



Palo Alto
Safe Streets & Roads for All
Meeting 2

FEBRUARY 28, 2024

www.cityofpaloalto.org

Agenda

- Schedule
- Collision Landscape Analysis Summary
- High Injury Network
- Preliminary Engagement Feedback
- Collision Profiles



Project Schedule

Project Task	Date
Collision Analysis, Collision Profiles, HIN	Oct. 2023 – Jan. 2024
Develop Project List & Countermeasures Toolbox	Jan. 2024 – Mar. 2024
Develop Progress Measures and Outcome Data for Monitoring	Mar. 2024 – May 2024
Develop Action Plans	May 2024 – Aug. 2024
Final Plan Adoption	Nov. 2024



Project Objectives

- Create a Vision Statement, Strategy, and Goal to reach zero fatalities and serious injuries in Palo Alto
- Develop partnerships between key stakeholders and the community to support this, and other, safety efforts
- Prepare a data-driven analysis to understand collision history and patterns
- Identify program, policy, and practice opportunities to institutionalize Safe System
- Prepare a comprehensive Safety Action Plan that includes strategies and recommendations built around the Safe System elements





Collision Landscape

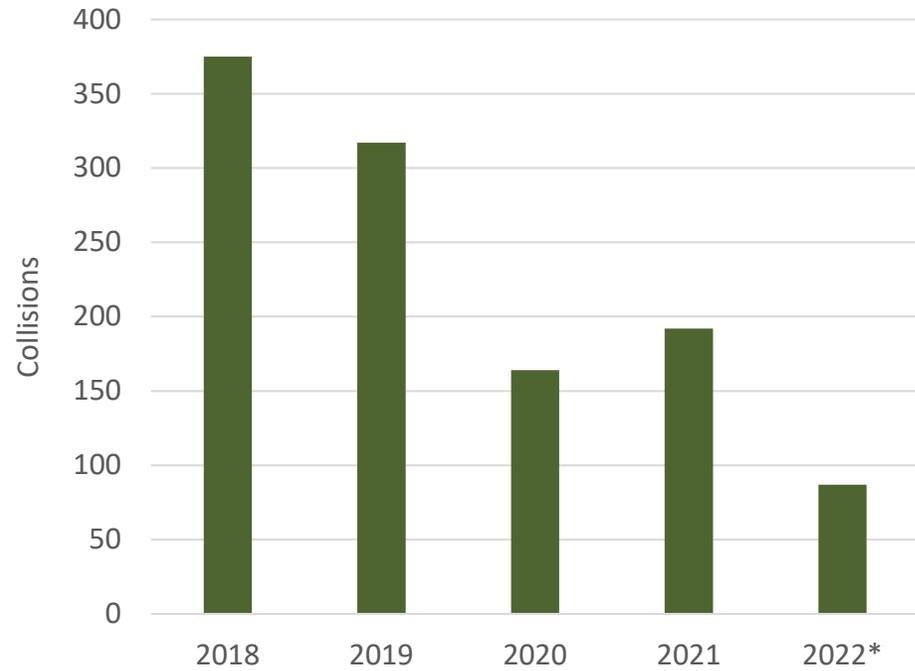
Data Source

Transportation Injury Mapping System (TIMS)

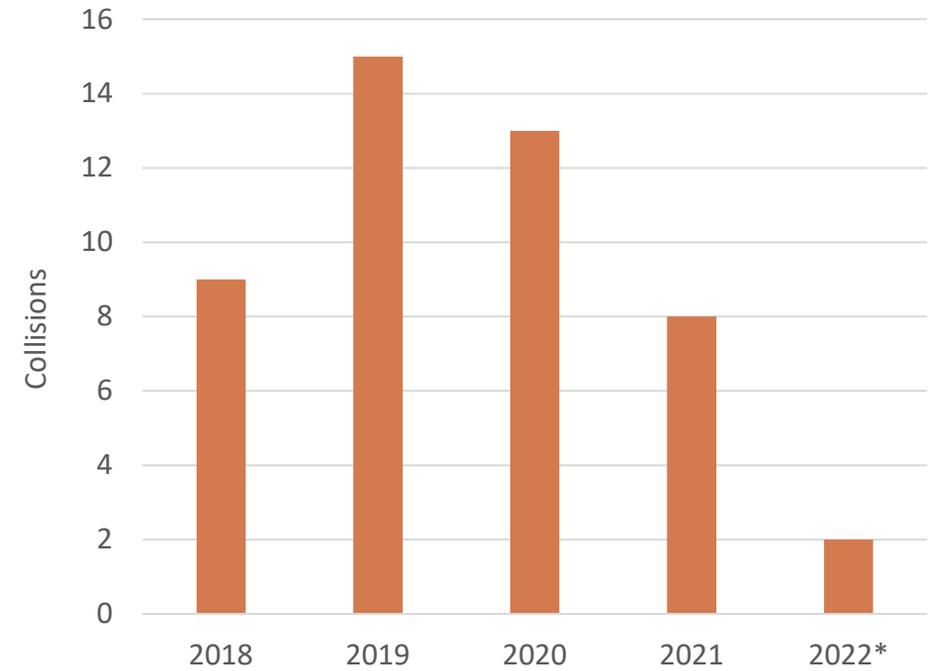
- 2018-2022*
- Injury Collisions
 - Inclusive of fatal and injury collisions - Killed/Serious Injury (KSI)
 - Excludes Property Damage Only (PDO) collisions
- Inclusive of all public roadways across the region, except for any grade separated Caltrans facilities

*note: 2022 data is still preliminary and is subject to change

Trends Over Time

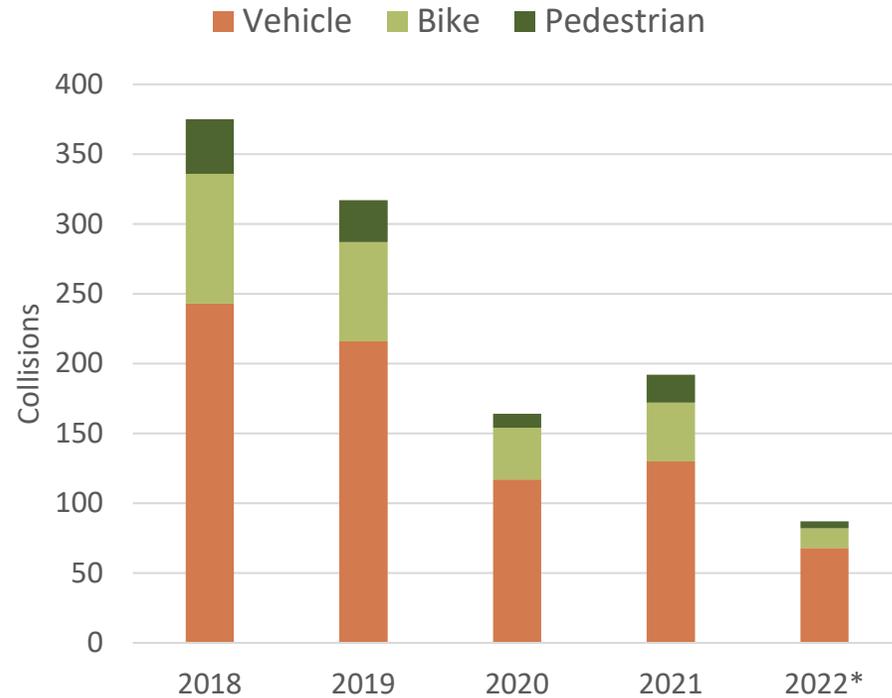


All Collisions

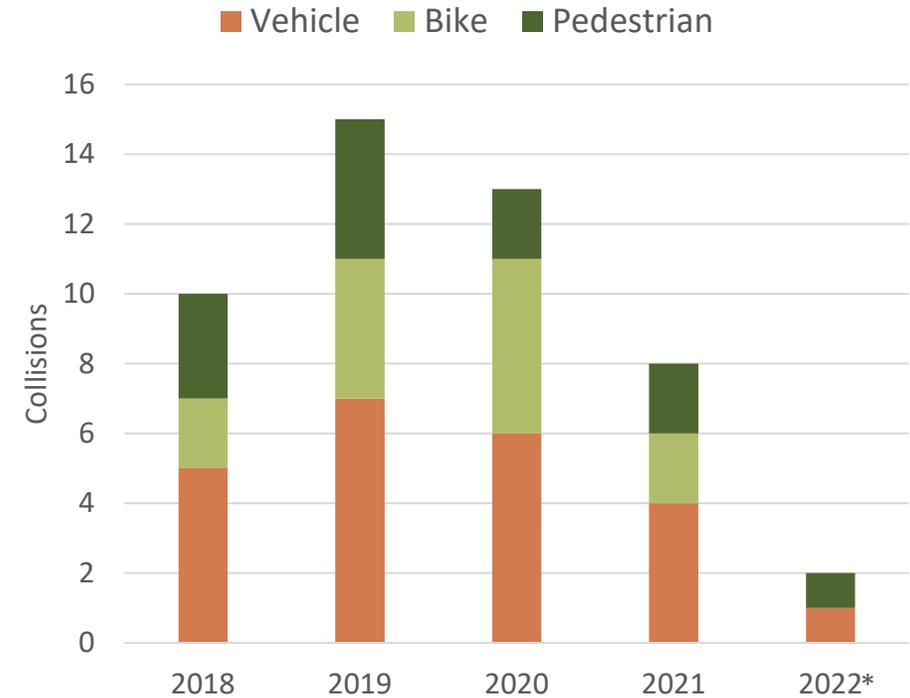


**Killed or Severe Injury (KSI)
Collisions**

Modal Breakdowns



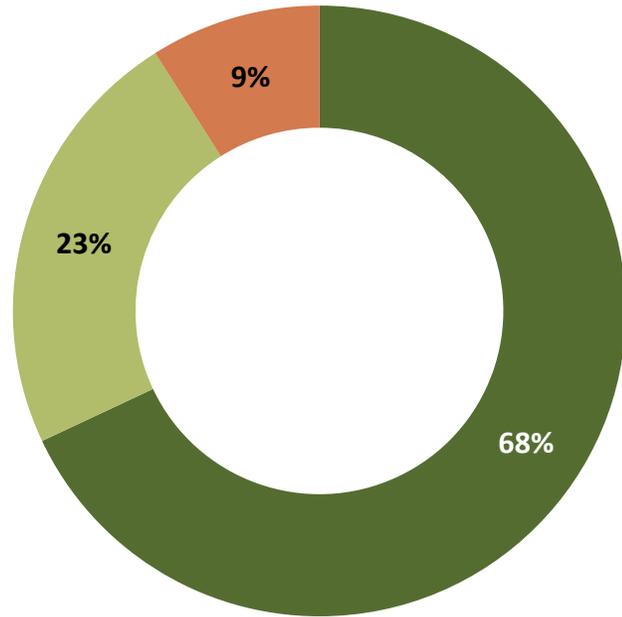
All Collisions



Killed or Severe Injury (KSI)
Collisions

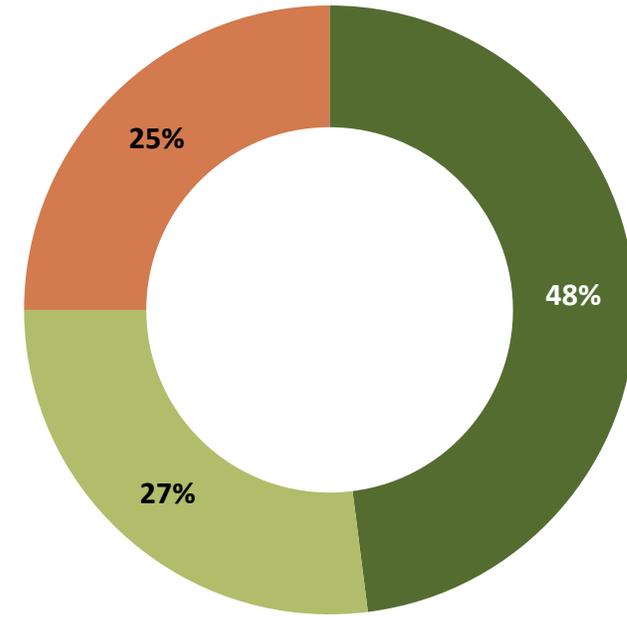
Modal Breakdowns, 2018-2022

All Collisions



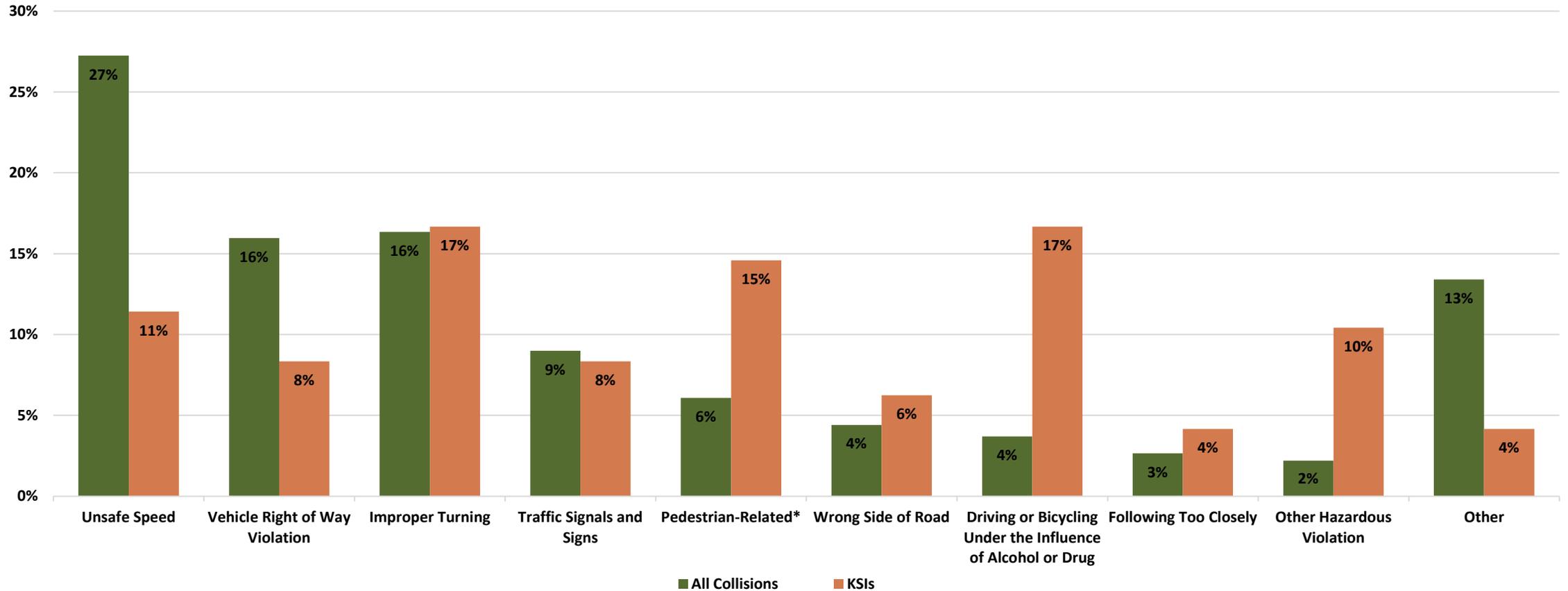
■ Vehicle ■ Bike ■ Ped

KSI Collisions



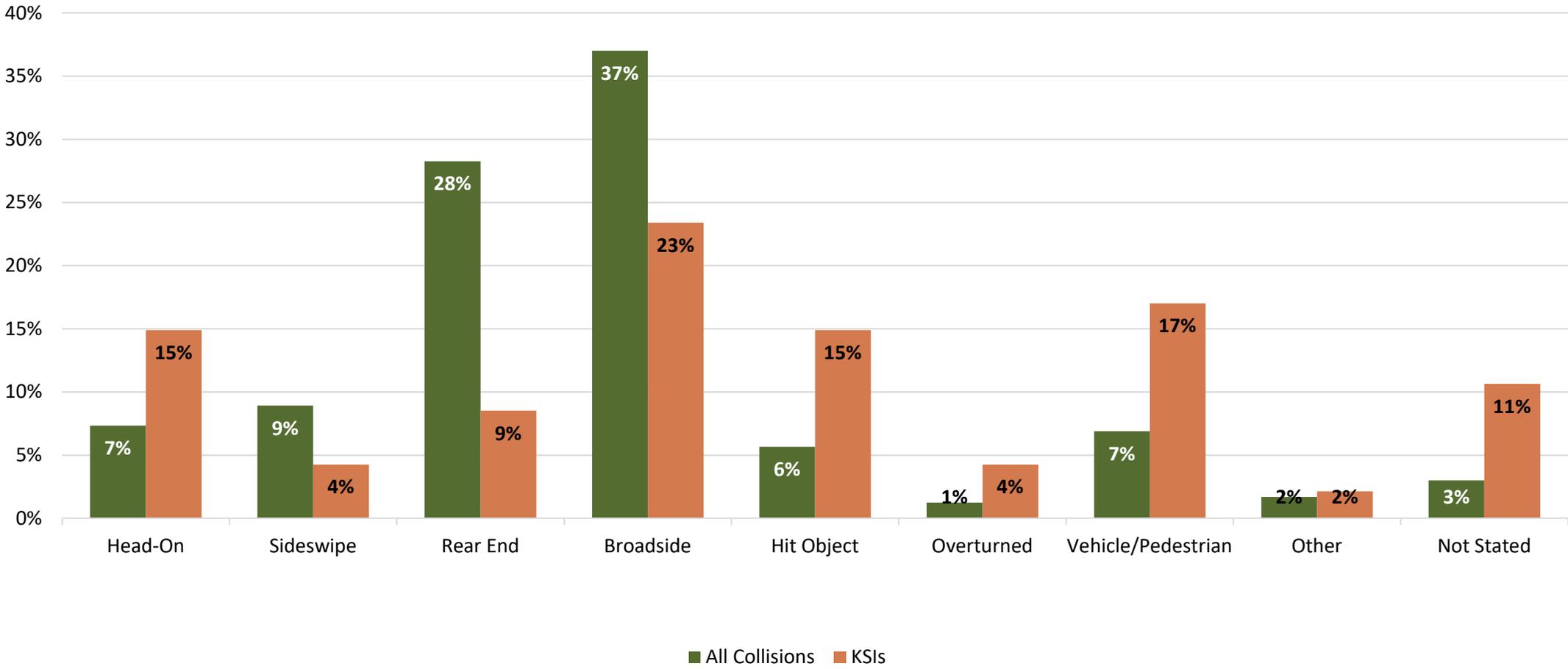
■ Vehicle ■ Bike ■ Ped

Share of Collisions by Primary Collision Factor (PCF)



The “Pedestrian-Related” category shown here combines two PCF categories: Pedestrian Violation and Pedestrian Right of Way Violation. The former indicates that the pedestrian violated a rule of the road, such as crossing outside of a crosswalk, where the latter indicates the driver of a vehicle violated the pedestrian’s right of way. The Pedestrian Violation category may be overrepresented due to a lack of clear information related to collision circumstances, and the increased likelihood that the pedestrian party may be unable to provide their side of the incident at the time of the collision. For this reason, we have elected to not show the distinction in these tallies, and instead show all pedestrian-related collisions in one single category.

Share of Collisions by Collision Type





High-Injury Network

High Injury Network

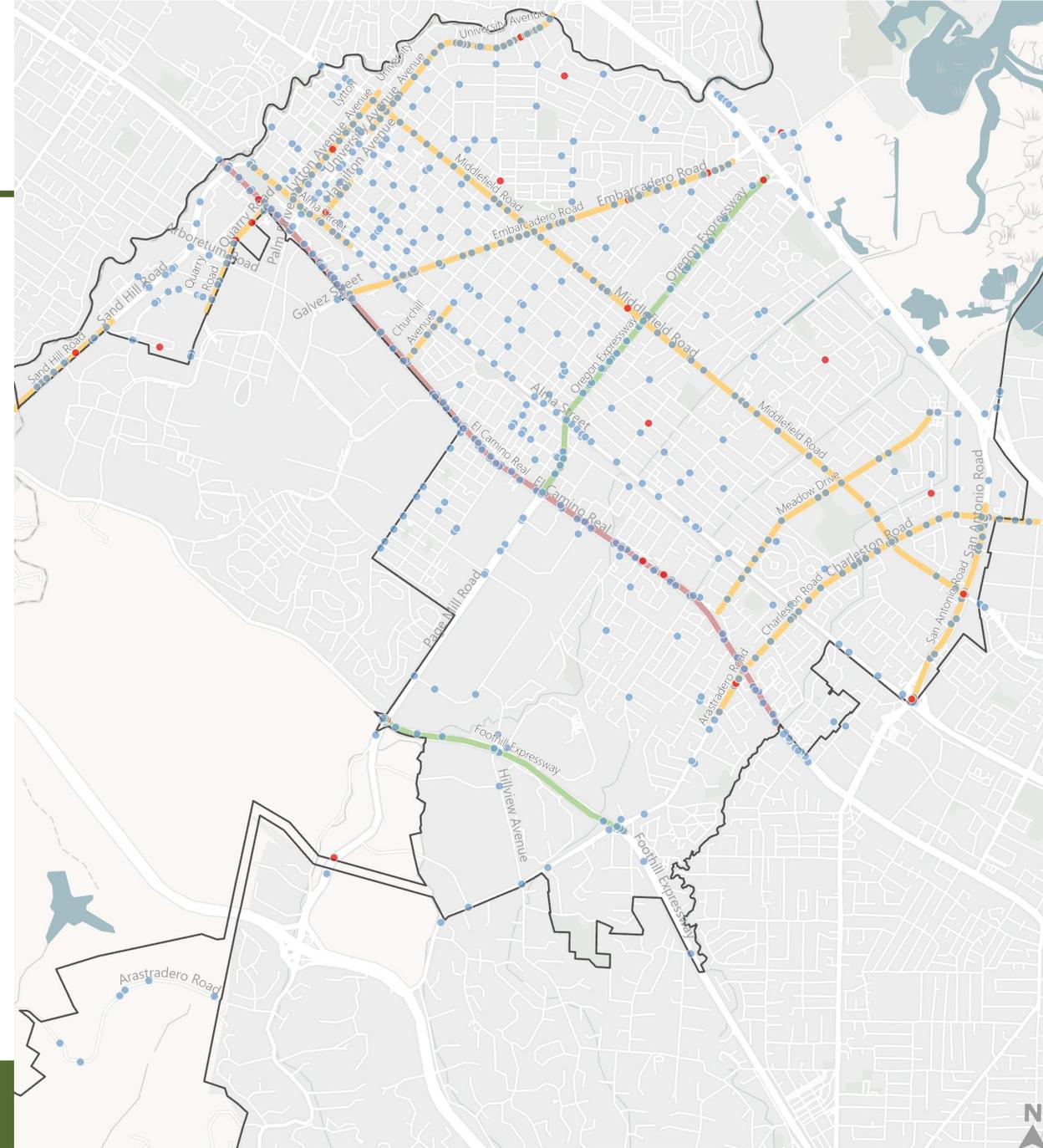
- HIN shows streets where collisions are concentrated
 - 63% of collisions occur on 4% of Palo Alto's streets
 - El Camino Real has the highest proportion of collisions (14%)

Collisions (2018-2022)

- Injury Collision
- KSI Collision

High-Injury Network

- Caltrans
- City
- County



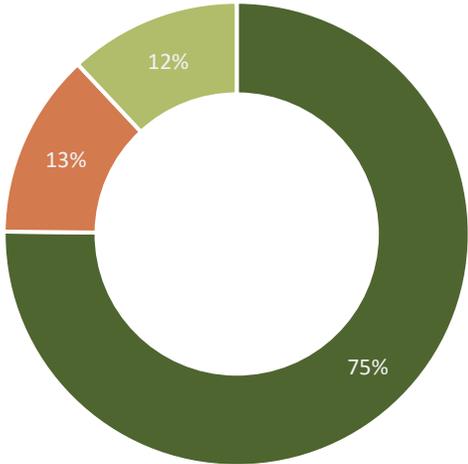


Community Feedback

Community Feedback: Survey

- Online survey
- Opened from October to December
- 766 respondents

- City of Palo Alto
- Stanford
- Other location outside of Palo Alto city limits

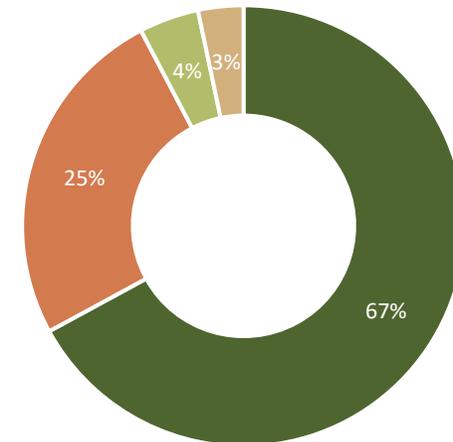


Where do you live?

Community Feedback: Key Themes

- Majority (~60%) strongly agreed to prioritize safety over on-street parking
- 85% of respondents strongly support eliminating traffic fatalities and serious injuries (KSIs) in Palo Alto
 - 99% of respondents are willing to change their driving behavior to reduce KSIs

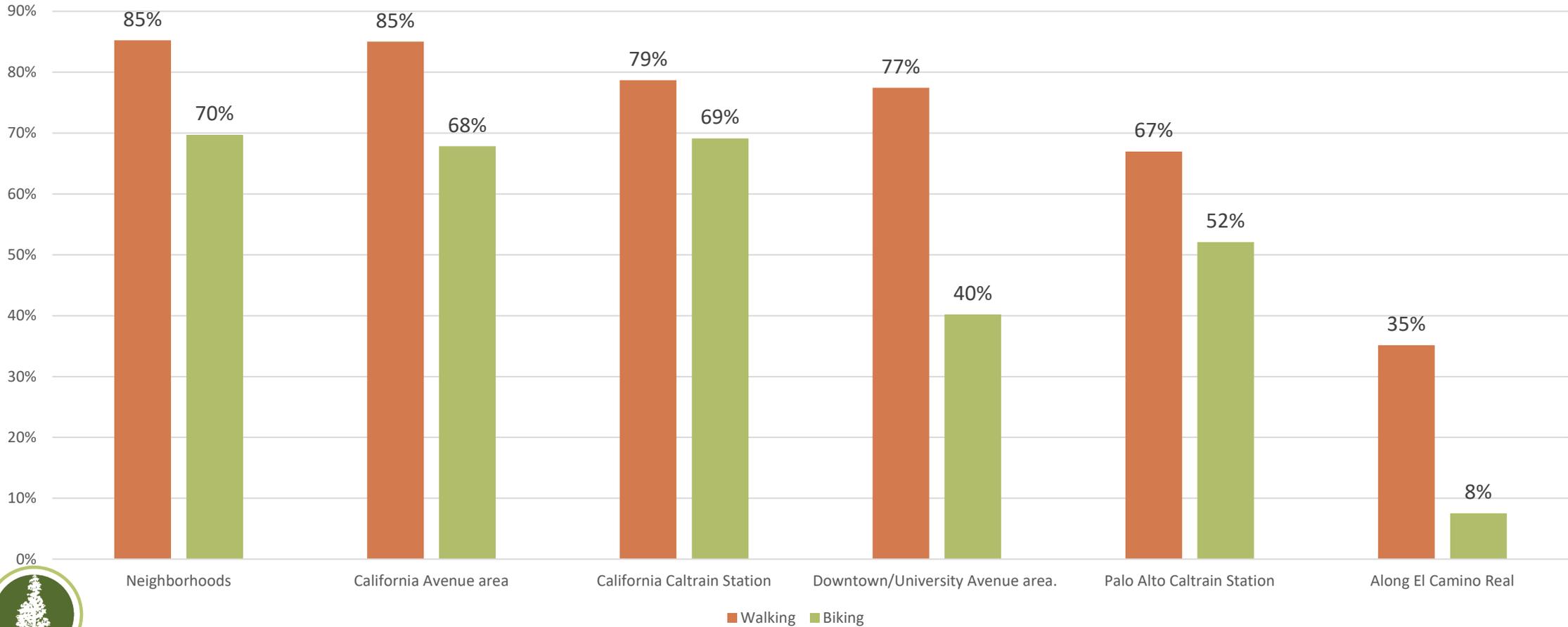
■ Strongly Agree ■ Agree
■ Disagree ■ Strongly Disagree



**Prioritize Ped/Bike Safety over
On-Street Parking?**



Community Feedback: I feel safe...



Additional Comments to Office of Transportation & On Interactive Map

■ **Bike and Pedestrian Facilities and Access**

- Improve bike lanes to downtown
- Include safety enhancements along school routes – upgrade rolled curbs, install RRFBs, traffic calming, repaint high-visibility crosswalks
- Include additional safety enhancements in the Downtown area – longer pedestrian signal timings, bike box, upgrade signal heads
- Identify ways to mitigate vehicles parking/driving in the bike lanes



Additional Comments to Office of Transportation & On Interactive Map

■ Road Design

- Conduct road diet (lane reduction) feasibility studies
- Improve sight distance and intersections to enhance visibility of pedestrians and bicyclists

■ Safety Education

- Increase education for all road users
- Prepare policy and promote education around electric bicycles





Collision Profiles

What are Collision Profiles?

- Seven Collision Profiles from local data were developed that each represent 6-15% of all KSI collisions
- 47 KSIs over the 5-year period (2018-2022)



**Residential
Arterials**

13% of KSIs

**Alcohol
Involved**

15% of KSIs

**Pedestrians On
Arterials at Night**

9% of SKIs

**Pedestrians On Major
Downtown Streets**

6% of KSIs

**90° Angle Collisions
with Bicyclists (All Ages)**

13% of KSIs

**Walk & Roll Bike Routes
Crossing Higher Stress
Streets**

4% of KSIs

**Children Riding
Bicycles**

6% of KSIs



Residential Arterials

- 6 KSIs (13% of all KSI collisions)
 - 187 Vehicle-Vehicle Collisions
- Time of Day
 - 67% KSIs occur at night (6 PM – 6 AM)
- 96% of these collisions occurred at an intersection



Residential Arterials

- Potential Countermeasures
 - Roadway lighting
 - Protected left turn phasing
 - Road diets
 - Access management
 - Design roadways to lower speeds
 - Signal timing for arterial traffic calming

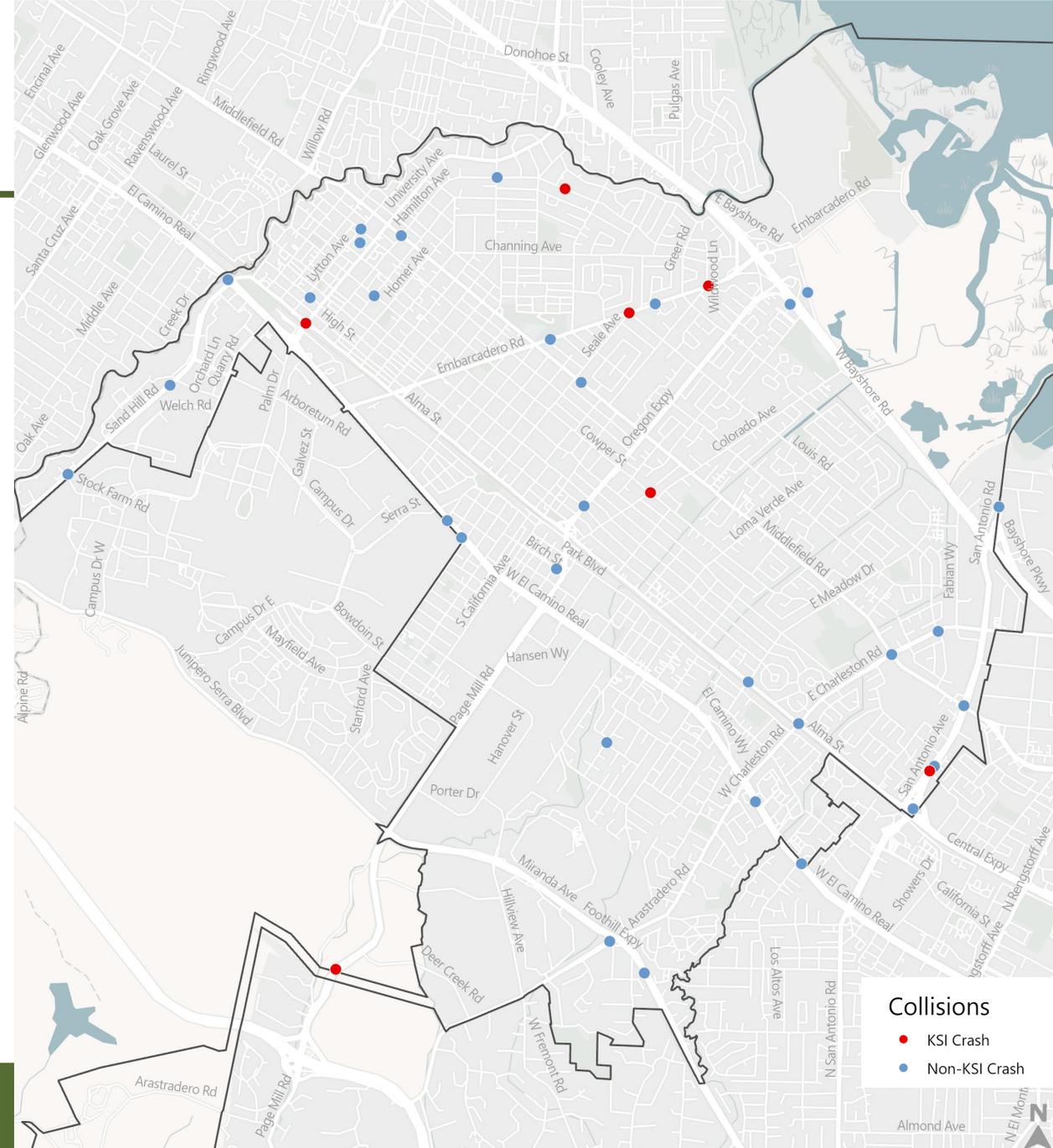


Alcohol Involved

- 4% of all collisions but 15% of KSI collisions
 - All KSI collisions were vehicle-vehicle
- Time of Day
 - 86% KSIs occur at night (6 PM – 6 AM)
- Day of Week
 - 53% of collisions occurred between Friday and Sunday
- 88% of collisions occurred at an intersection



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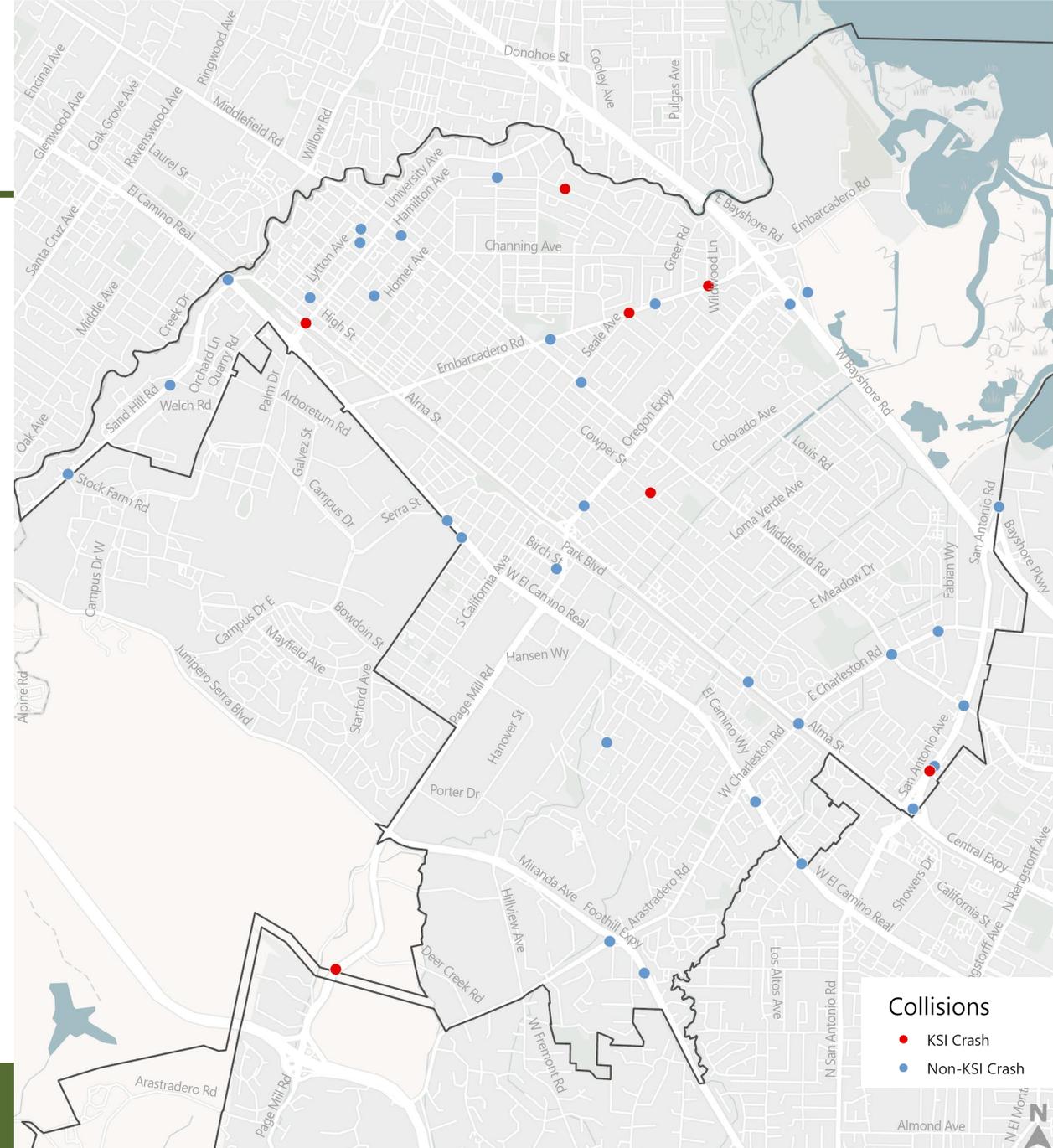


Alcohol Involved

- Potential Countermeasures
 - Design roadways to lower speeds
 - Speed sensitive rest in red signal
 - TDM measures and partnerships
 - Narrow lane widths



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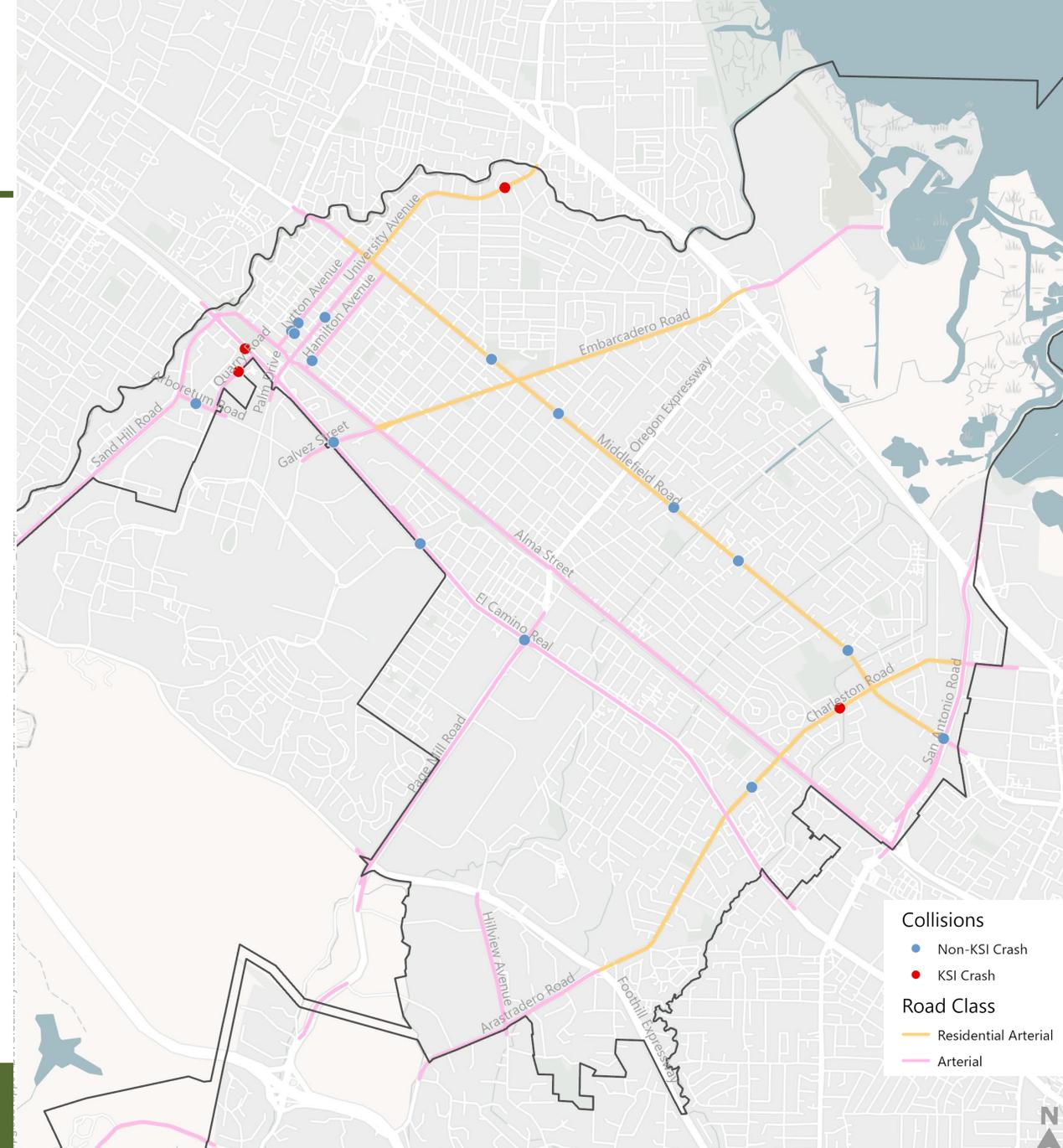


Pedestrians On Arterials at Night

- 4 KSI pedestrian collisions (9% of KSI collisions)
- Day of Week
 - 91% of collisions occur on weekdays
 - 50% KSIs occur on weekdays
- 95% of collisions occurred at an intersection



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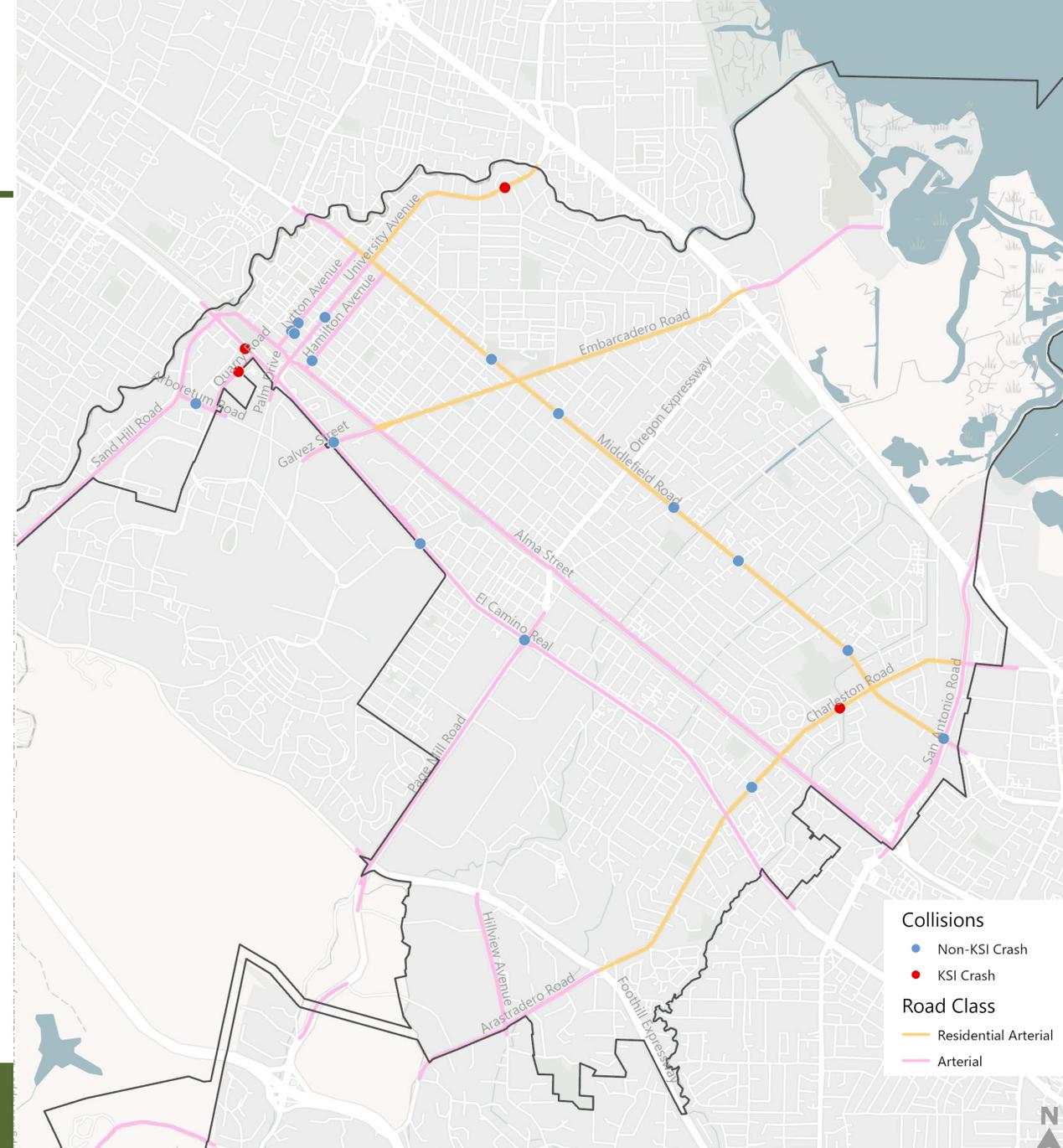


Pedestrians On Arterials at Night

- Potential Countermeasures
 - High-visibility crosswalks
 - Tighten intersections
 - Intersection and segment lighting
 - Signal timing for arterial traffic calming
 - Narrow lane widths
 - TDM measures and partnerships



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Pedestrians On Major Downtown Streets

- 3 KSI pedestrian collisions (6% of KSI collisions)
- Day of Week
 - 81% of collisions occur on weekdays
 - 67% KSIs occur on weekdays
- 100% of collisions occurred at an intersection
- All KSI collisions occurred before 2021
 - 1 KSI in 2019
 - 2 KSIs in 2020



Pedestrians On Major Downtown Streets

- Potential Countermeasures
 - Curbside management to address goods movement
 - Leading pedestrian intervals
 - Pedestrian scrambles
 - Restrict right turns on red through Downtown
 - Road diets

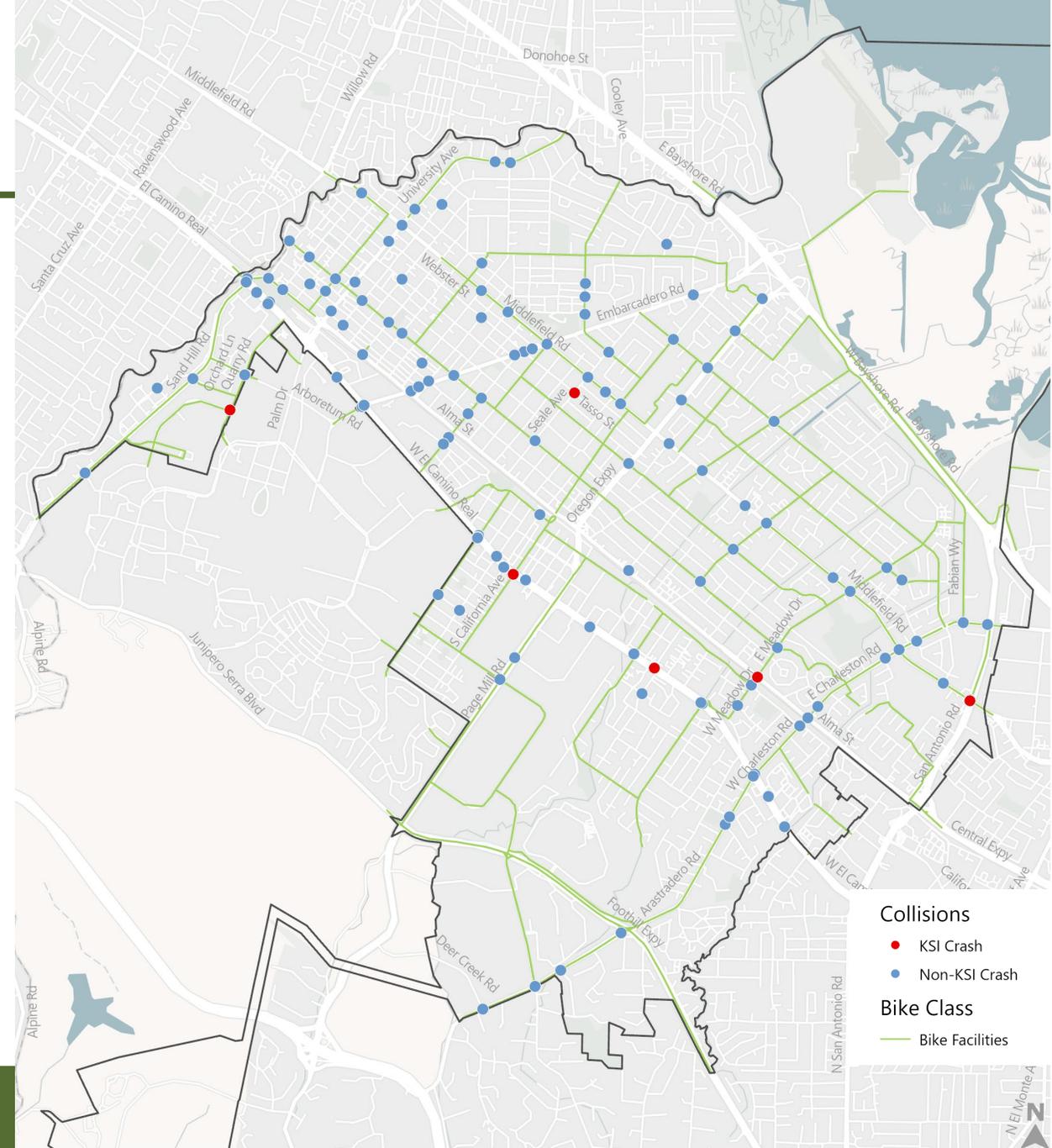


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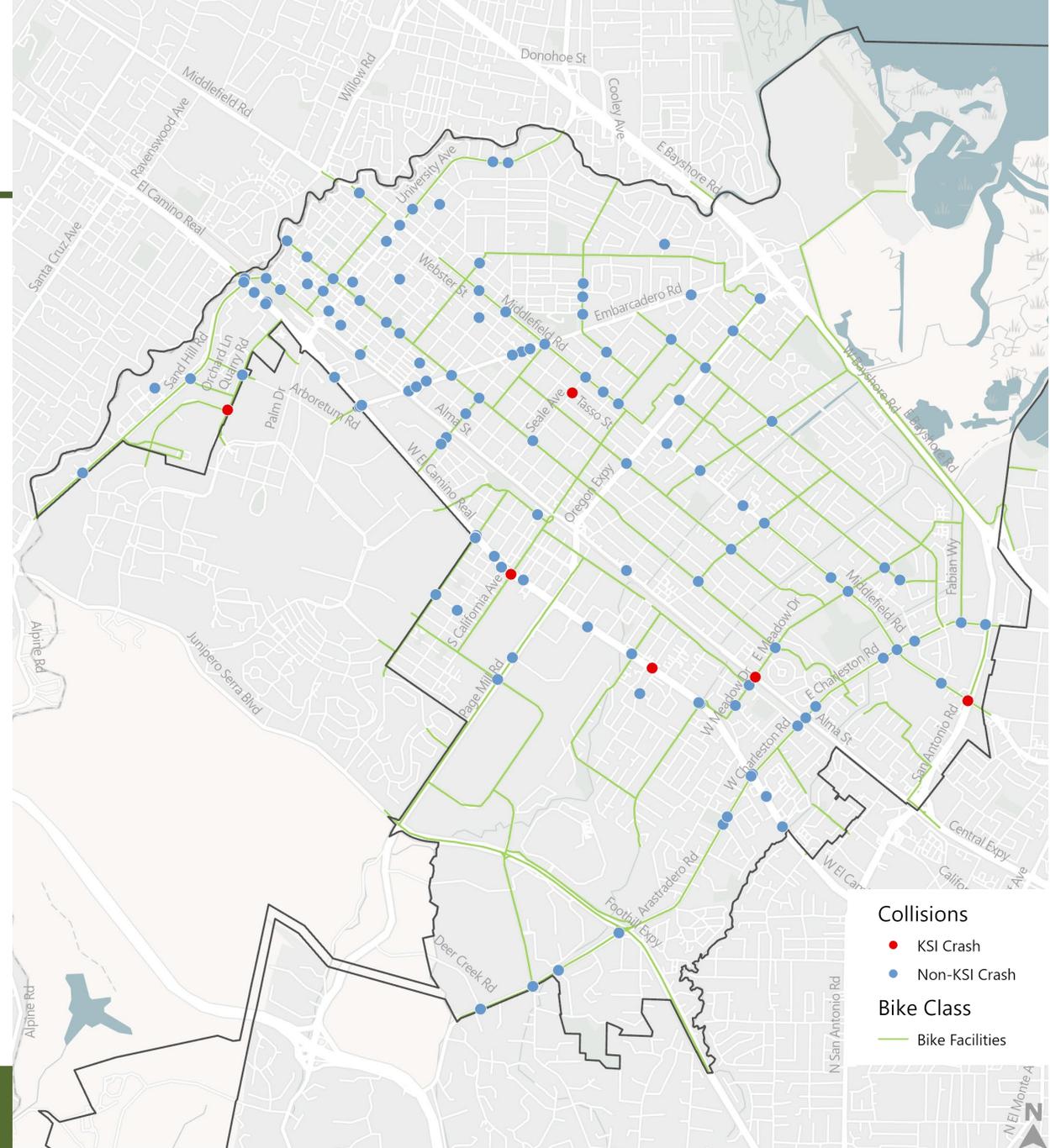
90° Angle Collisions with Bicyclists (All Ages)

- 6 KSI bicycle collisions (13% of KSI collisions)
- 144 total collisions (13% of all collisions)
- Day of the Week
 - 83% KSIs occur on weekdays
- 74% of collisions occurred on streets with bike facilities
- 65% occurred on major streets
- 50% of KSI collisions (3 of 6) involved youths (under 18 years old)



90° Angle Collisions with Bicyclists (All Ages)

- Potential Countermeasures
 - Separate bicycle signal phasing
 - Protected intersection
 - Restrict right turns on red at hot spot intersections
 - Intersection reconstruction and tightening

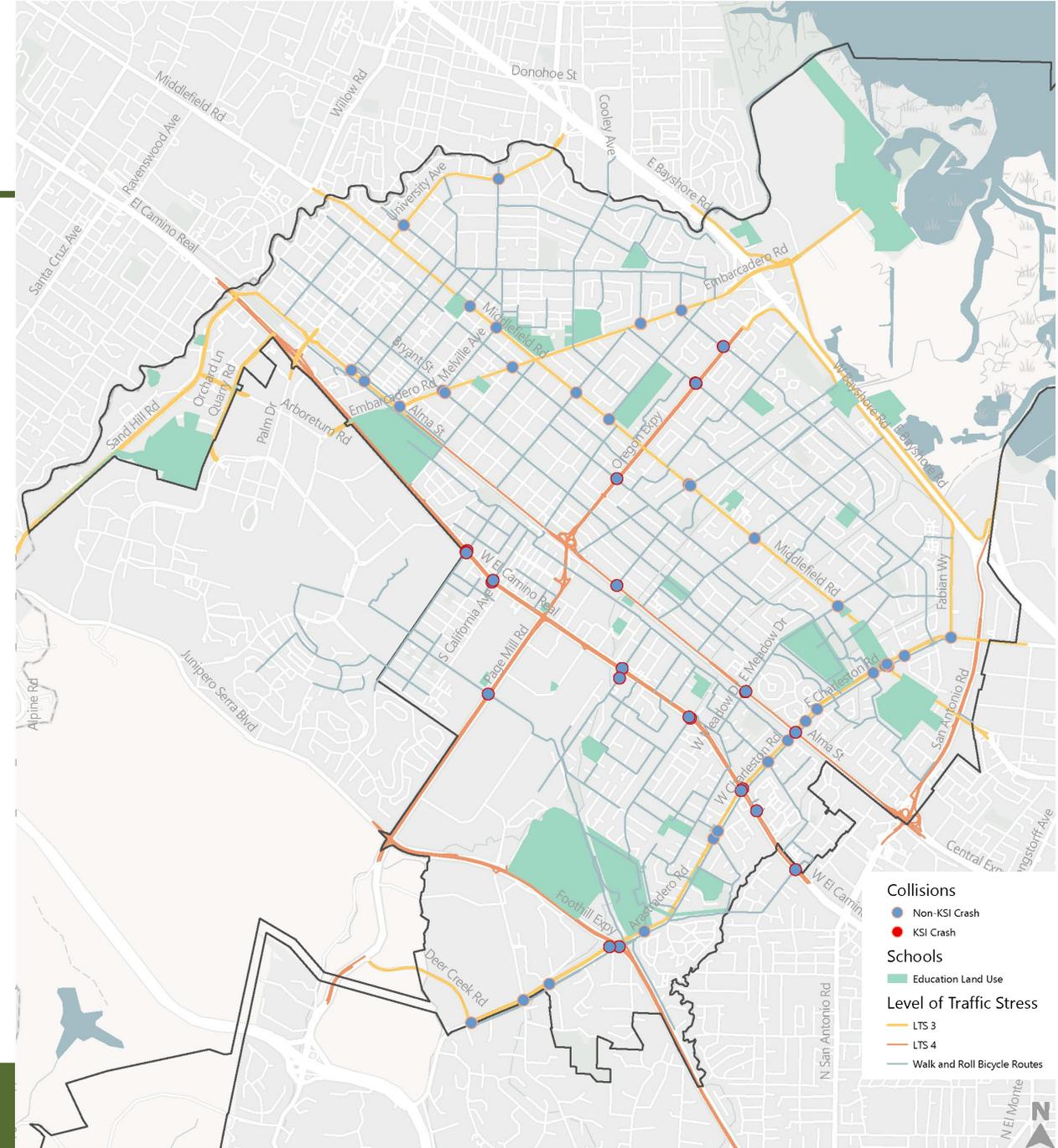


Walk and Roll Bike Routes Crossing Higher Stress Streets

- 82 total collisions, includes all ages of bicyclists
- 2 KSI bike collisions (4% of KSI collisions)
- Day of Week
 - 84% of collisions occur on weekdays
- 99% occurred at intersections
- 95% occurred on major streets
- 88% occurred on streets with bike facilities



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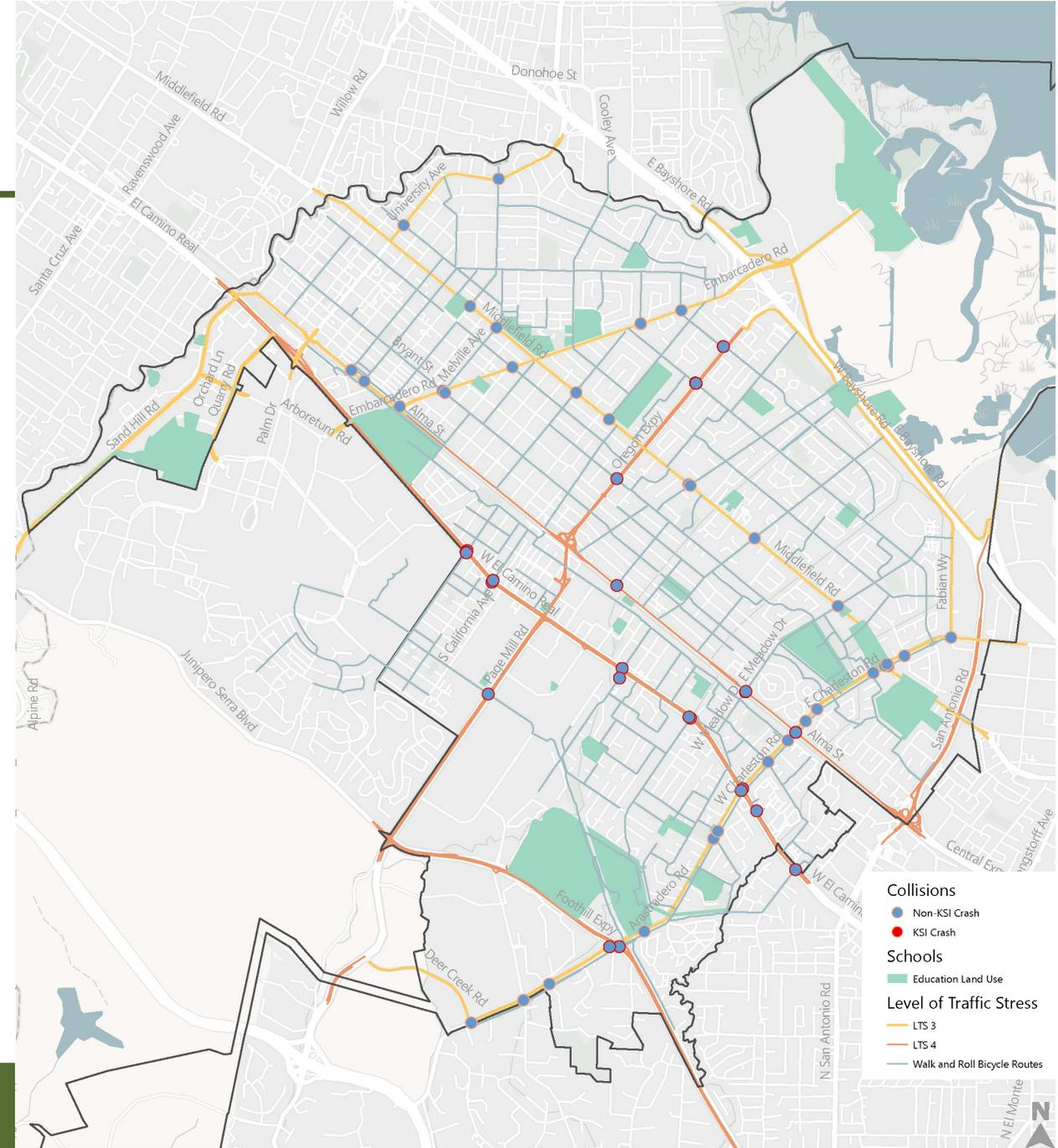


Walk and Roll Bike Routes Crossing Higher Stress Streets

- Potential Countermeasures
 - Separate bicycle signal phasing
 - Upgrade to Class I or Class IV bike lanes
 - Improve bike facilities on parallel roads
 - Road diets

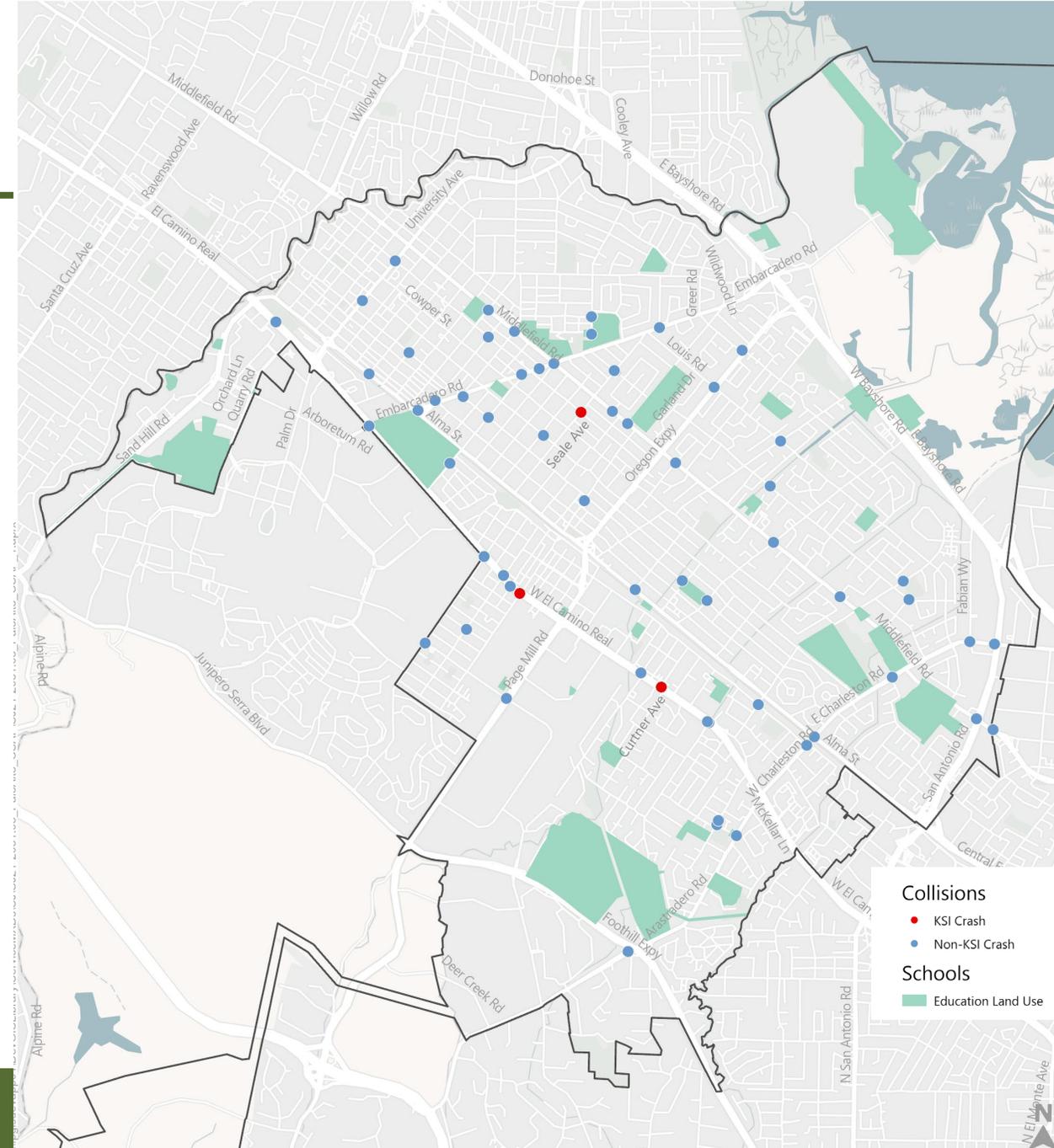


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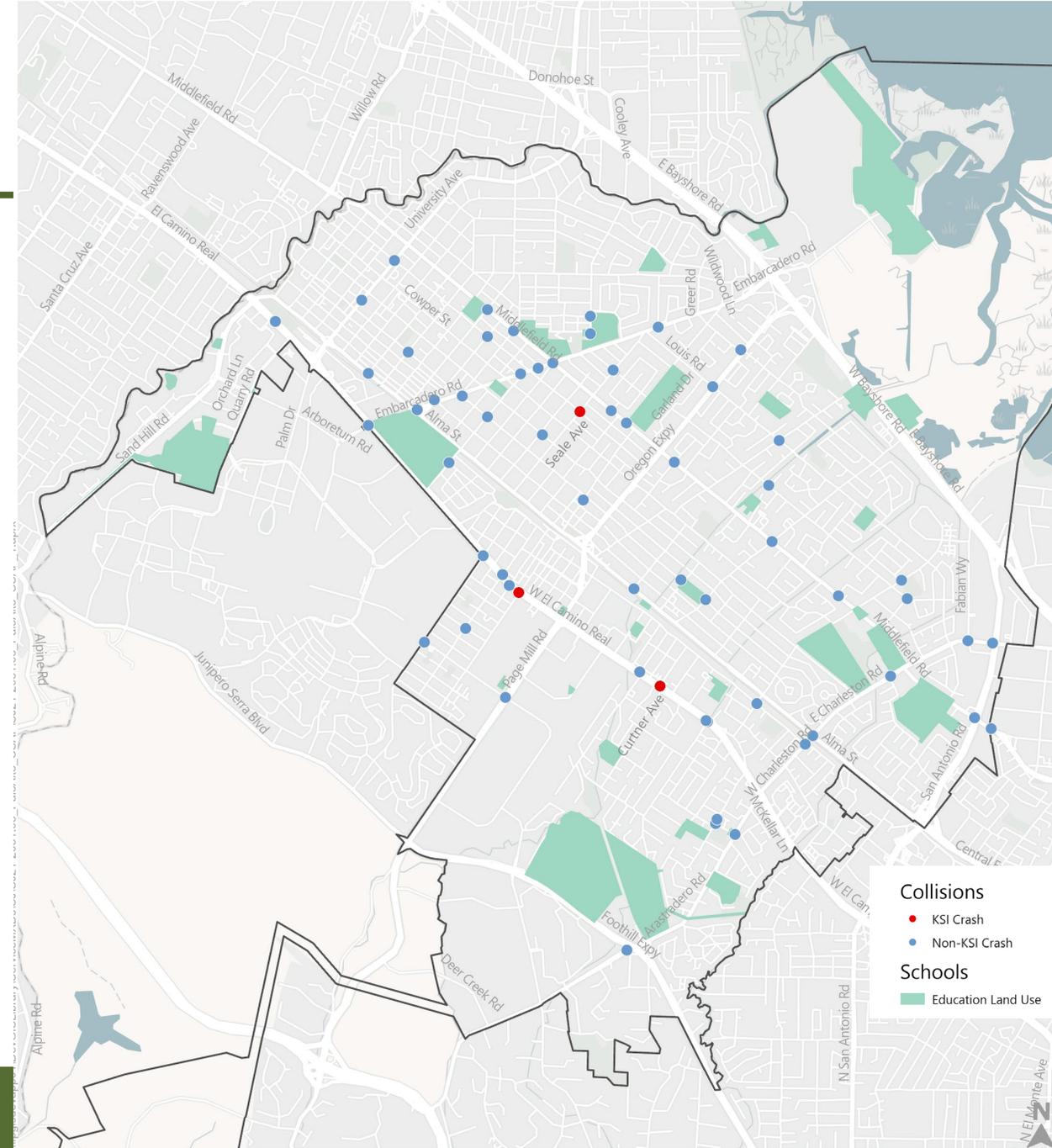
Children Riding Bicycles

- 3 KSI youth bicycle collisions (6% of KSI collisions); 2 occurred on ECR
- 68 total youth bicycle collisions (6% of all collisions)
- Day of Week
 - 100% KSIs occur on weekdays
- 98% occurred at intersections
- 57% occurred on major streets



Children Riding Bicycles

- Potential Countermeasures
 - Additional crossing guards near schools
 - Class I off-street bike paths or Class IV bike facilities on SRTS Walk and Roll Bike Routes
 - Youth education
 - Focused interventions/enforcement based on hot spots/trends





Questions?