SUSTAINABLE
STREETS
CITY OF SAN MATEO

Re-Engineering the Transportation Network through the Sustainable Streets Plan

Get Healthy Bi-Annual Meeting – March 17, 2014

NELSON NYGAARD

cd+a COMMUNITY DESIGN + ARCHITECTURE

Local Government Commission

ChangeLab Solutions

Complete the Streets

Presentation Outline

- What is the Sustainable Streets Plan?
- Why do we Care?
- Tools to Make it Happen
- San Mateo Examples

Sustainable Streets =
Complete Streets + Green Streets

Photo: Dan Burden, Walkable and Livable Communities Institute

Source: Downloaded from water.epa.gov on 04.09.13

What are Complete Streets?

A Complete Street is safe, comfortable & convenient for travel via automobile, foot, bicycle, & transit

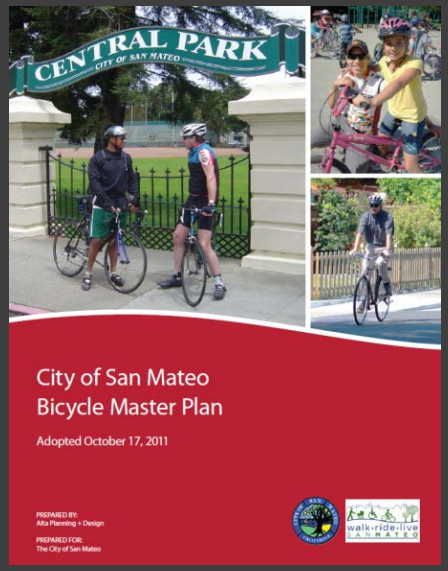
What are Green Streets?

A green street incorporates green infrastructure to manage stormwater while making the street more walkable and aesthetically appealing.

Background

City of San Mateo
General Plan

Vision 2030



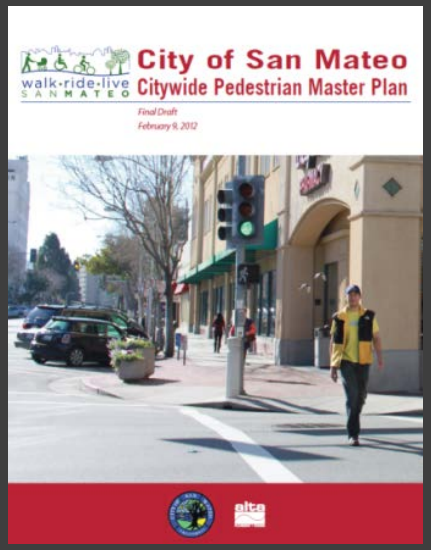
APPENDIX K

City of San Mateo
Sustainable Initiatives Plan

Developed by the
Sustainability Advisory Committee

as recommendations
to the City Council

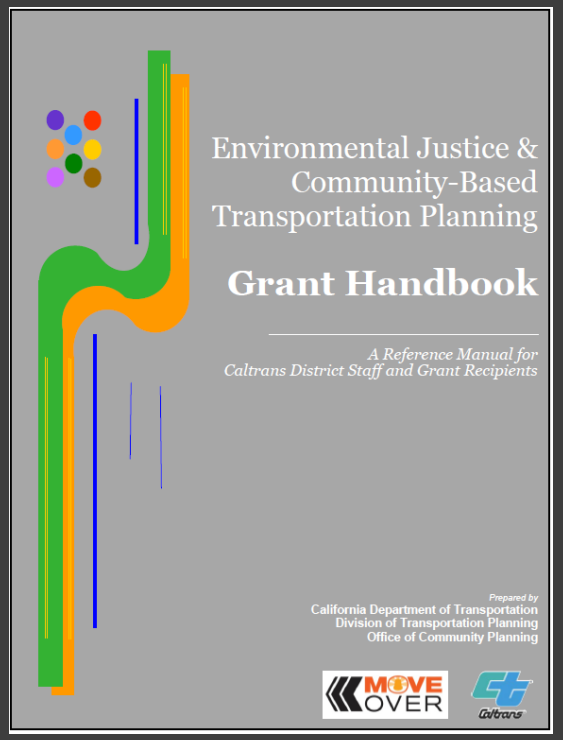
December 17, 2007



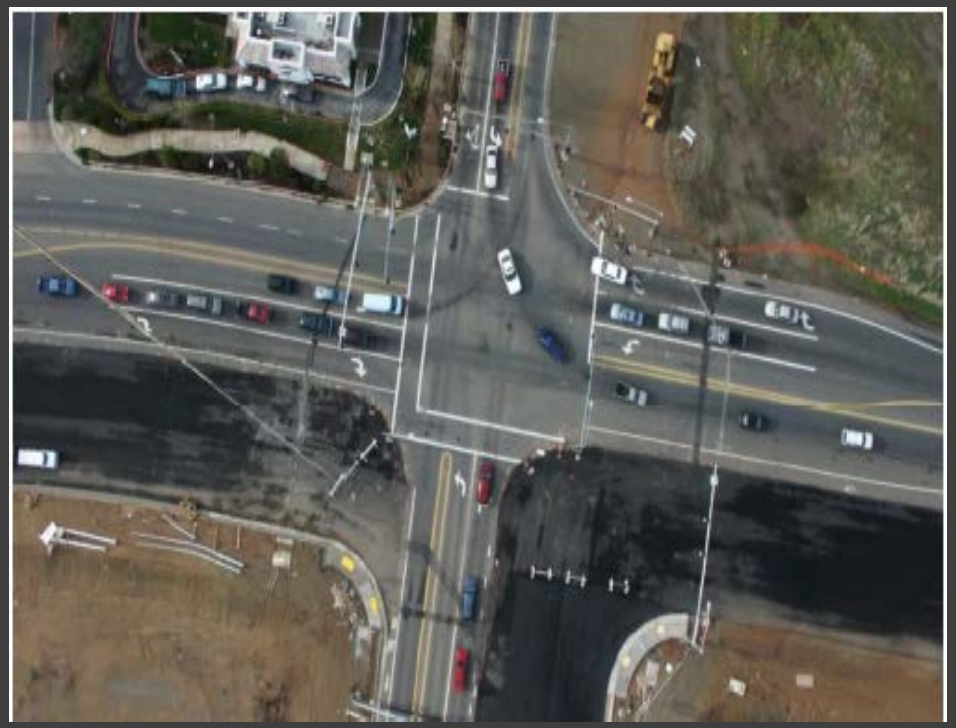
Caltrans Community-Based Transportation Planning Grant

- March 2012 - $300,000
- Local Match - $184,000
- Total Project Cost = $484,000

- February 2013 – February 2015



Level of Service and Multi-Modal Analysis



- Best Practice Analysis
- Evaluate the necessity of Level of Service
- Recommend Alternatives

Transportation Street Prioritization

- Analyze the existing circulation patterns
- Evaluate and Recommend revisions to the City's Street Classification System
- Evaluate City Street widths

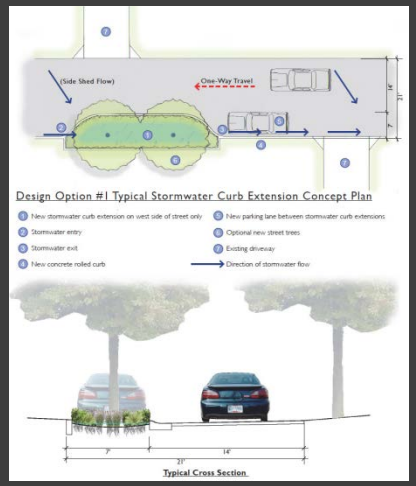
Table BE-3: Street Typologies and Travel Mode Priorities

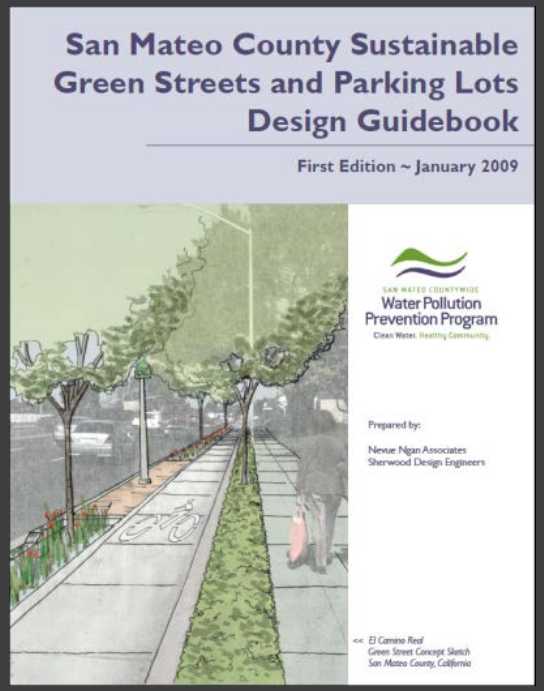
Facility	Transit	Bicycles	Pedestrians	Autos	Trucks
Transit Street [1,2]	O	■	■	■	■
Bicycle Boulevard	◘	O	■	■	✱
Pedestrian Street[1]	◘	■	O	■	◘
Connector Street [1,2]	■	■	■	■	◘
Local Street[1]	◘	■	■	■	✱
Industrial Street [2]	◘	■	■	■	O
Boulevard [1,2]	O	■	■	O	■
Auto Dominant Road [2,3]	■	◘	◘	O	O

O = Dominant, ■ = Accommodated, ◘ = Incidental, ✱ = Prohibited

Green Streets

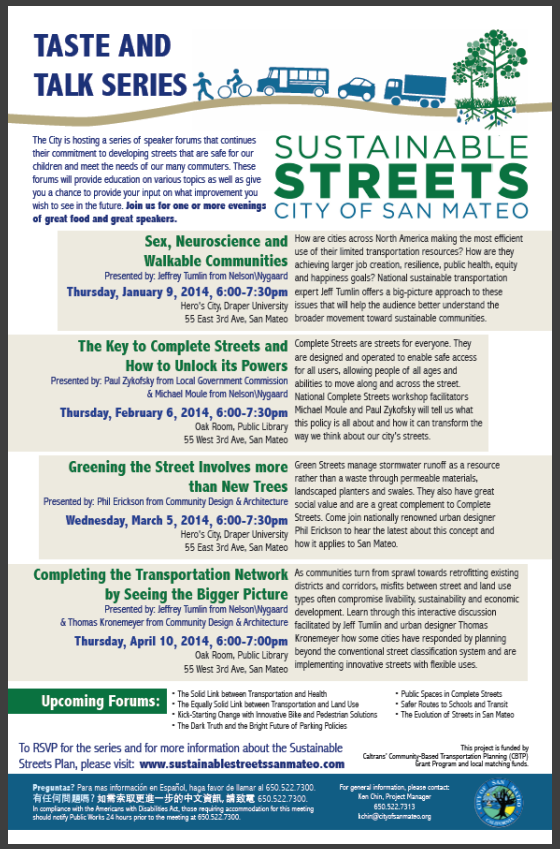
- Green Streets have enhanced stormwater runoff improvements that capture, slows, filters, and potentially infiltrates stormwater runoff.





Department of Public Works
Stewards of the Infrastructure and Environment

Taste and Talk Series



TASTE AND
TALK SERIES

The City is hosting a series of speaker forums that continues their commitment to developing streets that are safe for our children and meet the needs of our many commuters. These forums will provide education on various topics as well as give you a chance to provide your input on what improvement you wish to see in the future. **Join us for one or more evenings of great food and great speakers.**

SUSTAINABLE
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CITY OF SAN MATEO

Sex, Neuroscience and Walkable Communities
Presented by: Jeffrey Tumlin from Nelson\Nygaard
Thursday, January 9, 2014, 6:00-7:30pm
Hero's City, Draper University
55 East 3rd Ave, San Mateo

How are cities across North America making the most efficient use of their limited transportation resources? How are they achieving larger job creation, resilience, public health, equity and happiness goals? National sustainable transportation expert Jeff Tumlin offers a big-picture approach to these issues that will help the audience better understand the broader movement toward sustainable communities.

The Key to Complete Streets and How to Unlock its Powers
Presented by: Paul Zykofsky from Local Government Commission & Michael Moule from Nelson\Nygaard
Thursday, February 6, 2014, 6:00-7:30pm
Oak Room, Public Library
55 West 3rd Ave, San Mateo

Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, allowing people of all ages and abilities to move along and across the street. National Complete Streets workshop facilitators Michael Moule and Paul Zykofsky will tell us what this policy is all about and how it can transform the way we think about our city's streets.

Greening the Street Involves more than New Trees
Presented by: Phil Erickson from Community Design & Architecture
Wednesday, March 5, 2014, 6:00-7:30pm
Hero's City, Draper University
55 East 3rd Ave, San Mateo

Green Streets manage stormwater runoff as a resource rather than a waste through permeable materials, landscaped planters and swales. They also have great social value and are a great complement to Complete Streets. Come join nationally renowned urban designer Phil Erickson to hear the latest about this concept and how it applies to San Mateo.

Completing the Transportation Network by Seeing the Bigger Picture
Presented by: Jeffrey Tumlin from Nelson\Nygaard & Thomas Kronemeyer from Community Design & Architecture
Thursday, April 10, 2014, 6:00-7:00pm
Oak Room, Public Library
55 West 3rd Ave, San Mateo

As communities turn from sprawl towards retrofitting existing districts and corridors, misfits between street and land use types often compromise livability, sustainability and economic development. Learn through this interactive discussion facilitated by Jeff Tumlin and urban designer Thomas Kronemeyer how some cities have responded by planning beyond the conventional street classification system and are implementing innovative streets with flexible uses.

Upcoming Forums:

- The Solid Link between Transportation and Health
- The Equally Solid Link between Transportation and Land Use
- Kick-Starting Change with Innovative Bike and Pedestrian Solutions
- The Dark Truth and the Bright Future of Parking Policies
- Public Spaces in Complete Streets
- Safer Routes to Schools and Transit
- The Evolution of Streets in San Mateo

To RSVP for the series and for more information about the Sustainable Streets Plan, please visit: **www.sustainablestreetssanmateo.com**

This project is funded by Caltrans' Community-Based Transportation Planning (CBTP) Grant Program and local matching funds.

Preguntas? Para mas información en Español, haga favor de llamar al 650.522.7300.
有任何問題嗎？如需索取更進一步的中文資訊, 請致電 650.522.7300.
In compliance with the Americans with Disabilities Act, those requiring accommodation for this meeting should notify Public Works 24 hours prior to the meeting at 650.522.7300.

For general information, please contact:
Ken Chin, Project Manager
650.522.7313
kchin@cityofsanmateo.org

- 10-12 open forums in the style of a "Taste and Talk" series
- Series topics to include, but are not limited to, pedestrians, bicyclists, transit, trucks, level of service, street classification, green streets, ADA compliance and emergency services.

Department of Public Works
Stewards of the Infrastructure and Environment

Project Schedule

- February 2013 – City Council
- February 2013 – February 2015 – Sustainable Streets Plan Development
- March 2015 - TBD – CEQA and/or General Plan Update?

Project Title	Sustainable Streets Plan	Grantee	City of San Mateo
	FY 2012/13 Fiscal Year 2013/14 FY 2014/15		
Task Number	F M A M J J A S O N D J F M A M J J A S O N D J F		Deliverable
1	***Project Initiation***		
1.1	Grant Kick-Off Meeting		Meeting Minutes
1.2	Project Kick-Off Meeting		Meeting Minutes
1.3	Finalize Scope of Work, Project Schedule, and Coordination		Final Scope of Work, Project Schdedule, and Coordination Schedule
1.4	City Council - Authorization of Professional Service Contract and Approval of TAC and CAC members		Procurement Procedures consistent with 49 CFR, Part 18.36 and Local Assistance Procedures Manual, Chapter 10 and Signed Contract
2	***Pre-Plan Review and Analysis***		
2.1	Best Practice Review		Memo on Best Practices
2.2	Review of City Code, Policies, Standard Drawings, Design Guidelines and City Signage		Memo on Recommended Revisions
2.3	Complete Streets Benefits Analysis - Safety, Economics, Public Health, and Sustainability		Memo on Benefits Analysis
2.4	Review and Analysis of the City's Street Classification System		Memo on Existing Capacity and Usage
2.5	Review and Analysis of the City's Street Widths		Memo on Optimal Street Widths
2.6	Level of Service and Multi-Modal Analysis with Animation		Intersection Animation
3	***On-going Public Participation***		
3.1	Community Workshops (4)		Workshop Notes
3.2	Stakeholder Meetings		Meeting Minutes
3.3	Taste and Talk Series (10-12)		Series Notes
3.4	Community Survey		Survey and Results
3.5	Project Website & Social Media		Project Website and Social Media
3.6	Sustainable Streets Public Education Campaign with Outreach Materials		Education and Outreach Materials
3.7	Walking Tour of Challenging Intersections		Tour Notes
4	***Sustainable Streets Plan***		
4.1	Vision, Goals and Objectives		Vision, Goals and Objectives
4.2	Existing Conditions and Policies		Review of Existing Conditions
4.3	Needs Analysis		Needs Analysis
4.4	Recommendations		All Recommendations, including but not limited to, Street Typology/Prioritization, Focus Areas/Zones, Green Streets Network, Citywide Transportation Demand Management Program
4.5	Streetscape Concepts		Streetscape Concept Illustrations
4.6	Design Guidelines		Design Guidelines
4.7	Implementation Plan		Implementation Plan, including but not limited to, a Project and Program Lists, Performance Measures, Incorporation of Elements into the Private Development Process, and Project Sheets
4.8	Funding		List and Description of Potential Funding Sources for Design, Engineering, Construction and Maintenance
5	***Final Plan Preparation and Hearings***		
5.1	Draft Plan and Response to Staff Review		Draft Plan
5.2	Draft Plan Presentations (3 presentations to City review bodies)		Presentations
5.3	Final Draft Plan and Response to Comments		Final Draft Plan
5.4	Council Presentation/Adoption		City Council Adoption Resolution
5.5	Final Plan		Final Sustainable Streets Plan
5.6	Reproduction		Copies of Final Plan

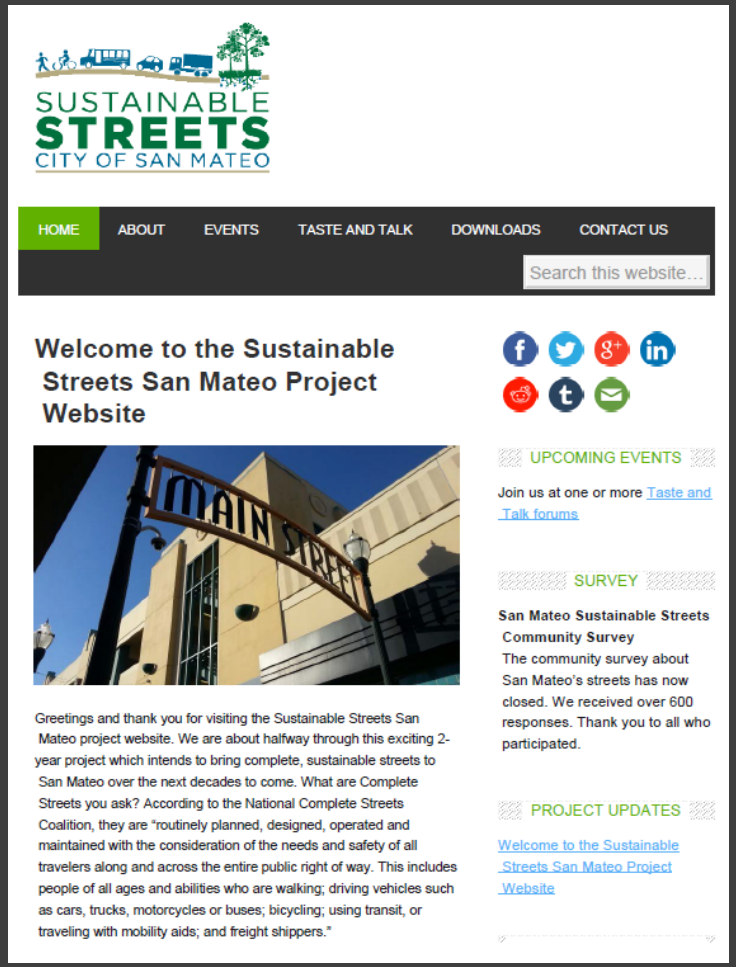
2-Year Caltrans Grant Project

(February 2013 – February 2015)

Department of Public Works

Stewards of the Infrastructure and Environment

Project Website



- www.sustainablestreetssanmateo.com

Everyone wins with Complete Streets

Complete Streets policies provide for all users

Benefits: older Americans

- 21% over 65 do not drive
- Over 50% of non-drivers stay at home on a given day because they lack travel options
- 54% of older Americans living in inhospitable neighborhoods would walk and ride more if things improved

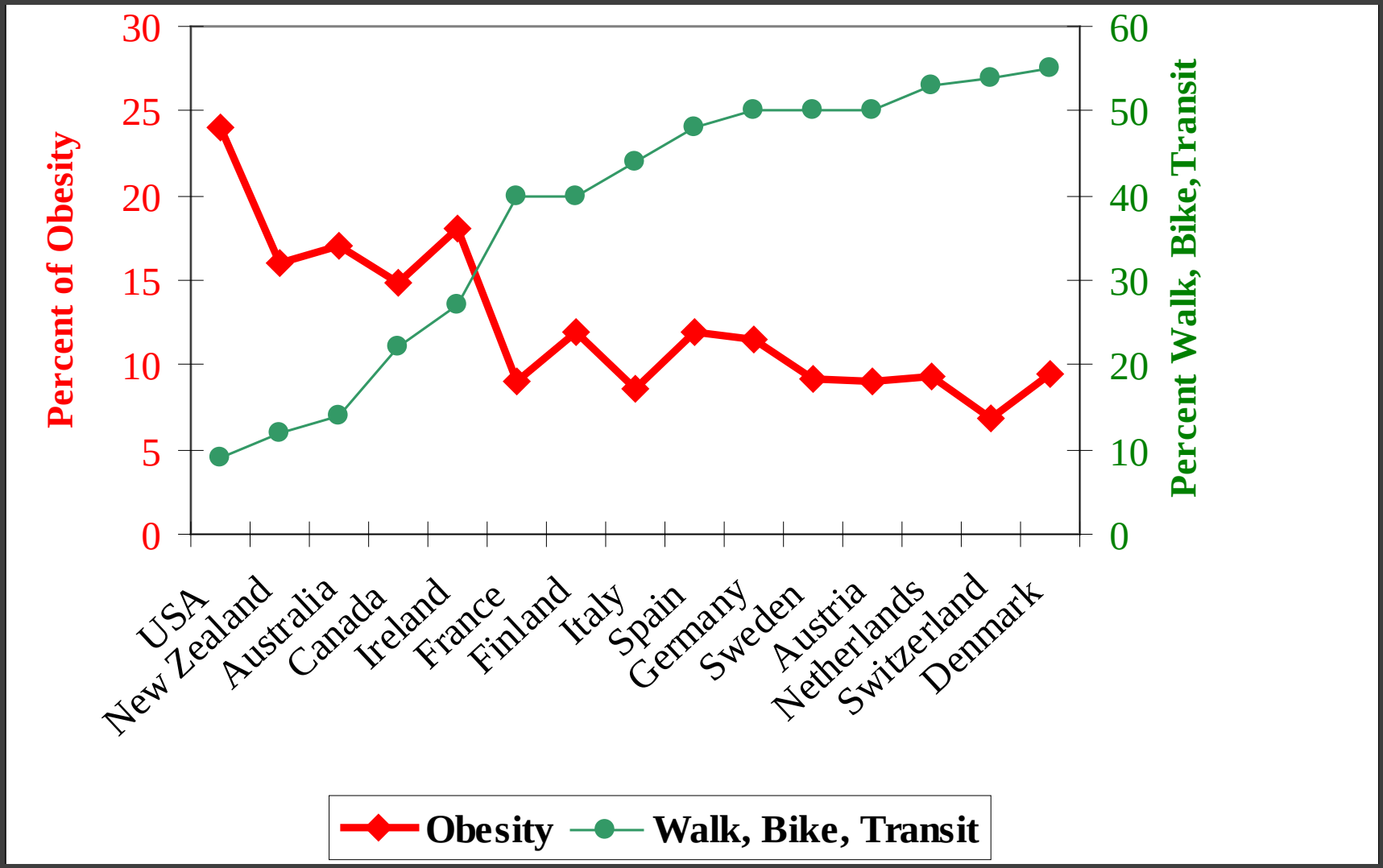
Benefits: health

- Now Americans move without moving
- 60% are at risk for diseases associated with inactivity:
  - Obesity
  - Diabetes
  - High blood pressure
  - Other chronic diseases

Benefits: physical activity

- Residents more likely to walk in a neighborhood with sidewalks
- Cities with more bike lanes have more bicycling
- 1/3 of regular transit users meet min. daily physical activity requirement during their commute

Benefits: physical activity



Source: Pucher, "Walking and Cycling: Path to Improved Public Health," Fit City Conference, NYC, June 2009

Benefits: safety

- In 2008:
- 5,000+ pedestrians and bicyclists were killed
- 120,000+ were injured

50% of pedestrians killed in 2007 & 2008 died on arterial roadways.

Benefits: Safety

- There were 32,885 traffic fatalities in the U.S. in 2010. Of these fatalities:

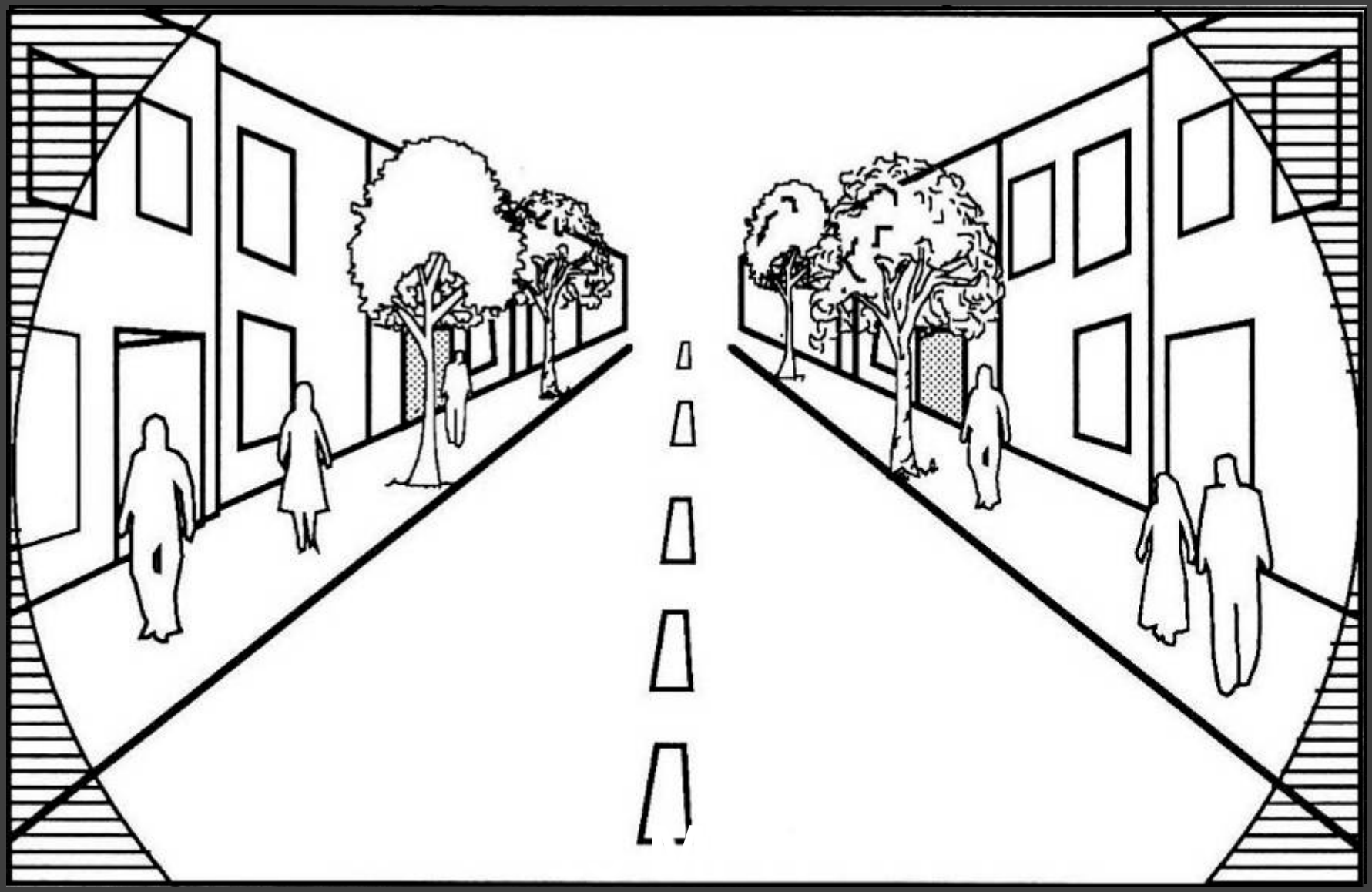
23,303 were people in cars

4,280 were people walking

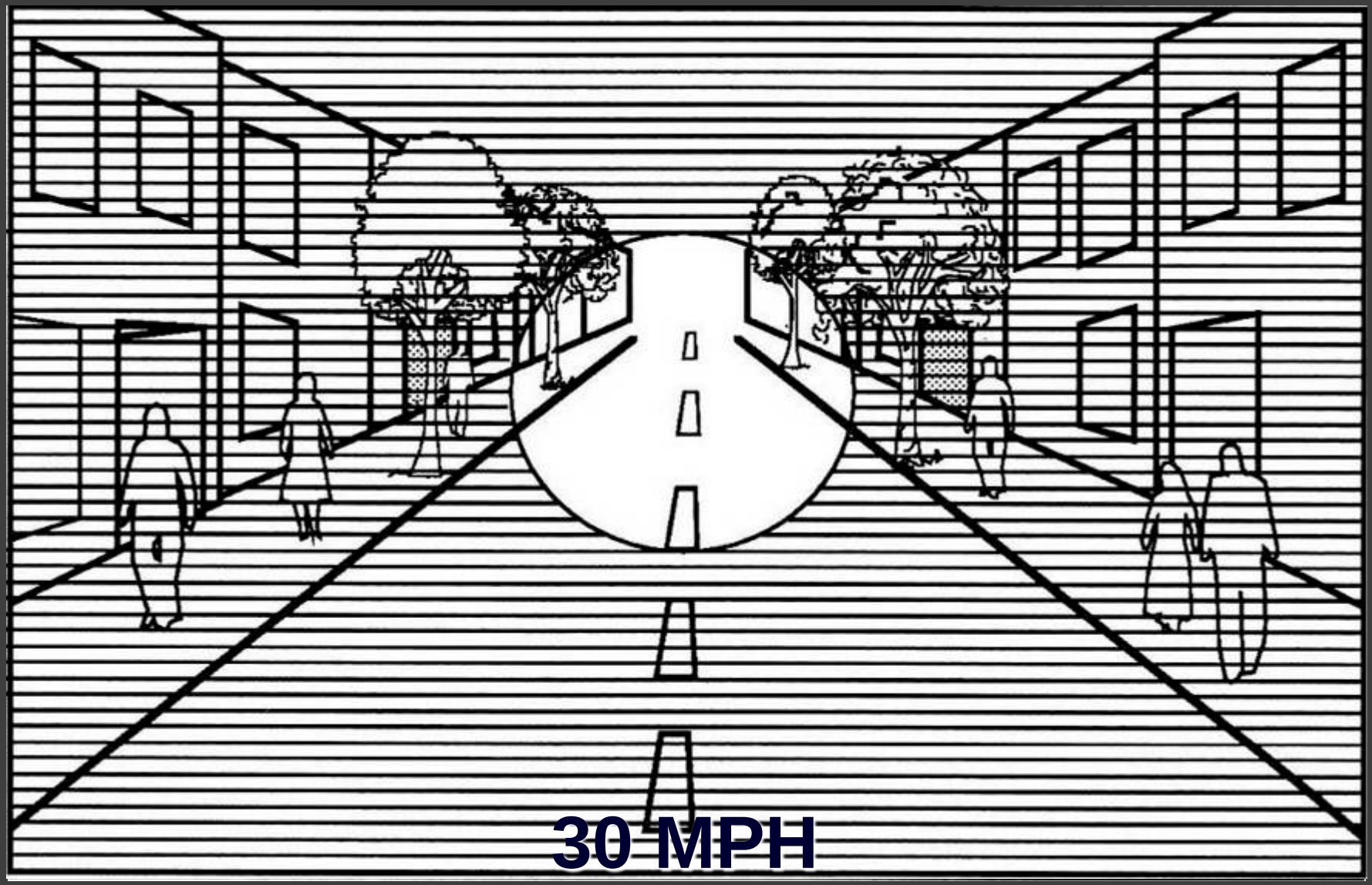
618 were people on bicycles

National Highway Traffic Safety Administration: Fatality Analysis Reporting System 2010

As speed increases, driver focuses less on surroundings

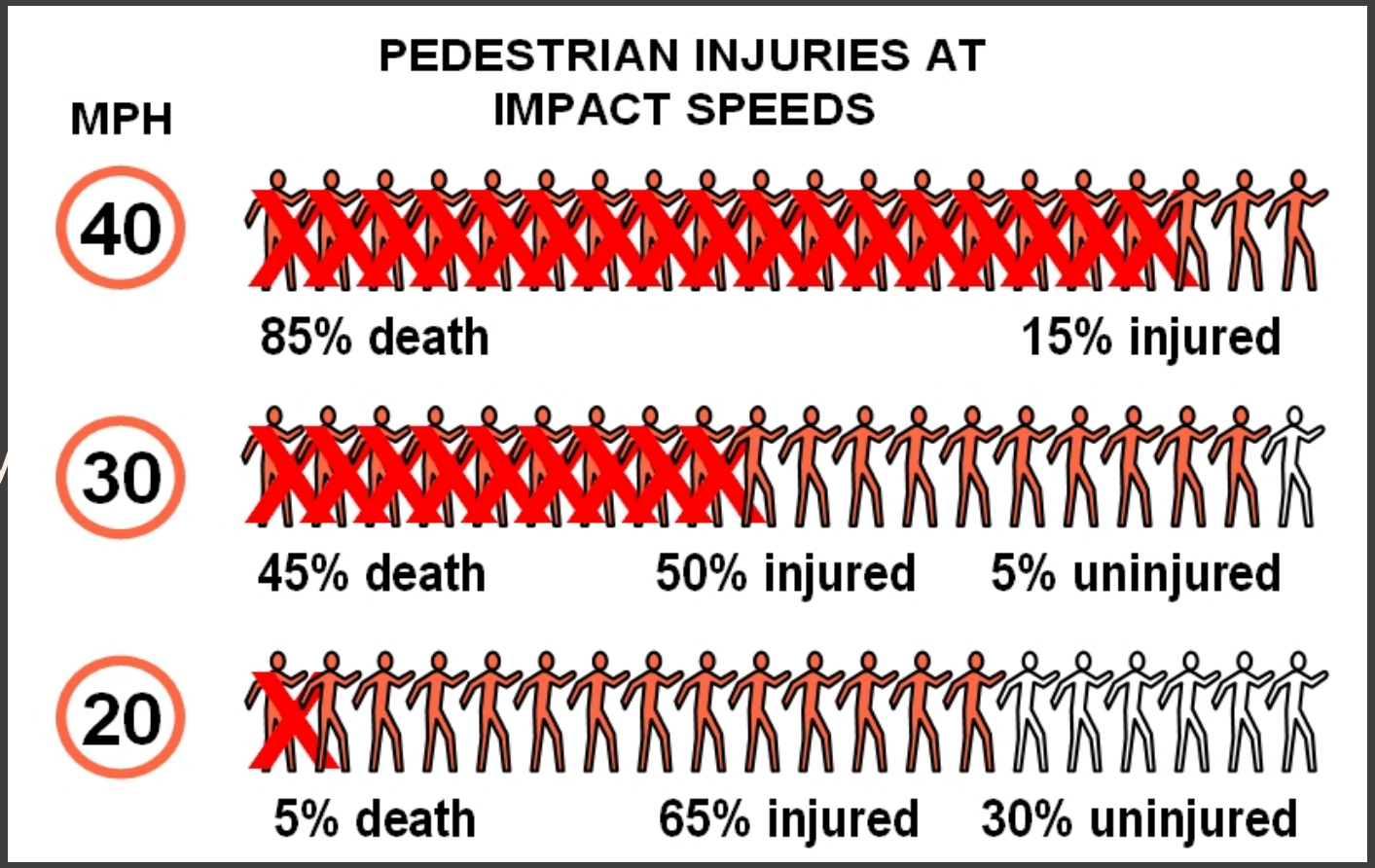


As speed increases, driver focuses less on surroundings



Speed Affects Crash Severity

High speeds lead to greater chance of serious injury & death



Curbs and sidewalks slow traffic more than speed sign

Benefits: Safety

- Pedestrian crashes

↓ **88%** with sidewalks

↓ **69%** with hybrid beacon

↓ **40%** with medians

↓ **29%** with road conversions

Benefits: people with disabilities

- Improved mobility for people with disabilities and reduced need for expensive paratransit service

Benefits: the environment

- Fewer emissions
- Less noise pollution
- Less wear & tear on our roads
- Less need to widen roads

Benefits: Less need to widen roads

Trips in metro areas:

- 50% - less than 3 miles
- 28% - less than 1 mile:
  - 65% of trips under 1 mile are now taken by car

Benefits: the economy & your wallet

Multi-modal streets:

- Increase home values
- Revitalize retail
- People can leave their car at home

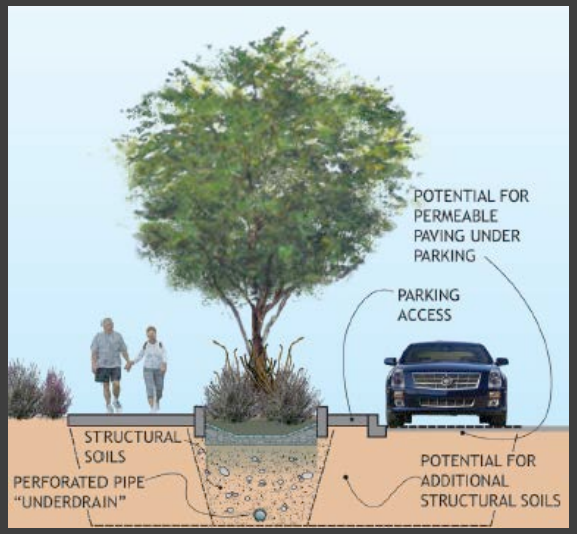
Toolbox for Sustainable Streets


STOP

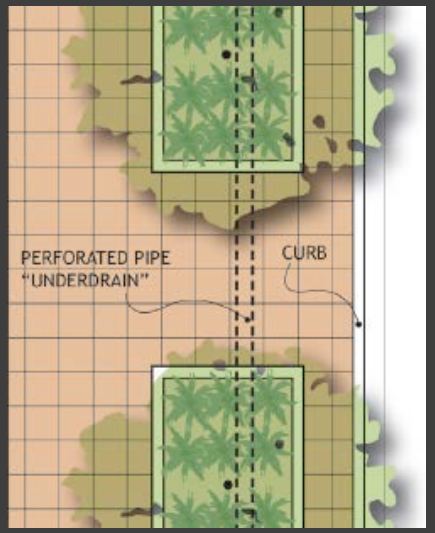
Sidewalk Zones

Sidewalks need good buffers

Source: blog.g8-life.com



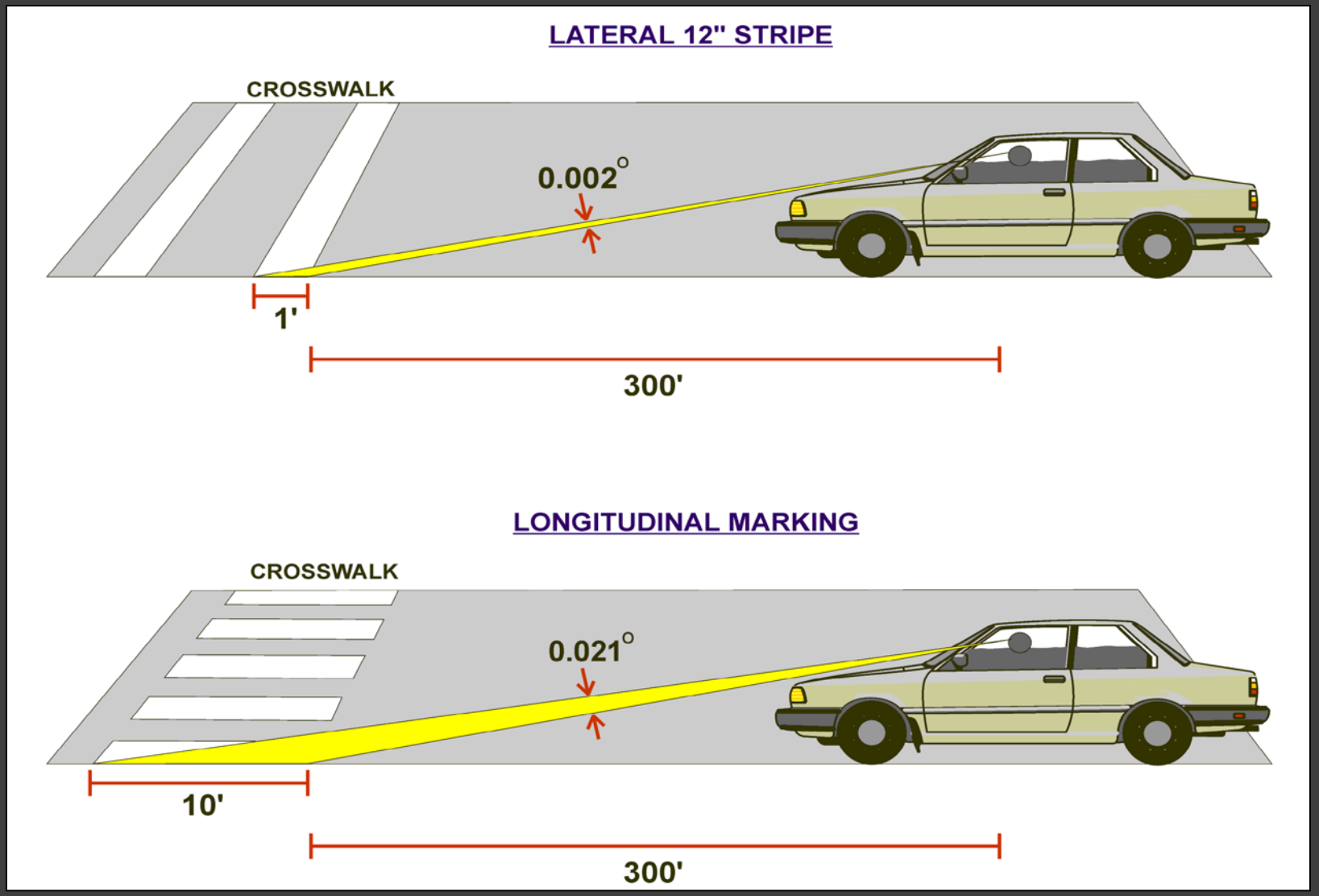
Source: Grant Road District Zoning, Tucson, AZ



Source: Grant Road District Zoning, Tucson, AZ

Green Streets Elements in Sidewalks – Linked Tree Wells

Crosswalk Visibility



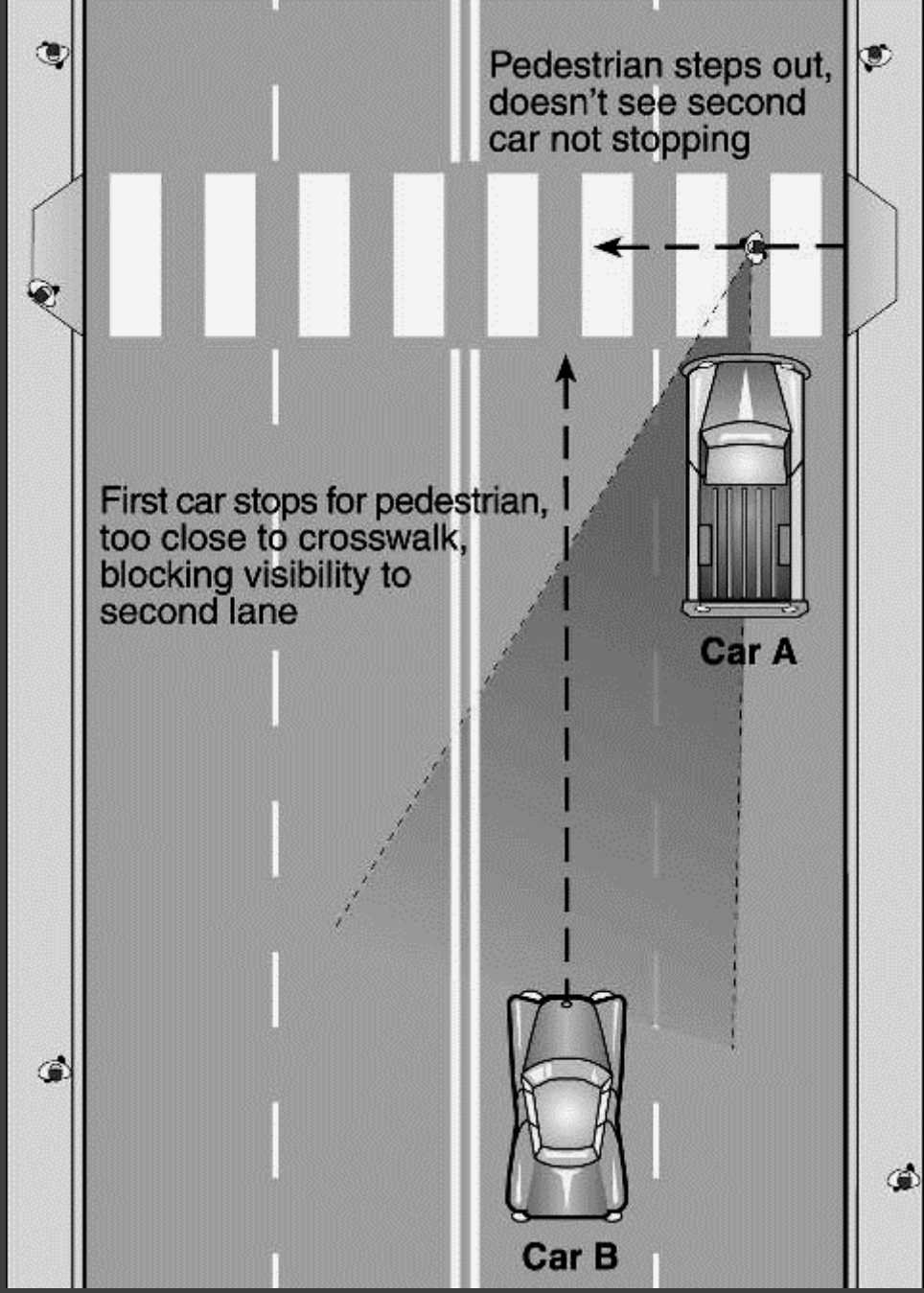
Longitudinal markings are more visible to driver from afar


HALL OF JUSTICE

Multiple Threat Crash Problem

1st car stops to let pedestrian cross, blocking sight lines

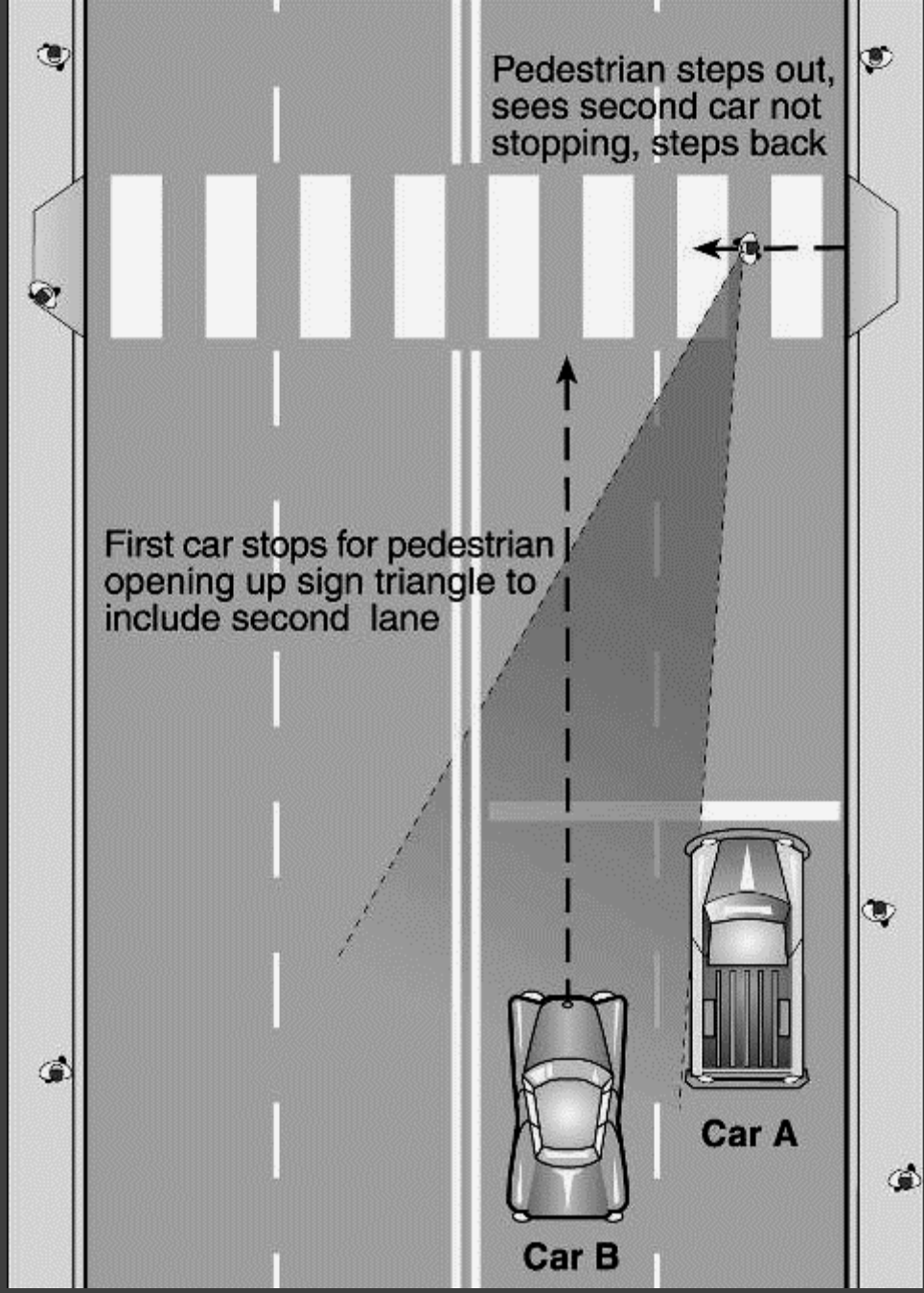
2nd driver doesn't stop, hits pedestrian at high speed



Multiple Threat Crash Solution

1st car stops further back, opening up sight lines

2nd driver can see pedestrian



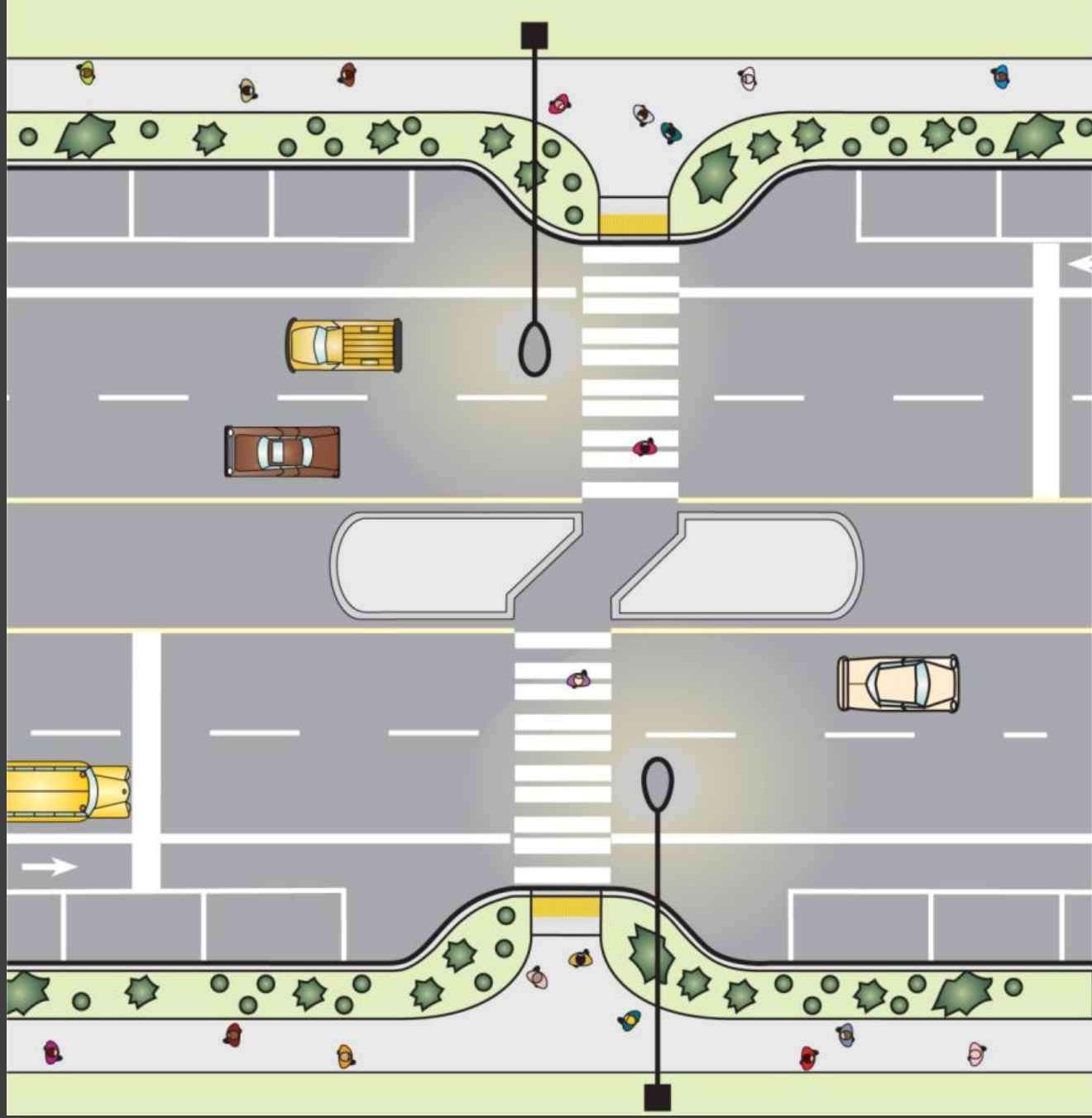
Advance yield line (shark’s teeth) and sign

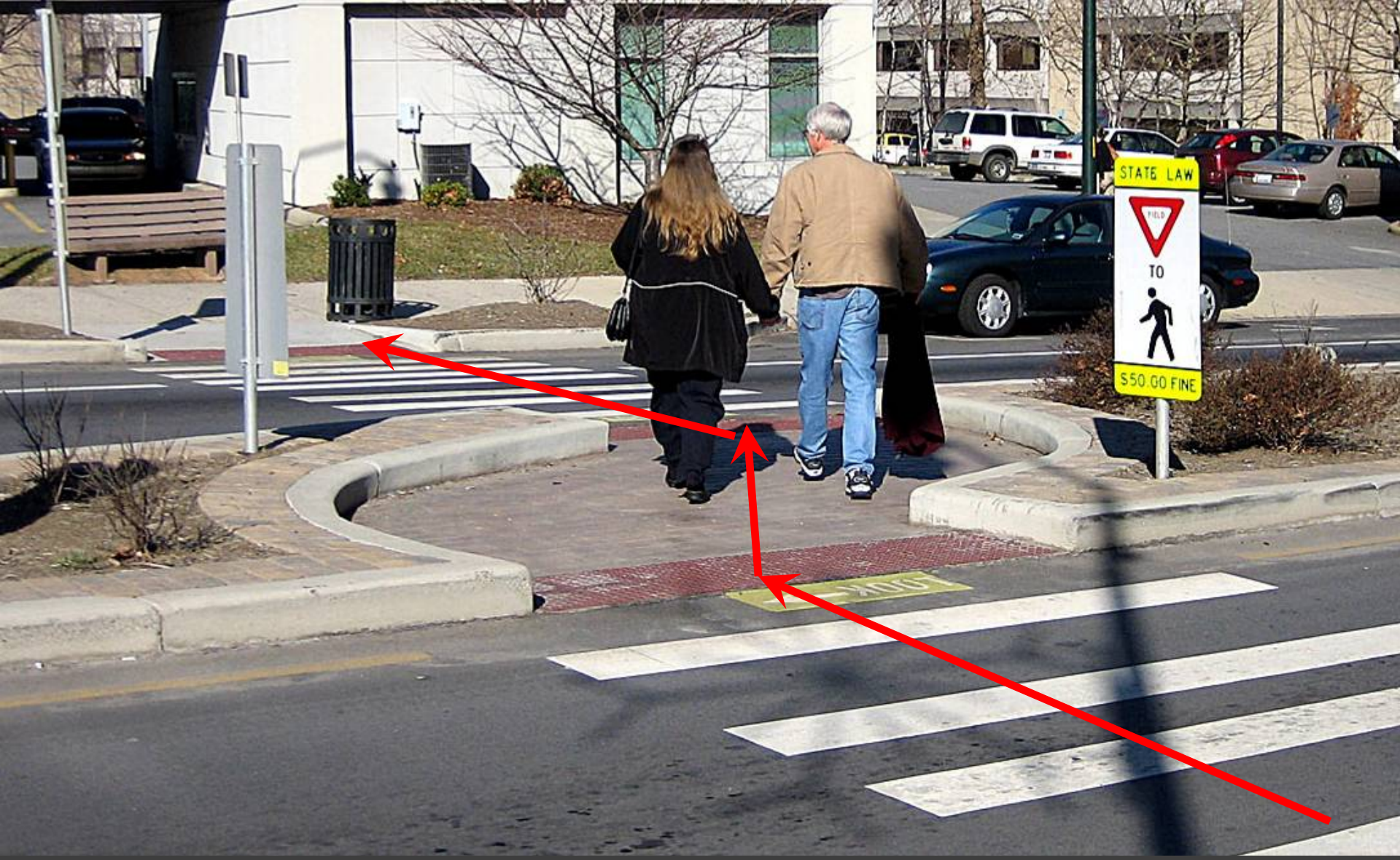
Rectangular Rapid Flash LED Beacon

- 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 the both right side and
on the left side or in a median if practical

Crossing island at marked crosswalk — *Breaks long complex crossing into two simpler crossings*

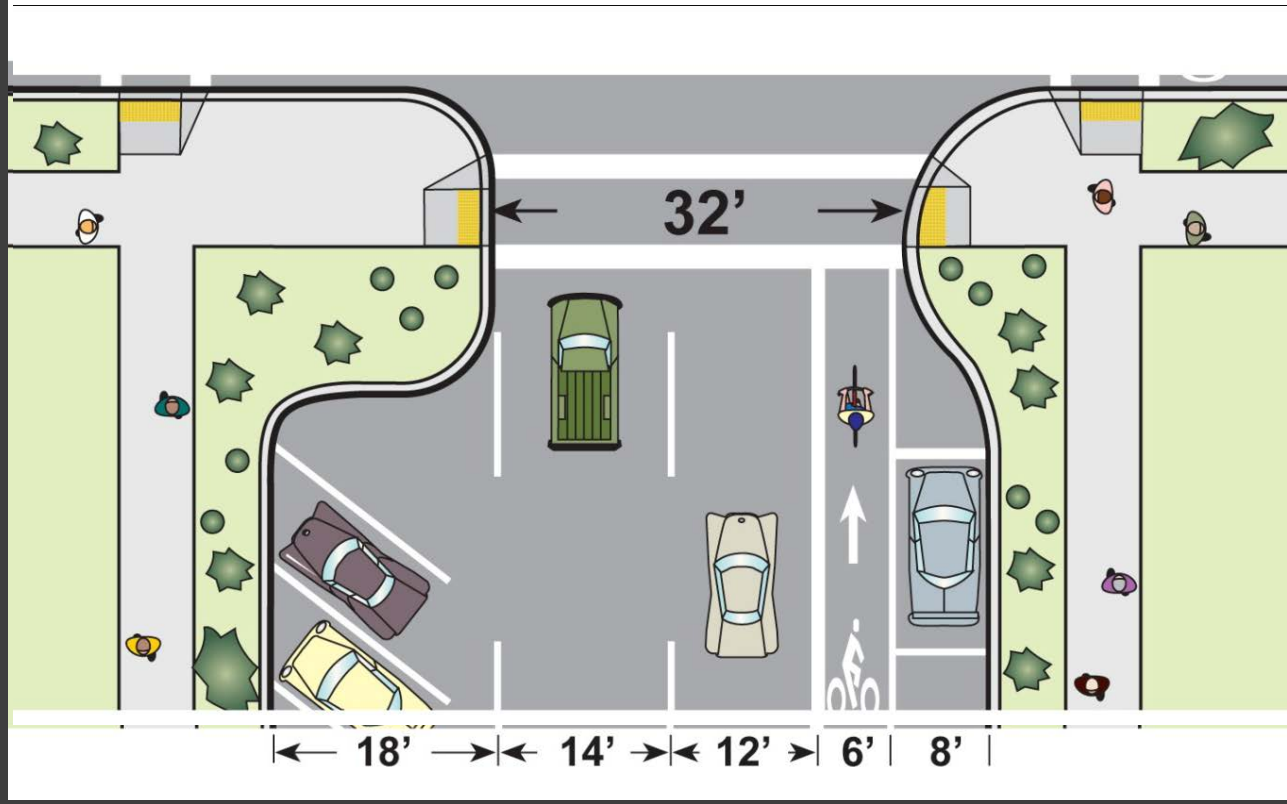




Option: Angle cut-through so pedestrians face oncoming traffic before 2nd crossing

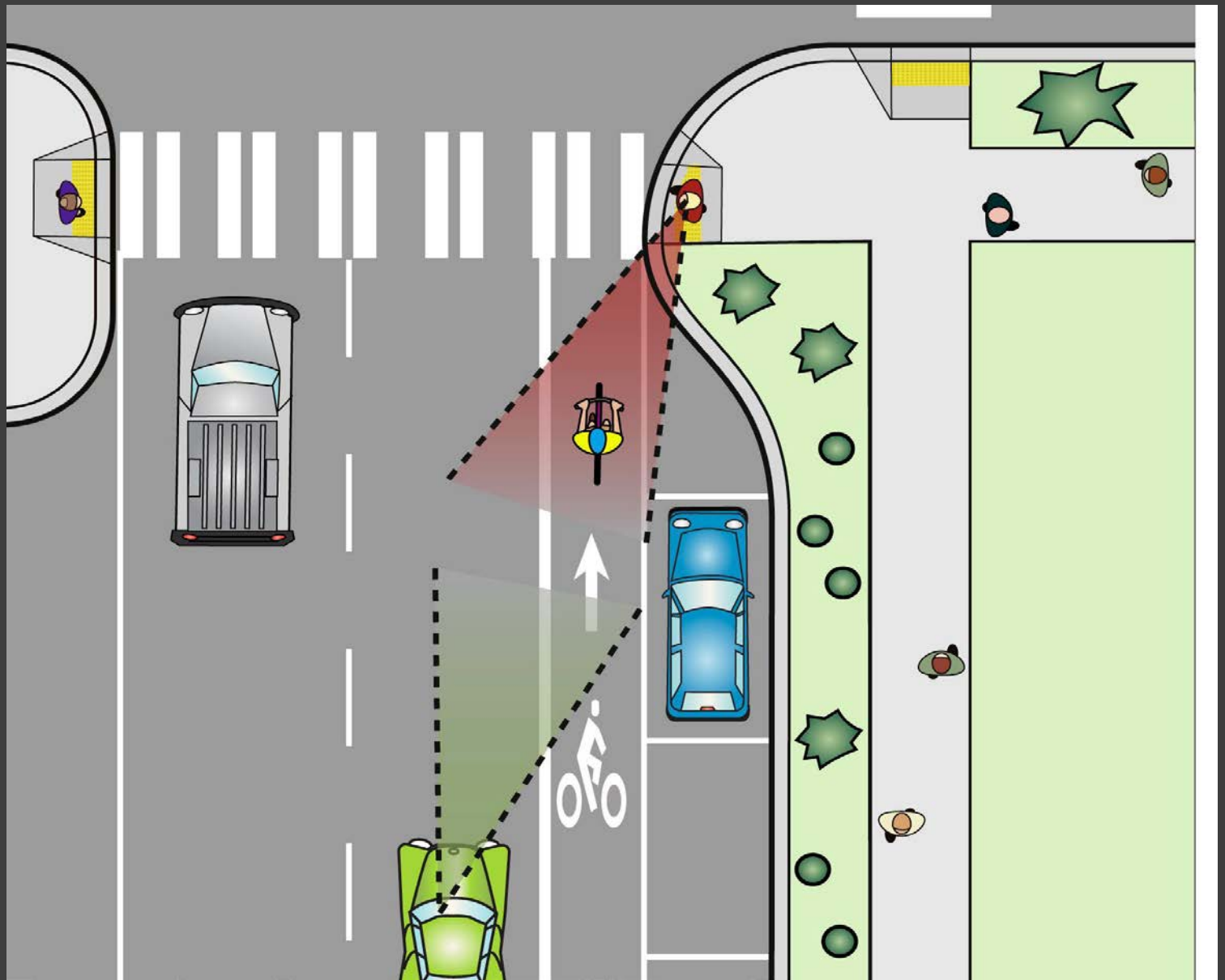
Curb extensions:

Don’t just reduce crossing distance



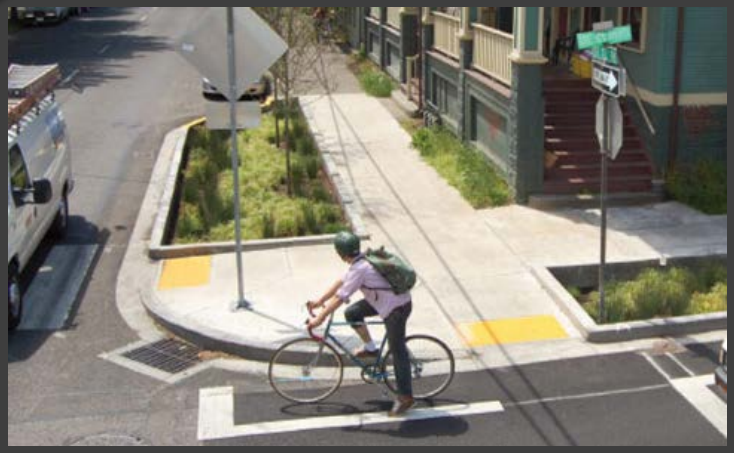
- Other advantages
- Better visibility (both ways)
- Traffic calming
- Room for street furniture

Improved visibility



Pedestrian waits in the street to cross

Curb extension places pedestrian where he can see and be seen



Source: www.blogspot.com on 3.7.2012

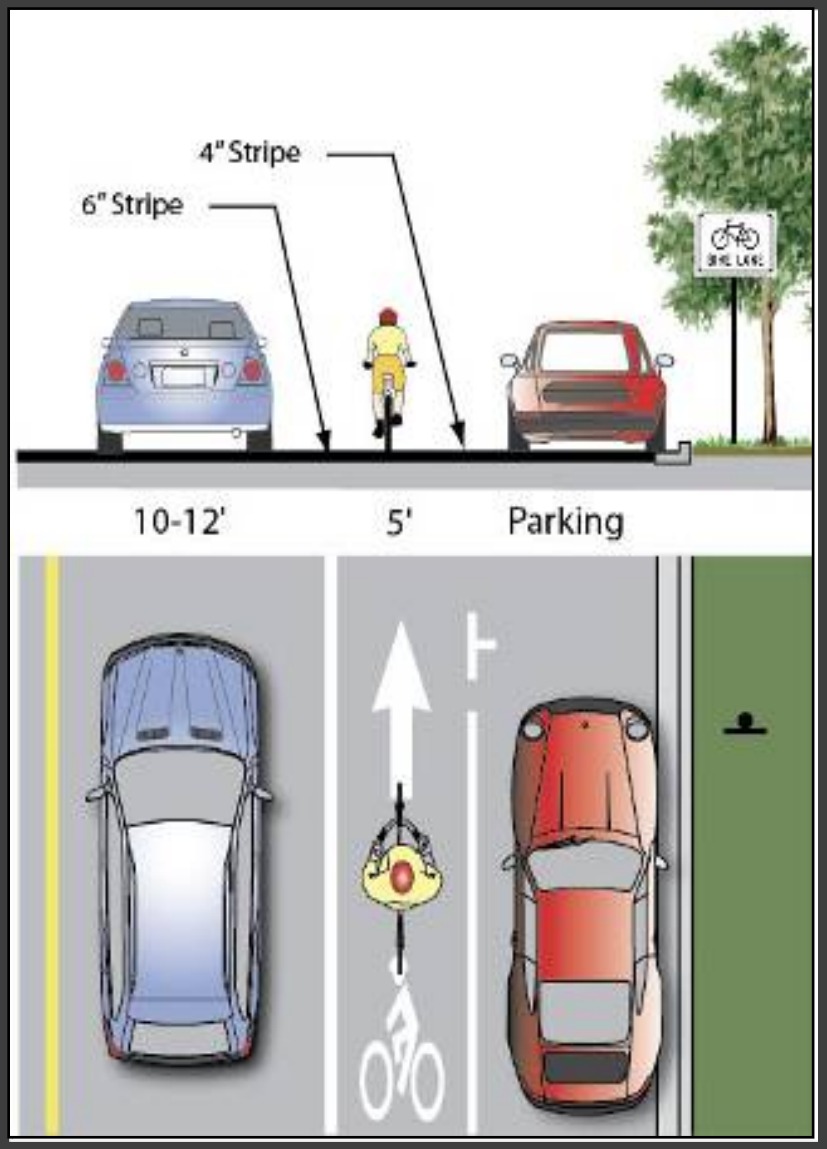
Source: www.myballard.org

Source: www.swithboard.nrdc.org, on 12.30.2012

Source: www.extension.org

Green Streets Elements in Curb Extensions

Bicycle Lanes



Buffered Bicycle Lane example

Example of colorized bicycle lane

Shared Lane example

Cycle tracks

Bicycle Corral

How to Make Room – Narrow Travel Lanes

- 10’ and 11’ lanes are just as safe as 12’ lanes on urban arterials with speeds 45 MPH and less
- National design manuals allow narrower lanes
  - 9’ on local residential streets
  - 10’ on lower speed arterials & collectors
  - 11’ for streets with high truck volumes

“Relationship of Lane Width to Safety for Urban and Suburban Arterials”: Study by Potts, Harwood, and Richard

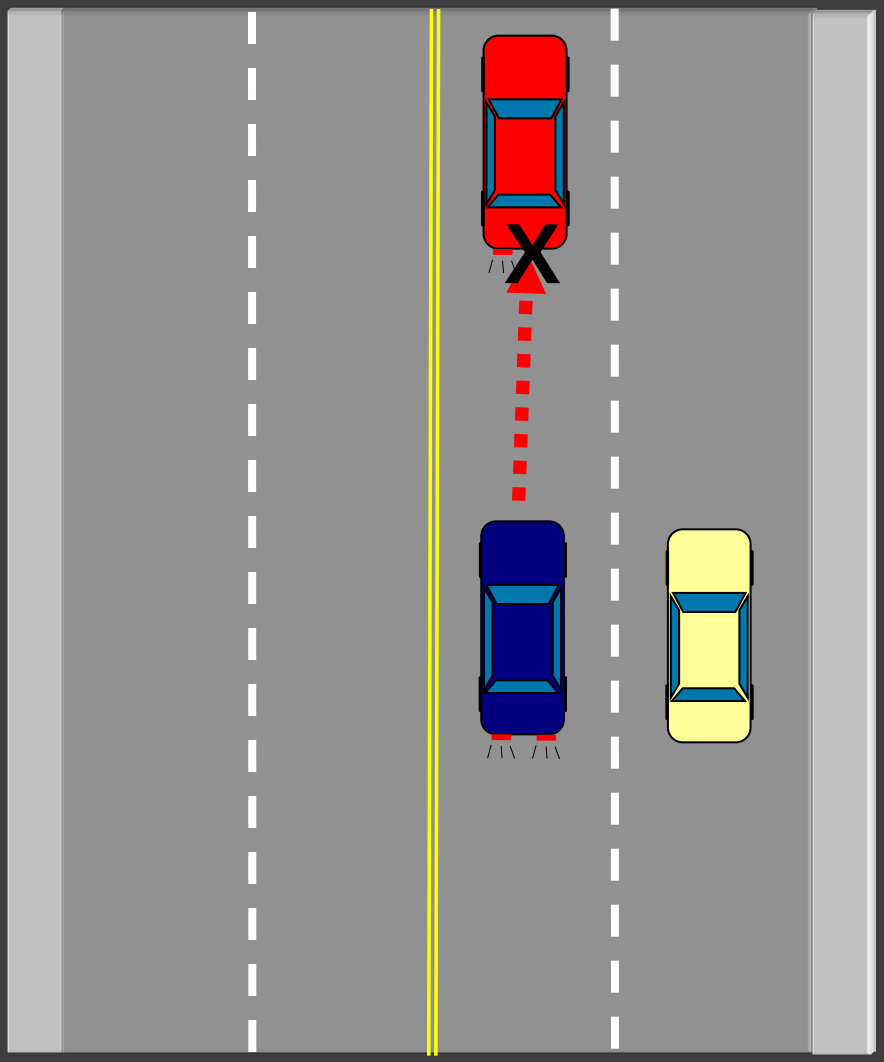
How to Make Room: Road Diets

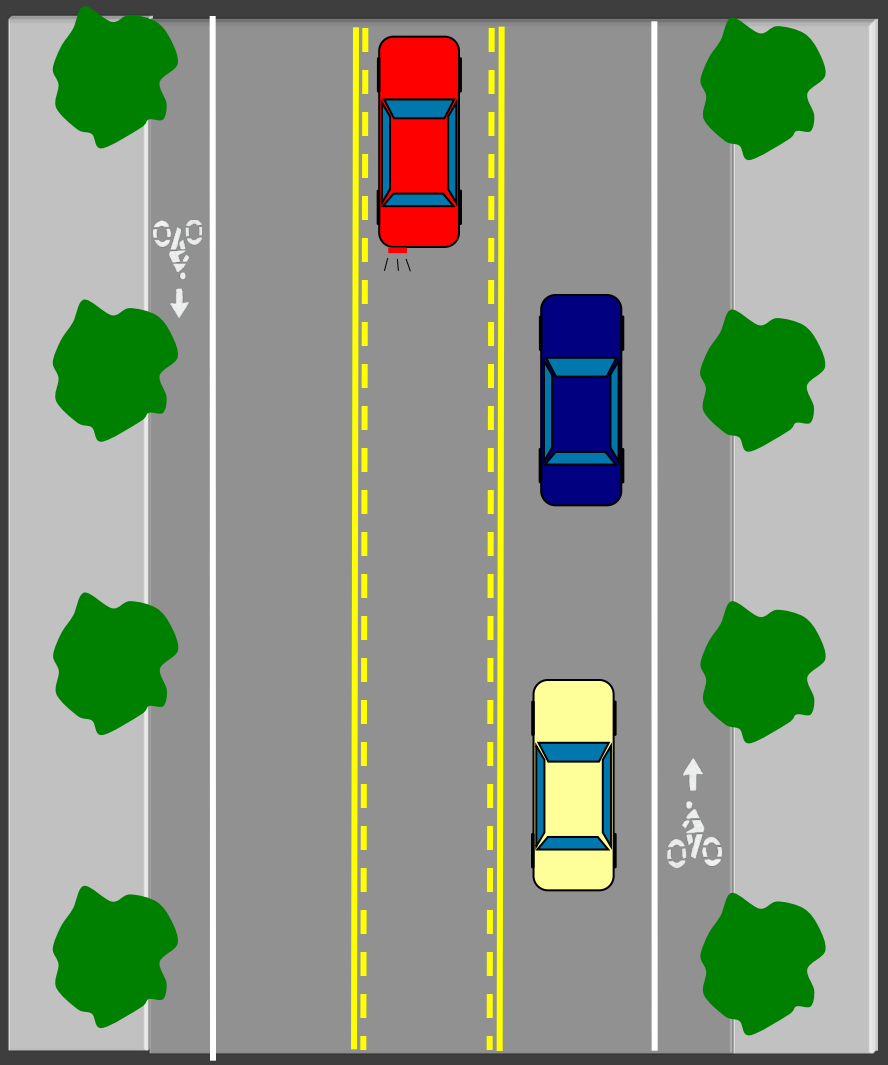
Convert 4-Lane Road to 3-Lane and TWLTL

29% crash reduction

3 crash types can be reduced by going from 4 to 3 lanes:

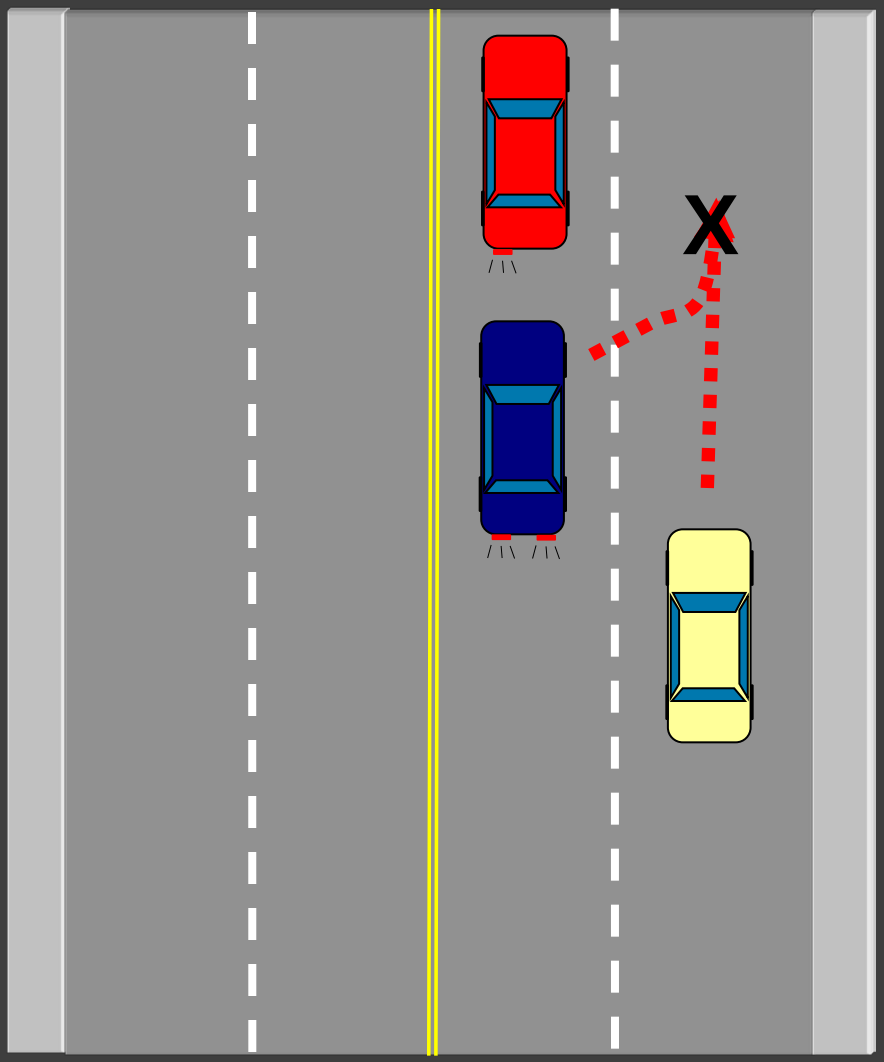
1 – rear enders

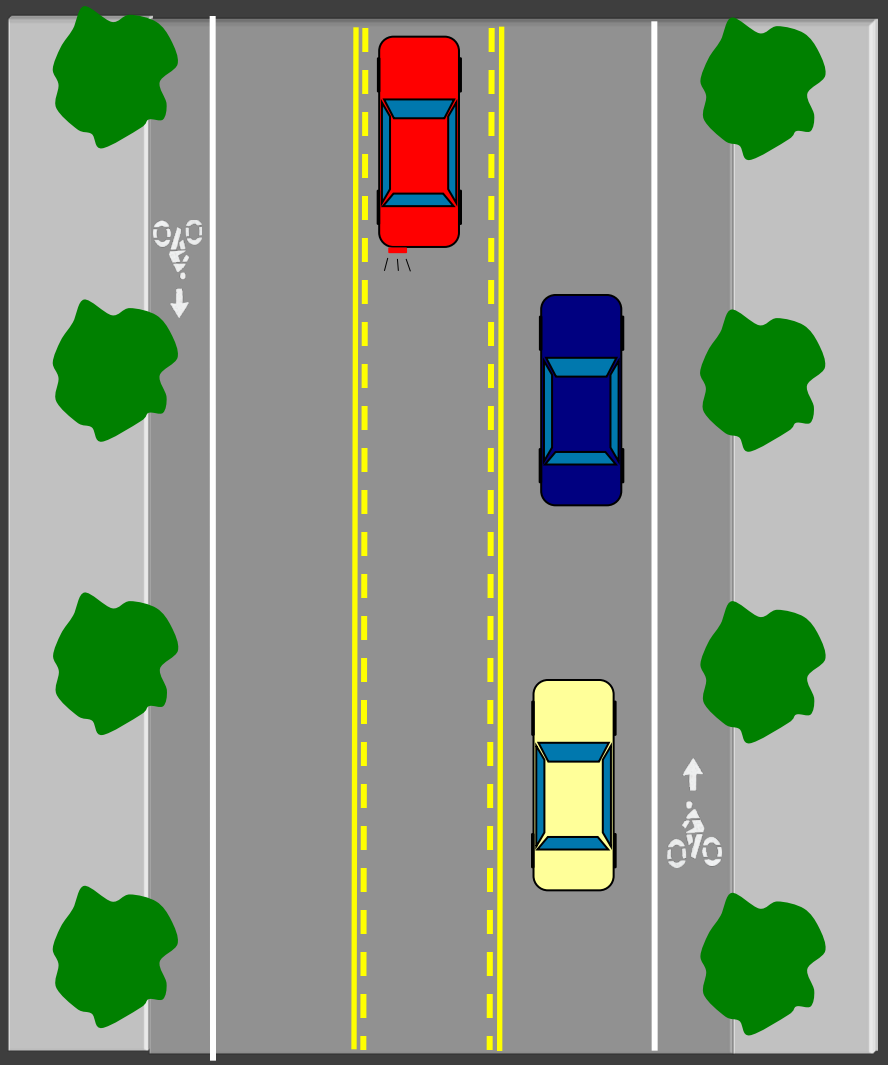




3 crash types can be reduced by going from 4 to 3 lanes:

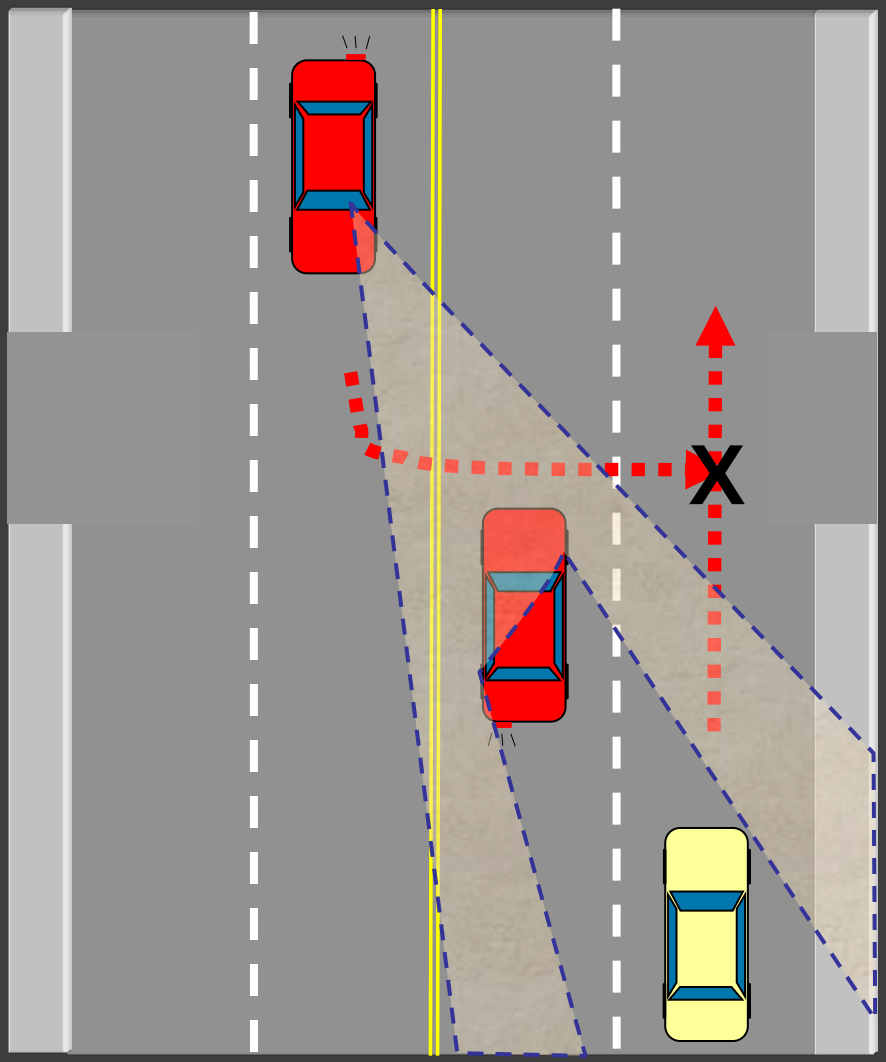
2 – side swipes

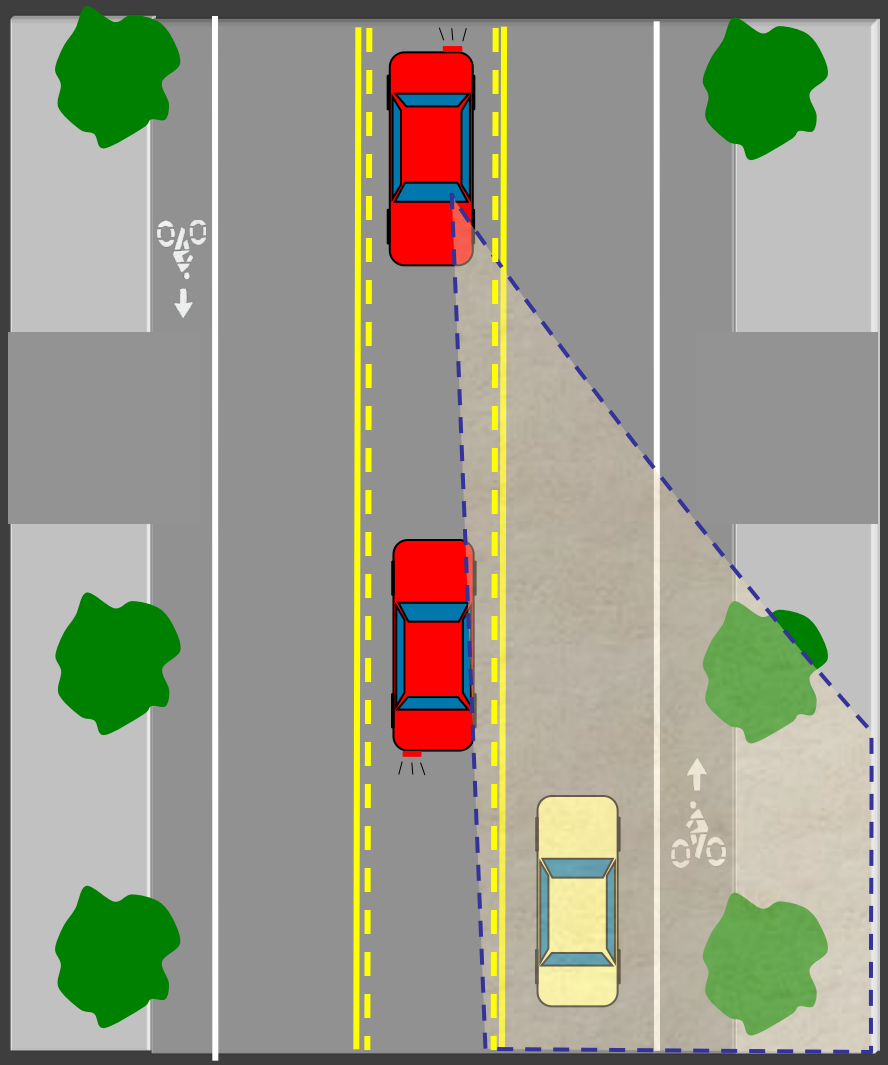




3 crash types can be reduced by going from 4 to 3 lanes:

3 – left turn/broadside

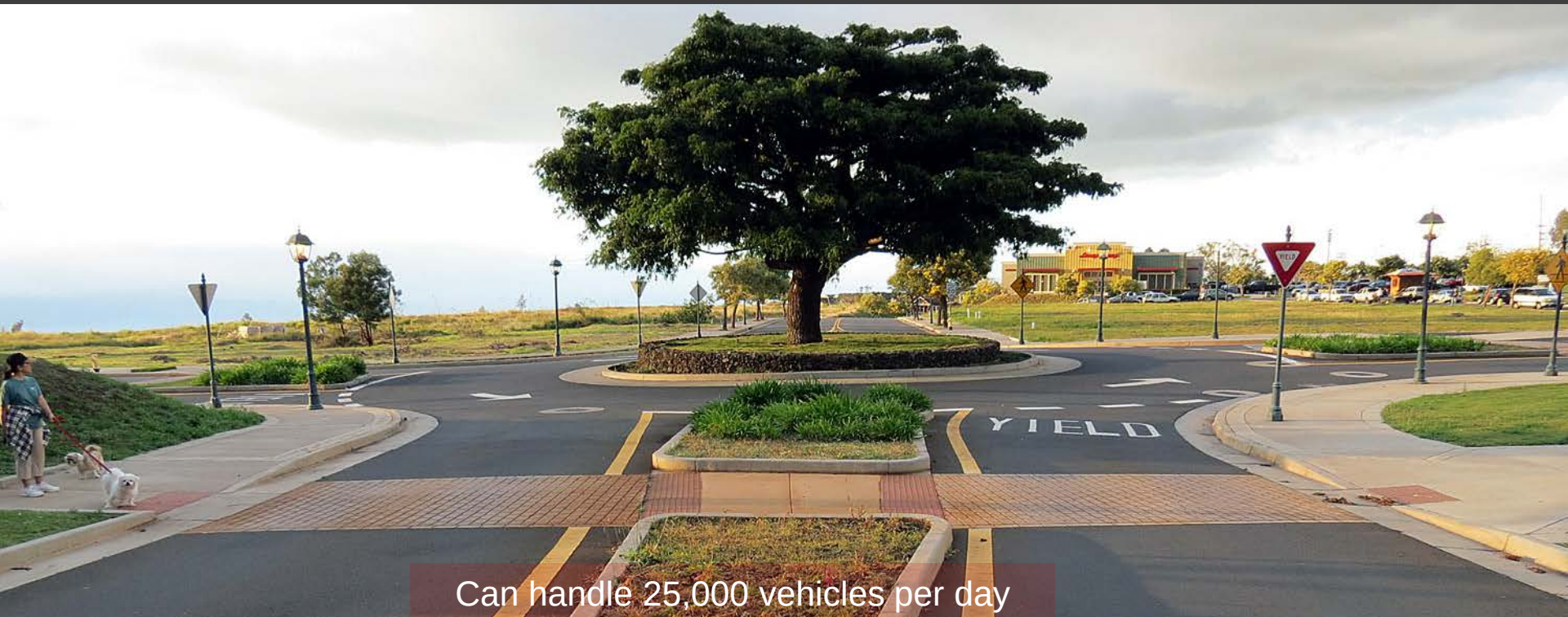





Royal
ONLY

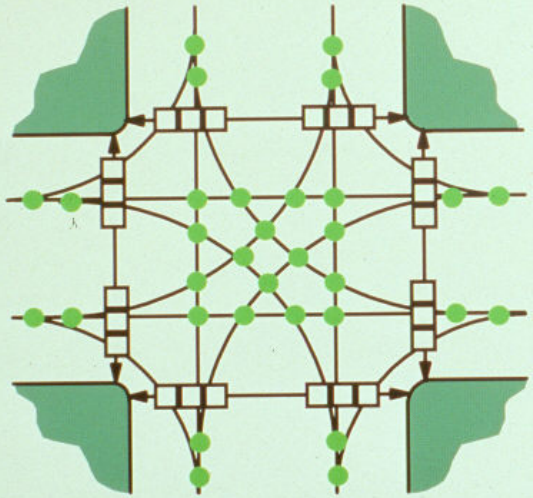
Before and After Example


Can handle 25,000 vehicles per day


YIELD
Can handle 25,000 vehicles per day

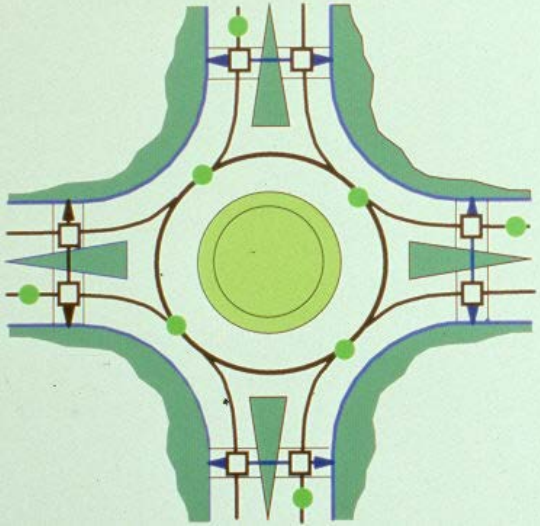
Roundabouts are safer

Conflicts At a Four-Way Interection



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

Conflicts At Roundabouts



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

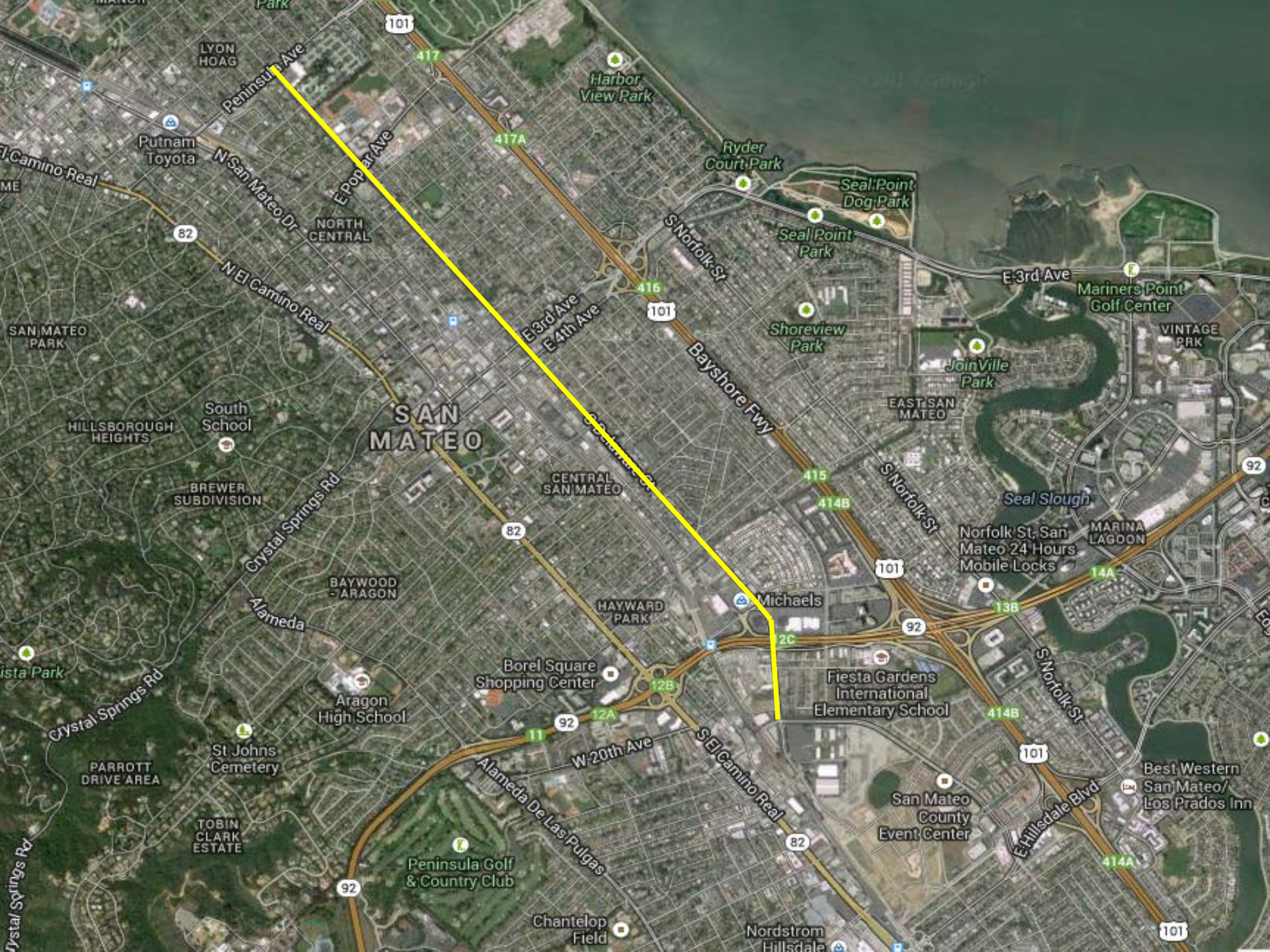
"Results of this study indicate that converting conventional intersections from stop sign or traffic signal control can produce substantial reductions in motor vehicle crashes."

March 2000 Study by the Insurance Institute for Highway Safety

Delaware Street Streetscape Project

Delaware Street

- Extends from San Mateo's northern border with Burlingame to 28th Avenue
- Provides important north-south connections
  - State Route 92
  - San Mateo County Expo Center
  - Hayward Park and Hillsdale Caltrain Stations
  - Residential Neighborhoods


Peninsula Ave
Putnam Toyota
N San Mateo Dr
E Poplar Ave
El Camino Real
N El Camino Real
LYON HOAG
NORTH CENTRAL
SAN MATEO PARK
HILLSBOROUGH HEIGHTS
South School
BREWER SUBDIVISION
Crystal Springs Rd
SAN MATEO
CENTRAL SAN MATEO
BAYWOOD - ARAGON
Alameda
HAYWARD PARK
Aragon High School
St Johns Cemetery
PARROTT DRIVE AREA
TOBIN CLARK ESTATE
Peninsula Golf & Country Club
Chantelop Field
Borel Square Shopping Center
W 20th Ave
Alameda De Las Pulgas
S El Camino Real
E 3rd Ave
E 4th Ave
S Delaware St
Michaels
Fiesta Gardens International Elementary School
San Mateo County Event Center
E Hillsdale Blvd
Best Western San Mateo/ Los Prados Inn
Nordstrom Hillsdale
Harbor View Park
Ryder Court Park
Seal Point Dog Park
Seal Point Park
S Norfolk St
Shoreview Park
Bayshore Fwy
EAST SAN MATEO
JoinVille Park
E 3rd Ave
Mariners Point Golf Center
VINTAGE PRK
Seal Slough
MARINA LAGOON
Norfolk St, San Mateo 24 Hours Mobile Locks
101
82
92
417
417A
416
415
414B
414A
14A
13B
12B
12A
11
2C

San Mateo Rail Corridor Plan

- Adopted in 2005
- Guides TOD near Hillsdale/Hayward Park Stations
- Identified improvements for Delaware Street
  - Interconnected street system
  - Multi-modal connections to Stations
  - Improved street appearance
  - More pedestrian friendly

Delaware Streetscape Project

- Widen sidewalk
- Add planted buffer
- Add Class II bike lane
- Reduce travel lanes
- Install decorative bridge railing
- New landscaping

Wider Sidewalks

Before

After

Enhanced Pedestrian Lighting

Before

After

Class II Bicycle Lane

Before

After

New Landscaping

Before

After

Reduced Travel Lanes

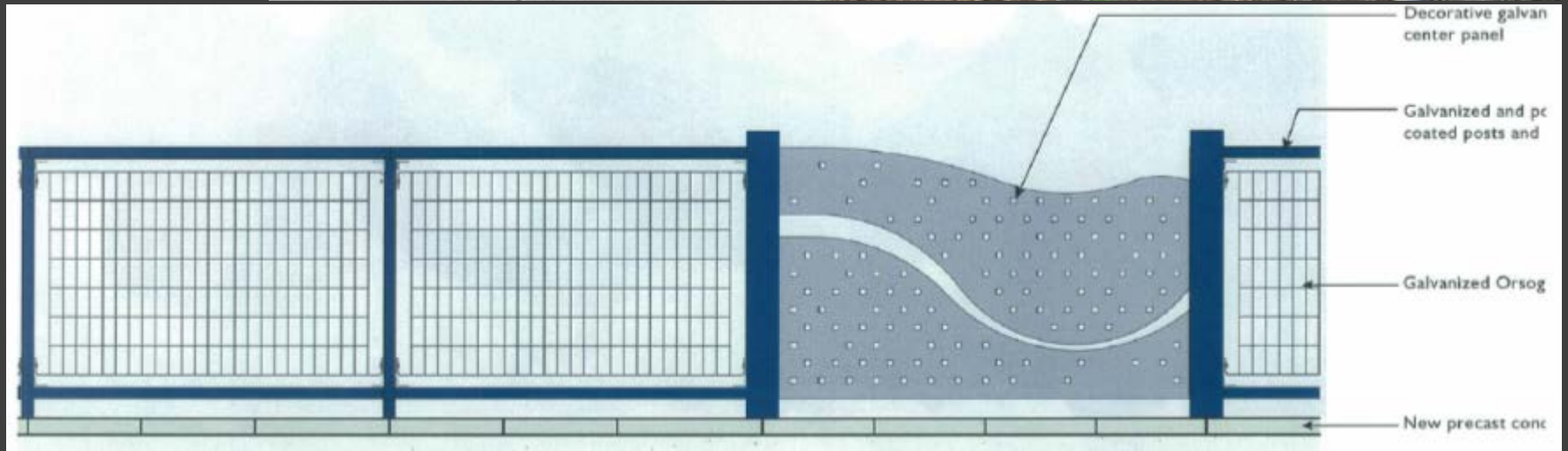
Before

After

16th Avenue Bridge Rail

Before

After



Project Funding

Total Project Cost = $1.4M

- $60K federal CMAQ funds – for design
- $545k MTC Transportation for Livable Communities (TLC) Program funds – for construction
- $627k from Station Park Green Developer
- $168k from City

Bay Meadows II Green Streets

Bay Meadows II Development Green Streets

Laurel Elementary
Safe Routes to School and Green Streets

Laurel Elementary School Safe Routes to School

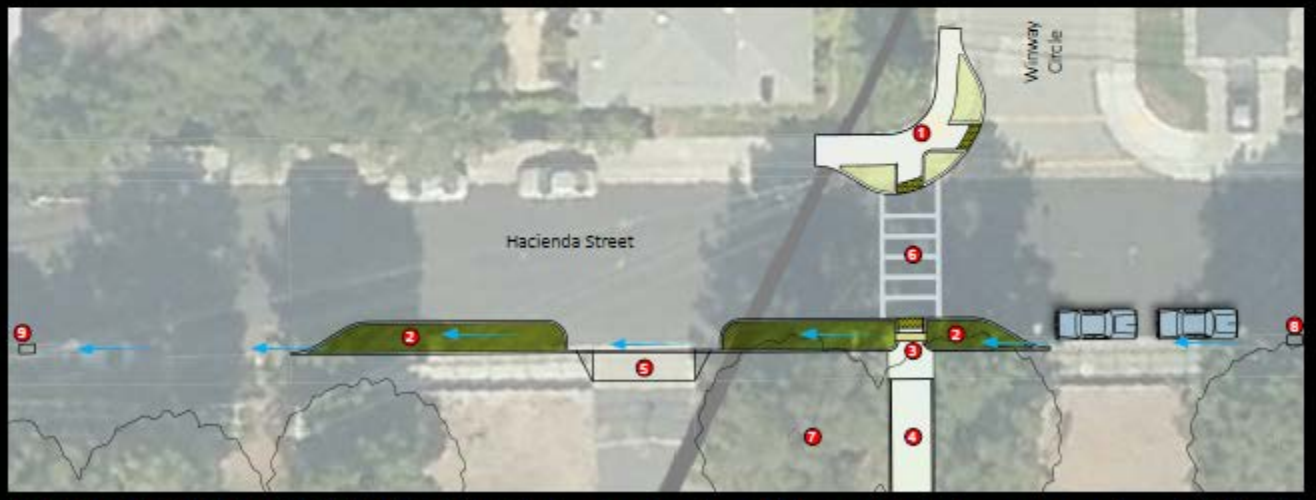
Laurel Elementary School Safe Routes to School

Laurel Sustainable SRTS Design: 36th Avenue Improvements

Scale: 1"=20'
February 2014

36th Avenue Improvements

1. Expanded concrete paving zone allows for more pedestrian area for bus drop off and pick up times.
2. Seatwalk for students waiting for the bus or social engagement.
3. Low maintenance and drought-tolerant landscaping surrounding new seatwall and paving areas.
4. Existing retaining wall to remain.
5. Existing school signage to remain.
6. New ADA accessible ramp leading from sidewalk zone to MPR.
7. 22-bike capacity bike parking area.
8. Existing trees (with open white circle tree trunk) to be protected and retained)(Typical).
9. 100' Red Curb-No Parking Zone
10. 180' of on-street parking from waiting area to fire access driveway



Laurel Sustainable SRTS Design: Hacienda Street and Winway Circle Improvements

Scale: 1"=20'
February 2014

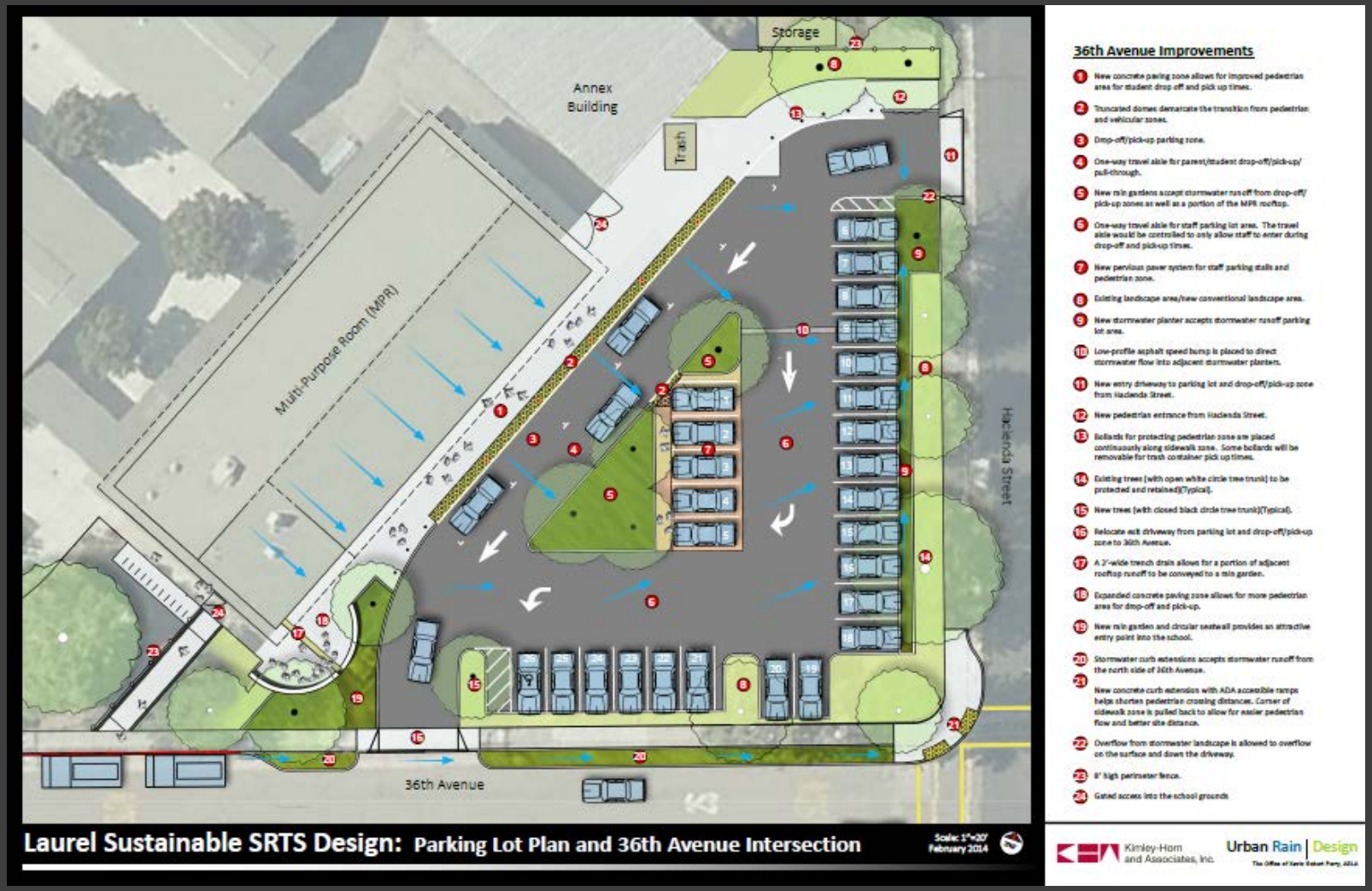
Hacienda Street Improvements

1. New conventional curb extension on the east side of Hacienda/Winway with ADA accessible ramps, landscaping, and button activated flashing light crosswalk.
2. Stormwater curb extension accepts stormwater runoff from the west side of Hacienda Street.
3. New ADA ramp built into the stormwater curb extension allows runoff to pass under the ramp using a covered trench drain system. This ramp also has rectangular rapid flashing beacons.
4. New ADA accessible pathway to playground space.
5. Existing school driveway to remain.
6. Curb extensions reduce overall crossing distance by 14-16'.
7. Existing trees (with open white circle tree trunk) to be protected and retained)(Typical).
8. Existing storm inlet is to be capped and abandoned.
9. Any overflow from stormwater curb extensions is allowed to enter the existing storm drain (to the creek).

Kimley-Horn and Associates, Inc.

Urban Rain | Design

Laurel Elementary School Safe Routes to School



Laurel Elementary School Safe Routes to School






Laurel Sustainable SRTS Design: Precedent Examples

Kimley-Horn and Associates, Inc. | Urban Rain | Design

Questions and Comments?

Contact

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