Mecartney Road & Island Drive Improvement Project

Virtual Community Workshop

December 1, 2021

Agenda

1. **Introduction & Background**
2. Meeting Purpose
3. Review Technical Findings
4. Next Steps
5. Community Input

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; Brian Ray; Hermanus Steyn, PE

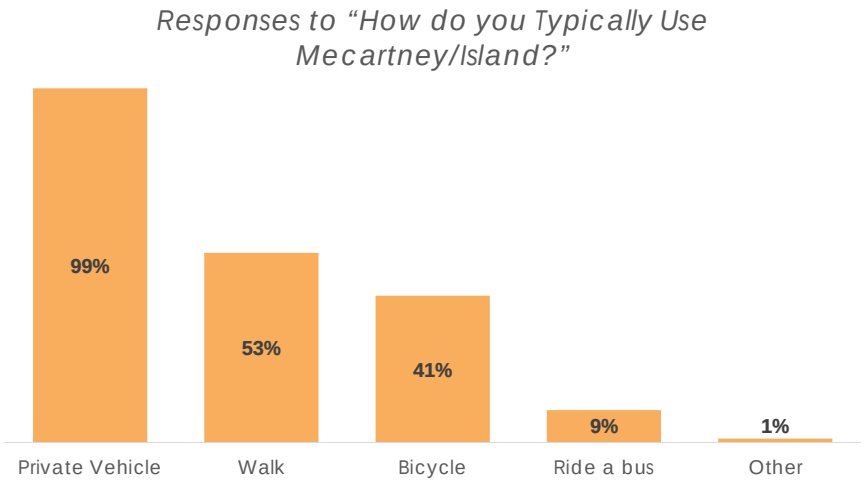
Engagement and Outreach Update:

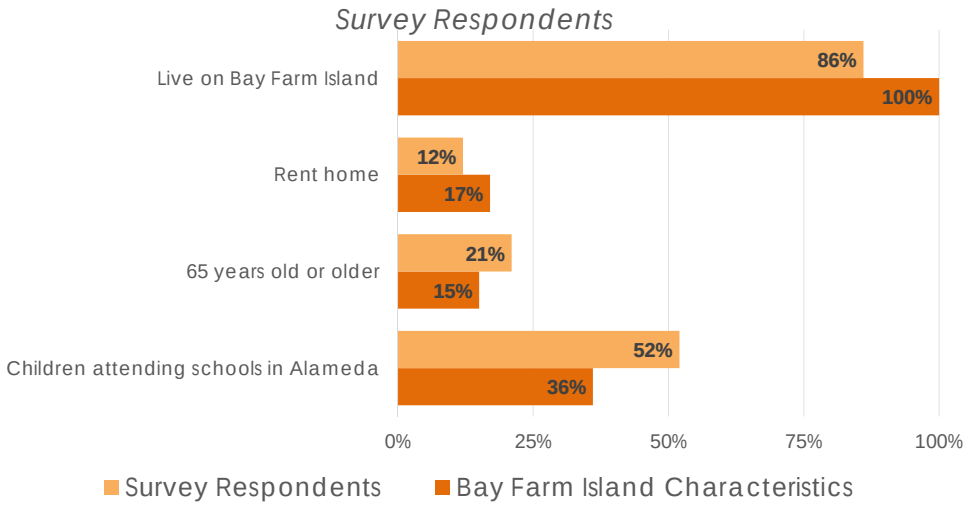
- Letter to properties within 1,600 feet of intersection
- Outreach via social media, community advisory, and key stakeholders
- Project webpage: www.alamedaca.gov/MecartneyIsland

Community Feedback

As of 11/30:

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



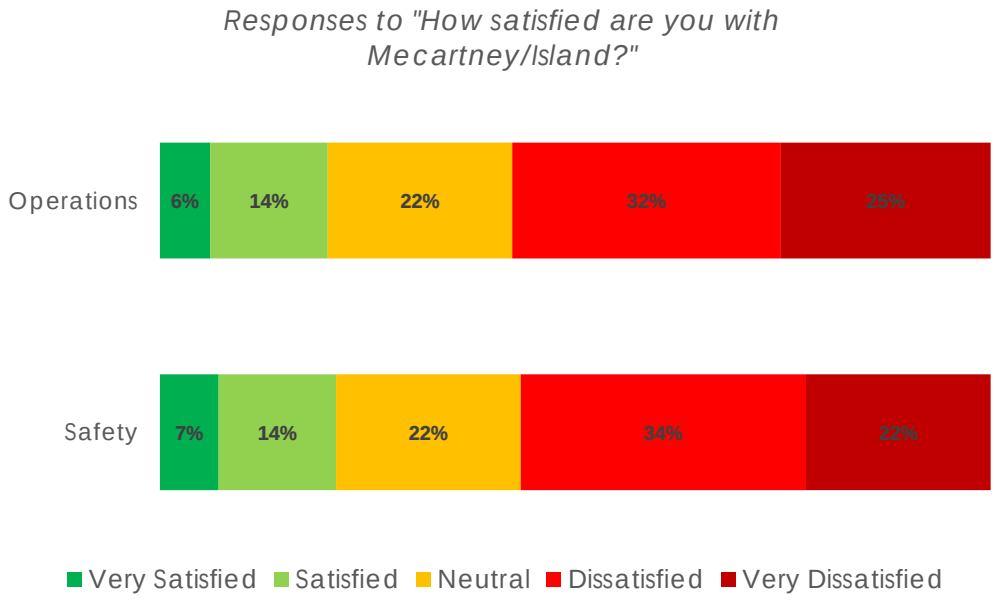


Community Feedback

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



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

Other Bay Farm Island Projects

- Safe Routes to School
  Earhart (City/EBMUD)
- Maitland Drive Safety Improvements
  (City)
- Doolittle Drive/Otis Drive Resurfacing
  Caltrans -- 2024
- Doolittle Drive Adaptation
  Multi-jurisdictional
- Veterans Court/Lagoon Outfall Adaptation
  (City)

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1. Introduction & Background
2. **Meeting Purpose**
3. Review Technical Findings
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Meeting Purpose

- Share technical analysis findings and next steps
- Hear from you on:
  -Project goals
  -Existing conditions and needs
  -Preliminary findings

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3. **Review Technical Findings**
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Evaluation Components

1. Existing Intersection & Setting

- Setting and Activity
- Safety
- Operations

2. Concept Development

- Concept Development Approach
- Preliminary concept Details

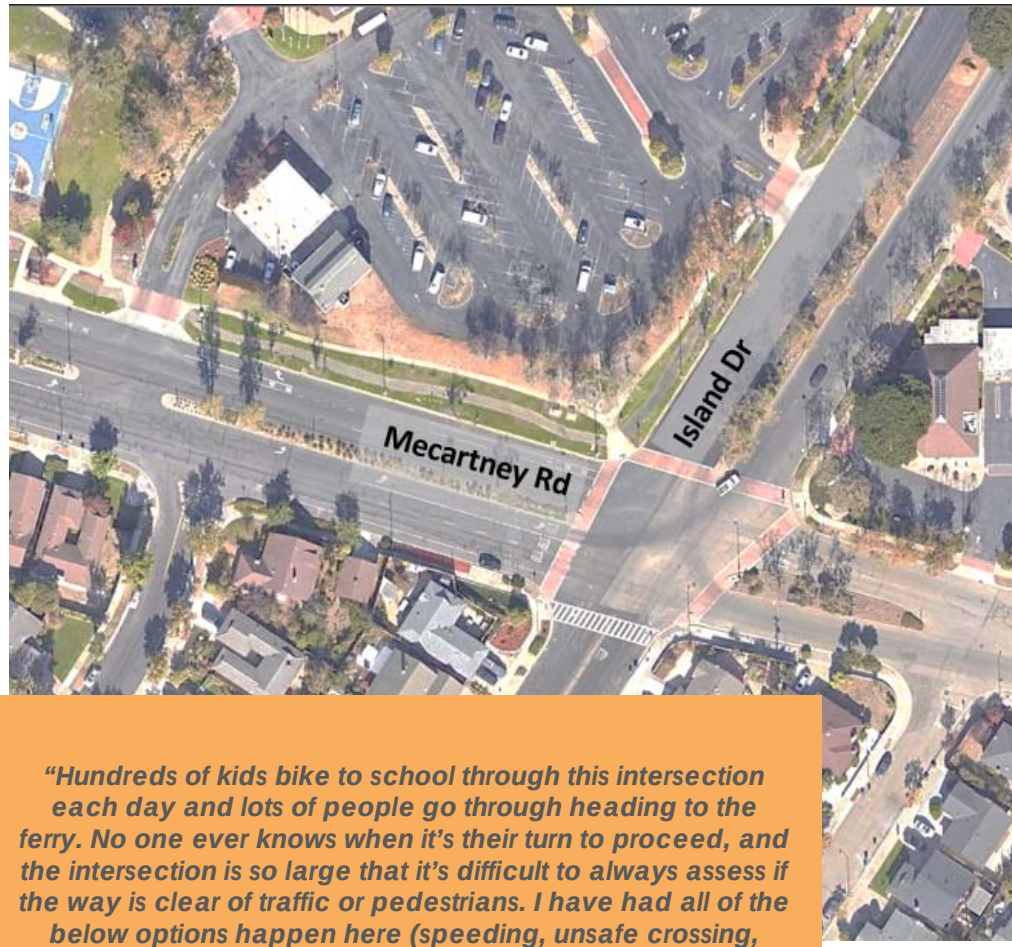
3. Compare Performance

Evaluation of:

- Safety
- Mobility
- Transit Access and Mobility

Existing Intersection & Setting

- **Large all-way stop intersection:**
  -Multilane approaches (4 southbound lanes)
  -Long crossing distances
- **2015 Traffic Volumes – weekday AM and PM peak hours**
  -1,241 motor vehicles in AM; 1,401 in PM
  -9 bicyclists in AM, 11 in PM
  -63 pedestrians in AM, 44 weekday PM peak hour
- **Mix of commercial and residential land uses at and near intersection**
- **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

Safety & Operations

- **Crash History:** two injury crashes spanning 11.5-year period
- **Operations:** Evaluated weekday AM and PM peak hour average vehicle delay*
  - -Weekday AM: 35 seconds average delay (LOS D)
  - -Weekday PM: 23 seconds average delay (LOS C)
- Intersection does meet signal warrants
- Eastbound left turn has highest demand and delay
- Long pedestrian crossings
- Bicycle conflicts to and from Class I path

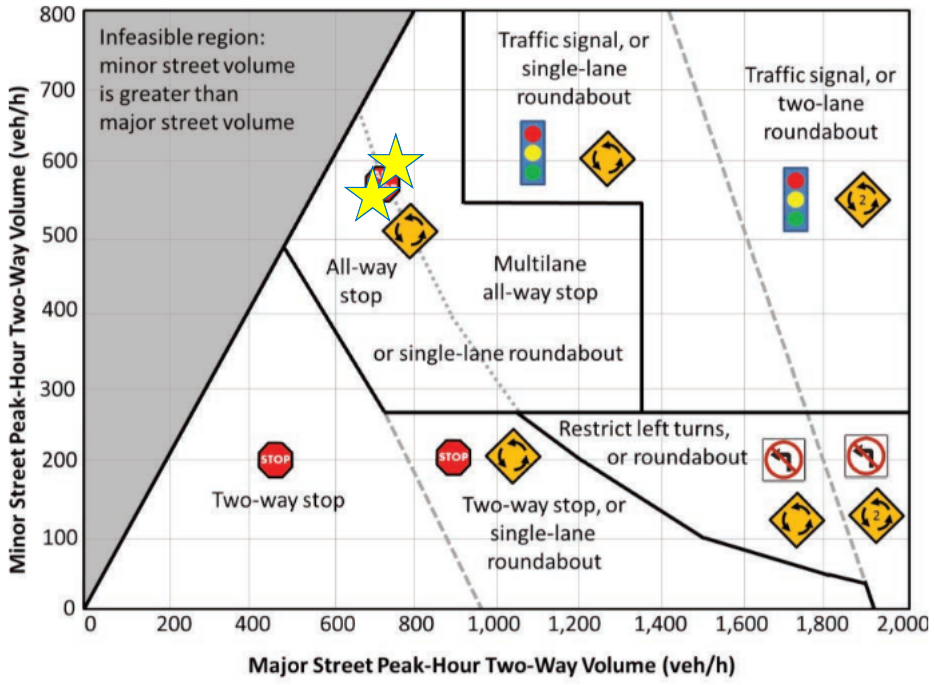
* Data collected pre-Starbucks opening; currently there is more activity there, especially during the morning commute on Island Drive

Intersection Concepts

- Roundabout
- Signal
- Reduced Footprint All-Way Stop

Concept Development

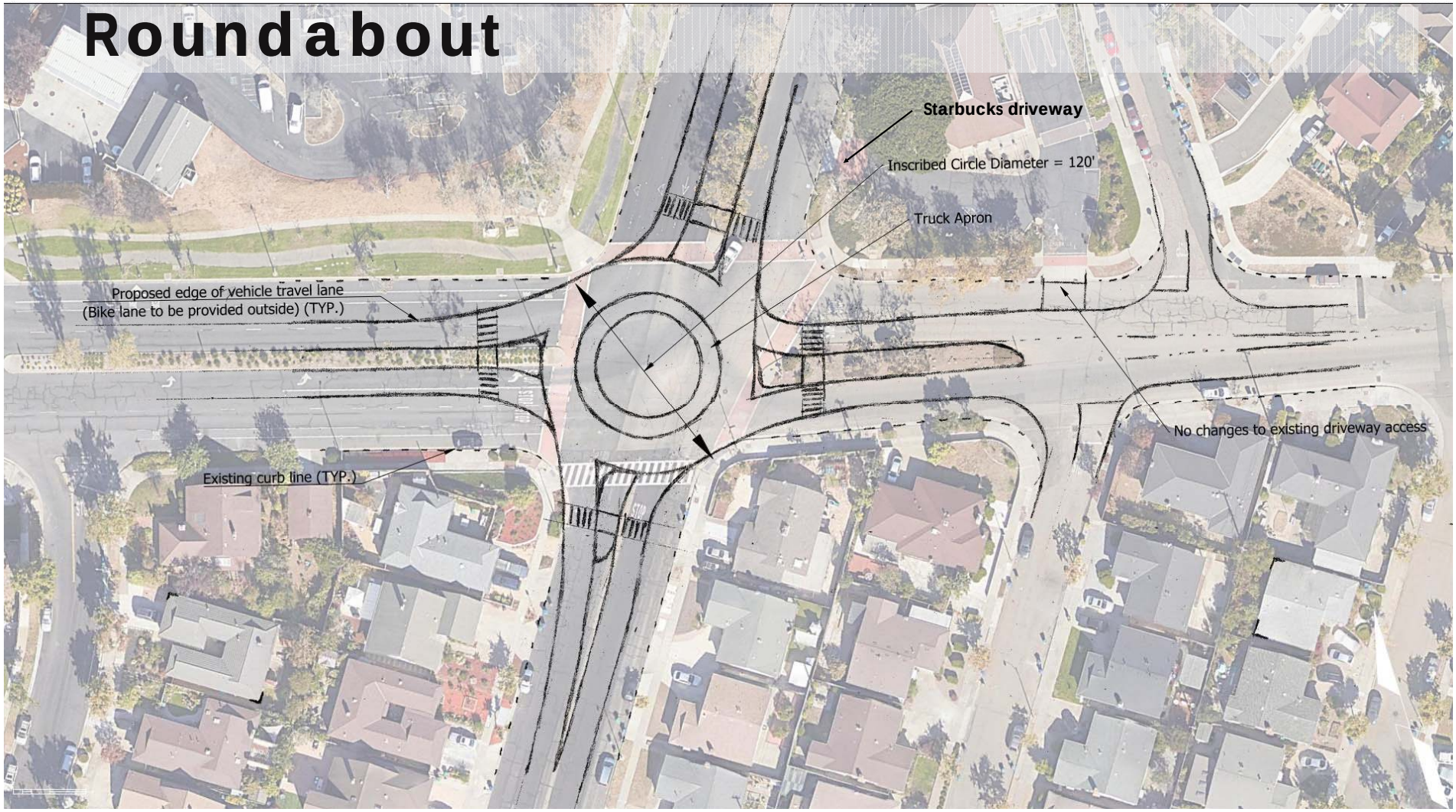
- Align Alternatives to Intended Project Outcomes
- Avoid “overbuilding”
- Chart at right illustrates order-of-magnitude mobility needs



(a) 50/50 Volume Distribution on Each Street

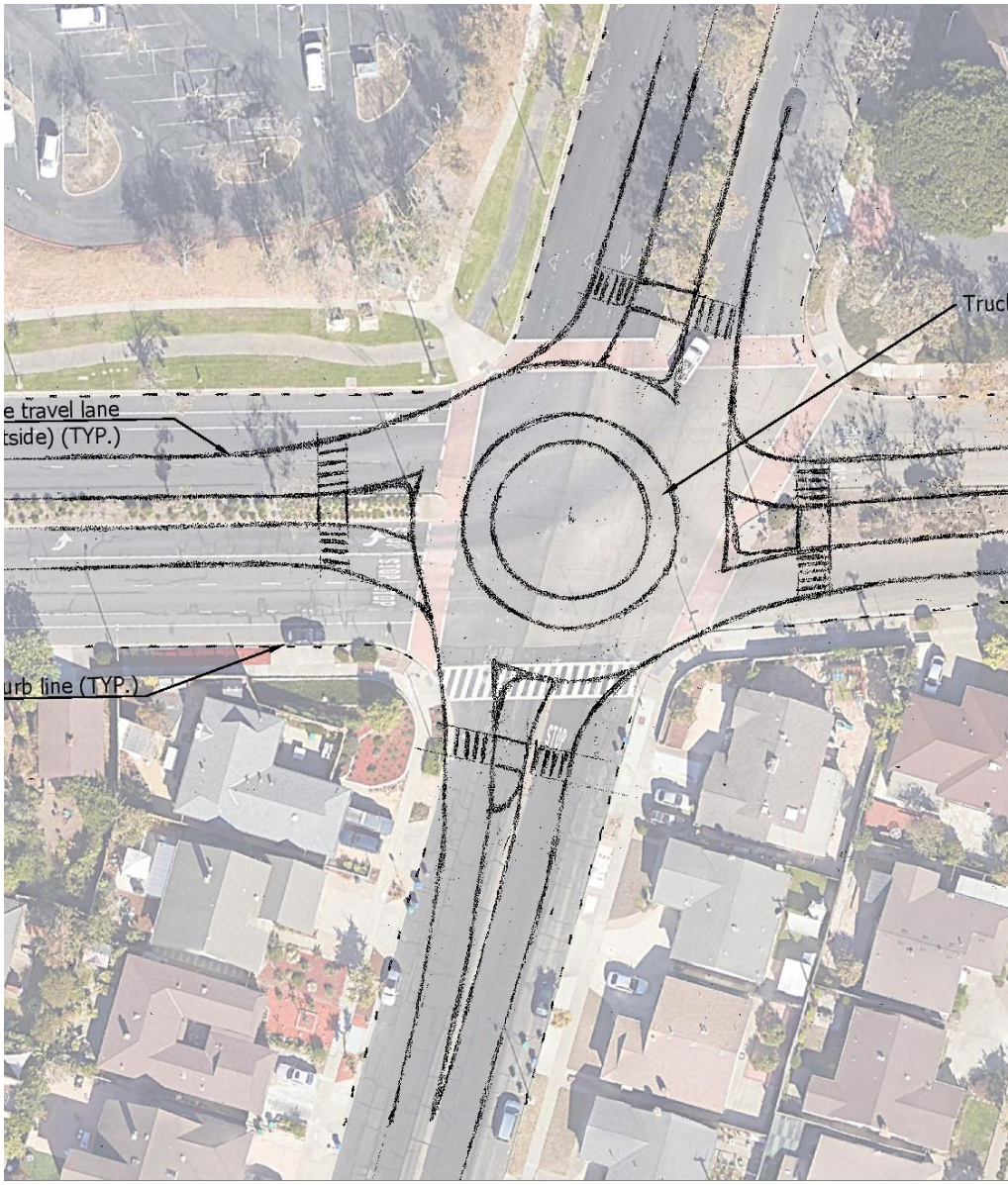
Source: NCHRP Report 825, Exhibit 17

Roundabout


Starbucks driveway
Inscribed Circle Diameter = 120'
Truck Apron
Proposed edge of vehicle travel lane
(Bike lane to be provided outside) (TYP.)
No changes to existing driveway access
Existing curb line (TYP.)

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



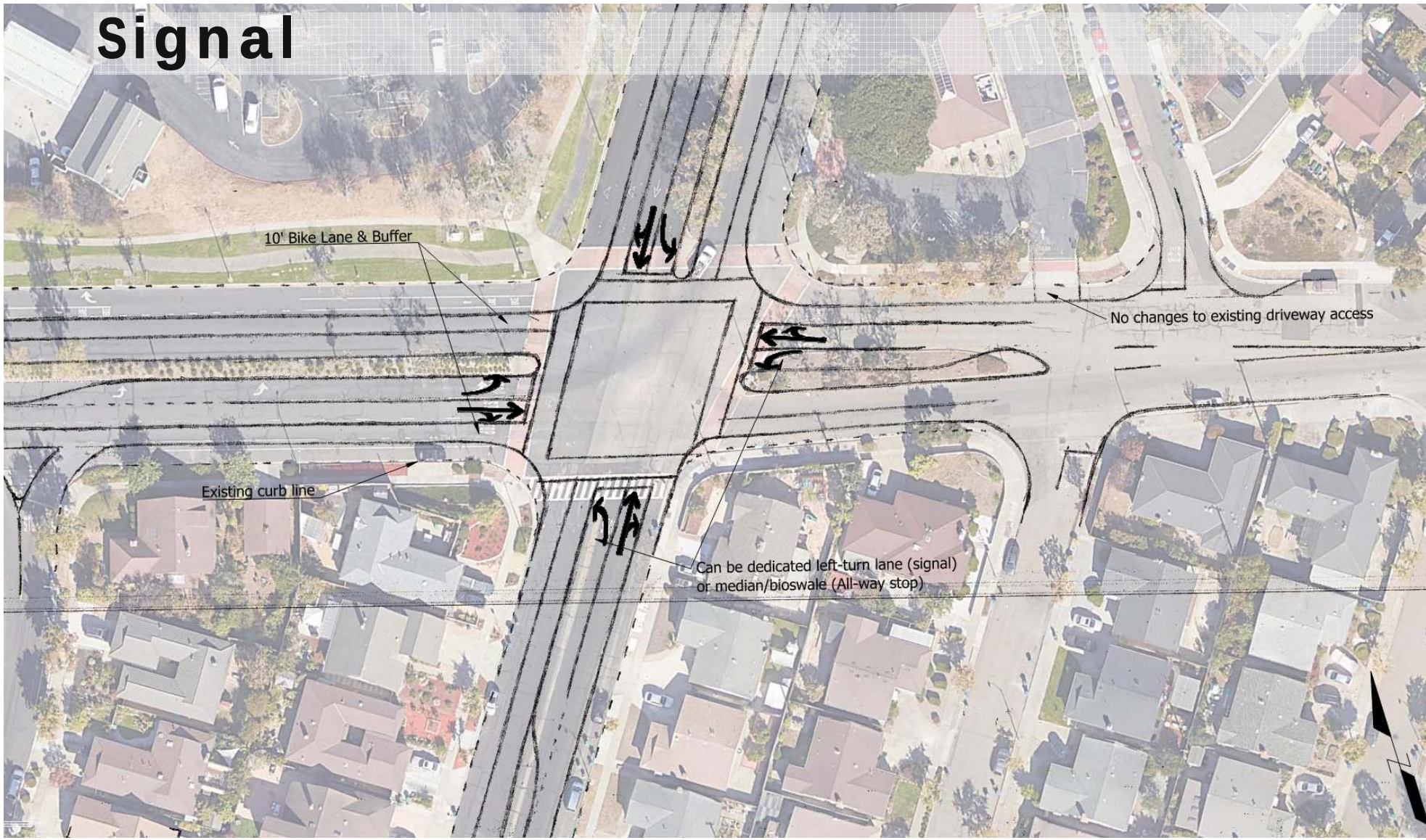
Roundabouts and Bicyclists

- **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

Roundabouts and Pedestrians

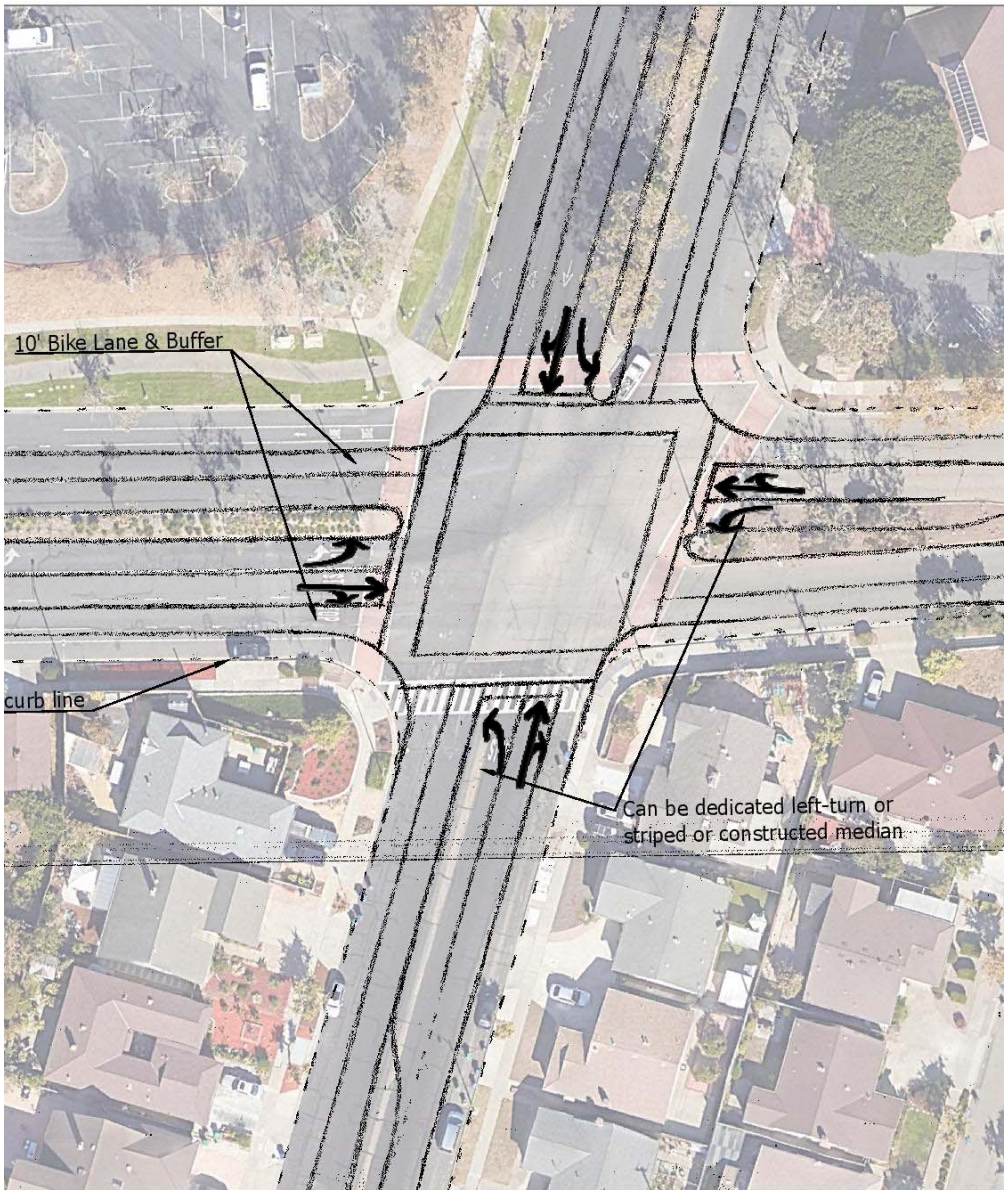
- **Beneficial design features:**
  - Slow vehicle speeds
  - Two-stage crossing
- **Considerations:**
  - Crosswalk alignment
  - Width of splitter island
  - Space for exiting vehicles to yield to pedestrians

Signal

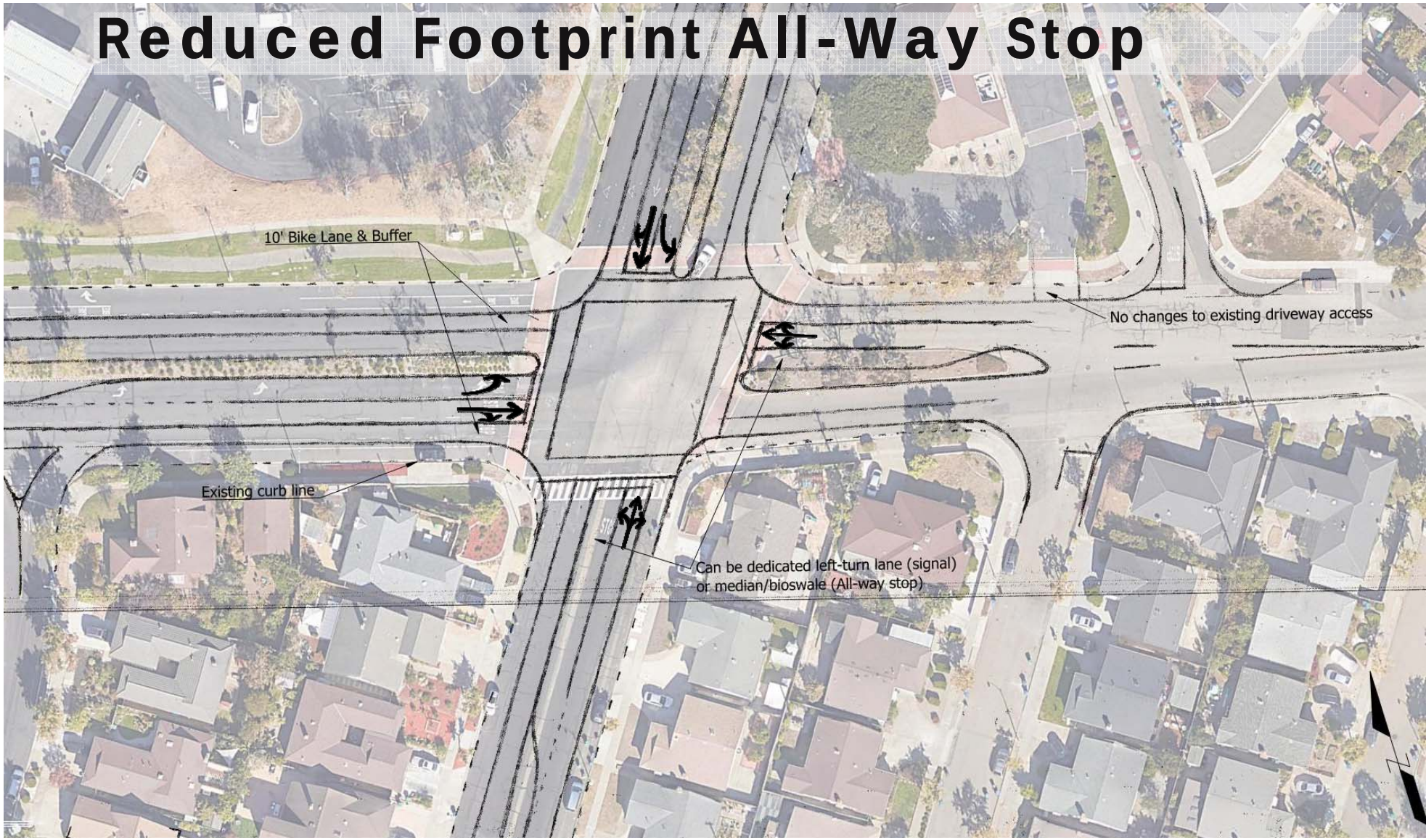

10' Bike Lane & Buffer
No changes to existing driveway access
Existing curb line
Can be dedicated left-turn lane (signal)
or median/bioswale (All-way stop)

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

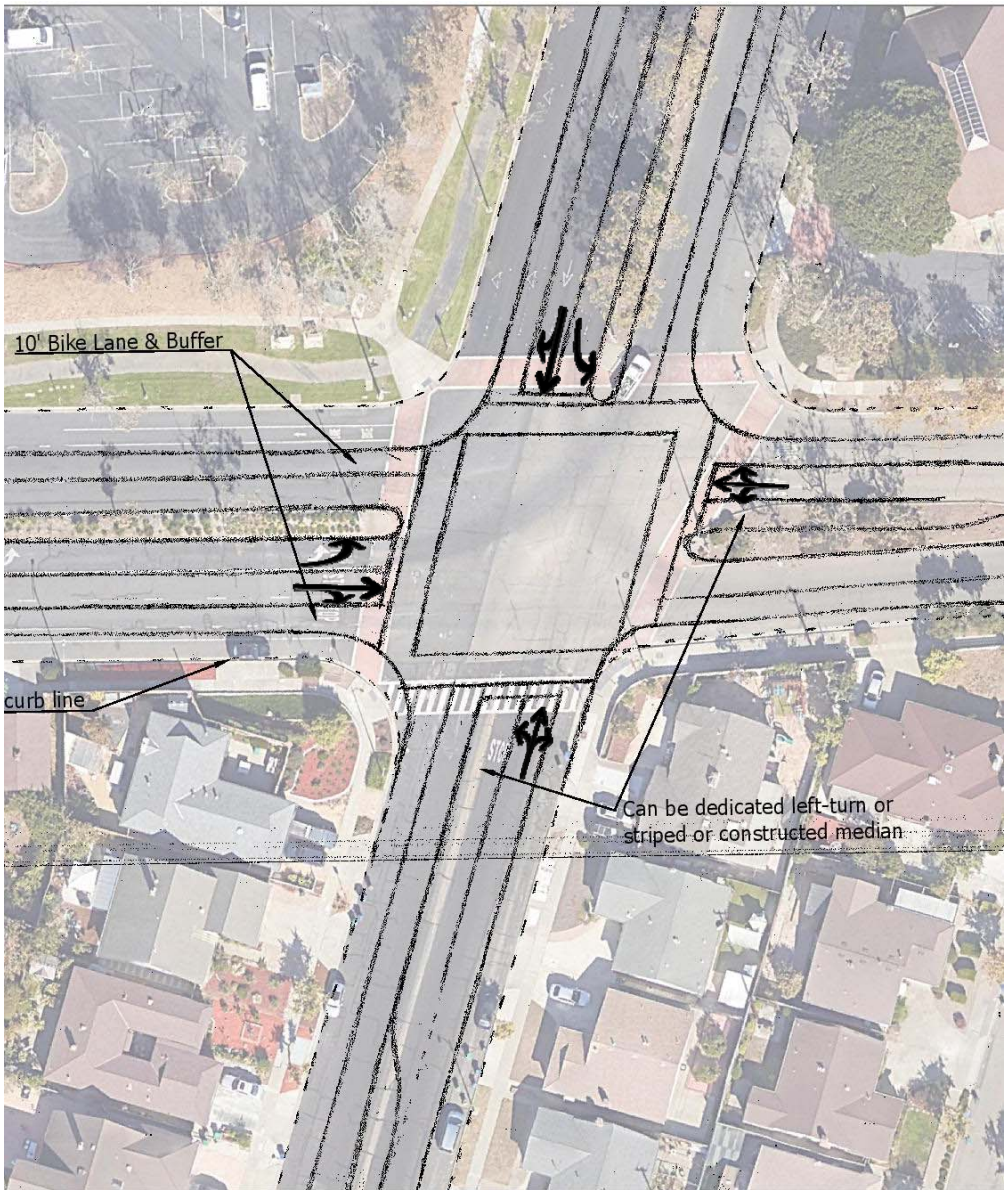


Reduced Footprint All-Way Stop



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

Safety

Motor Vehicles

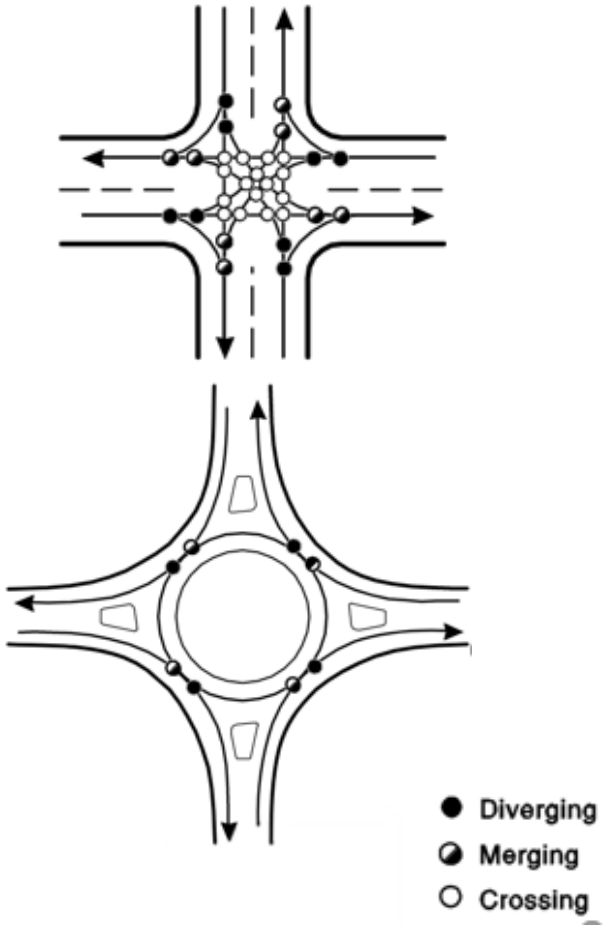
- Reduced footprint all-way stop and roundabout concepts would promote low vehicle speeds through the intersection
- Roundabouts are shown to reduce crash frequency compared to two-way stop control and signalized intersections & have fewer conflict points

Pedestrians

All concepts would reduce crossing distances relative to the existing crossing distances & exposure to traffic

Bicyclists

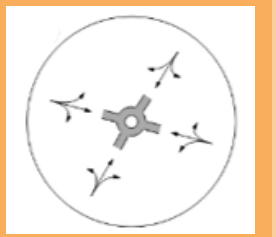
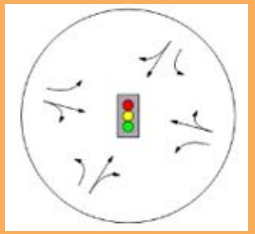
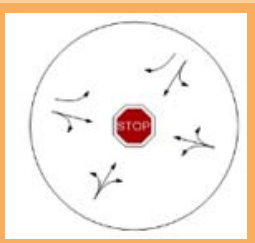
All concepts provide dedicated bicycle lanes on intersection entry and departure & provide protected spaces to bike



Mobility

Analysis results indicate:

- Roundabout would reduce average vehicle delay and reduce average queue lengths
- All-Way Stop would increase vehicle delay due to reduced lane number
- Signal has poor peak hour operations due to signal timing needs for eastbound left-turn

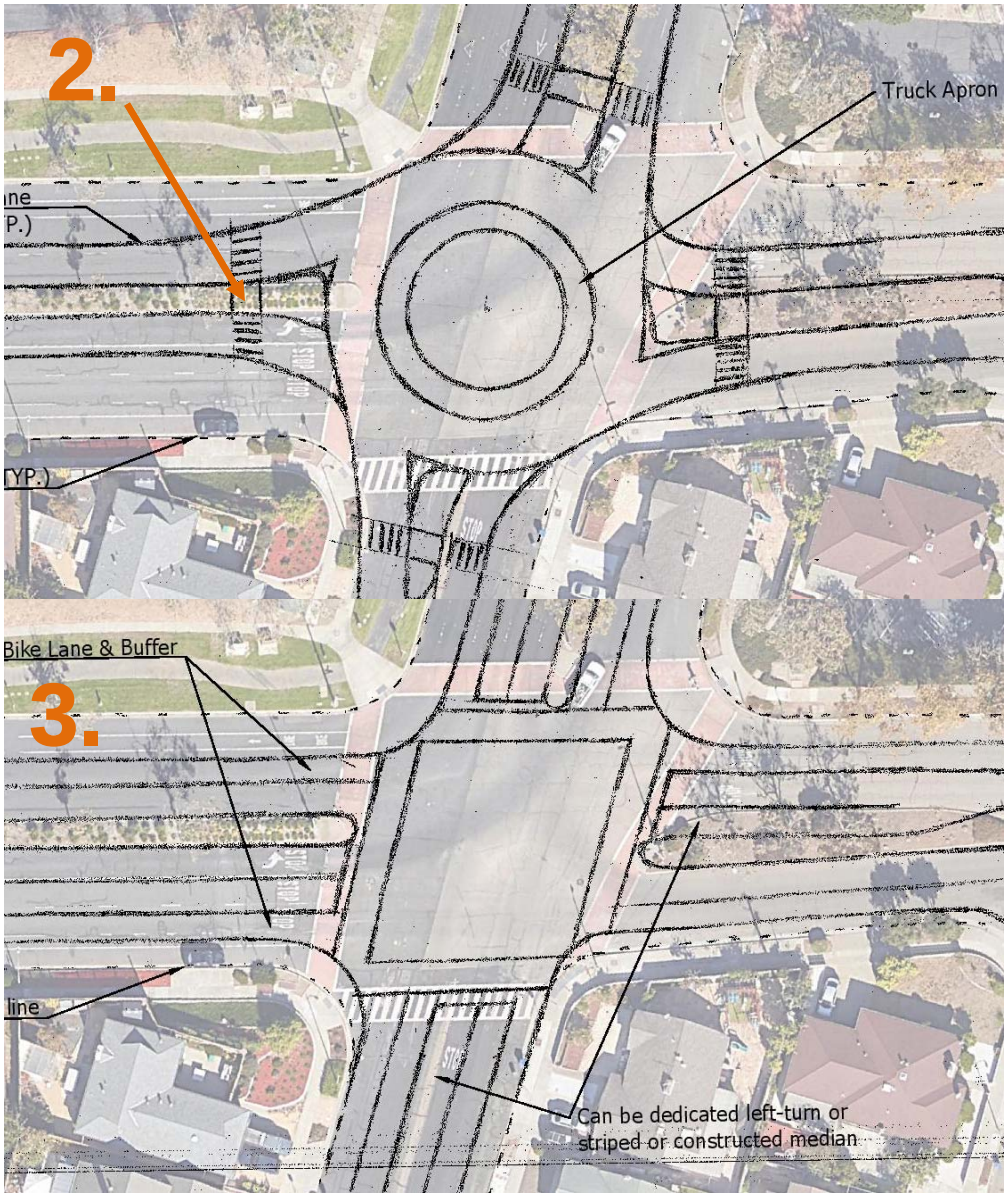
Concept & Configuration		*AM Avg. Delay*	*PM Avg. Delay*
Existing		35 s/veh (LOS: D)	23 s/veh (LOS: C)
Roundabout		10 s/veh (LOS: A)	11 s/veh (LOS: B)
Signal		43 s/veh (LOS: D)	41 s/veh (LOS: D)
Reduced Footprint All Way Stop		42 s/veh (LOS: E)	36 s/veh (LOS: E)

Other Categories

Pedestrian Comfort and Quality of Service

1. All concepts reduce the corner-to-corner distance of the intersection, and provide shorter crossings
2. Roundabout: provides median refuges but slight offset from corner
3. Signal: would need to wait for the dedicated signal phase to cross

Roundabout provides highest comfort and quality of service



Other Categories

Bicyclist Comfort and Quality of Service

All concepts could provide physically separated bike lanes on all approaches. The roundabout would provide a bicycle ramp to a separated path.

Truck/Design Vehicle Considerations

All the concepts presented could serve intersection design vehicles.

Transit Access & Mobility

Access to the transit stops is provided on the east side of the intersection. All the proposed concepts could be designed to provide a similar level of access to the intersection

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)			
Safety (Pedestrians)			
Safety (Bicyclists)			
Motor Vehicle Operations			
Pedestrian Comfort and Quality of Service			
Bicyclist Comfort and Quality of Service			
Truck/Design Vehicle Considerations			
Transit Access			
Transit Mobility			

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.

Agenda

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4. **Next Steps**
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NEXT STEPS

- Kittelson and the City will compile feedback received today
- We will incorporate feedback and develop project concept(s)
- We will request approval of concepts at:
  - March 23*: Transportation Commission Meeting
  - May 3*: City Council Meeting
- Future community engagement:
  - January/February
- Stay up to date via the project website.[1]

1: https://www.alamedaca.gov/Departments/Planning-Building-and-Transportation/Transportation/Mecartney-RoadIsland-Drive-Improvement-Project
* Dates subject to change

Next Steps

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

Next community meeting is yet to be scheduled.

12/2021 – 3/2022

Community Engagement

Continue to gather and compile input

Project Development

Identify and refine preferred alternative

3/2022 – 12/2022

2023

Construction

Begin construction on preferred alternative

1: https://www.alamedaca.gov/Departments/Planning-Building-and-Transportation/Transportation/Mecartney-RoadIsland-Drive-Improvement-Project

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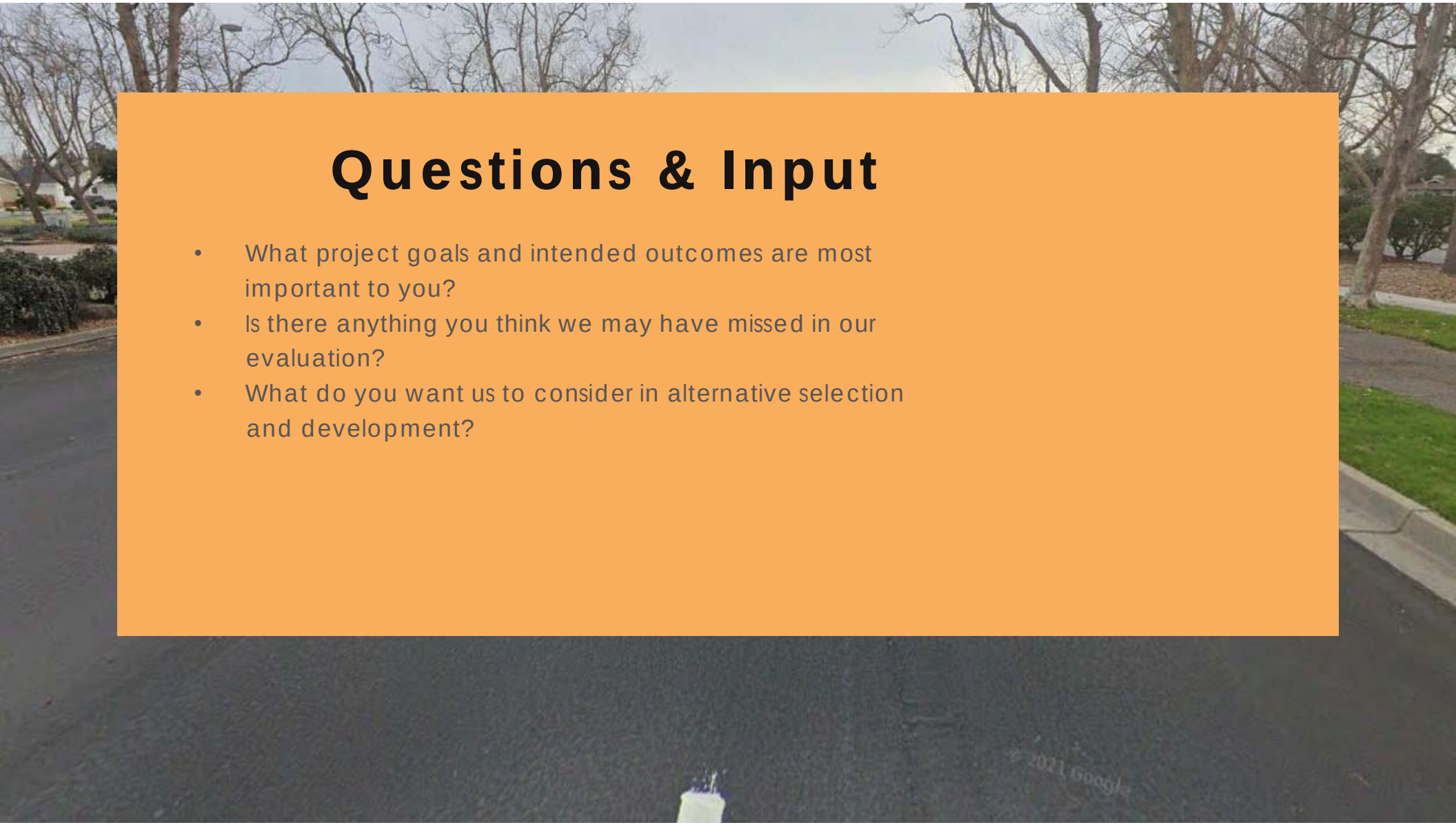
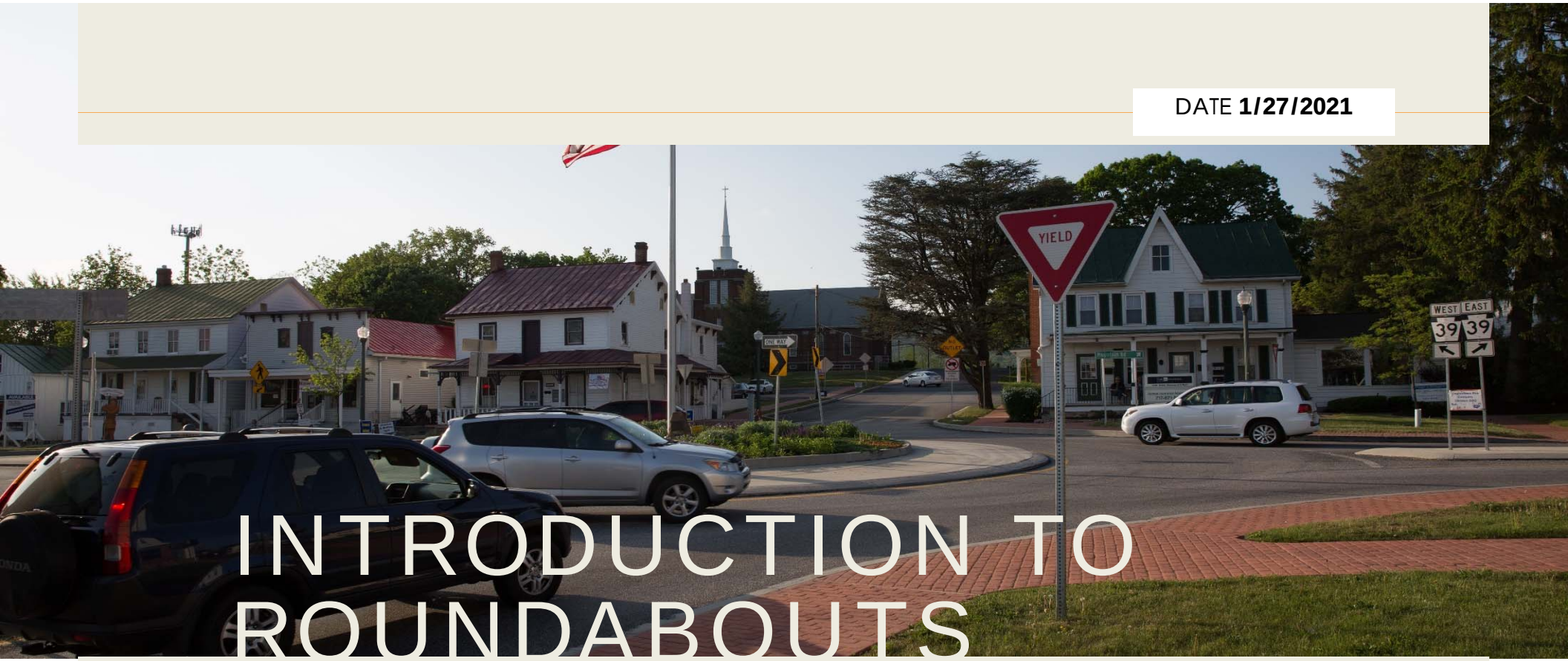


Questions & Input

- 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?

DATE **1/27/2021**

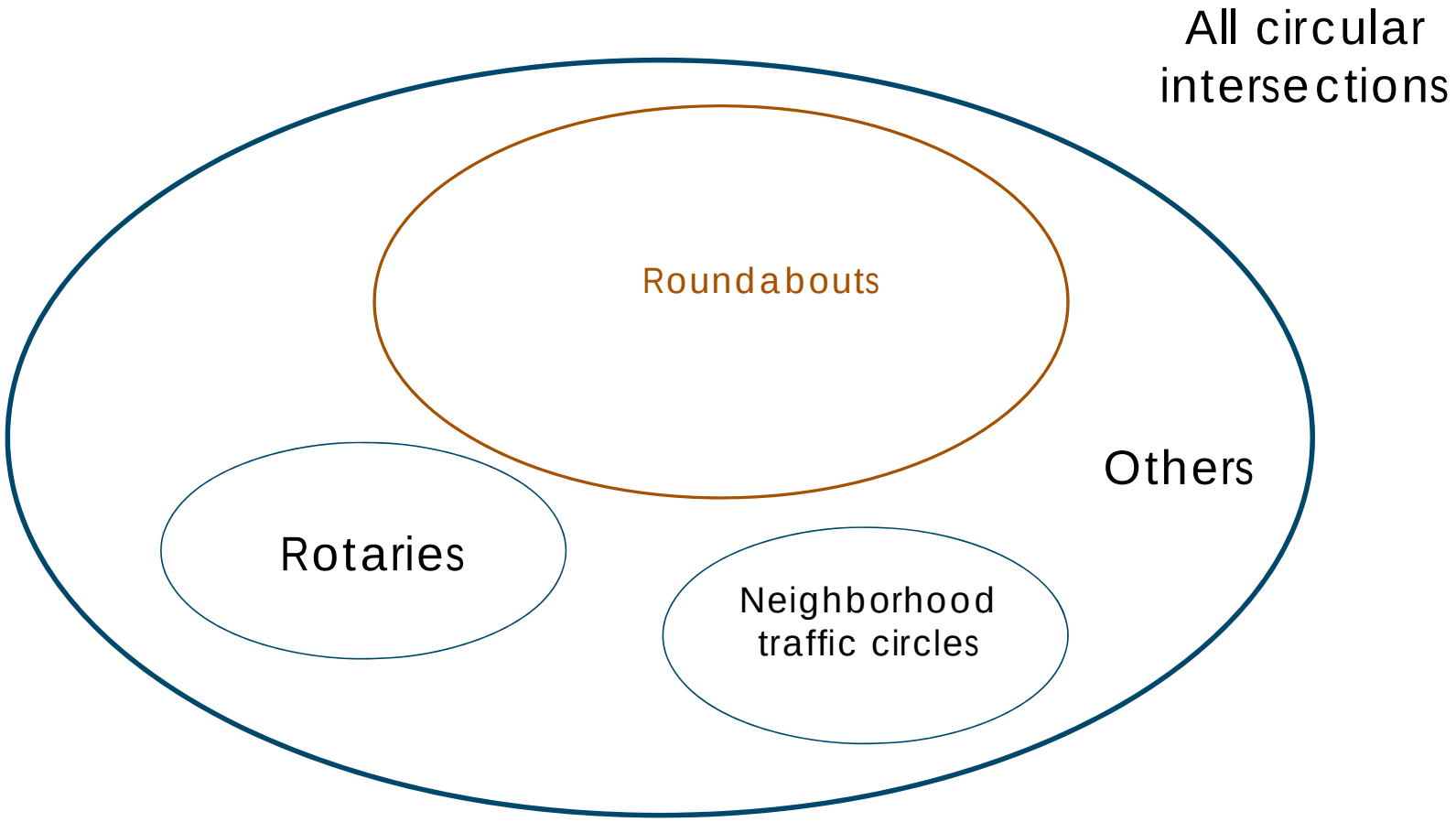


INTRODUCTION TO ROUNDABOUTS

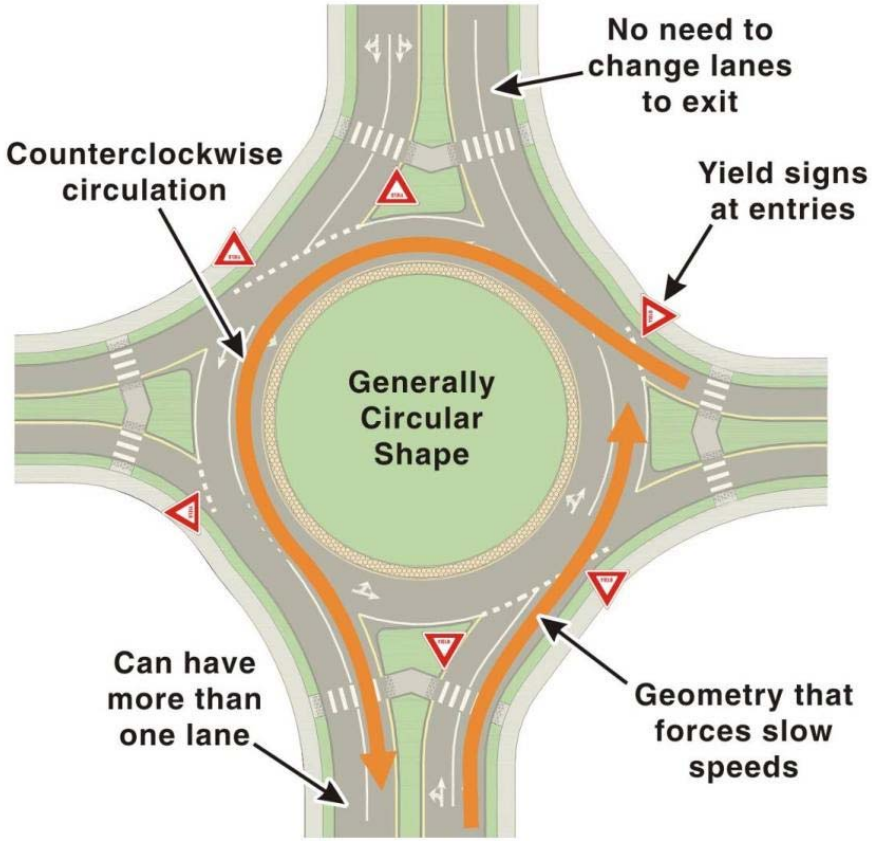
TRANSPORTATION COMMISSION

KITTELSON & ASSOCIATES

Types of Circular Intersections



What is a roundabout?



NCHRP Report 672, Exhibit 1-1

Some examples…

Lafay

Olymp

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

Safety Performance

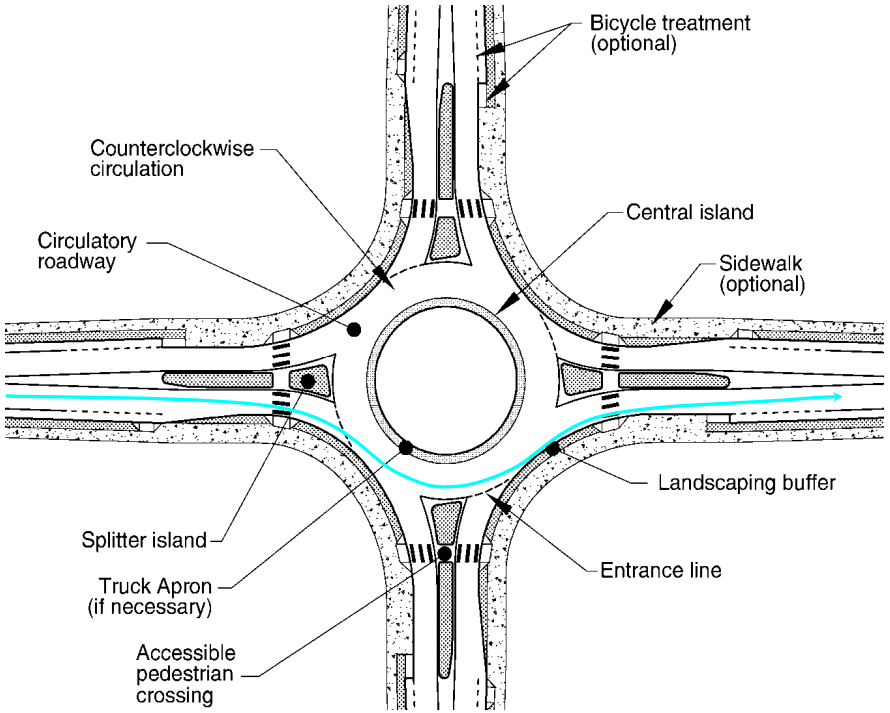
- 90-100% reduction in fatalities
- 75% reduction in injuries
- 35% reduction in total crashes
- Very little

Source: *NCHRP R*

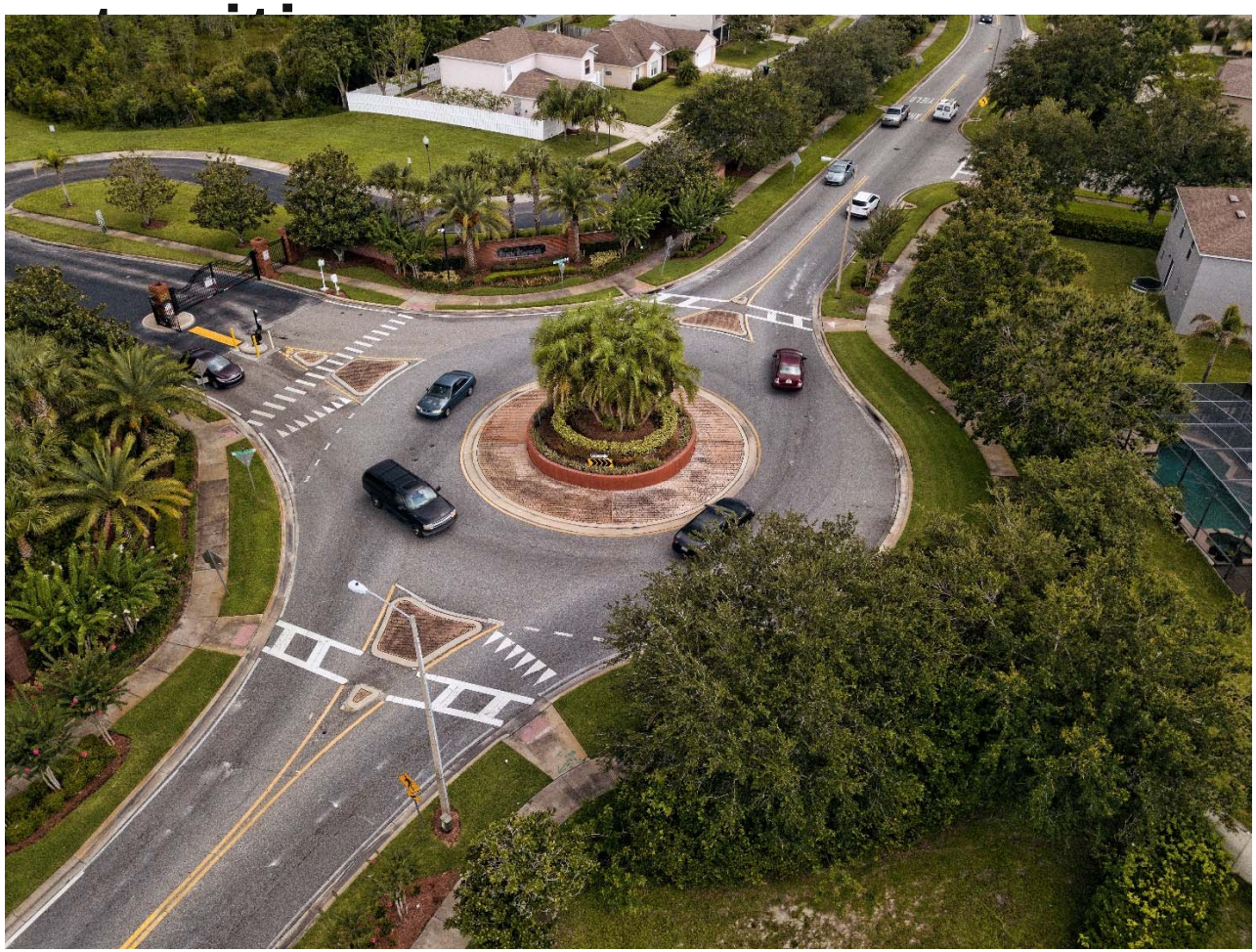
Photo: Lee Rodegerdts

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 Opp

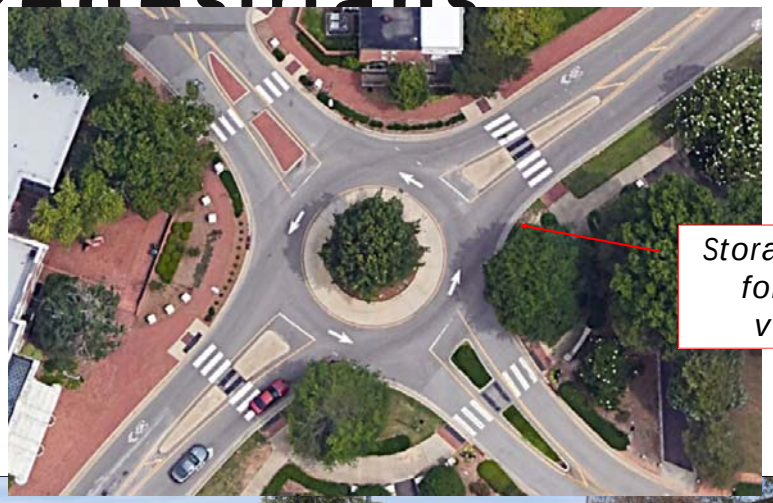


Where to Consider Roundabouts?

Advantageous	Potentially Challenging
• **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**	• **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**

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



Roundabouts and Pedestrians

Considerations for Visually Impaired:

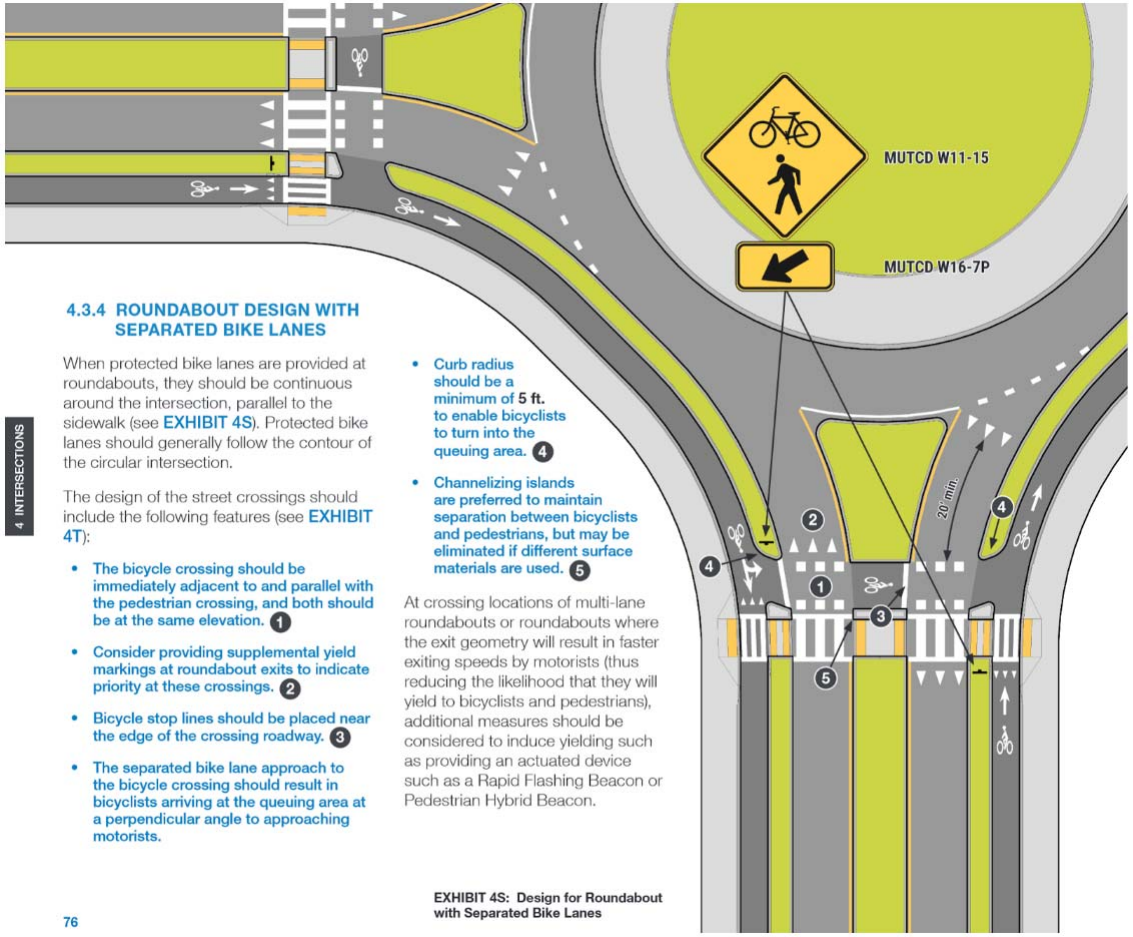
1. Well defined walkway edges
2. Separated walkways
3. Aligned detectable warnings
4. Perpendicular crossings
5. Contrasting crosswalk markings

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

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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

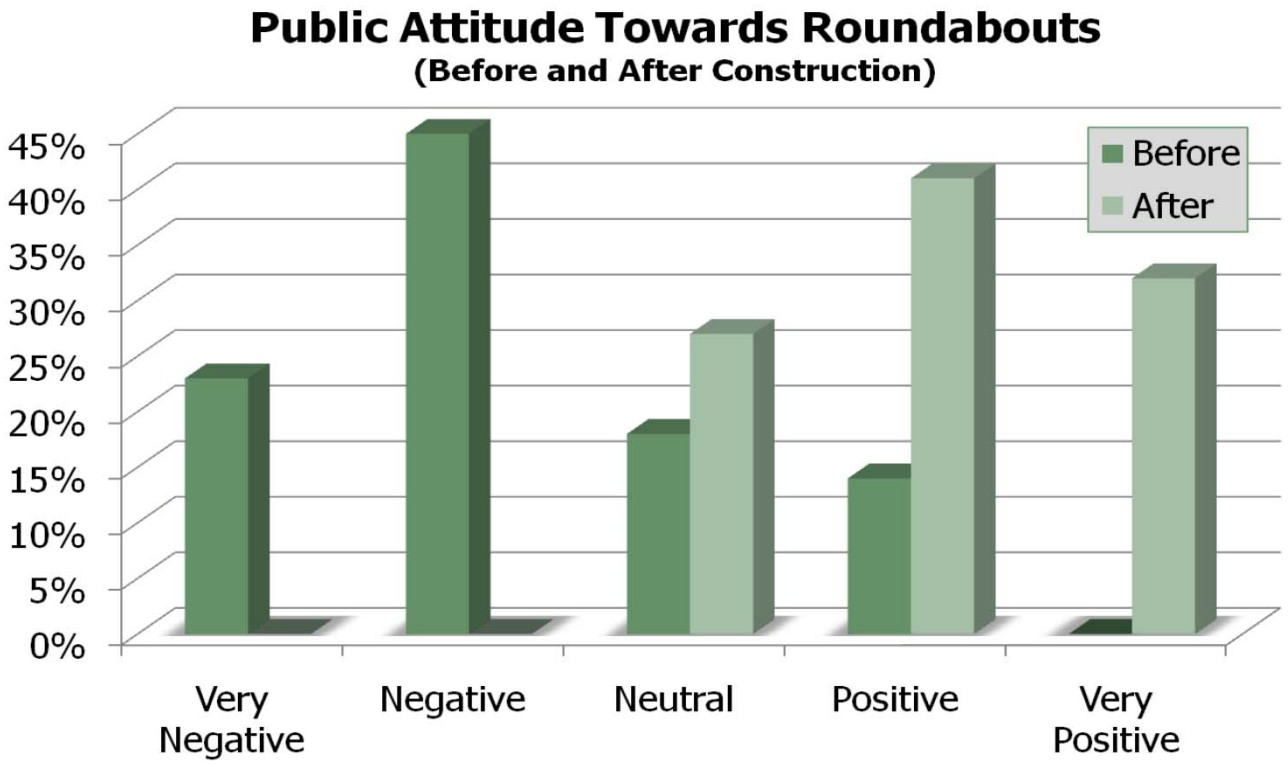
Roundabout Work

- Roundabout peer review
- Mobility Element updates
- Citywide screening for potential roundabout locations using following criteria:
  - Locations on High Injury Network
  - Locations along bus routes
  - City's social vulnerability index
  - Planned and existing bikeways
  - Geographic equity
- Develop best practices for mini-roundabouts or neighborhood traffic circles

Neighborhood Traffic Circles

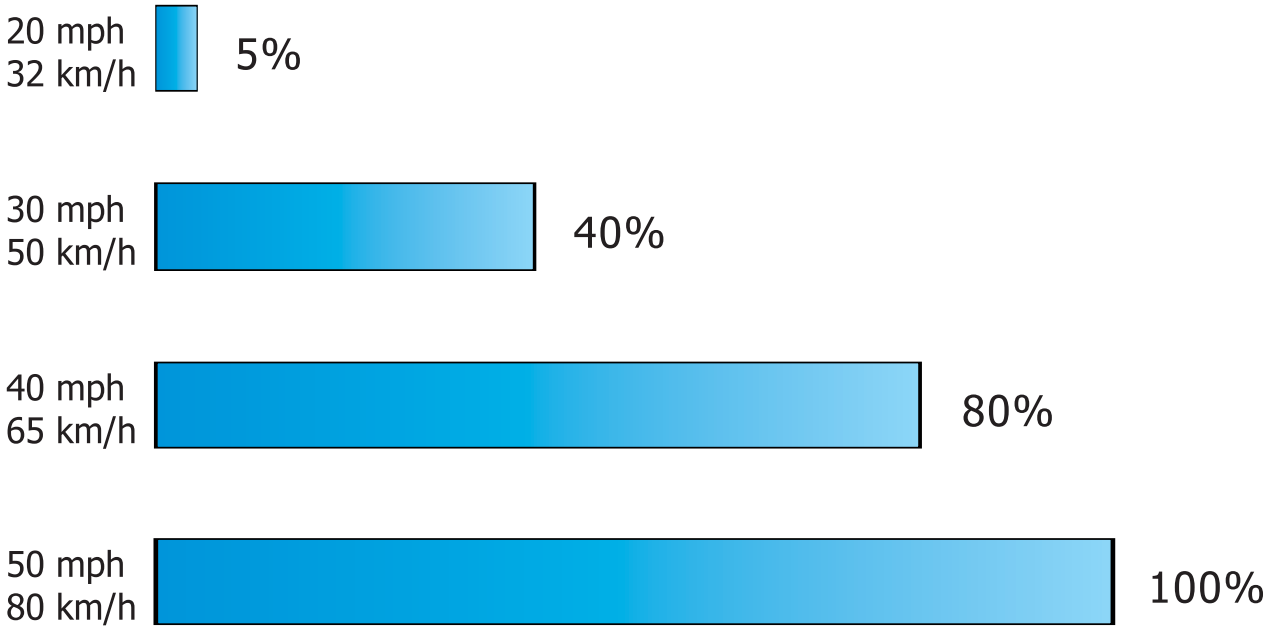
- Generally smaller
- May use other control
- Large vehicles may pass in front of central island

Why an introduction to roundabouts?



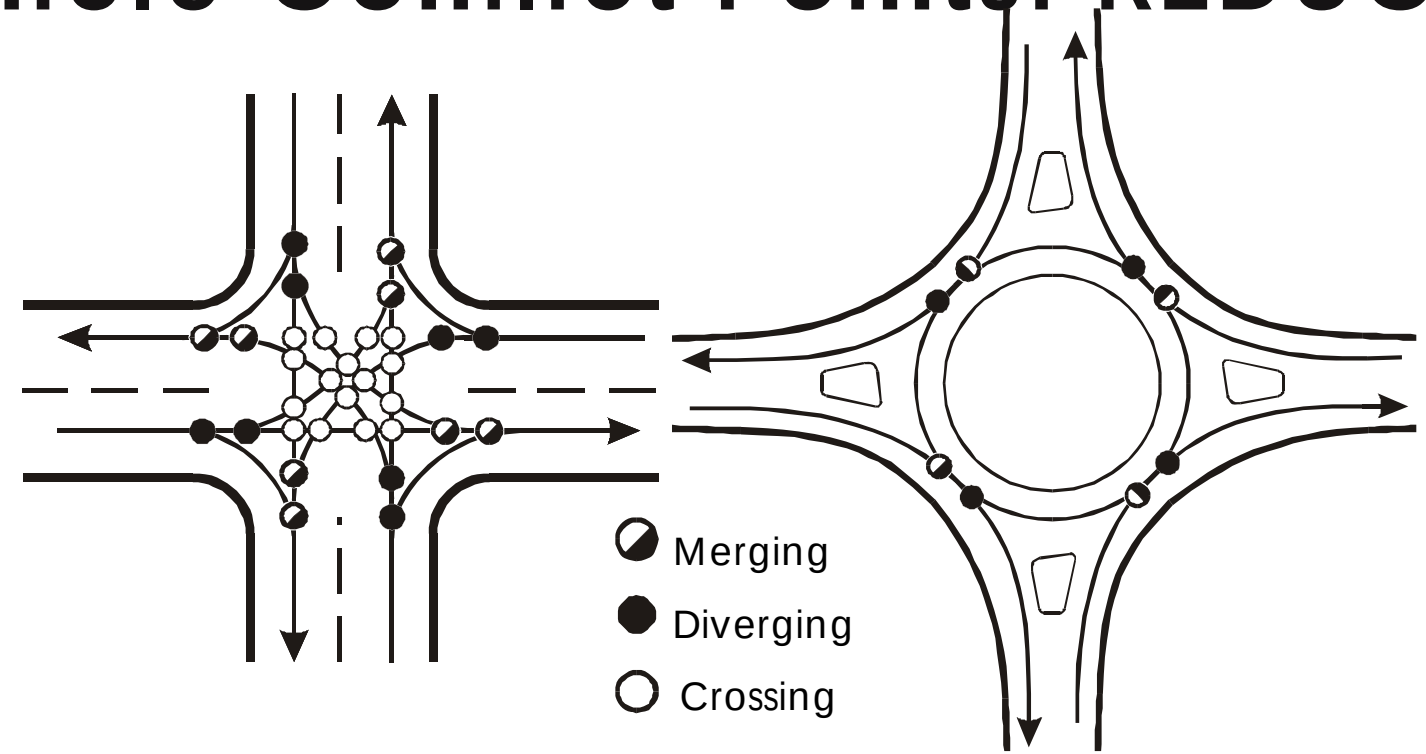
Lower speed is safer for pedestrians

Chance of pedestrian death if hit by a motor vehicle



NCHRP Report 672, Exhibit 5-15

Vehicle Conflict Points: REDUCED



Crossing conflicts eliminated at roundabout

NCHRP Report 672, Exhibit 5-2