GUADALUPE

Street Reconstruction















03.29.2018 PUBLIC MEETING

ELEMENTS TO KNOW

Bicycle Facilities



Share the Road

Inexpensive and generally requires no capital improvements to the road width. Typically reserved for streets with low traffic volumes and slower speeds as the travel lanes are shared by both vehicles and bicycles.



Bicycle Lane

Relatively inexpensive bicycle treatment that helps increase safe and convenient cycling. Given roadway conditions, particularly geometry, roadway width, traffic volume, and number of travel lanes, bicycle lanes can be installed economically. Bicycle lanes require 4' of unobstructed space not including the gutter pan.



Buffered Bicycle Lane

A conventional bike lane paired with a designated buffer space separating the bicyclist from adjacent motor vehicles.



Multi-Use Trail

Exclusive bike and pedestrian facility separated from traffic and large enough to comfortably accomodate multi-modal activity. An 8-foot minimum width is recommended for both cyclists and pedestrians to be able to use the path safely.

Pedestrian Facilities



Crosswalk

Space within a roadway between the end of two sidewalks that is dedicated to crossing pedestrians. The crosswalk is marked with painted stripes and/or a material that visually differentiates it from the roadway pavement.



ADA Ramp

Curb ramp at an intersection that is compliant with Americans with Disabilities Act (ADA) standards that accomodate users with wheelchairs or with low or no vision.



Pedestrian Refuge Area

An area within a median and aligned with the path of a marked crosswalk providing physical protection from automobiles for pedestrians before they cross remaining traffic lanes.



HAWK Signal

Signal over a crosswalk that is designed to stop automobile traffic when activated by a pedestrian. HAWK signals are designed for mid-block crossings or intersections where traffic volumes do not warrant a full traffic signal. A HAWK signal remains dark until activated by a pedestrian.



All-Pedestrian Crossing Phase

A signal phase that stops all vehicle traffic and allows all pedestrians to cross an intersection in any direction, including diagonally. During subsequent phases that permit vehicle movements, all pedestrians are held.



Median Treatments

Center Planted Median

Provides a raised 10' buffer that separates traffic in opposing directions. Plantings, monuments, branding elements are suitable for center planted medians.



Narrow Paved Median

Provides a raised buffer that separates traffic in opposing directions. Typically plantings are not effective in narrow medians.



Two-Way Left-Turn Lane

Provides shared space for opposing directions of traffic to take left turns. This allows through traffic to continue unobstructed. This application works best in areas with few conflicting driveways.



Dedicated Turn Lane

Allows through traffic to continue unobstructed while left turners take advantage of median space.



Driveway/Side Street

Full Access

All turning movements are permitted into/out of a driveway or side street, including left turns from all directions.



3/4 Access

Medians or other restrictions permit only one left turn from the main street into the side streets or driveway.



Right-In/Right-Out

All left-turn movements are blocked, usually by a median. Only right turns into and out of the side streets or driveways are permitted.



Closure

A side street or driveway is closed off from the main street, eliminating all possible turning movements.

PROJECT GOALS

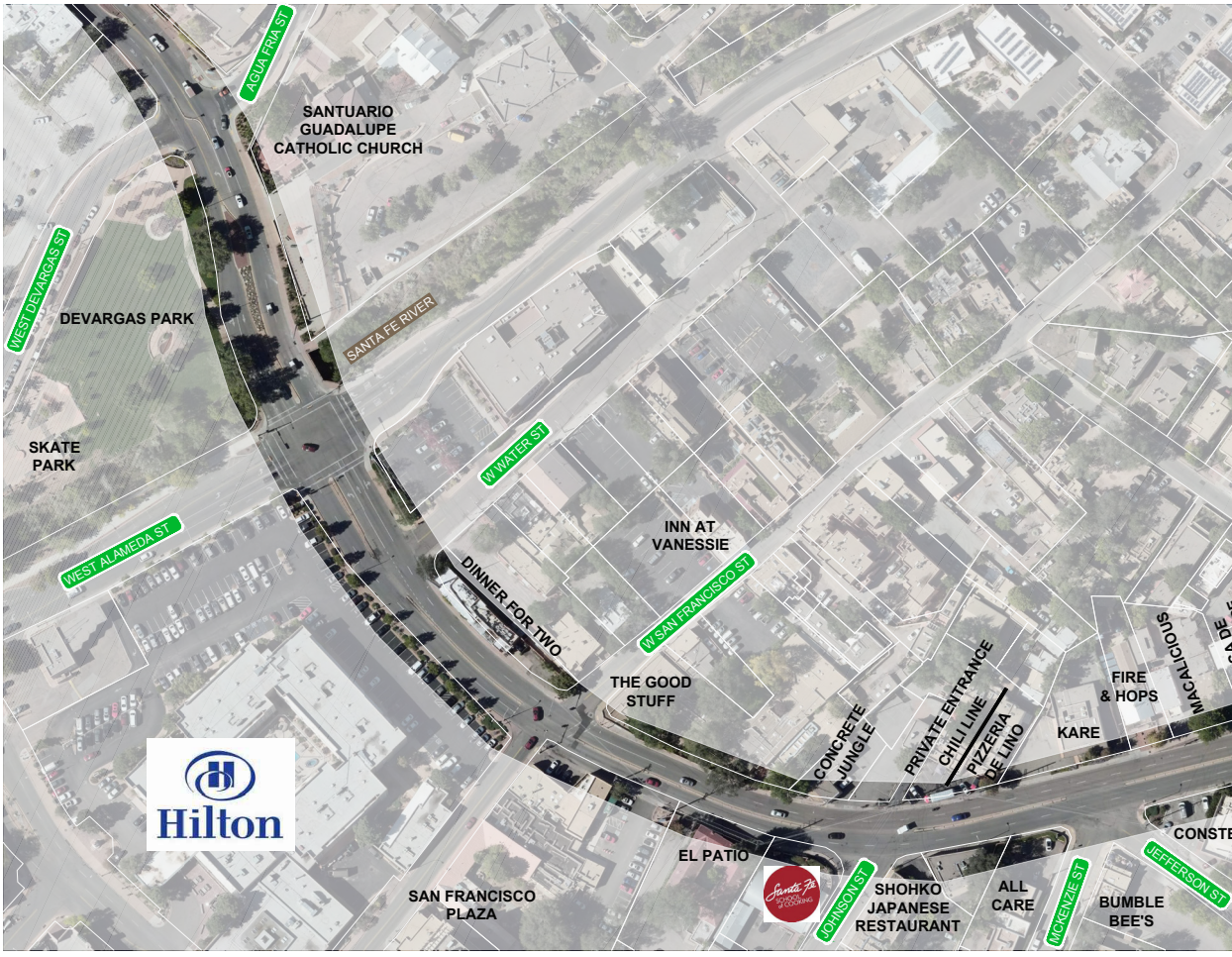
The **purpose** of this project is to:

Identify a roadway typical section for the Guadalupe Street that will:

- Improve sidewalks and ramps so to provide ADA accessibility and safely serve pedestrian traffic;
- Improve corridor safety for all corridor users; and
- Enhance economic development opportunities.

Project **Design Elements** will:

- Include access management strategies and techniques;
- Enhance street lighting; and
- Improve multimodal accommodation (pedestrian and bicycle).



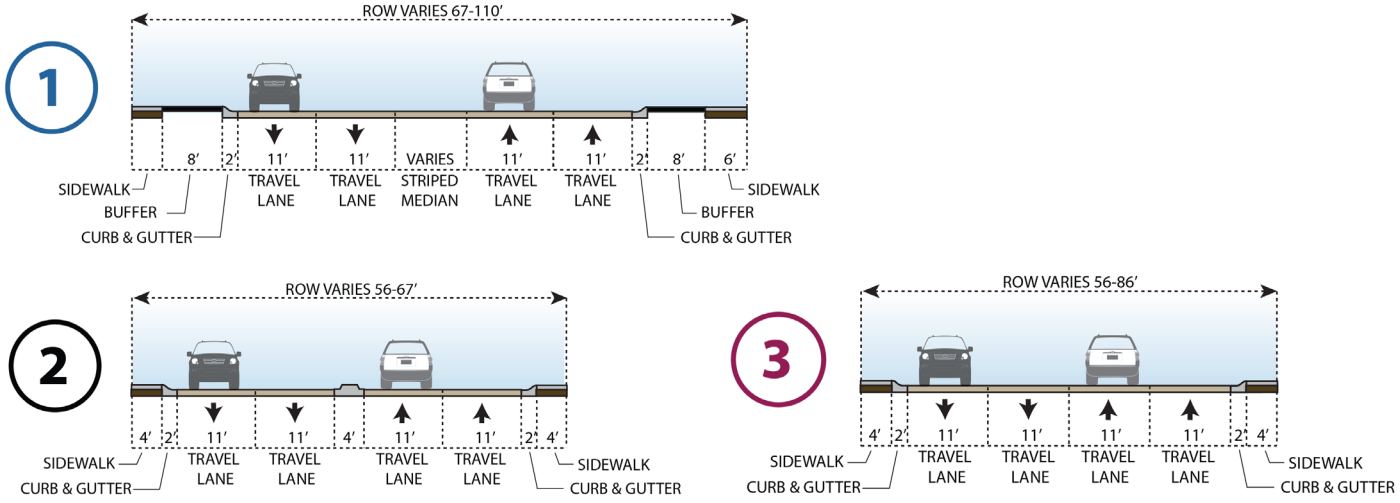
PROJECT EXTENTS

Factors contributing to the **need** for the project include:

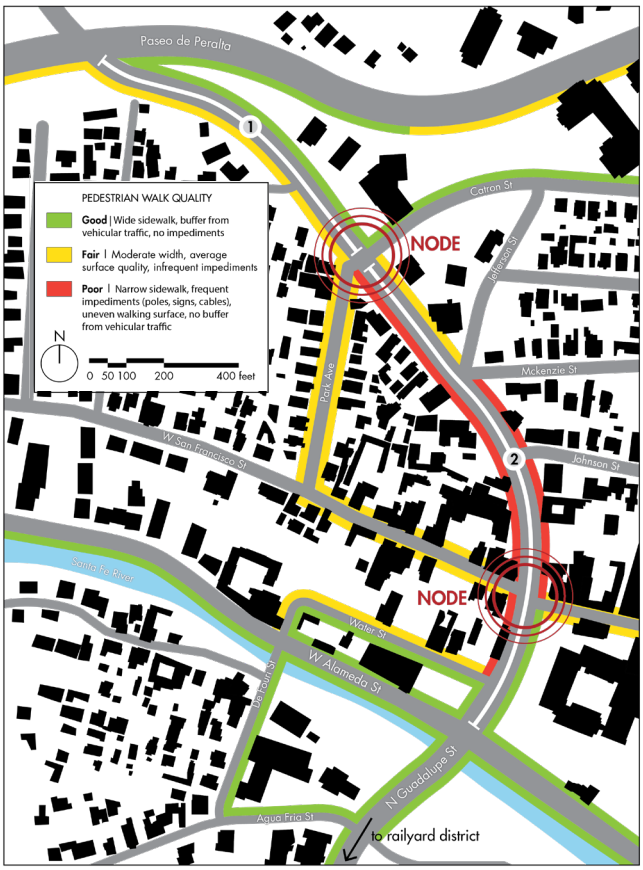
- High number of driveways and large driveway widths;
- Narrow 3-ft and 4-ft sidewalk widths in segments of the street corridor;
- Documented high volume of pedestrians with some bicycle users; and
- Business and pedestrian access constraints impacting economic development.



EXISTING CONDITIONS



EXISTING SECTIONS (CORRESPONDS TO MAP AT RIGHT)

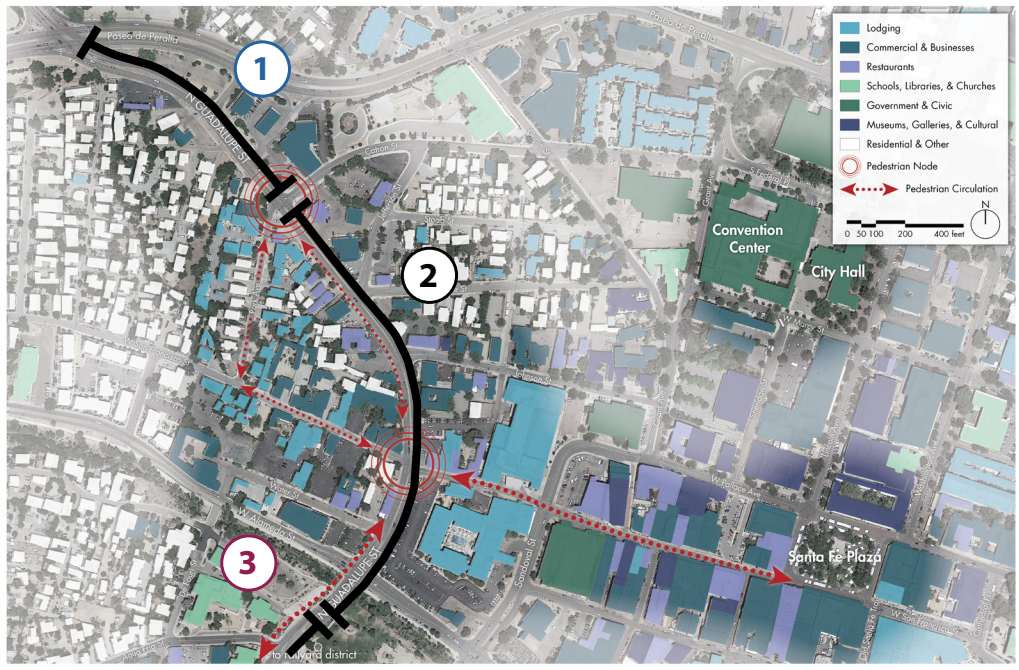


PEDESTRIAN WALK QUALITY

EXAMPLES OF CORRIDOR ISSUES







PEDESTRIAN CONNECTIONS AND DESTINATIONS & EXISTING SECTION LOCATIONS













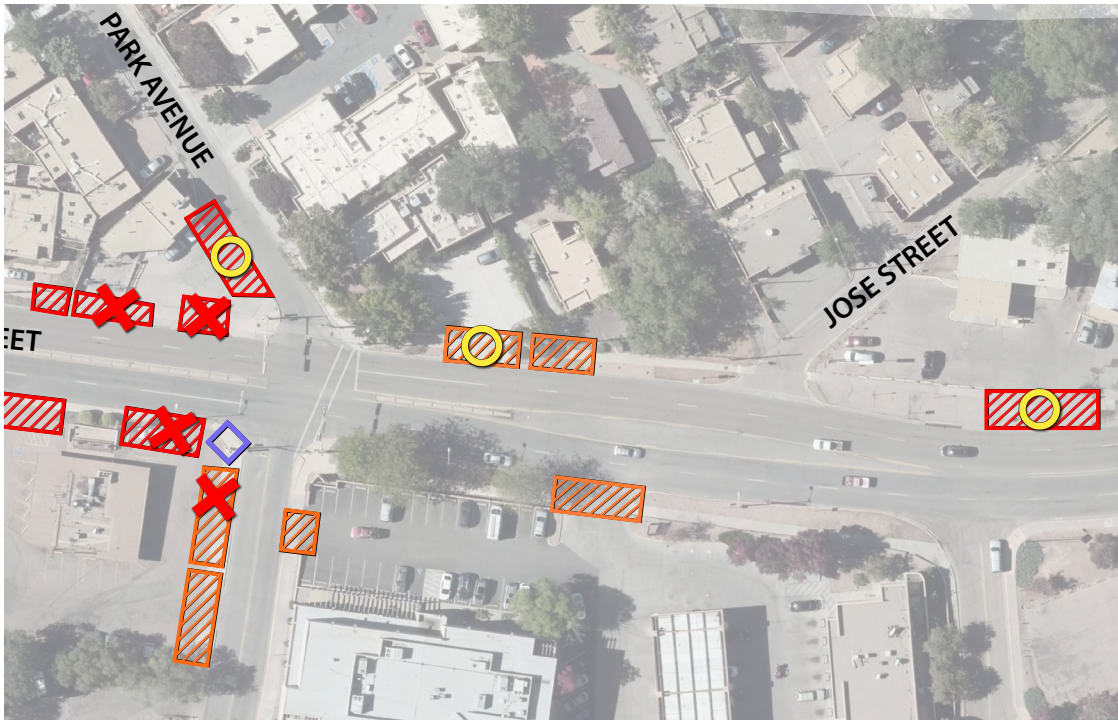


DRIVEWAY RECOMMENDATIONS

How can driveway design improve safety on Guadalupe Street?

Driveways provide access to businesses along the corridor but can also create hazards for road users. There are opportunities to consolidate or modify existing driveways and curb cuts in order to improve safety, as shown in the recommendations below.



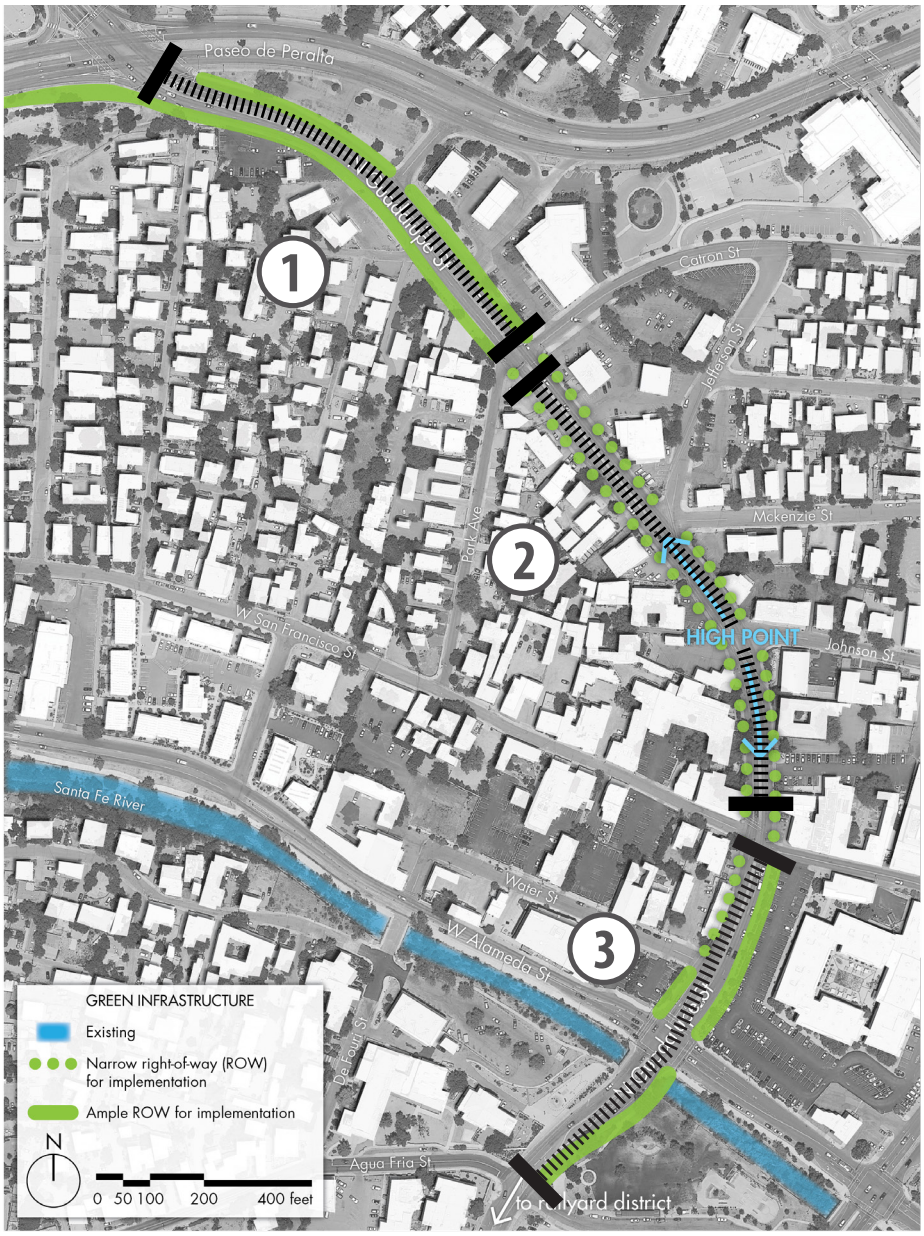




	Total Existing	Close/Remove	Modify
Wide Driveways	14	1	4
Ocean Driveways	17	5	6
Other Curb Cut	3	3	0

WATER INFILTRATION OPPORTUNITIES

The Street Reconstruction project presents a number of opportunities to integrate water infiltration elements into the streetscape. These "green infrastructure" elements provide natural drainage and enhance the aesthetic quality of a corridor with trees and vegetation. The following graphic illustrates where opportunities for water infiltration features exist along Guadalupe St.



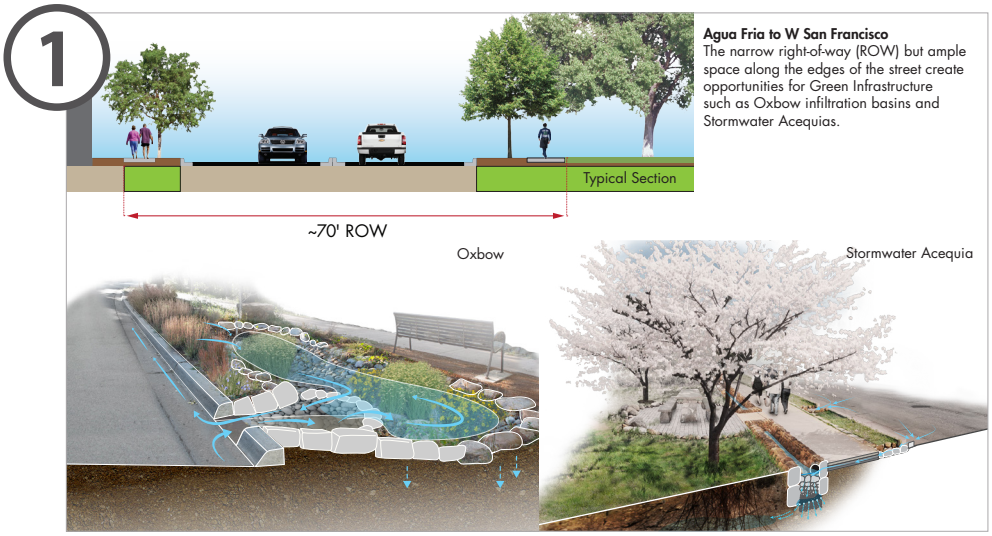
Green Infrastructure Concepts

Green Infrastructure

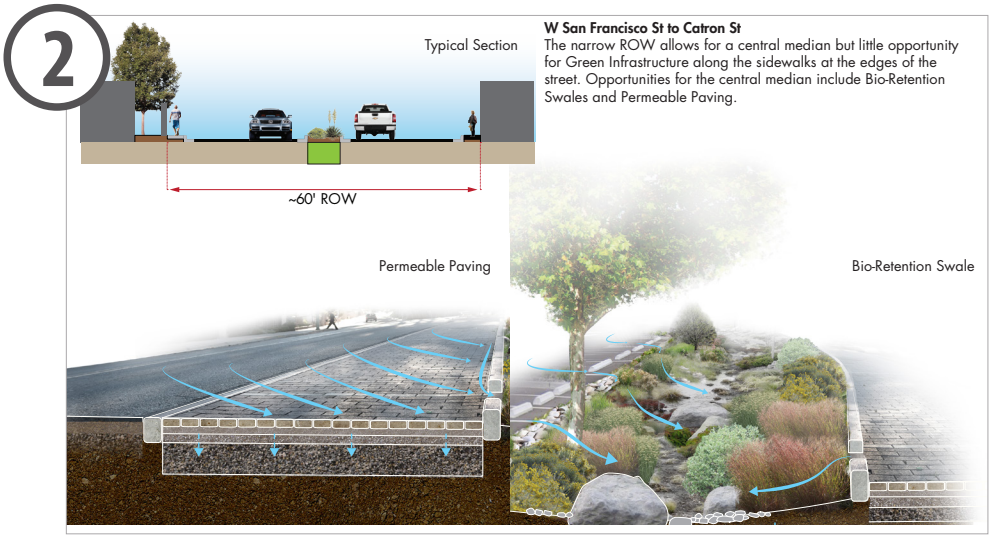
A term used to describe an array of products, technologies, and practices that use natural systems - or engineered systems that mimic natural processes - to enhance overall environmental quality and provide utility services. As a general principal, Green Infrastructure techniques use soils and vegetation to infiltrate, evapotranspirate, and/or recycle stormwater runoff.

Low-Impact Development

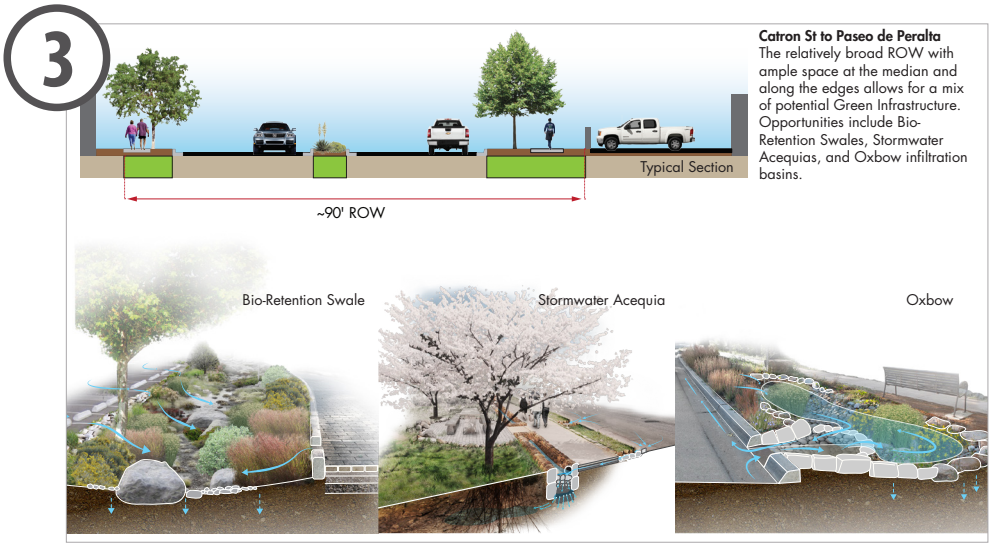
A comprehensive stormwater management and site-design technique. Within the LID framework, the goal of any construction project is to design a hydrologically functional site that mimics predevelopment conditions. This is achieved by using design techniques that infiltrate, filter, evaporate, and store runoff close to its source.



Agua Fria to W San Francisco
The narrow right-of-way (ROW) but ample space along the edges of the street create opportunities for Green Infrastructure such as Oxbow infiltration basins and Stormwater Acequias.



W San Francisco St to Catron St
The narrow ROW allows for a central median but little opportunity for Green Infrastructure along the sidewalks at the edges of the street. Opportunities for the central median include Bio-Retention Swales and Permeable Paving.



Catron St to Paseo de Peralta
The relatively broad ROW with ample space at the median and along the edges allows for a mix of potential Green Infrastructure. Opportunities include Bio-Retention Swales, Stormwater Acequias, and Oxbow infiltration basins.

Green Infrastructure Techniques

Stormwater Acequia
Linear acequia-like structure that collects and infiltrates surface runoff

Stormwater Oxbow
A single-entry water collection structure that temporarily detains surface runoff to slow, filter and infiltration surface runoff

Bioswale
Bioswales are a type of stormwater retention that use an open-channel shape and vegetation to slow runoff and filter pollutants

Permeable Paving
Permeable pavements have spaces for air and water to pass through; the spaces allow water to infiltrate into the ground, reducing runoff. Concrete and asphalt can both be designed to be porous and permeable. Interlocking concrete and brick pavers, grass or gravel pavers

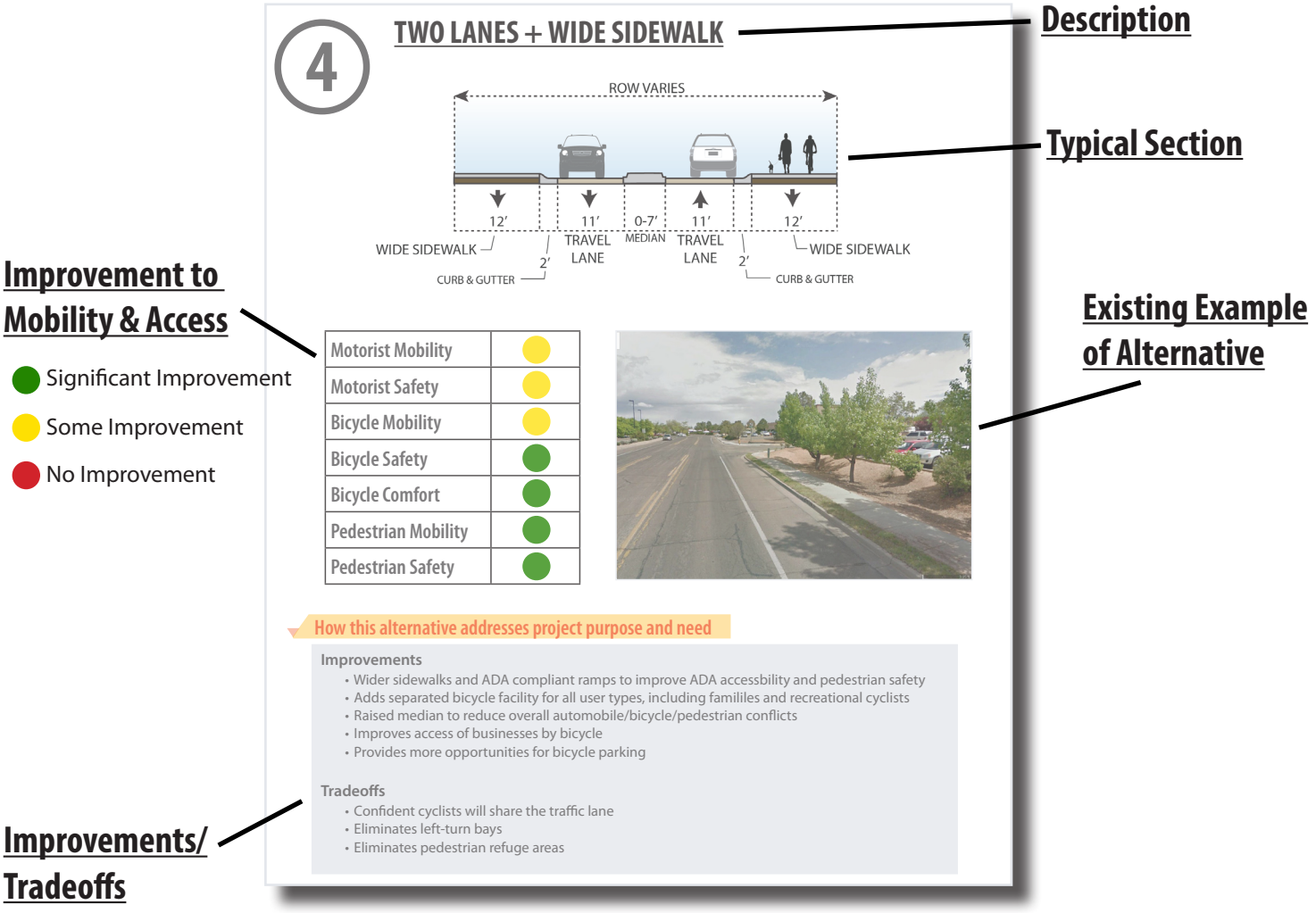
Urban Forestry
Urban trees provide air quality and heat reduction benefits, along with mental health and other social benefits. Urban forestry is related to incorporating trees as important components in urban environments on both public and private properties, including rights-of-way and near existing buildings and homes for air filtering, reduction of heat-island affects, water quality and community.

CORRIDOR ALTERNATIVES

What does the corridor look like overall?

This section presents proposed alternatives road layouts for the entire corridor. These alternatives focus on different ways the space in public right-of-way could be allocated and how much space would be devoted to motorist, cyclists, or pedestrians. Each alternative has a "typical cross section," illustrating how space would generally be divided down the corridor. These layouts would vary slightly based on the particular designs selected for each intersection (see next section).

How to read each alternative



Description

Typical Section

Improvement to Mobility & Access

- Significant Improvement
- Some Improvement
- No Improvement

Existing Example of Alternative

Improvements/ Tradeoffs

What benefits does each alternative bring?



20 mph Speed Limit

All corridor alternatives are designed for a 20-mph speed limit – reduced from the current 25 mph – which will enhance comfort and safety for pedestrians and cyclists.



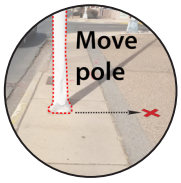
Wider Sidewalks

Sidewalk width along Guadalupe Street is generally 6 feet wide, but often narrows to 5 or less feet. All proposed alternatives would include sidewalks of at least 6 feet wide, and often wider.



No New Right-of-Way

The enhancements proposed by each alternative will not require acquisition of new space outside of the existing right-of-way. Some proposals at particular intersections along the corridor may require purchase of new space.



Reduced Pedestrian Obstacles

Utility poles and other elements currently placed within the sidewalk will be relocated to create a clearer path for pedestrians. Driveways will also be reduced or modified to improve pedestrian safety and comfort.



Raised Medians

Raised medians with standard curbs will be constructed along the corridor. These medians are more visible and provide more of a "traffic calming" effect. Many existing medians will also be widened.

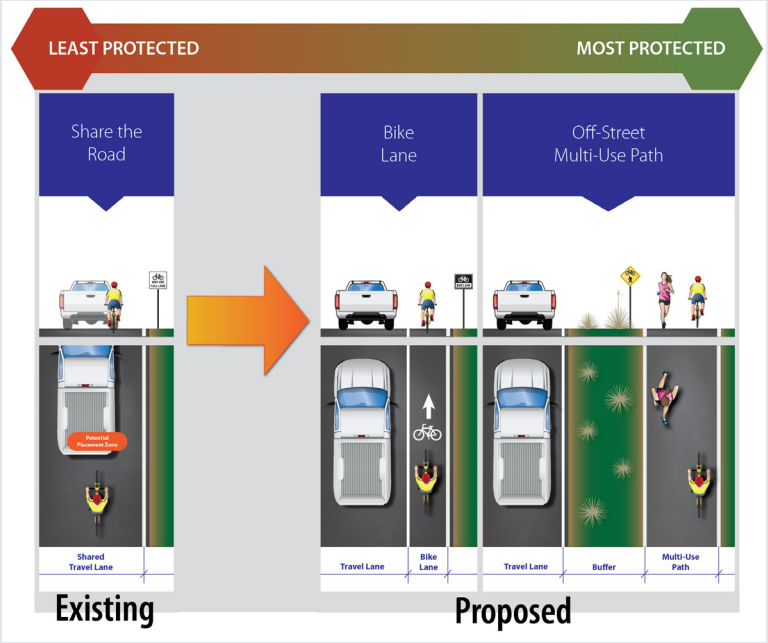


Improved Bicycle Facilities

Dedicated bicycle facilites and calmed traffic would result from any of the proposed alternatives. Bicycle lanes and off-street paths are proposed.

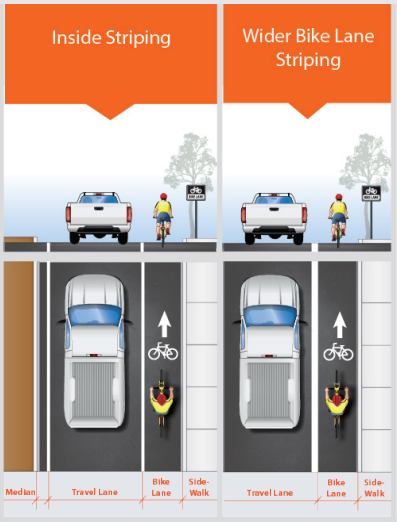
What enhancements will bicyclists see?

Currently, cyclists must share the road with motorists on Guadalupe Street. Each of the alternatives adds bicycle facilities that would provide dedicated or protected space for travel by bicycle on Guadalupe.



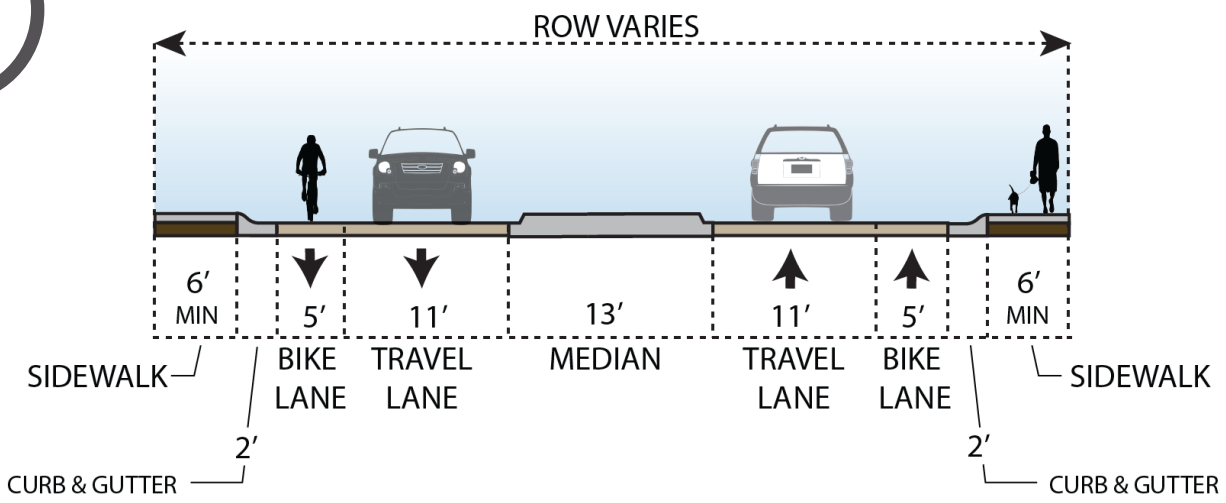
Striping calms traffic

Traffic can be further calmed and safety improved with striping techniques that make travel lanes appear more constrained. The techniques shown below could be employed with most corridor alternatives.



CORRIDOR ALTERNATIVES

1 TWO LANES + MEDIAN + BIKE LANE



Motorist Mobility	
Motorist Safety	
Bicycle Mobility	
Bicycle Safety	
Pedestrian Mobility	
Pedestrian Safety	



How this alternative addresses project purpose and need

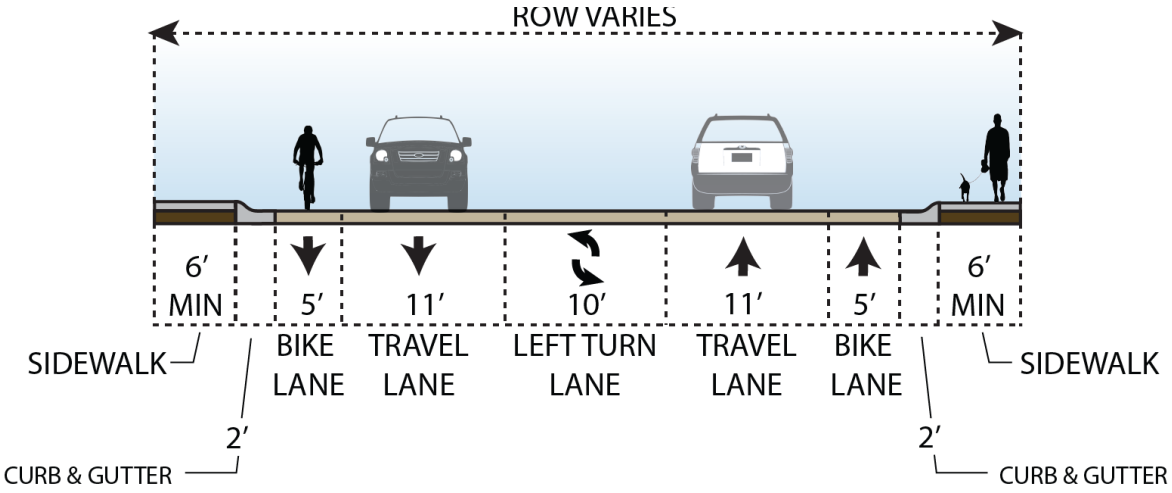
Improvements

- Wider sidewalks and ADA compliant ramps to improve ADA accessbility and pedestrian safety
- Bike lanes to accommodate road-confident bicyclists and improve their safety
- Raised median to reduce overall automobile/bicycle/pedestrian conflicts

Tradeoffs

- Families and recreational cyclists may not feel comfortable riding next to traffic
- Raised medians will reduce direct access to some businesses and residences
- Some ADA ramps will require additional right-of-way

2 THREE LANES (INCL. TWO-WAY LEFT-TURN) + BIKE LANE



Motorist Mobility	
Motorist Safety	
Bicycle Mobility	
Bicycle Safety	
Pedestrian Mobility	
Pedestrian Safety	



How this alternative addresses project purpose and need

Improvements

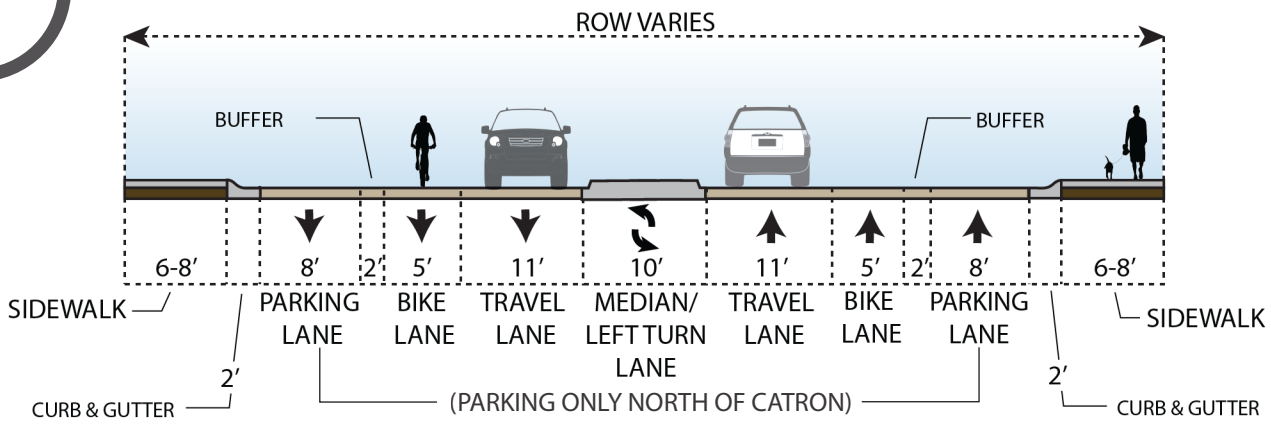
- Wider sidewalks and ADA compliant ramps to improve ADA accessbility and pedestrian safety
- Bike lanes to accommodate road-confident bicyclists and improve their safety

Tradeoffs

- Reduced safety for all roadway users compared to existing conditions due to increased number of conflict points with two-way left-turn lane
- All businesses/residences will have full access
- Inconsistent with project goals

CORRIDOR ALTERNATIVES

3 TWO LANES + VARIABLE MEDIAN + BIKE LANE + PARKING



Motorist Mobility	
Motorist Safety	
Bicycle Mobility	
Bicycle Safety	
Pedestrian Mobility	
Pedestrian Safety	



How this alternative addresses project purpose and need

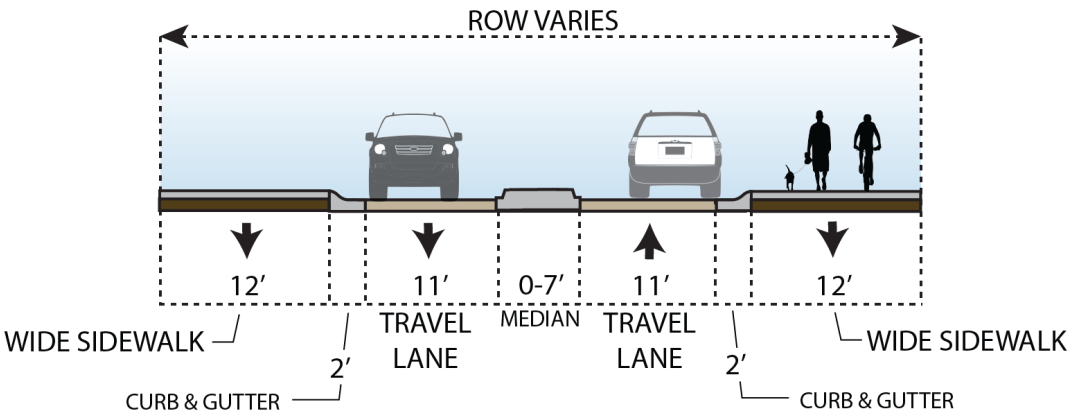
Improvements

- Wider sidewalks and ADA compliant ramps to improve ADA accessbility and pedestrian safety
- Bike lanes to accommodate road-confident bicyclists and improve their safety
- Raised median to reduce overall automobile/bicycle/pedestrian conflicts
- 29 on-street parking spaces will be added north of Catron Street

Tradeoffs

- Increased potential for bicycle/parked car conflict
- Eliminates left-turn bays
- Eliminates pedestrian refuge areas

4 TWO LANES + WIDE SIDEWALK



Motorist Mobility	
Motorist Safety	
Bicycle Mobility	
Bicycle Safety	
Pedestrian Mobility	
Pedestrian Safety	



How this alternative addresses project purpose and need

Improvements

- Wider sidewalks and ADA compliant ramps to improve ADA accessbility and pedestrian safety
- Adds separated bicycle facility for all user types, including famililes and recreational cyclists
- Raised median to reduce overall automobile/bicycle/pedestrian conflicts
- Improves access of businesses by bicycle
- Provides more opportunities for bicycle parking

Tradeoffs

- Confident cyclists will share the traffic lane
- Eliminates left-turn bays
- Eliminates pedestrian refuge areas

INTERSECTION ALTERNATIVES

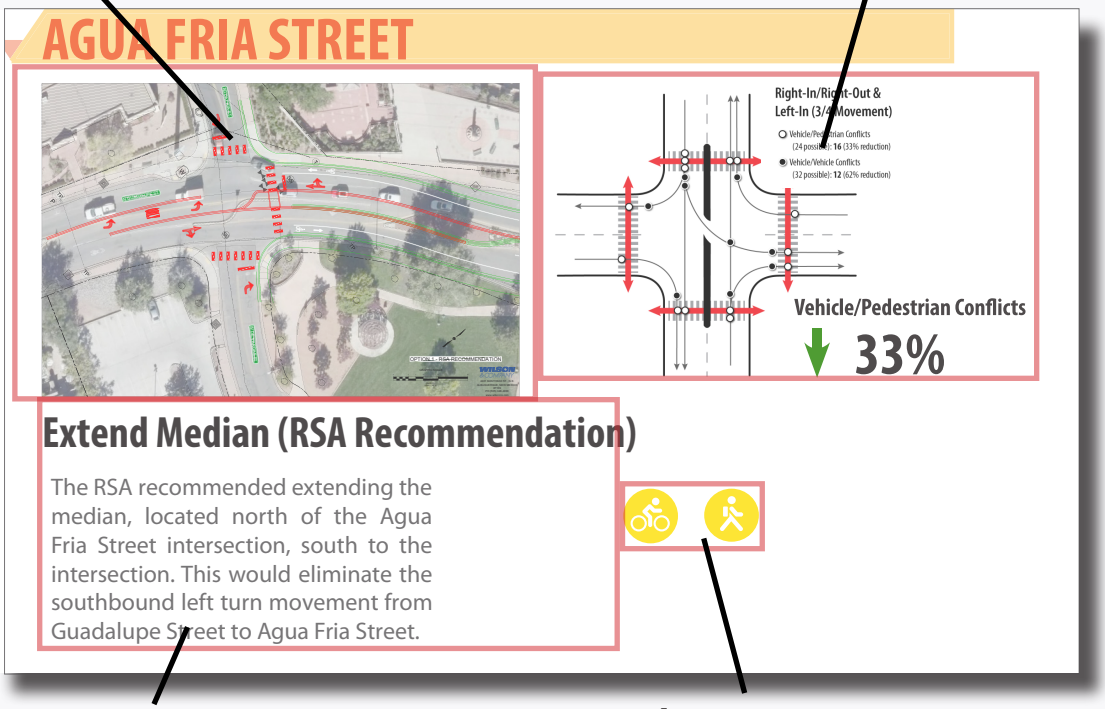
What happens at each intersection?

This section presents proposed alternatives for each intersection in the project area along Guadalupe Street. Many of the alternatives were proposed by a previous Road Safety Audit, but many are new. Each alternative focuses on improving safety for motorist, cyclists, and pedestrian, while maintaining traffic flow. Each of these alternatives would vary slightly based on the corridor alternative (see previous section) that is ultimately selected.

How to read each alternative

Alternative Layout

Reduction of Conflict Points



Description of Alternative

Improvement to Bicycle & Pedestrian Experience

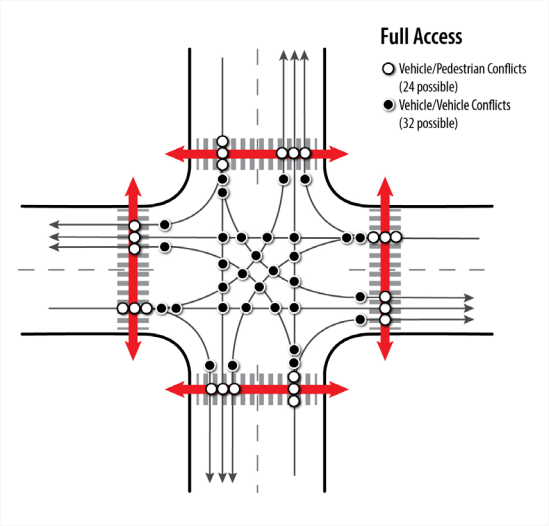
Signficant Improvement

Some Improvement

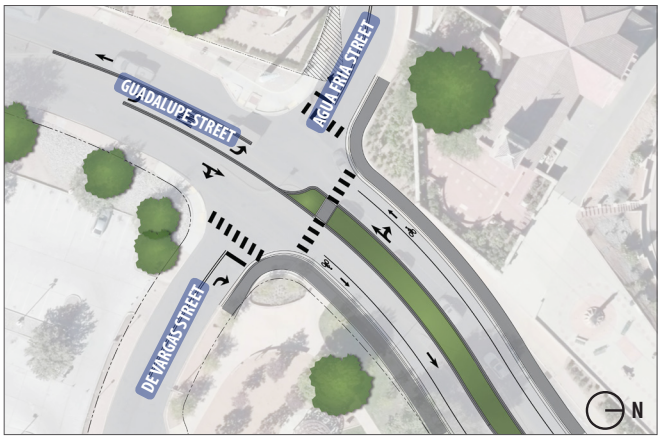
No Improvement

Conflict Reduction

A key way to improve safety along Guadalupe Street is to the reduce the number of possible conflicts between different vehicles and between vehicles and pedestrians. Each intersection alternative includes a conflict diagram, showing the number of possible conflicts and the reduction in conflicts compared with a design that would permit full access at that intersection.

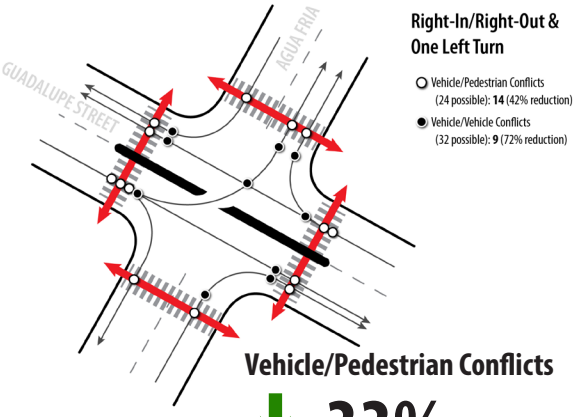


AGUA FRIA STREET & DE VARGAS STREET



Extend Median

The RSA recommended extending the median, located north of the Agua Fria Street intersection, south to the intersection. This would eliminate the southbound left-turn movement from Guadalupe Street to De Vargas Street.

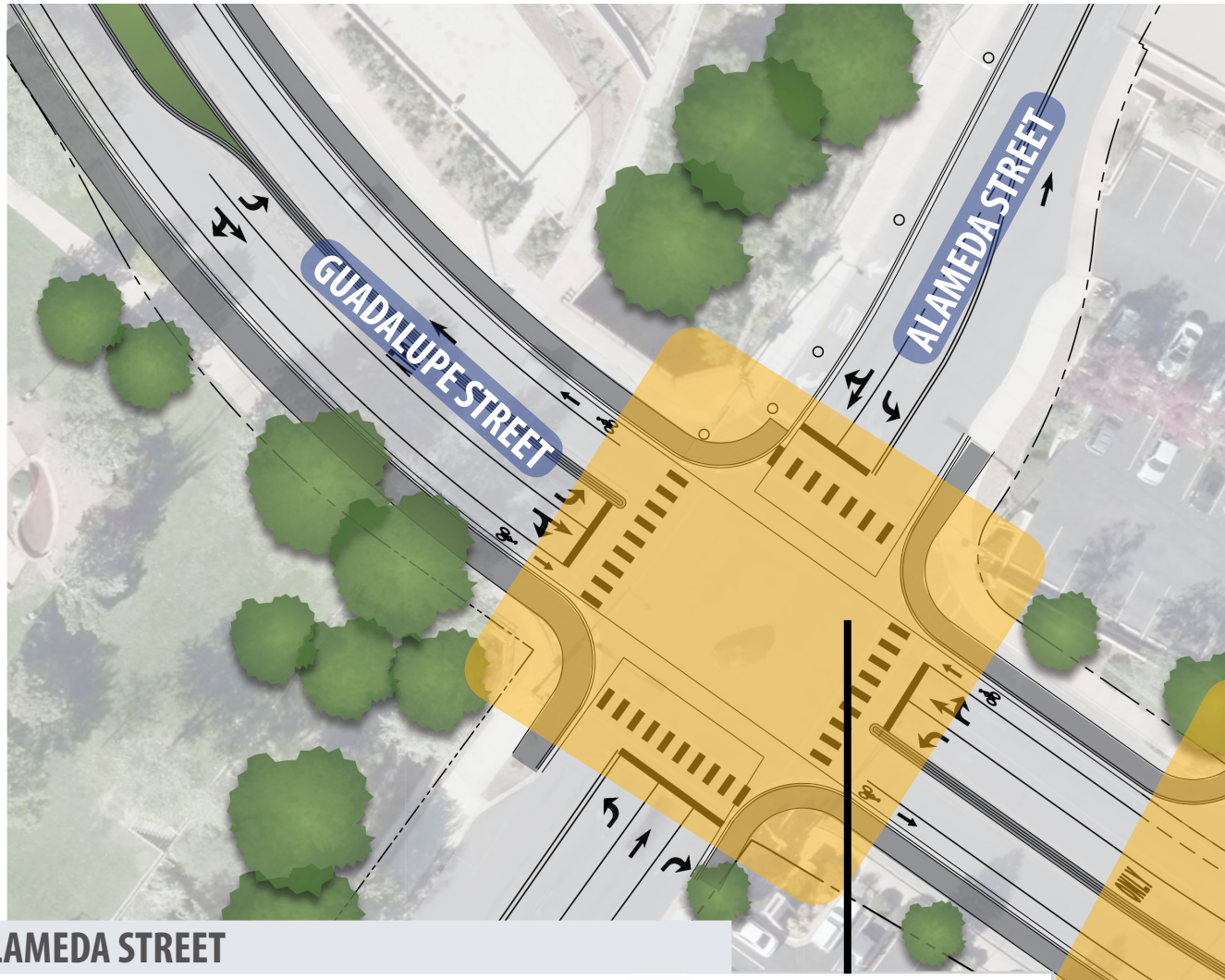


Vehicle/Pedestrian Conflicts

33%

INTERSECTION ALTERNATIVES

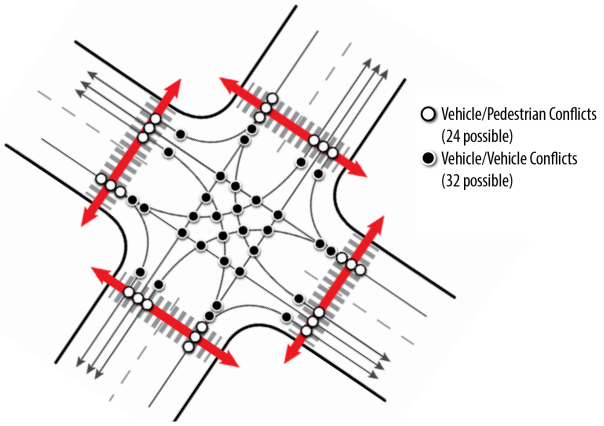
ALAMEDA STREET & WATER STREET



ALAMEDA STREET

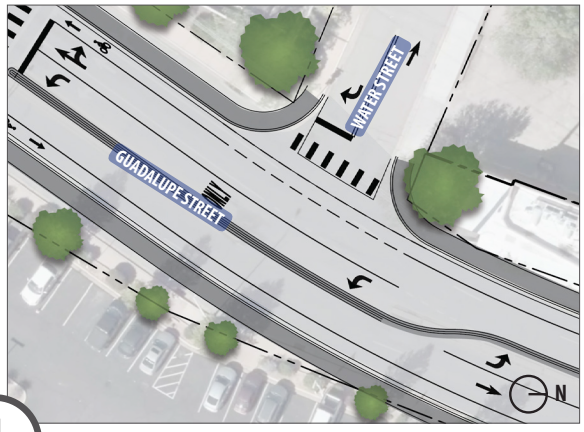
Eliminate Eastbound Right-Turn Lane

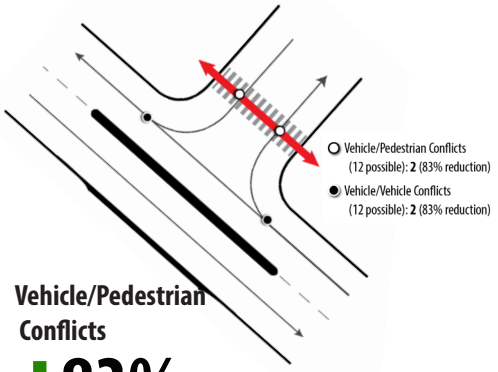
Eliminate the eastbound right turn lane, making the west leg a left turn bay and a shared through-right lane. This would shorten the pedestrian walking distance across Alameda Street. In addition, the southbound left turn bay would be extended to accommodate the queue length. In order to extend the southbound left turn bay, Water Street would need to be made partial access.





WATER STREET

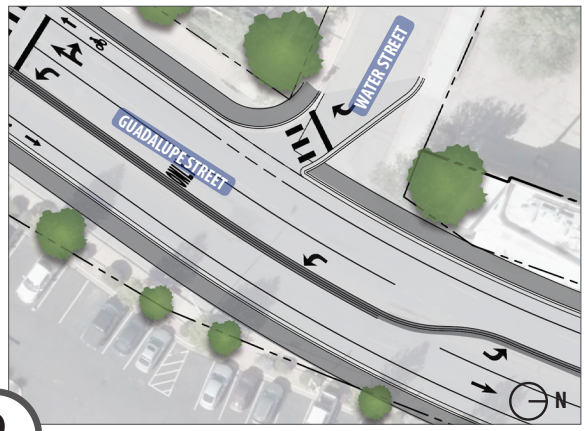


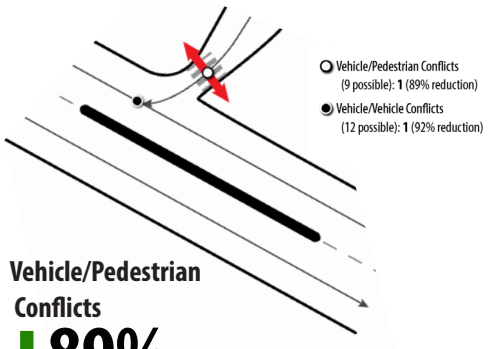


Vehicle/Pedestrian Conflicts
↓83%

1 Close Median

The RSA recommended Water Street to be right-in/right-out only, by closing the median opening on Guadalupe Street.





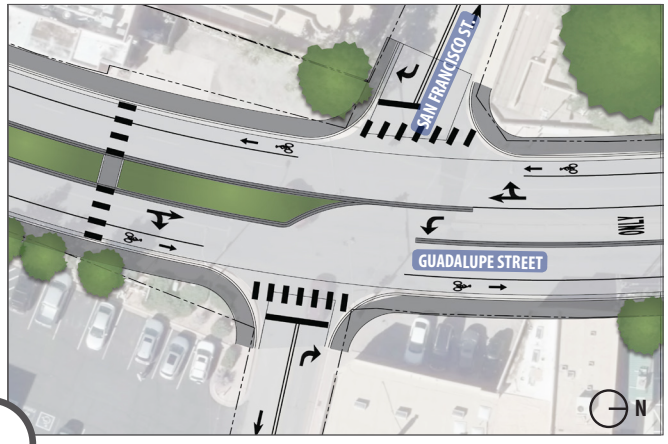
Vehicle/Pedestrian Conflicts
↓89%

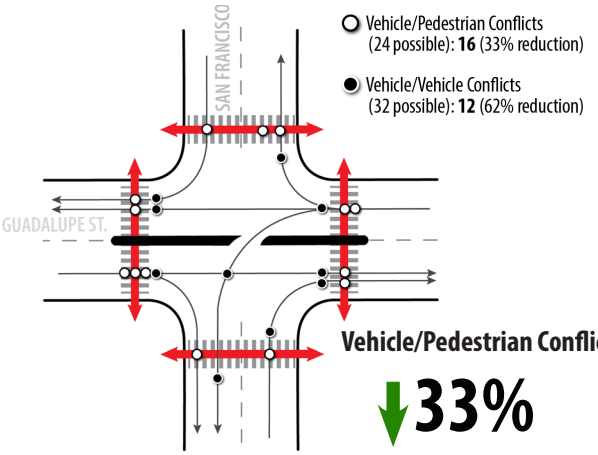
2 One-Way

Make Water Street a one-way facility. Drivers would be able to access Water Street from Alameda, west of Guadalupe Street and would be a right-out only at Guadalupe Street. The median opening on Guadalupe Street would be closed as recommended in the RSA.

INTERSECTION ALTERNATIVES

SAN FRANCISCO STREET

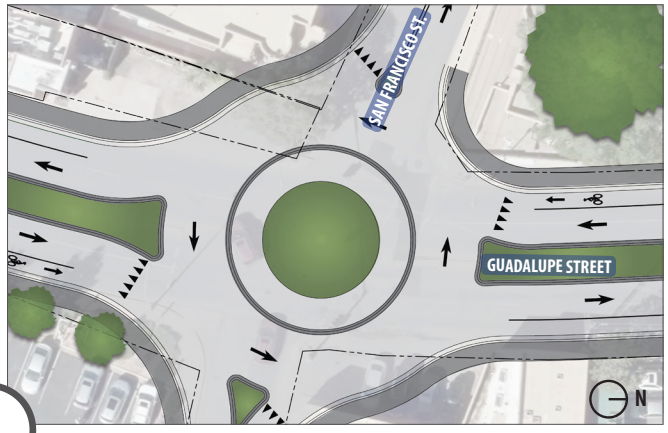


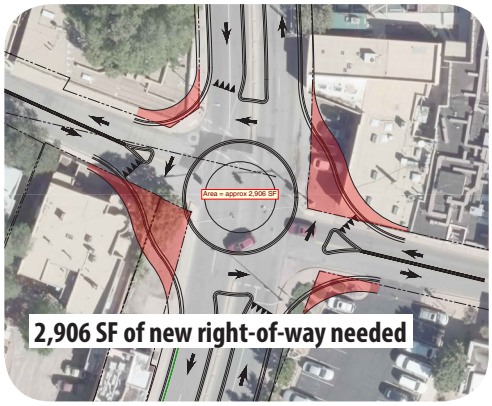


1 Extend Median

Right-In/Right-Out

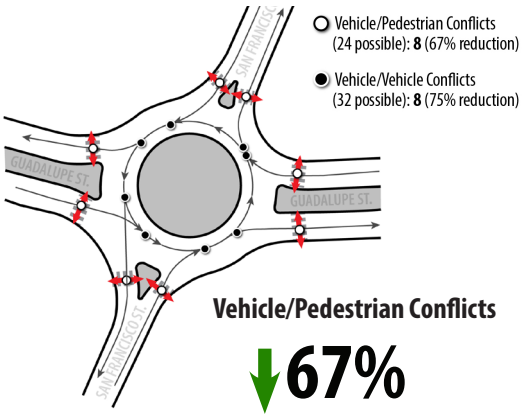
Eliminate the signal at San Francisco Street and make the intersection partial access. San Francisco Street would be right-in/right-out with a left-in for the southbound Guadalupe Street to eastbound San Francisco Street movement.

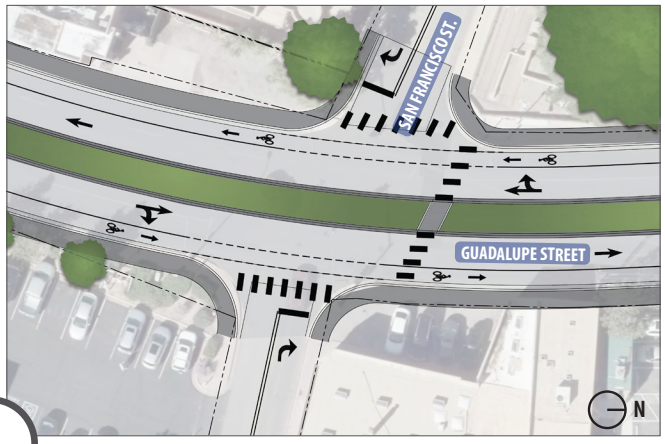


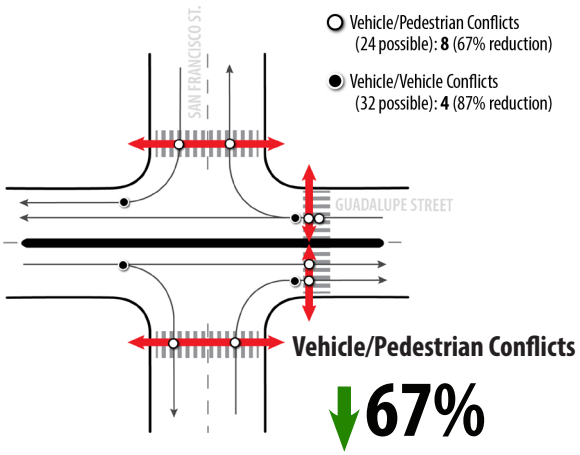


2 Roundabout

Eliminate the signal at San Francisco Street and make the intersection a roundabout with a 100-foot inscribed diameter. This option would require right-of-way acquisition.



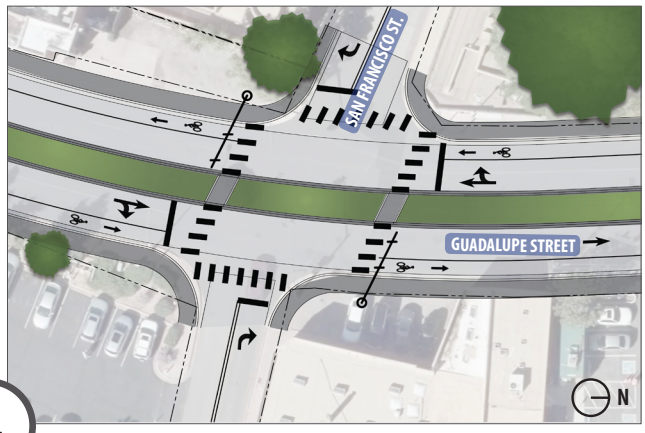


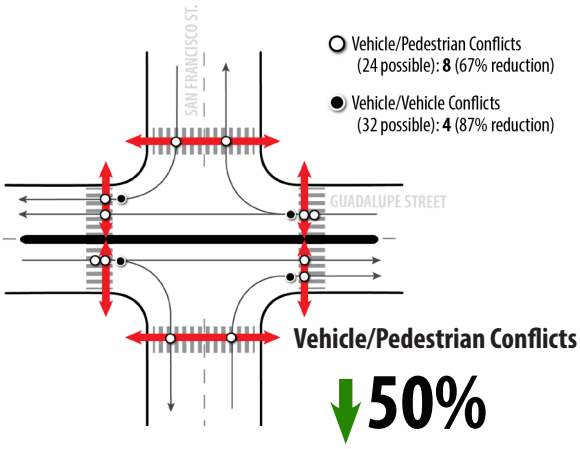


3 Partial Access

Right-In/Right-Out

Eliminate the signal at San Francisco Street and make the intersection partial access. San Francisco Street would be right-in/right-out only.





4 Partial Access

Right-In/Right-Out with HAWK Signal

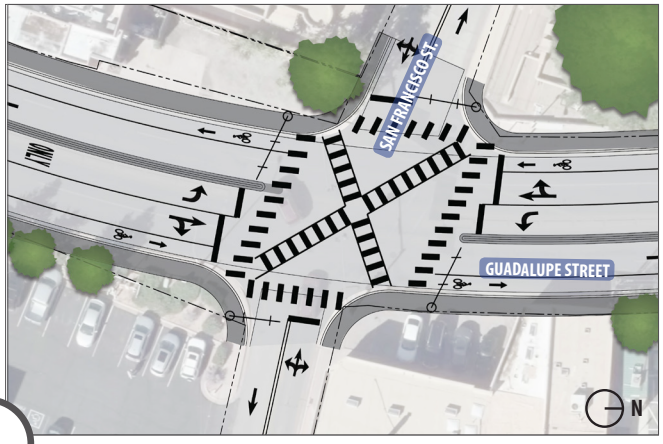
Eliminate the signal at San Francisco Street and make the intersection partial access. San Francisco Street would be right-in/right-out only with pedestrian HAWK signals just north of the intersection.

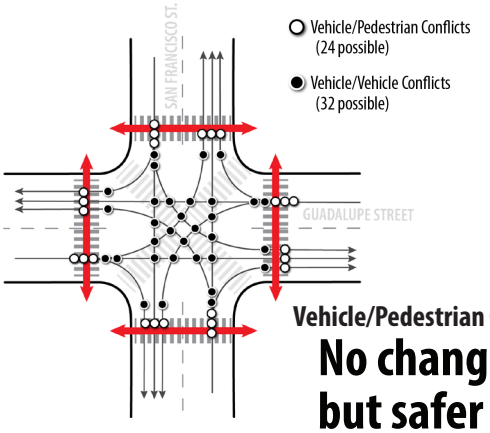


HAWK signal in Phoenix, AZ
Source: Federal Highway Administration

INTERSECTION ALTERNATIVES

SAN FRANCISCO STREET

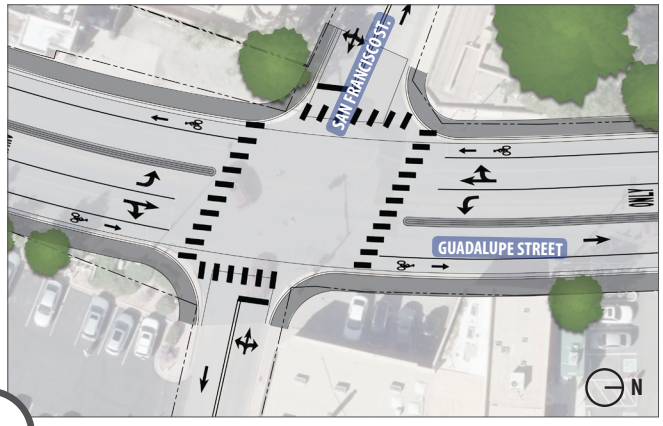


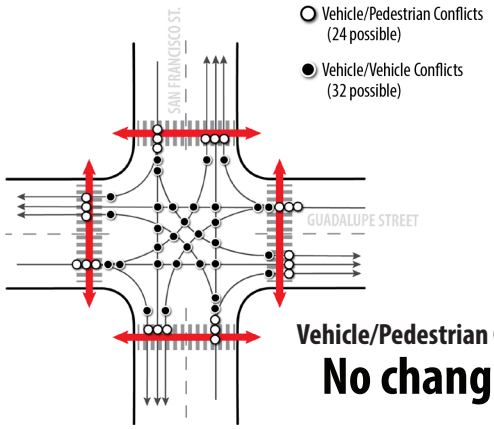


Vehicle/Pedestrian Conflicts
No change but safer

5 Pedestrian Phase

Keep the signal at the San Francisco Street and Guadalupe Street intersection and would add an exclusive pedestrian phase.



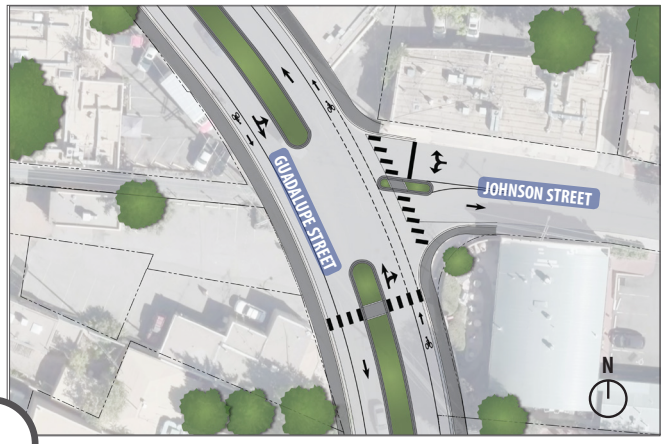


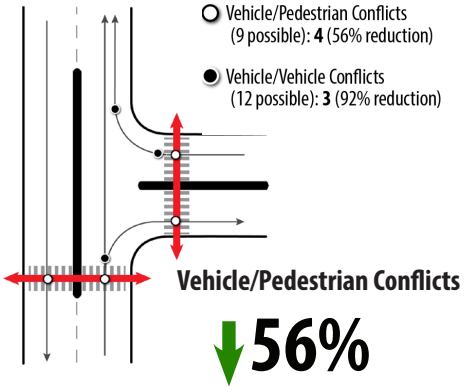
Vehicle/Pedestrian Conflicts
No change

6 Two-Way Stop

Eliminate the signal make eastbound and westbound San Francisco Street stop controlled.

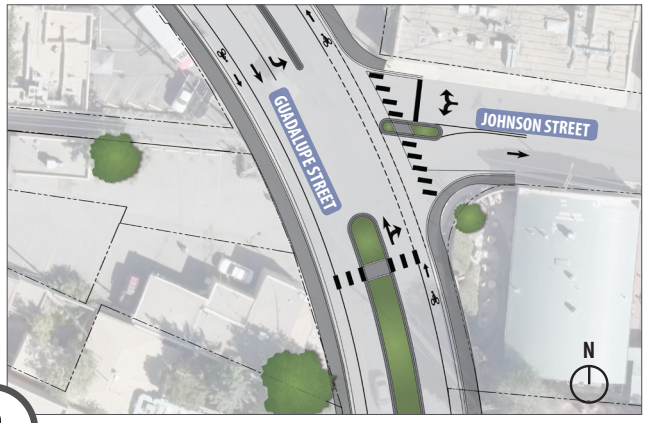
JOHNSON STREET

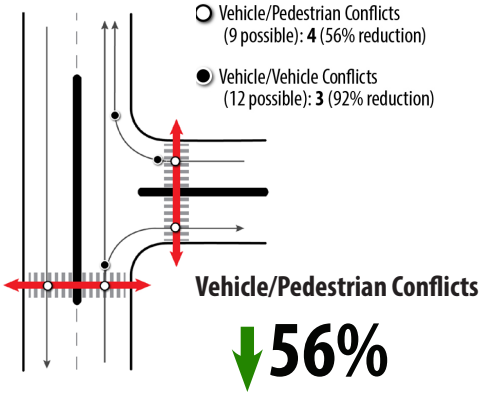




1 Add Median with Pedestrian Refuge

Add a median with a pedestrian refuge on Johnson Street. It also recommended installing a crosswalk on Guadalupe Street, south of Johnson Street.





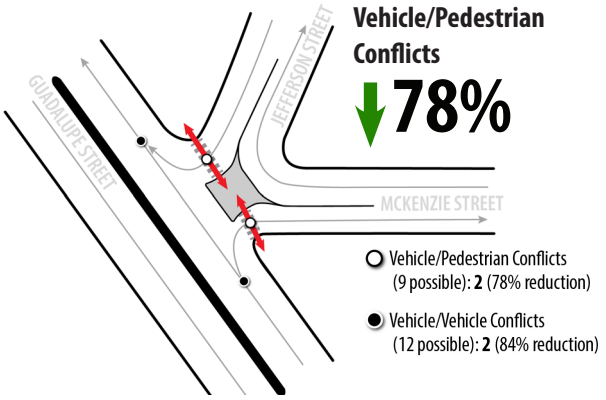
2 Left-Turn Bay

Construct a 150-foot long left turn bay for the southbound Guadalupe Street to eastbound Johnson Street movement. As recommended in the RSA, a median with a pedestrian refuge would be constructed on Johnson Street. As well as installing a crosswalk on Guadalupe Street, south of Johnson Street.

INTERSECTION ALTERNATIVES

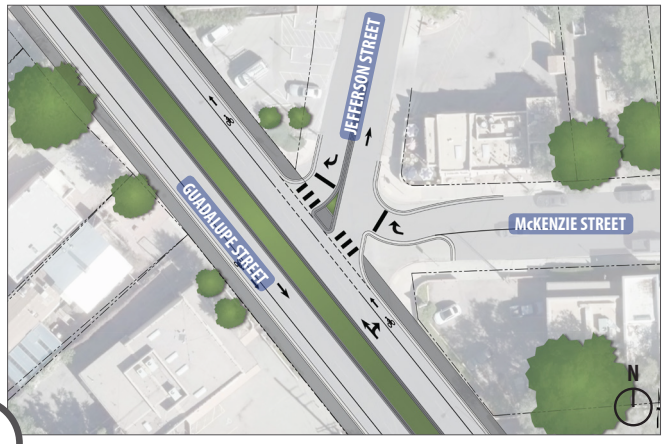
JEFFERSON STREET & MCKENZIE STREET

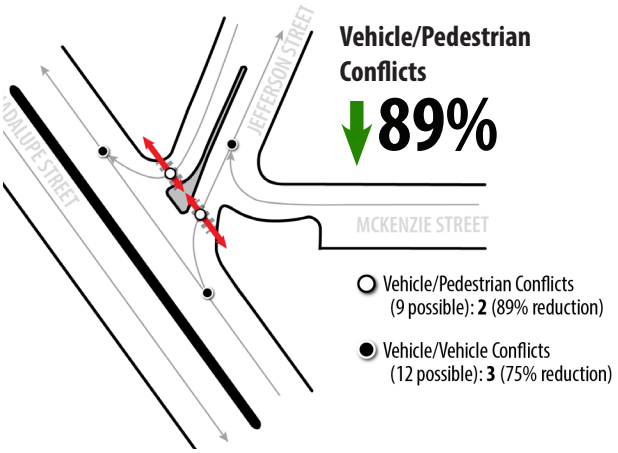




1 Close Median, Add Pedestrian Refuge

Extend median down center of Guadalupe Street. Add pedestrian refuge on McKenzie Street-Jefferson Street. Right turn onto McKenzie Street and right turn from Jefferson would be only turning movements permitted. Westbound traffic on McKenzie Street would be diverted onto Jefferson Street.

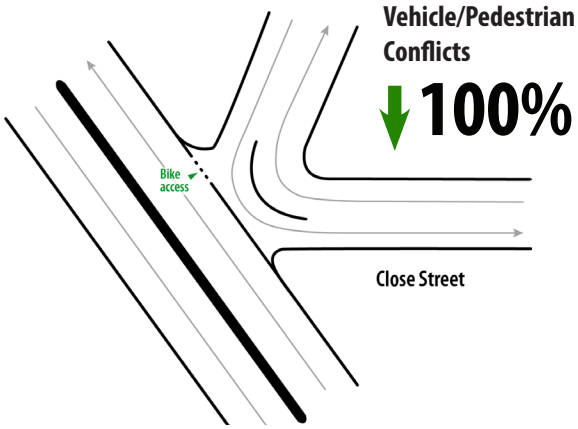




2 Right onto Jefferson

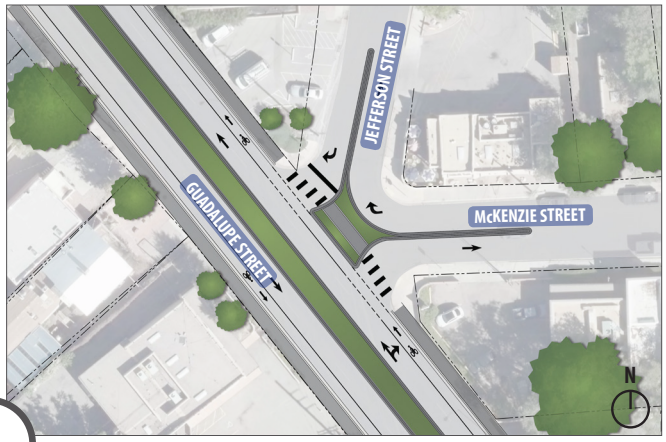
Extend medians to permit only right turn onto and from Jefferson Street. Pedestrian refuge island would be created between Jefferson and McKenzie streets. This alternative would allow access from Guadalupe Street to the restaurant on the northeast corner of the intersection.

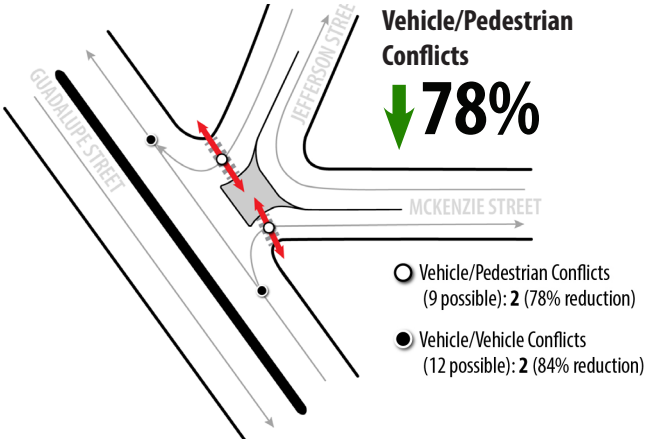




3 Close Access

Completely close access to McKenzie Street and Jefferson Street from Guadalupe Street. The median, sidewalk, curb and gutter on Guadalupe Street would extend across the McKenzie Street-Jefferson Street turnout.





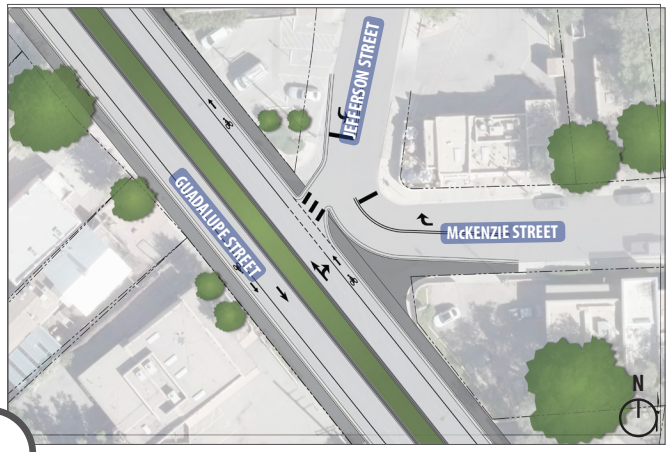
4 Partial Access

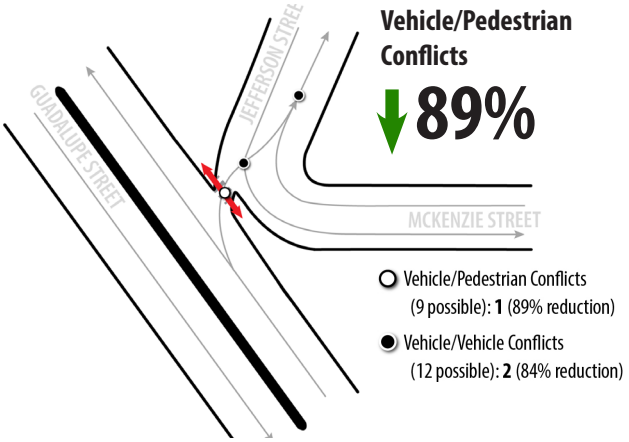
Right-In/Right-Out

Make McKenzie Street and Jefferson Street partial access. A median with mountable curb and gutter would be constructed to only allow for right-in at McKenzie Street and a right-out at Jefferson Street. Drivers going westbound on McKenzie Street would be forced onto Jefferson Street.

INTERSECTION ALTERNATIVES

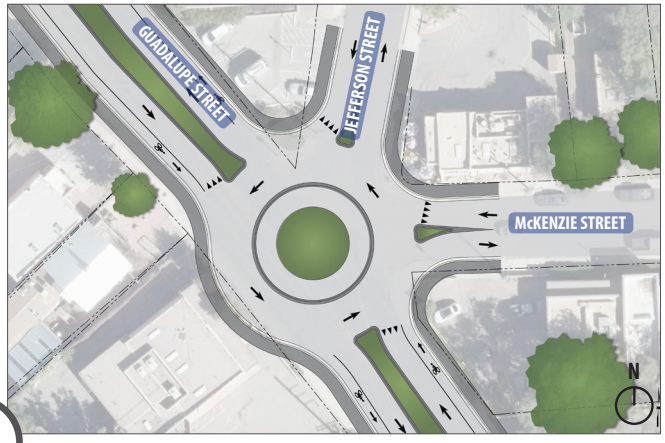
JEFFERSON STREET & MCKENZIE STREET

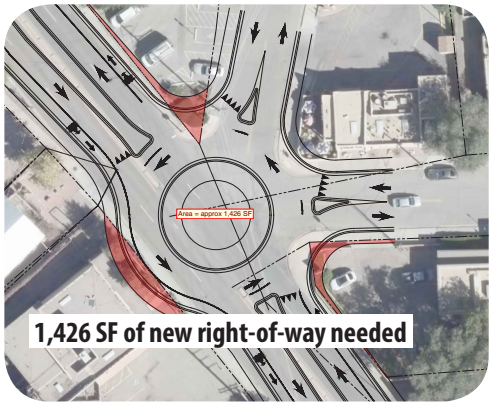




5 Right-In Only

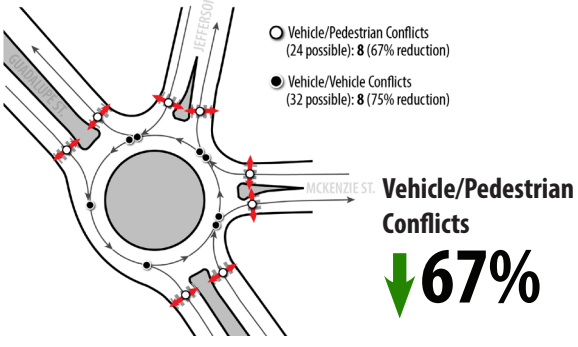
Extend curbs to permit only right turn onto Jefferson. Westbound traffic on McKenzie Street would be diverted onto Jefferson, and southbound traffic on Jefferson would be diverted onto McKenzie. Center median on Guadalupe Street would be extended.



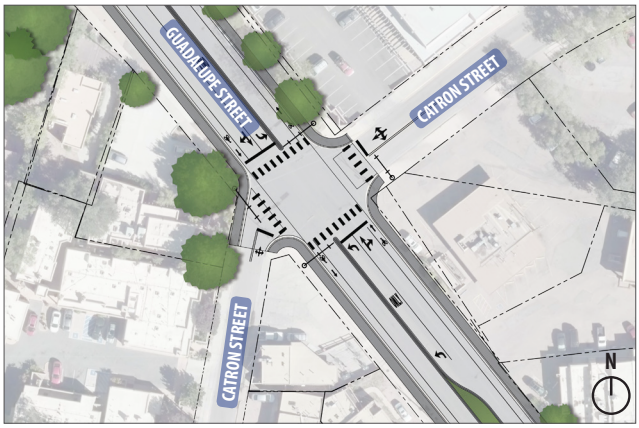


6 Roundabout

Integrate the streets into a roundabout with a 100-foot inscribed diameter. This option would require right-of-way acquisition.

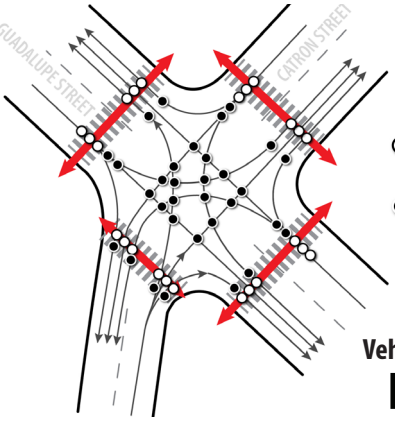


CATRON STREET



Left-Turn Bay

Northbound and southbound Guadalupe Street would have one lane in each direction with an approximately 150-foot left turn bay.



Vehicle/Pedestrian Conflicts

No change

INTERSECTION ALTERNATIVES

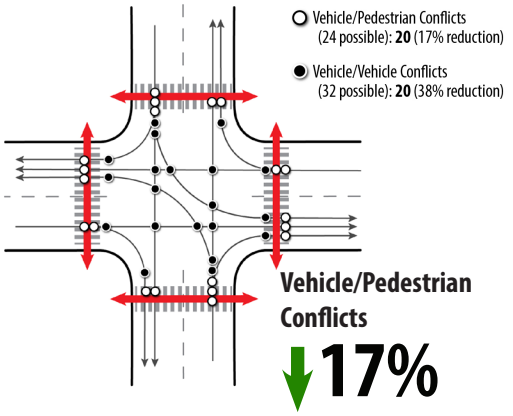
SOLANA/JOSE STREETS & PASEO DE PERALTA



PASEO DE PERALTA

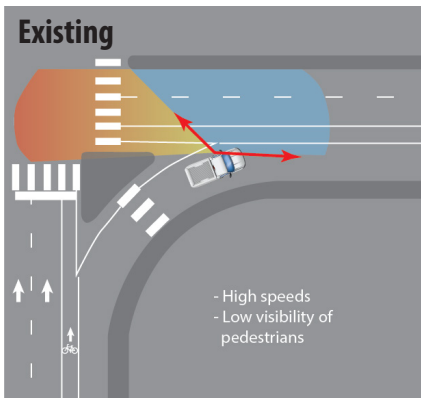
Double Southbound Left

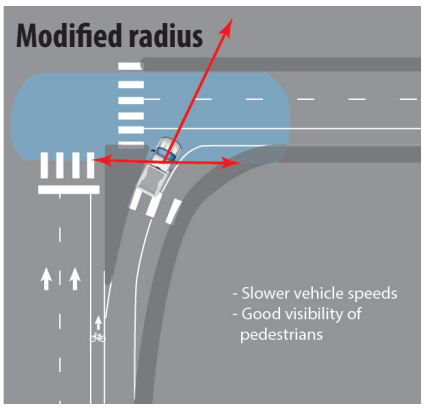
Convert the second southbound Guadalupe Street through lane to a second southbound to eastbound Paseo de Peralta left turn lane. The eastbound Paseo de Peralta to northbound Guadalupe Street movement would be eliminated as recommended by the RSA. Northbound and southbound channelized right turns will be modified to improve pedestrian safety, as illustrated by the diagrams at right.



Vehicle/Pedestrian Conflicts

↓17%

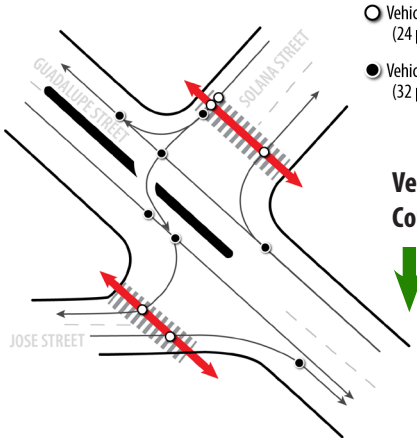




SOLANA STREET & JOSE STREET

Partial Access

Construct a raised median on Guadalupe Street that would make Solana Street right-in/right-out/left-out only. Jose Street would become right-out only.



Vehicle/Pedestrian Conflicts (24 possible): **5** (79% reduction)

Vehicle/Vehicle Conflicts (32 possible): **7** (78% reduction)

Vehicle/Pedestrian Conflicts

↓79%