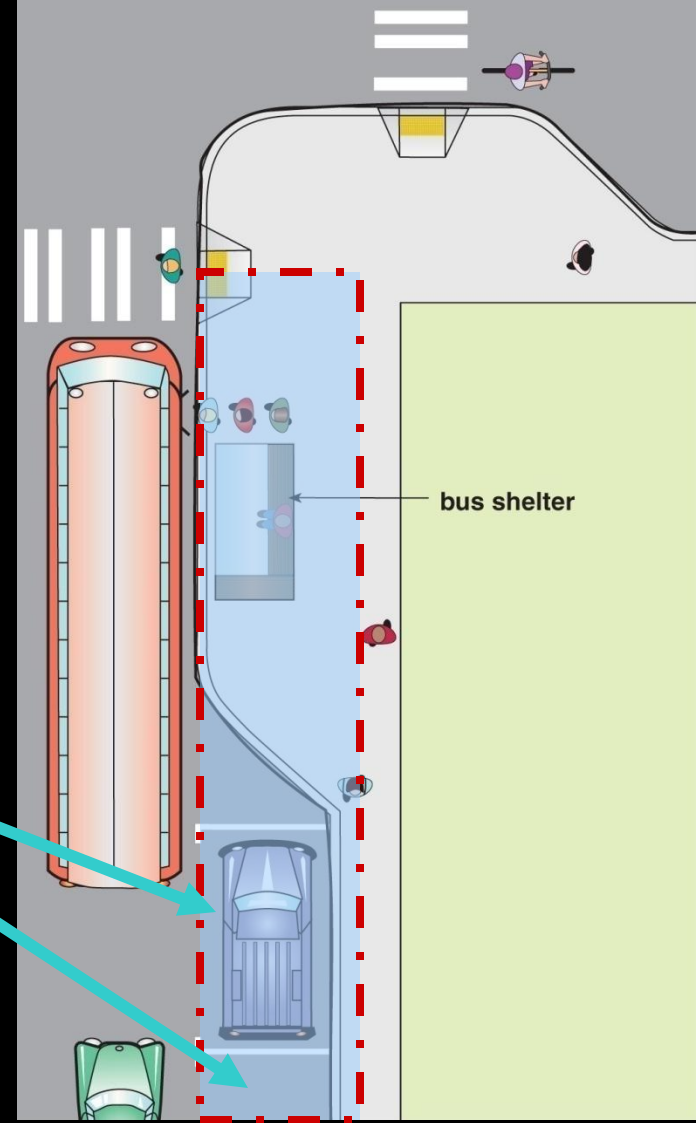
**With curb extension, drivers will turn cautiously.
Pedestrians and bicyclists are better served**



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

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

Questions?

Learning Outcomes

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**