

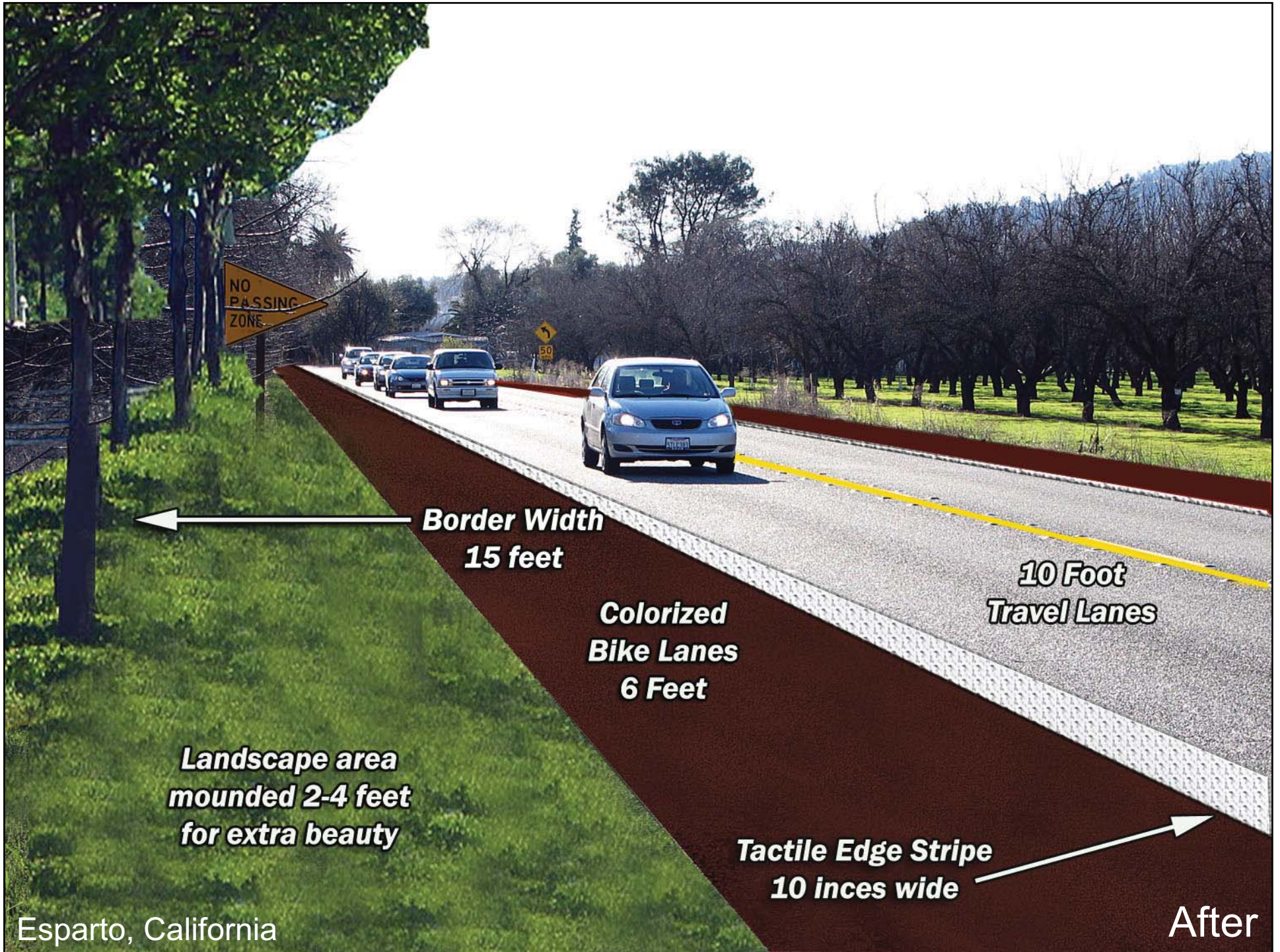
Design Tools

- Transition Zones
- Gateways
- Beacons



Esparto, California

Before



NO
PASSING
ZONE

50

← **Border Width
15 feet**

**Colorized
Bike Lanes
6 Feet**

**10 Foot
Travel Lanes**

**Landscape area
mounded 2-4 feet
for extra beauty**

**Tactile Edge Stripe
10 inches wide** →

Esparto, California

After



State Route 16, Capay, CA



Main Street, Sutter Creek
(Old Highway 49)



State Route 299, Willow Creek, CA

Pedestrian crossing sign with flashing beacon



Improves visibility of crosswalk

Rectangular Rapid Flash LED Beacon

- Not in MUTCD – received Interim approval from FHWA in July 2008
- Studies indicate motorist yield rates increased from about 20% to 80%
- Beacon is yellow, rectangular, and has a rapid “wig-wag” flash
- Beacon located between the warning sign and the arrow plaque
- Must be pedestrian activated (pushbutton or passive)





Beacons required on both right side and left side or in a median if practical

Pedestrian Hybrid Beacon, aka “HAWK” (High Intensity Activated Crosswalk)



Included in the 2009 MUTCD

2009 MUTCD Chapter 4F Pedestrian Hybrid Beacons

Drivers see
Hybrid
Beacon



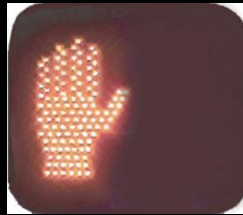
Pedestrians
see Ped
signal



Hybrid Beacon Sequence



1
Blank for
drivers



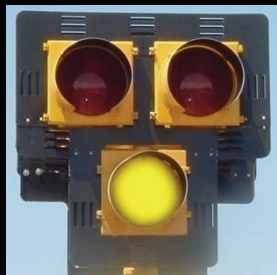
4
Steady
red



2
Flashing
yellow



5
Wig-Wag



3
Steady
yellow

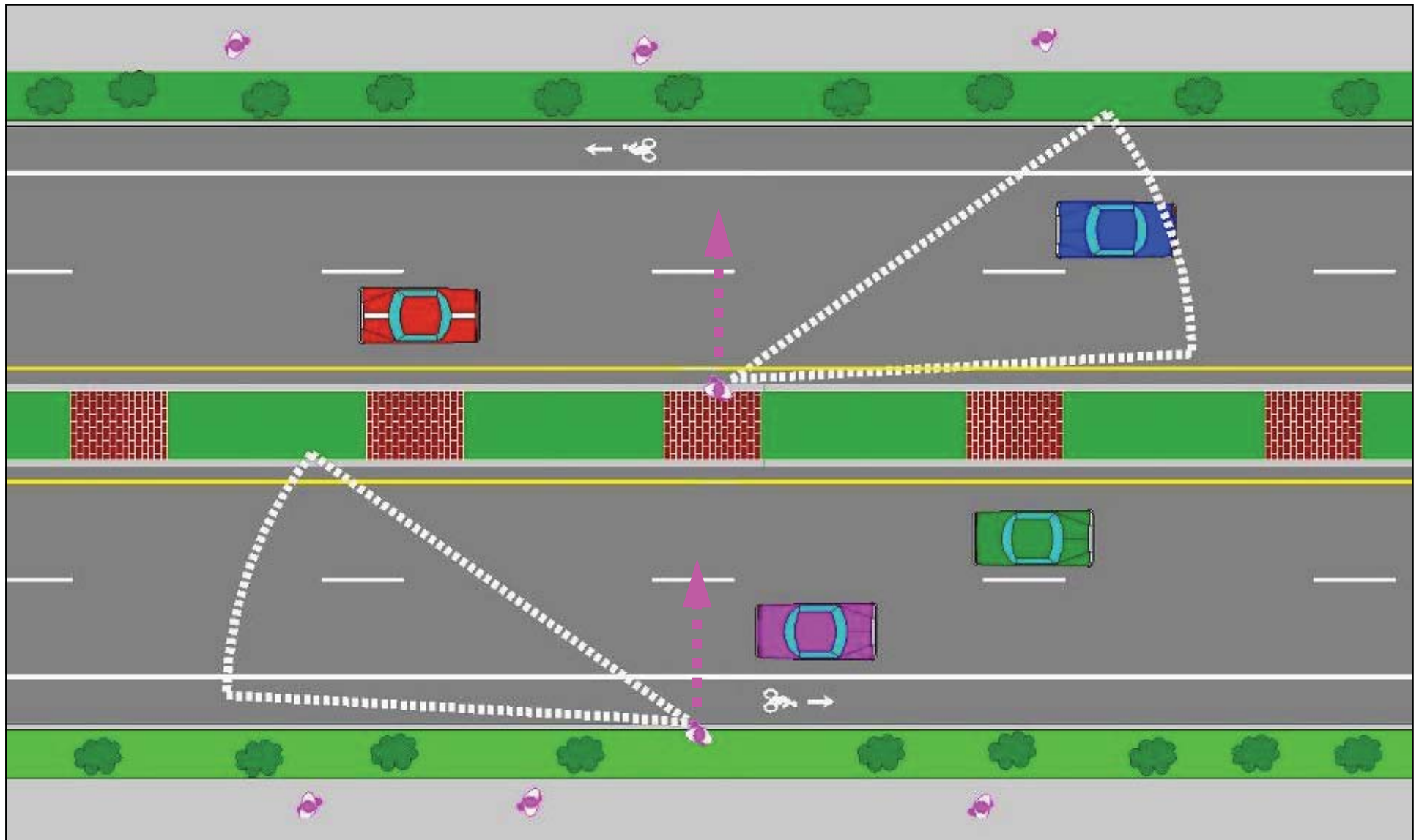


Return
to 1

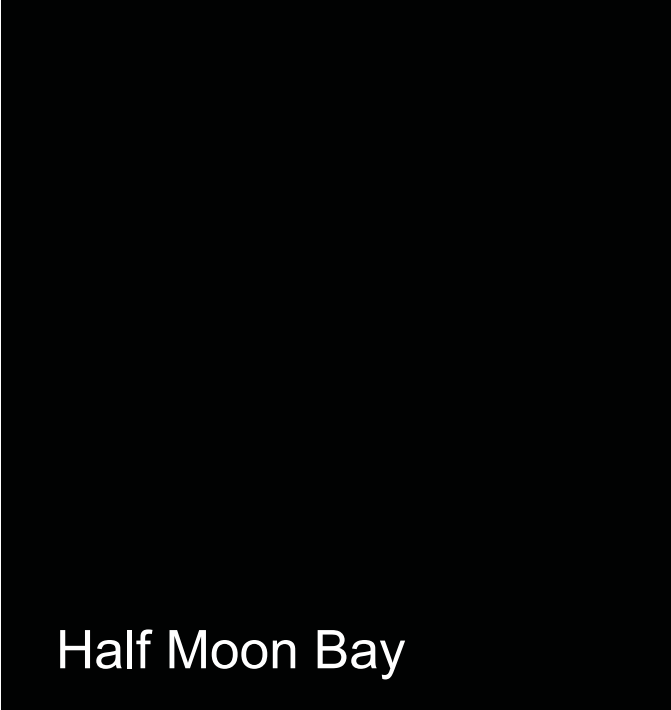
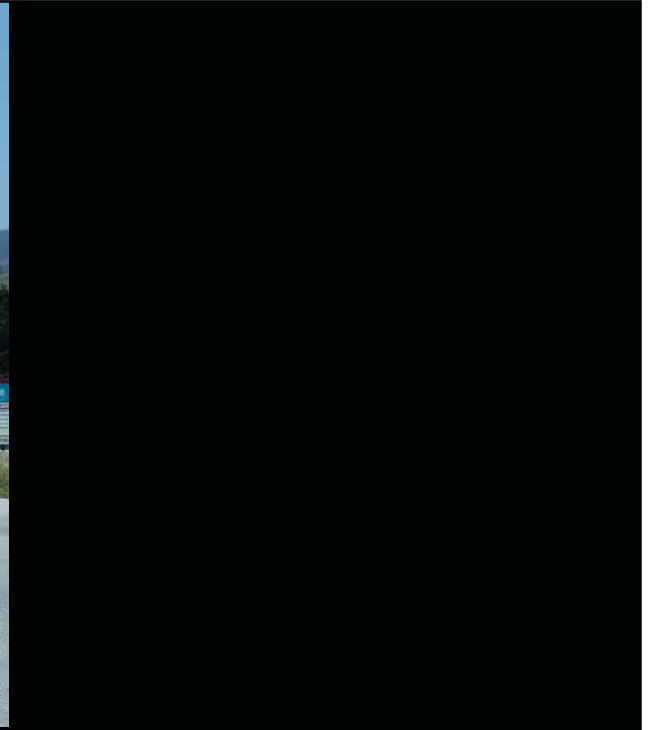


Medians

Medians



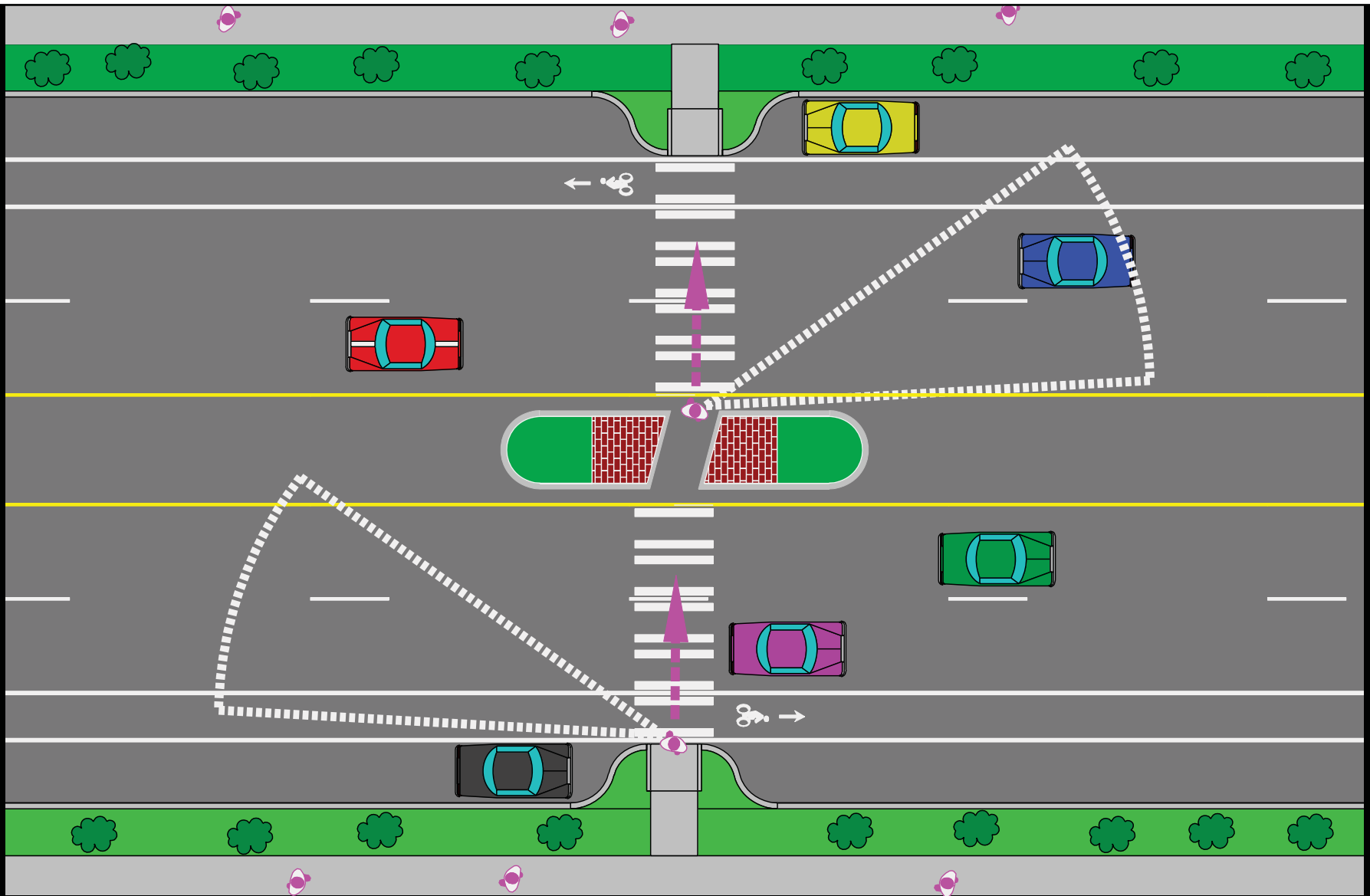
Continuous raised median — basic principle:
Breaks long complex crossing into two simpler crossings



Half Moon Bay



Davis, CA



Crossing island at marked crosswalk — same principle:
Breaks long complex crossing into two simpler crossings





Olympia, WA



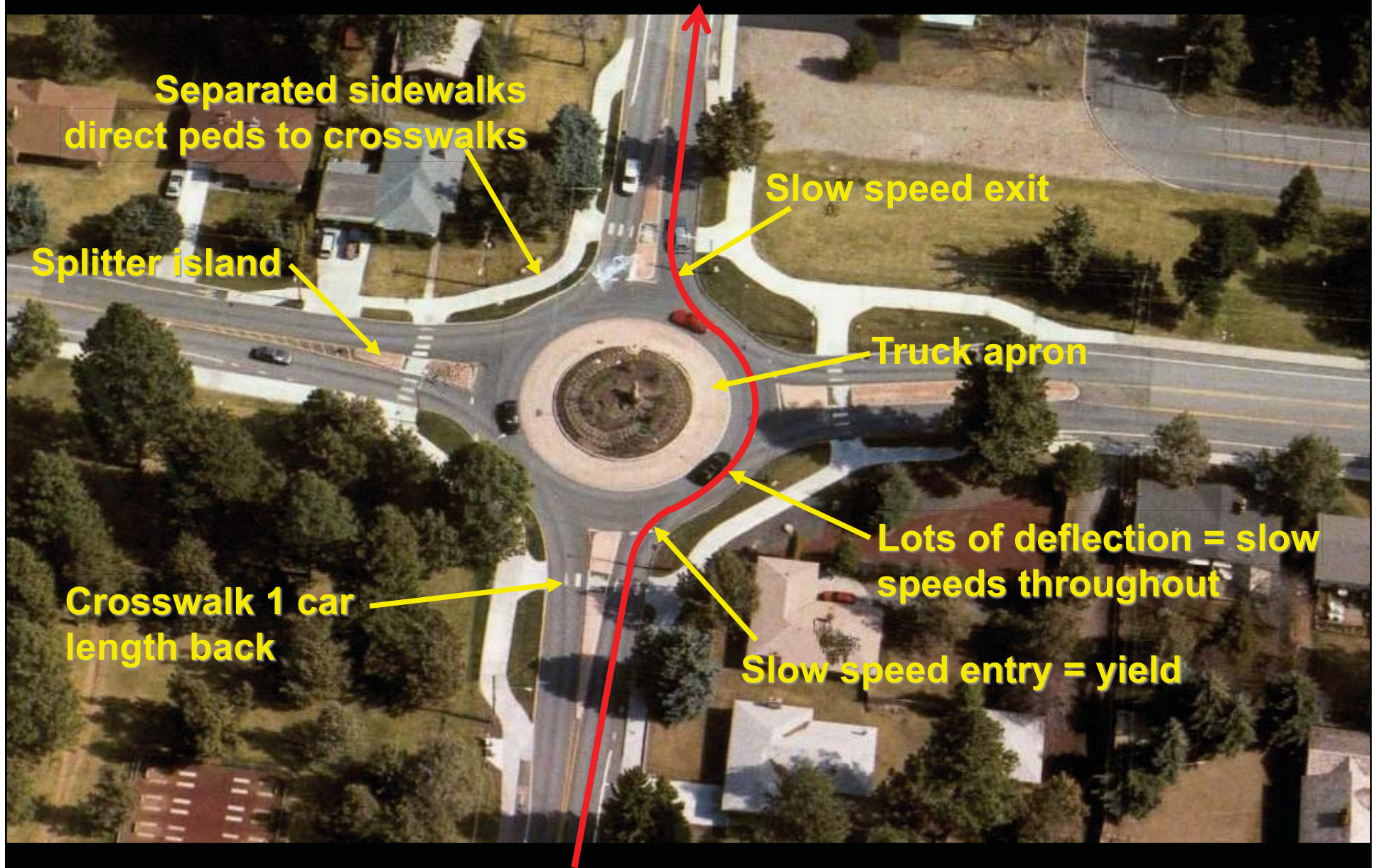




Roundabouts



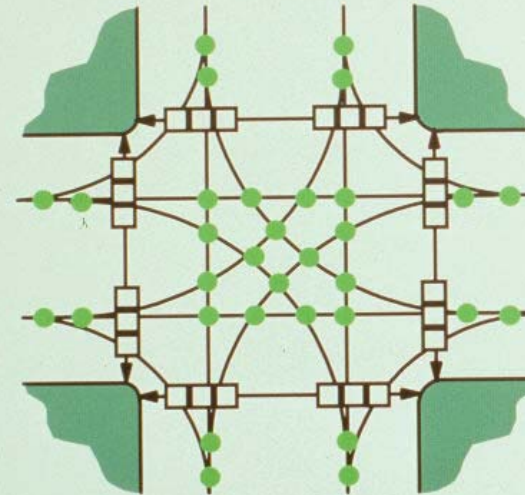
Essential roundabout characteristics



Bend OR

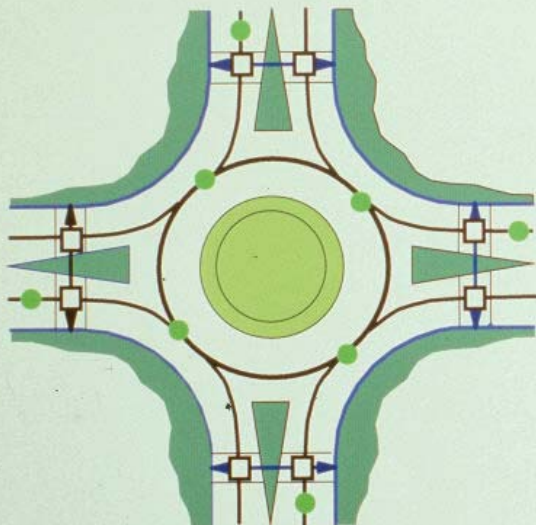
Roundabouts are safer

Conflicts At a Four-Way Intersection



- 32 vehicle-to-vehicle conflicts
- 24 vehicle-to-pedestrian conflicts

Conflicts At Roundabouts



- 8 vehicle-to-vehicle conflicts
- 8 vehicle-to-pedestrian conflicts

“Results of this study indicate that converting conventional intersections from stop sign or traffic signal control can produce substantial reductions in motor vehicle crashes.”

March 2000 Study by the Insurance Institute for Highway Safety



Gulf Drive (State Highway) Bradenton Beach, Florida — Before



Gulf Drive (State Highway) Bradenton Beach, Florida — After



La Jolla Boulevard, Bird Rock, San Diego, California — Before

23,000 ADT



14 Feet

La Jolla Boulevard, Bird Rock, San Diego, California

23,000 ADT

Roundabouts and Pedestrians



14 feet



Sacramento, CA

West River Drive and Orchard Lane

Roundabouts and Bicyclists



Montpelier, VT



University Place, WA



University Place, WA



Davis, CA

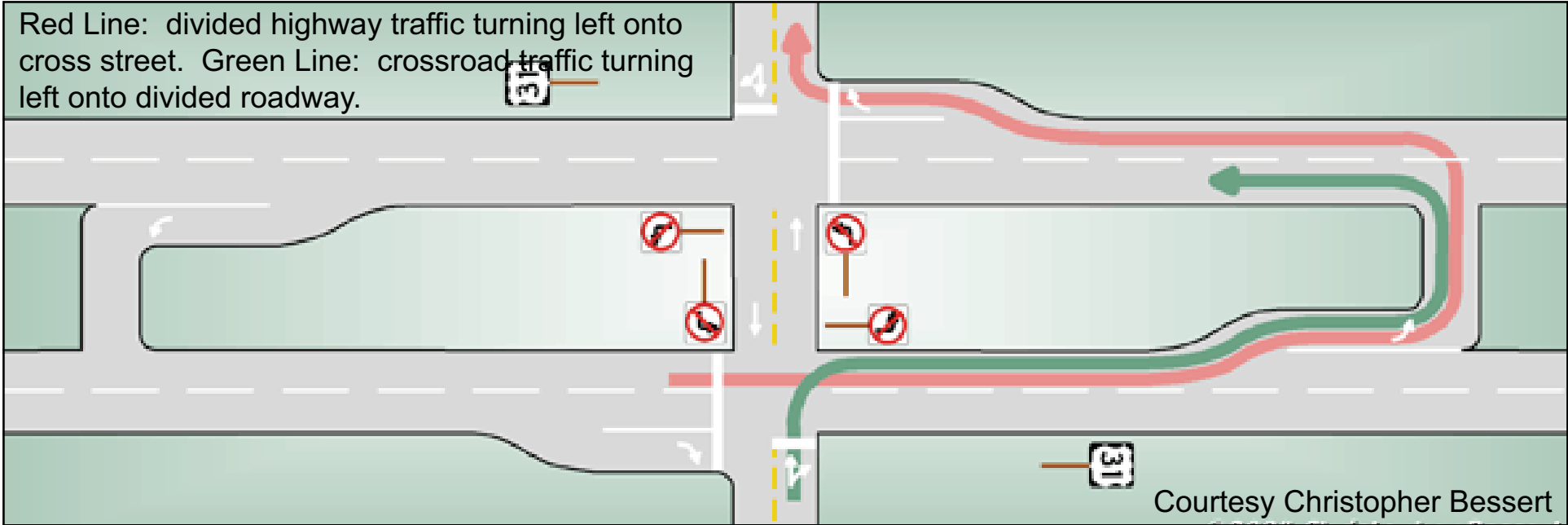


Davis, CA



Davis, CA

Red Line: divided highway traffic turning left onto cross street. Green Line: crossroad traffic turning left onto divided roadway.



Michigan left turn

Overcrossings

Overcrossings



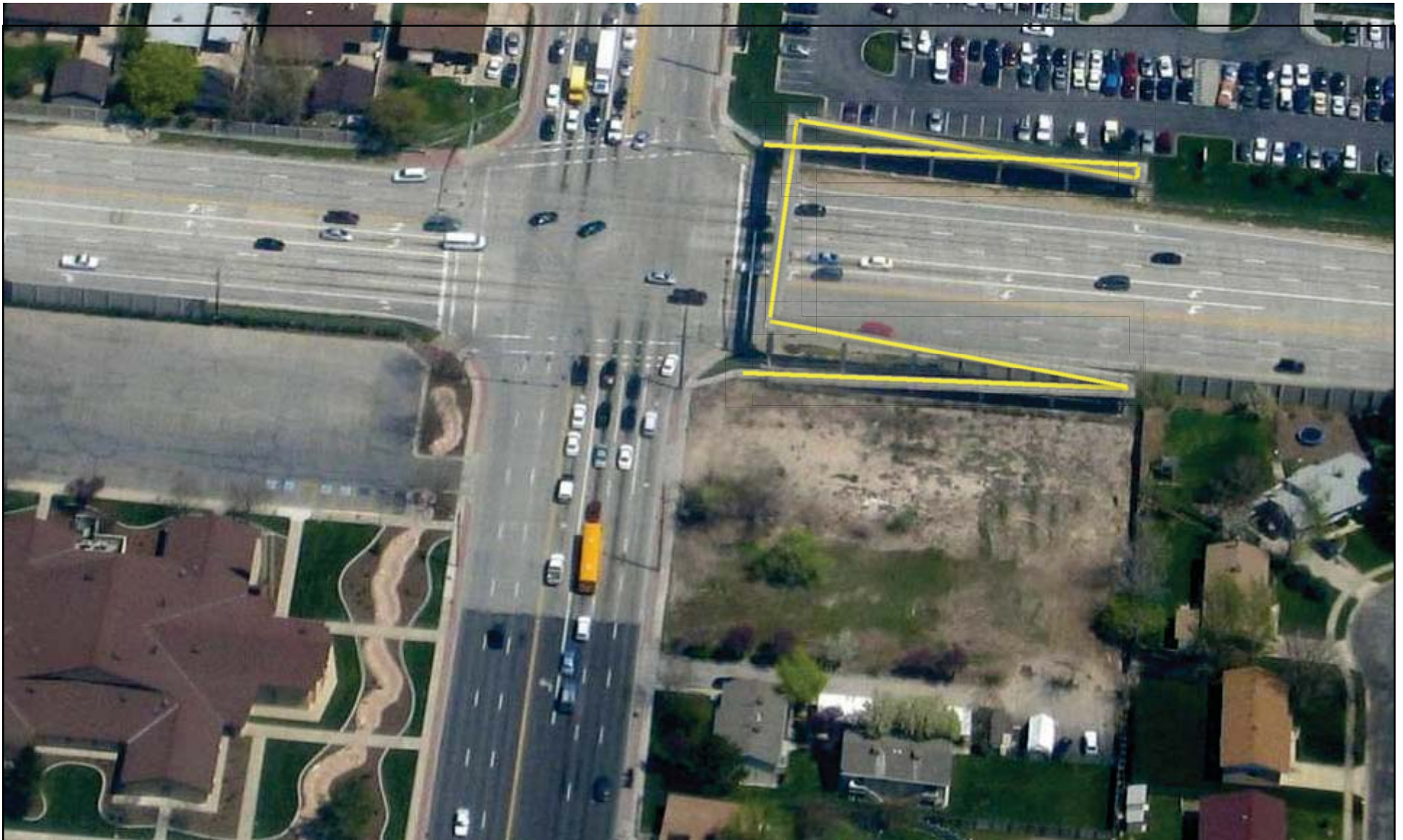
In theory, grade separation = no conflicts



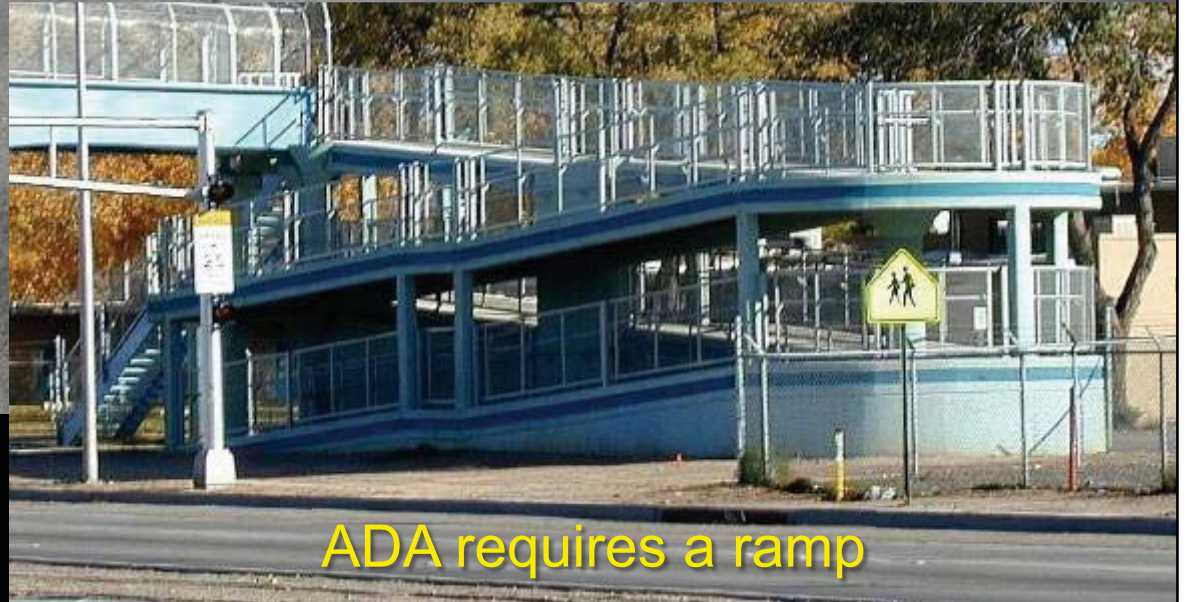
In reality, pedestrians often ignore structures placing themselves in greater danger



Why don't they get used? Longer travel distance



Why don't they get used? Longer travel distance



ADA requires a ramp

Overcrossings are expensive because of their height, which requires long ramps

Bicycle Facilities

BICYCLE FACILITIES

There are many different types of users...



Bike Route (Class III)

Bike Route with Wide Outside Lane

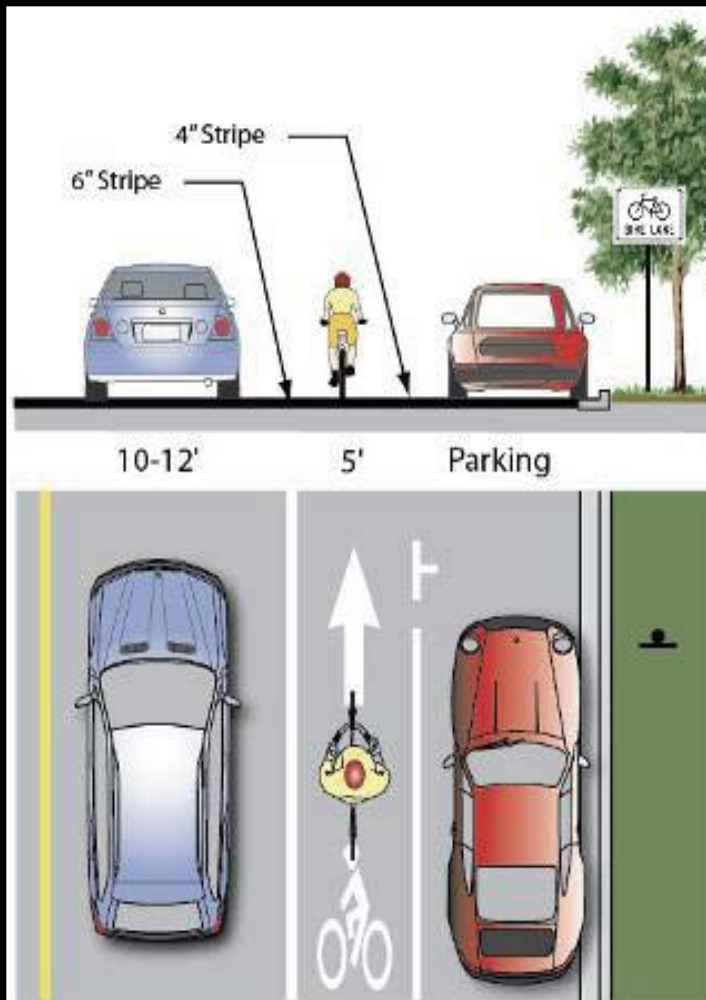


Bike Route on Minor Roadway



Bike Lanes (Class II)

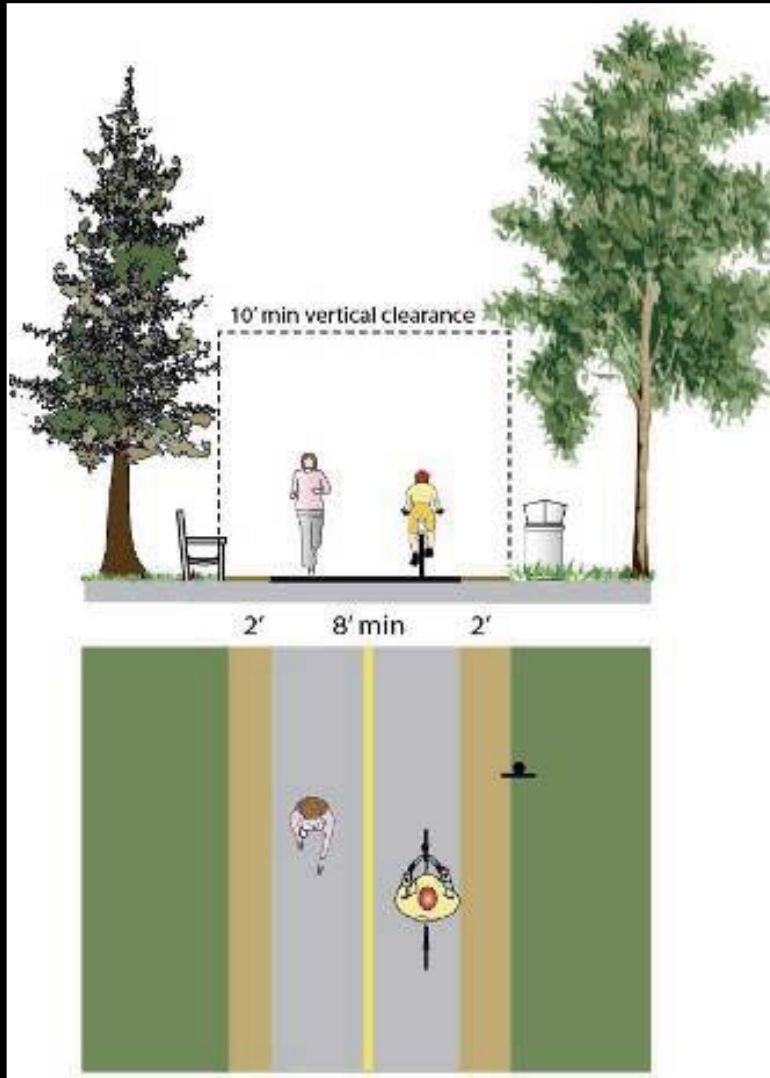
Bike Lane with On-Street Parallel Parking



Bike Lane with No On-Street Parking



Class 1 Bike Path (also known as a shared use path)



Shared Lane Marking (Sharrows)

