



# Clement Avenue/Tilden Way Project

City Council  
March 7, 2023



# Introduction

## Clement Avenue Extension Alternatives at Tilden Way

### Project Team:

- City of Alameda
- Kittelson & Associates, Inc
- Stakeholder Participants:

City, AC Transit, Alameda Housing Authority, BART, Bike Walk Alameda, County, DABA, Edison School, Bay Trail, BCDC, Bridgeside Shopping Center, City of Oakland, Commission on Persons with Disabilities, Greer Mortuary, Transportation Commission, Unity Council in Oakland, Members of the Public

### Engagement and Outreach Update:

- Letter to adjacent properties
- Outreach via social media, emails and sandwich boards
- Website: [www.alamedaca.gov/ClementTilden](http://www.alamedaca.gov/ClementTilden)





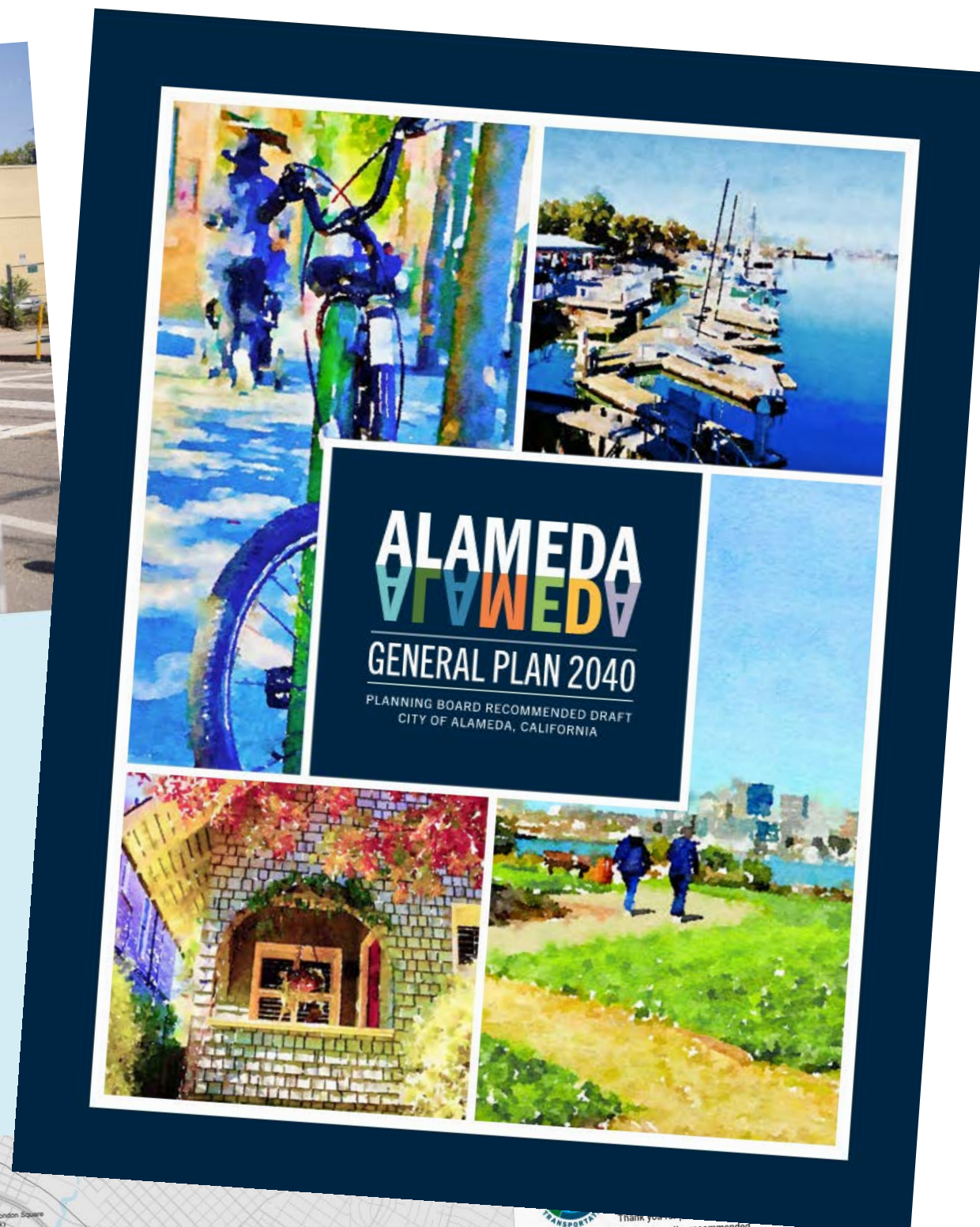
# Project Goals and Intended Outcomes

- Prioritize **safety**
- Improve **mobility** for all roadway users
- Improve **bicycle and pedestrian** access
- Provide **flood reduction** and **landscaping** opportunities
- Reduce **greenhouse gas** emissions
- **Comply** with City plans and policies



## Alameda Vision Zero Action Plan

November 3, 2021





# Background

- Measure BB grant for \$10 million
- Union Pacific property acquisition
- Environmental clean-up
- Fill gap in active transportation and truck network



## MODES

|                            |                            |
|----------------------------|----------------------------|
| Bus Route                  | Bus Stop                   |
| Truck Route                | Proposed Truck Route       |
| Existing Bike Lane or Path | Proposed Bike Lane or Path |

**Clement Avenue & Tilden Way  
Existing Routes/Facilities by Mode**



# Project Timeline

Project webpage:  
[www.alamedaca.gov/ClementTilden](http://www.alamedaca.gov/ClementTilden)





# Public Input

## (2 rounds of outreach)

### Virtual Workshop

- **6/18/22:** 31 attendees; 21 responses
- **10/11/22:** 32 attendees; 14 responses

### In-Person Open Houses

- **6/19/22:** 19 attendees
- **10/12/22:** 15 attendees

### Online Surveys

- **6/19/22:** 175 respondents
- **10/2022:** 116 respondents

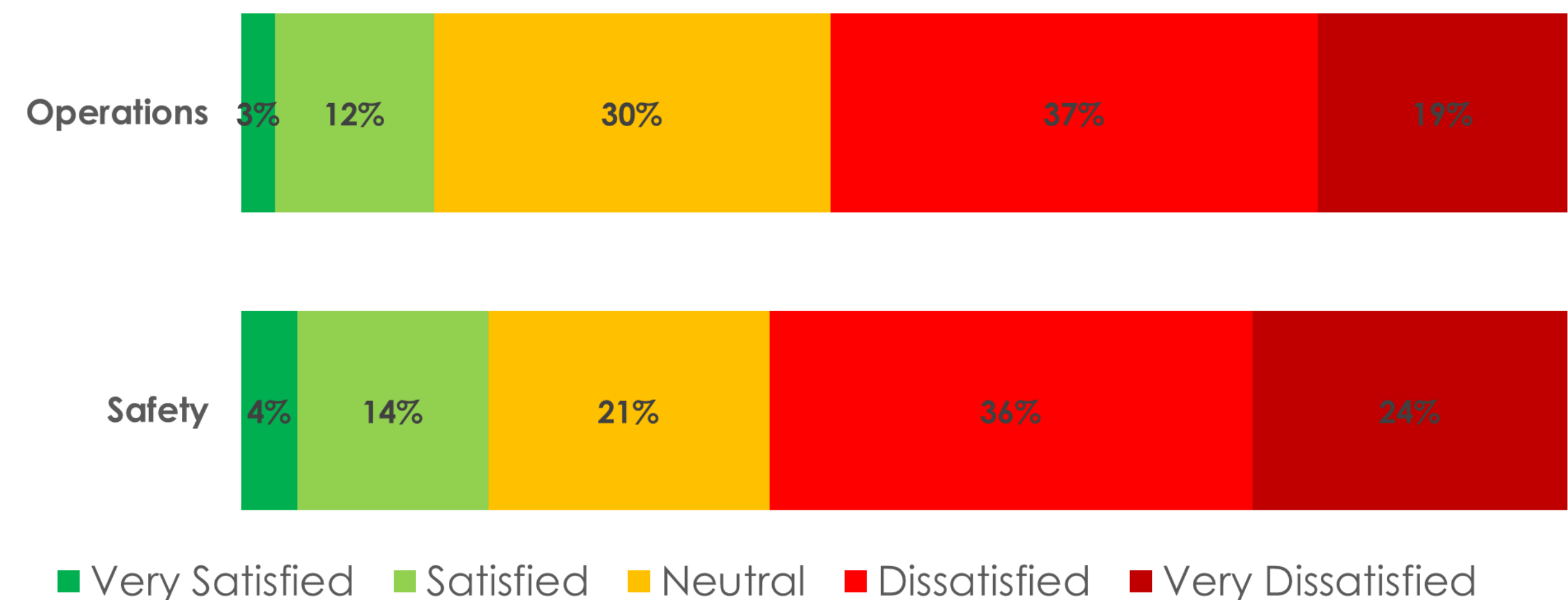
### Desires:

- Safety and slower speeds
- Connectivity for bicyclists
- Safer pedestrian crossings
- More greenery, open space and dog park

### Concerns:

- Through traffic and speeding on Clement Ave.
- Increase of truck traffic with extension
- Drivers' unfamiliarity with roundabouts
- Speeding along Pearl St and Fernside Blvd

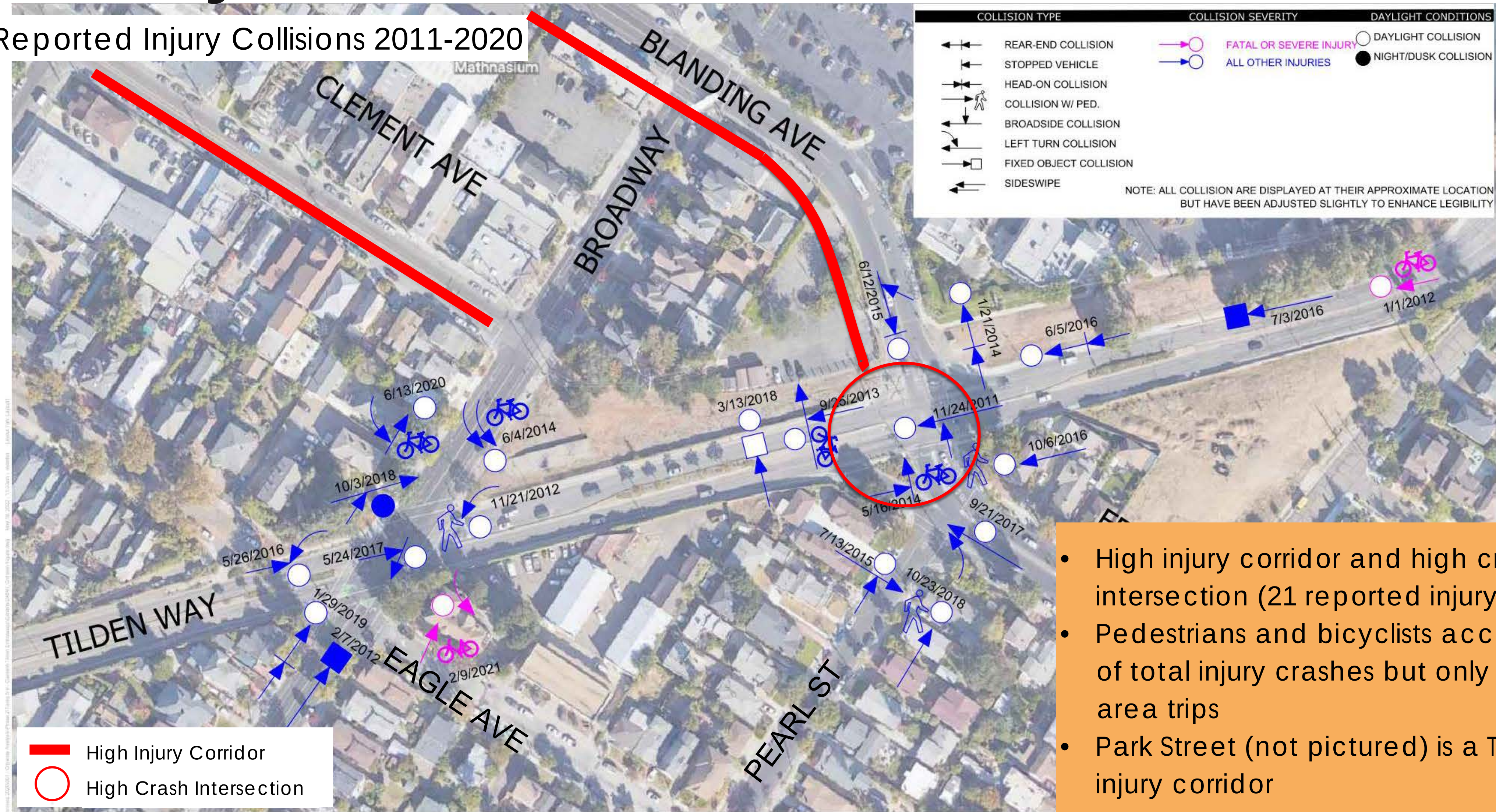
How satisfied are you with the Clement/Tilden project area?





# Safety

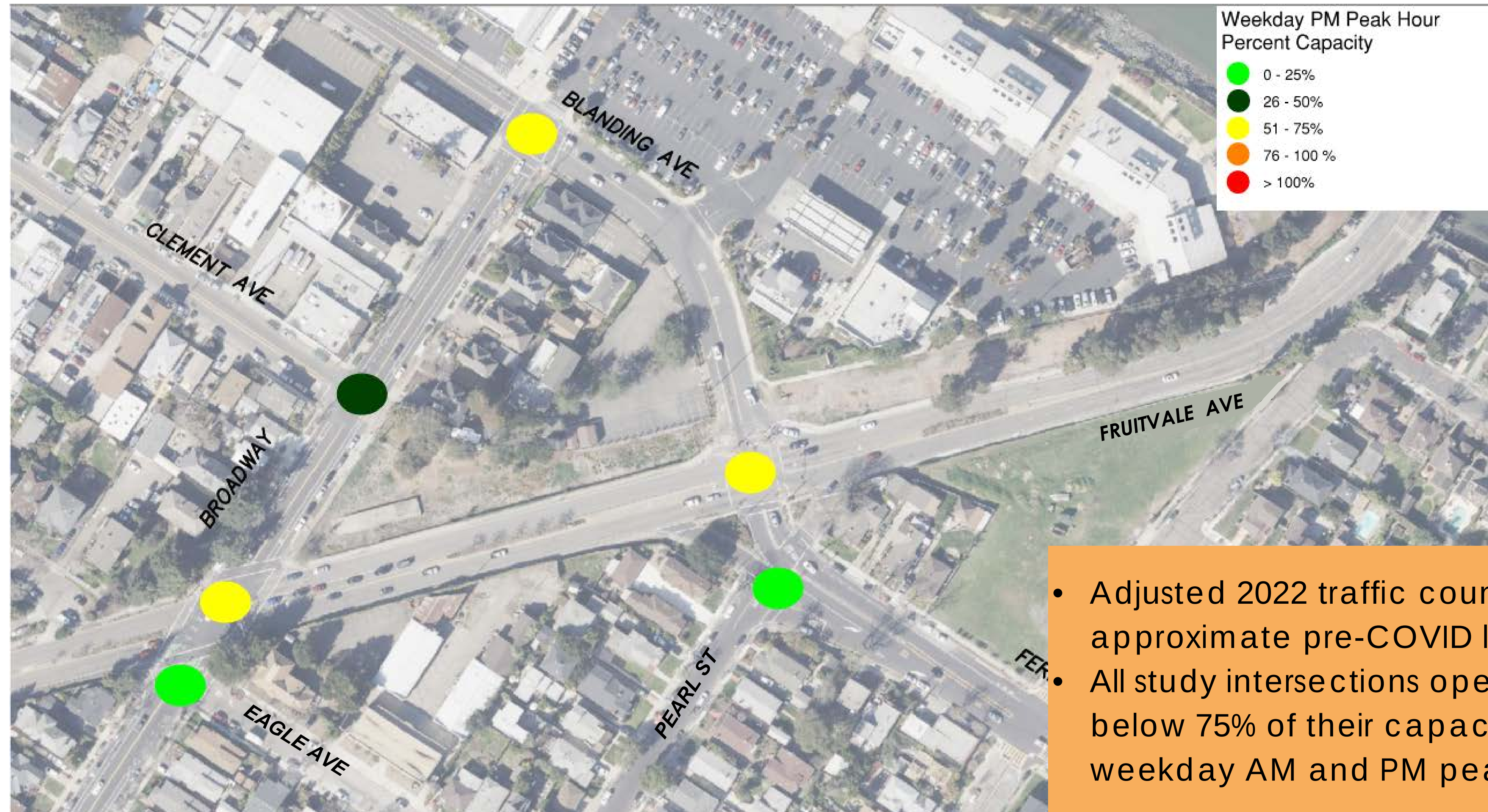
## Reported Injury Collisions 2011-2020



- High injury corridor and high crash intersection (21 reported injury crashes)
- Pedestrians and bicyclists account for 38% of total injury crashes but only 9% of study area trips
- Park Street (not pictured) is a Tier 1 high injury corridor



# Traffic Operations



- Adjusted 2022 traffic counts to approximate pre-COVID levels
- All study intersections operate at or below 75% of their capacity during the weekday AM and PM peak hour

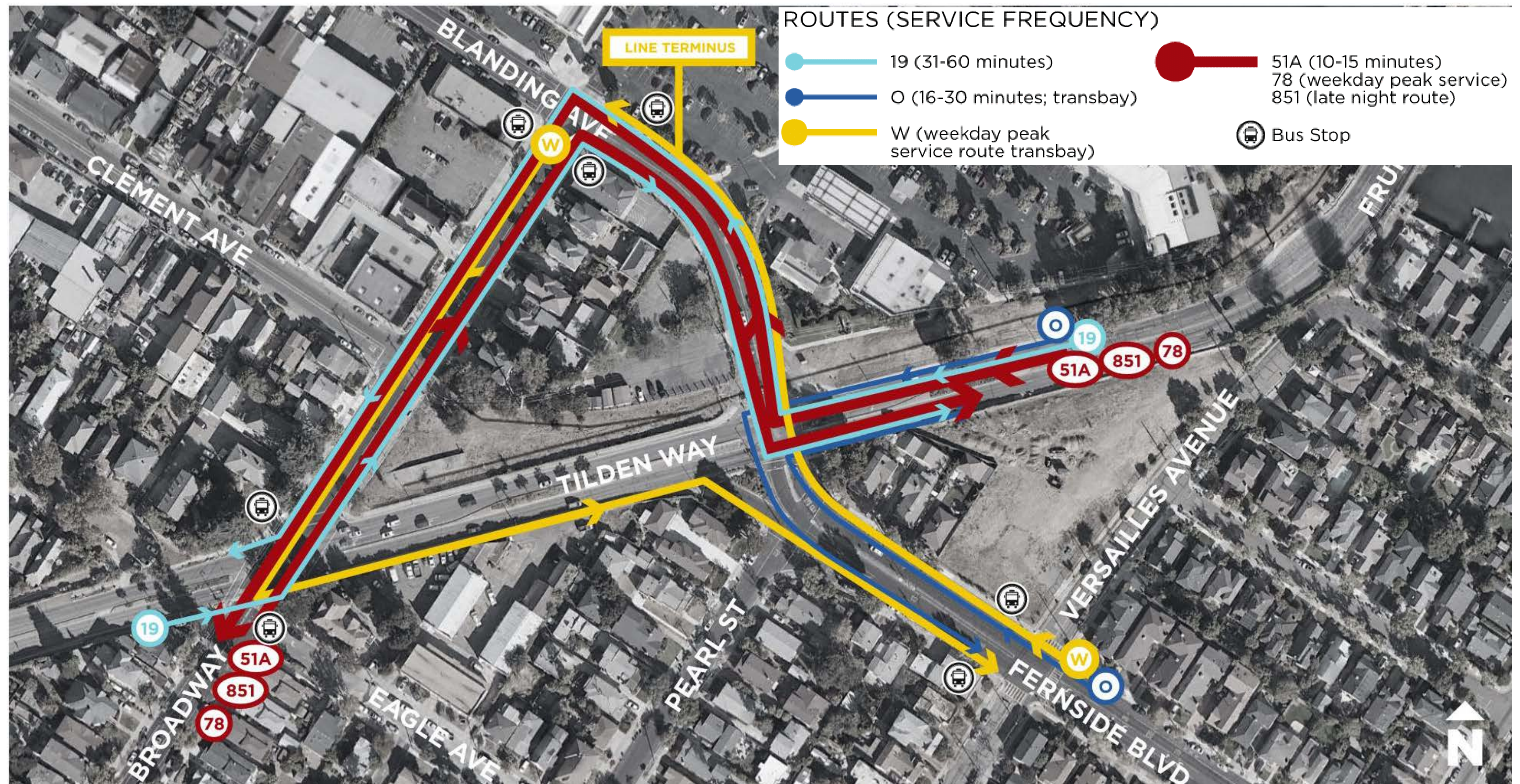


# Study Area: Cross Alameda Trail





# Study Area AC Transit Bus Service





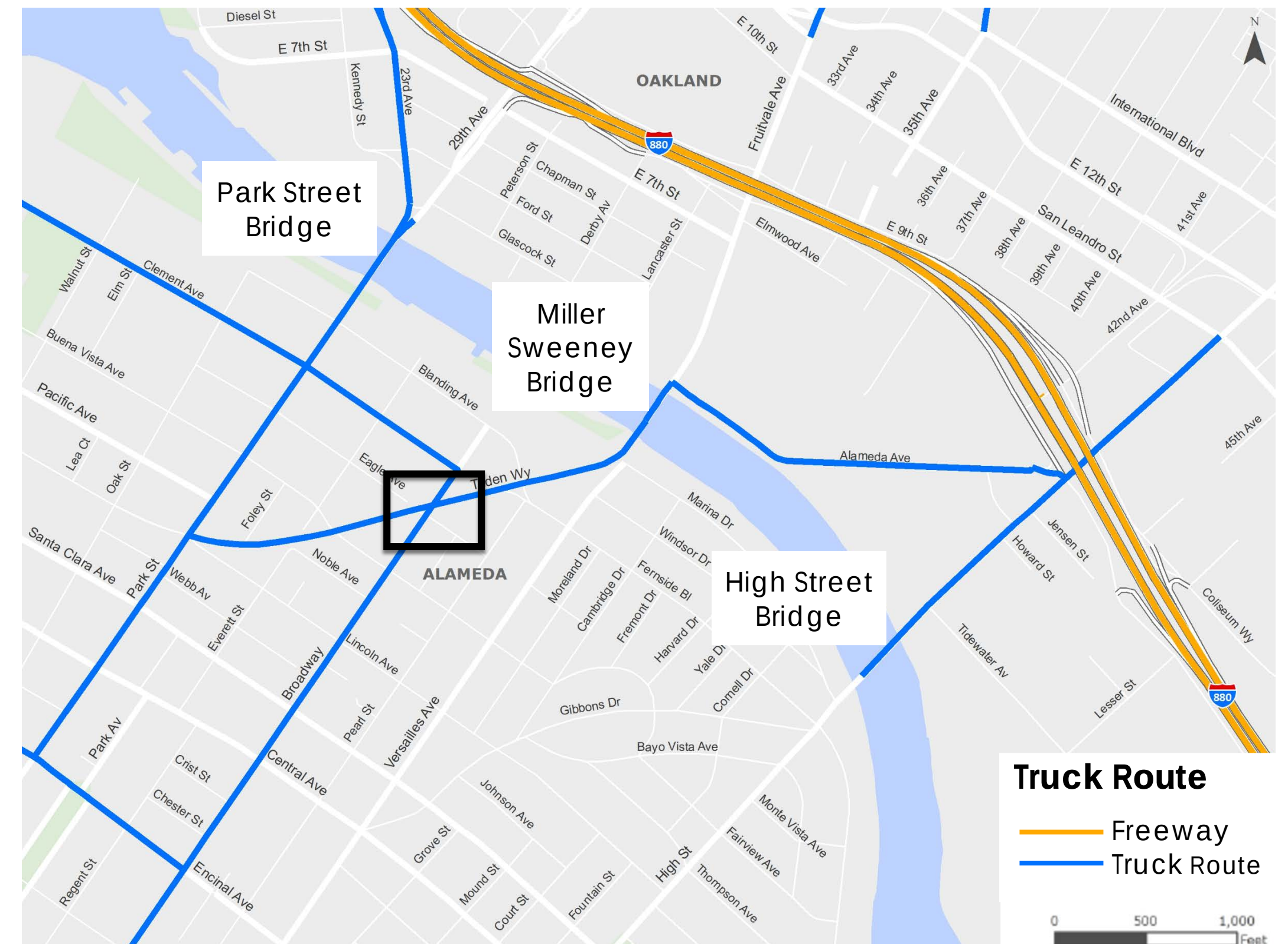
# Truck Connections

## Designated Truck Routes

- Alameda: Park St. Bridge and Miller-Sweeney Bridge
- Oakland: Park St. Bridge, Miller-Sweeney Bridge, and High St. Bridge

## Truck Usage

- Trucks east of Broadway are funneled to Miller-Sweeney Bridge
- Trucks west of Broadway use Park Street (heavy truck usage on Park St)



*Note: Sharp right turn from Tilden to Broadway is on designated truck route.*



# Truck Volumes

## Truck Travel Patterns

- 4-5x the truck activity on Park Street Bridge compared to Miller-Sweeney Bridge
- Broadway and Park are main N-S corridors
- Central and Otis are primary E-W corridors

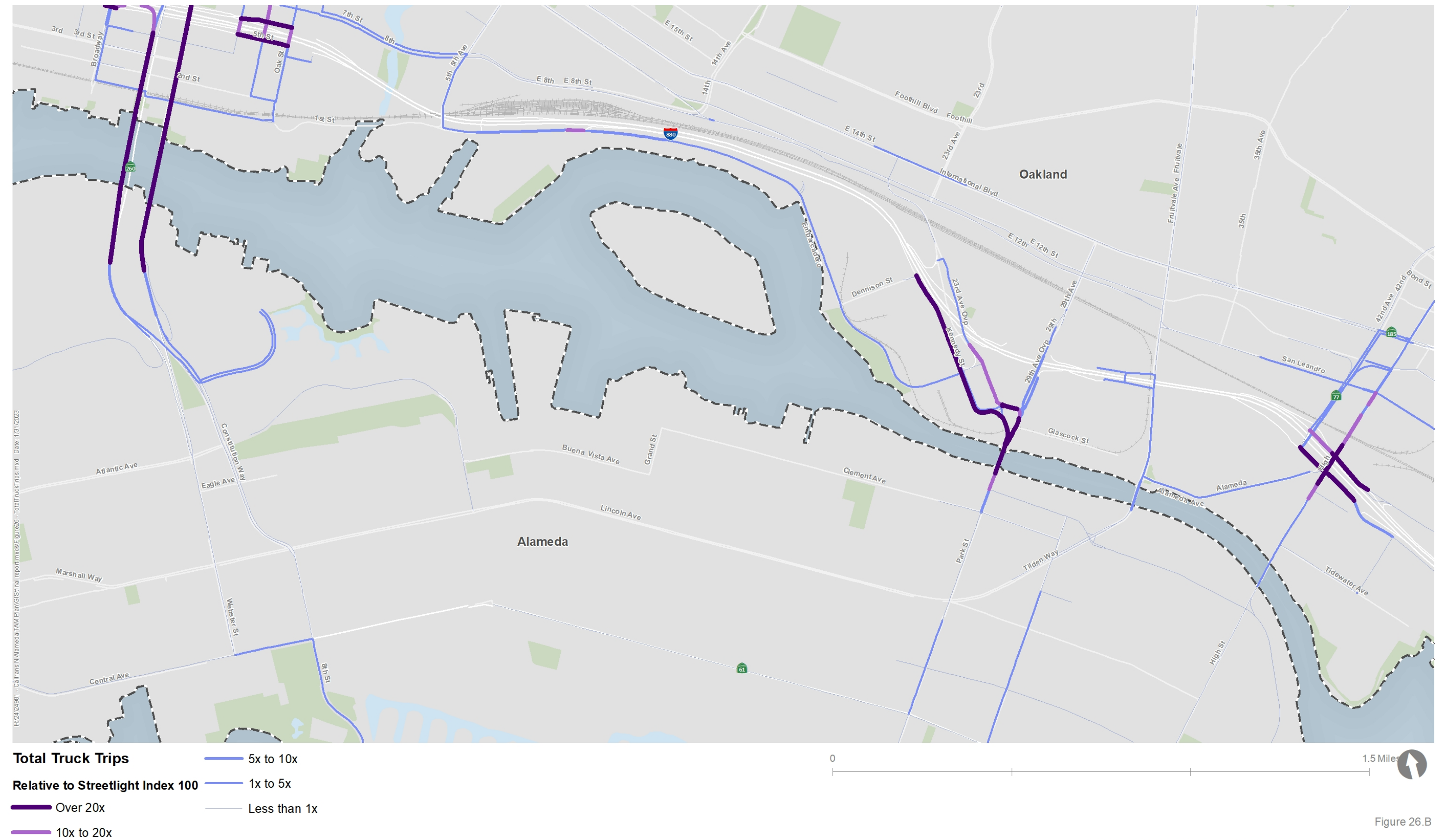
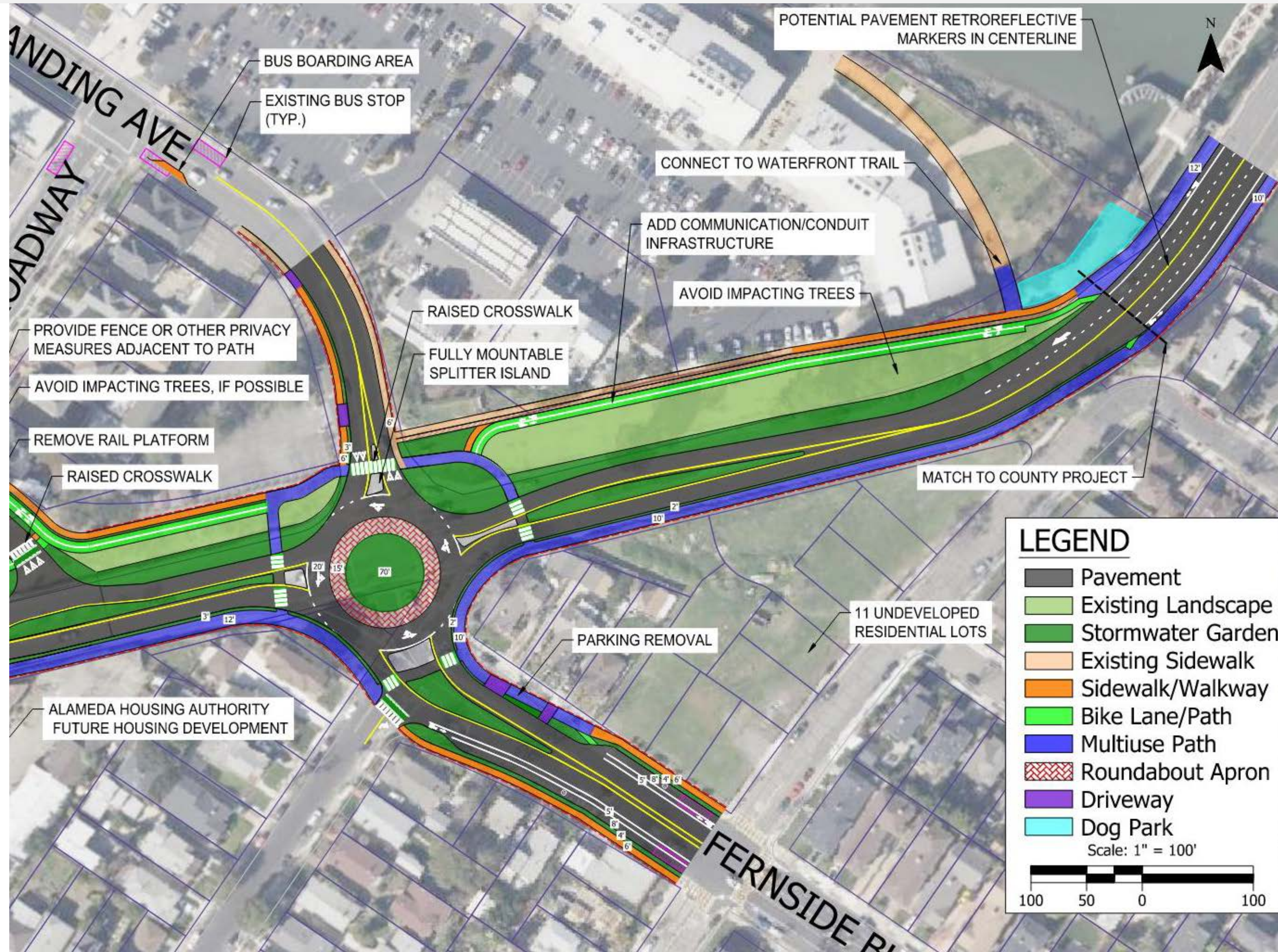


Figure 26.B  
Total Truck Trips (Inbound and Outbound)  
Southern Area  
Northern Alameda County Truck Access Study  
Source: Streetlight 2020, Kittelson & Associates, Inc.

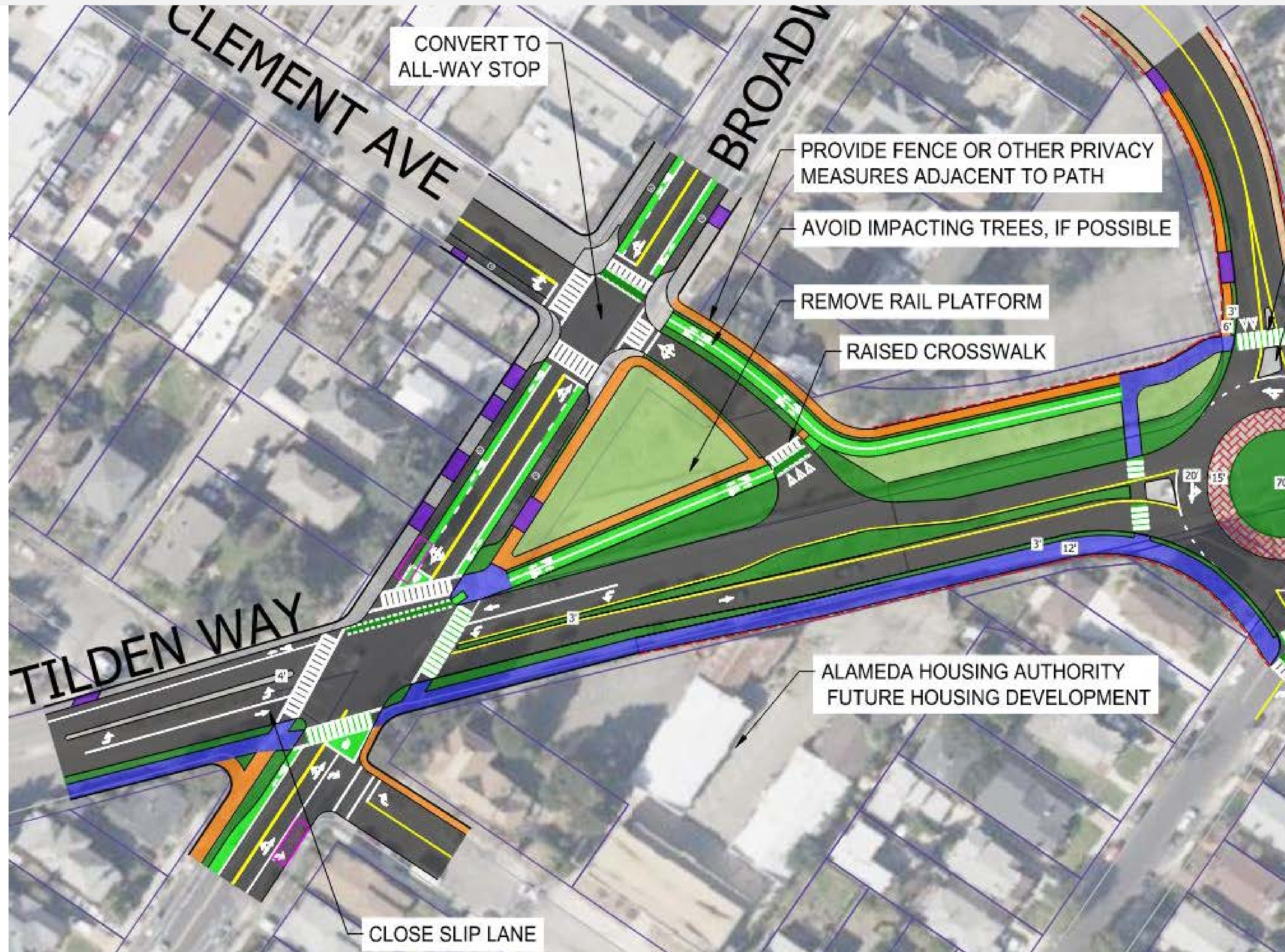


# Draft Concept Tilden/Blanding/Fernside Intersection





# Draft Concept Broadway/Tilden Intersection





# Overall Evaluation

| Project Intended Outcome                                                                                                                                                         | Benefits                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Safety</li> </ul>                                                                                                                         | <ul style="list-style-type: none"> <li>Improvements for all modes at roundabout and Broadway/Tilden</li> <li>Reduce speeds</li> <li>Adding sidewalks and crossings</li> <li>Restricting high-conflict movements</li> <li>Reduced volume at Broadway/Blanding</li> <li>Reduces truck volumes along Park Street (High Injury corridor)</li> <li>Trucks connecting to Clement extension do not cross over CAT</li> </ul> |
| <ul style="list-style-type: none"> <li>Improve mobility for all roadway users</li> <li>Improve bicycle and pedestrian access</li> <li>Reduce greenhouse gas emissions</li> </ul> | <ul style="list-style-type: none"> <li>Improved biking/walking connections</li> <li>Improved bus access</li> <li>Direct truck and motor vehicle access to Clement</li> <li>Improved walking and biking conditions encourages mode shift</li> </ul>                                                                                                                                                                    |
| <ul style="list-style-type: none"> <li>Flood Reduction/Landscaping</li> </ul>                                                                                                    | <ul style="list-style-type: none"> <li>New stormwater gardens and bioretention areas</li> </ul>                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>Comply with City plans and policies</li> </ul>                                                                                            | <ul style="list-style-type: none"> <li>Completes General Plan truck network</li> <li>Extends Cross Alameda Trail</li> </ul>                                                                                                                                                                                                                                                                                           |



# Next Steps

- o 2023: Design
- o 2024: Construction
- o 2025: Complete
- o Project webpage:  
[www.alamedaca.gov/ClementTilden](http://www.alamedaca.gov/ClementTilden)

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# 2022 Volumes with COVID adjustment

## Existing / Project Delay Comparison



**Average Travel Time Delays**  
Without Project (**With Project**)

s = seconds of average delay



# Anticipated queue lengths, Weekday PM Peak Hour



## Legend

- No Build
- Project
- Average Queue
- 95th Percentile Queue

2022, No Adjustment



# Anticipated queue lengths, Weekday PM Peak Hour



\*2022 volumes were adjusted to approximate pre-pandemic levels by increasing volumes to and from Alameda by 20%



# Emergency/Evacuation Scenarios

## *Unmanaged scenario*

- Lose some capacity (2 lanes to 1) for about 1/3 mile
- Fruitvale Avenue in Oakland becomes bottleneck (2 lanes to 1)

## *Managed Scenario*

- Can run the roundabout eastbound only (“contraflow”)
- Can use one of the two multi-use paths for emergency vehicles
- Maintains two lanes outbound
- Lose capacity for 1/3 mile to Fruitvale Avenue in Oakland

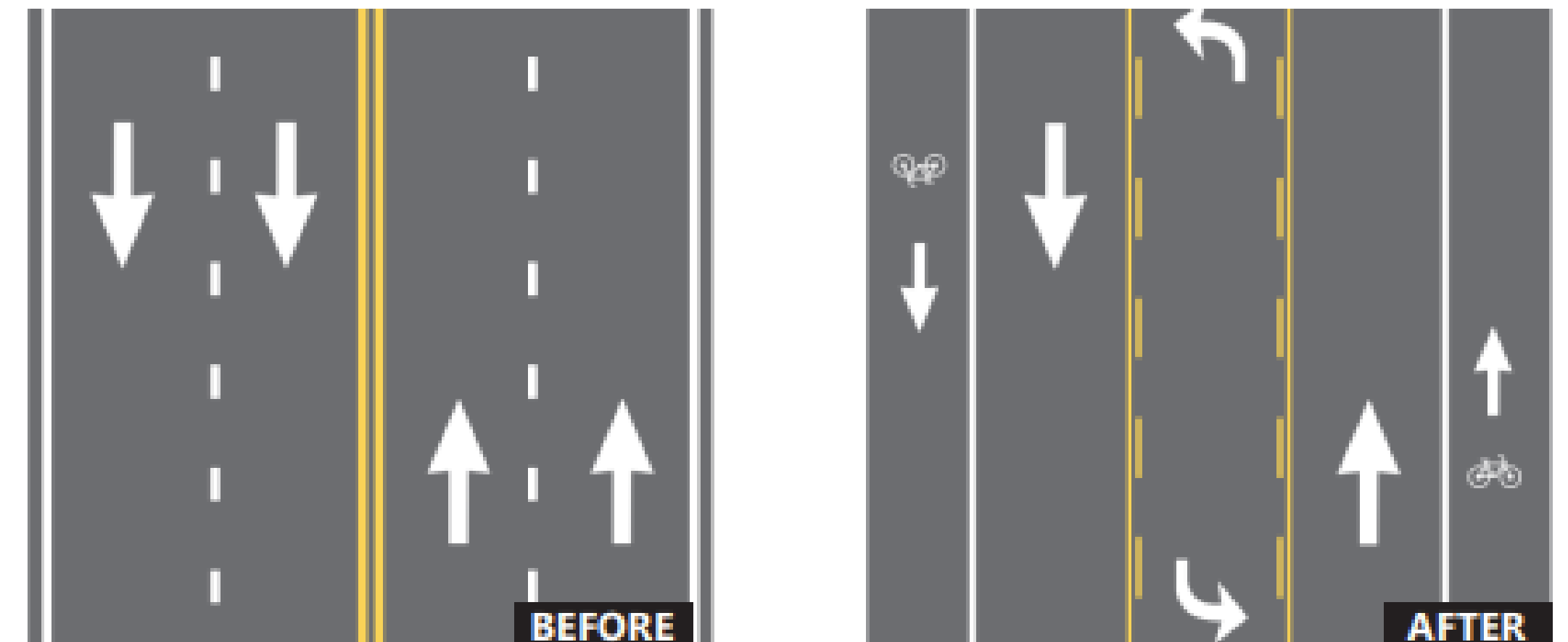




# Lane Reduction

Reduce number of travel lanes (commonly called “Road Diet”)

- Lower speeds
- 19 – 47% crash reduction (right-angle, turning, rear end crashes)
- Shorter pedestrian crossings



Source: FHWA



# Design Details

## ***Raised Crosswalks***

- Design can be adapted to roundabouts
- Compatible with large vehicles
- Research and design guidance informs the design



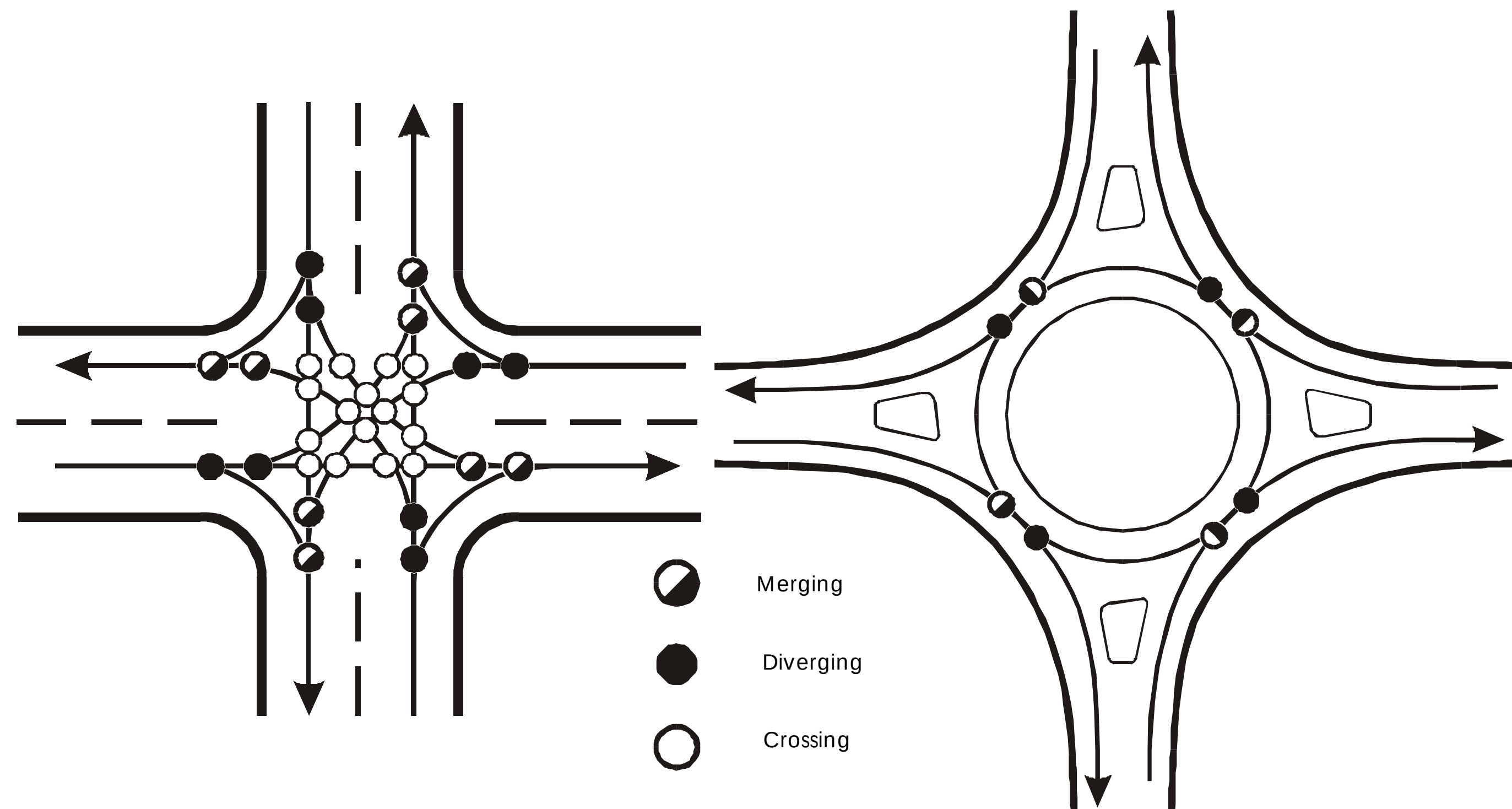


# Safety Performance

## Safety Statistics

- 90-100% reduction in fatalities
- 75% reduction in injuries
- 35% reduction in total crashes
- Lack of pedestrian and bicyclist crash frequency
- Reduction in conflict number and speeds

Roundabouts reduce conflict point number and severity

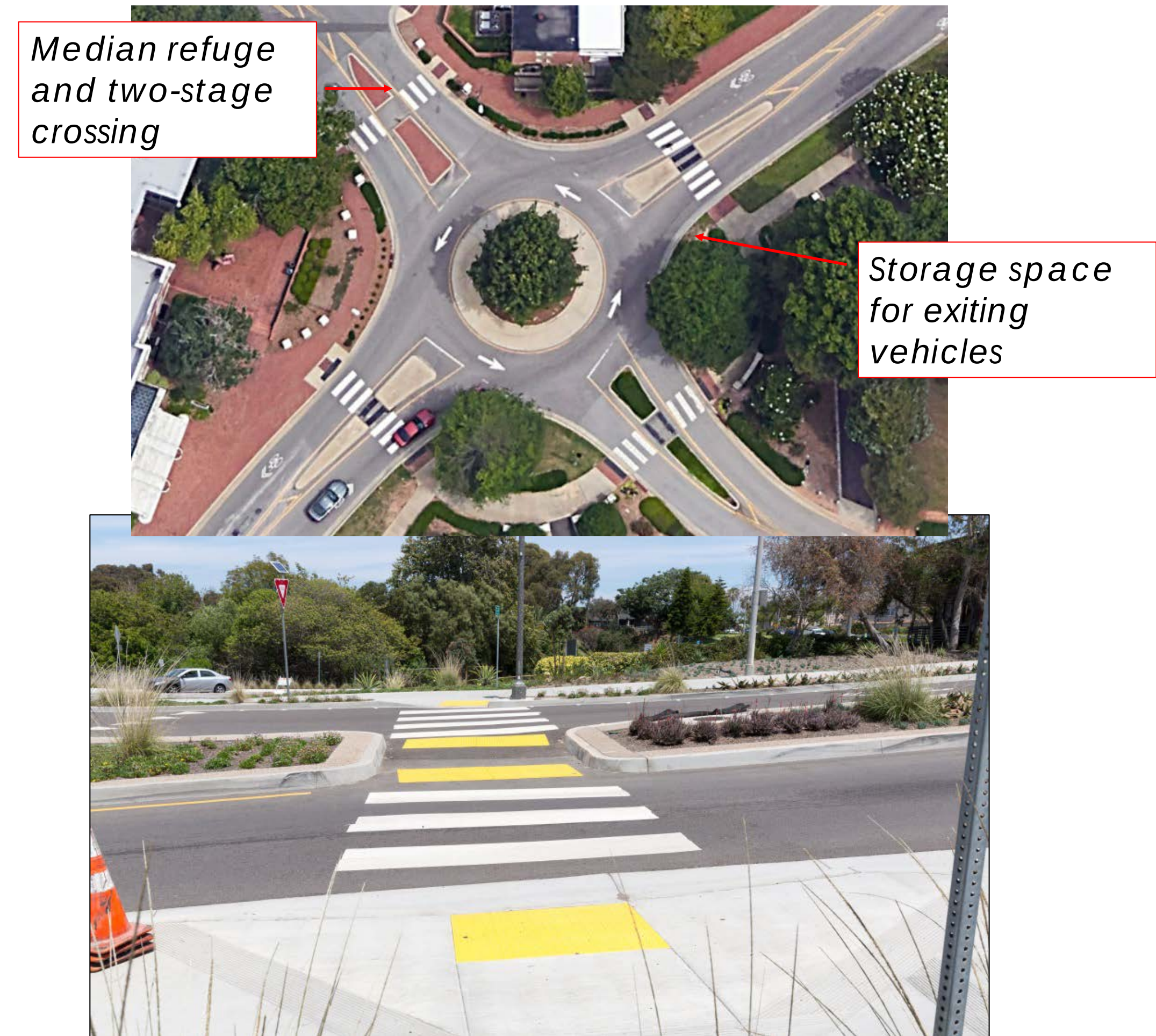


Source: NCHRP Report 572, NCHRP Report 672



# 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
  - Yield-controlled crossings



Sources: Google Earth; Kittelson



# Why Build Roundabouts?

## Roundabout benefits include:

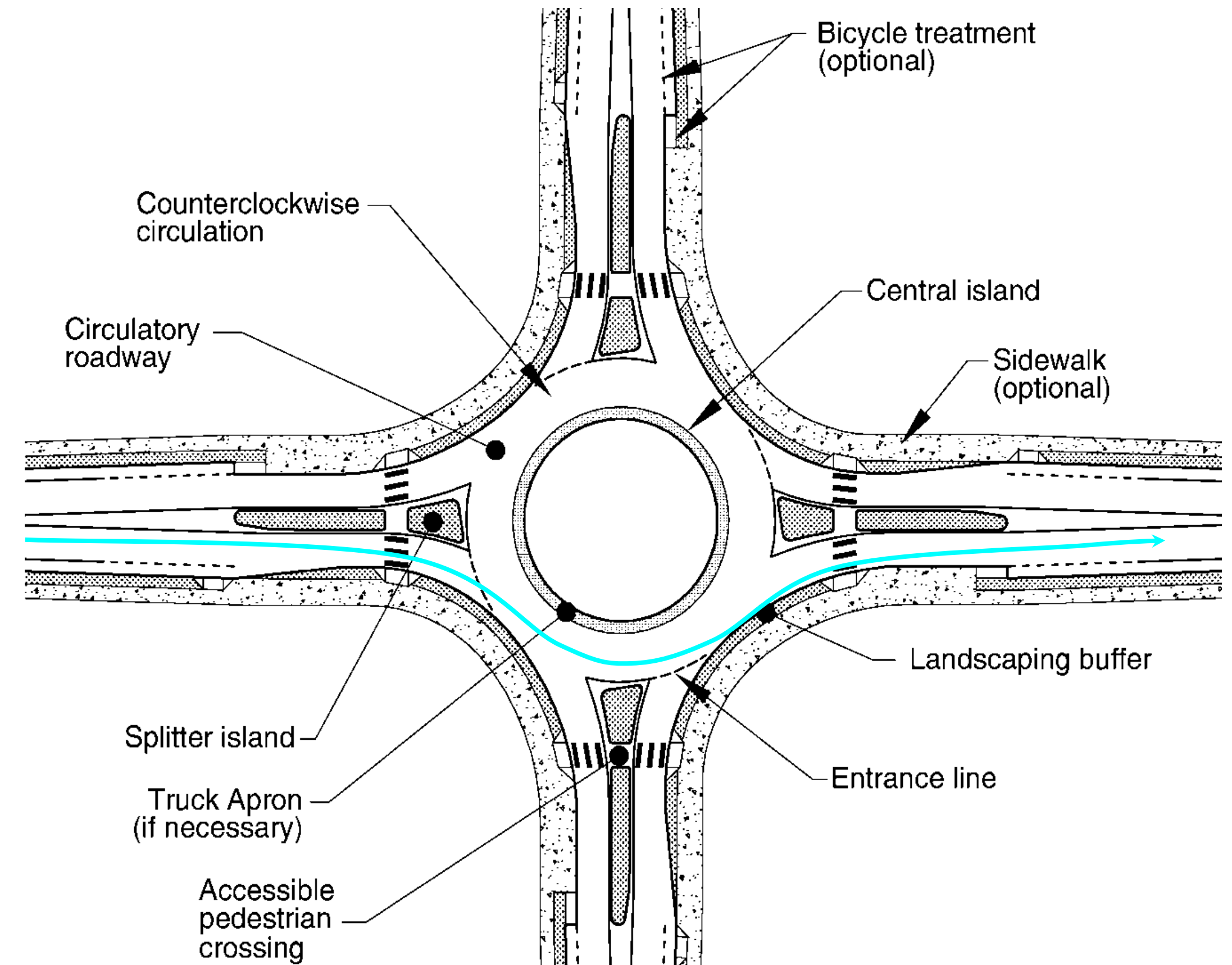
- Safety performance
- Lower delay
- Environmental benefits (emissions, fuel savings)
- Access management
- Operations and maintenance costs
- Aesthetics





# Vehicle Speeds: Reduced

- Geometry controls speeds
  - Max entry speed:
    - 25 mph for single-lane
    - 30 mph for two-lane
  - Circulating speeds 10 to 12mph
- Increased time for driver reaction
- Decreased chance for injury or fatality





# Roundabouts and Accessibility

Considerations for Visually Impaired:

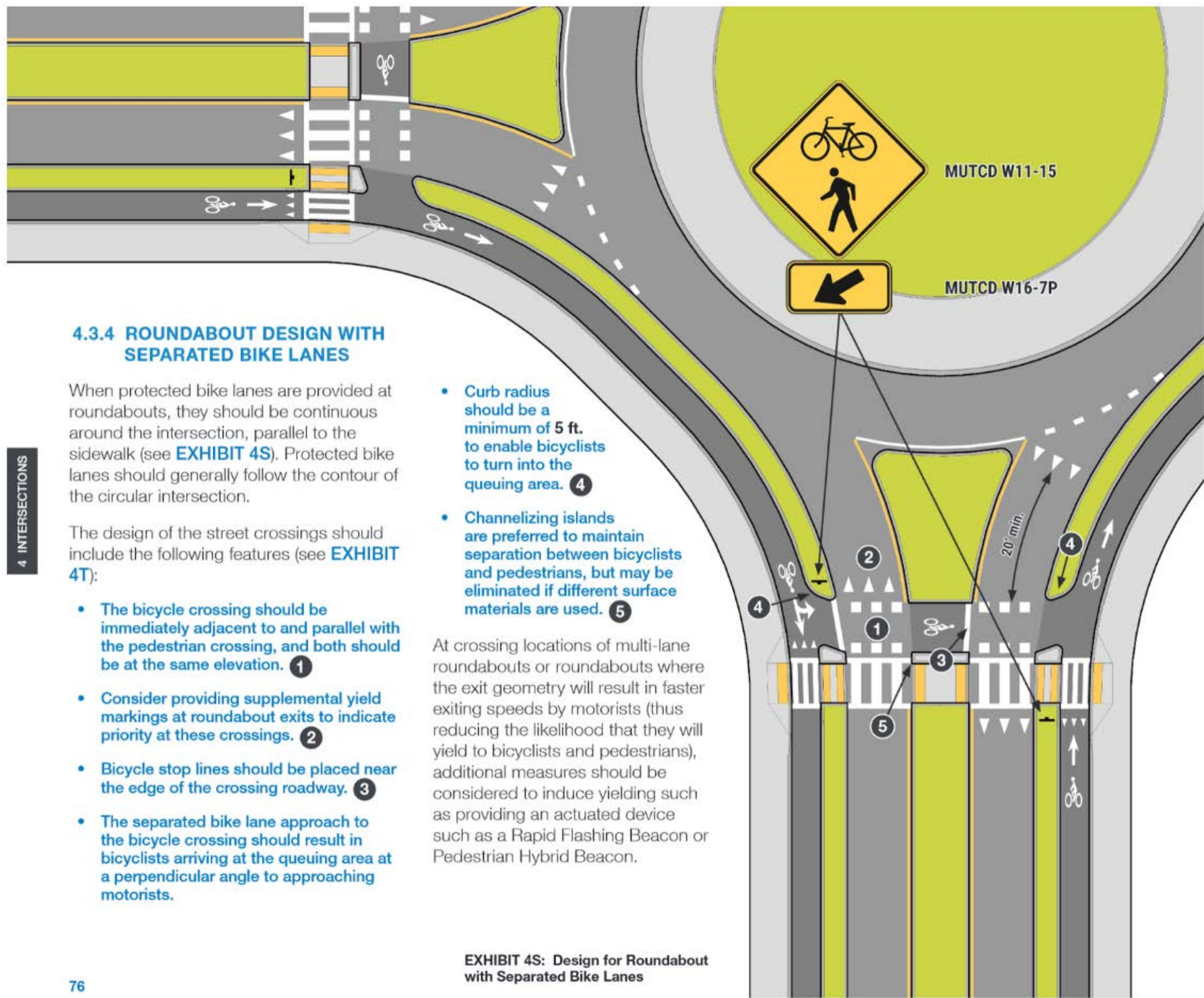
1. Well defined walkway edges
2. Separated walkways
3. Aligned detectable warnings
4. Perpendicular crossings
5. Contrasting crosswalk markings

*Performance assessment detailed in NCHRP Report 834*





# Separate Bike/Ped Options



San Luis Obispo, California  
Source: Brian Ray

Source: Massachusetts DOT *Separated Bike Lane Planning and Design Guide*



# Roundabouts and Large Vehicles

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

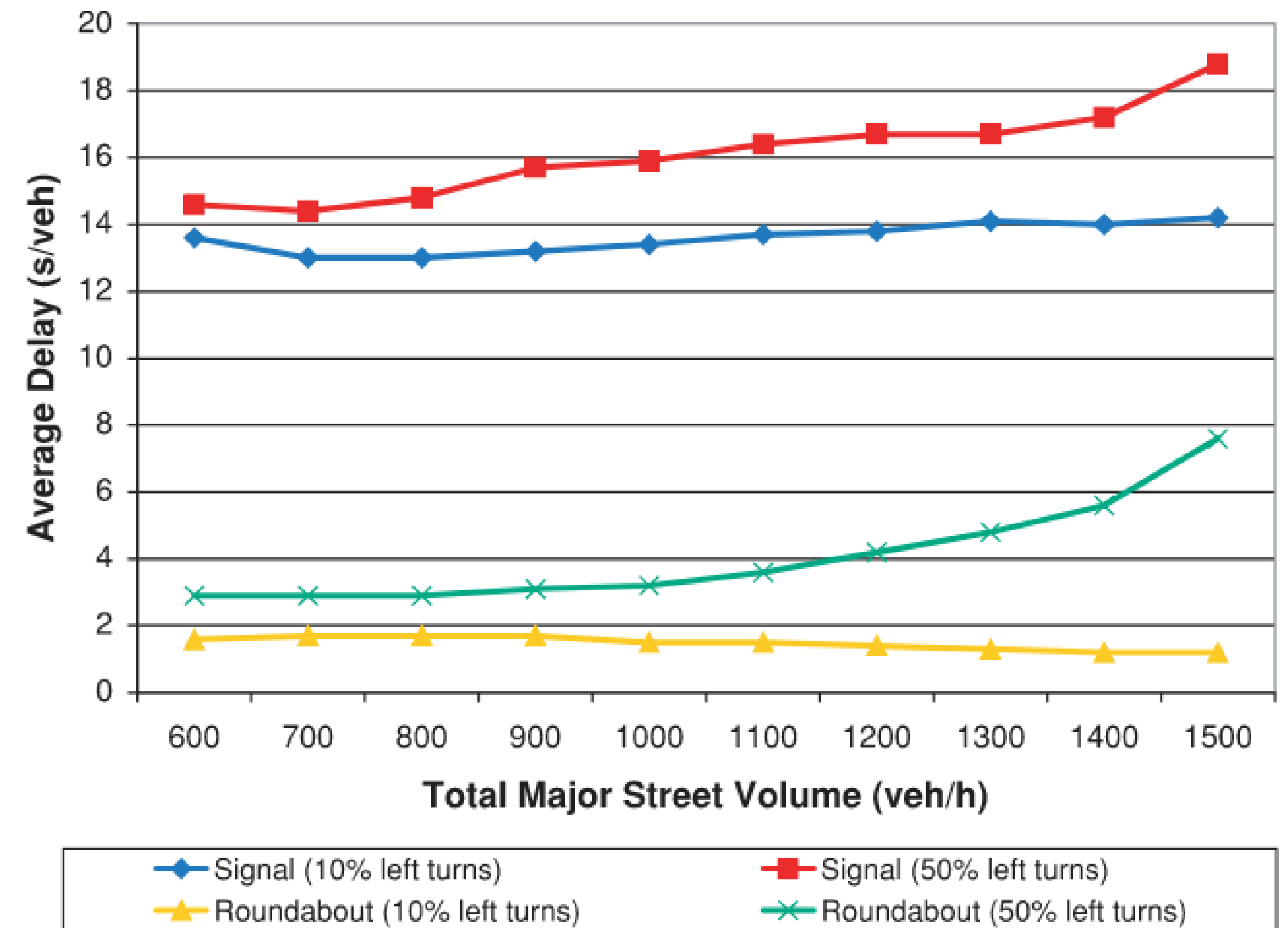




# Reduced Travel Delay

- May solve existing or projected operational problem
  - Heavy delay on minor road
  - Large traffic signal delays
  - Heavy left-turning traffic
  - Stop control with large delays

**Comparative Delay, Signal versus Roundabout**  
Intersection that meets Signal Warrants



Source: NCHRP Report 672, NCHRP Exhibit 3-19

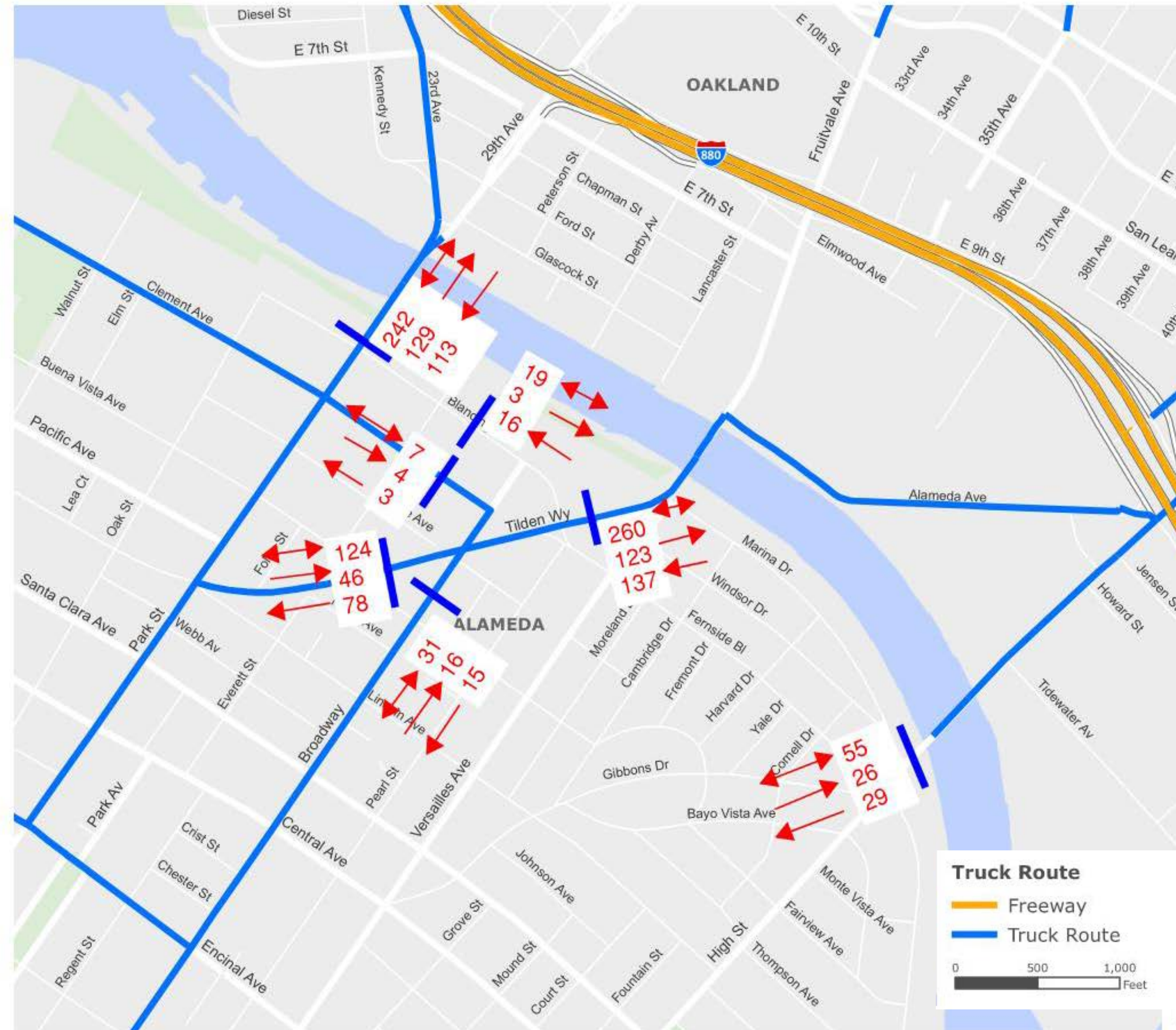


# Truck Volumes

## Miller-Sweeney Bridge 2022 Truck Volumes

- Trucks account for 2 - 5% of daily traffic on Fruitvale Avenue to/from Oakland
- Balanced truck volumes to/from Oakland all day
- Higher truck volumes on Blanding than Clement
- **The project should continue to provide truck access to/from Nob Hill shopping center.**
- **Trips to Oakland appear to be served better by Park Street Bridge**

## All-day Counts, Trucks with Trailers (December 2022)





# Miller-Sweeney Bridge

## *Bridge Events*

- Average 34 times a month (1-2 times/day)
- Typical 5-10 minute event (depends on vessel)
- Typically avoid AM and PM peak hours
- Similar to a rail crossing

Vehicle queues during bridge events (2022)



Example Roundabout near rail crossing in Kennewick, Washington



# Dealing with future volumes

## *Managed Scenario*

- The roundabout shows to be below capacity even with conservative adjustments.
- If future volumes grow, a roundabout can be **metered** to manage delays and queues.
- Example shown from Columbia Park Trail, Richland, Washington

