







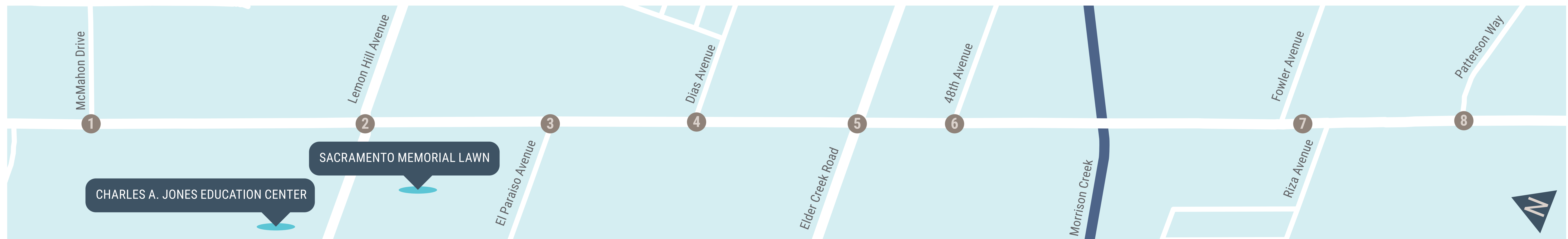
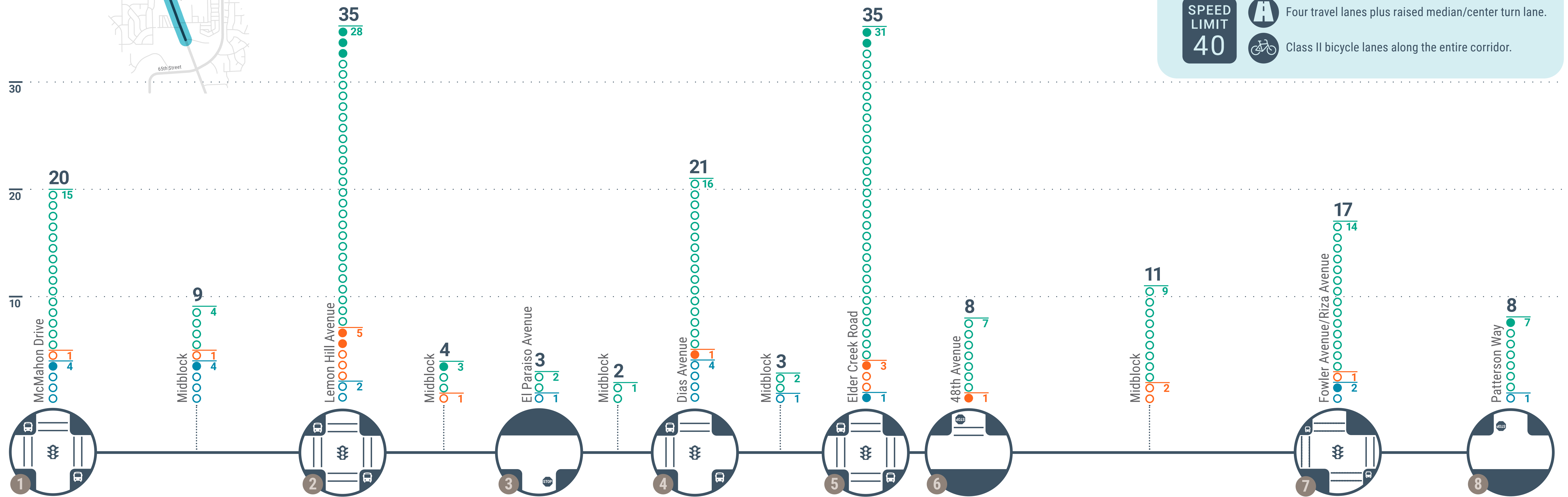
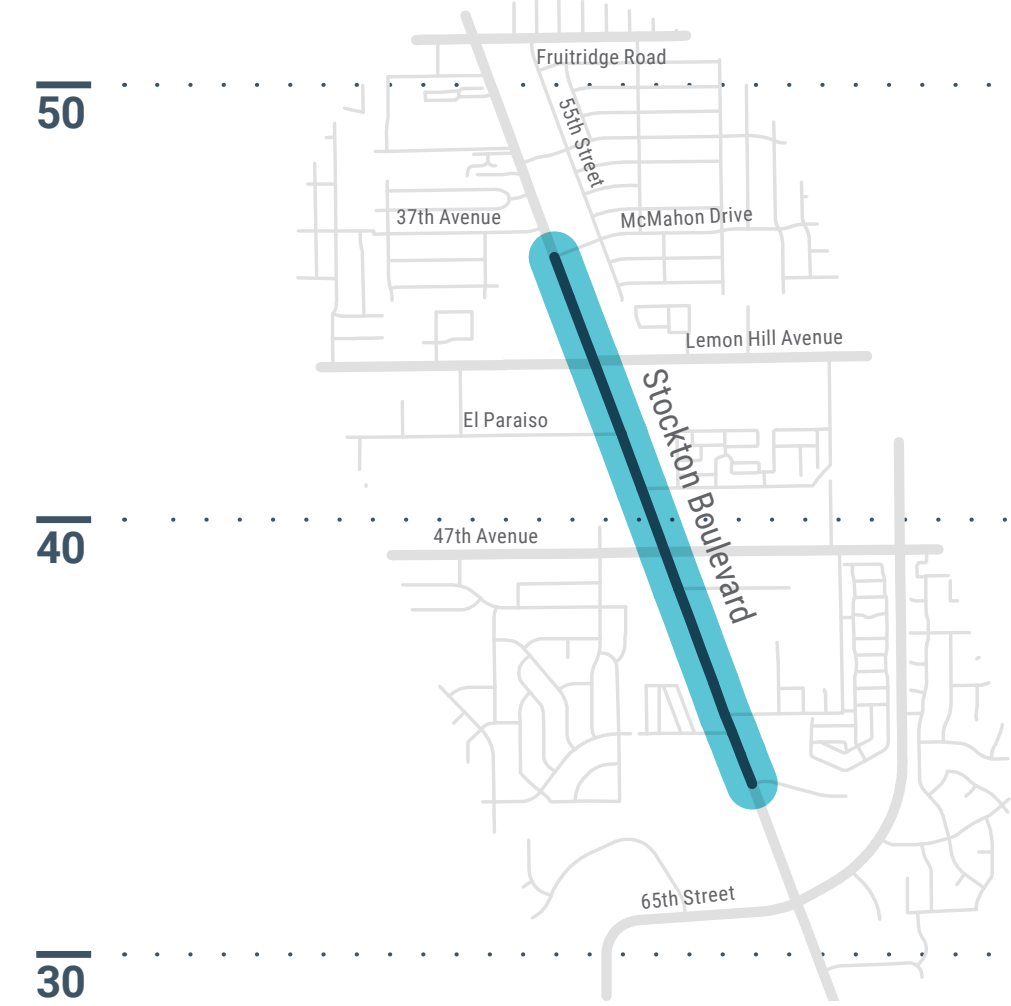
STOCKTON BOULEVARD CRASHES

CORRIDOR CRASH SUMMARY (2009-2017)

			
ALL INJURY CRASHES	140	16	20
FATAL AND SEVERE CRASHES	7	5	4

KEY CHARACTERISTICS

-  **SPEED LIMIT 40**
-  Four travel lanes plus raised median/center turn lane.
-  Class II bicycle lanes along the entire corridor.



CORRIDOR-WIDE CRASH TYPES

VEHICLE

Unsafe Speed

"Unsafe Speed" was the most common violation, cited in 35% of all crashes.

1 2 3 4 5 6
7 8

Proceeding Straight

Nearly 3/4 of drivers were proceeding straight or stopped at the time of the crash.

1 2 3 4 5 6
7 8

Signal or Sign Violation

"Traffic Signals and Signs" was tied for second most common violation category.

1 2 3 4 5 6
7 8

Under the Influence

"Under the Influence" was tied for second most common violation category.

1 2 3 4 5 6
7 8

Rear End

Over 35% of all crashes were rear end.

1 2 3 4 5 6
7 8

Left Turns

65% of drivers who were turning at the time of the crash were making a left turn.

1 2 3 4 5 6
7 8

Broadside

30% of all crashes were broadside, also called T-Bone.

1 2 3 4 5 6
7 8

Nighttime

40% of all crashes occurred during nighttime or dark conditions.

1 2 3 4 5 6
7 8

PEDESTRIAN

Crossing in Crosswalk

Nearly half of all pedestrians hit by a driver were in a crosswalk at the time of the crash.

1 2 3 4 5 6
7 8

Pedestrian in Road

25% of pedestrians hit by a driver were walking along the road or shoulder.

1 2 3 4 5 6
7 8

BICYCLE

Broadside

65% of bicycle crashes were broadside, also called T-Bone.

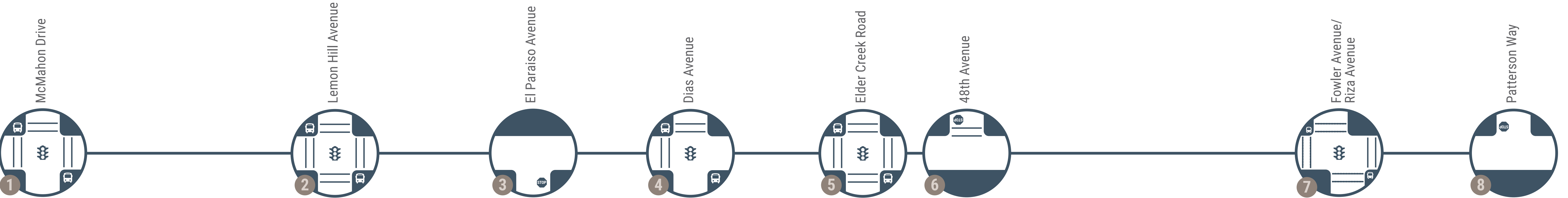
1 2 3 4 5 6
7 8

Right Turns

1/3 of drivers who hit a bicyclist were making a right turn at the time of the crash

1 2 3 4 5 6
7 8

1 Numbers that are turned on represent a location where crash type has occurred at least three times.

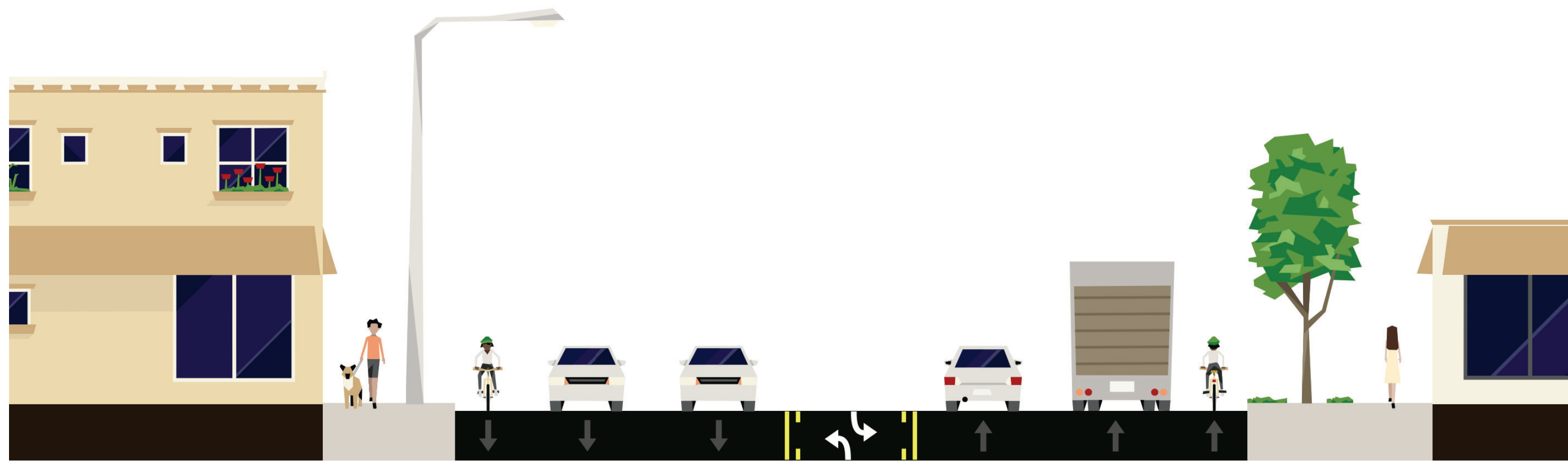


SOUTH STOCKTON BOULEVARD CORRIDOR-WIDE RECOMMENDATIONS

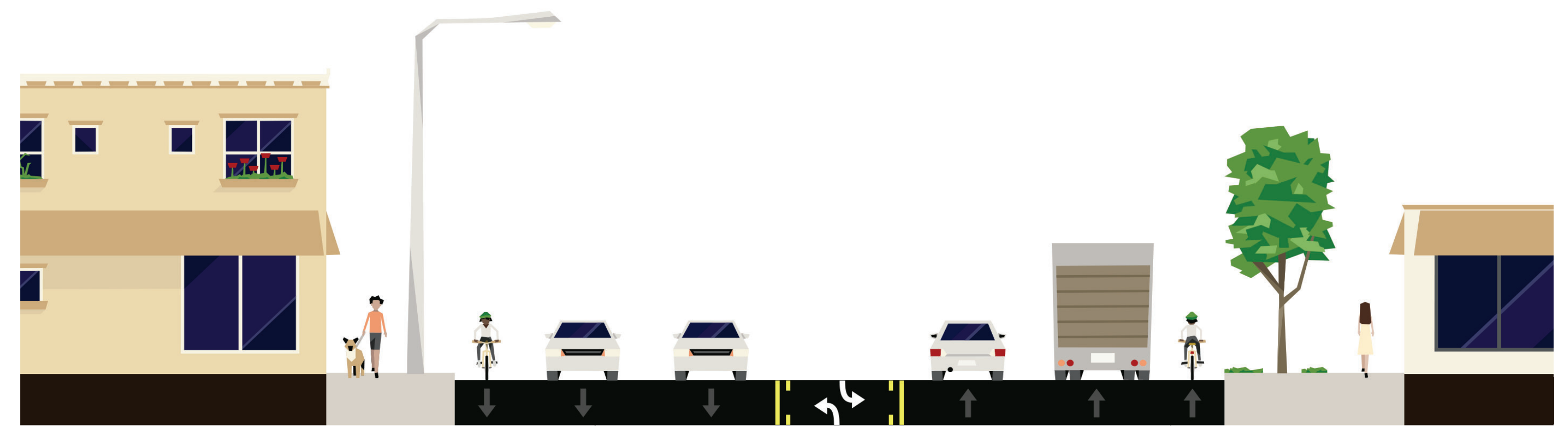
SPEED
LIMIT
40

XXX Existing Distance Between Crosswalks

..... On-Street Bicycle Lane



What You See Today



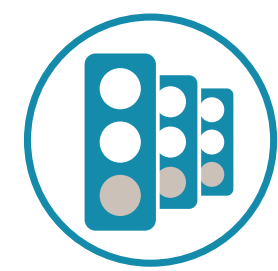
What's Proposed

Source: StreetMix (CC BY-SA 4.0, <https://creativecommons.org/licenses/by-sa/4.0/>)

Corridor-Wide Recommendations



Pedestrian Scale Lighting



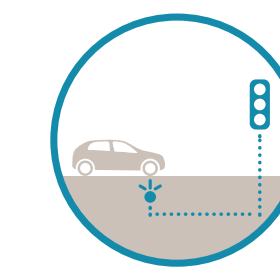
Slow Green Wave



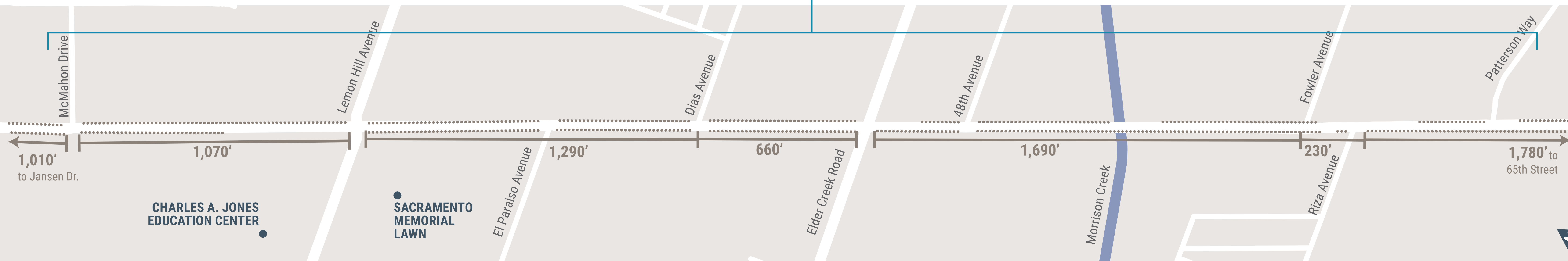
Shorten Signal Cycle Length



Extend Signal Clearance Time



Advanced Dilemma-Zone Detection

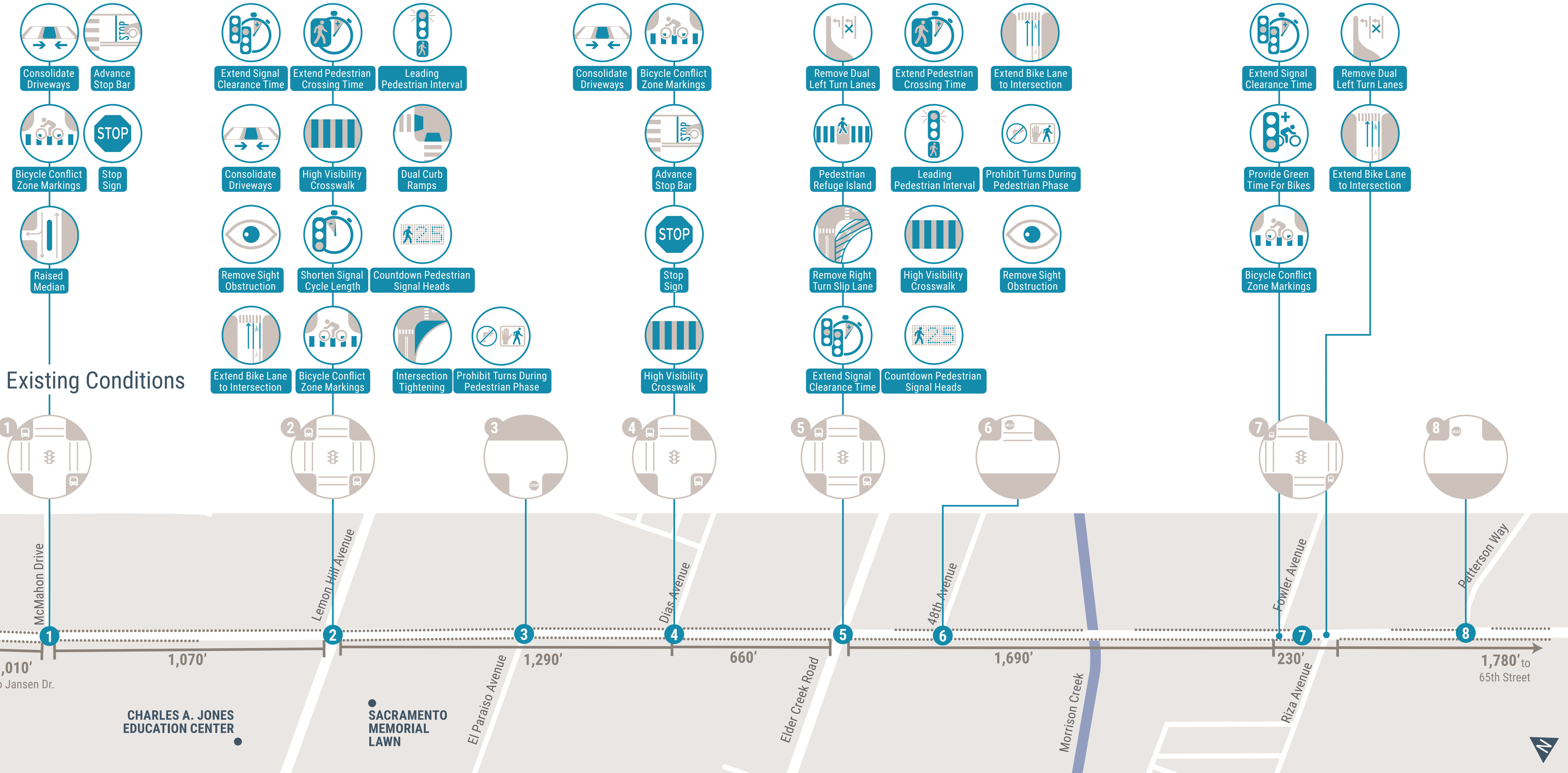


SOUTH STOCKTON BOULEVARD RECOMMENDATIONS

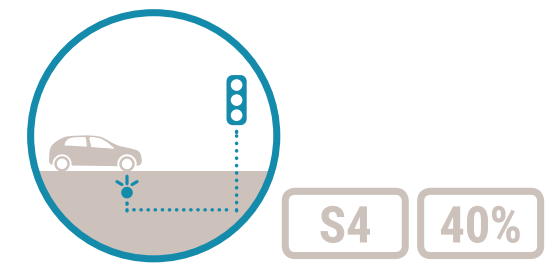
SPEED LIMIT
40

XXX
Existing Distance Between Crosswalks
..... On-Street Bicycle Lane

Location-Specific Recommendations



SOUTH STOCKTON BOULEVARD IMPROVEMENTS

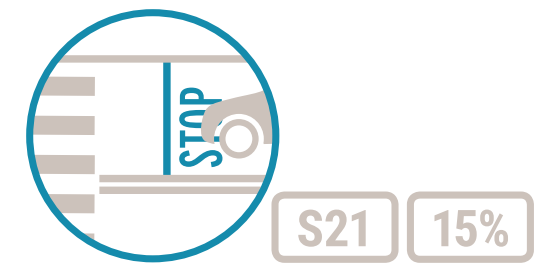


S4 40%

Advanced Dilemma-Zone Detection

Signals/Signage

Advanced dilemma-zone detection enhances safety at signalized intersections by modifying traffic control signal timing on the fly to reduce the number of drivers that may have difficulty deciding whether to stop or proceed during a yellow phase. This may reduce rear-end crashes associated with unsafe stopping and angle crashes due to red light running.



S21 15%

Advance Stop Bar

Crossings, Pedestrian Safety

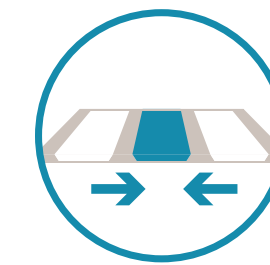
A stop bar placed ahead of the crosswalk at stop signs and signals reduces instances of vehicles encroaching on the crosswalk.



Bicycle Conflict Zone Markings

Bike Safety

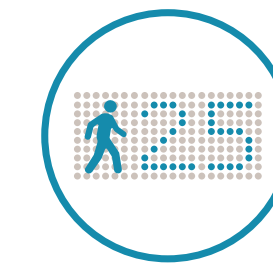
Green pavement within a bicycle lane to increase visibility of bicyclists and to reinforce bicycle priority. The green pavement is used as a spot treatment in conflict areas such as driveways.



Consolidate Driveways

Bike Safety, Pedestrian Safety, Visibility

Reducing the number of driveway entrances/exits through consolidation limits the exposure of bicyclists, pedestrians, and drivers to vehicles entering or exiting driveways, reducing conflicts.



S19 25%

Countdown Pedestrian Signal Heads

Crossings, Pedestrian Safety, Signals/Signage

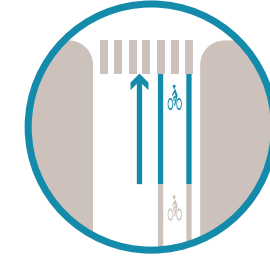
Displays "countdown" of seconds remaining on the pedestrian signal. Countdown indications improve safety for all road users, and are required for all newly installed traffic signals where pedestrian signals are installed.



Dual Curb Ramps

Pedestrian Safety

Dual curb ramps improve ADA accessibility at all intersection approaches so that pedestrians with mobility challenges, or those pushing carts or strollers, can safely enter and exit all crosswalks.



Extend Bike Lane to Intersection

Bike Safety

In locations where a bike lane is dropped due to the addition of a right turn pocket, the intersection approach may be restriped to allow for bicyclists to move to the left side of right-turning vehicles ahead of reaching the intersection.



S3 15%

Extend Pedestrian Crossing Time

Crossings, Pedestrian Safety

Increases time for pedestrian walk phases, and can better accommodate vulnerable populations such as children and the elderly.

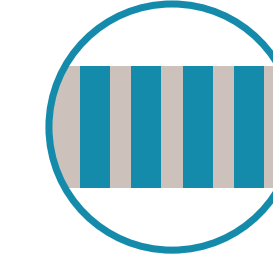


S3 15%

Extend Signal Clearance Time

Signals/Signage

Extending yellow and all red time allows drivers and bicyclists to safely cross through a signalized intersection before conflicting traffic movements are permitted to enter the intersection.



NS6/NS17/NS18 25-35%

High Visibility Crosswalk

Crossings, Pedestrian Safety, Visibility

A crosswalk designed to be more visible to approaching drivers, striped with ladder markings using high-visibility material such as thermoplastic tape instead of paint.



Intersection Tightening

Crossings, Pedestrian Safety, Speed, Visibility

Uses temporary materials like paint, plastic bollards, and reflective markers to visually and physically narrow the street at intersections, which can create a shorter crossing for pedestrians and slows vehicles approaching the intersection and turning.



59%

Leading Pedestrian Interval

Crossings, Pedestrian Safety, Visibility

Traffic signals timed to allow pedestrians a short head start in crossing an intersection to minimize conflicts with turning vehicles and improve pedestrian visibility.



S12/NS16 25-45%

Pedestrian Refuge Island

Crossings, Pedestrian Safety, Speed, Visibility

Pedestrian refuge islands provide a protected area for pedestrians at the center of the roadway. They reduce the exposure time for pedestrians crossing the intersection and simplify crossings by allowing pedestrians to focus on one direction of traffic at a time.



S1/NS1/R1 35-40%

Pedestrian Scale Lighting

Crossings, Pedestrian Safety, Visibility

Appropriate quality and placement of lighting can enhance an environment as well as increase comfort and safety. Pedestrian-scale lighting is lower in height than standard streetlighting and is spaced closer together.



Prohibit Turn During Pedestrian Phase

Bike Safety, Crossings, Pedestrian Safety, Signals/Signage

Restricts left or right turns during the pedestrian crossing phase at locations where a turning vehicle may conflict with pedestrians in the crosswalk. This restriction may be displayed with a blank-out sign.

SOUTH STOCKTON BOULEVARD IMPROVEMENTS

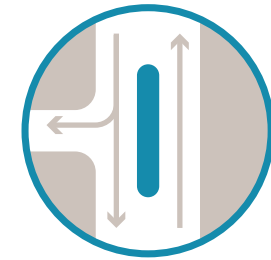


S3 15%

Provide Green Time For Bikes

🔗 Bike Safety, Signals/Signage

Provide or prolong the green phase when bicyclists are present to provide additional time for bicyclist to clear the intersection. Can occur automatically in the signal phasing or when prompted with bicycle detection. Topography should be considered in clearance time.

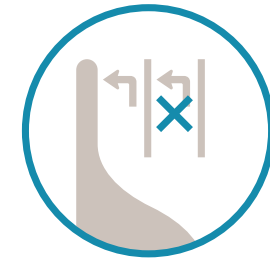


S13/NS12/R9 25% - 45%

Raised Median

🔗 Crossings, Pedestrian Safety, Speed

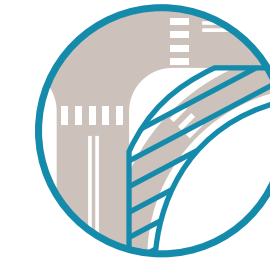
Curbed sections in the center of the roadway that are physically separated from vehicular traffic. Raised medians can also help control access to and from side streets and driveways, reducing conflict points.



Remove Dual Left Turn Lanes

🔗 Signals/Signage

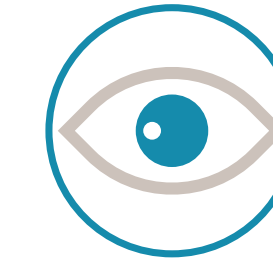
Restriping an approach so there is a single left-turn lane instead of dual lefts can help simplify an intersection and create room for a road diet or other geometric improvements.



Remove Right Turn Slip Lane

🔗 Bike Safety, Pedestrian Safety, Speed

Closing a free-flow right-turn slip lane can help slow right turning drivers, eliminates an uncontrolled crossing for pedestrians, and shortens pedestrian crossing distances. The space reclaimed in closing the slip lane can be reused as pedestrian space to widen sidewalks, enhance curb ramps, or provide more space for street furniture.



NS10 20%

Remove Sight Obstruction

🔗 Visibility

Remove objects that may prevent drivers and pedestrians from having a clear sightline. May include trimming or removing landscaping, or removing or relocating large signs.

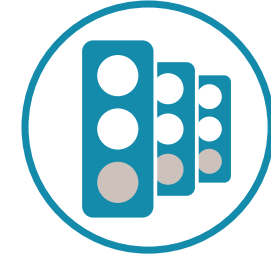


S3 15%

Shorten Signal Cycle Length

🔗 Signals/Signage

Reducing the cycle length at intersections may reduce the delay experienced by vehicles, bicyclists, and pedestrians. When delay is significant, road users are more inclined to ignore signal indications.



Slow Green Wave

🔗 Signals/Signage, Speed

A series of traffic signals coordinated to allow for slower vehicle travel speeds through several intersections along a corridor. Coordinating signals for slower travel speeds gives bicyclists and pedestrians more time to cross safely and encourages drivers to travel at slower speeds.



Stop Sign

🔗 Signals/Signage

When warranted, stop signs provide a cue to drivers to stop and wait for vehicles, bicyclists, and pedestrians to cross before proceeding.