

MOUNTAIN ROAD BIKE BOULEVARD CROSSING AT SAN PEDRO DRIVE

Presentation to GABAC
June 8, 2015



Parametrix

INITIAL ALTERNATIVES CONSIDERED



Figure 1. Initial Alternative A



Figure 2. Initial Alternative B



Figure 3. Initial Alternative C

Parametrix was retained by the City to conduct a study of potential treatments for the Mountain Road Bike Boulevard crossing of San Pedro Drive. The centerlines of Mountain Road are offset by about 90 feet at this location (the west leg is situated to the north).

As part of another task by the City, the San Pedro Drive Bike Facility Assessment, crossing alternatives were studied at this location to be part of the San Pedro Drive restriping project. One of these alternatives, Alternative C, was carried forward into the Fair Heights Bicycle Boulevard Signing and Striping Improvement plans, which have not progressed past the 60% complete level.

All of the initial alternatives are consistent with current recommended practices for bike boulevards at offset intersections, but in this situation, the adjacent business and property owners felt that all of the initial alternatives would be too detrimental to their access, as they restricted the ability to make left turns off of San Pedro. In response, the City wanted to consider other options.

To develop other concepts, we looked at the design guidelines from Tucson, Portland, Boulder, and L.A. We also looked at information from other cities with robust bike

ridership, including Madison, Davis, and Berkeley, but it was not as useful. The NACTO *Urban Bikeway Design Guide*, AASHTO *Guide for the Development of Bicycle Facilities*, and the MUTCD were also used as references.

OPTION 1 – DIRECTIONAL MEDIAN REFUGE ISLANDS



Option 1 would be a variation of the initial Alternative B. The concept is the same, but the raised median would be limited to just the two bike crossing areas, so that left turns can still be made onto Mountain Road and the Assad property driveway at the southwest corner of Mountain and San Pedro. In Option 1, optional “jughandles” could be constructed on either side of the road to allow bicyclists to get out of the San Pedro bike lane while they are waiting to cross the street. The jughandles also allow bicyclists to reorient themselves to be perpendicular to San Pedro traffic so that they can better see when it is safe to cross. On the east side of the road, because of the closeness of the Christy Mae’s building, the jughandle would be a shared space with the sidewalk, which would be ramped down to street level.

The NACTO *Urban Bikeway Design Guide* recommends that the pavement of the jughandles be marked with a bicycle stencil and turn arrow to clearly indicate the proper bicycle direction and positioning. It also recommends that the pavement of the jughandle be designated using green colored pavement. Green has become the preferred pavement color for areas where bicyclists need extra visibility.

The City’s draft Bikeways and Trails Facilities Plan recommends green colored

pavement for areas where bicyclists and motorists have conflict points or where it is desired to make bicyclists more visible. The City's use of green colored pavement for bike facilities would require the City to request interim approval from FHWA as its use is not addressed in the MUTCD.

OPTION 1 – DIRECTIONAL MEDIAN REFUGE ISLANDS



Here is a very rudimentary rendering of what the jughandle and median refuge would look like for the eastbound bicycle crossing.

OPTION 1 – DIRECTIONAL MEDIAN REFUGE ISLANDS



Option 1 Benefits

Left turns can still be made into adjacent driveways and onto Mountain Road from San Pedro.

Jughandles allow bike boulevard traffic to wait in a space outside of the San Pedro bike lane. The jughandles could be added at a later date, if conflicts between through bikes on the bike lanes and waiting bikes on the bike boulevard prove to be an issue.

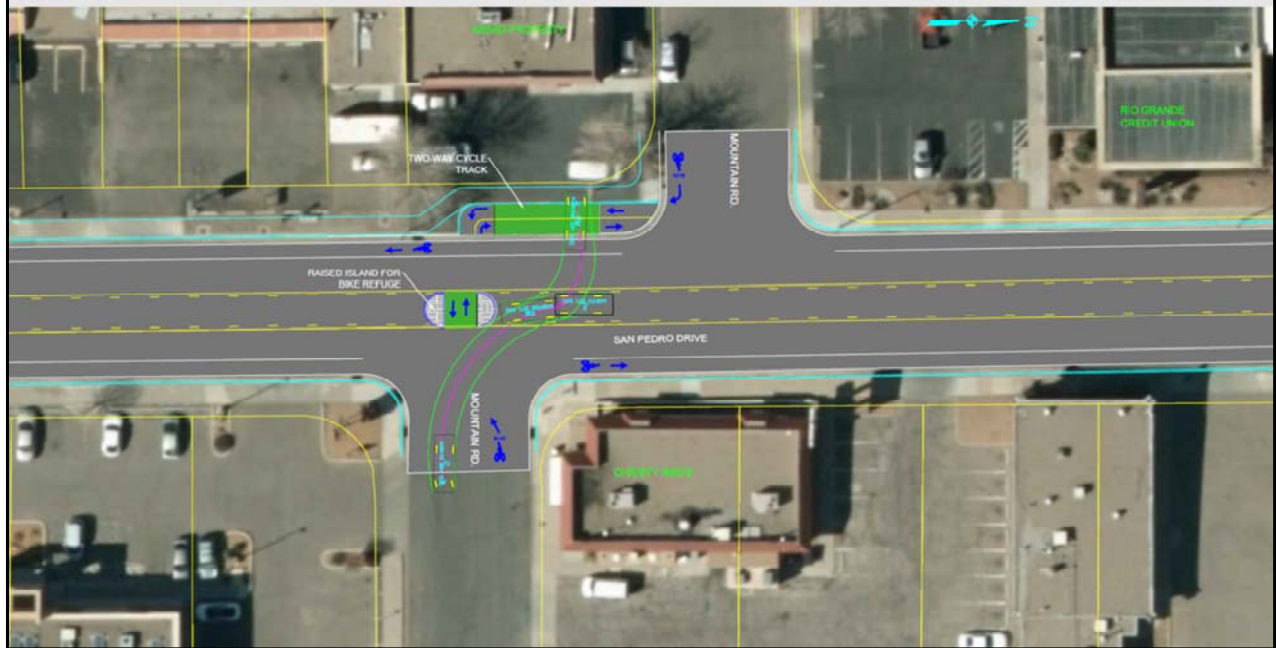
Option 1 Drawbacks

Motorists would have to watch for bicyclists crossing San Pedro at two separate locations rather than at just one.

The southern raised island would require northbound left-turn motorists into the Assad property driveway to get into the two-way left-turn lane immediately after passing the island.

The space available for both jughandles is limited and would only allow for one or two bicyclists to wait at a time.

OPTION 2 – TWO-WAY CYCLE TRACK ON WEST SIDE



Option 2 is not similar to any of the initial alternatives. It would take advantage of the excess right-of-way on the west side of San Pedro to construct a two-way cycle track along the frontage of the Assad property. Rather than riding in the San Pedro bike lanes between the two legs of Mountain Road, through bicyclists on the bike boulevard would use the two-way cycle track. The cycle track would be 11 feet wide for two-way operations, and would be separated from the outside lane of San Pedro with a one-foot wide sloped curb. The Assad property driveway would still cross the cycle track and where it does, the cycle track could have green colored pavement to designate the conflict area.

OPTION 2 – TWO-WAY CYCLE TRACK ON WEST SIDE



This is an example of what a raised cycle track could look like, although this is just a single-direction track.



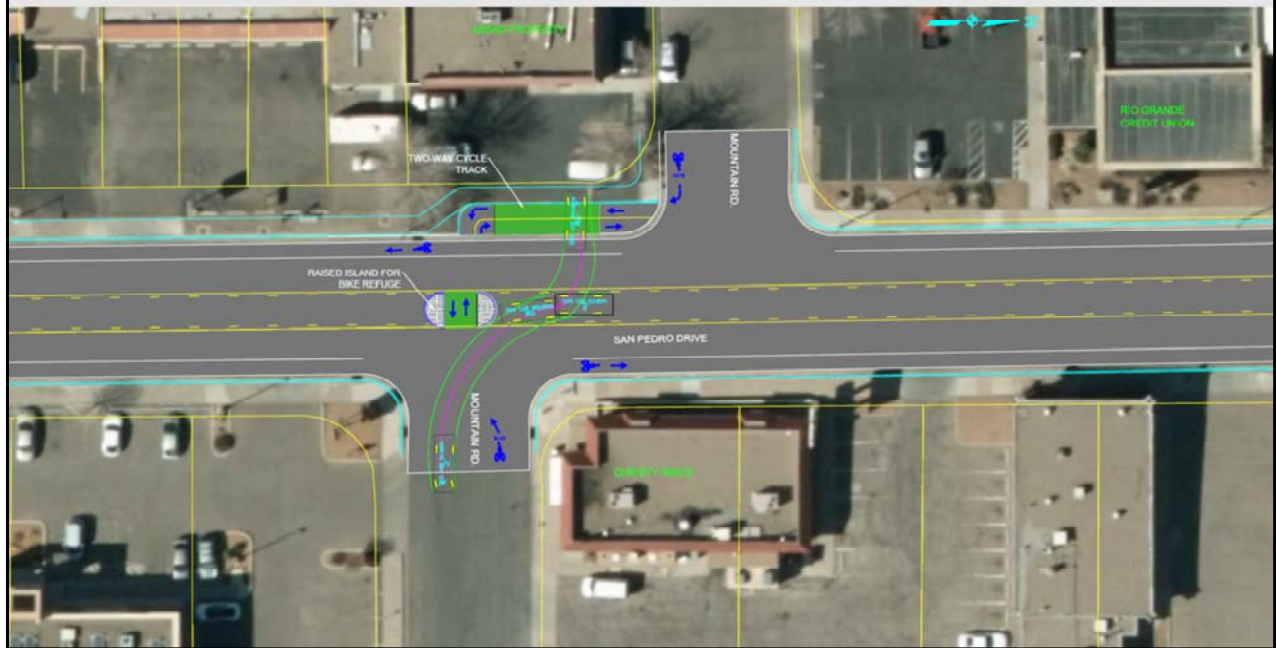
This is a rendering of a two-way cycle track from the NACTO guide.

OPTION 2 – TWO-WAY CYCLE TRACK ON WEST SIDE



Here is another rudimentary rendering of what the two-way cycle track could look like.

OPTION 2 – TWO-WAY CYCLE TRACK ON WEST SIDE



Option 2 Benefits

Mountain Road bike boulevard cyclists would all be crossing at one point along San Pedro.

Left turns can still be made into adjacent driveways and onto Mountain Road from San Pedro.

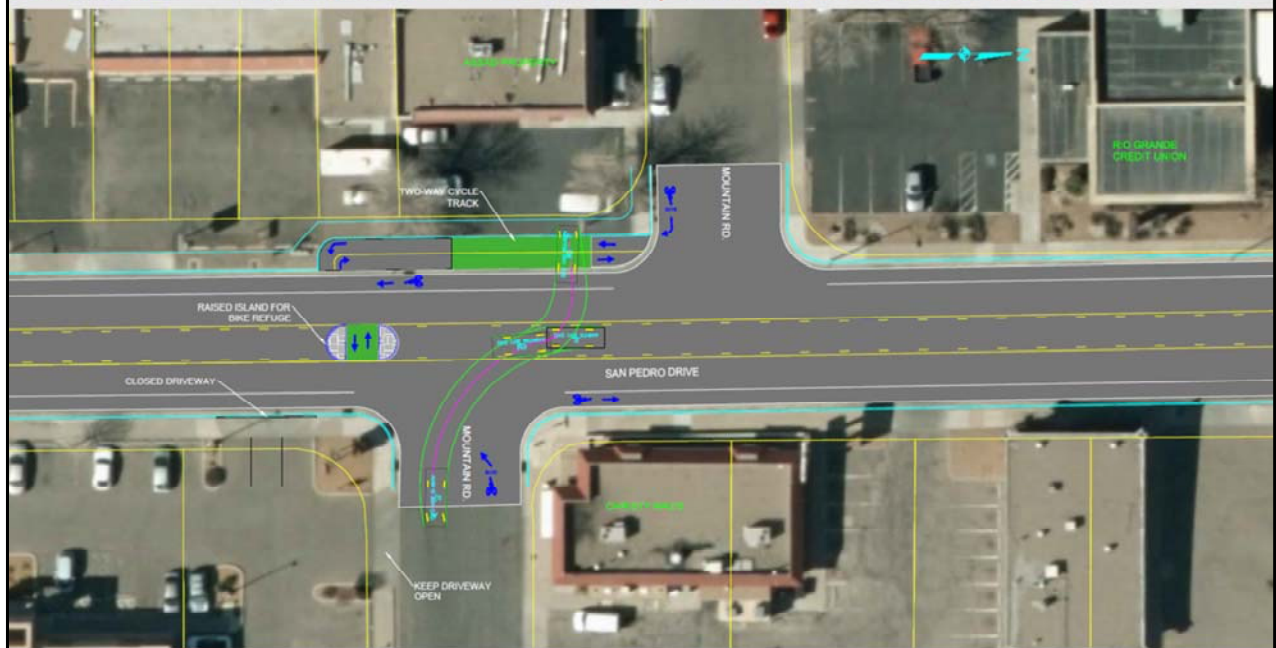
Option 2 Drawbacks

The Assad property driveway covers much of the cycle track, creating potential conflicts.

The raised island requires northbound left-turn motorists into the Assad property driveway to get into two-way left-turn lane immediately after passing the island. Northbound bicyclists on the cycle track would be crossing eastbound drivers on Mountain Road stopped at San Pedro from an unexpected direction.

While there appears to be excess right-of-way on the west side of San Pedro and south of Mountain Road, it is being used for parking and signs, which would have to be removed and/or relocated.

OPTION 3 – VARIATION ON OPTION 2, TWO-WAY CYCLE TRACK



Option 3 is a variation of Option 2, but would involve shifting the center median refuge farther south to make northbound left-turn access into the Assad property easier. As a result of the median shift, the north driveway to the Autry Plaza complex would have to be closed; however, there is already a driveway at the north end of that property that accesses Mountain Road.

Option 3 Benefits

Mountain Road bike boulevard cyclists would all be crossing at one point along San Pedro.

Left turns can still be made into adjacent driveways and onto Mountain Road from San Pedro. Northbound left turns into the Assad property would have more space to decelerate and wait to turn in the median than they would under Option 2.

Option 3 Drawbacks

Westbound bicyclists on the bike boulevard would have to cross San Pedro diagonally backward to reach the center median refuge.

The Assad property driveway covers much of the cycle track, creating potential conflicts.

The raised island requires the northern Autry Plaza complex driveway to be closed

(however, there is already a driveway on the north end of the property that takes access to Mountain Road).

Northbound bicyclists on the cycle track would be crossing eastbound drivers on Mountain Road stopped at San Pedro from an unexpected direction.

While there appears to be excess right-of-way on the west side of San Pedro and south of Mountain Road, it is being used for parking and signs, which would have to be removed and/or relocated.

CONFLICT DIAGRAM – EXISTING CONDITIONS



NOTE: FIGURE SHOWS ONLY CONFLICTS BETWEEN THROUGH BICYCLISTS ON THE BIKE BOULEVARD AND MOTOR VEHICLES ON SAN PEDRO DRIVE.

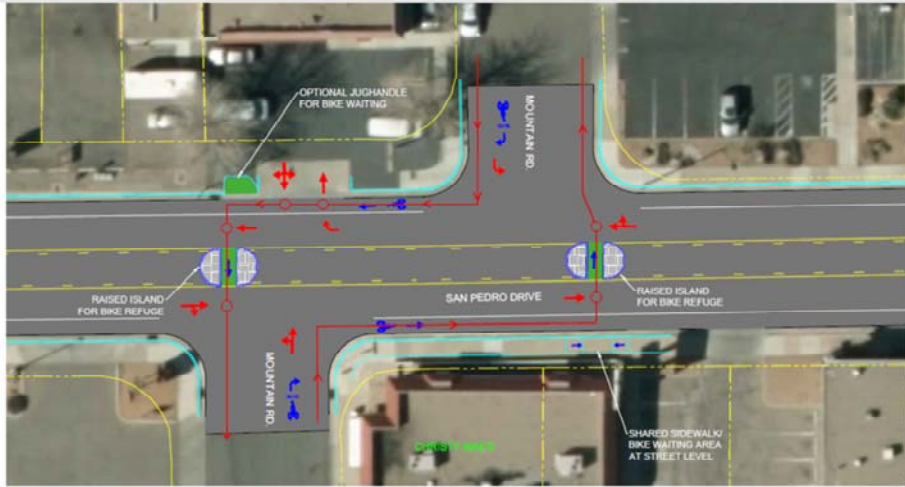
KEY-CONFLICT TYPE

-  DIVERGING
-  MERGING
-  CROSSING
-  CONFLICTING MOTOR VEHICLE MOVEMENT



CITY OF ALBUQUERQUE
 MOUNTAIN ROAD
 BIKE BOULEVARD CROSSING
 AT SAN PEDRO DRIVE
 CONFLICT DIAGRAM
 EXISTING CONDITIONS

CONFLICT DIAGRAM – OPTION 1, DIRECTIONAL MEDIAN REFUGE ISLANDS



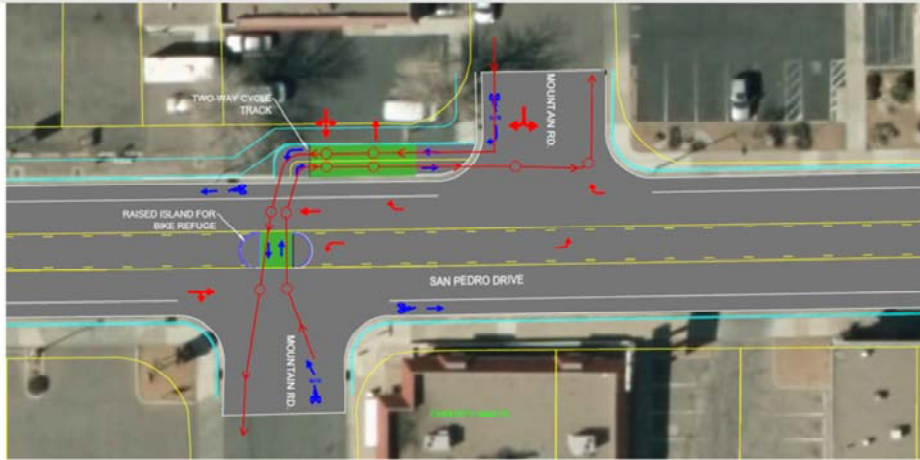
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CITY OF ALBUQUERQUE
 MOUNTAIN ROAD
 BIKE BOULEVARD CROSSING
 AT SAN PEDRO DRIVE
 CONFLICT DIAGRAM
 OPTION 1

CONFLICT DIAGRAM – OPTION 2, TWO-WAY CYCLE TRACK



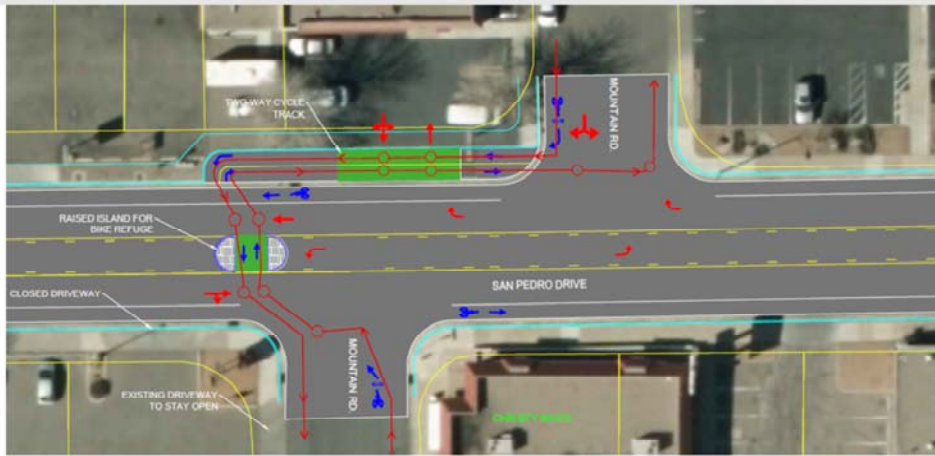
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 - ⊕ CONFLICTING MOTOR VEHICLE MOVEMENT

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 CONFLICT DIAGRAM
 OPTION 2

CONFLICT DIAGRAM – OPTION 3, TWO-WAY CYCLE TRACK



NOTE: FIGURE SHOWS ONLY CONFLICTS BETWEEN THROUGH BICYCLISTS ON THE BIKE BOULEVARD AND MOTOR VEHICLES ON SAN PEDRO DRIVE.

- KEY-CONFLICT TYPE**
- DIVERGING
 - MERGING
 - CROSSING
 - ⊕ CONFLICTING MOTOR VEHICLE MOVEMENT

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 CONFLICT DIAGRAM
 OPTION 3