

A photograph of a street intersection. In the foreground, a white and black striped crosswalk crosses the road. A blue car is stopped at the intersection. To the right, a red octagonal stop sign is visible. In the background, there are trees, a white van, and a building with a large green tree in front of it. The sky is blue with some clouds.

Mecartney Road & Island Drive Improvement Project

Bay Farm PTSA
March 2, 2022

Meeting Purpose

- Share project overview, recommendations, next steps
- Hear from you on:
 - Project goals
 - Recommendations



Agenda

1. Introduction & Background
2. Analysis & Recommendations
3. Next Steps
4. Q&A

Introduction

Evaluation of Alternatives
at Mecartney Road &
Island Drive on Bay Farm
Island

Project Team:

- *City of Alameda*: Gail Payne & Robert Vance
- *Kittelson & Associates, Inc.*: Mike Alston, RSP, EIT; Laurence Lewis, AICP; Hermanus Steyn, PE

Engagement and Outreach Update:

- Letter to properties within 1,600 feet of intersection
- Engagement via social media, community advisory, survey, virtual workshop, and key stakeholders
- Project webpage:
www.alamedaca.gov/MecartneyIsland

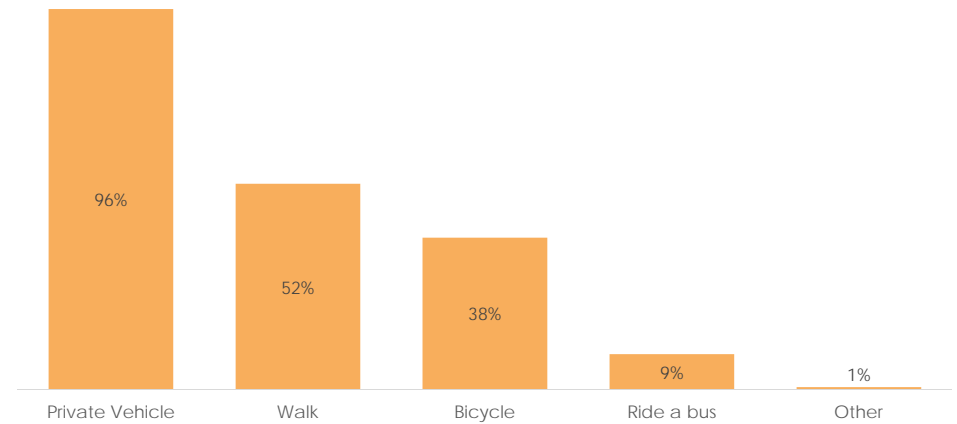


Community Feedback

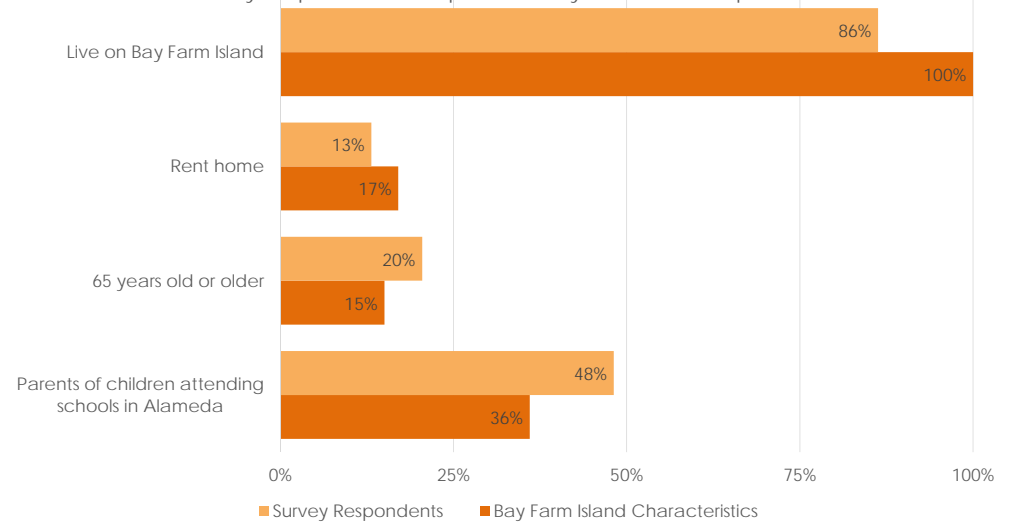
Survey Respondents

- 361 respondents
- Diversity of travel modes represented
- Respondents:
 - Majority Bay Farm Island residents
 - Higher aging population
 - Lower renter population
 - About half have students in Alameda schools

How do you Typically Use Mecartney/Island?



Survey Respondents compared to Bay Farm Island Population

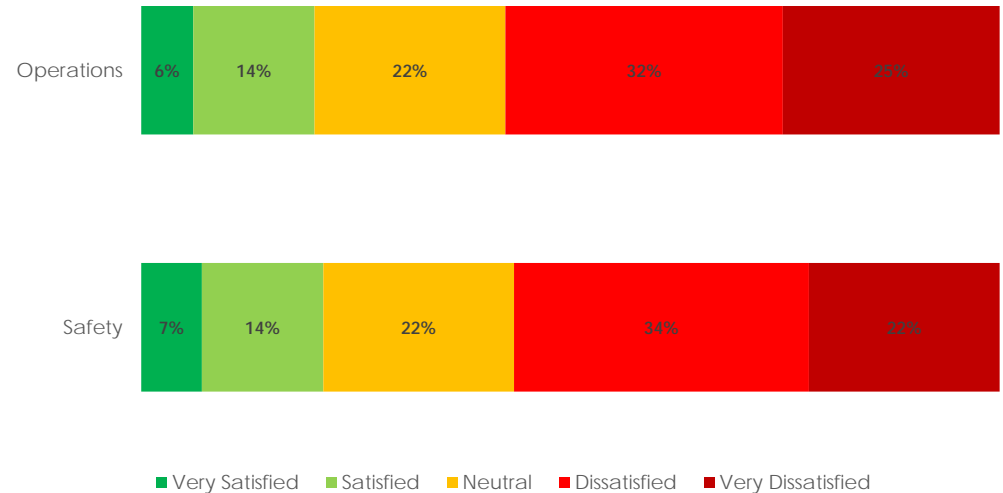


Community Feedback

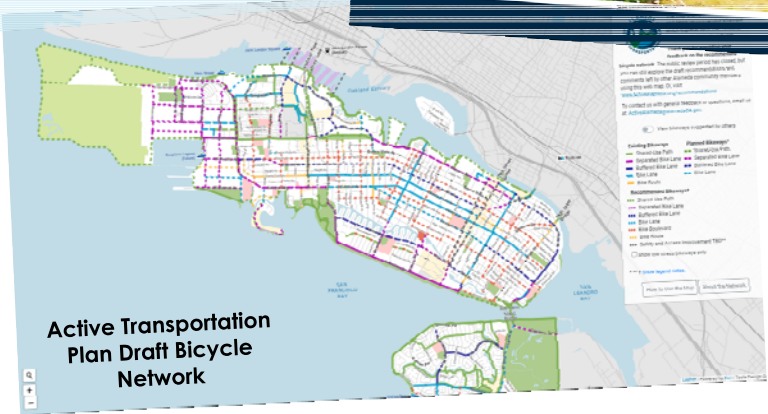
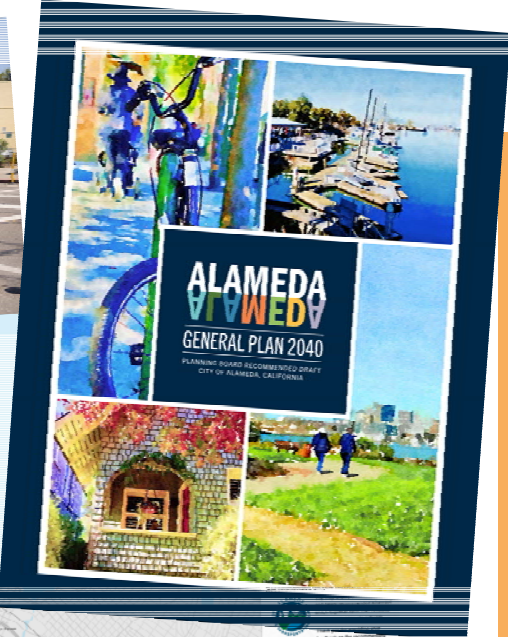
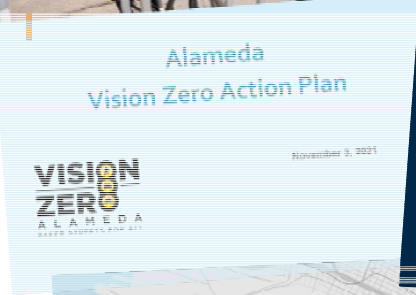
Satisfaction with Mecartney/Island

- Majority of respondents are *dissatisfied* or *very dissatisfied* with operations and safety
- Many comments received regarding:
 - Safety
 - Roundabouts and signals
 - Pedestrian safety

Responses to "How satisfied are you with Mecartney/Island?"



Project Goals and Intended Outcomes



- Evaluate alternatives
- Intended project outcomes:
 - Improve safety
 - Be consistent with the Draft *2040 General Plan*:
 - Prioritize Safety
 - Prefer roundabouts and traffic circles
 - Provide adequate mobility for all modes
 - Be compatible with existing plans:
 - Draft *2040 General Plan* land use
 - Draft *Active Transportation Plan*
 - Vision Zero* Action Plan
 - Provide landscaping and flood reduction opportunities



Safe Routes to School
Earhart (City/EBMUD)



Maitland Drive
Restriping
(City)



Doolittle Drive/Otis
Drive Resurfacing
Caltrans -- 2024



Doolittle Drive
Adaptation
Multi-jurisdictional



Veterans Court/Lagoon
Outfall Adaptation
(City)

Other Bay Farm Island Projects

Other CIP Projects



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1. Introduction & Background
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Evaluation Components

1. Existing Intersection & Setting

- Setting and Activity
- Safety
- Operations

2. Concept Development

- Concept Development Approach
- Preliminary concept Details

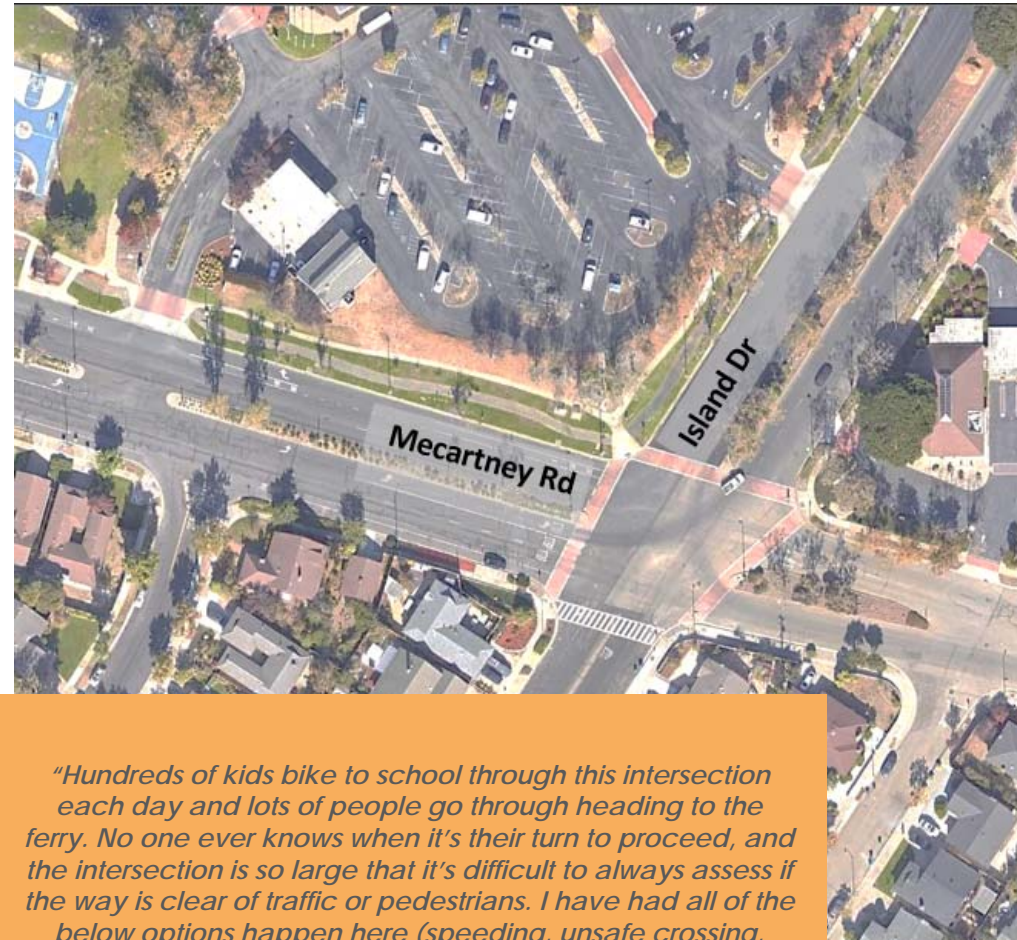
3. Compare Performance

Evaluation of:

- Safety
- Mobility
- Transit Access and Mobility

Existing Intersection & Setting

- Large all-way stop intersection:
 - Multilane approaches (4 southbound lanes)
 - Long crossing distances
- Mix of commercial and residential land uses at and near intersection
- High level of bicycle riding and walking (school travel)
- Pedestrian and Bicycle facilities
 - Class I path and Class II bike lanes on north side of Mecartney Road
- Draft Active Transportation Plan recommends bike lanes on both roads



"Hundreds of kids bike to school through this intersection each day and lots of people go through heading to the ferry. No one ever knows when it's their turn to proceed, and the intersection is so large that it's difficult to always assess if the way is clear of traffic or pedestrians. I have had all of the below options happen here (speeding, unsafe crossing, near miss while walking driving and biking)."

Source: See Click Fix "unsafe crossing" submittal on 9/13/2021

Intersection Concepts



Roundabout



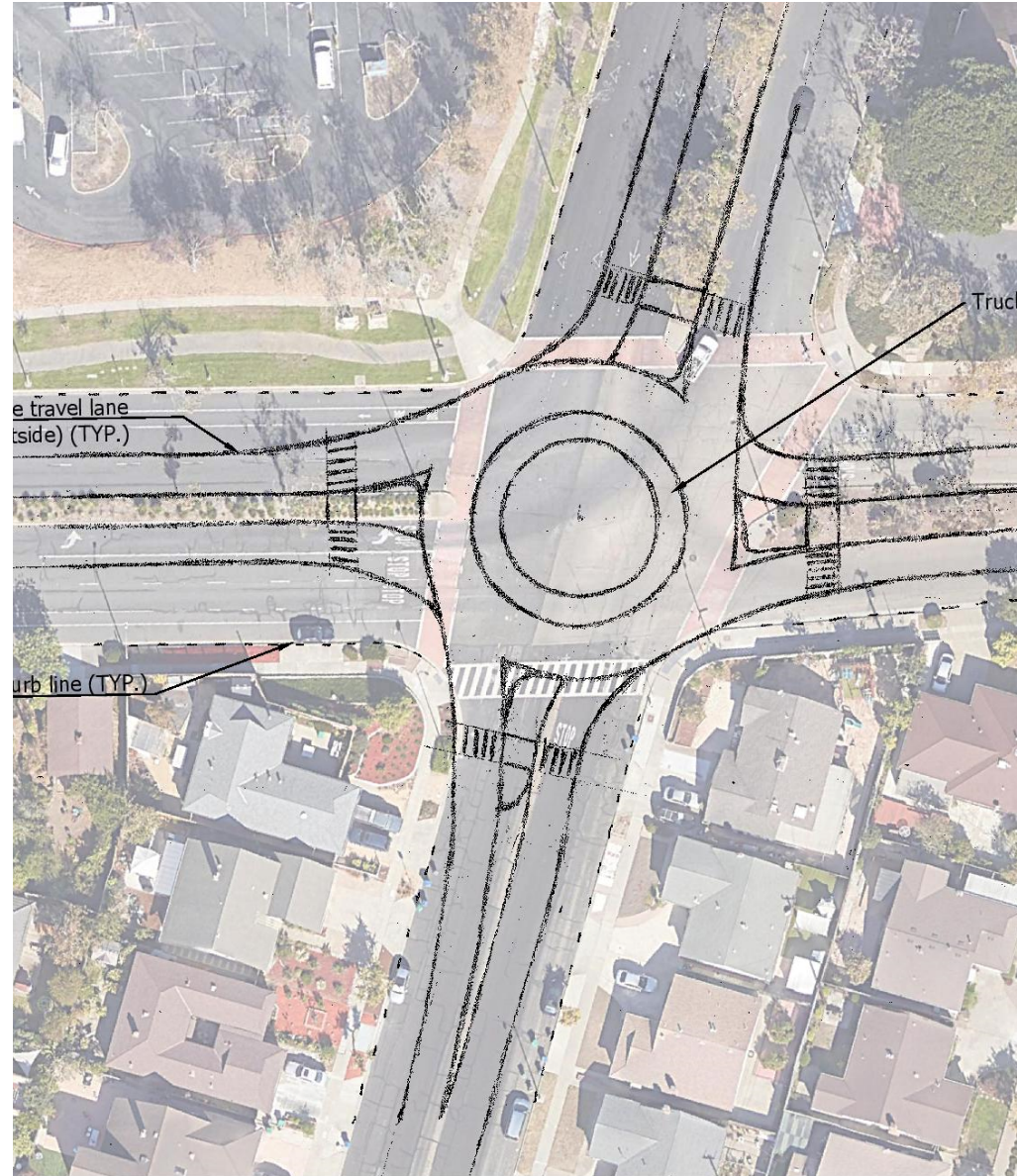
Signal



Reduced Footprint All-Way Stop

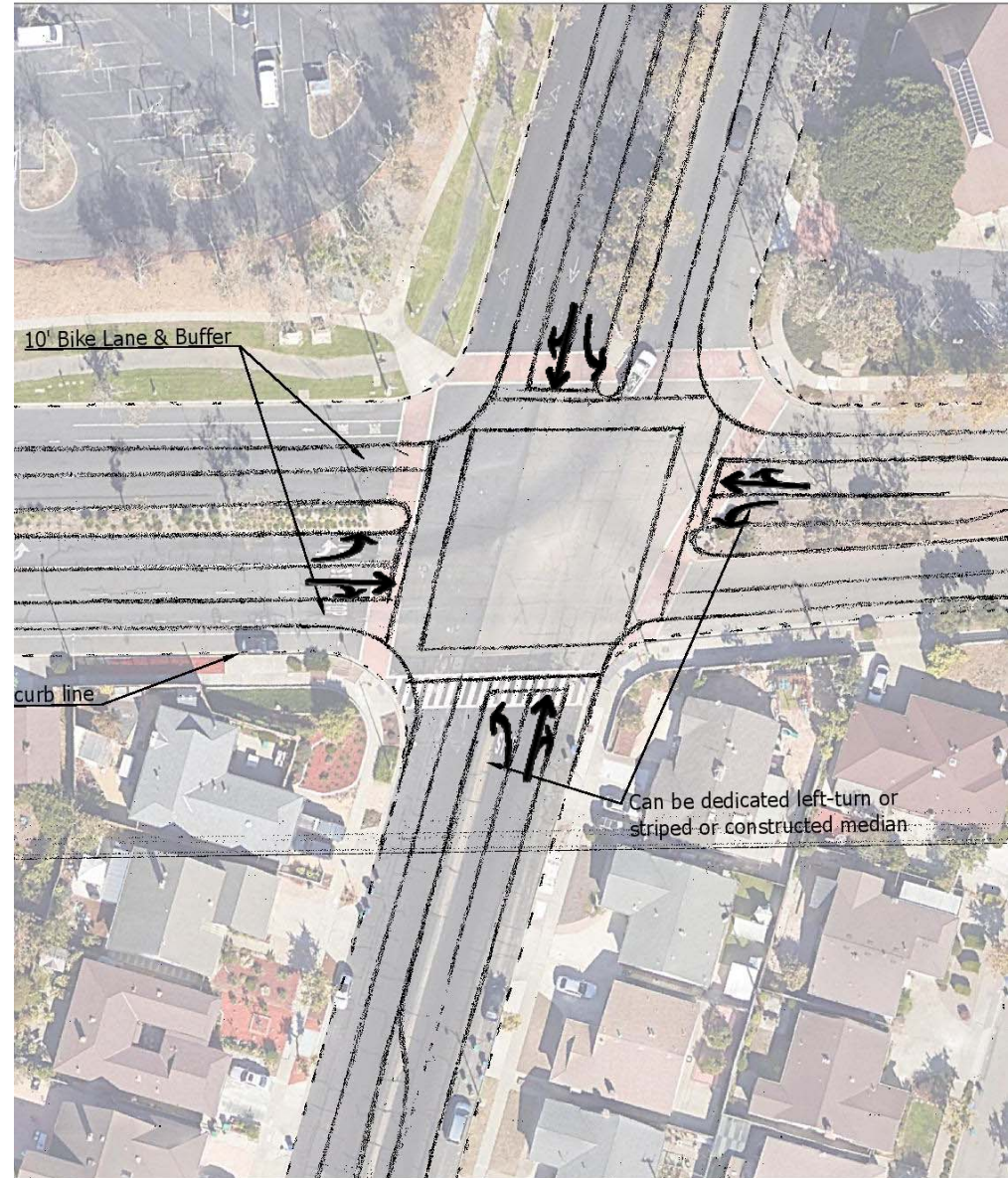
Roundabout

- Single lane design
- Excess space also provides room for diagonal ramps to and from Class II bike lanes (10 ft lane and buffer)
- No changes to existing commercial or residential access driveways would be required
- Retains existing bus stops at intersection
- Opportunity for gateway feature on center island
- Detailed development would include bicycle facilities and large vehicle accommodation



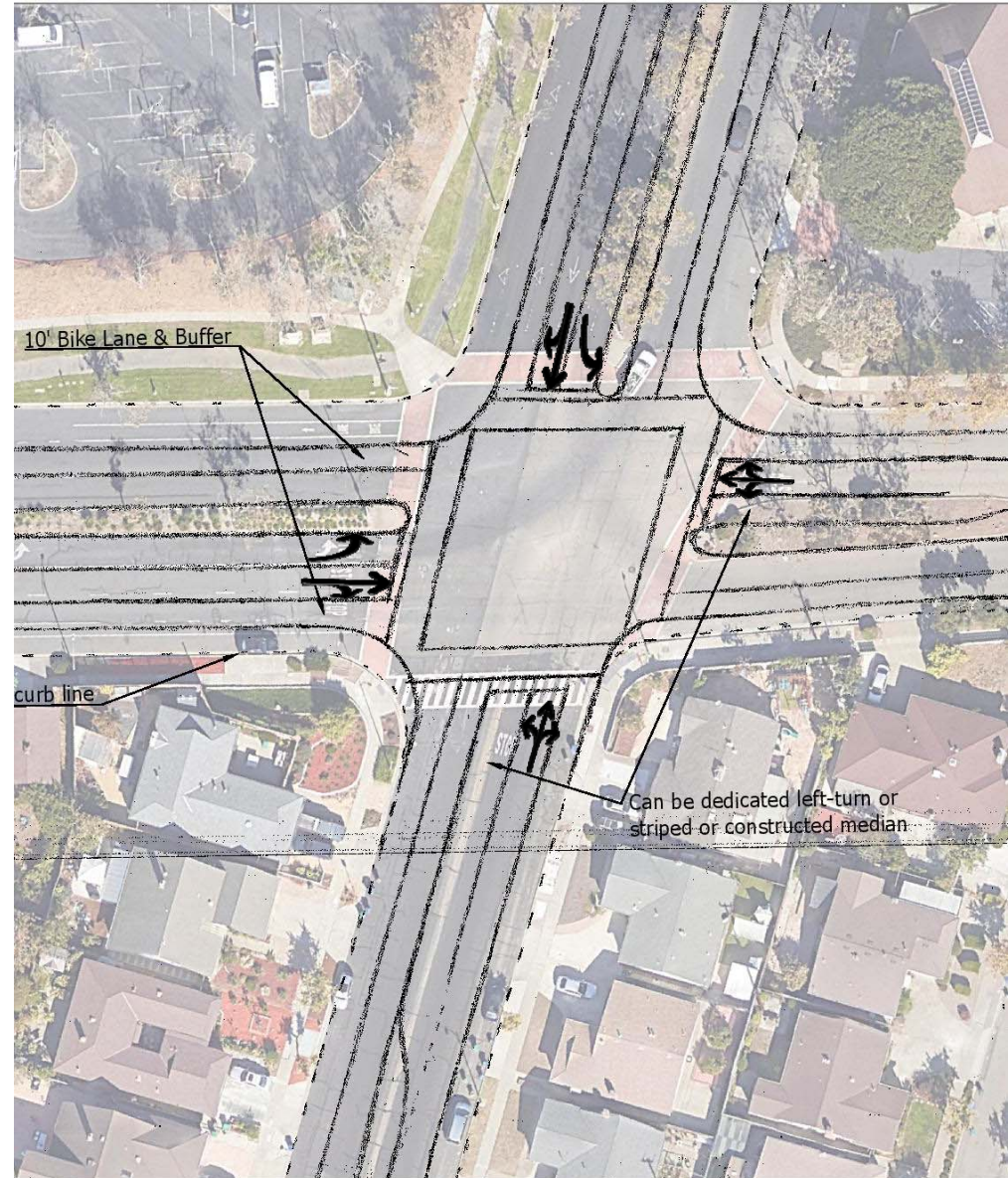
Signal

- Smaller footprint than existing intersection
- Excess existing space also provides room landscaping or other features
- No changes to existing commercial or residential access driveways would be required.
- 10-foot-wide bicycle lane and buffer strip is provided on all approaches
- Retain existing bus stops



Reduced Footprint All-Way Stop

- *Same basic form for both Signal & AWSC*
- the WB and NB left-turn lanes could instead be modified
- No changes to existing commercial or residential access driveways would be required.
- 10-foot-wide bicycle lane and buffer strip is provided on all approaches
- Retain existing bus stops
- Opportunity for gateway feature on center island





Assessment



Safety



Motor Vehicle Operations



Pedestrian Quality of Service



Bicyclist Comfort



Truck/Design Vehicle Considerations



Transit Access and Mobility

Overall Evaluation

The roundabout provides an advantage compared to evaluated alternatives in all criteria except for two.

Evaluation Criteria	Roundabout	Signal	Reduced Footprint All-way Stop Control
Safety (Motor Vehicles)	Green	Grey	Grey
Safety (Pedestrians)	Green	Grey	Grey
Safety (Bicyclists)	Green	Grey	Grey
Motor Vehicle Operations	Green	Grey	Grey
Pedestrian Comfort and Quality of Service	Green	Grey	Grey
Bicyclist Comfort and Quality of Service	Green	Grey	Grey
Truck/Design Vehicle Considerations	Grey	Grey	Grey
Transit Access	Grey	Grey	Grey
Transit Mobility	Green	Grey	Grey

Roundabout Safety Performance

- 90-100% reduction in fatalities
- 75% reduction in injuries
- 35% reduction in total crashes
- Very little reported pedestrian and bicycle crash experience

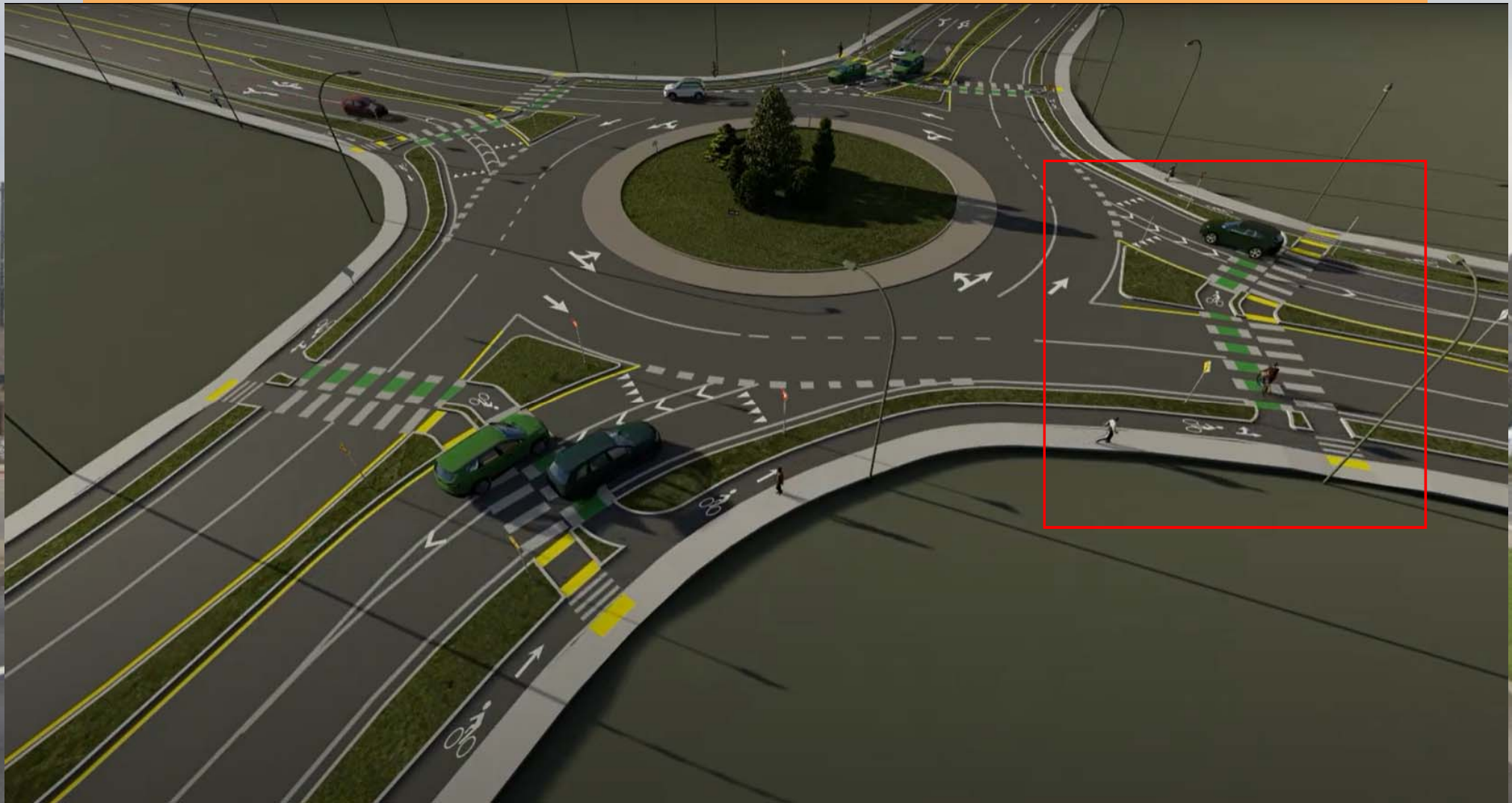


Roundabouts and Bicyclists

- **Beneficial design features:**
 - Slow vehicles to speeds compatible with bicycles
- **Considerations:**
 - Bicyclists' option of traveling as vehicle or pedestrian
 - Serve different users based on their level of comfort
 - Design manuals do not allow bicycle lanes within circulatory roadway



Bikes and Pedestrians at Roundabouts



Roundabouts and Pedestrians

- **Beneficial design features:**
 - Slow vehicle speeds
 - Two-stage crossing
- **Considerations:**
 - Crosswalk alignment
 - Width of splitter island
 - Space for exiting vehicles to yield to pedestrians

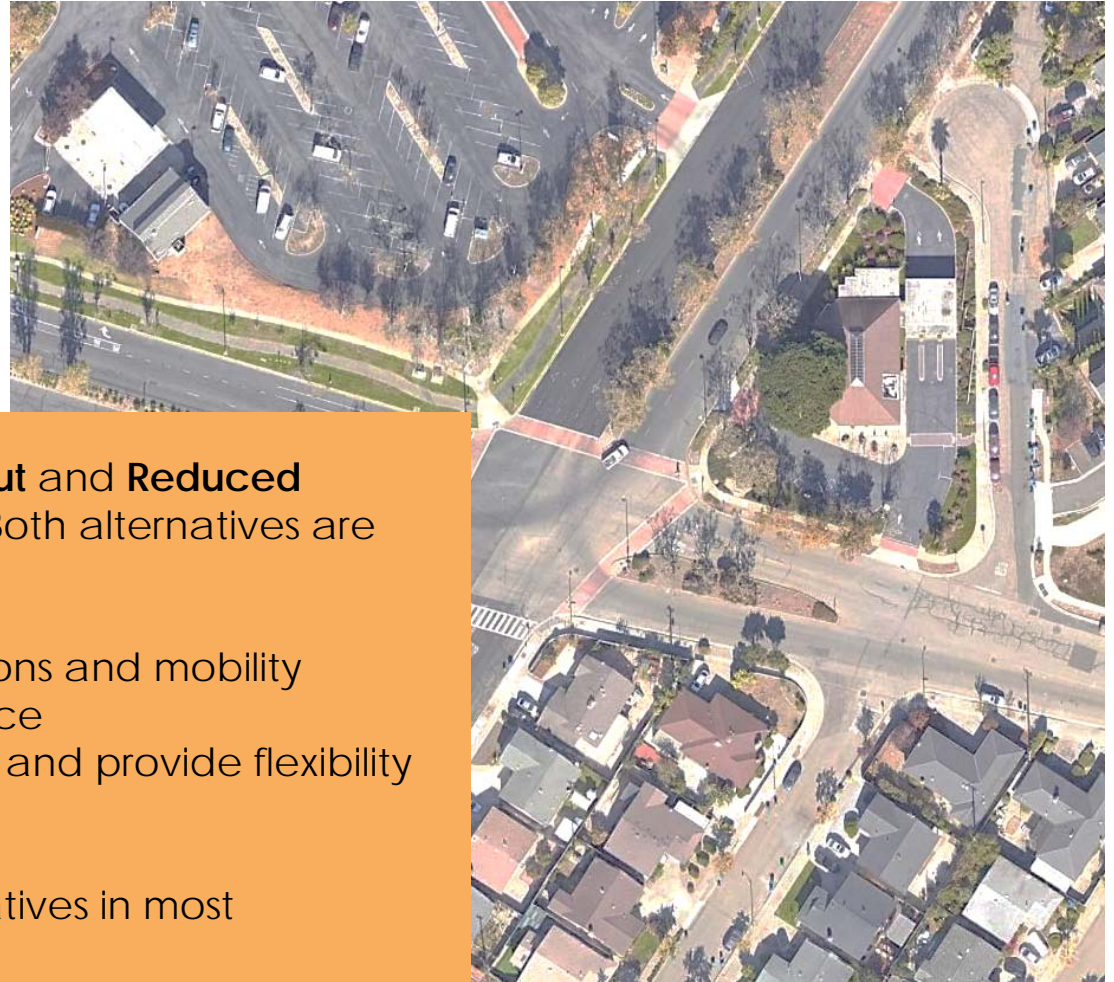


Summary

Recommend advancing **Roundabout** and **Reduced Footprint All-Way Stop** alternatives. Both alternatives are found to:

- Provide adequate vehicle operations and mobility
- Improve safety and quality of service
- Reduce the size of the intersection and provide flexibility in the use of the additional space

The roundabout outperforms alternatives in most evaluation criteria.



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Next Steps

Stay up to date via the [project website](#).¹

We will request approval of concepts at:

- March 23: Transportation Commission Meeting
- May 3: City Council Meeting

March - May 2022

Hearings

Transportation Commission and City Council Hearings

Project Design

Develop preferred concept

Late 2022 - 23

2023-24

Construction

Begin construction on preferred alternative

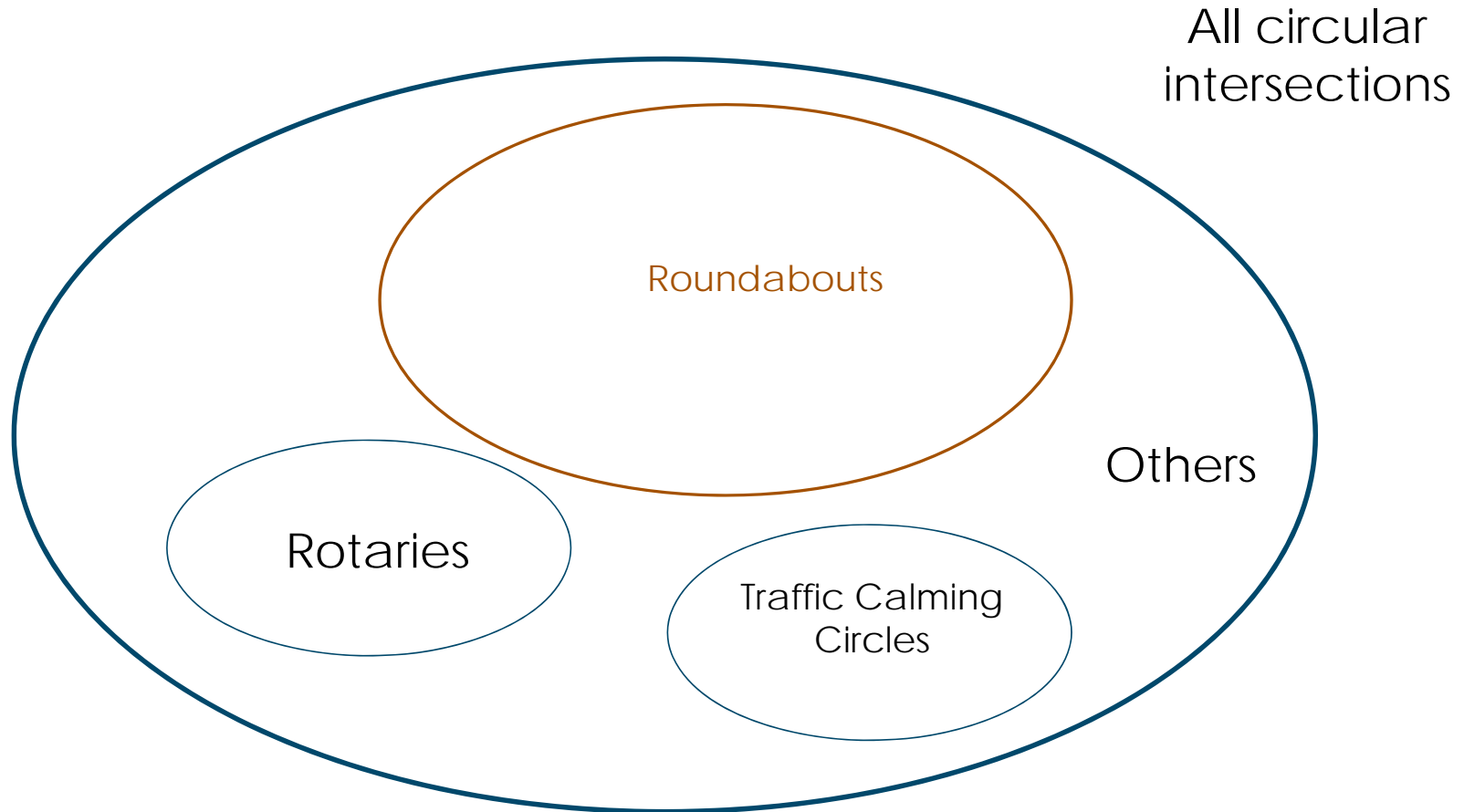
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Questions & Input

- What project goals and intended outcomes are most important to you?
- Is there anything you think we may have missed in our evaluation?
- What do you want us to consider in alternative selection and development?

Types of Circular Intersections



Types of Circular Intersections



Roundabout

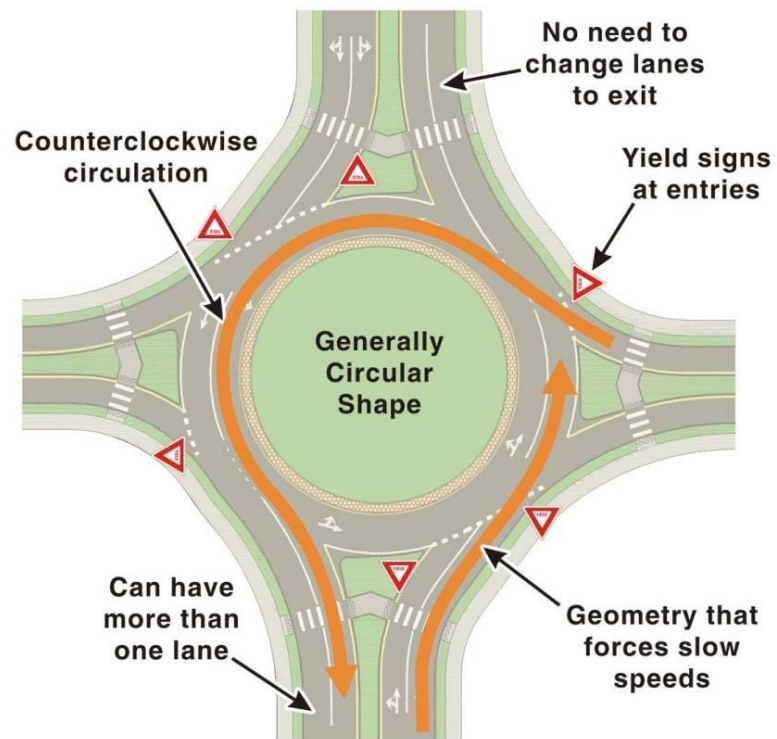
Yield-controlled to enter and includes splitter islands on approaches.



Traffic Calming Circle

May be stop-controlled or have no control (as shown). Smaller circle and no splitter islands on approaches.


What is a roundabout?



NCHRP Report 672, Exhibit 1-1

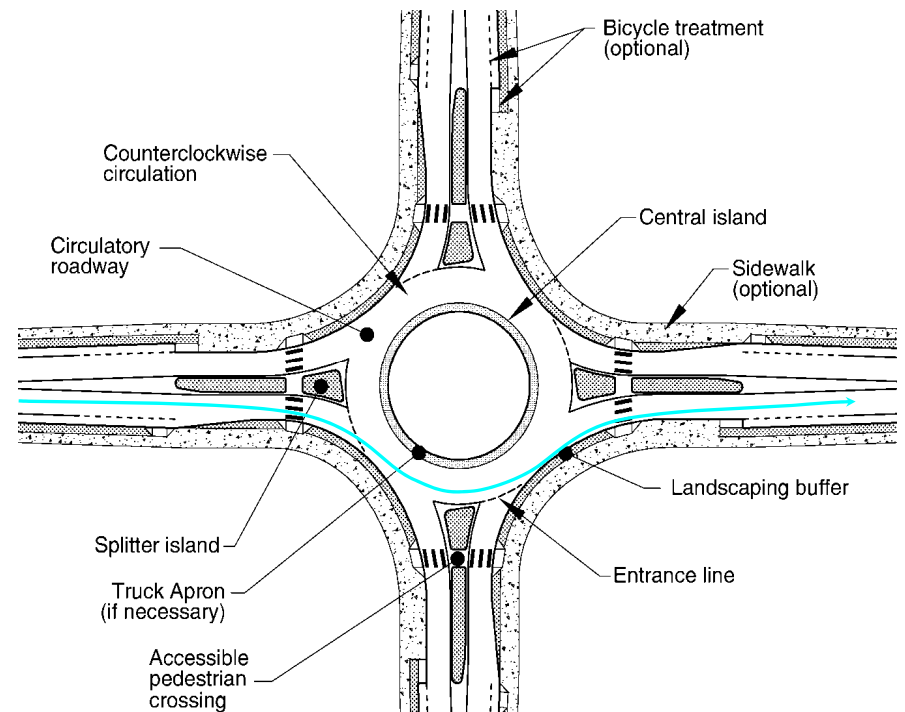


Why build roundabouts?

- 
- Roundabouts are being considered as viable or even preferred alternatives due to potential benefits:
 - Safety performance
 - Lower delay
 - Environmental benefits (emissions, fuel savings)
 - Access management
 - Operations and maintenance costs
 - Aesthetics

Vehicle Speeds: Reduced

- Geometry controls entry and circulating speeds roundabouts
 - Entry speeds at or less than:
 - 25 mph for single-lane
 - 30 mph for two-lane
 - Circulating speeds:
10 to 12mph
- Slow intersection speeds =
 - Increased time for driver reaction
 - Decreased chance for injury or fatality



Aesthetic and Green Infrastructure Opportunities



Where to Consider Roundabouts?

Advantageous	Potentially Challenging
<ul style="list-style-type: none">• Identified opportunity to improve safety• Long delays (Two-way or all-way stop capacity exceeded)• Closely spaced intersections• Aesthetic/gateway treatment desired• Near Schools• Unusual geometry	<ul style="list-style-type: none">• Physical or geometric constraints• Frequent large vehicles: Routes or land uses generating oversized loads• Nearby Preemption needs (e.g., nearby rail crossing)• Location along a coordinated signal network

Roundabouts and Pedestrians

- Benefits:
 - Slow vehicle speeds
 - Two-stage crossing
- Considerations:
 - Crosswalk alignment
 - Width of splitter island
 - Space for exiting vehicles to yield to pedestrians



*Storage space
for exiting
vehicles*



Roundabouts and Accessibility

Considerations for Visually Impaired:

1. Well defined walkway edges
2. Separated walkways
3. Aligned detectable warnings
4. Perpendicular crossings
5. Contrasting crosswalk markings

Performance assessment detailed in NCHRP Report 834

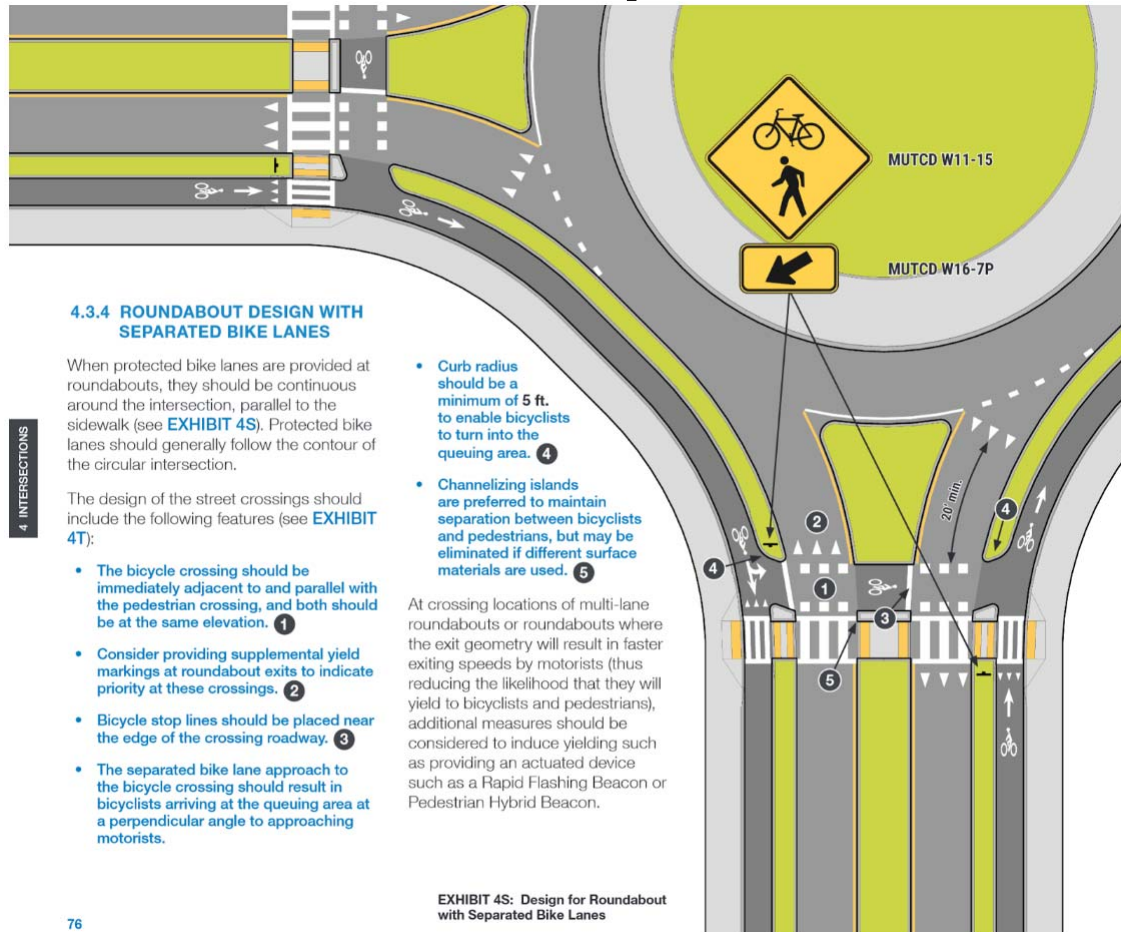


Roundabouts and Bicyclists

- Roundabouts slow vehicles to speeds compatible with bicycles
- Give bicyclists option of traveling as vehicle or pedestrian
 - Serve different users based on their level of comfort
- MUTCD does not allow bicycle lanes within circulatory roadway
- Guidance for off-street paths is emerging



Separate Bike/Ped Options



4 INTERSECTIONS

4.3.4 ROUNDABOUT DESIGN WITH SEPARATED BIKE LANES

When protected bike lanes are provided at roundabouts, they should be continuous around the intersection, parallel to the sidewalk (see EXHIBIT 4S). Protected bike lanes should generally follow the contour of the circular intersection.

The design of the street crossings should include the following features (see EXHIBIT 4T):

- The bicycle crossing should be immediately adjacent to and parallel with the pedestrian crossing, and both should be at the same elevation. **1**
- Consider providing supplemental yield markings at roundabout exits to indicate priority at these crossings. **2**
- Bicycle stop lines should be placed near the edge of the crossing roadway. **3**
- The separated bike lane approach to the bicycle crossing should result in bicyclists arriving at the queuing area at a perpendicular angle to approaching motorists.

- Curb radius should be a minimum of 5 ft. to enable bicyclists to turn into the queuing area. **4**
- Channelizing islands are preferred to maintain separation between bicyclists and pedestrians, but may be eliminated if different surface materials are used. **5**

At crossing locations of multi-lane roundabouts or roundabouts where the exit geometry will result in faster exiting speeds by motorists (thus reducing the likelihood that they will yield to bicyclists and pedestrians), additional measures should be considered to induce yielding such as providing an actuated device such as a Rapid Flashing Beacon or Pedestrian Hybrid Beacon.

EXHIBIT 4S: Design for Roundabout with Separated Bike Lanes

Roundabouts and Large Vehicles

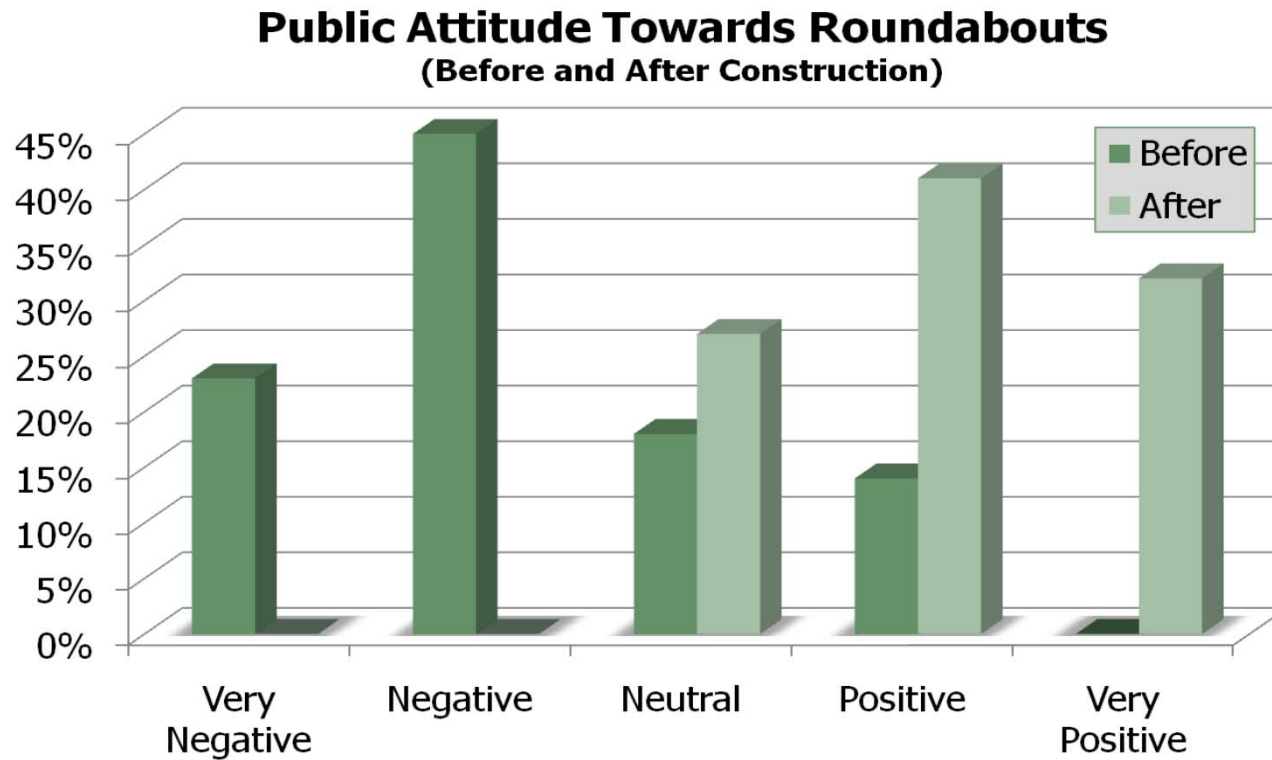
- “Design” versus “accommodate” larger vehicles
- Accommodations include:
 - Truck aprons
 - Placement of landscaping
 - Reinforced curbs



Cost Considerations

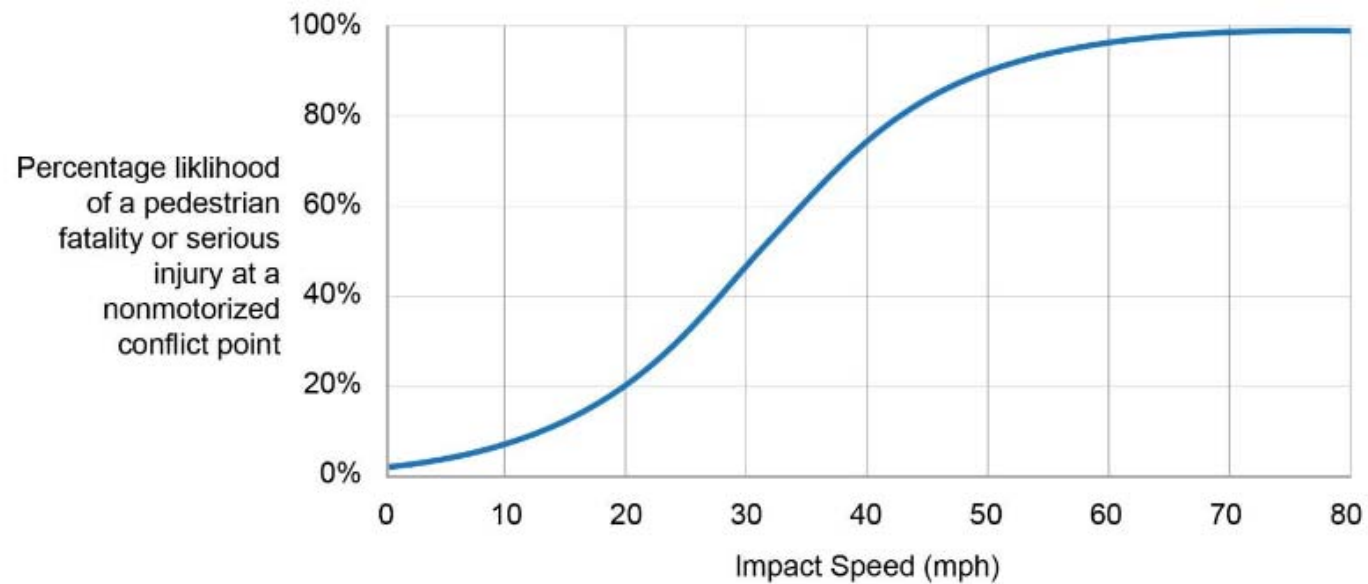
- Similar initial costs to a signal in some contexts
 - New intersection
 - When both require rebuilding an existing intersection
- Higher initial costs (i.e., construction) when replacing a signal with a roundabout
- Lower ongoing maintenance and operation costs relative to a signal
- Expected reduction in crashes can factor into life cycle costs

Why an introduction to roundabouts?



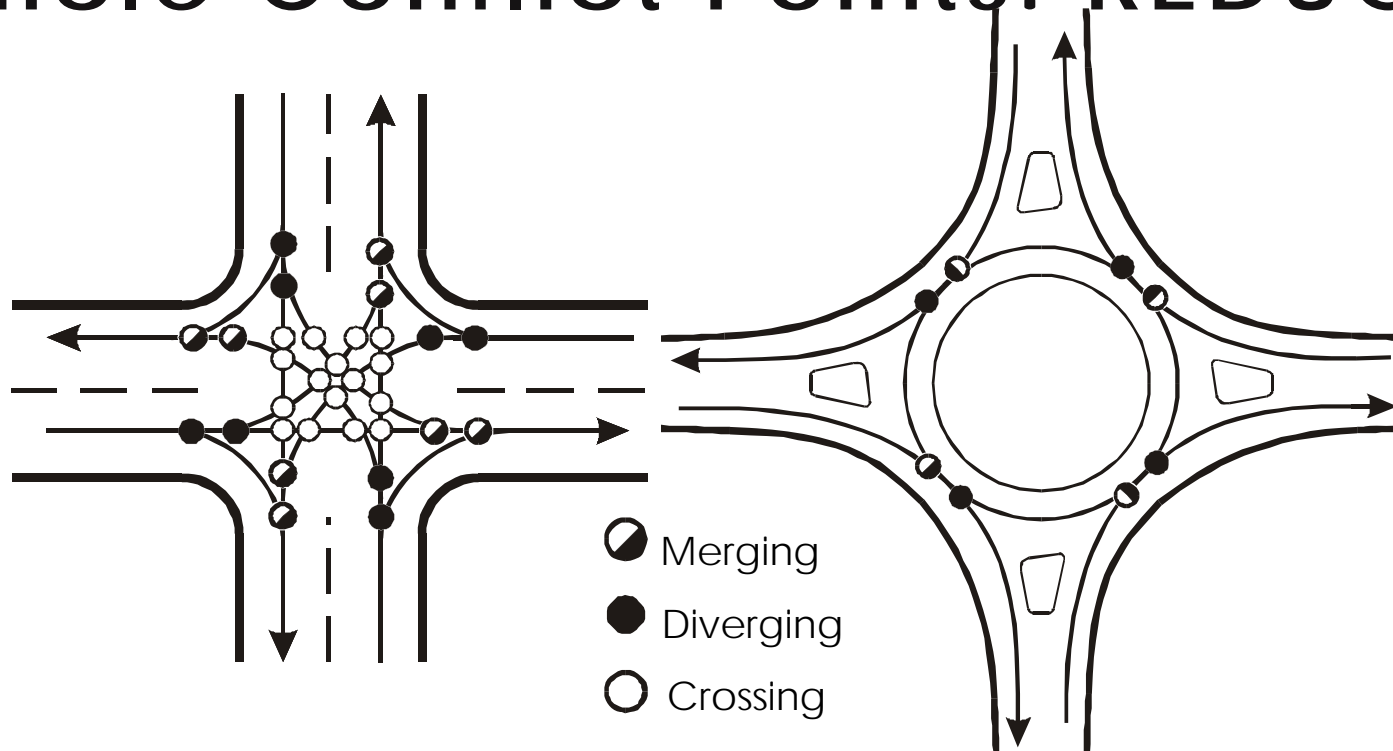
Lower speed is safer for pedestrians

Chance of pedestrian death if hit by a motor vehicle



Adapted from Porter, 2021

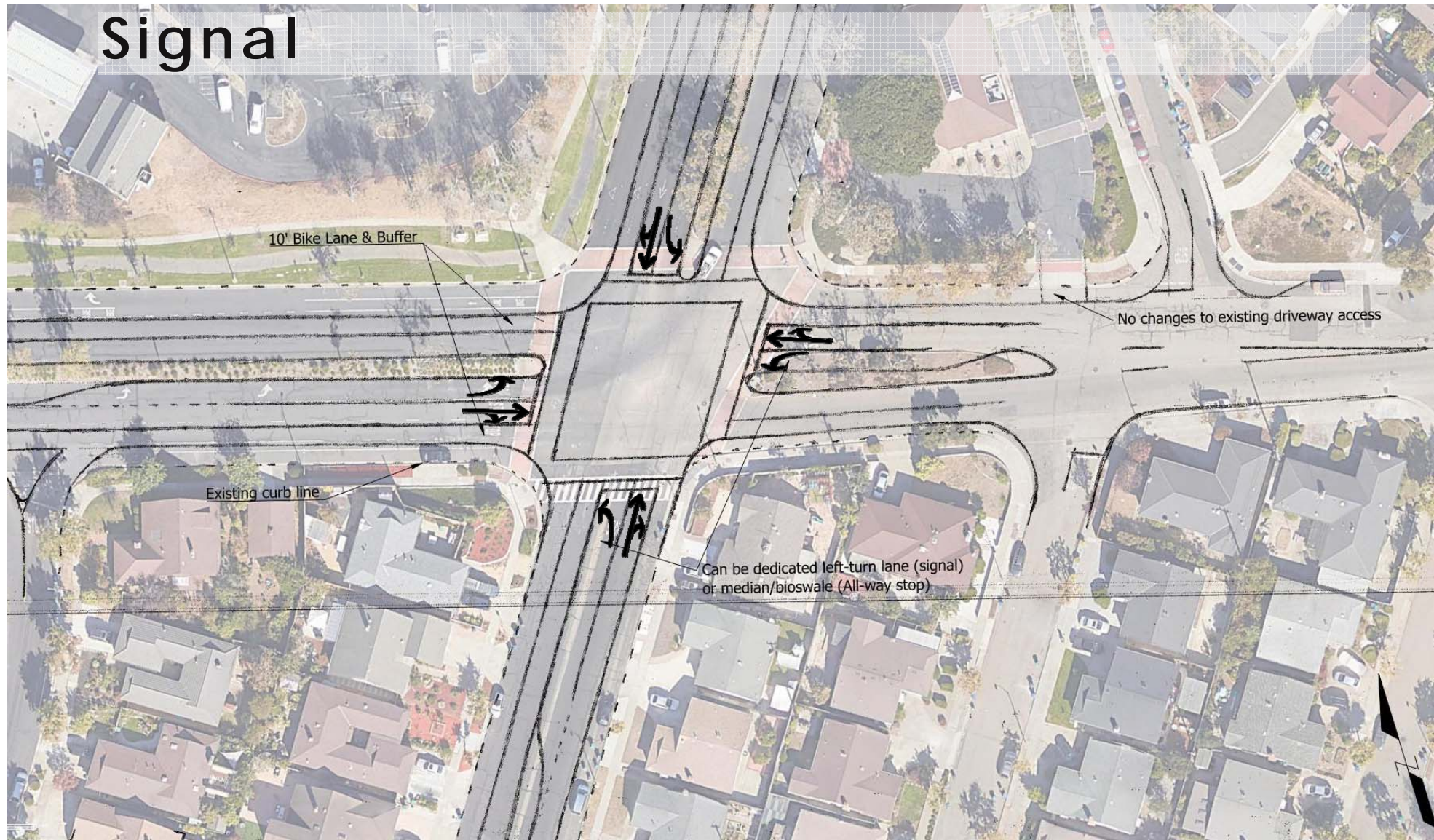
Vehicle Conflict Points: REDUCED



Crossing conflicts eliminated at roundabout

NCHRP Report 672, Exhibit 5-2

Signal



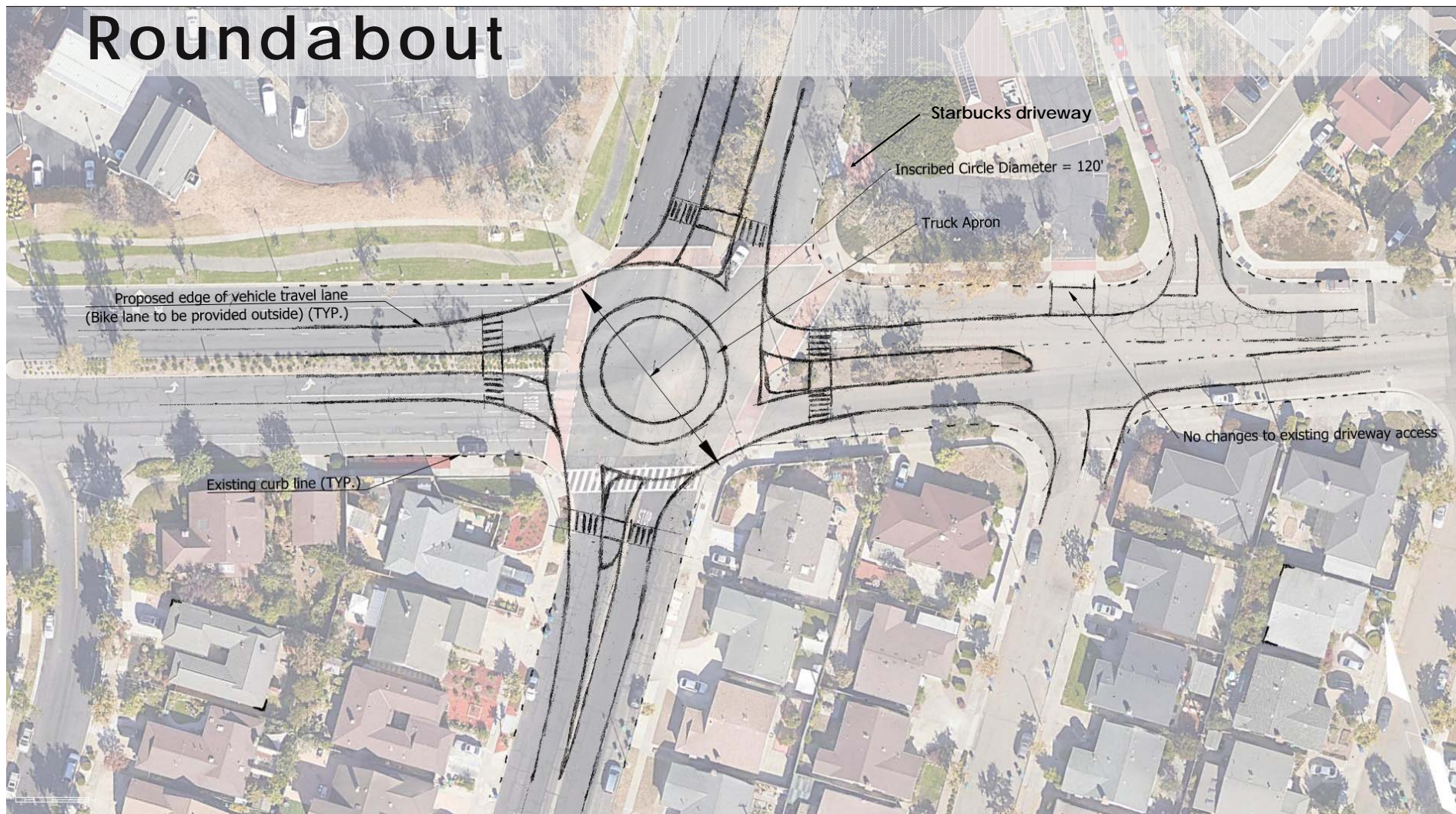
10' Bike Lane & Buffer

No changes to existing driveway access

Existing curb line

Can be dedicated left-turn lane (signal)
or median/bioswale (All-way stop)

Roundabout



Reduced Footprint All-Way Stop

