Streets and Streetmaking



Incremental Development





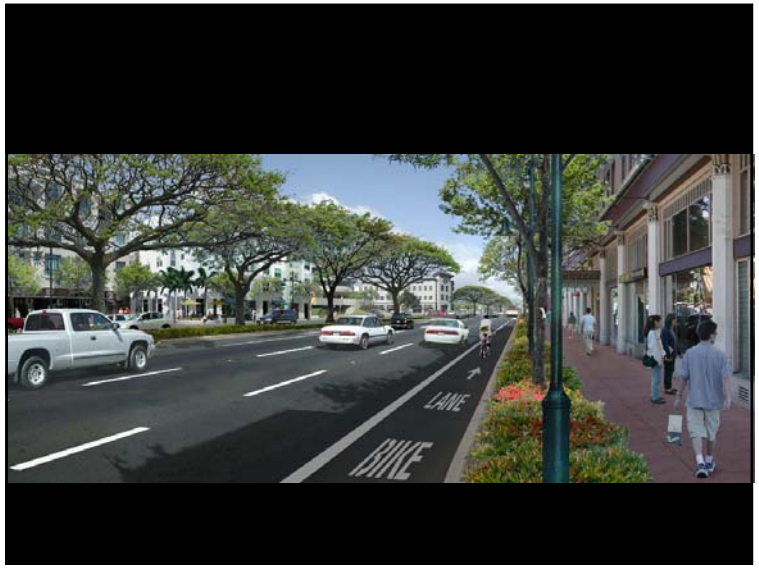
DOBLAND


LANE
BIKE

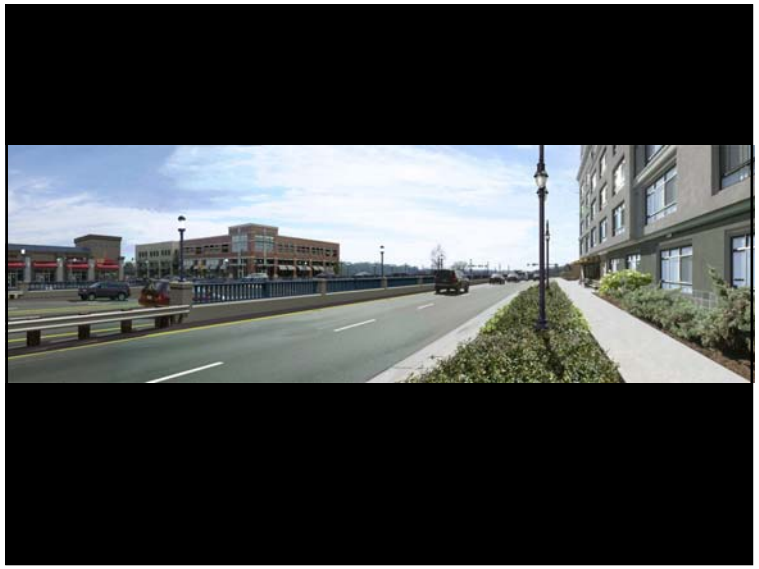

LANE
BIKE


LANE
BIKE


LANE
BIKE

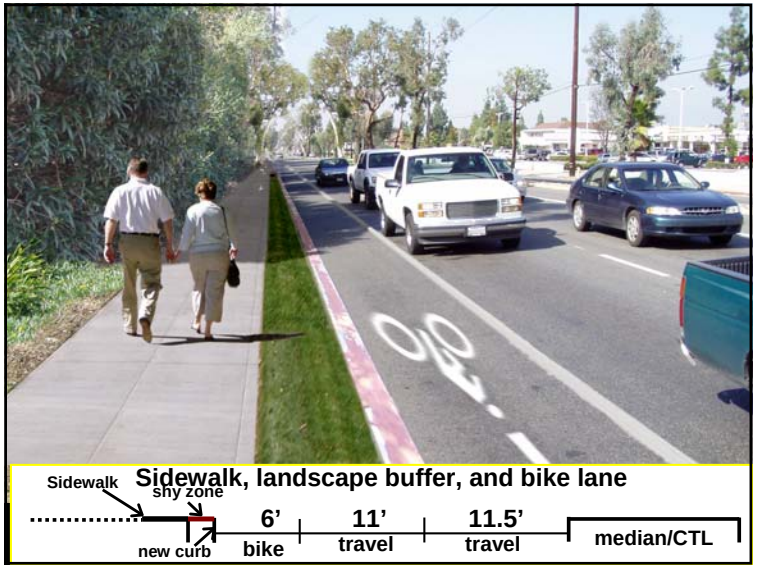

LANE
BIKE


LANE
BIKE




Healthy Streets for Healthy
Bridgeport Way, University Place, Washington
9/29/1999 2:06pm


You Know When You Have Left Claremont
Claremont, California
CAR WASH
LIQUOR


Sidewalk, landscape buffer, and bike lane
Sidewalk
shy zone
new curb
6'
bike
11'
travel
11.5'
travel
median/CTL


Bike lane & wider sidewalk with textured parking bays
median/CTL
11.5’
travel
11’
travel
6’
bike
parking
15’
walking


Orlando, Florida
MOTEL
Houston, Texas


Houston, Texas
Neighborhood Collector
Neighborhood Collector
Anywhere in California

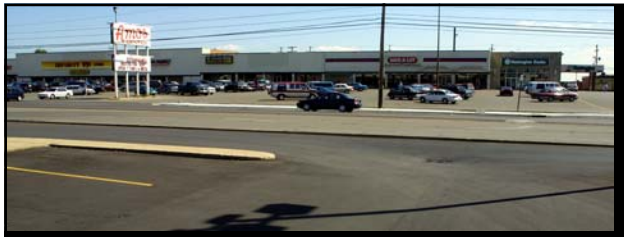

Orlando, Florida
Commercial Street
Commercial Street
Los Alamos, California

International Drive (New Section)
Orlando, Florida

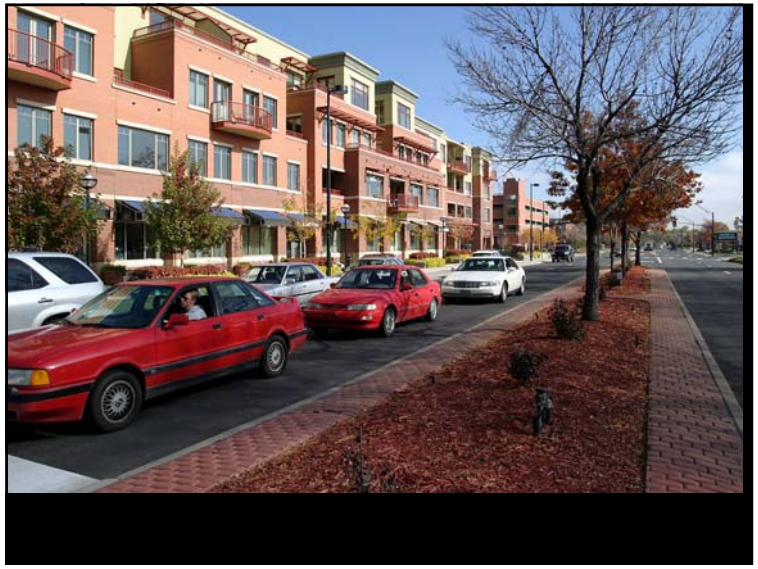
International Drive (Older Section)
Orlando, Florida

Selected tools work for all

Fix the Edges First



Medians



Medians

Urban Section -- Use significant ground cover

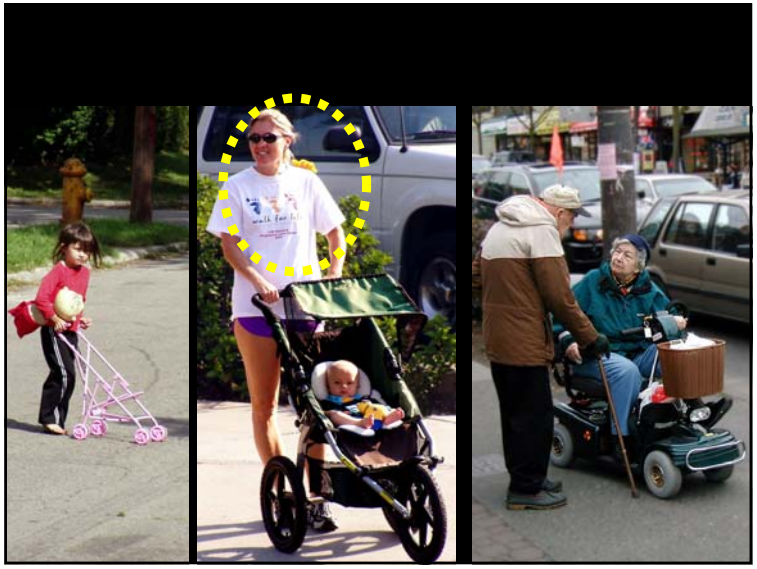
Rural Section -- Use lane narrowing and visual tightening


Alpharetta Hwy. (SR 9), Roswell, GA
5'
5'
4'
11'
11'
11'
11'
11'
4'
3'
5'
6'
63'
84'
90' R.O.W.

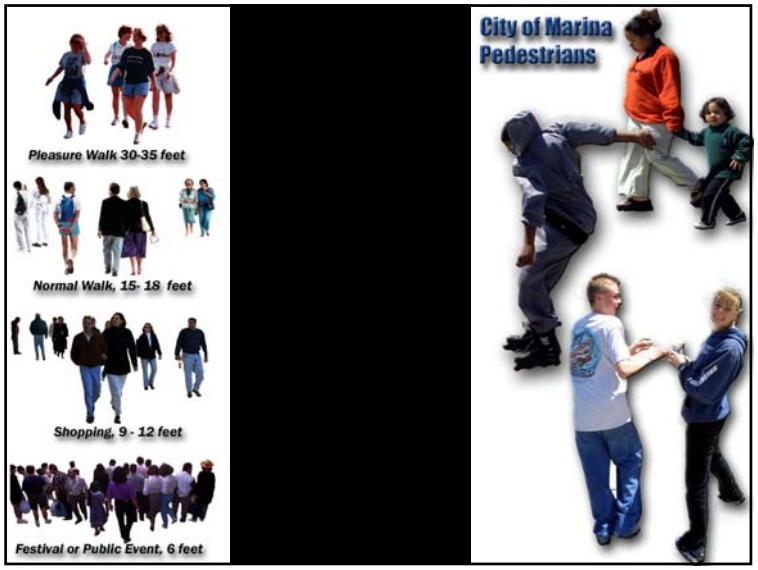

Orlando Avenue, (US 17 / 92), Winter Park, FL
Varies
12'
10.5
11'
10.5
12'
12'
Varies

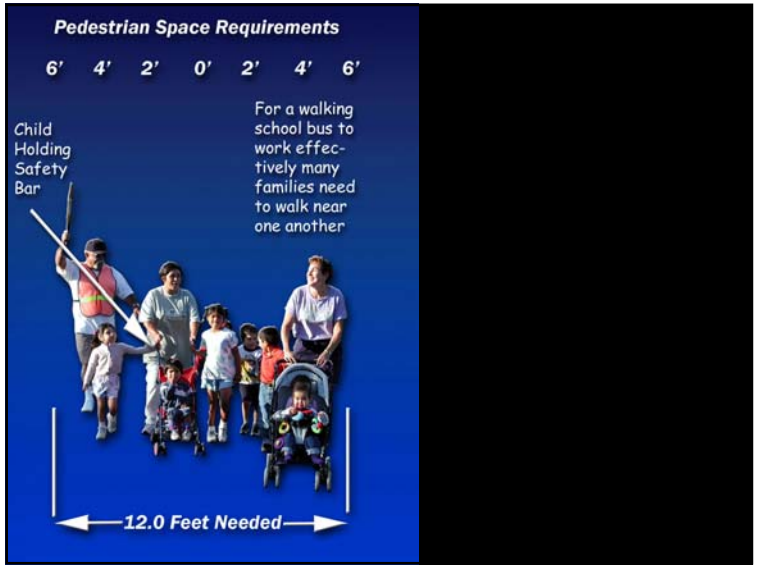
People Realm

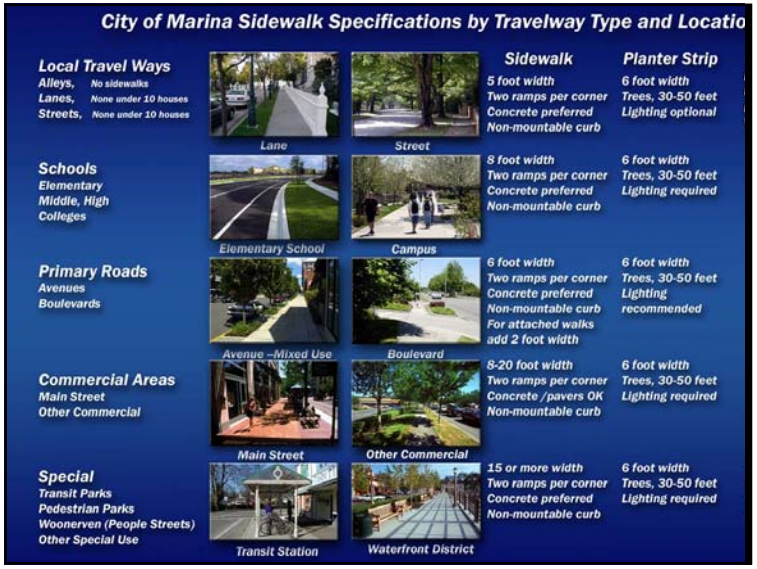
Johnson & Johnson Band Aid

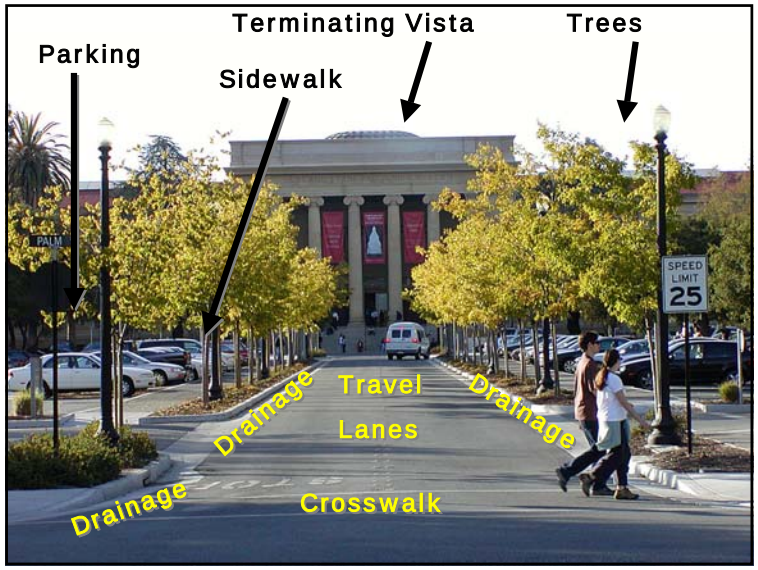


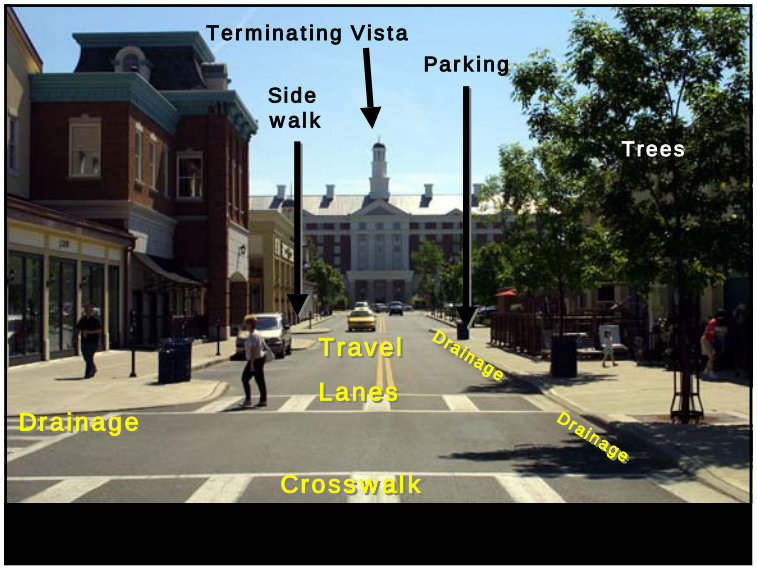

Pedestrian Space Requirements
3' 2' 1' 0' 1' 2' 3'
Seven people Equivalent of Two SUV's
Just as with driving, social walking requires two adults to be alongside one another
6.0 Feet Needed

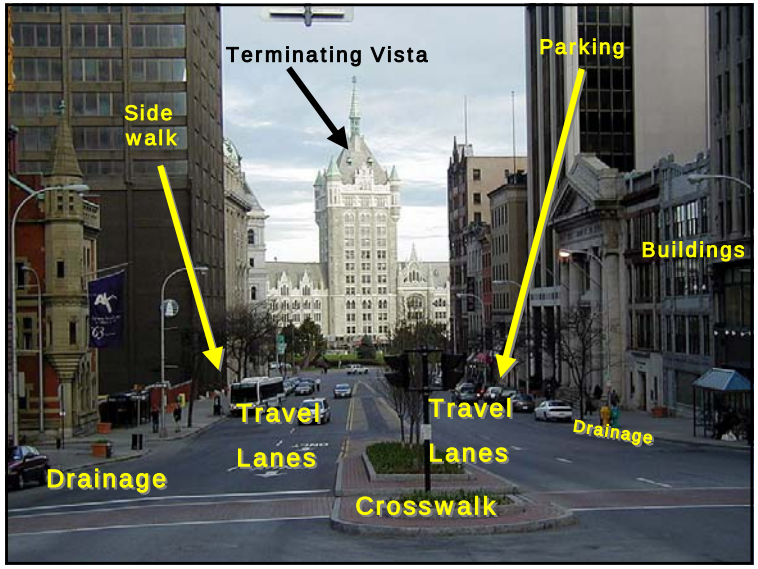

Pleasure Walk 30-35 feet
Normal Walk, 15- 18 feet
Shopping, 9 - 12 feet
Festival or Public Event, 6 feet
City of Marina Pedestrians

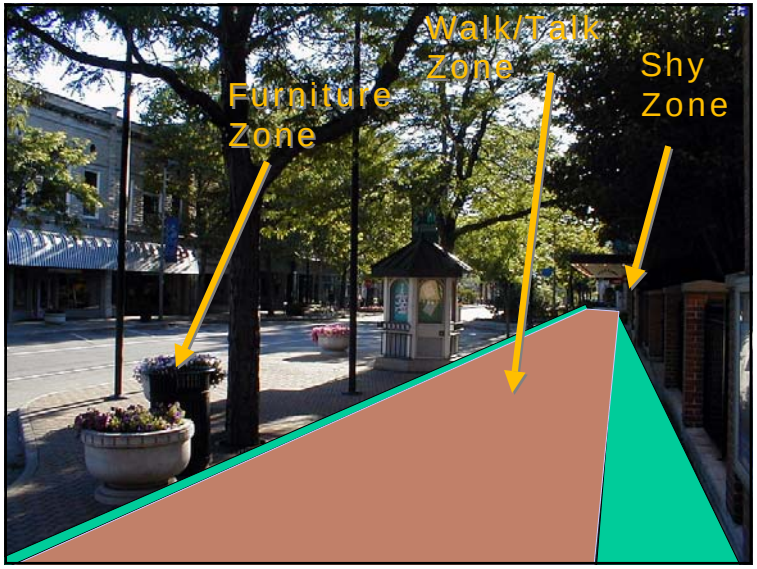

Pedestrian Space Requirements
6' 4' 2' 0' 2' 4' 6'
Child Holding Safety Bar
For a walking school bus to work effec-tively many families need to walk near one another
12.0 Feet Needed


City of Marina Sidewalk Specifications by Travelway Type and Locatio
Local Travel Ways
Alleys, No sidewalks
Lanes, None under 10 houses
Streets, None under 10 houses
Sidewalk
Planter Strip
5 foot width
Two ramps per corner
Concrete preferred
Non-mountable curb
6 foot width
Trees, 30-50 feet
Lighting optional
Lane
Street
Schools
Elementary
Middle, High
Colleges
8 foot width
Two ramps per corner
Concrete preferred
Non-mountable curb
6 foot width
Trees, 30-50 feet
Lighting required
Elementary School
Campus
Primary Roads
Avenues
Boulevards
6 foot width
Two ramps per corner
Concrete preferred
Non-mountable curb
For attached walks add 2 foot width
6 foot width
Trees, 30-50 feet
Lighting recommended
Avenue –Mixed Use
Boulevard
Commercial Areas
Main Street
Other Commercial
8-20 foot width
Two ramps per corner
Concrete /pavers OK
Non-mountable curb
6 foot width
Trees, 30-50 feet
Lighting required
Main Street
Other Commercial
Special
Transit Parks
Pedestrian Parks
Woonerven (People Streets)
Other Special Use
15 or more width
Two ramps per corner
Concrete preferred
Non-mountable curb
6 foot width
Trees, 30-50 feet
Lighting required
Transit Station
Waterfront District

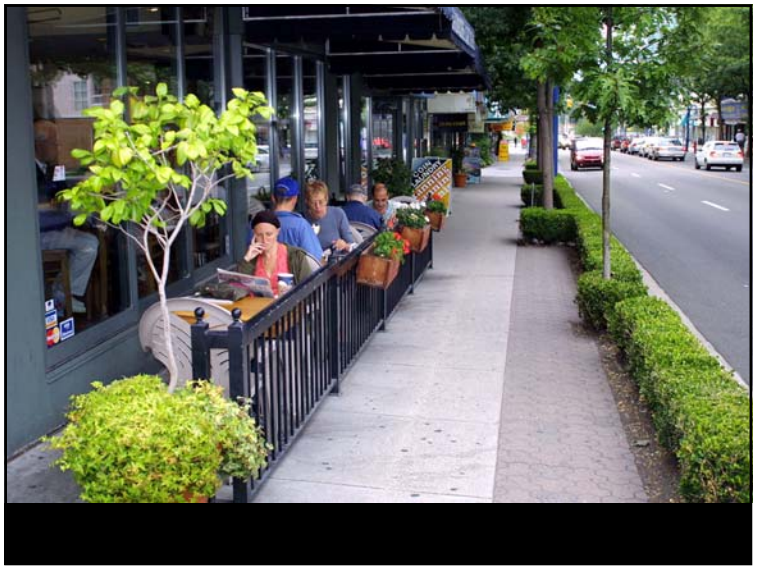

Parking
Terminating Vista
Trees
Sidewalk
Drainage
Travel
Lanes
Drainage
Drainage
Crosswalk
SPEED LIMIT 25


Terminating Vista
Parking
Side walk
Trees
Travel
Lanes
Drainage
Drainage
Drainage
Crosswalk

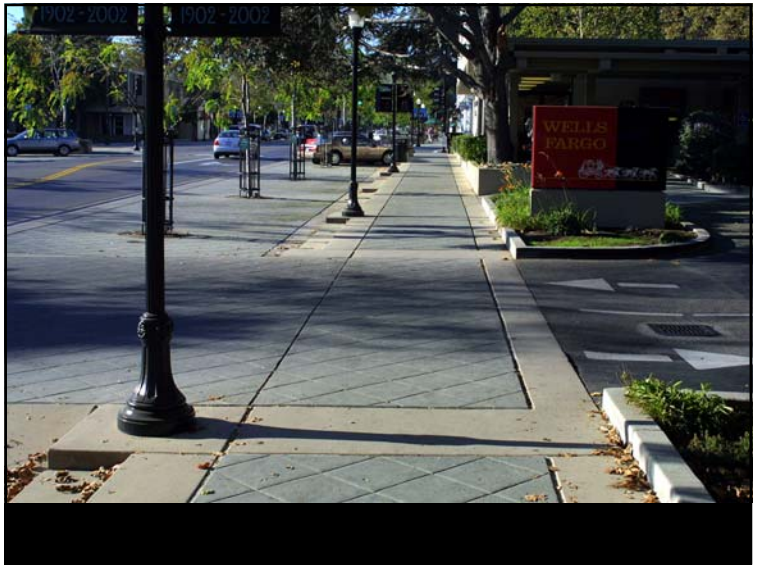

Terminating Vista
Parking
Side walk
Buildings
Travel
Lanes
Travel
Lanes
Drainage
Drainage
Crosswalk

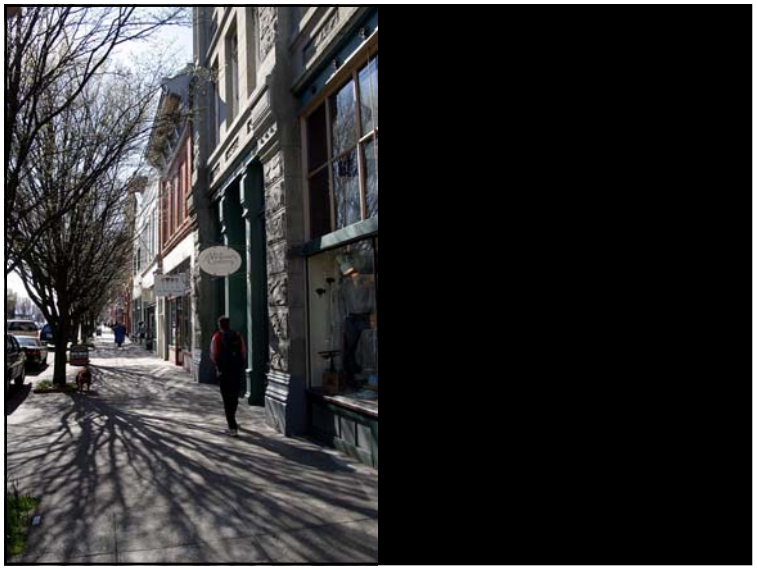

Walk/Talk Zone
Furniture Zone
Shy Zone

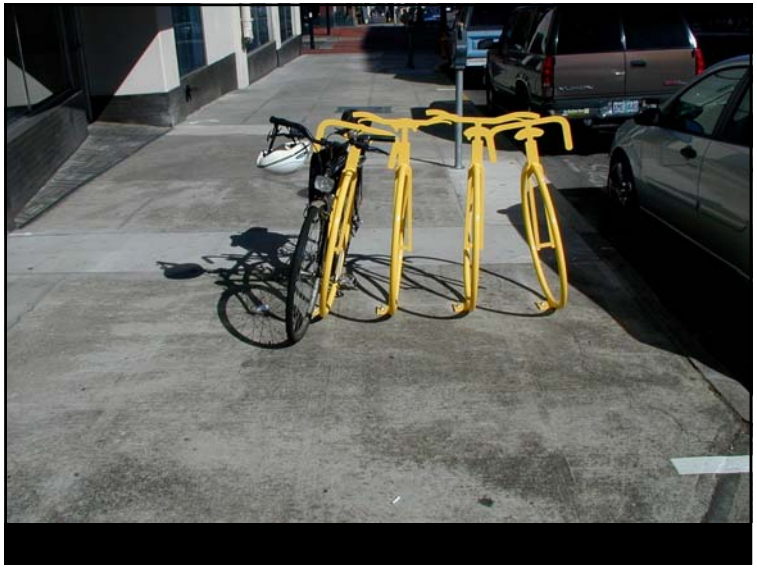

4th Avenue
Mall
To Gresham




OPEN
Matt Neely
JAZZ
BREWER AMBRA

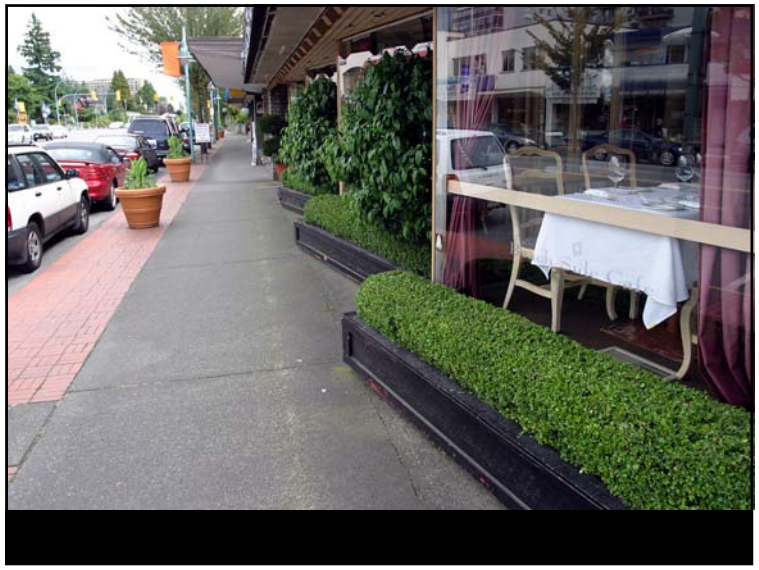

1902-2002
1902-2002
WELLS
FARGO



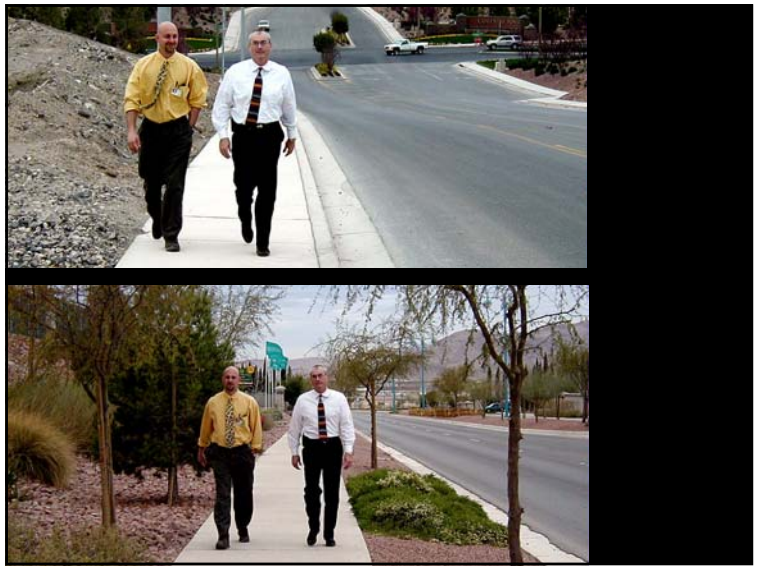



PARKING AUTHORITY

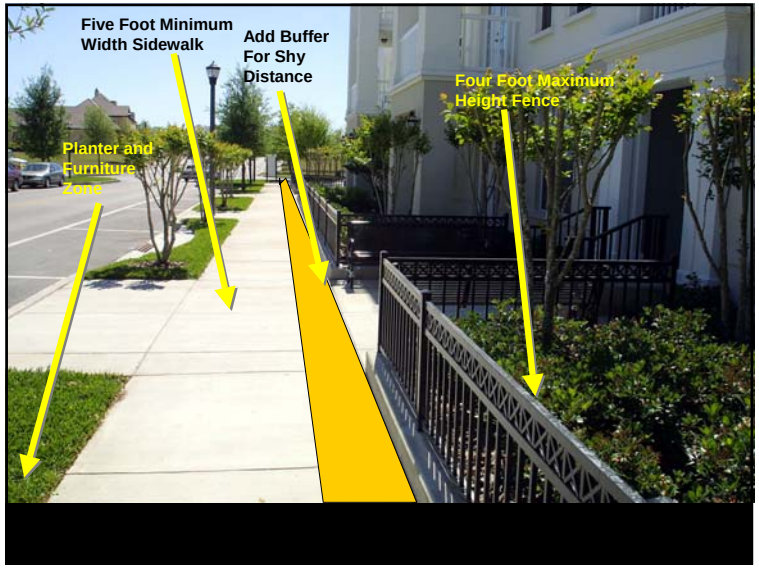

HENRY MILLER
CLOTHIERS FOR MEN
Cool Sale
SUITS
$150.00
OFF



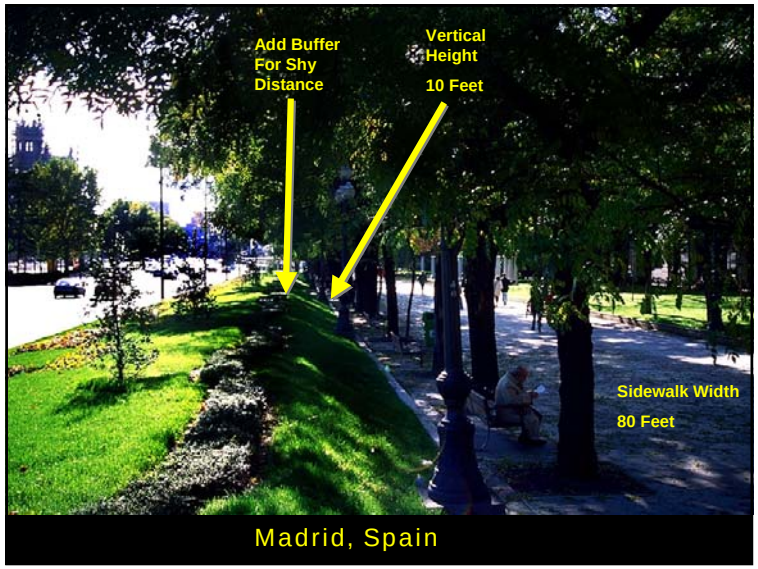
Neighborhood Walkways

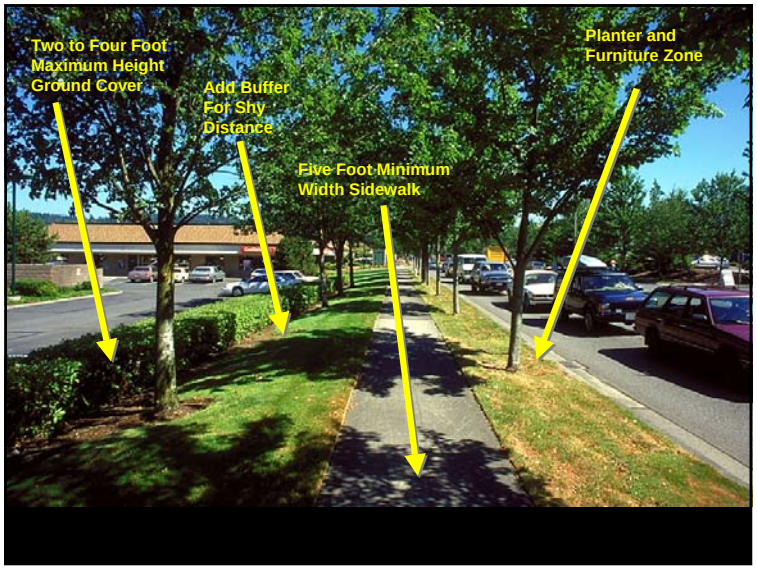


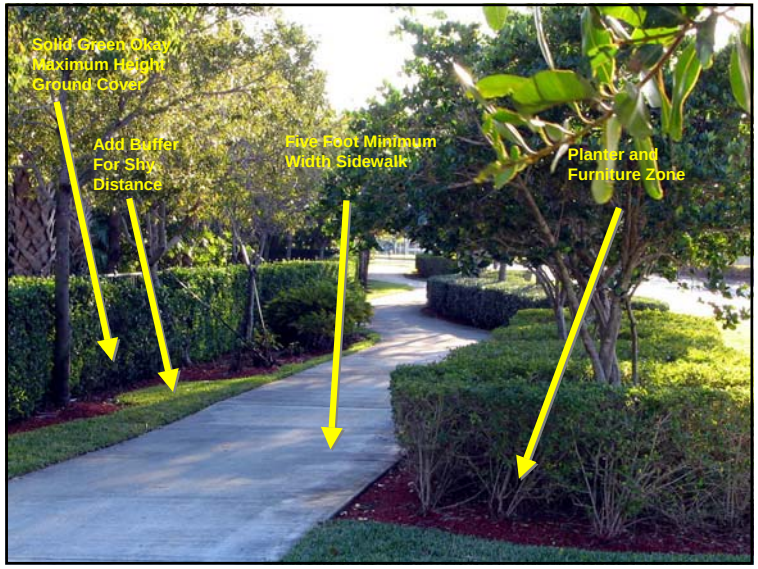

Four Foot Maximum Height Fence
Five Foot Minimum Width Sidewalk
Add Buffer For Shy Distance
Planter and Furniture Zone


Five Foot Minimum Width Sidewalk
Add Buffer For Shy Distance
Four Foot Maximum Height Fence
Planter and Furniture Zone


Four Foot Maximum Height Fence
Planter and Furniture Zone
Five Foot Minimum Width Sidewalk
Add Buffer For Shy Distance







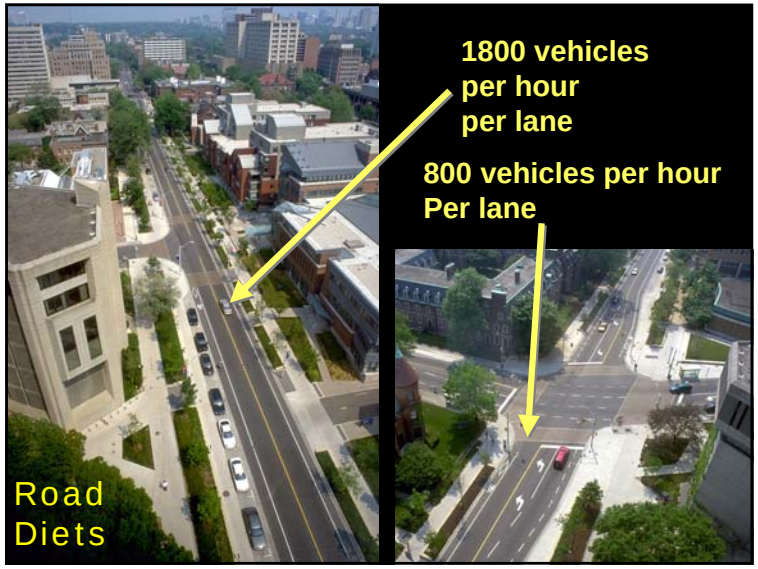
Reinventing Roads

Traffic

Design Speed

Design speed has long been a prime factor in the design of roadway geometric elements, such as vertical and horizontal alignment and cross section. The current design process does not always result in the desired consistency in roadway alignment or driver behavior along these alignments. The desired product of good geometric design is a roadway alignment and cross section that will encourage the driver to operate safely and consistently with the function of the facility. Further, an ideal geometric design is both consistent with the context of the setting and cost-effective.

http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+15-25



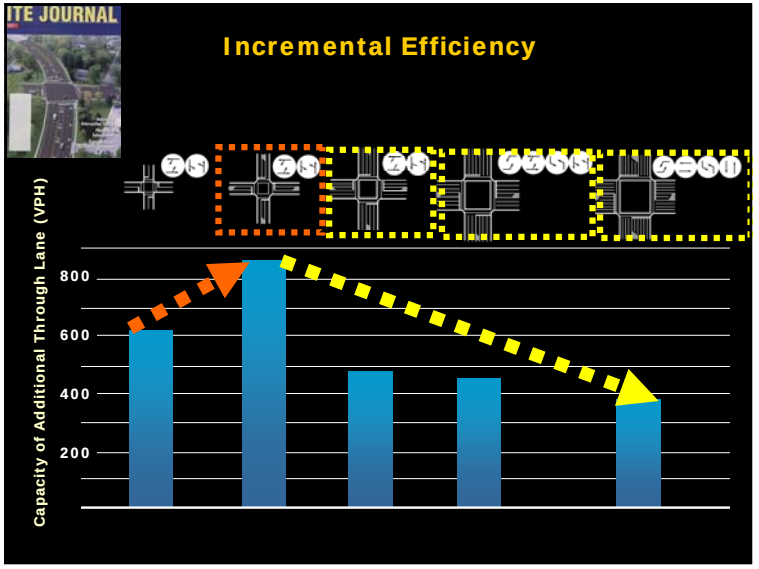
Principles of Traffic Capacity

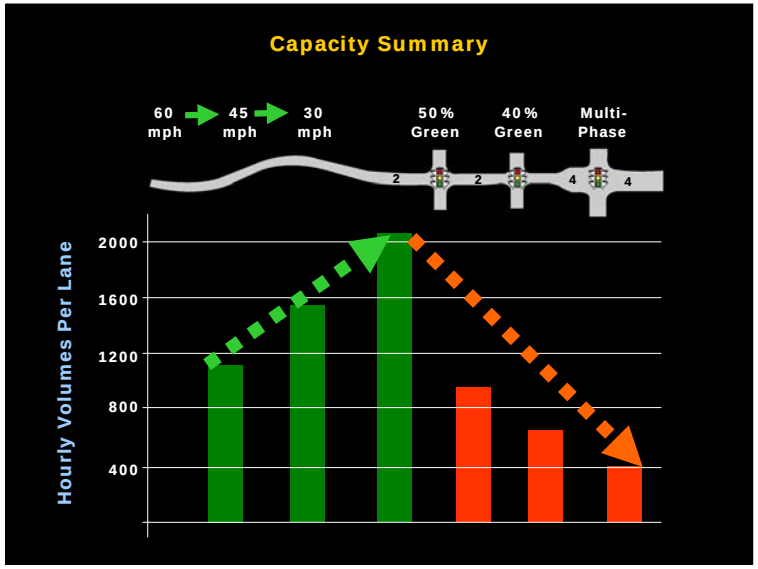
Walter Kulash, P.E.

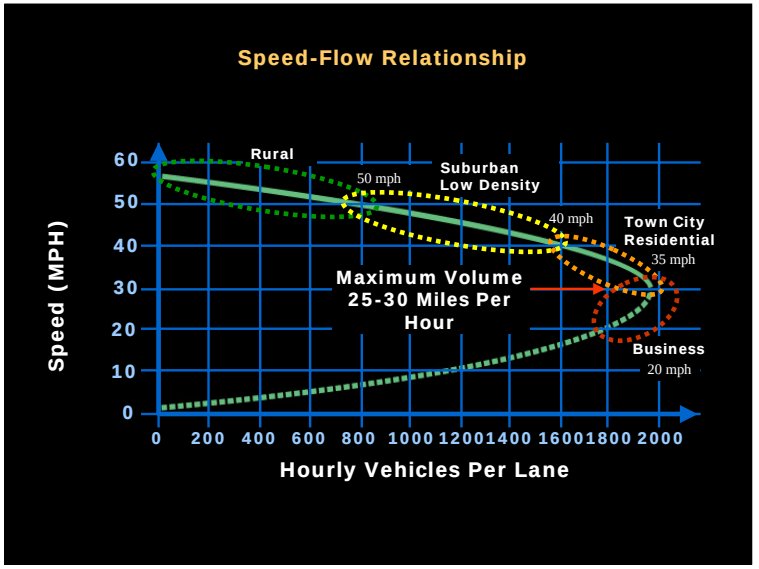
Glatting Jackson

Graphics: Paula Tomala

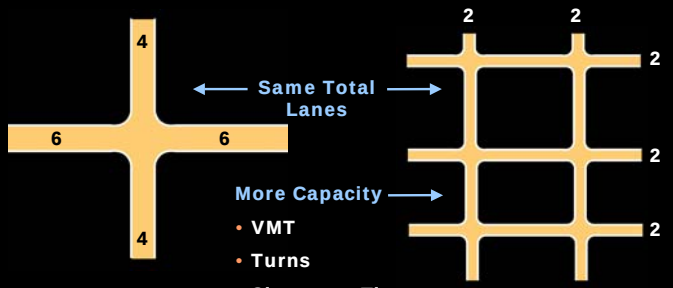
2004







Network and Capacity

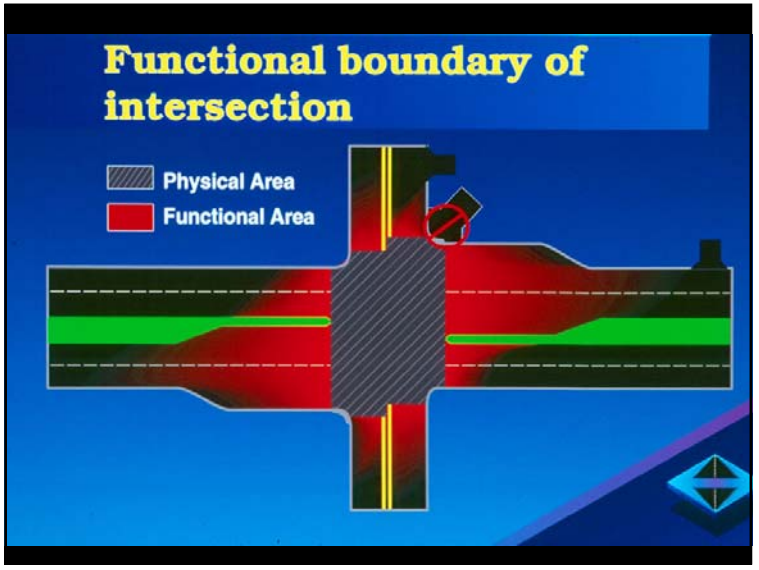


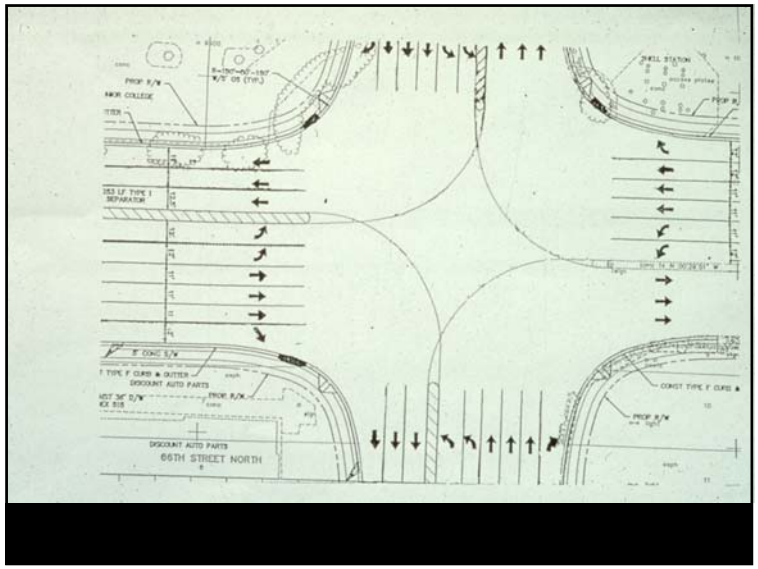
More Capacity

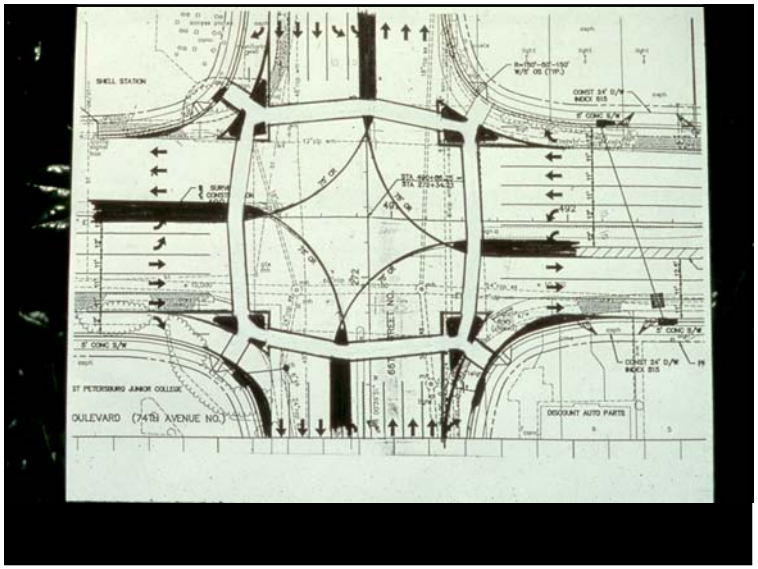
- VMT
- Turns
- Clearance Time
- Signal Phase

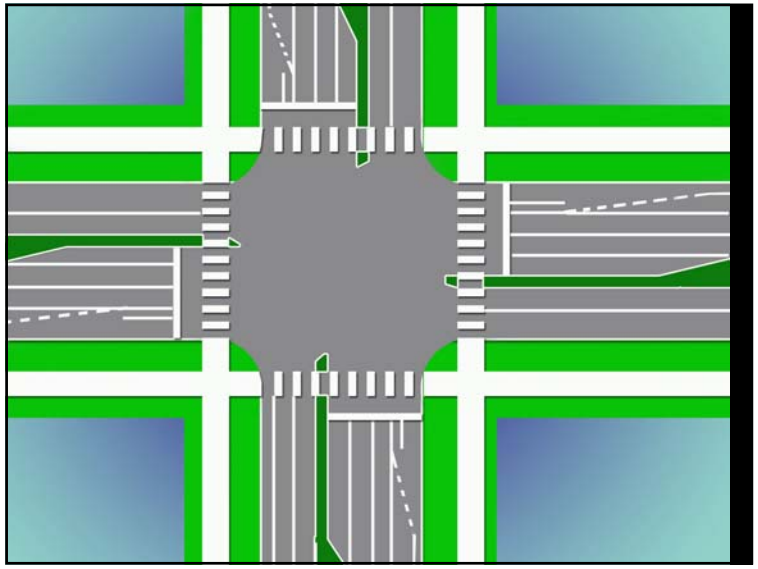
Lane Widths

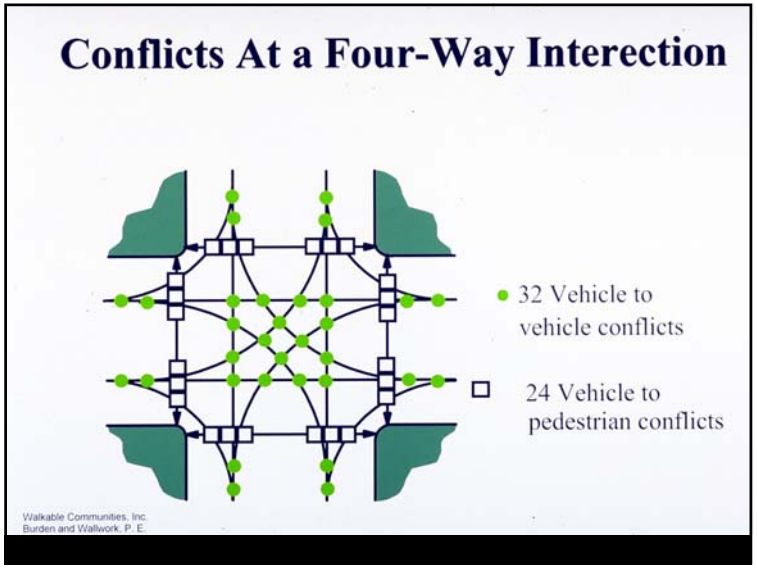
Intersections



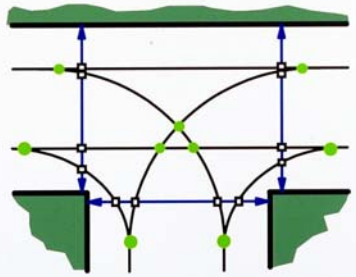

66TH STREET NORTH


SHELL STATION
ST PETERSBURG JUNIOR COLLEGE
DISCOUNT AUTO PARTS




Conflicts At a Four-Way Interection
32 Vehicle to vehicle conflicts
24 Vehicle to pedestrian conflicts
Walkable Communities, Inc.
Burden and Wallwork, P. E.

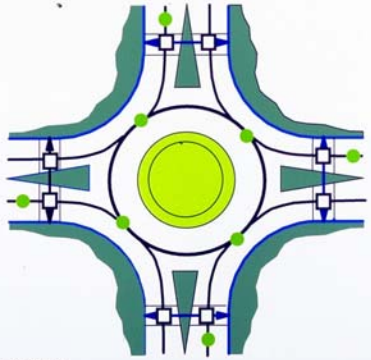
Conflicts at a Tee Intersection



- 9 vehicle to vehicle conflicts
- 12 vehicle to pedestrian conflicts (one-half of 4-way)

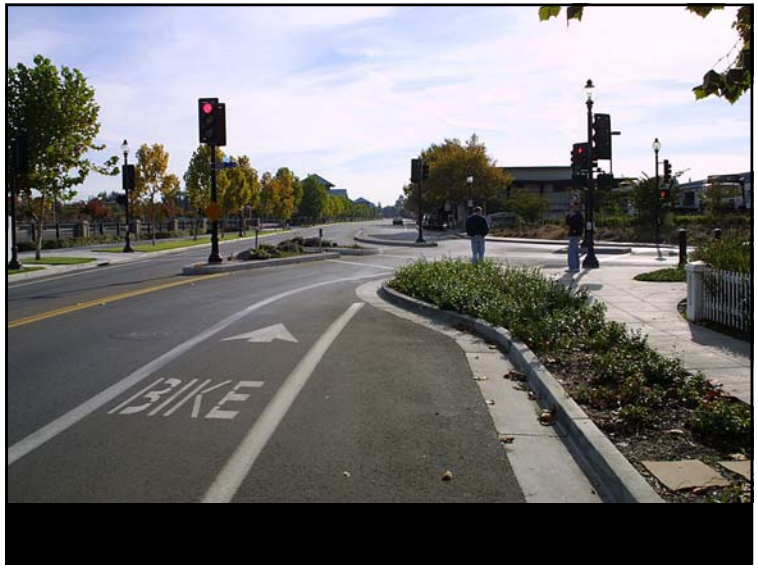
Walkable Communities, Inc.
Burden and Wallwork, P. E.

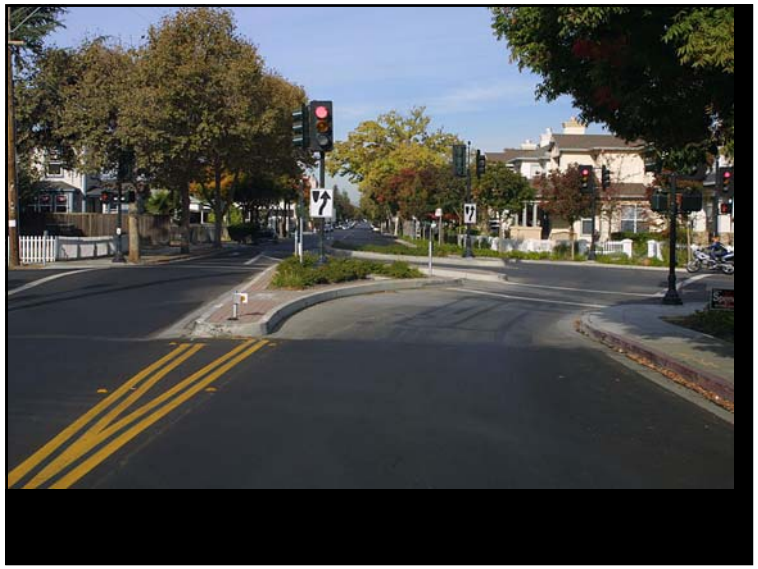
Conflicts At Roundabouts

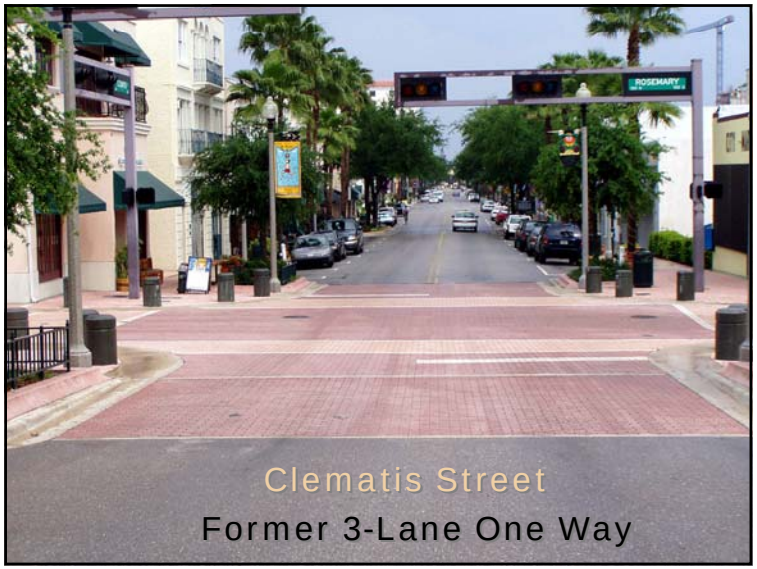


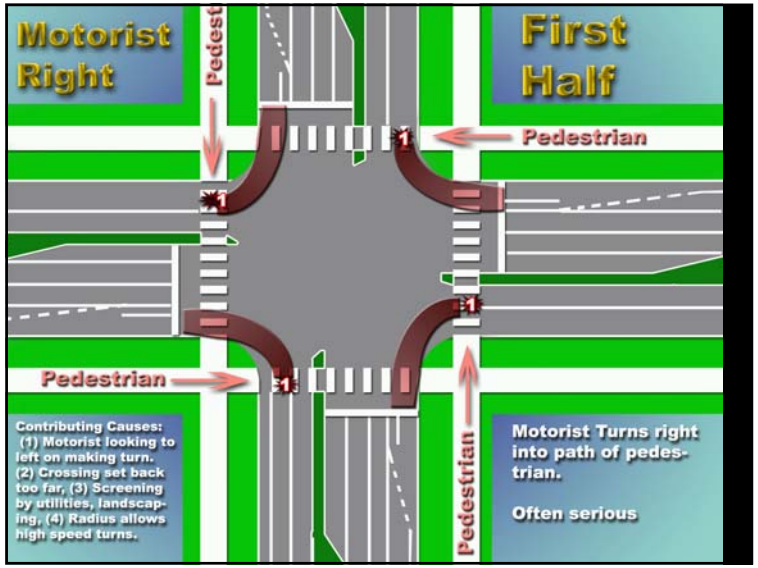
- 8 Vehicle to vehicle conflicts
- 8 Vehicle to pedestrian conflicts

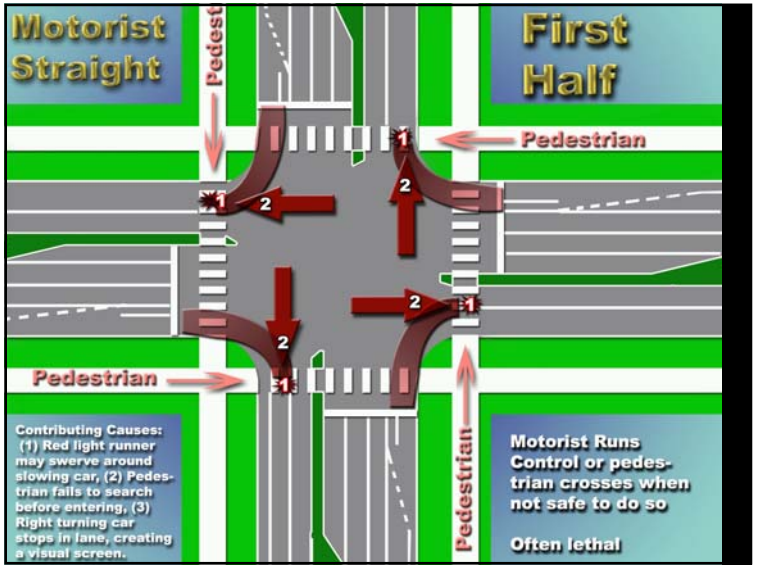
Walkable Communities, Inc.
Burden and Wallwork, P. E.

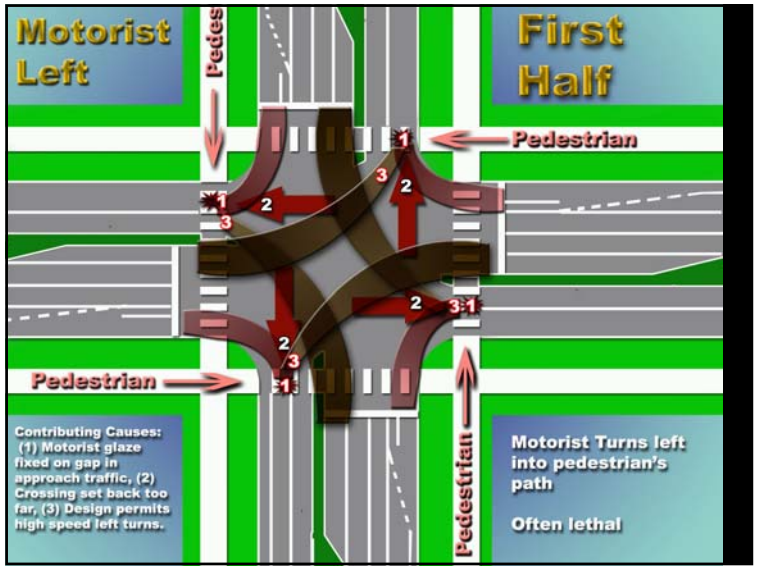


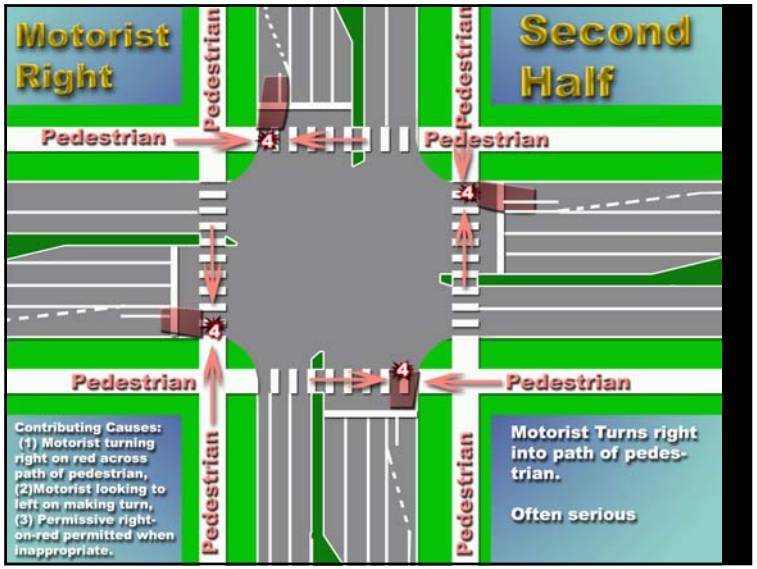


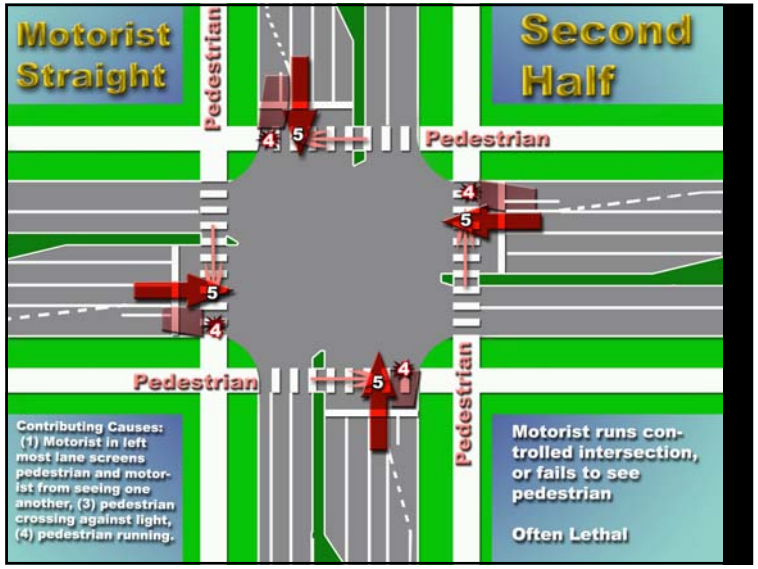

Clematis Street
Former 3-Lane One Way

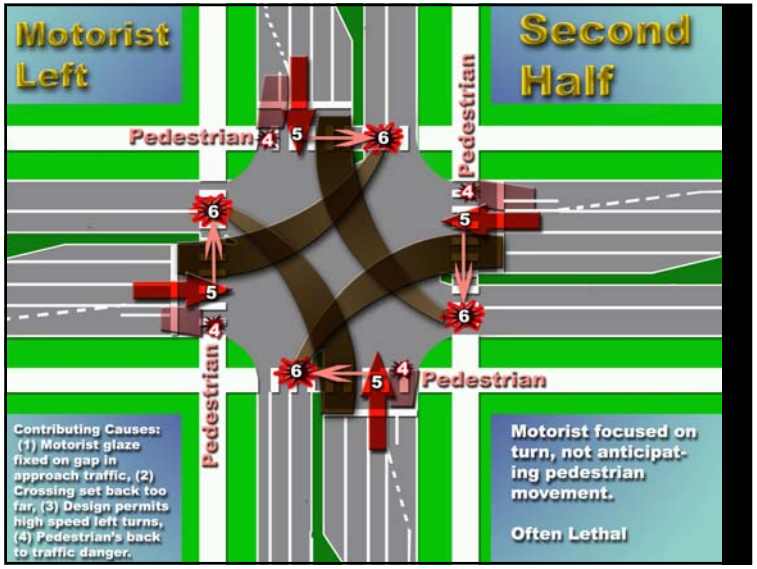

Motorist Right
First Half
Pedest
Pedestrian
Pedestrian
Pedestrian
Contributing Causes: (1) Motorist looking to left on making turn. (2) Crossing set back too far, (3) Screening by utilities, landscaping, (4) Radius allows high speed turns.
Motorist Turns right into path of pedestrian.
Often serious

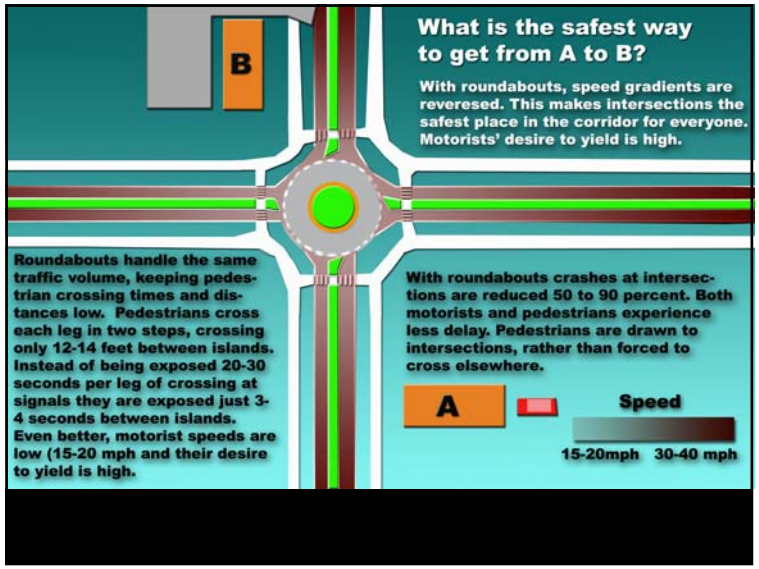

Motorist Straight
First Half
Pedest
Pedestrian
Pedestrian
Pedestrian
Contributing Causes: (1) Red light runner may swerve around slowing car, (2) Pedestrian fails to search before entering, (3) Right turning car stops in lane, creating a visual screen.
Motorist Runs Control or pedestrian crosses when not safe to do so
Often lethal

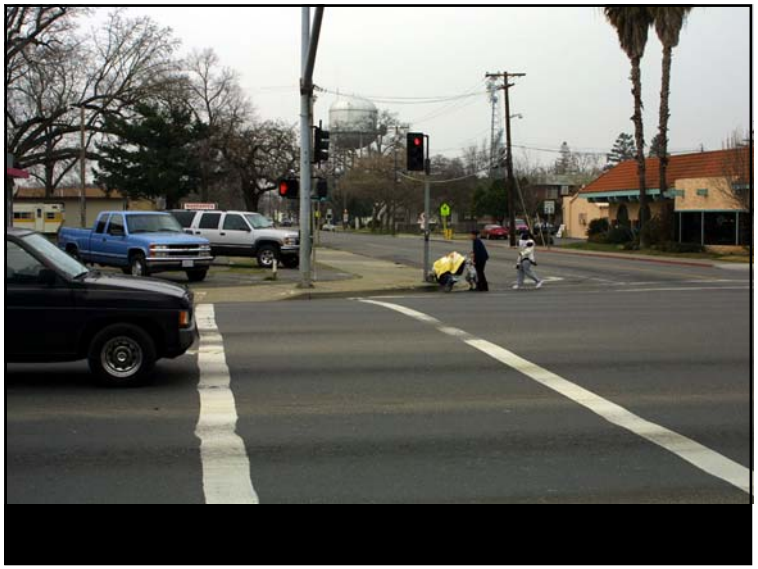

Motorist Left
First Half
Pedestrian
Pedestrian
Pedestrian
Pedestrian
Contributing Causes: (1) Motorist glaze fixed on gap in approach traffic, (2) Crossing set back too far, (3) Design permits high speed left turns.
Motorist Turns left into pedestrian's path
Often lethal

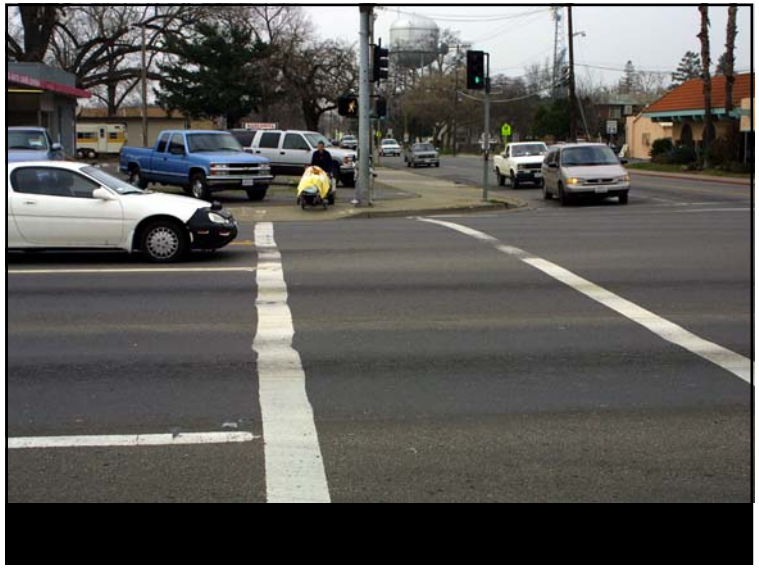

Motorist Right
Second Half
Pedestrian
Pedestrian
Pedestrian
Pedestrian
Pedestrian
Pedestrian
Contributing Causes: (1) Motorist turning right on red across path of pedestrian, (2)Motorist looking to left on making turn, (3) Permissive right-on-red permitted when inappropriate.
Motorist Turns right into path of pedestrian.
Often serious

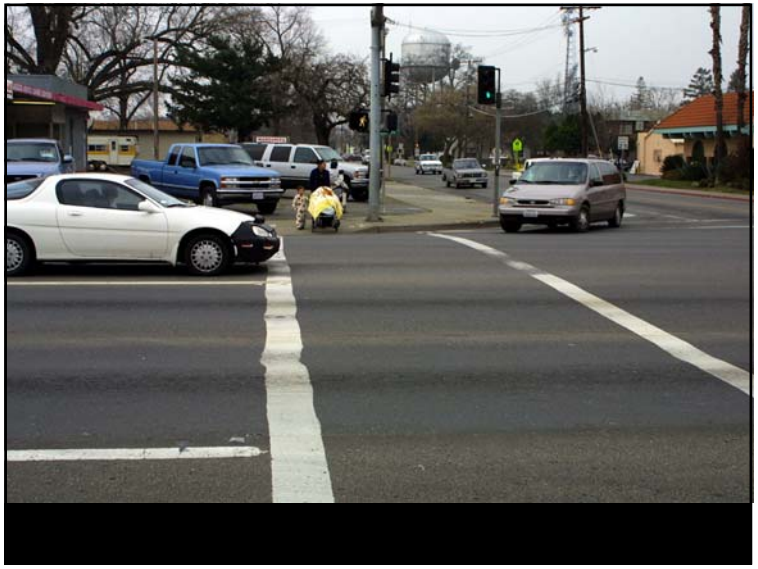

Motorist Straight
Second Half
Pedestrian
Pedestrian
Pedestrian
Pedestrian
Contributing Causes: (1) Motorist in left most lane screens pedestrian and motorist from seeing one another, (3) pedestrian crossing against light, (4) pedestrian running.
Motorist runs controlled intersection, or fails to see pedestrian
Often Lethal

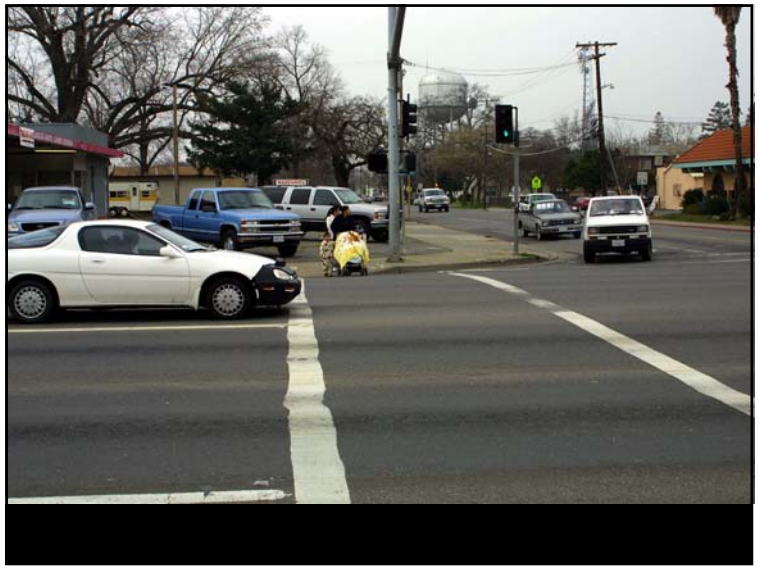

Motorist Left
Second Half
Pedestrian
Pedestrian
Pedestrian
Pedestrian
Contributing Causes: (1) Motorist glaze fixed on gap in approach traffic, (2) Crossing set back too far, (3) Design permits high speed left turns, (4) Pedestrian's back to traffic danger.
Motorist focused on turn, not anticipating pedestrian movement.
Often Lethal

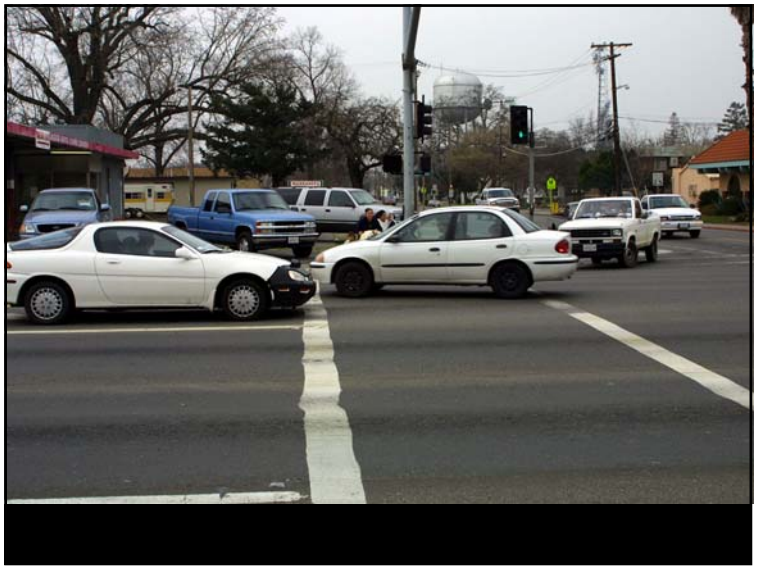

B
What is the safest way to get from A to B?
With roundabouts, speed gradients are reveresed. This makes intersections the safest place in the corridor for everyone. Motorists' desire to yield is high.
Roundabouts handle the same traffic volume, keeping pedestrian crossing times and distances low. Pedestrians cross each leg in two steps, crossing only 12-14 feet between islands. Instead of being exposed 20-30 seconds per leg of crossing at signals they are exposed just 3-4 seconds between islands. Even better, motorist speeds are low (15-20 mph and their desire to yield is high.
With roundabouts crashes at intersections are reduced 50 to 90 percent. Both motorists and pedestrians experience less delay. Pedestrians are drawn to intersections, rather than forced to cross elsewhere.
A
Speed
15-20mph
30-40 mph

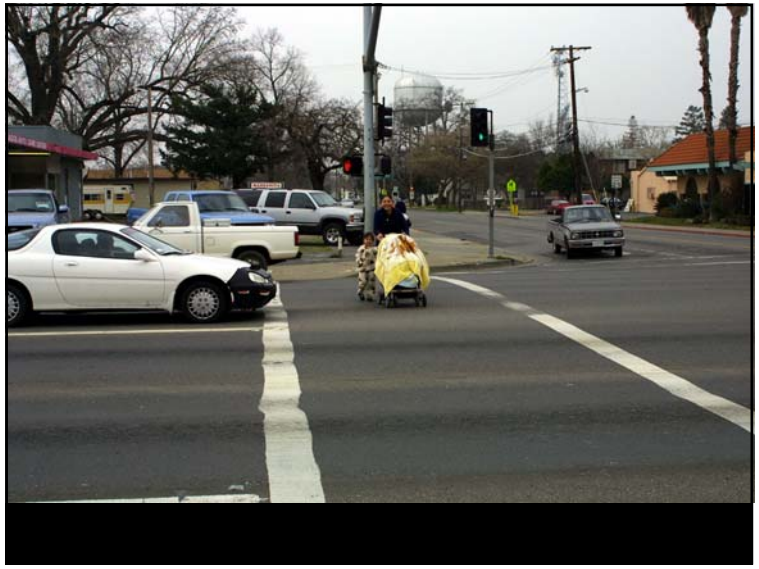




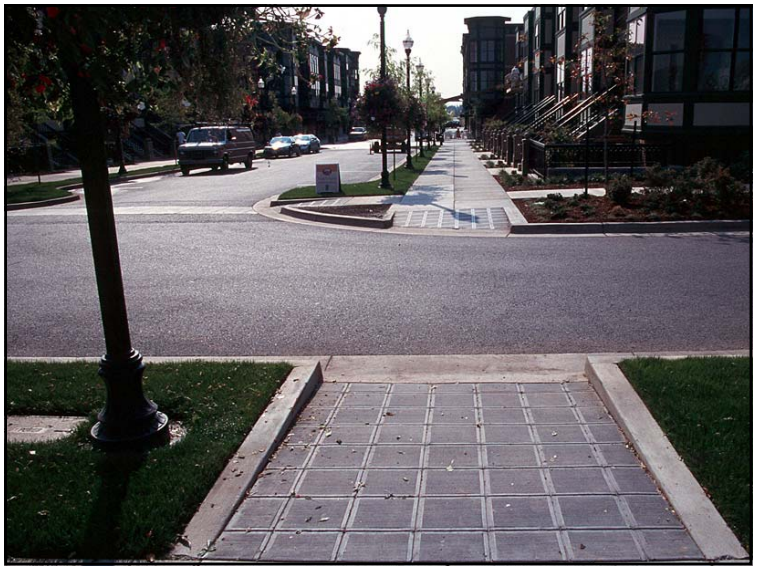


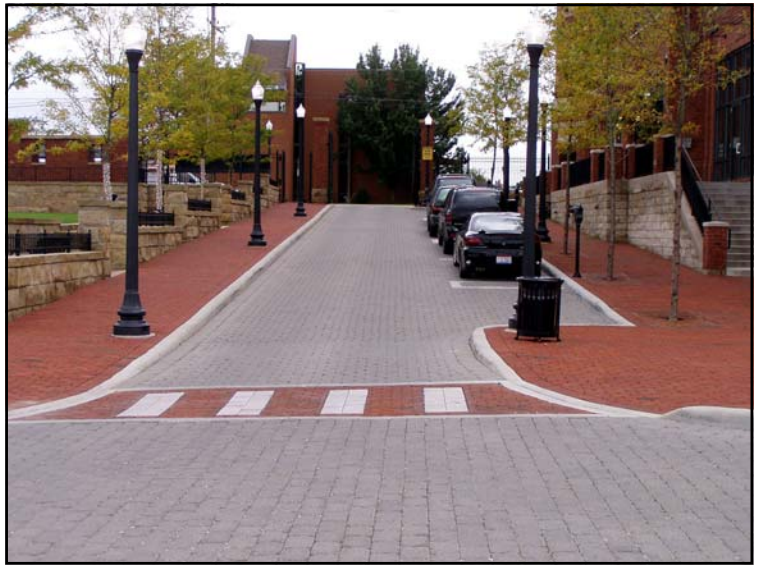




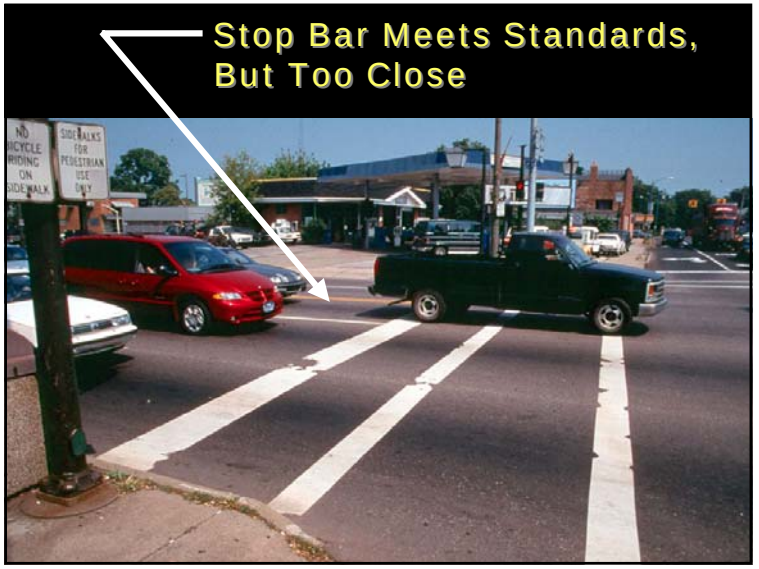


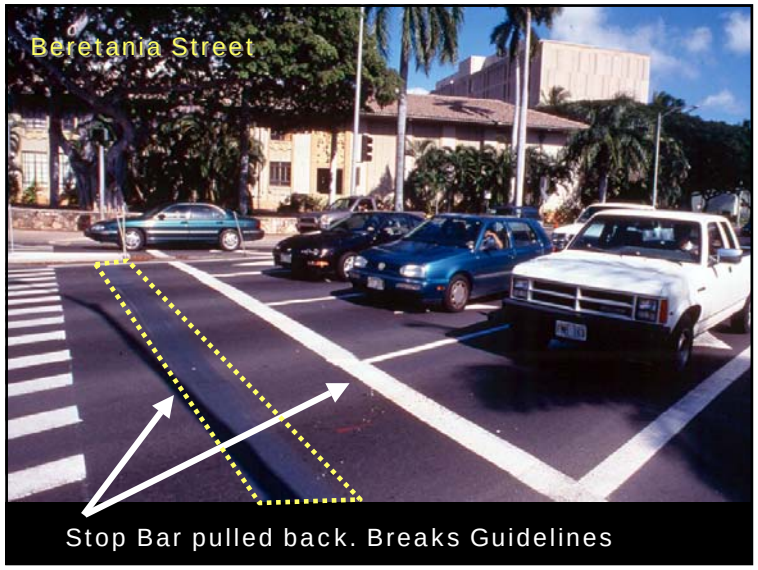
Geometrics



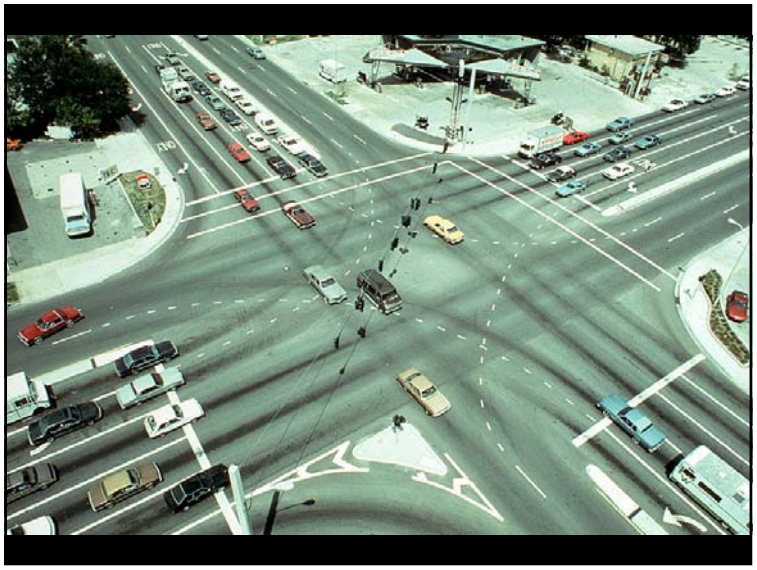


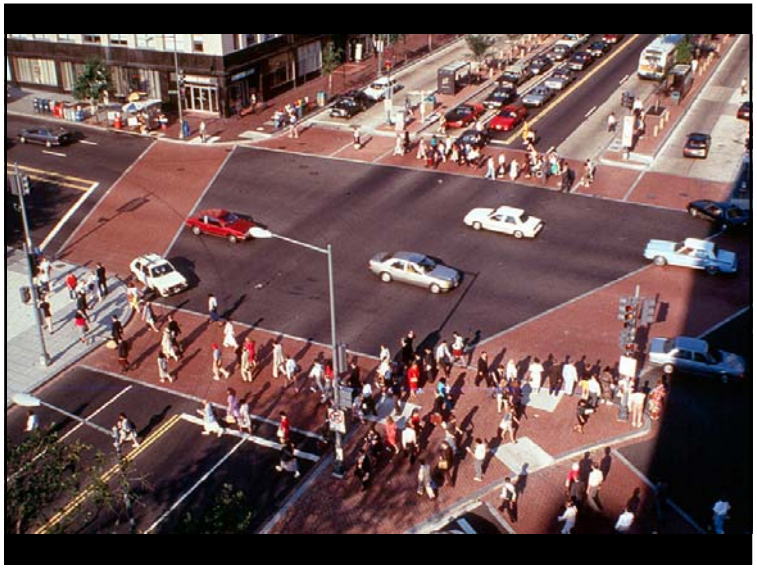
Traffic Operations

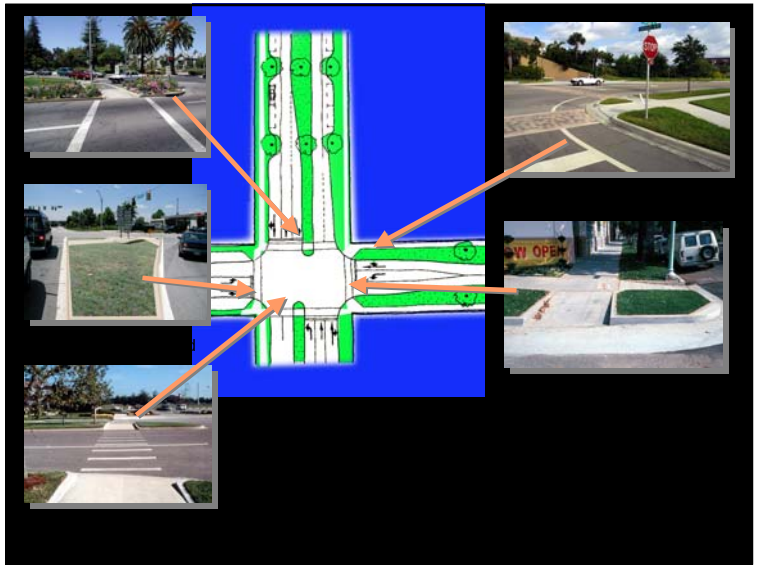


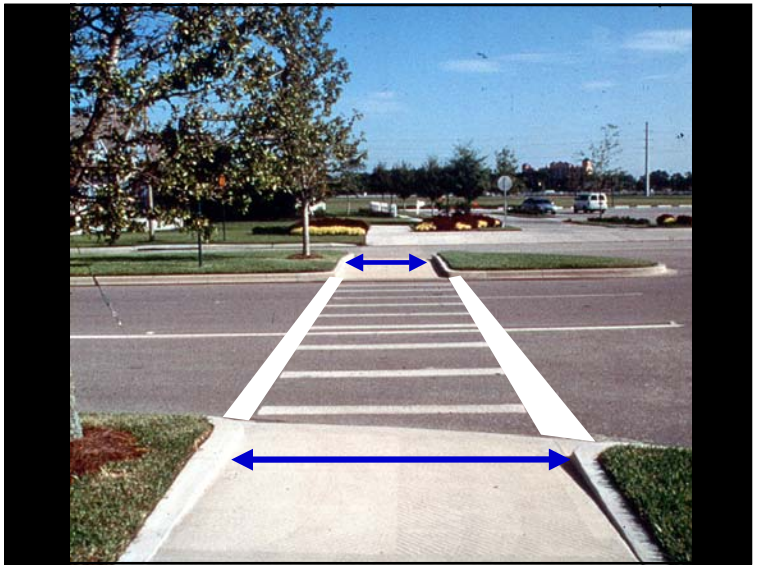


Stop Bar pulled back. Breaks Guidelines

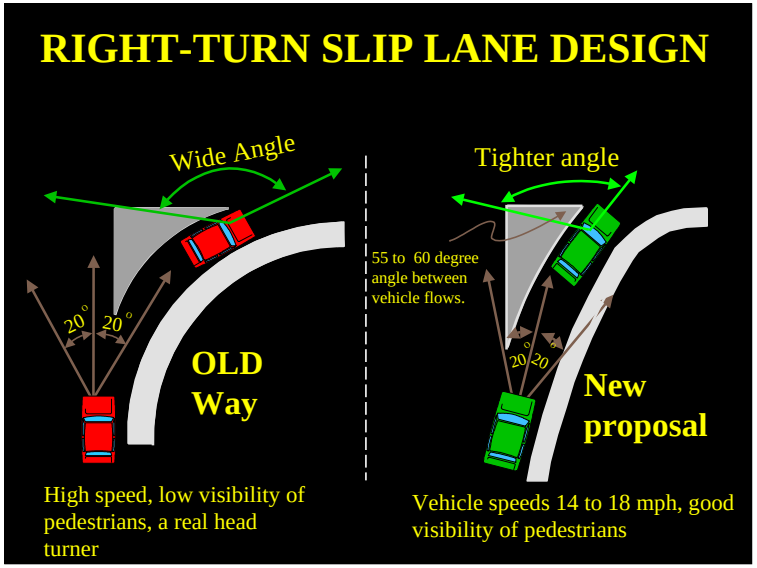




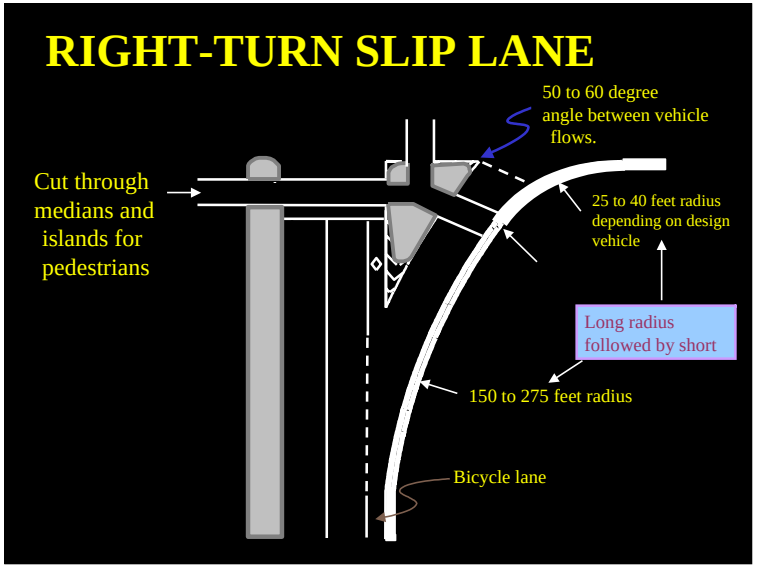


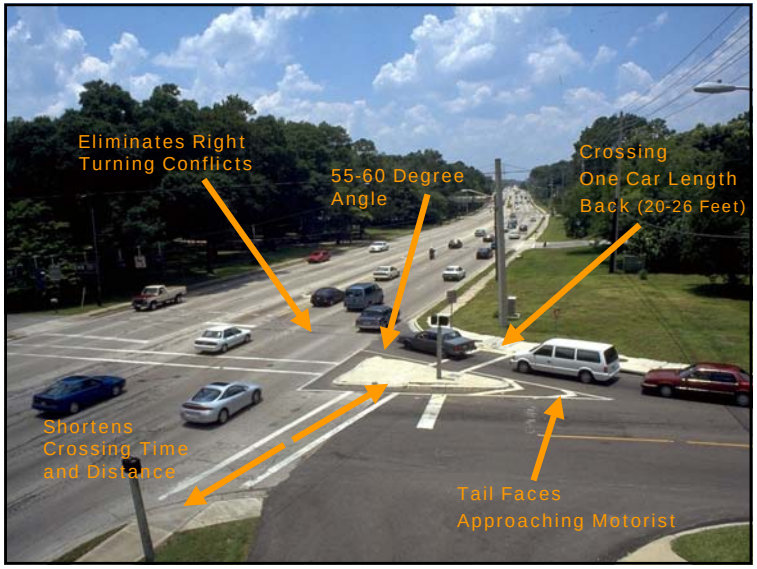


RIGHT-TURN SLIP LANE DESIGN



RIGHT-TURN SLIP LANE

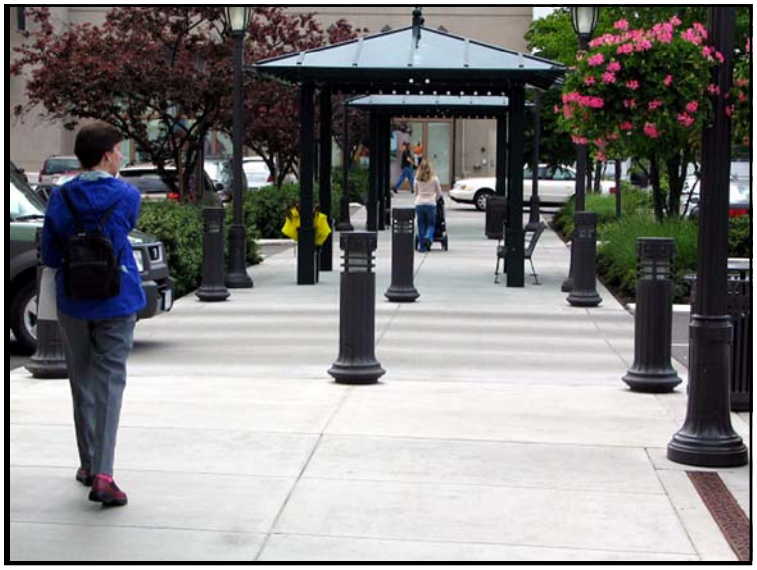




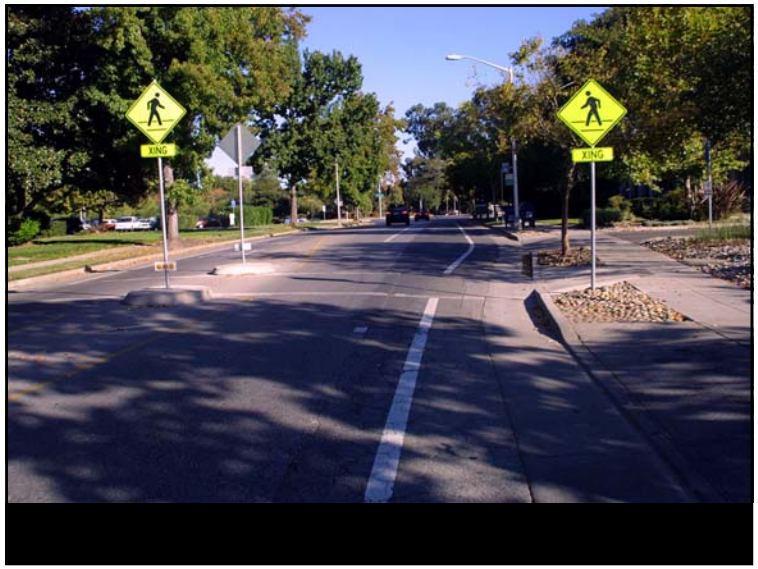

CROSS ST.
GRAND RIVER AVE.
MATCH LINE

Crossings

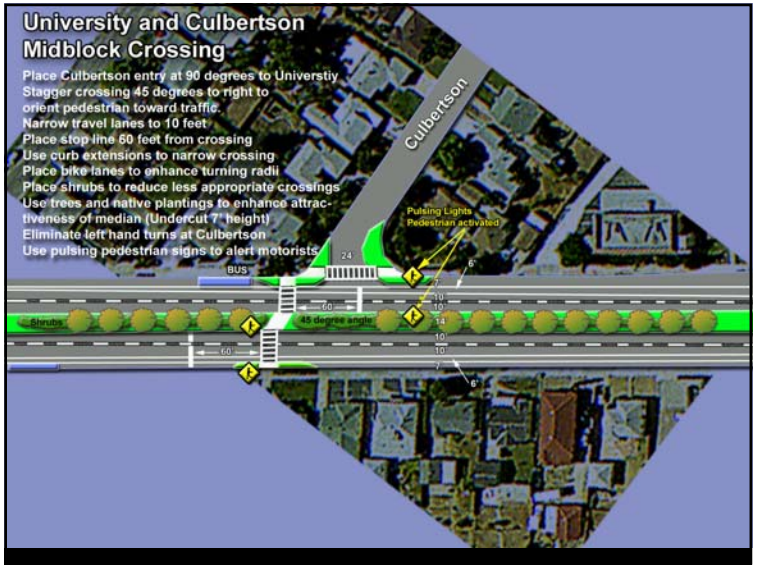
Phase One -- SH 99

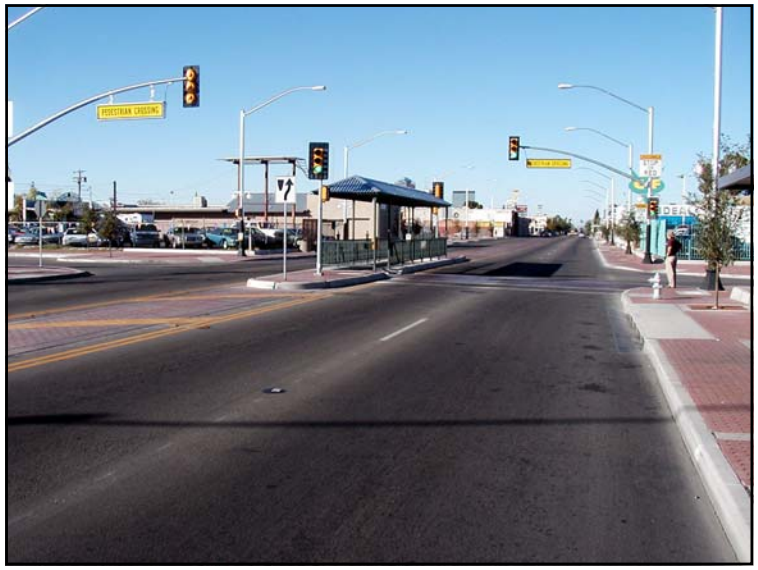


Medians and visual tightening (of lanes) (best when in curve) (Vancouver, BC)

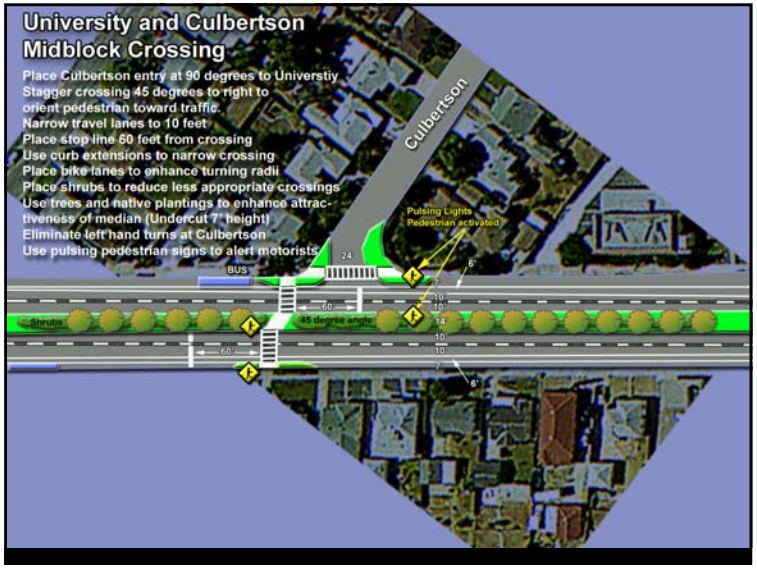


Multiple Lanes

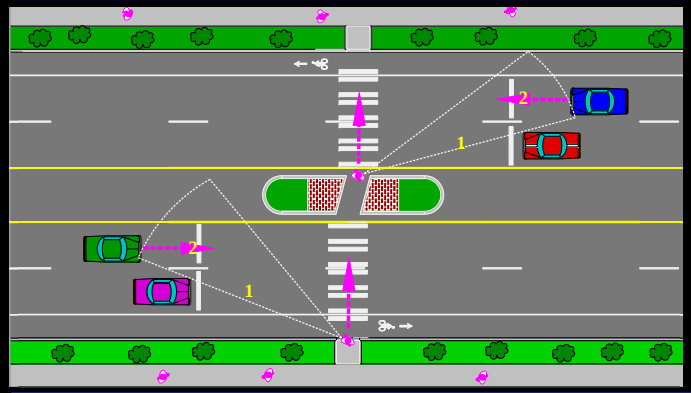



PEDESTRIAN CROSSING


PEDESTRIAN CROSSING


University and Culbertson
Midblock Crossing
Place Culbertson entry at 90 degrees to Universtiy
Stagger crossing 45 degrees to right to orient pedestrian toward traffic.
Narrow travel lanes to 10 feet
Place stop line 60 feet from crossing
Use curb extensions to narrow crossing
Place bike lanes to enhance turning radii
Place shrubs to reduce less appropriate crossings
Use trees and native plantings to enhance attractiveness of median (Undercut 7' height)
Eliminate left hand turns at Culbertson
Use pulsing pedestrian signs to alert motorists
Culbertson
Pulsing Lights
Pedestrian activated
BUS
24
6'
60
45 degree angle
Shrubs
14
10
60
6'

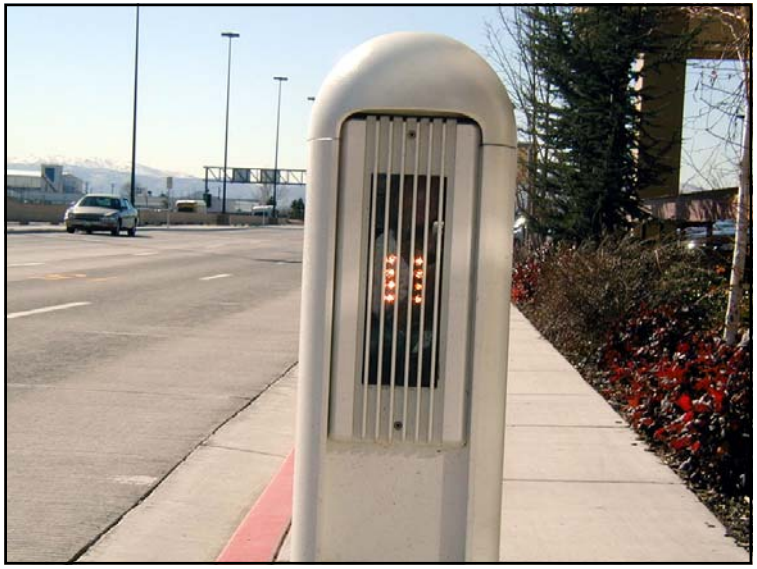
Advance Stop Bar – helps prevent "Multiple Threat" crashes

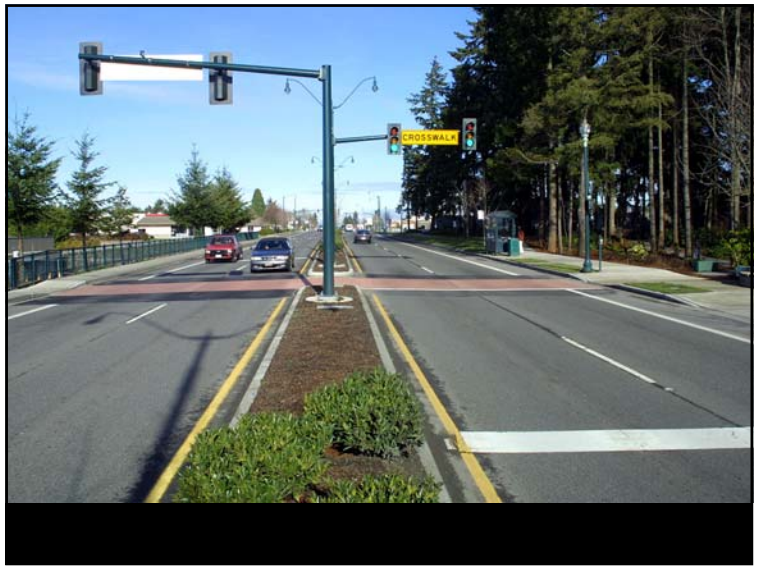


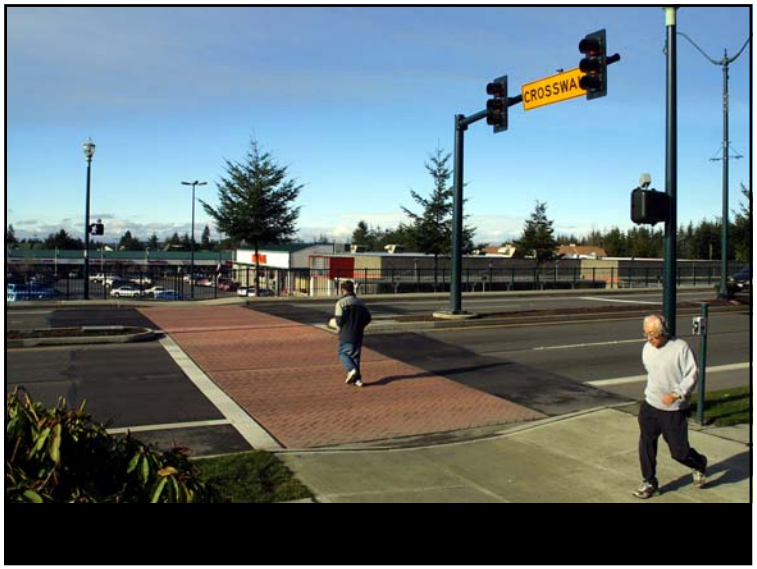
Solution: place advance stop bar, so car 1 stops further back; car 1 no longer masks car 2, which can see and be seen by pedestrian.


Can be seen from 1000 feet
Day and Night
Monterey, California


PUSH BUTTON
FOR
CROSSWALK
WARNING
DEVICE
CROSS WITH
CAUTION




CROSSWALK


CROSSWA


PEDESTRIAN CROSSING

Roundabouts

Cotati, California:
Old Redwood Highway looking north

Gridley, California:

State Highway 99 looking north

State Highway, Bradenton Beach, Florida

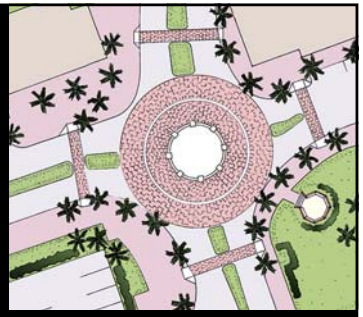
State Highway, Bradenton Beach, Florida

Brighton, Michigan (20,000 ADT)

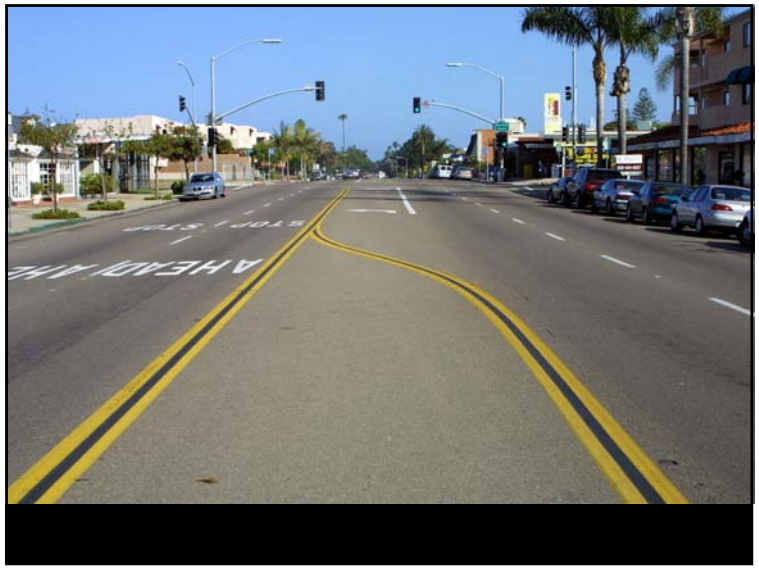
Replaced Signals .... Already on order

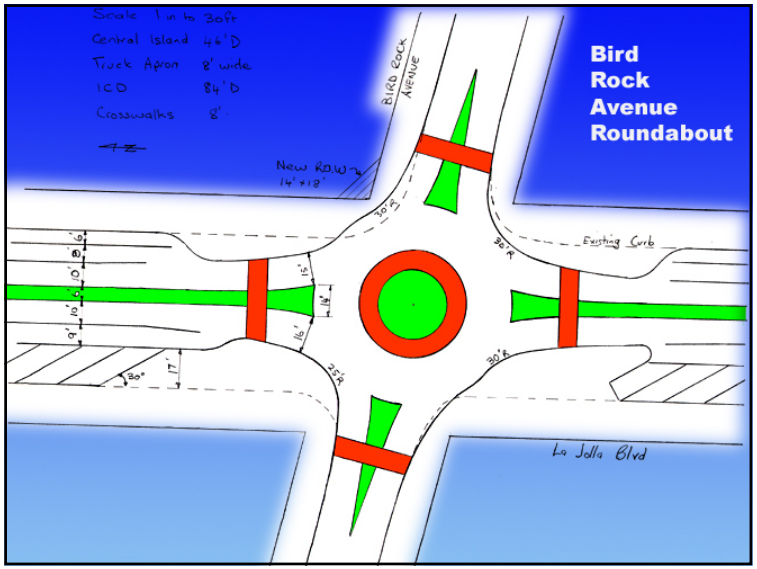
Brighton, Michigan (20,000 ADT)

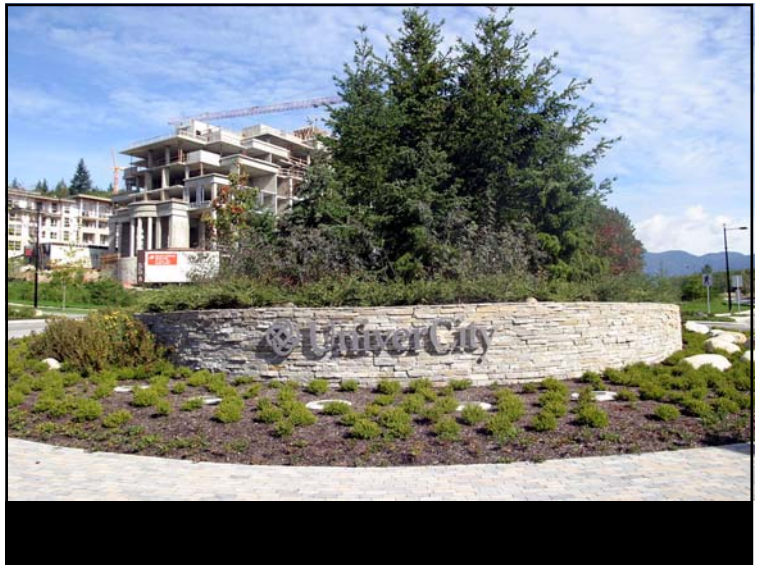
Ft Pierce, Florida Roundabout

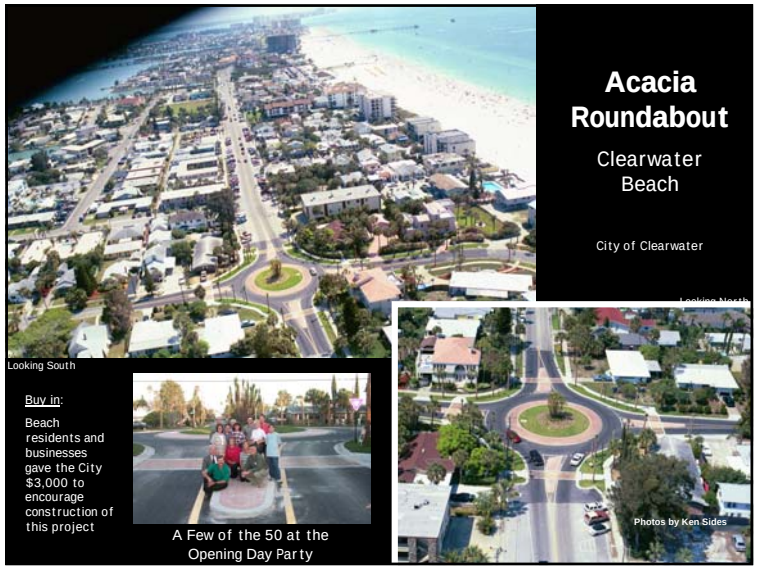


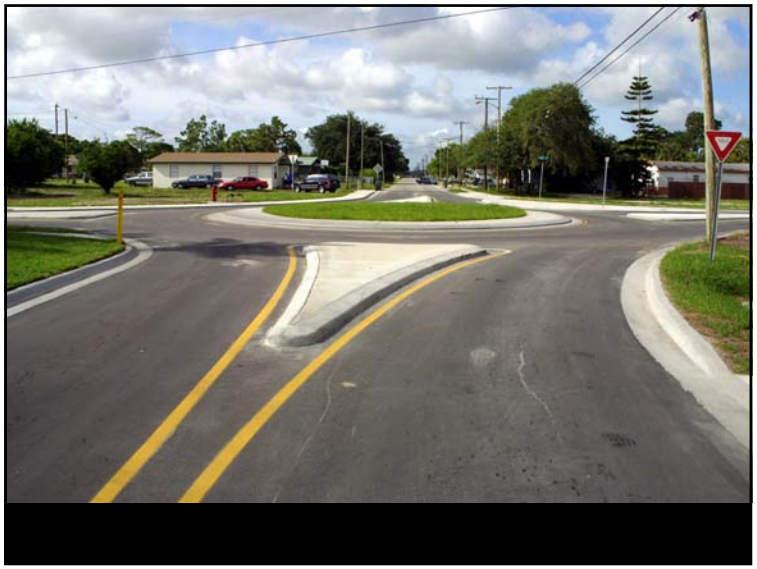
Grand Junction, Colorado

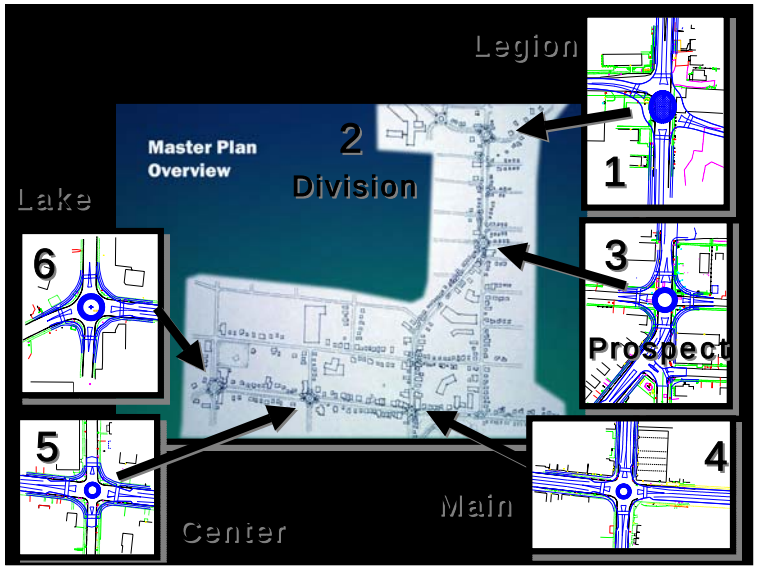



Bird
Rock
Avenue
Roundabout
Bird Rock Avenue
La Jolla Blvd
Existing Curb


UnivCity


Acacia Roundabout
Clearwater Beach
City of Clearwater
Looking South
Buy in:
Beach residents and businesses gave the City $3,000 to encourage construction of this project
A Few of the 50 at the Opening Day Party
Photos by Ken Sides




Legion
Master Plan
Overview
2
Division
1
Lake
6
3
Prospect
5
4
Main
Center


Before
After

Pedestrian Safety