



Welcome!



Today's Agenda

Welcome

Eric Lucan, Mayor

Where We Left Off Last Fall

Bob Brown, CD Director

- Charrette Purpose, Process & Parameters
- Tour of Redwood Boulevard

Julian Skinner, Engineering Mgr.

- Streetscape Design Toolkit
- Option Preference Survey

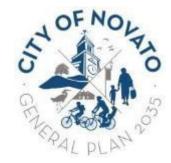
Next Steps and Close

David Parisi, Transportation Consultant

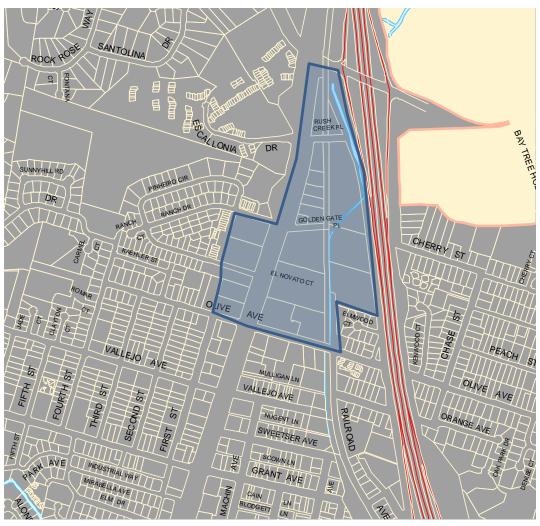
Bob Brown, CD Director







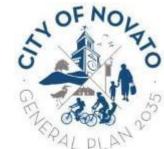
Study Area





1. Vision Statement:

"The North Redwood Corridor provides an opportunity for the City to address its historic retail sales leakage and address community needs by creating a vibrant retail center with a unique sense of place, featuring inviting gathering places with restaurants and entertainment. New commercial development should be pedestrian-oriented with an active street frontage and convenient pedestrian and bicycle connections to the Downtown and the SMART station. New residences are encouraged, both on the remaining Atherton Ranch site and on the vacant site east of Trader Joe's. Redwood Boulevard should be enhanced with improvements such as landscaping, pedestrian/bicycle paths and wide sidewalks."



Parameters

Study Area

 Redwood Boulevard from DeLong Ave. to San Marin Ave.





Parameters

Objectives

- Achieve the objectives from the North Redwood Blvd.
 Corridor Study
- Achieve a design which can at least be implemented incrementally by redevelopment between Olive Avenue and San Marin Drive



REDWOOD BOULEVARD:

- Support for keeping ROW as-is, but "activating" the median
- Support for narrowing the ROW, providing additional land area to properties on the east side for development (note constraint of the PG&E gas lines at the current edge of the ROW)
- Potential for angled/perpendicular parking in front of retail buildings on Redwood

2. Design Guidelines: Circulation/Infrastructure

- Improve Redwood Boulevard In conjunction with redevelopment in the study area. If necessary, initial development may be required to fund the infrastructure improvements with a reimbursement agreement for contributions from future development in the study area.
- Improvements to Redwood Boulevard should either enhance the existing landscaped median with additional landscaping, seating areas and possibly a pedestrian/bicycle path, with retention of existing cork oak trees, or may propose reducing the right-of-way width with land area added to properties on the east side of Redwood Boulevard, with the former right-of-way used for a generous, landscaped pedestrian/bicycle path, wide sidewalks, outdoor seating areas and some retail space, provided buildings are not located atop the existing gas distribution lines.

2. Design Guidelines: Circulation/Infrastructure

- Install the SMART bicycle/pedestrian path in conjunction with redevelopment in the study area, if these improvements are not in place or scheduled to be installed by SMART in a reasonable time frame to coincide with new development. If necessary, initial development may be required to fund the infrastructure improvements with a reimbursement agreement for contributions from future development in the study area. The City should also pursue possible grant funding for path installation.
- The City may consider allowing diagonal parking along the east side of Redwood Boulevard in the public right-of-way or transferring a portion of the existing right-of-way for redevelopment in exchange for bicycle and pedestrian improvements along the Redwood frontage, SMART right-of-way or for improvements to the Redwood Boulevard median.

2. Design Guidelines: Circulation/Infrastructure

- The City should explore and implement, where feasible and as opportunities arise over time, additional pedestrian/bicycle connections to downtown, such as connection of Machin Avenue to Olive Avenue.
- If feasible, consider relocation of high-voltage overhead utility lines along the Redwood Boulevard frontage.



Parameters

Circulation

- The SMART station location is set
- Redevelopment funding is gone major changes to Redwood Blvd. would have to be funded by new development and occur incrementally or potentially through a bond or sales tax measure
- The SMART bike/ped path will be developed incrementally. In the first phase (2016), only the portion between Alice Street (adj. to U.S. 101) and Grant will be installed.

OF NO LAND

Constraints

Utilities

PG&E gas mains

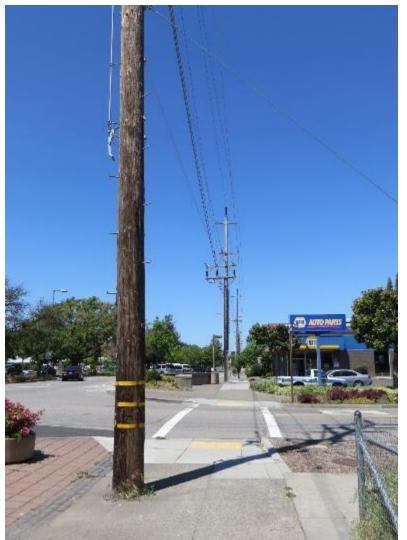




Constraints

Utilities

- PG&E gas mains
- PG&E electrical transmission lines (Vallejo to San Marin)





A TOUR OF REDWOOD BOULEVARD







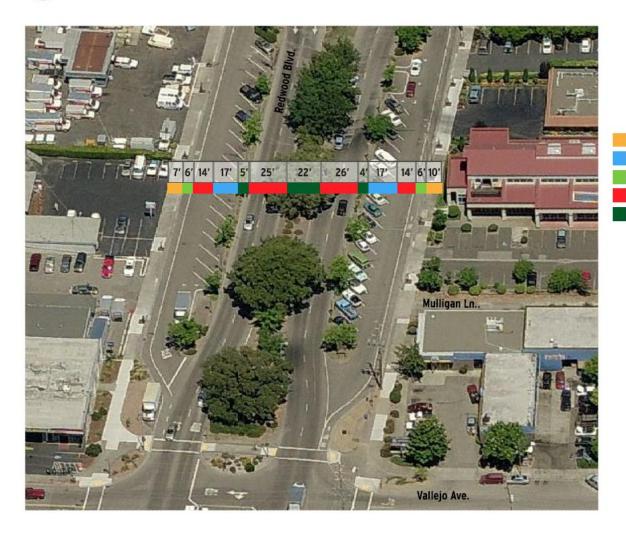
















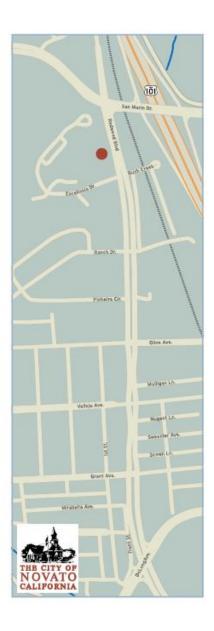




















Redwood Blvd. Traffic Lanes

- Current and projected traffic volumes warrant 4 through lanes (2 in each direction), plus turning lanes at intersections.
- 2040 projected traffic volumes (up to 24,000 vehicles per day) do not warrant 6 through lanes
- 4 through lanes would provide good level-of-service and emergency provider needs



Utility Undergrounding/Relocation Costs

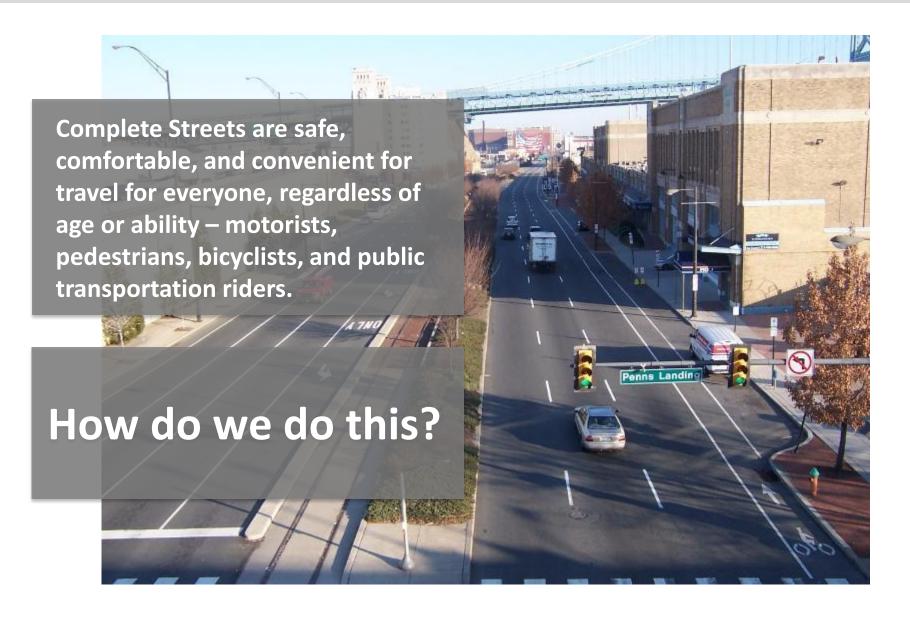
	UNIT COST	APPROX. COST
ELECTRIC TRANSMISSION	\$17 - \$20M/MILE	\$10.9M
ELECTRIC DISTRIBUTION	\$550/FOOT	\$1.65M
GAS MAIN REPLACEMENT	\$1,100/FOOT	\$3.3M
	APPROX. TOTAL	\$15.9M*

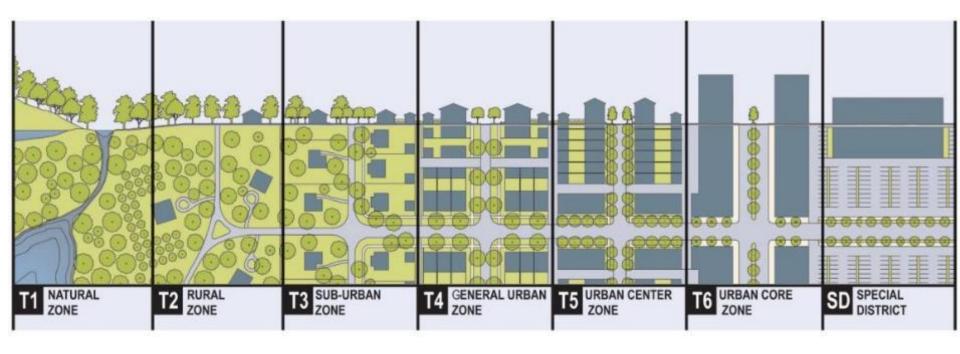
*OLIVE AVE. TO SAN MARIN



STREETSCAPE DESIGN TOOLKIT

Complete Streets



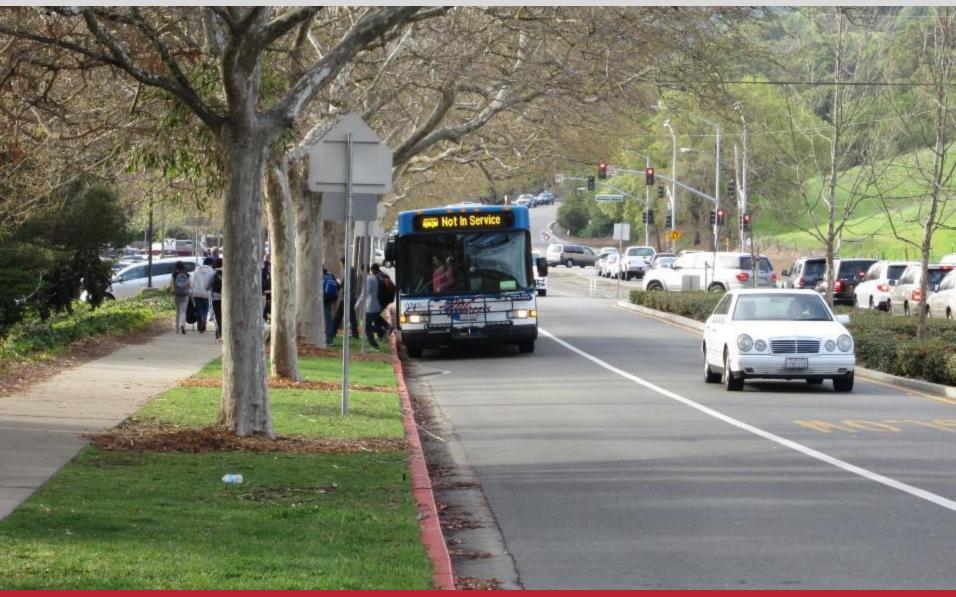


STREET CONTEXT

Urban Complete Streets



Suburban Complete Streets



Rural Complete Streets



Commercial Complete Streets



Residential Complete Street





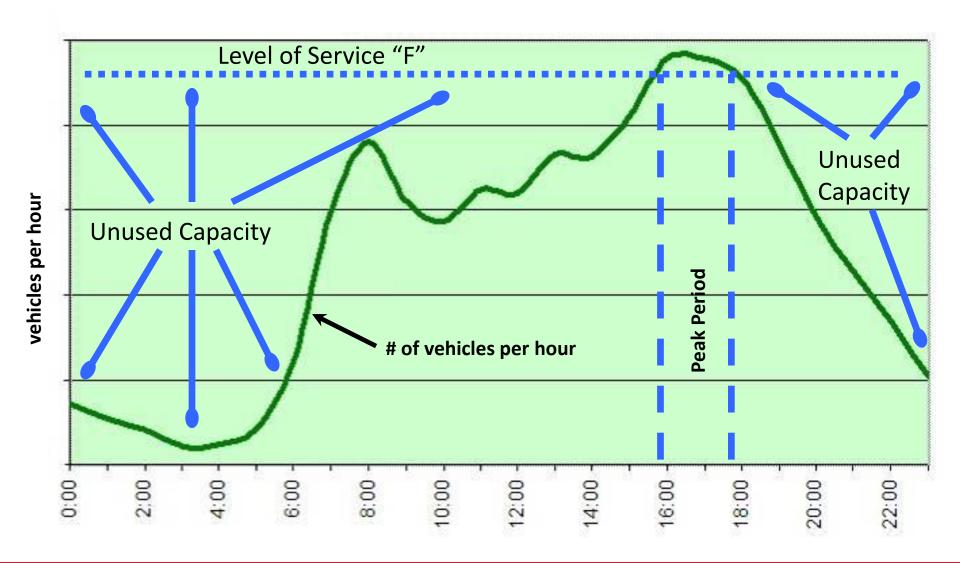
RIGHT-SIZING THE STREET

Results of Designing for Peak Hour*

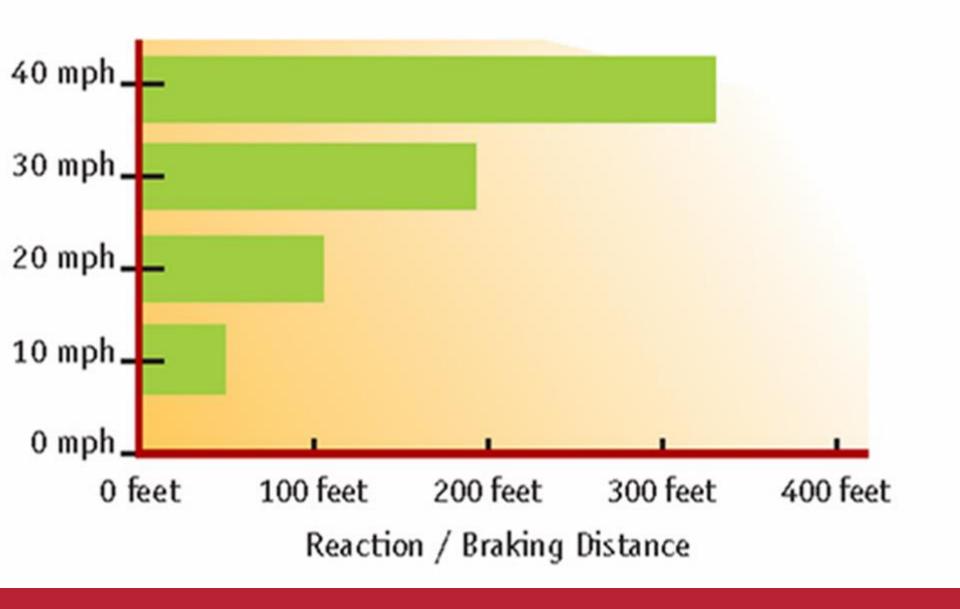


*Peak hour occurs ~2hrs/day, 5 days/week, or 6% of the time

Designing for Peak Motor Vehicle Flow



Travel Speed vs. Reaction and Braking Distance



PEDESTRIAN INJURIES AT IMPACT SPEEDS

MPH





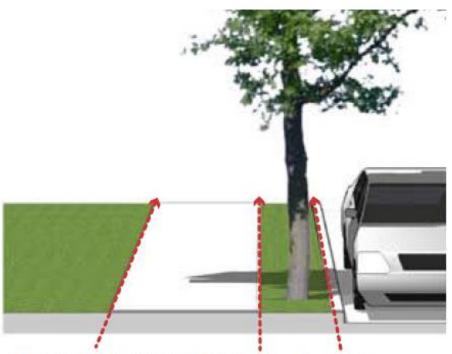




PEDESTRIAN FACILITIES



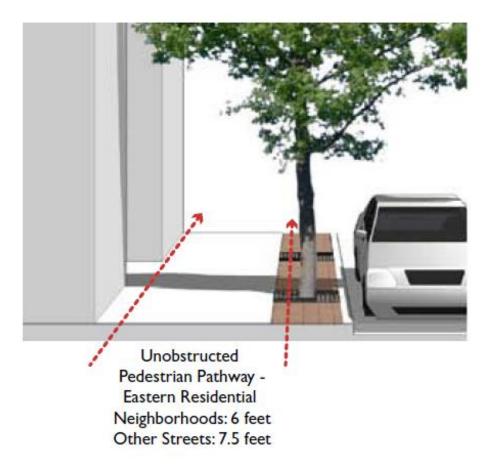
Sidewalk Widths



Unobstructed Pedestrian Pathway -Eastern Residential Neighborhoods: 6 feet Other Streets: 7.5 feet

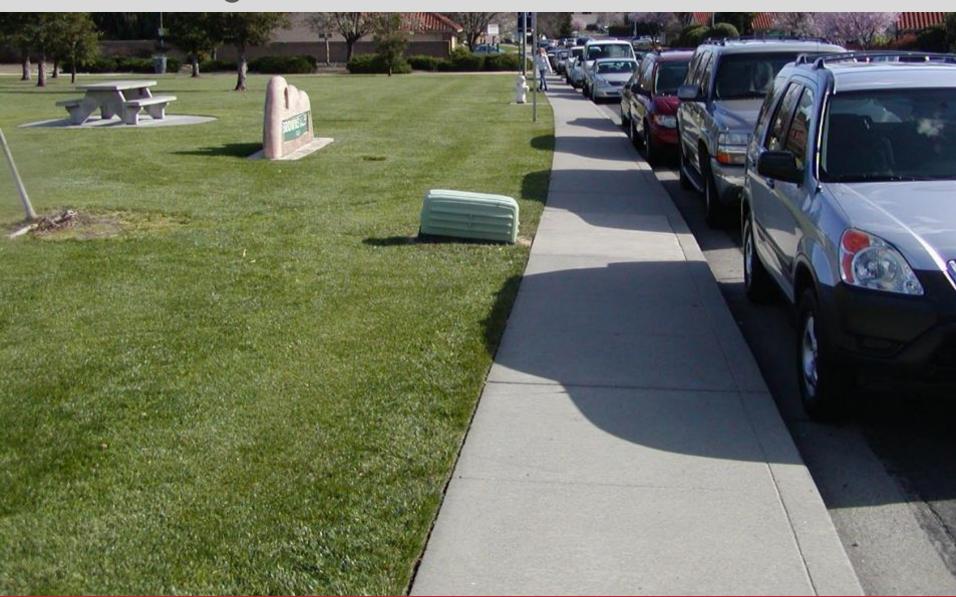
Landscaping Area -Eastern Residential Neighborhoods: 3 feet Other Streets: 4 feet

Maintain an unobstructed pedestrian pathway and landscaping area.



If vegetative strips are infeasible, tree grates may be constructed as a last resort to accommodate up to six inches of the pedestrian pathway minimum.

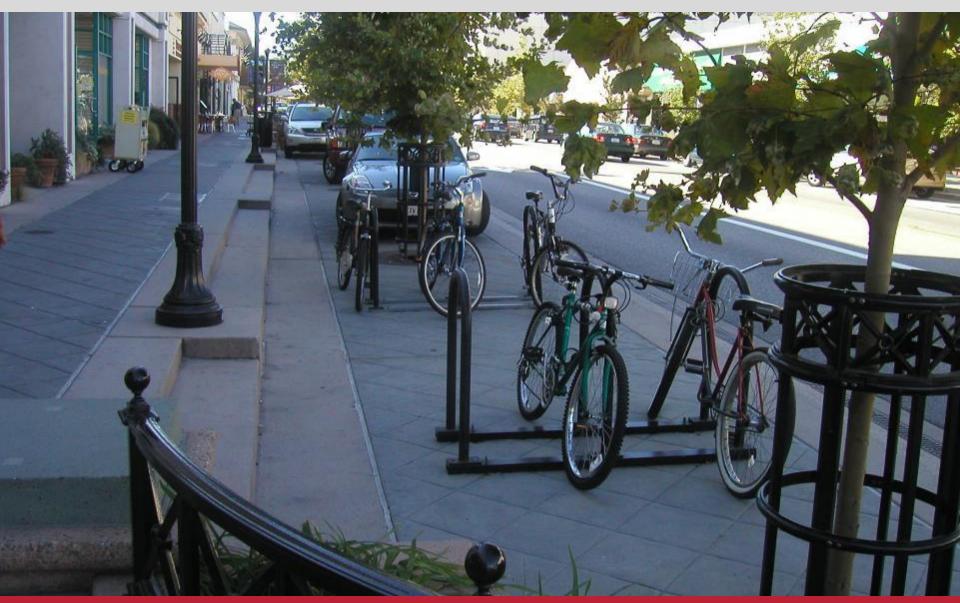
Curb-Tight Sidewalk



Sidewalk with Buffer



Sidewalk in Commercial District



Inspiring Sidewalks



Curb Ramps

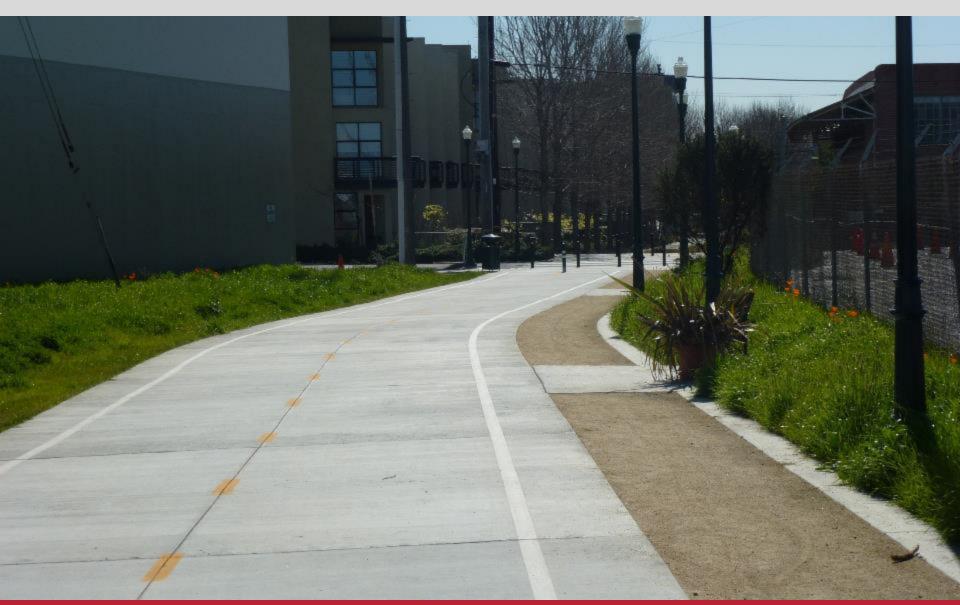


Parallel curb ramps with yellow detection & diagonal curb ramp with red detection

Shoulders



Urban Trails



9th Street Trail, Emeryville



BICYCLE FACILITIES



Green-Backed "Sharrows"



Greenfield Avenue, San Anselmo

Bicycle Boulevards



Class II Bike Lanes



Buffered Bike Lanes



Buffered Bike Lanes



Buffered Bike Lanes



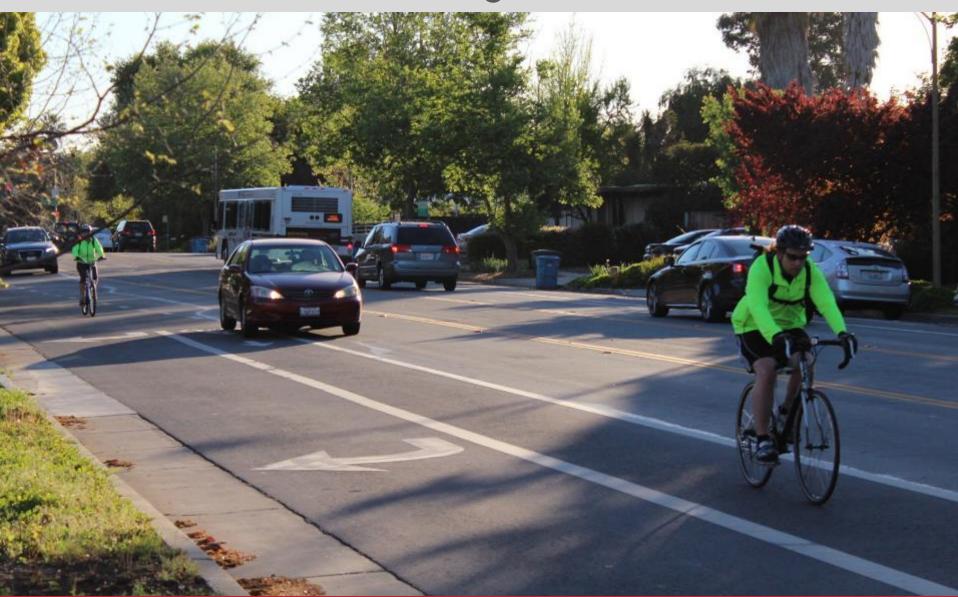
Veteran's Boulevard, Redwood City

Source: Silicon Valley Bicycle Coalition

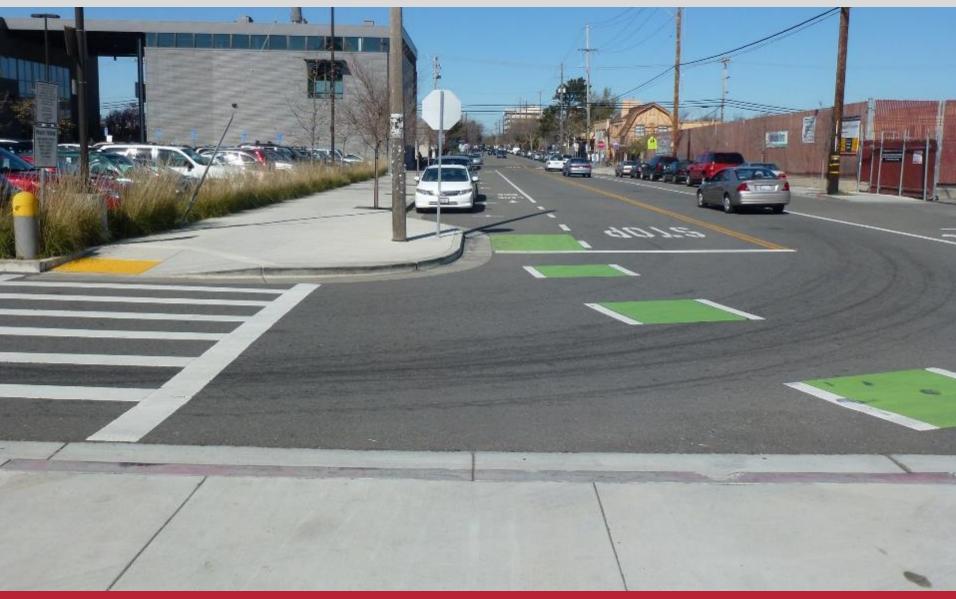
Cycle Tracks (Parking Protected)



Bike Lane Left of Right Turn Lane



Intersection Markings

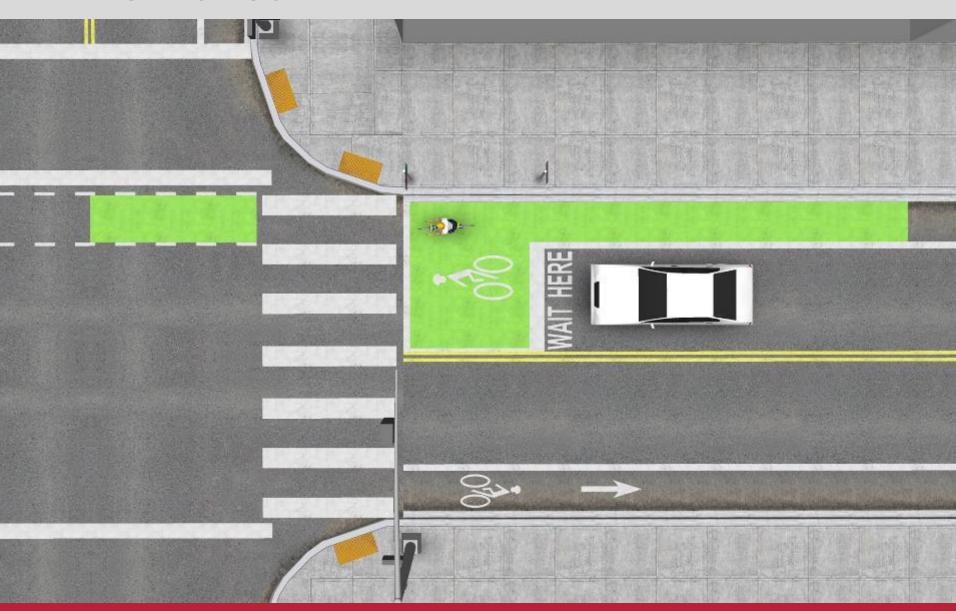


Bike Boxes



14th Street and Folsom Street, San Francisco

Bike Boxes



Bicycle Parking



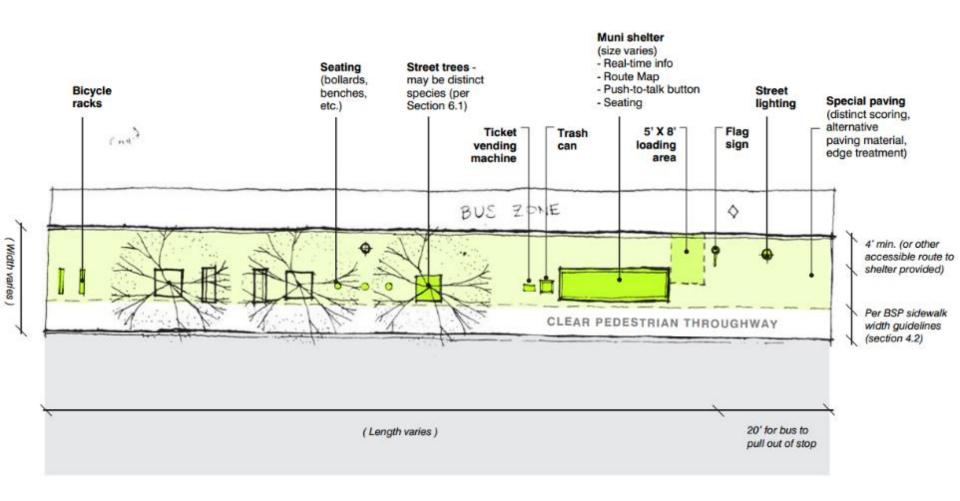
Bicycle Parking Corrals





TRANSIT TREATMENTS

Generalized Transit Stop Layout

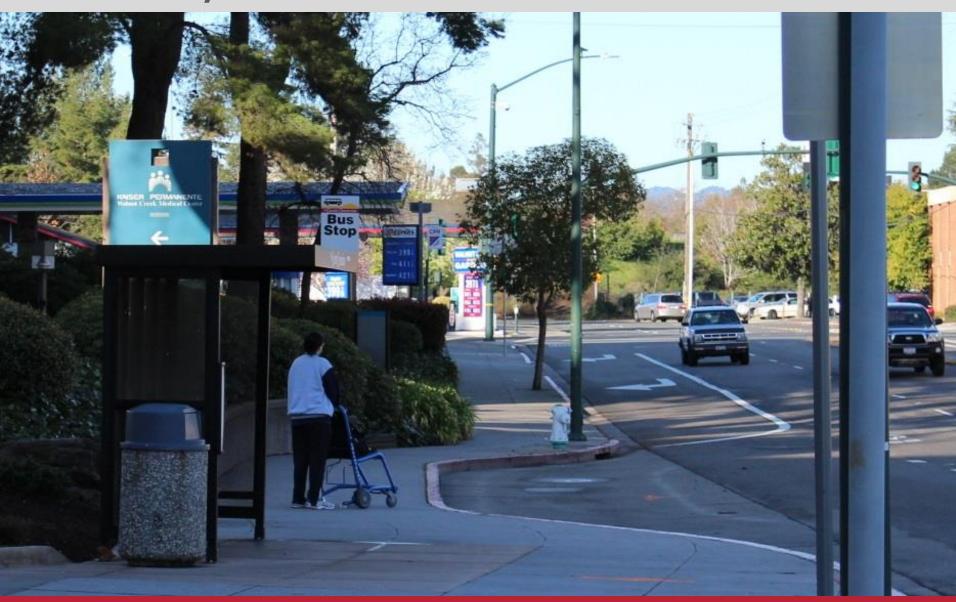


Bus Shelters



MUNI bus shelters and real-time information signs, San Francisco

Bus Bays



Bus Bulbs



Bus Bulbs





El Camino Avenue at California Avenue

Source: El Camino Real Grand Boulevard Initiative

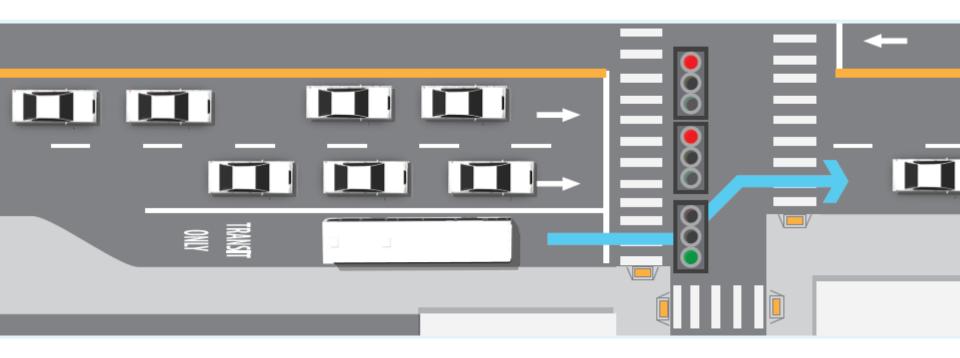
Bus Rapid Transit



Transit Signal Priority



Transit Signal Priority - Queue Jump



Buses and Bicycles



Concept for Masonic Avenue and Fulton Street, San Francisco Source

Source: Mike Sallaberry, SFMTA



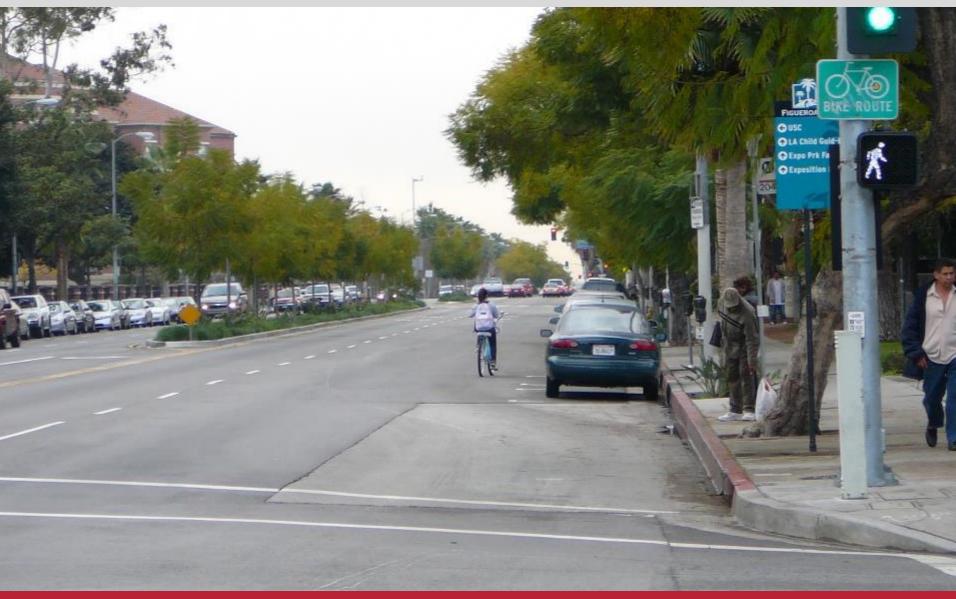
AUTOMOBILE TREATMENTS

Lane Width

					The state of the s	
Street Type FHA Classification	Lane Width by FHA Classification					
	Bike	Transit	Vehicle lane	Left Turn	Special lanes	Parking lane
Downtown Commercial Downtown Mixed Use Neighborhood Main	4' 5' • If adjacent to parking 5' If adjacent to curb	11'	10' * 12' If adjacent to parking 12' If adjacent to curb	10' *	12' ⊚ bike + Dus lane 12' peak hour restricted parking lane	7'*
Neighborhood Connector Collector Neighborhood Residential Industrial Street	4' s' • If adjacent to parking 4' If adjacent to curb	N/A	10' 10' If adjacent to parking 10' If adjacent to curb	10' *	N/A 12' peak hour restricted parking lane	7' *
Shared Street Local Parkway Boulevard	4' f adjacent to parking 4' If adjacent to curb	N/A	10' 10' # adjacent to parking 10' # adjacent to curb	N/A	N/A N/A	7'*

Source: Boston Complete Streets Guidelines

Wide Lanes/Sharrows in Freight Zones

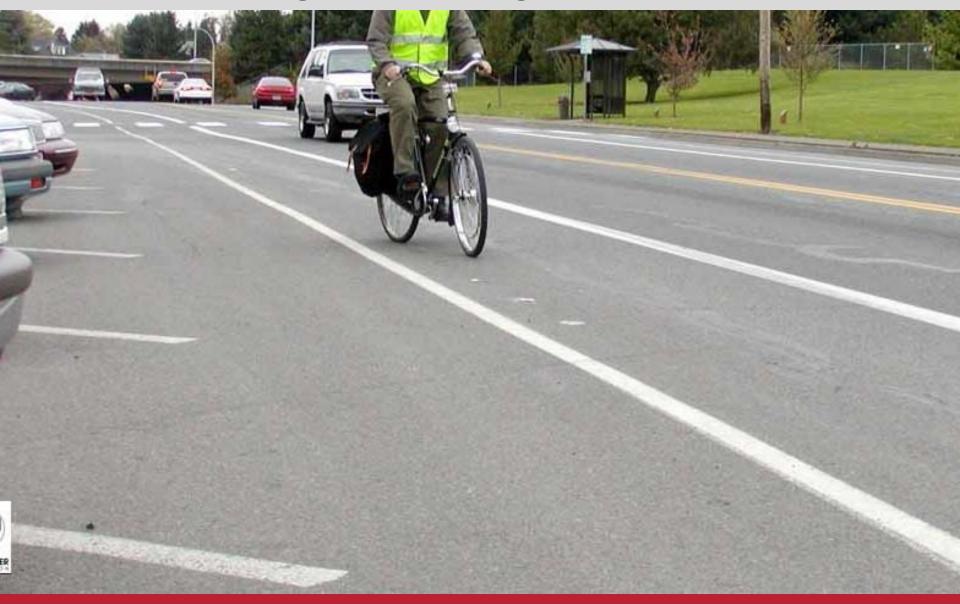












Loading Zones





INTERSECTIONS

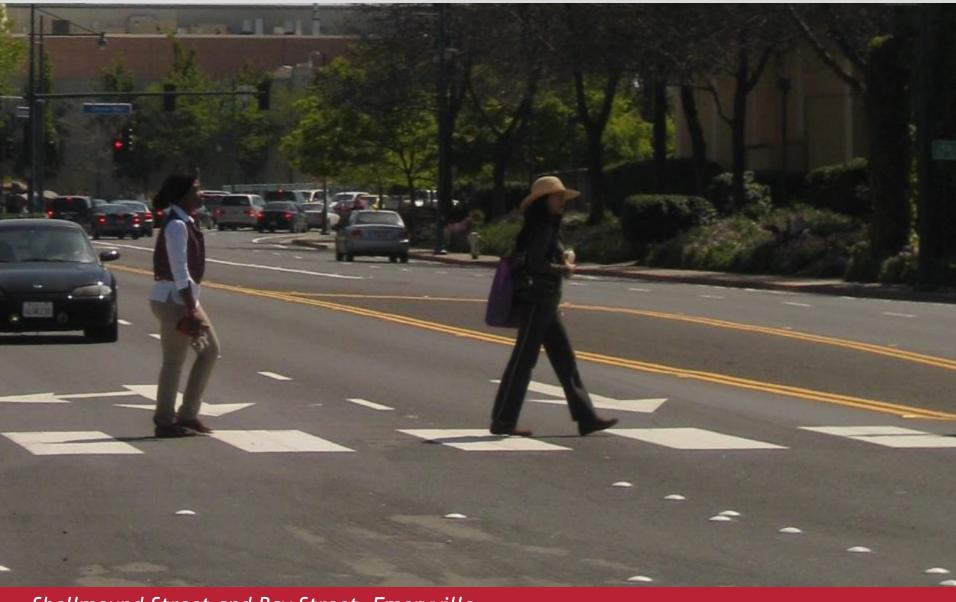


Marked Crosswalks



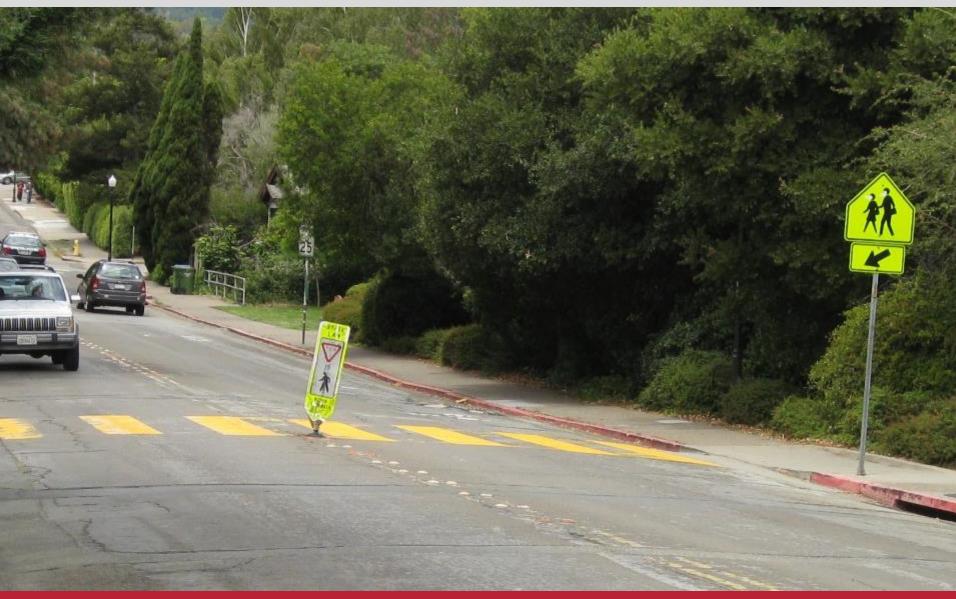
40th Street and Harlan Street, Emeryville

High-Visibility Crosswalks

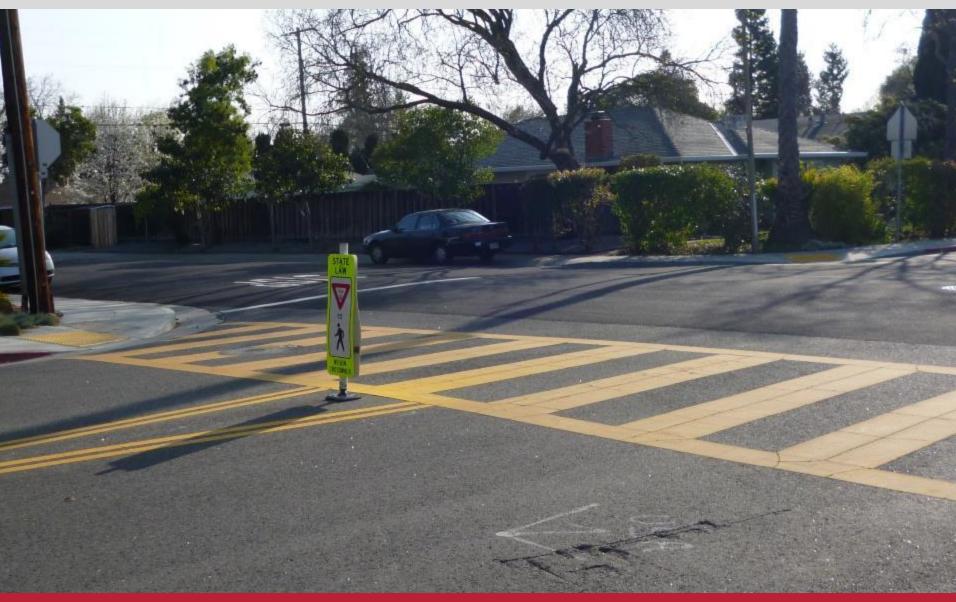


Shellmound Street and Bay Street, Emeryville

School Crossings



In-Street Yield Signs

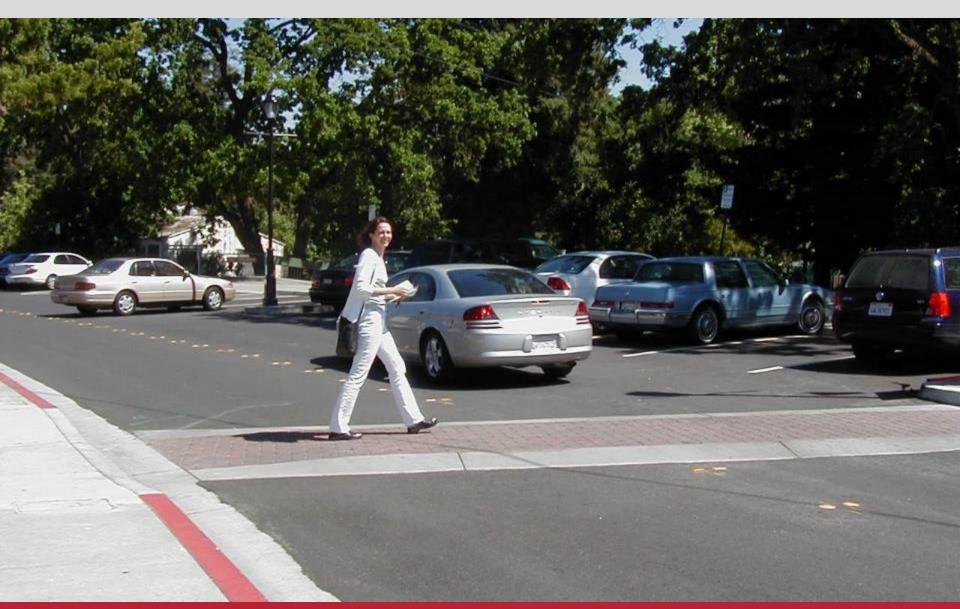


A MARIE CONTRACTOR

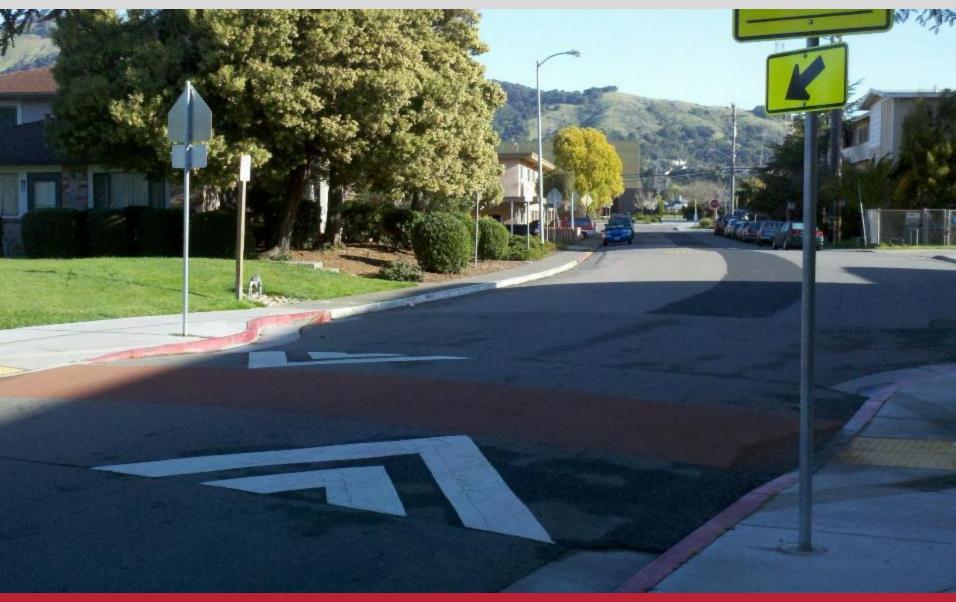
Textured Crosswalks



Raised Crosswalk



Raised Crosswalks



Stamped and Colorized Asphalt



Special Paving



Midblock Crossings



Curb Extensions

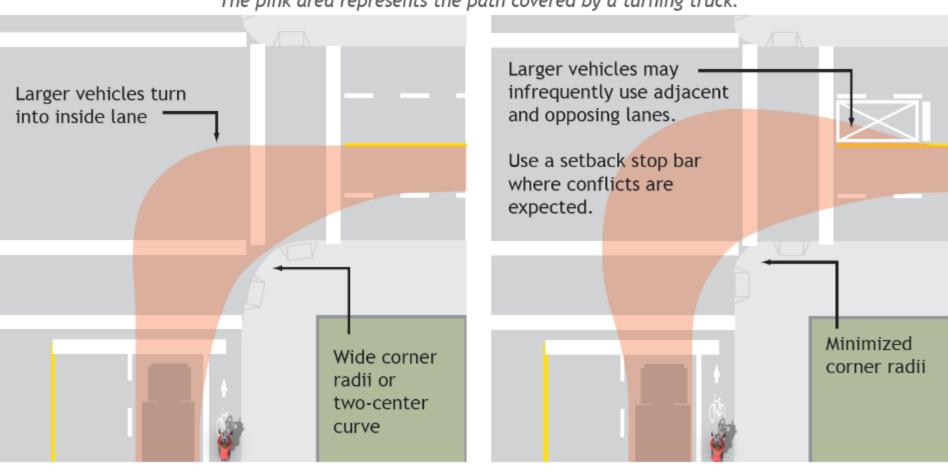


Reducing Turning Speeds



Accommodating Trucks

The pink area represents the path covered by a turning truck.



Beacons and RRFBs



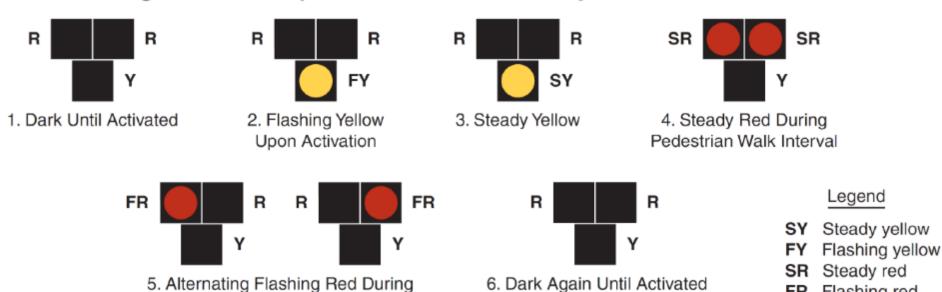
Adeline Street, Berkeley

Pedestrian Hybrid Beacon



Pedestrian Hybrid Beacon

Figure 4F-3. Sequence for a Pedestrian Hybrid Beacon



Flashing red

Pedestrian Clearance Interval

How to choose a treatment?

Exhibit 19-17	Unstaged Pedestrians		
Crossing Treatment	Number of Sites	Mean Yield Rate, %	
Overhead flashing beacon (push button activation)	4	49	
Overhead flashing beacon (passive activation)	3	67	
Pedestrian crossing flags	4	74	
In-street crossing signs (25-30 mi/h)	3	90	
High-visibility signs and markings (35 mi/h)	2	20	
High-visibility signs and markings (25 mi/h)	1	91	
Rectangular rapid-flash beacon	17	81	

Source: Fitzpatrick et al. (11) and Shurbutt et al. (12).

Medians



Refuge Islands



Refuge Islands



Countdown Signal



Signal Detection



Leading Pedestrian Interval



All-Pedestrian Phase



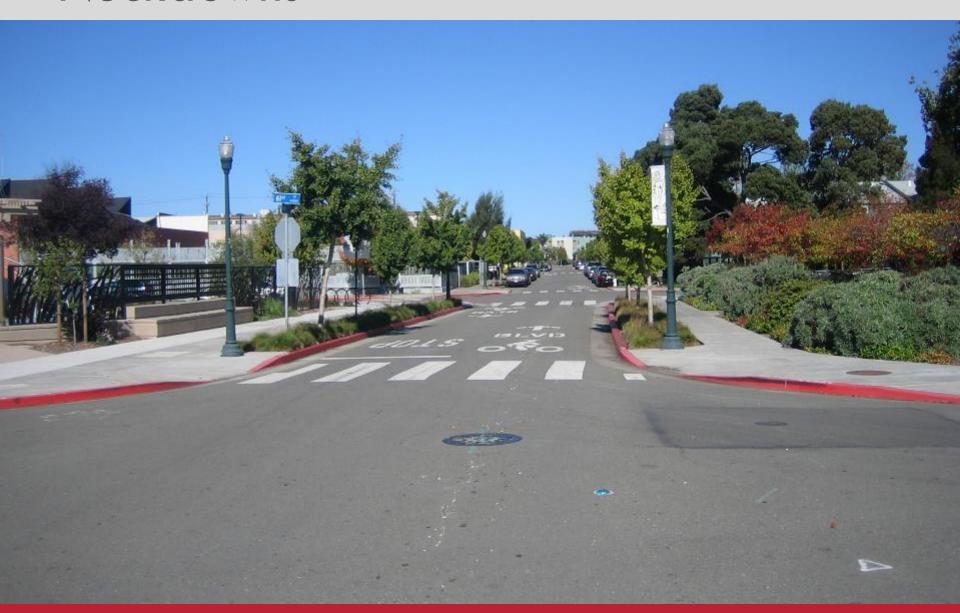


TRAFFIC CALMING

Bulb-outs



Neckdowns



Traffic Circles



Modern Roundabout



Modern Roundabout



Driver Speed Feedback Sign



Driver Speed Feedback Sign



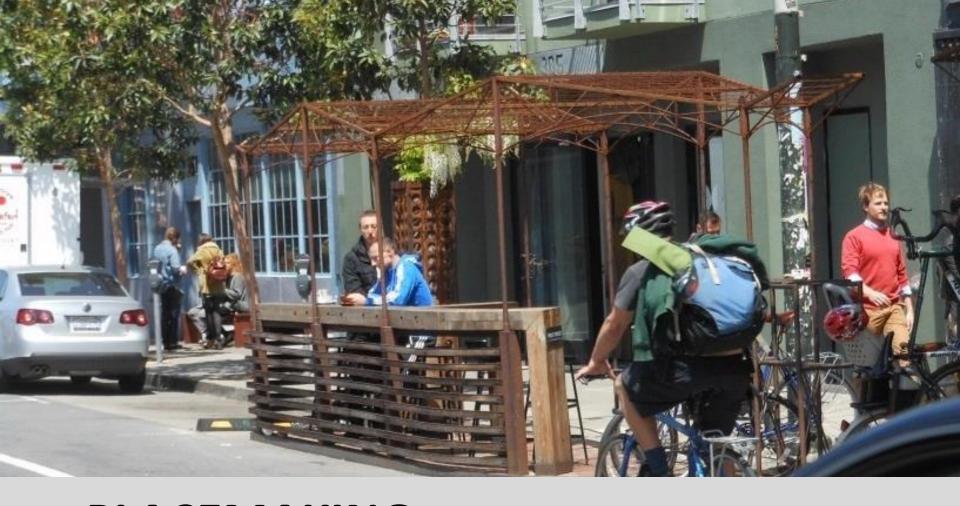
Traffic Calming Treatment Selection



 Work with emergency services providers to determining minimum lane widths & radii

 Monitor adjacent streets for increased use

 Determine appropriate treatment for street type
 & anticipated users



PLACEMAKING

Plazas

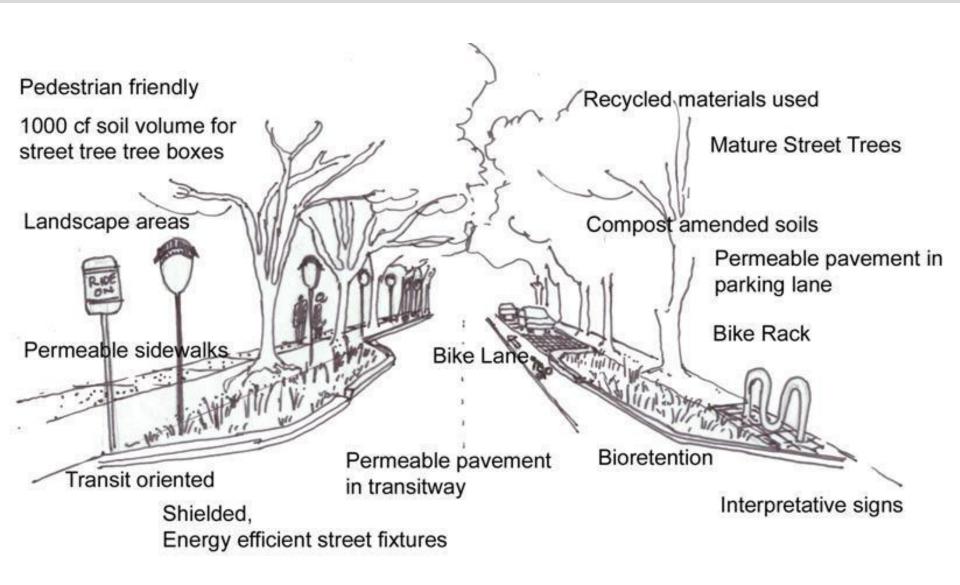


Open Streets

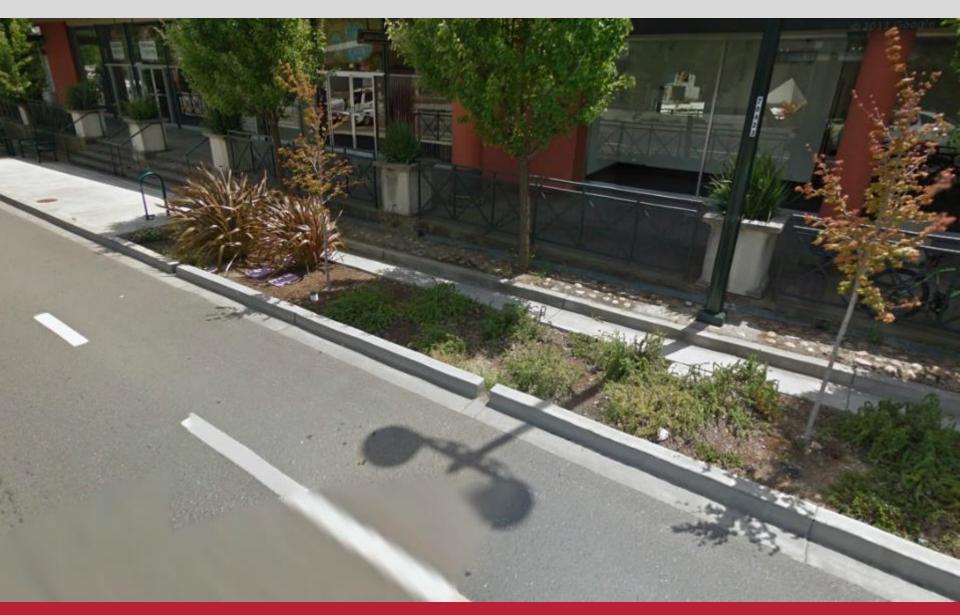


Emerson Street Photosimulation, Palo Alto Bicycle + Pedestrian Transportation Plan

Green Streets



Bioswale Sidewalk Buffer



Public Art

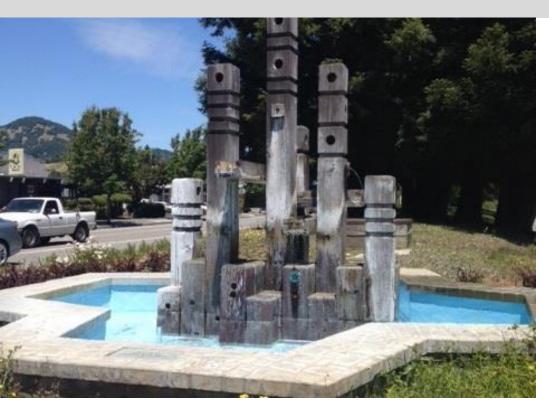


Public Art





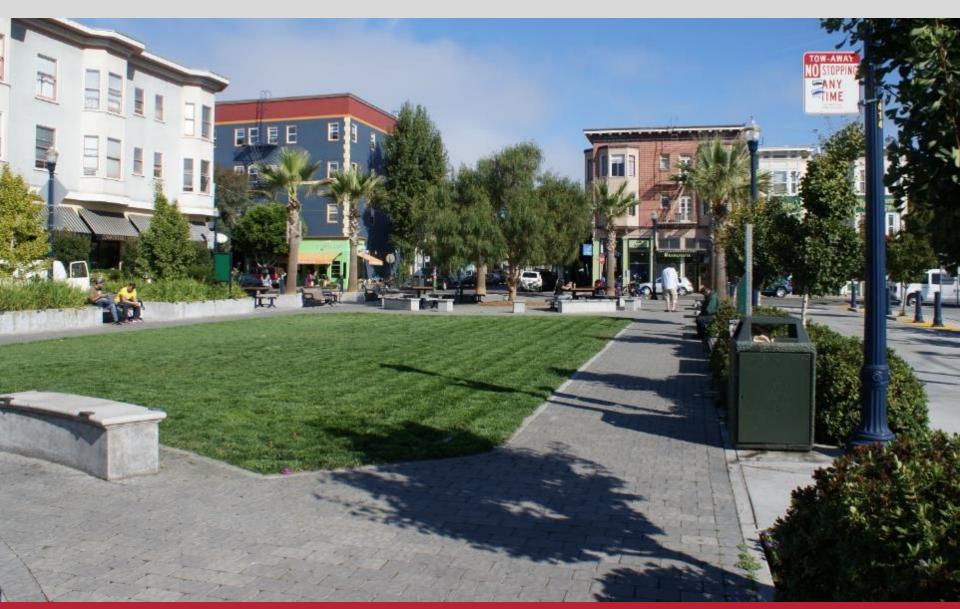
Public Art

















Streetscape Amenities



Streetscape Amenities



Outdoor Seating



Destination Zone



Seating



Description

Attractive and durable wooden benches are proposed along Miller Avenue.

Two seating types are proposed:

- 1. Basic wooden benches for seating that are standardly produced.
- 2. Custom crafted wood seats that are made from local reclaimed wood. The design may be simple and rustic, or sculptural and artistic.



Locations

Benches are proposed at plazas, sidewalks, and corner bulb-out areas. Most bench locations are designated for Main Street where seating is desired.

Custom benches should be placed in special locations such as Main Street plazas, corner areas, and other special locations to be determined.





Description

Tree grates are proposed along Miller Ave sidewalk trees to protect tree soil compaction over the root ball and to provide a walkable/accessible surface for pedestrians. Patterns should be decorative. Recycled content should be



Locations

Tree grates are proposed at all street trees along Miller Avenue.







Trash Receptacle



Description

Trash receptacles are proposed along Miller Avenue.

Trash receptacles should be standardly produced. The receptacle should accommodate both recycle and landfill options.



Locations

Trash receptacles should be located at regular spacing of one to two per block in the Main Street with priority given to corners and public seating areas near eating establishments. Other locations along Miller Avenue should be considered according to intensity of use and cost of maintenance operations.

Bike Parking



Description

Bicycle parking is proposed along Miller Avenue to encourage use by commuters and for convenience trips. They are shown at locations such as transit stops, corner bulb-outs, and near retail. destinations. Racks may be placed as a single station or in groups. Covered parking is shown at select transit stops.

Multiblike parking are proposed to locate at "Main Street". Multi racks and single rack are proposed to locate store fronts, bulb outs and widen sidewalks.

Rustic wooden posts convey the

character of a natural area and are

inspired by regional shoreline parks and

the remnants of piers in the Marsh.

Bollard



Description

Wooden bollards are proposed to be used sparingly as appropriate at special planted locations along the roadway as a rustic element to function as visual divider between pedestrian and vehicular movements.

Bus Shelter



Transit Shelter and Covered Bike Parking Concept



Description

Custom designed bus shelters are proposed along the Miller Avenue.

Design styles considered appropriate by the community include rustic wood framed shelters that may be inspired by the historic railroad station buildings and those created as art/sculptural using a mixture of materials. Shelters should provide cover from rain and wind, be lighted, include seating, and integrate covered bike parking where possible.

Additional consultation with the local community required before implementing this design concept.



Locations

Bus shelters are located at transit stops. Priority is given to the outbound direction. Shelter placement must be coordinated with transit agency clear zones and to not impede pedestrian circulation.

Signage



Description

Wayfinding signage is proposed to provide a visual guide directing bicyclists, pedestrians and vehicular users efficiently to their destination. Destination include public parking, offstreet business parking, downtown, and regional trails. Additional consultation with Miller Avenue merchants & chamber of commerce required before implementing this design concept.

Locations

Signage for parking areas are proposed for Main Street and Gateway areas.

Bicycle and pedestrian signage is appropriate to guide visitors looking for downtown and seeking regional trall connections. Distances should be provided.





Lighting



Description

Lighting improvements are needed to provide minimum vehicular and podestrian safety illumination for Miller Avenue. Fixtures should contribute to the character of the setting. Selections should generally not create a bold statement and tightly unified appearance. Weather resistant wooden poles fitted with metal light fixtures are proposed. LED technology should be explored. Fixtures should be cut-off to prevent light pollution. The Main Street area may be treated with closer spacing and potentially a less rustic pole.

Locations

Vehicular / Pedestrian scale lighting fixtures are proposed throughout the corridor. Lights should be located according to photometric study to provide minimum illumination taking into account existing and proposed

Stone Wall



Description

Stone walls are proposed at special locations such as creek crossing, plaza, etc

Locations

Stone walls are appropriate at "Passage", Creek Crossing at Millwood St., at the Civic Gateway, and at Camino Alto. Historic Railroad Markers and/or Other Historic Landmark Signage



Description

Historic ralifoad markers are proposed along Miller Ave. as an interpretive element.

Additional consultation with the Mill Valley Historic Society is recommended before proceeding with this design concept.

Locations

Historic railroad markers are proposed to be located at 0.25 mile intervals along Miller Ave.



(Steps, Lanes, Paths) Signage



Description

SLP signage is currently located at the historic Steps, Lanes and Paths and should be expanded to new locations.

Locations

Locations are identified on streetscape drawings.

Bike Buffer



Description

Bike buffers of 2-3 feet are striped zones to give extra separation to vehicles and bicyclists. Zone between lines may also be colored or textured in lieu of striping.

Locations

Bike Buffers are located throughout the corridor. Exceptions occur in the Parkway and Marsh where the available width is insufficient.

Street Trees



Description

The Plan expands the planting of street trees in sidewalks and medians for shade and street character.

Species (shown in the Ecological and Landscape chapter) are selected to express the room character as well as to be adaptable to street planting locations.

Locations

New and replacement trees are proposed in all room areas. The greatest quantity is proposed in Main Street where significant replacement is needed.

Additional work will be conducted by Park Superintendent to select appropriate species based on the guidance provided in this Plan.

Bike Lane



Description

Continuous bike lanes of 6 feet are proposed along Miller Avenue to provide safe routes to school and to encourage non-motorized transportation. 5 foot widths are proposed in the Parkway where right of way widths are insufficient.

Locations

Continuous bike lanes are proposed along Miller Avenue from Almonte to Sunnyside intersection.

Planting Materials



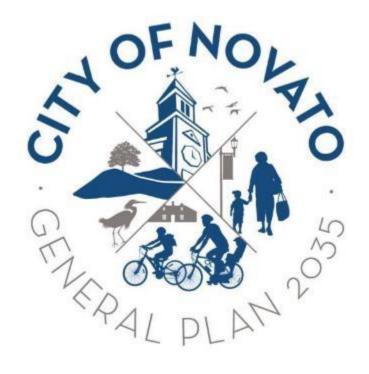
Description

Understory planting should be selected to be climate appropriate and to reinforce the character of the room.

Locations

Illustrative plans show locations of street understory plantings.

Additional work will be conducted by Park Superintendent to select appropriate species based on the guidance provided in this Plan.



OPTION PREFERENCE SURVEY

WHAT IS IMPORTANT TO YOU?

Traffic

- Maximize flow
- Calm traffic

Pedestrians

- Separate from traffic
- Wide sidewalks
- Safe crosswalks

Bicycles

- Separate from traffic
- Accommodate wide range of cyclist abilities

Not important

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10

Important

1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10

1 2 3 4 5 6 7 8 9

1	2	3	4	5	6	7	8	9	10

WHAT IS IMPORTANT TO YOU?

Parking

- Angled on-street
- Off-street

Median

- Improve landscaping
- Active use

Placemaking

- Landscaping/trees
- Public art
- Outdoor seating

Not important

1	2	3	4	5	6	7	8	9	10
		1			1				
1	2	3	4	5	6	7	8	9	10

Important

1	2	3	4	5	6	7	8	9	10

1 2 3	4	5	6	7	8	9	10
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1 2 3 4 5 6 7 8 9 2

1 2 3 4 5 6 7 8 9	10
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1	2	3	4	5	6	7	8	9	10
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NORTH REDWOOD BOULEVARD STREETSCAPE CHARRETTE