

2011 Traffic Conference

Sheila Lyons, PE

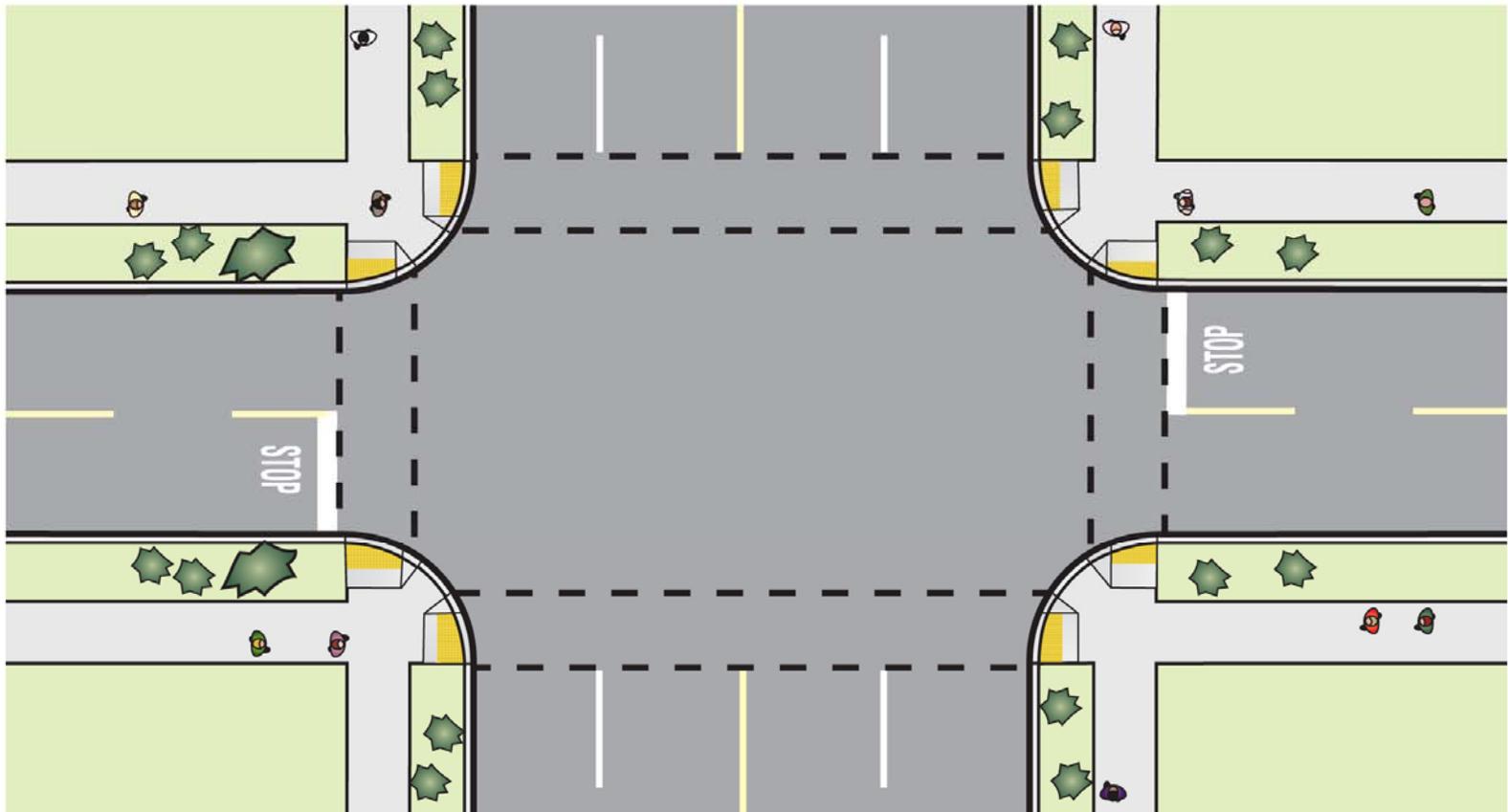
ODOT Pedestrian and Bicycle
Program

[http://www.oregon.gov/ODOT
/HWY/BIKEPED/index.shtml](http://www.oregon.gov/ODOT/HWY/BIKEPED/index.shtml)

Crosswalks

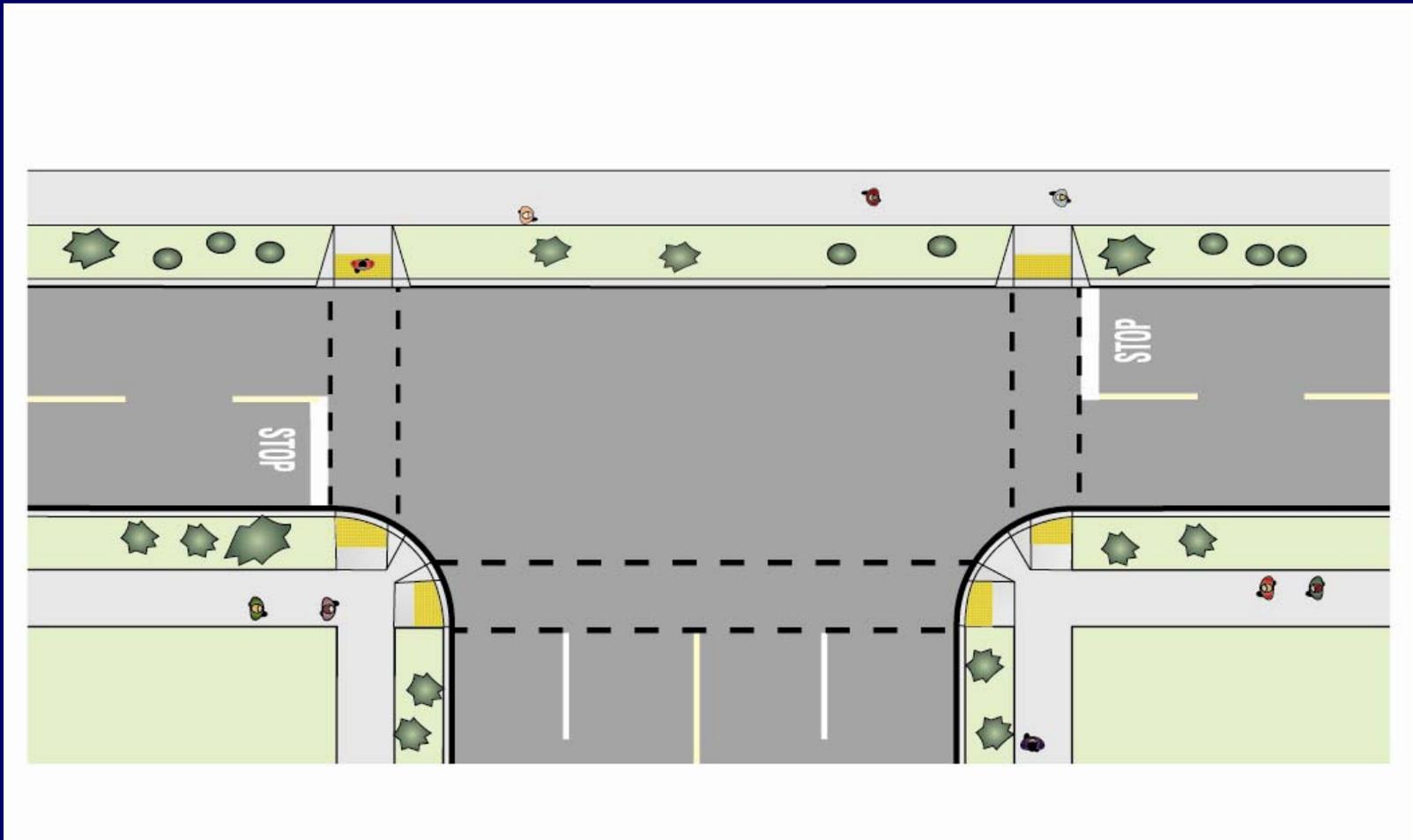
Crosswalks Defined – ORS

4 Leg Intersection



Crosswalks Defined – ORS

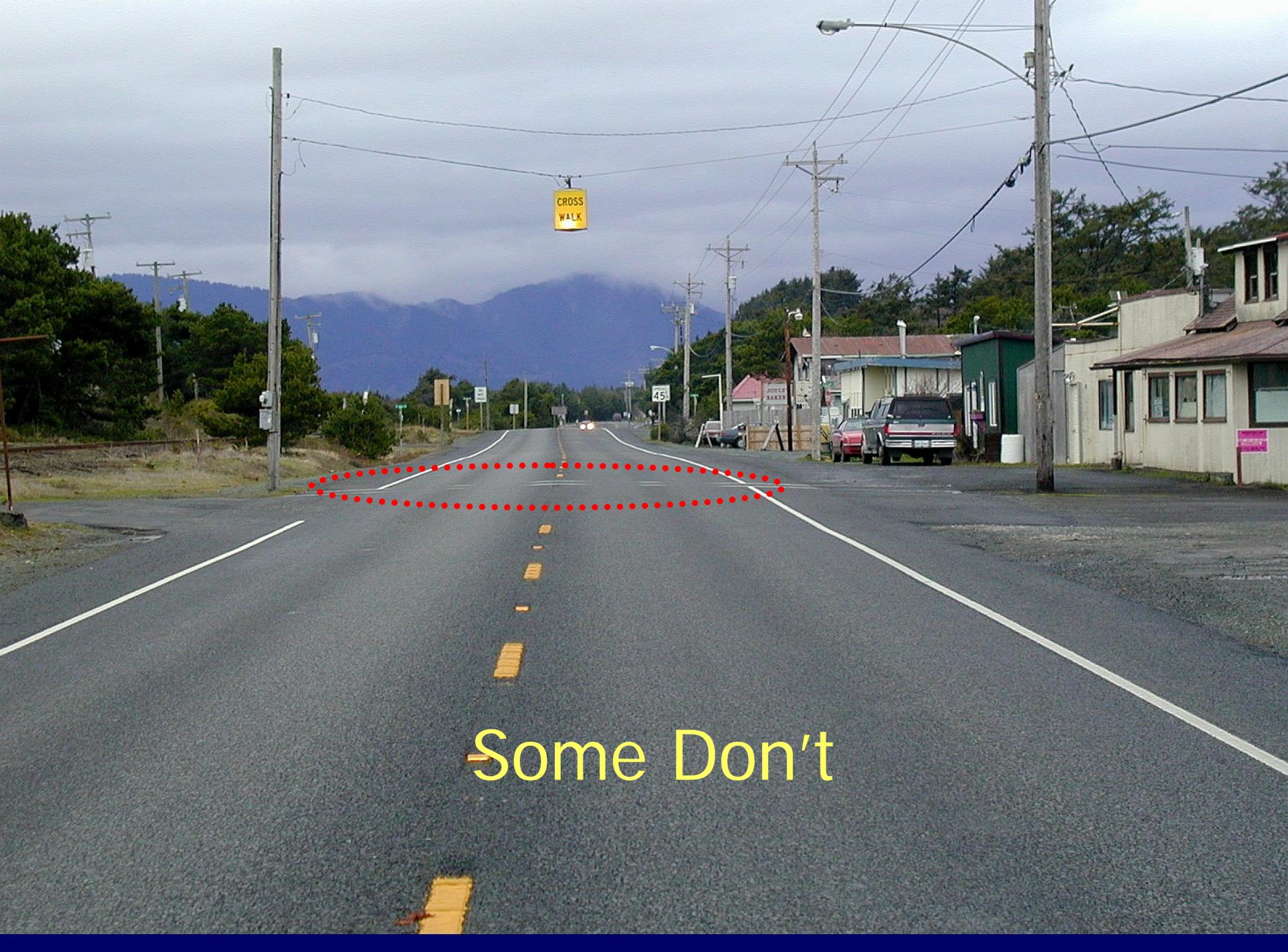
3 Leg Intersection



Crosswalk Markings



Some crosswalks stand out



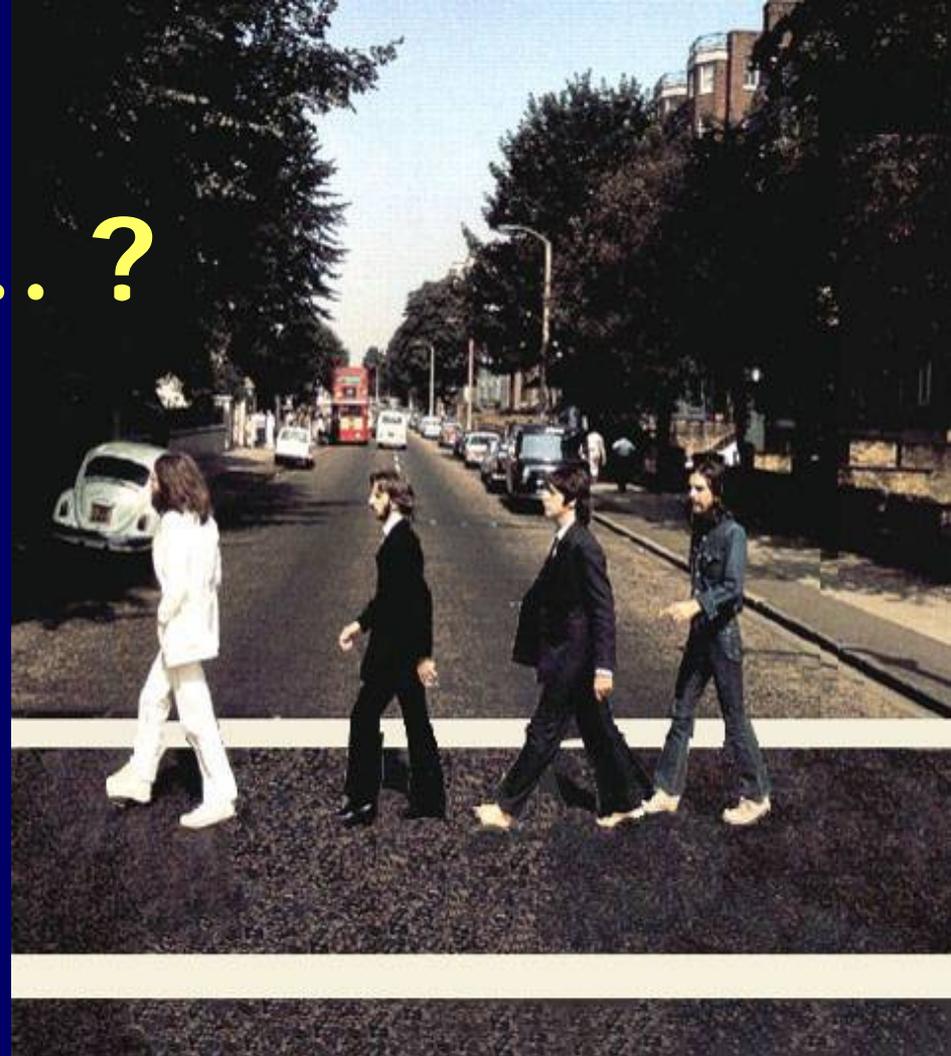
CROSS
WALK

45

JOYCE
BAKERY

Some Don't

Or... ?





**What the pedestrian
sees**



**What the driver
sees**



This area should be smooth

This area should be textured

Vehicle/Pedestrian Collisions

Where do pedestrians get hit?

- At signalized intersections (58%)
- While the pedestrian is in the crosswalk WITH the right of way (67%)
- Most involve a turning vehicle, 1/2 turning left, 1/2 turning right (73%)

Intersections
from the
Pedestrian Perspective



General Principles

1. Recognize pedestrians want & need to cross the street safely
2. Pedestrians will cross where it's most convenient
3. Drivers need to understand pedestrians' intent
4. Minimize crossing distance
5. Simplify crossing
6. Speed matters

Minimize the Crossing Distance

Impacts of long crossing distance:

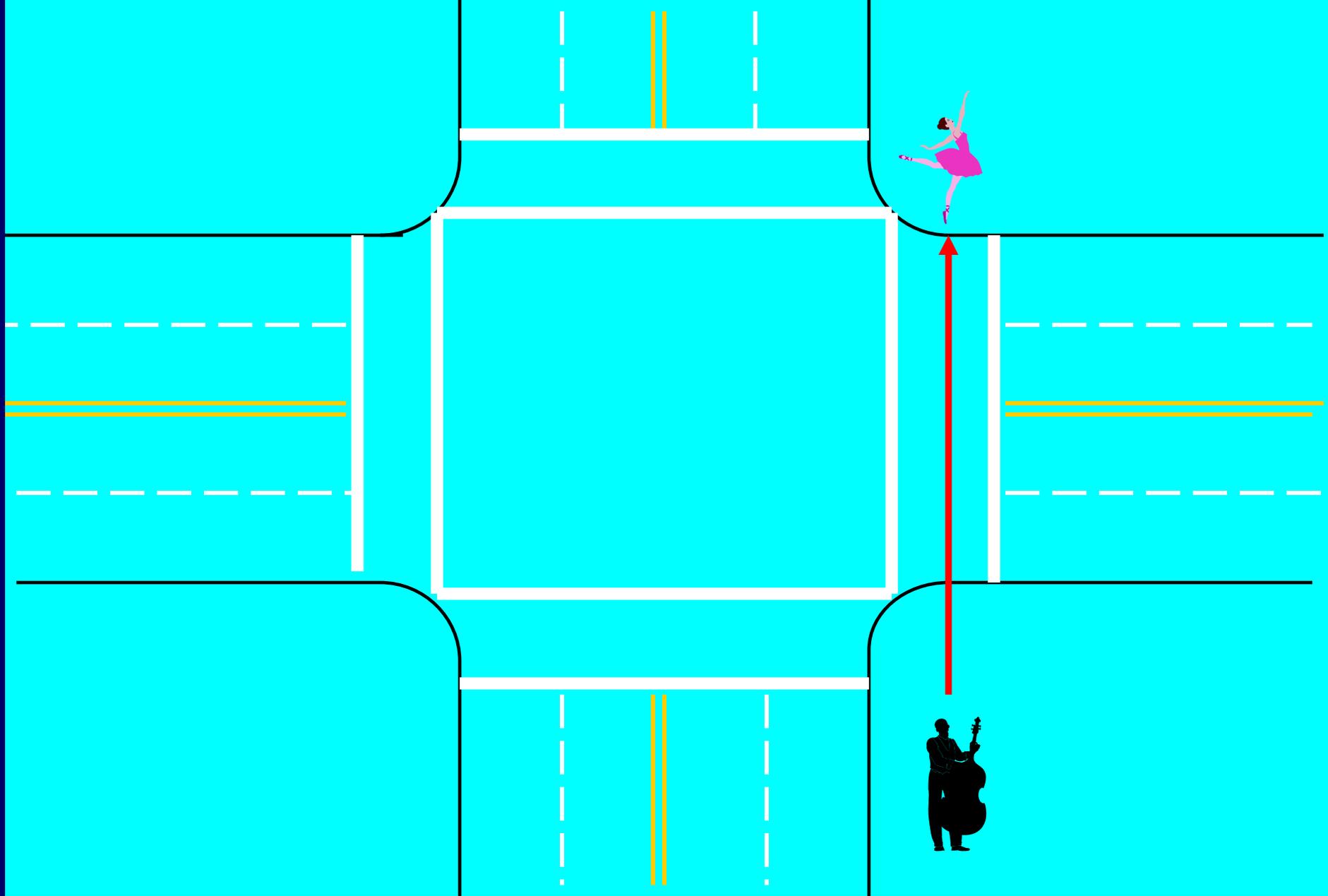
- Increases exposure time
- Increases vehicle-pedestrian conflict
- Increases vehicle delay
- Decreases ability of slower pedestrians to cross



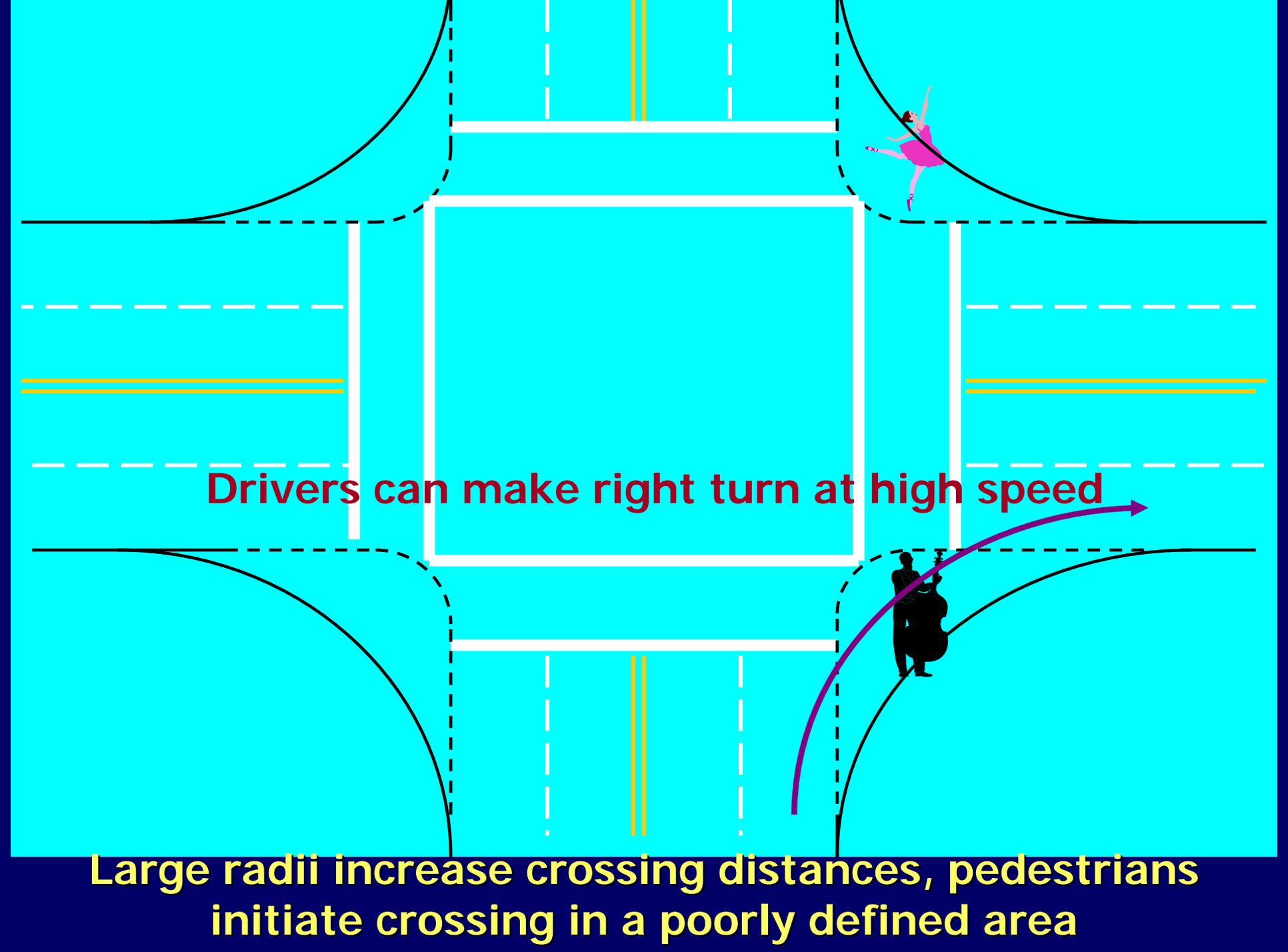


Hwy 82 Joseph

Effect of radius on crosswalk
placement and crossing distance

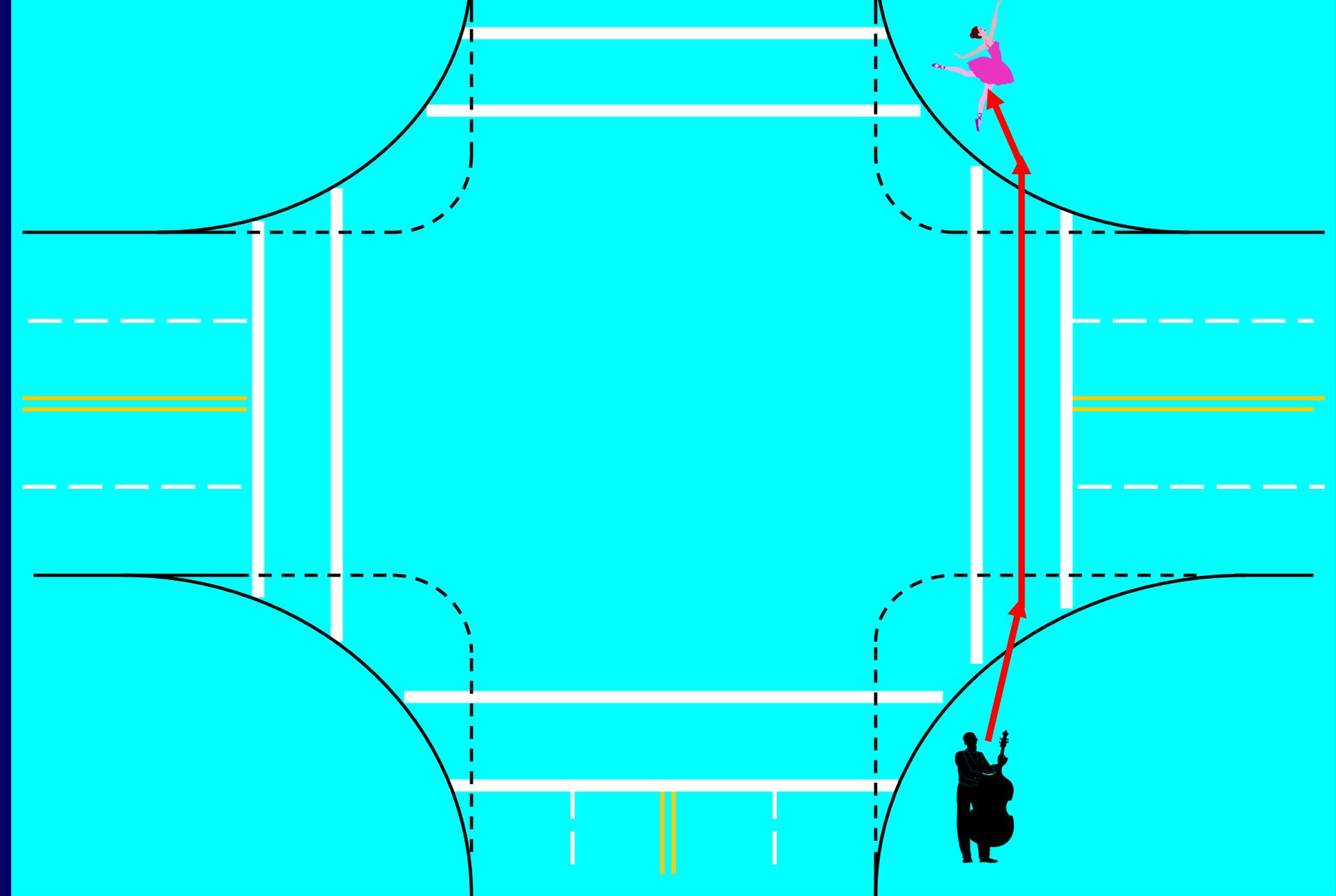


**With small radii crossing distances are short,
crossings are in line with approach sidewalk**

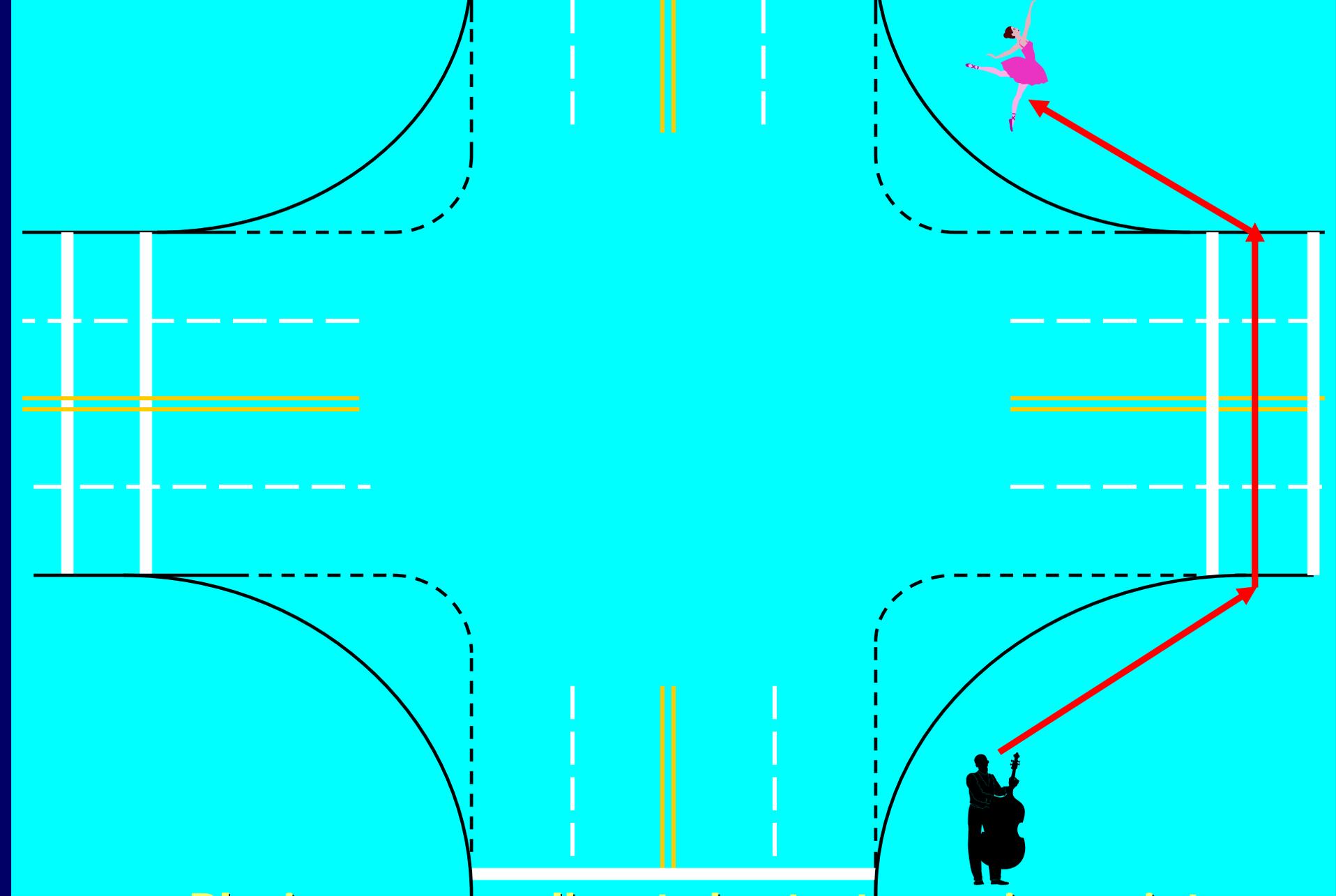
The diagram shows a road intersection with a central square area outlined in white. The road lanes are marked with dashed white lines and double yellow lines. Large black curved lines represent the radii of the intersection, which are significantly larger than a standard intersection. A pink ballerina is shown crossing the road in the upper right quadrant, and a silhouette of a person playing a double bass is shown crossing in the lower right quadrant. A purple arrow points from the text 'Drivers can make right turn at high speed' towards the right side of the intersection. The background is a gradient from light blue at the top to dark blue at the bottom.

Drivers can make right turn at high speed

Large radii increase crossing distances, pedestrians initiate crossing in a poorly defined area



Crosswalks are pushed back



**Placing crosswalks at shortest crossing point
removes them too far from the intersection**



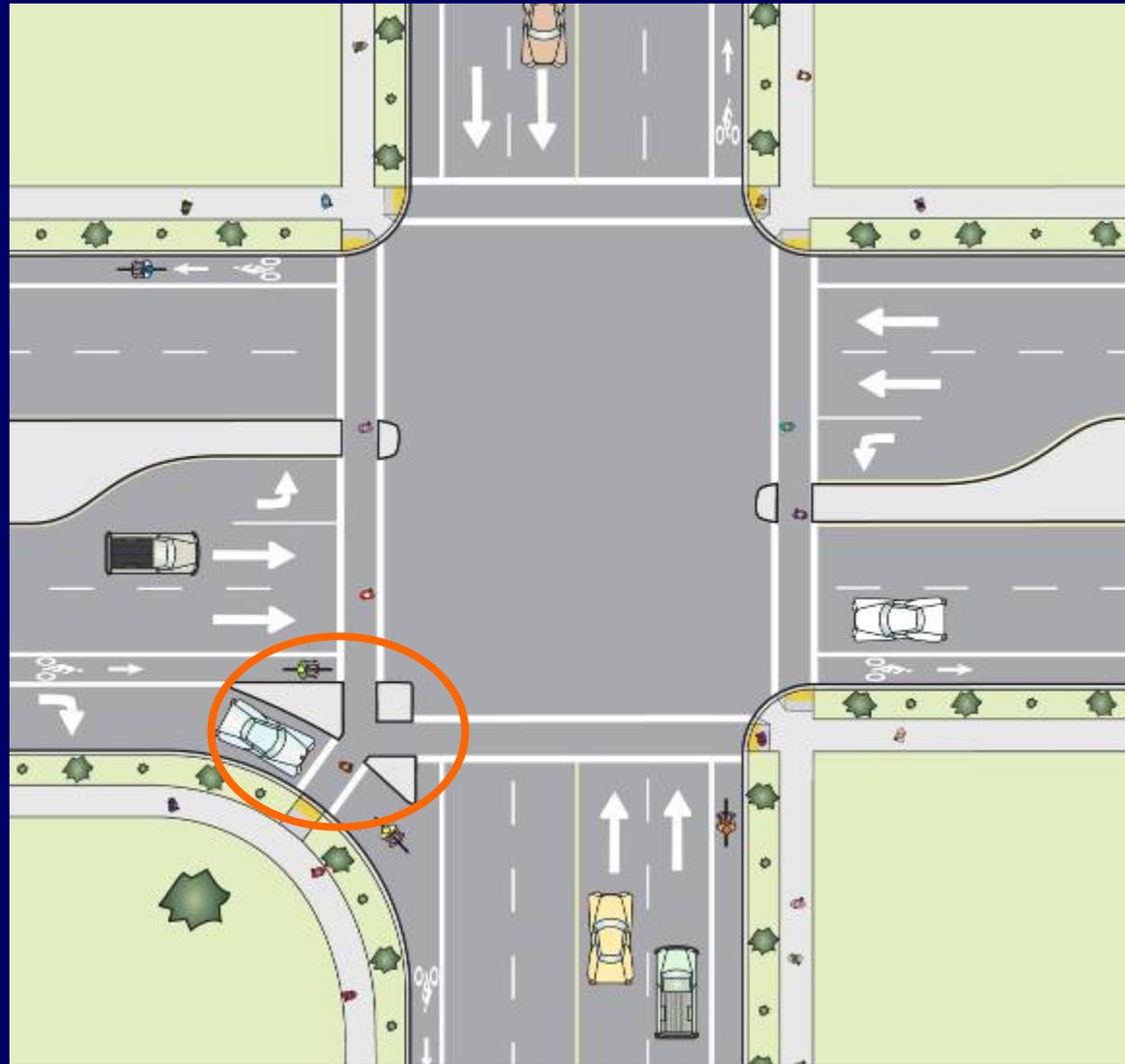
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6. Speed matters

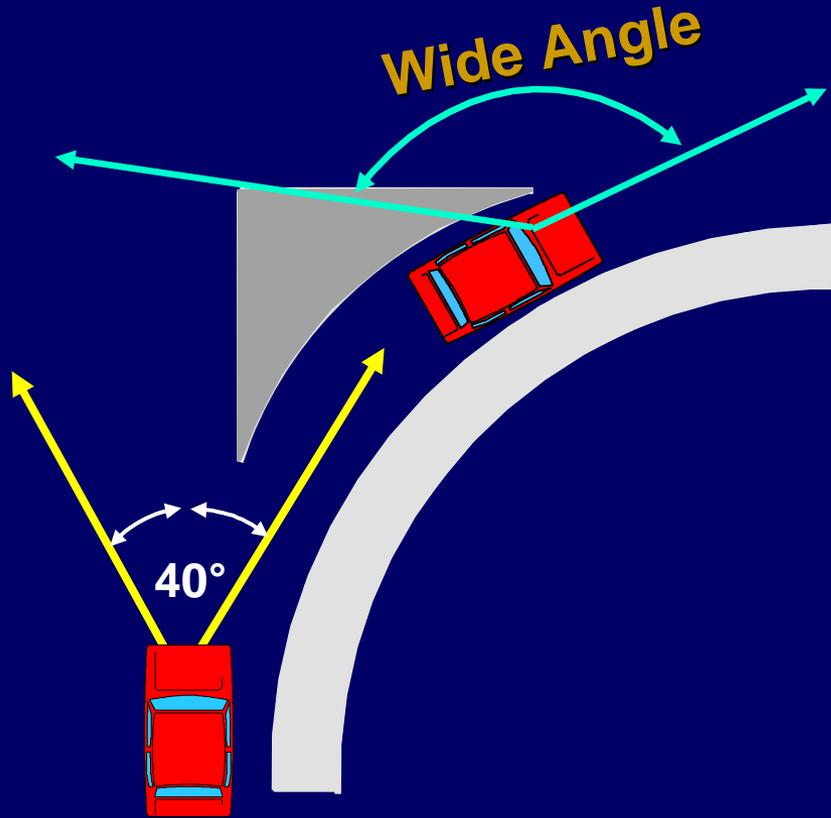
Pedestrian Islands

Benefits:

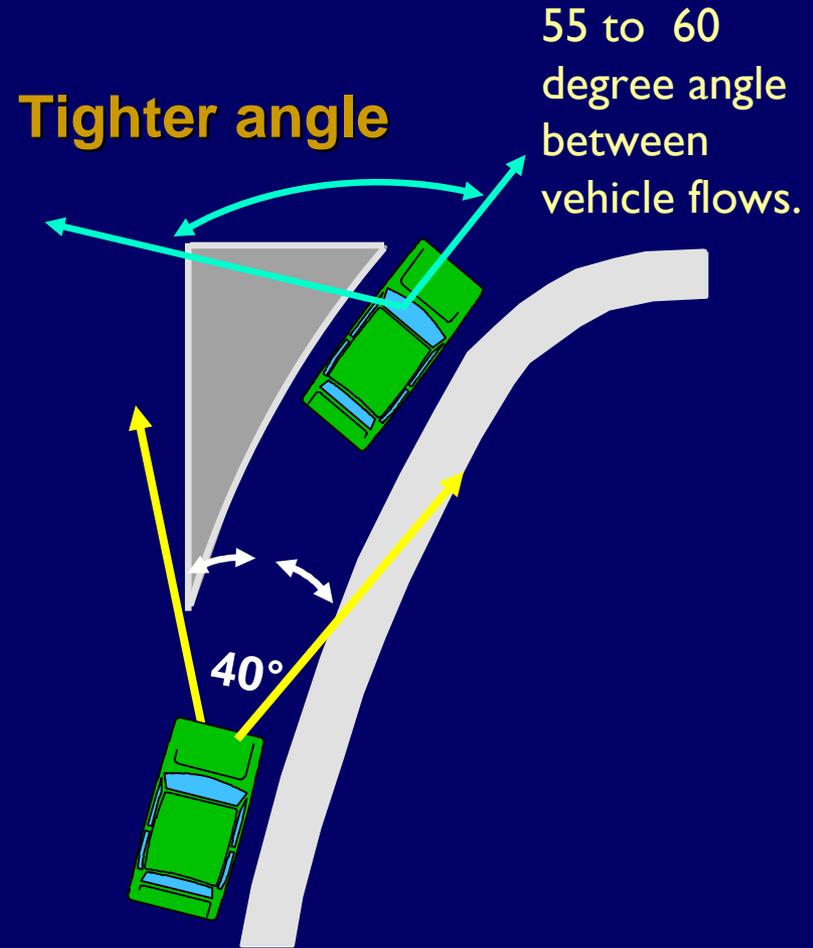
- Separate conflicts & decision points
- Reduce crossing distance
- Improve signal timing
- Reduce crashes
- Provide a place for signal equipment



Right-Turn Slip Lane: Design for Pedestrians



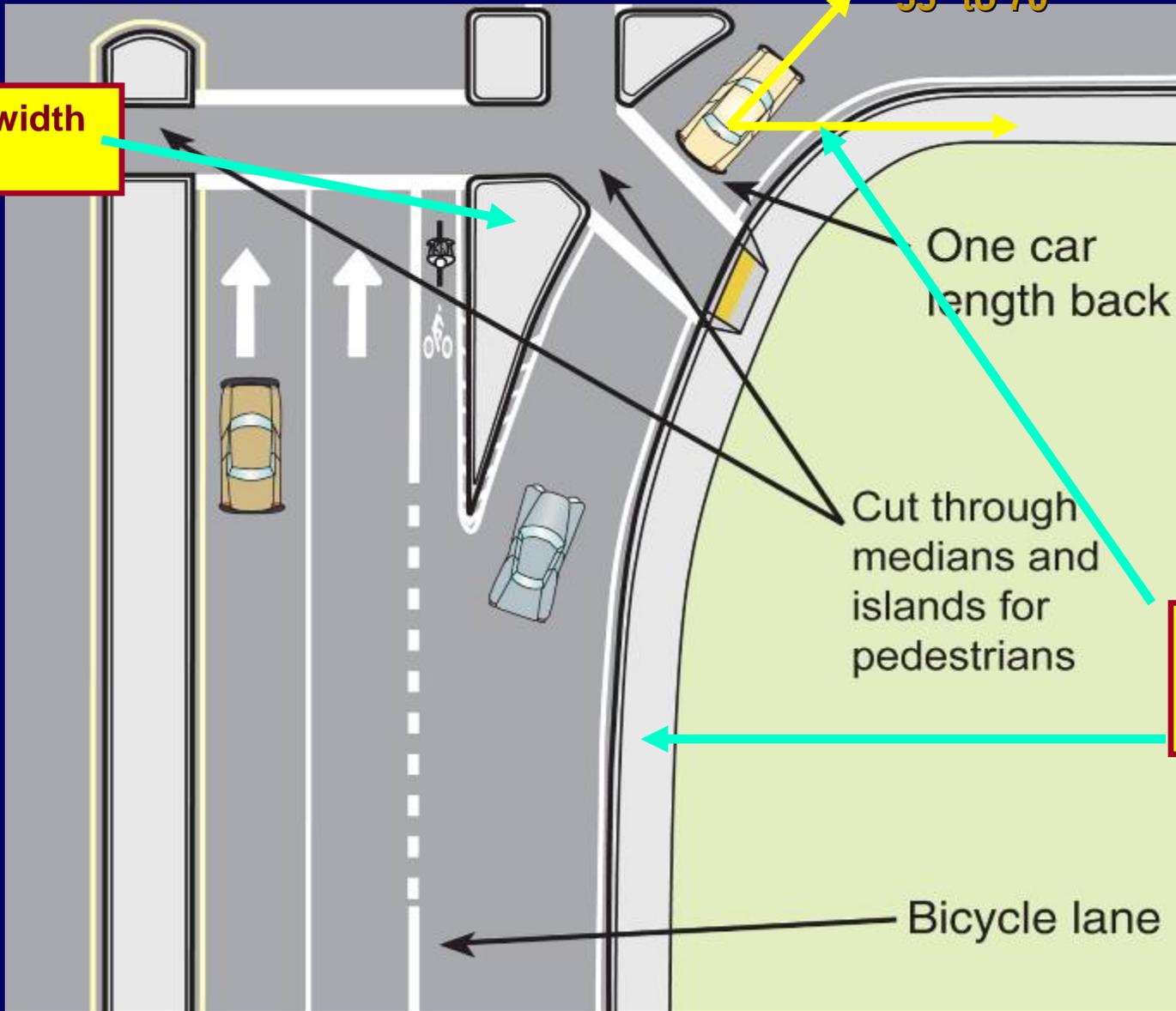
High speed, head turner =
low visibility of pedestrians



Slow speed, good angle =
good visibility of pedestrians

Right-Turn Slip Lane - Details

2:1 length/width ratio



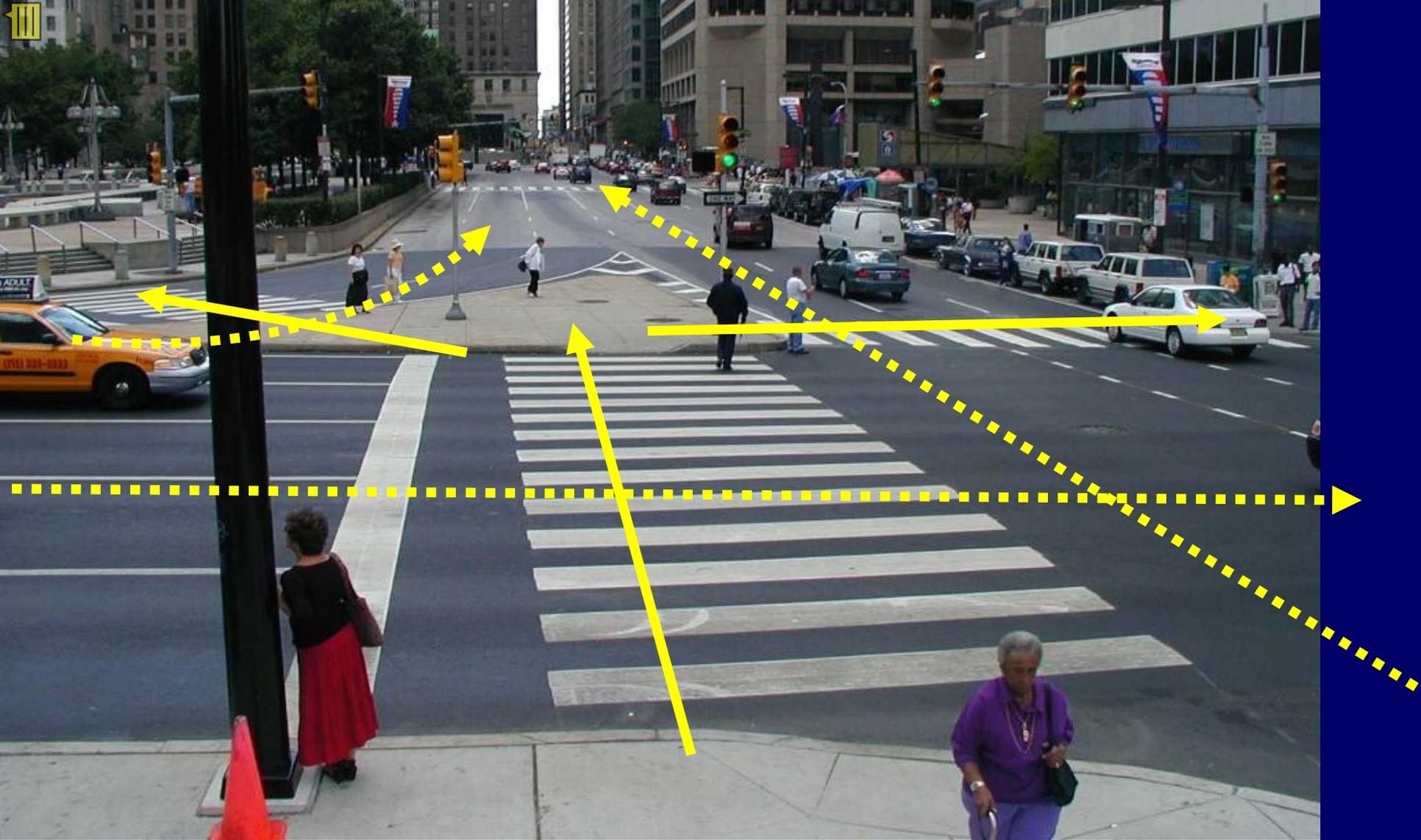
55° to 70°

One car length back

Cut through medians and islands for pedestrians

Long radius followed by short

Bicycle lane



Imagine the signal timing without island



Drivers naturally trace perfect island...



Should we mark this
crosswalk?
Signalize it?

What does the MUTCD say?

- "Crosswalks should be marked at all intersections where there is substantial conflict between vehicular and pedestrian movements."
- "Marked crosswalks also should be provided at other appropriate points of pedestrian concentration, such as loading islands, midblock pedestrian crossings, or where pedestrians could not otherwise recognize the proper place to cross."





General Principles

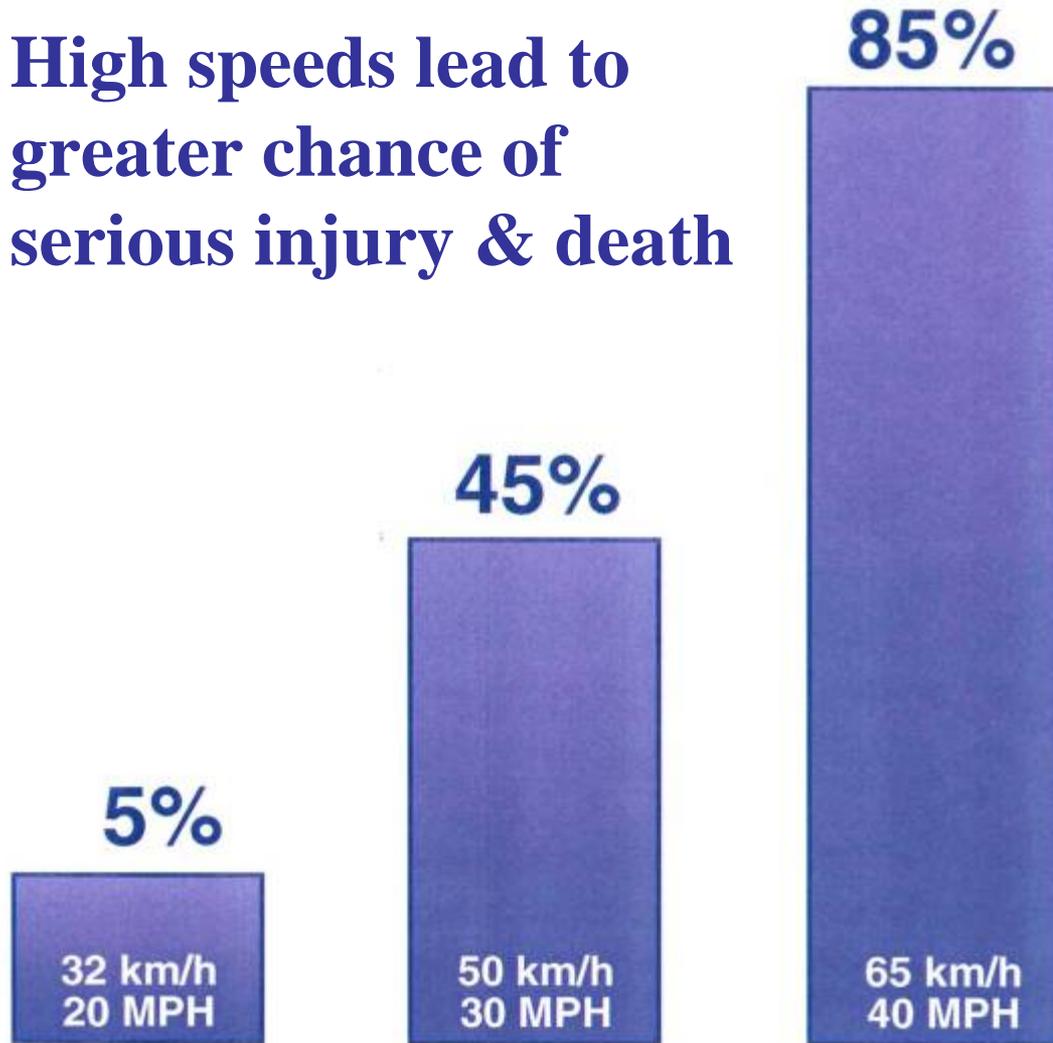
1. Recognize pedestrians want & need to cross the street safely
2. Pedestrians will cross where it's most convenient
3. Drivers need to understand pedestrians' intent
4. Minimize crossing distance
5. Simplify crossing
6. **Speed matters**

THIS LITTLE TOWN
IS HEAVEN TO US.
DON'T DRIVE LIKE
HELL THRU IT.



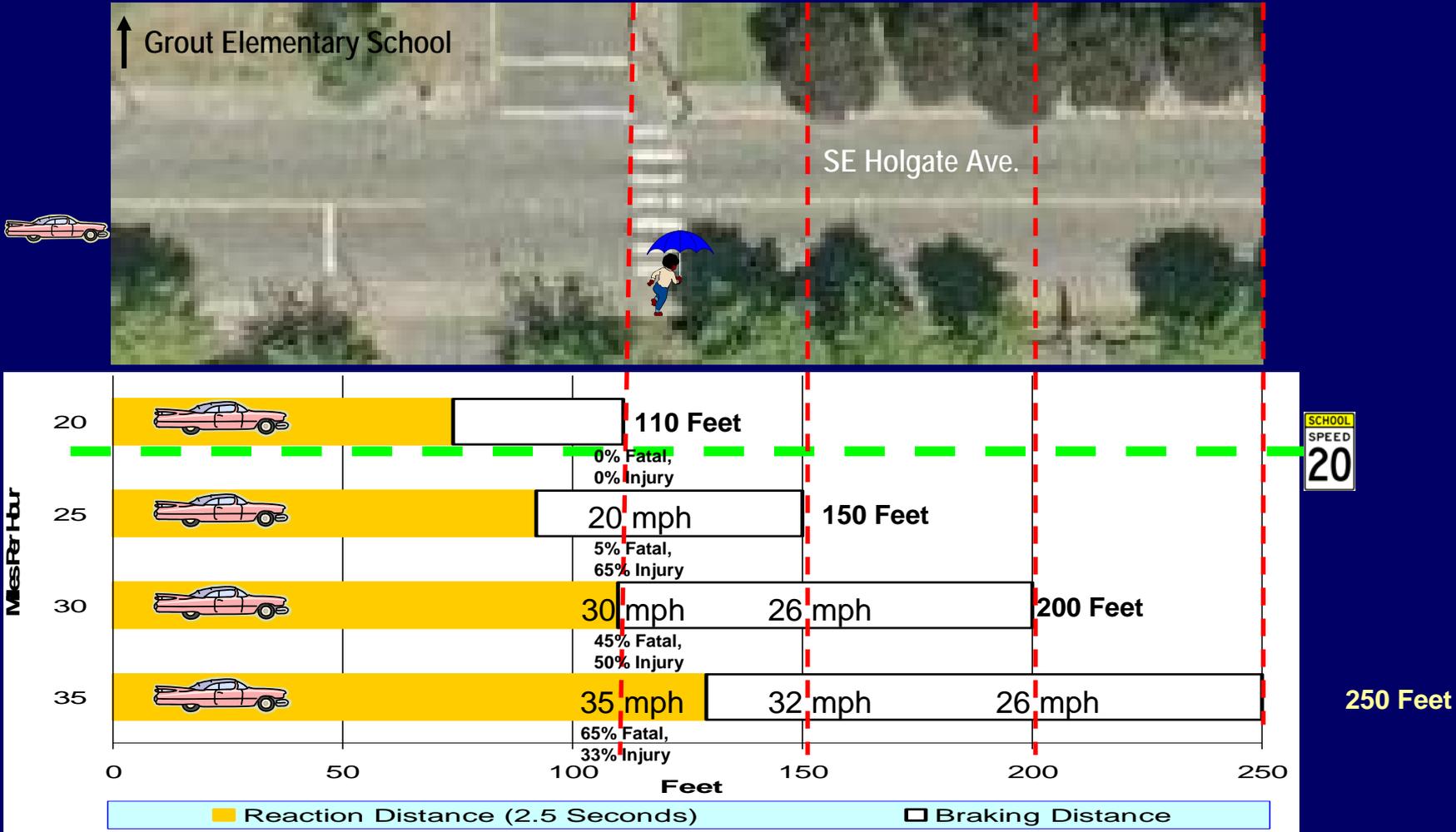
Speed Affects Crash Severity

High speeds lead to greater chance of serious injury & death



Pedestrians' chances of death if hit by a motor vehicle
SOURCE: *Killing Speed and Saving Lives*, UK Department of Transportation

EFFECTS OF SPEED ON STOPPING DISTANCE



Illumination

Informational Report on Lighting Design for Midblock Crosswalks

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Note that for roadways that have traffic traveling in both directions, particularly those without a center median, two luminaires are required, located on either side of the road and placed prior to the crosswalk from the drivers' perspective. This is also shown in figure 12.

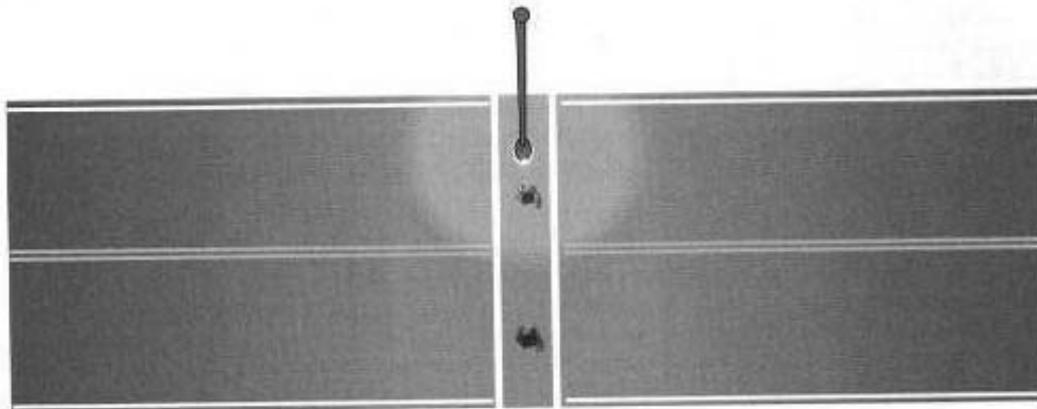


Figure 11. Drawing. Traditional midblock crosswalk lighting layout.

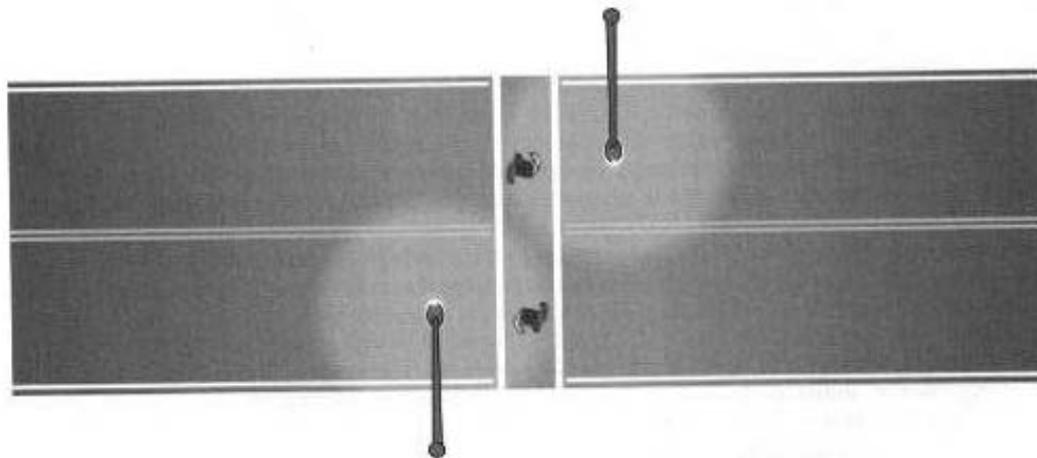


Figure 12. Drawing. New design for midblock crosswalk lighting layout.

Worlds Tallest Man on a Bicycle

