

Unincorporated San Mateo County Local Roadway Safety Plan



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1. INTRODUCTION

1.1 Background

The Unincorporated San Mateo County Local Road Safety Plan is a living document aims to reduce fatal and severe injury collisions on its roadways. The plan will:

- Provides a systemic safety and collision analysis of the road network in unincorporated San Mateo County, excluding state highways except at intersections with County maintained roads;
- Identify high risk locations and collision patterns;
- Develop a list of systemic low-cost and longer-term countermeasures;
- Develop a plan to help secure funding to implement countermeasures.

The Local Road Safety Plan is consistent with the State of California's Strategic Highway Safety Program (SHSP). An SHSP is a statewide data-driven traffic safety plan that coordinates a wide range of organizations to reduce traffic-related fatalities and serious injuries on all public roads. The LRSP will contribute to the success of the SHSP, while giving the County an opportunity to address their unique highway safety needs.

Highway Safety Improvement Program (HSIP), a statewide program that aims to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal land. The program provides funding for roadway safety improvement projects. California's HSIP funds are split between the State HSIP for state highways and the Local HSIP for local roads maintained and operated by local jurisdictions.

1.2 Executive Summary

San Mateo County is committed to improving transportation safety to reduce the risk of death and serious injury that result from incidents on our roadways. This Local Road Safety Plan (LRSP) provides the framework for identifying, analyzing, and prioritizing roadway safety improvements on local roads and results in a prioritized list of issues, risks, actions, and improvements that can be used to reduce fatalities and serious injuries on the local road network. As part of an ongoing effort to make safety improvements, the Local Road Safety Plan was developed with input from several safety partners. The data in the plan showed that from 2014 through 2020, there were 13 fatal collisions and 76 severe injury collisions, The primary causes were failure to yield to the vehicle with the right of way, speeding, improper turning, and driving under the influence.

To drive improvements to its roads, the plan is targeting a goal of zero fatal collisions by 2035. To reach the goal of zero fatalities by 2035, this plan systematically prioritizes which of its roads which benefit most from safety improvements. These roads include, but are not limited to, Middlefield Road, Sand Hill Road, Alpine Rd, and others. The plan also lists proven countermeasures approved by state to increase safety of the County's roads.

1.3 Vision & Goals

The County of San Mateo's vision is to ensure all users of our roadways can get to their destinations safely. The County will use a data-driven approach along with consultation with our partners to achieve the following goals:

- Reduce the number of fatal crashes to Zero by 2035.
- Implement proven safety solutions systemically to reduce severe crashes.

1.4 Safety Partners

Three workshops were held with Safety Partners. These meetings were instrumental to guiding the process of

acquiring and analyzing data, selecting emphasis areas, developing safety strategies, and implementing the final plan. The partners are listed below.

Safety Partner

California Department of Transportation

California Highway Patrol

San Mateo County Board of Supervisors

San Mateo County Office of Education

San Mateo County Office of Sustainability

San Mateo County Planning and Building

San Mateo County Unincorporated Bicycle and Pedestrian Advisory Committee

Representative

Elliot Goodrich

Demian Warner

Michael Barber

Vanessa Castro

Belen Seara/Sonali Suratkar

Chanda Singh

Elaine Salinger

1.5 Definitions

- **Active-Mode** – Bicycling or Walking
- **Automobile Right of Way** – Improper yielding to a vehicle with the right of way
- **Bulbout** – Widening of sidewalks at crosswalks to reduce road crossing distance
- **Caltrans** – California Department of Transportation
- **FHWA** – Federal Highway Administration
- **Road Diet** – Removing 1 or more lanes of a Roadway with 4 or more total lanes to build infrastructure for other modes such as walking and bicycling.

2. PROCESS

Analyze Collision Data

San Mateo County collects traffic collision data mainly through the UC Berkeley Transportation Injury Mapping System (TIMS), which draws from the California Statewide Integrated Traffic Records System (SWITRS). The data will determine the Emphasis Areas that require the most attention.

Determine Emphasis Areas

The County will determine its emphasis areas based on areas with the most fatal and severe injury collisions. The County will also pick areas with significant pedestrian and bicycle collisions as those are more vulnerable users of the road.

Identify Strategies

The County will apply the most appropriate proven FHWA countermeasures based on types of collision, primary collision factor, and roadway characteristics to determine the right strategies.

Prioritize and Implement Strategies

The projects identified in the Emphasis Areas are all priority projects. They will be implemented as funding allows.

Evaluation and Update Plan

After completion of implementation of each identified project, data will be collected and analyzed within every 5 years to keep the plan up to date.

3. EXISTING EFFORTS

The County is actively working to improve its roadways' safety and efficiency. The County routinely reviews accident data, and requests from the public to determine improvements. These improvements range from signage, pavement marking refreshes, to road diets that improve safety for all users of the roadway.

Signage and Pavement Maintenance

The County has an on-going effort to review all its traffic signs, the condition and retroreflectivity of the signs. Existing signs will be scheduled to be replaced to maintain the County's standard for visibility. The County also reviews and maintains its traffic markings and pavement to ensure safe use of the roadway.

Pedestrian/Bicycle Infrastructure Enhancements

The County regularly meets with community groups and stakeholders such as the San Mateo County Bicycle and Pedestrian Advocacy Committee, San Mateo County Office of Sustainability, local schools, and Silicon Valley Bicycle Coalition. From those groups, the County receives feedback on potential roadway enhancements that are important to them. Enhancements include installation of Rapid Rectangular Flashing Beacons for pedestrian crosswalks and enhanced green pavement markings for bicycle lanes.

Unincorporated County of San Mateo Active Transportation Plan

Active transportation refers to any type of human-powered transportation including walking, rolling, and biking. Active transportation plans, or bicycle and pedestrian plans, are intended to give planners, engineers, advocates, and policymakers the tools they need to build safe, comfortable, and convenient facilities for walking and biking in communities. The County of San Mateo Office of Sustainability develop this plan, which was adopted in 2021 by the Board of Supervisors.

As part of the planning process, thousands of community members and stakeholders were engaged over the course of the project through in-person workshops and pop-up events, surveys, interactive online tools, and presentations to community councils and other community partners. Throughout this engagement, community members shared their input for recommendations improving pedestrian crossings and dedicated bikeways as well as a desire to rethink how space is allocated on roadways, considering current needs and future demand.

The Plan serves as a starting point and a guide for future decisions about active transportation improvements throughout unincorporated county communities.

Middlefield Road Improvement Project

The Middlefield Road is the main thoroughfare of the North Fair Oaks Core Retail Sector. There are 4 lanes of traffic with street parking and sidewalks. The area has significant pedestrian and bicycle activity although it lacks some of the infrastructure consistent with contemporary core urban retail corridors, such as wide sidewalks and dedicated bike lanes. It has also been one location where our data showed significant number of fatal and severe injury collisions.

In the past few years, the County has made some improvements to make the corridor more pedestrian friendly. The County has installed Rectangular Rapid Flashing Beacons at many of the uncontrolled intersections. The County has also built concrete bulbouts to increase pedestrian visibility and reduce crossing distance. However, there are larger changes planned for the corridor.

The corridor is slated for reconstruction in 2021 that would reconfigure Middlefield Road between Pacific Avenue and Fifth Avenue to a three-lane (one lane in each direction with a center two-way left turn lane) roadway with parallel parking, bike lanes, and wider sidewalks. Expanded sidewalk would be constructed to

accommodate street amenities, such as benches, landscaping, streetlights, trash receptacles, street art, public spaces, wayfinding signage, and low-impact development for stormwater management.

Santa Cruz Avenue Corridor Project

Santa Cruz Avenue and Alameda de las Pulgas is a minor 4-5 lane arterial road in West Menlo Park. It was primarily constructed for vehicle travel as there are no dedicated bike facilities and very narrow sidewalks under 5 feet. There is significant bike usage and an interest from the community for better pedestrian facilities. The County worked with a community task force for 2-3 years to determine improvements that can be made. Ultimately the task force, with feedback from the larger community, decided in favor of a road diet on Alameda de las Pulgas and Santa Cruz Avenue to provide improved bike and pedestrian facilities.

Currently, The County just completed an interim improvement by providing bulbouts and Rapid Rectangular Flashing Beacon at a midblock crosswalk. The County is beginning design and environmental review that is scheduled to be completed through 2023.

Ringwood Avenue and Coleman Avenue

Currently, the County hired a consultant to engage the public in discussion for street improvements which will satisfy the needs of residents living on these streets and pedestrians and cyclists who need to access these routes to get to nearby schools.

Safe Routes to School San Mateo County

There are 15 schools with routes in unincorporated San Mateo County. The Public Works department partners with the San Mateo County Office of Education, which leads the Safe Routes to School program. The intent of the problem is to enable and encourage children to safely walk or bike to school. The program is modeled after the National Safe Routes to School Program, which focuses activities around a 6E framework focused on education, encouragement, engineering, enforcement, evaluation, and equity. Together, the County and Safe Routes to School Program are actively partnered to delivery projects that provide safer walking and bicycling routes to school.

School Name	Address
El Granada Elementary	400 Santiago Street, Half Moon Bay
Fair Oaks Elementary	2950 Fair Oaks Avenue, Redwood City
Farallone View Elementary	1100 Le Conte Ave, Montara, CA 94037
Garden Village Elementary	208 Garden Lane, Daly City, CA
Garfield Elementary	3600 Middlefield Road, Menlo Park,
Highlands Elementary	2320 Newport St, San Mateo
Hillside Elementary	1400 Hillside Blvd. South San Francisco
Holy Angels Elementary	20 Reiner Street, Colma
Kings Mountain Elementary	211 Swett Road, Woodside
La Honda Elementary	450 Sears Ranch Road, La Honda
Los Lomitas Elementary	299 Alameda de las Pulgas, Atherton
Pescadero Elementary	P.O. Box 189, 620 North Street, Pescadero
Pescadero Middle/High	P.O. Box 730, 350 Butano Cutoff, Pescadero
Ponderosa Elementary	295 Ponderosa Road, South San Francisco

Enforcement

The California Highway Patrol is responsible for enforcement of traffic laws in the unincorporated roads of San Mateo County. As the Public Works Department identifies potential road safety issues due to driver behavior. The County notifies the Highway Patrol for targeted enforcement. The California Highway Patrol is also notified when operational changes are made to County maintained roads.

Education

The Public Works Department works routinely participates in community groups and committees educating them on roadway safety. This includes participation in safe routes to schools audits, walking audits for green street improvements, and community based workshops for specific projects.

Emergency Services

Any roadway changes will need to consider emergency response time. For projects with signification change to existing traffic patterns, Fire, Police, and other emergency responders are and shall be part of the discussion regarding changes to the roadway network and their response times.

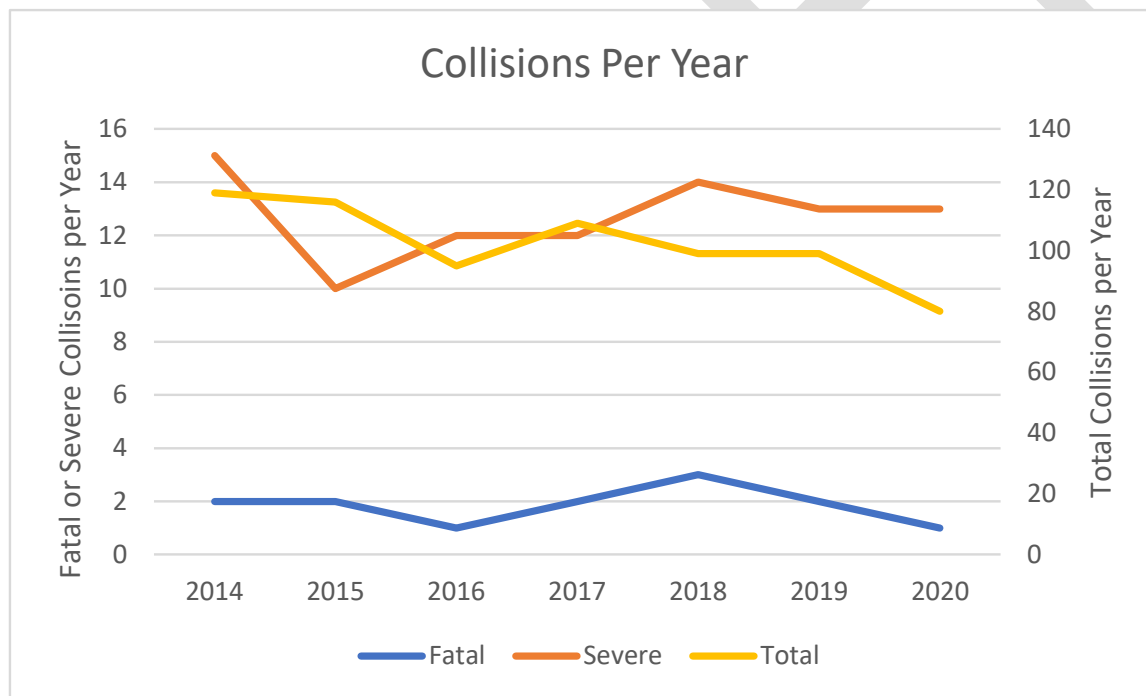
4. DATA SUMMARY

Unincorporated San Mateo County Local Roads¹

This section presents a summary of the Unincorporated County of San Mateo's collision data. The County analyzed data primarily from traffic collision data from the University of California Transportation Injury Mapping System (TIMS). The database is compiled based on California Highway Patrol and local police-reported collisions from the Statewide Integrated Traffic Records System (SWITRS). Here are the key metrics for San Mateo County:

Miles of Road:	316
Study Period:	2014 – 2020 ²
Total Severe Injury Collisions:	76
Total Fatal Collisions:	13
Total Injury Collisions:	717

Figure 1: Collision Trends in Unincorporated County of San Mateo



A look at the total number of collisions between 2014 and 2020 shows the number of total collisions has been on a downward trend since 2014. However, the number of fatal and severe collisions have relatively stayed the same.

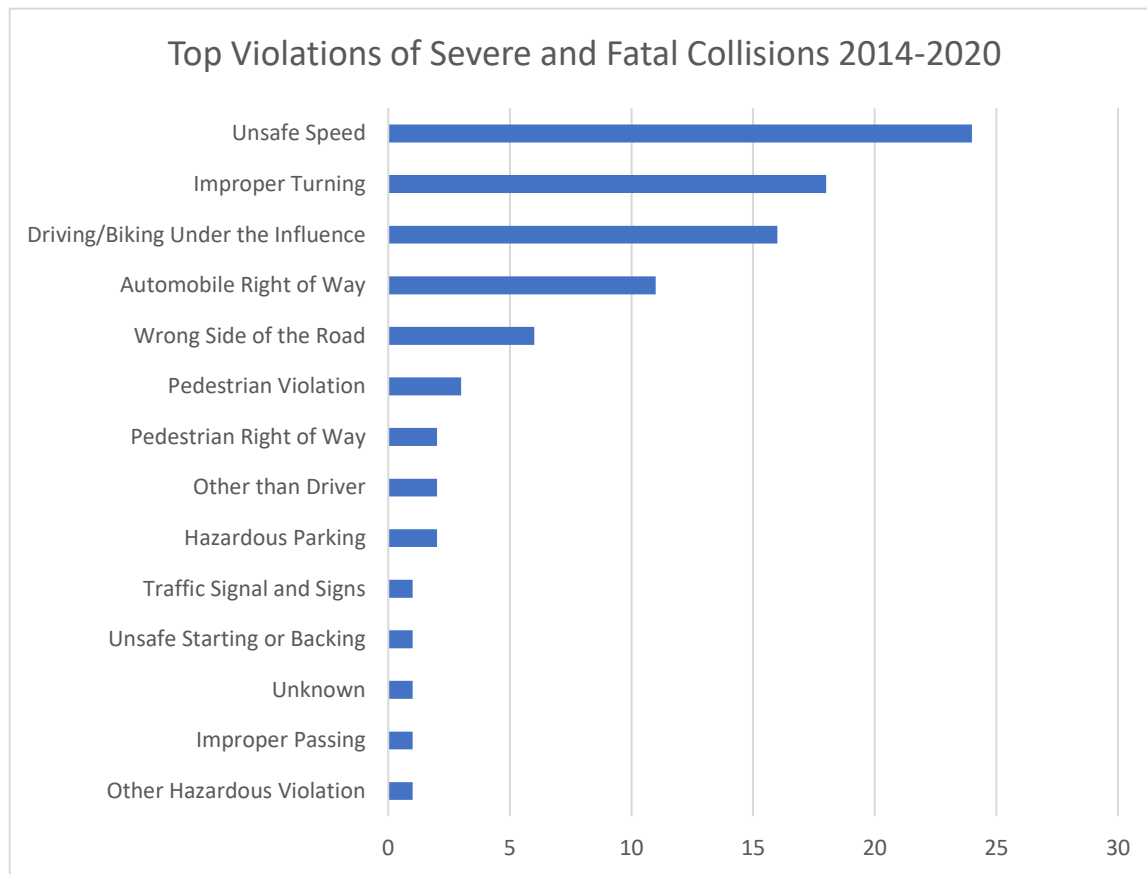
The top violations cited for fatal and severe collisions are speeding, improper turning, driving/biking under the influence and improper yielding of right-of-way

¹ State Routes were not part of this analysis except at intersections with unincorporated County maintained roads.

² 2020 is the latest data available at the time this report was written.

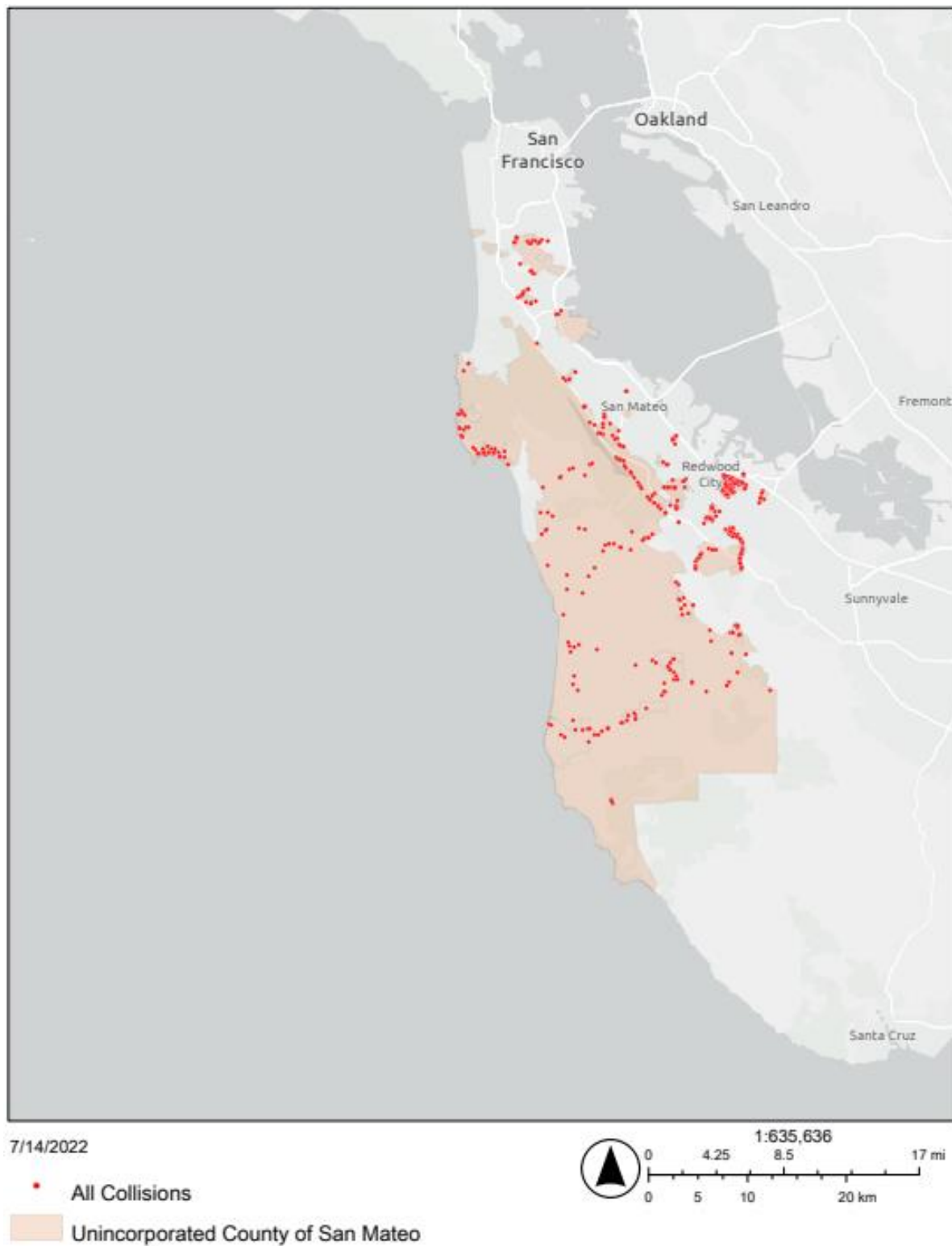
A comprehensive evaluation of these records provided a descriptive analysis of collision data at the countywide level are the basis for identifying study intersection and corridors. More detailed collision data was extracted for those study intersections and corridors, including by mode, collision type, forming the basis for collision-based countermeasures listed in this plan.

Figure 2: Top Violations of Severe and Fatal Collisions 2014-2020



The top correlated violations with severe and fatal collisions are unsafe speeds, improper turning, driving/biking under the influence, automobile right of way.

Figure 3: All Collisions in the Unincorporated County of San Mateo (2014-2020)



5. Future Road Improvements Priority and Emphasis Area Analysis

To determine and prioritize future improvements to the County's Roads, an analysis was done on the Road Segments and Intersections.

Road Segments

For segments, two lists were adapted from C/CAG's Youth-Based High Injury Network. In determining its Youth-Based High Injury network, it takes a composite of:

- Severe Collisions - 10x weight given to collisions where any victim is killed or severely injured
- Youth-Involved Collisions – 10x weight for any victim under the age of 18
- Active Mode-Involved Collisions – 10x weight for any victim that is a bicyclist or pedestrian

More information about Youth-Based High Injury Network can be found in C/CAG's report in Appendix A.

For the purpose of this plan, the twenty roads with the highest severe collisions densities and twenty roads with the highest active-mode involved collision density were selected for priority in future improvements. An analysis of the primary collision factors³ common on these roads determine the emphasis areas they belong to and possible countermeasures that would reduce the likelihood of future collisions. These roads can be found in Table 2. Full maps of the collisions and roadway segments can be found in Appendix B.

Intersections

For intersections, a list of the top 15 intersections with the most collisions were identified in Table 1 below. Intersections will be its own emphasis area and has its own set of countermeasures.

Table 1: Intersections with Most Collisions (Equity Priority Communities Highlighted)

Rank	Street1	Street2	Collisions	Top Violations	Signal?
1	State Route 1	Capistrano Ave	8	Unsafe Speed, Pedestrian Right-of-Way	Yes
2	Alpine Rd	Interstate 280	7	Traffic Signals and Signs, Unsafe Speed	No
3	State Route 82	Selby Lane	6	Automobile Right of Way ⁴	No
4	Alameda de las Pulgas	Valparaiso Ave	5	Automobile Right of Way	Yes
5	State Route 1	Cypress Ave	5	Automobile Right of Way	No
6	Middlefield Road	5 th Ave	4	Traffic Signals and Signs	Yes
7	Spring St	Warrington Ave	4	Traffic Signals and Signs, Automobile Right of Way	No
8	Montgomery Ave	San Carlos Ave	4	Traffic Signals and Signs, Automobile Right of Way	No
9	State Route 1	Medio Ave	4	Automobile Right of Way	No
10	State Route 1	Virginia Rd	4	Automobile Right of Way	No
11	Edgewood Rd	Canada Rd	4	Automobile Right of Way	No
12	Edgewood Rd	Crestview Dr	4	Automobile Right of Way	No
13	Ralston Ave	State Route 92	3	Traffic Signals	Yes
14	Middlefield Rd	6 th Ave	3	Automobile Right of Way	No
15	Middlefield Rd	2 nd Ave	3	Automobile Right of Way	No

³ Primary Collision Factor is the category of violation as indicated the reporting officer as the likely cause of the collision.

⁴ Automobile Right of Way means improper yielding to a vehicle with the right of way.

Table 2: Priority Road Segments and Emphasis Area

Street Name	Primary Collision Factor								Ped Bike	Emphasis Area			
	Automobile Right of Way	Unsafe Speed	Improper Turning	Driving Under the Influence	Hazardous Parking	Pedestrian Violation	Pedestrian Right of Way	Wrong Side of Road	High Active Mode Collisions	1) Unsafe Speeds and Turning on Urban/Suburban Roads	2) Roads with Pedestrian/Bicycle Collisions	3) Roadway Departure on Mountainous/Rural Roads	4) Driving Under the Influence
High Severity Collision Roads													
Middlefield Rd	X	X							X	X	X		
Sand Hill Rd	X	X	X						X	X	X		
Alpine Rd	X	X							X		X	X	
Pescadero Creek Rd		X	X	X								X	X
State Route 1	X	X	X										
Wurr Rd		X											
State Route 82		X	X	X					X	X	X		X
Skyline Blvd		X	X	X									X
Westborough Blvd			X						X	X	X		
Old La Honda Rd		X	X									X	
Bay Rd	X	X							X	X	X		
Avy Ave			X						X	X	X		
Higgins Canyon Rd			X						X			X	
Guadalupe Canyon Parkway		X	X	X					X				X
Santa Cruz Ave	X								X	X	X		
Tunitas Creek Rd		X									X	X	
Edgewood Rd	X	X								X	X		
State Route 84		X										X	
Winding Wy					X							X	
Harbor Rd			X			X	X		X	X	X		
Kings Mountain Road		X	X									X	
High Active Mode Involved Collision Roads Not Listed Above													
Ringwood Ave		X							X	X	X		
Alameda de las Pulgas	X		X						X	X	X		
Country Club Dr									X	X	X		
Canada Rd	X	X							X	X	X		
5th Ave	X		X	X					X	X	X		X
4th Ave	X								X	X	X		
Cloverdale Rd		X	X					X	X		X	X	
Golf Course Dr	X								X	X	X		
Verde Rd		X							X	X			
Hillside Blvd		X							X	X	X		

Equity Priority Community

6. EMPHASIS AREAS

After reviewing all the data, the County found these emphasis areas:

1. Unsafe speeds and improper turning on suburban roads.
2. Pedestrian, bicycle, and intersectional conflicts on urban/suburban roads.
3. Unsafe speeds and roadway departures on winding mountainous roads.
4. Driving Under the Influence

The areas range from urban centers, suburbs, and rural areas. Each area has its unique challenges and will require different countermeasures, as will be discussed in the following sections. The countermeasures and their associated IDs are selected from Caltrans's Local Roadway Safety – A Manual for California's Local Road Owners.

Emphasis Area 1: Unsafe Speeds and Turning on Suburban Roads

The County has many roads that are very wide but very low volume, leading to high speeds and improper turning. Data shows that many collisions were caused by unsafe speeds or improper turning. This is particularly seen in Guadalupe Canyon Parkway in the San Bruno Mountains, Canada Road near San Mateo, Alpine Road near Stanford, and Edgewood Road near Redwood City.

Strategies for Emphasis Area 1:

Engineering Countermeasures from Caltrans Local Road Safety Manual	Caltrans Countermeasure ID
<ul style="list-style-type: none">• Convert intersection to roundabout	NS04/NS05
<ul style="list-style-type: none">• Road Diet	R14
<ul style="list-style-type: none">• Widen Shoulder	R15
<ul style="list-style-type: none">• Enhanced pavement friction for horizontal curves	R21
<ul style="list-style-type: none">• Install additional curve warning signs	R24
<ul style="list-style-type: none">• Install speed radar feedback signs for use on Curves	R26
<ul style="list-style-type: none">• Enhanced delineation for horizontal curves	R28
<ul style="list-style-type: none">• Longitudinal rumble strips	R30/R31

Emphasis Area 2: Roads with Pedestrian/Bicycle Collisions

The roads in unincorporated areas of the County were originally developed for vehicles. As a result, many roads do not have good pedestrian and bicycle facilities. Over the past few years, the County began reconstructing roads to service all types of road users. For pedestrians, the data showed high incidences of drivers failing to yield to pedestrians at intersections as well as pedestrians who cross illegally onto the road. For bicycle collisions, we see high incidences of unsafe speeds and improper turning, both for automobiles and bicyclists were primary collision factors.

Strategies for Emphasis Area 2:

Engineering Countermeasures from Caltrans Local Road Safety Manual	Caltrans Countermeasure ID
<ul style="list-style-type: none">• Road Diet	R14
<ul style="list-style-type: none">• Install advance stop bar before crosswalk (Bike Box)	S20PB
<ul style="list-style-type: none">• Modify signals with leading pedestrian intervals	S21PB

• Convert intersection to roundabout	NS4/NS5
• Upgrade intersection pavement markings	NS07
• Install raised medians	NS19PB
• Install pedestrian crossings at uncontrolled locations with enhanced safety features	NS21PB
• Install Pedestrian Signal (HAWK)	NS23PB
• Install bike lanes/separated bike lanes	R32PB, R33PB
• Install sidewalk/pathway if none exist	R34PB
• Install/upgrade pedestrian crossing (with enhanced safety features)	R35PB
• Install raised pedestrian crossing	R36PB
• Install Rapid Rectangular Flashing Beacons	R37PB/NS22PB

Emphasis Area 3: Roadway Departure on Mountainous Roads

The unincorporated County of San Mateo has many mountainous areas. In those mountainous areas we have narrow winding roads with little shoulder for recovery. In these areas, the data shows many of these accidents are either overturned vehicles or hitting objects on the side of the road.

Strategies for Emphasis Area 3:

Engineering Countermeasures from Caltrans Local Road Safety Manual	Caltrans Countermeasure ID
Install guardrail	R04
Widen shoulder	R15
Curve shoulder widening	R16
Improve curve superelevation	R19
Install/upgrade signs with new fluorescent sheeting	R22
Install chevron signs on horizontal curves	R23
Install curve advance warning signs with/without flashing beacon	R24/R25
Install delineators, reflectors, and/or object markers	R27
Install edgelines and centerlines	R28
Install centerline/edgeline rumble strips/strips	R30/R31

Emphasis Area 4: Driving Under the Influence

Description of Emphasis Area 4: Driving Under the Influence

Driving under the influence make up a significant (16%) portion of all fatal and severe-injury collisions. As this is a mainly a behavioral issue. The County will identify roads with significant DUI related collisions and work with California Highway Patrol to Enforce and will work on educating drivers on the dangers and consequences of a DUI.

Strategies for Emphasis Area 4:

Targeted education and enforcement of known DUI locations.

Emphasis Area 5: Intersections

The majority of unincorporated County of San Mateo intersections are non-signalized. They also have a wide variety of land-uses around them, including urban, suburban, and rural. Data shows the majority of collisions are caused by vehicles unable to yield to the proper right of way. The County will look at countermeasures to reduce conflicts.

Strategies for Emphasis Area 5 (Unsignalized):

Engineering Countermeasures from Caltrans Local Road Safety Manual	Caltrans Countermeasure ID
• Install intersection lighting	NS01
• Convert to all-way STOP control	NS02
• Install signals	NS03
• Convert Intersection to Roundabout	NS04/NS05
• Install/upgrade larger or additional warning/regulatory signs	NS06
• Upgrade intersection pavement markings	NS07
• Install flashing beacons at Stop-controlled Intersections	NS08
• Install flashing beacons as advance warning	NS09
• Improve sight distance to intersection	NS11
• Install splitter-islands on minor road approaches	NS13
• Install raised median on approaches	NS14
• Create directional median openings to allow/restrict left/U-turns	NS15
• Install left/right-turn lanes	NS17/NS18
• Install raised medians	NS19PB
• Install pedestrian crossings at uncontrolled locations with enhanced safety features	NS21PB
• Install Rectangular Rapid Flashing Beacon	NS23PB
• Install Pedestrian Signal (HAWK)	NS23PB

Strategies for Emphasis Area 5 (Signalized):

Engineering Countermeasures from Caltrans Local Road Safety Manual	Caltrans Countermeasure ID
• Install intersection lighting	S01
• Improve signal hardware	S02
• Improve Signal Timing	S03
• Install left-turn lane and add turn phase if not exists	S06
• Install raised pavement markers and striping through intersection	S09
• Install flashing beacons as advance warning	S10
• Install raised median on approaches	S12
• Convert intersection to roundabout	S16
• Install pedestrian countdown signal heads	S17PB
• Install pedestrian crossings	S18PB
• Pedestrian Scramble	S19PB
• Install advance stop bar before crosswalk	S20PB
• Modify signal phasing to implement a Leading Pedestrian Interval	S21PB

7. IMPLEMENTATION

To implement the possible countermeasures identified in the previous section. The strategies are paired with road corridors and intersections. These are displayed in Tables X and X. As funding becomes available. The County will effort to design and construct these countermeasures.

Table 3: Selected Countermeasures for Priority Road Segments

Street Name	Possible	Install Bike Lanes	Install Separated Bike Lanes	Install Chevrons	Install Curve Warning Signs	Install Delineators and Reflectors on Median	Install Edgelines	Install Edgelines and Centerlines	Install Rapid Rectangular Flashing Beacons	Install/Upgrade Crossing with Enhanced Safety	Restrict Parking	Road Diet
4th Ave									X	X		
5th Ave		X ⁵						X	X	X		
Alameda de las Pulgas		X										X ⁶
Alpine Rd					X ⁷							
Avy Ave								X				
Bay Rd		X						X	X	X		X
Canada Rd			X	X	X							
Cloverdale Rd								X				
Country Club Dr								X				
Edgewood Rd								X				
Golf Course Dr		X										X
Guadalupe Canyon Pkwy			X									X ⁸
Harbor Blvd		X							X	X		X
Higgins Canyon Rd					X			X				
Hillside Blvd		X							X	X		X
Middlefield Rd		X							X	X		X
Old La Honda Rd					X							
Pescadero Creek Rd			X	X	X							
Ringwood Ave					X			X				
Sand Hill Rd		X ⁹							X	X		X
Santa Cruz Ave		X							X	X		X ¹⁰
Skyline Blvd								X				
Tunitas Creek Rd			X	X	X		X					
Verde Rd								X				
Westborough Blvd						X						
Winding Wy							X				X	
Wurr Rd							X					

⁵ Buffered green bike lanes installed in 2021

⁶ Under final design

⁷ Conceptual study completed

⁸ Under conceptual design

⁹ Bike lane gap at I-280 interchange under conceptual plan

¹⁰ Under final design

Table 4: Selected Countermeasures for Priority Unsignalized Intersections

Primary Street	Secondary Street	Install intersection lighting	Convert to all-way stop control	Install signals	Convert Intersection to roundabout	Install/upgrade larger or additional warning/regulatory signs	Upgrade intersection pavement markings	Install flashing beacons at stop-controlled Intersections	Install flashing beacons as advance warning	Create directional median openings to allow/restrict left/U-turns	Install raised medians/refuge Island	Install pedestrian crossings at uncontrolled locations with enhanced safety features	Install rectangular rapid flashing beacon	Install pedestrian signal (HAWK)
Alpine Rd	Interstate 280			X ¹¹	X	X		X	X					
State Route 82	Selby Lane	X		X	X					X	X	X	X	X ¹²
State Route 1	Cypress Ave		X	X		X	X		X		X			
Spring St	Warrington Ave		X									X	X	
Montgomery Ave	San Carlos Ave		X ¹³											
State Route 1	Medio Ave										X	X	X	X
State Route 1	Virginia Rd										X	X	X	X
Edgewood Rd	Canada Rd				X	X								
Edgewood Rd	Crestview Dr				X	X								
Middlefield Rd	6 th Ave											X	X	X
Middlefield Rd	2 nd Ave			X								X	X ¹⁴	X

¹¹ Conceptual study completed, pending funding for design development

¹² City of Atherton completed conceptual design, pending further funding

¹³ All-way stops control completed

¹⁴ Rectangular Rapid Flashing Beacons under construction under Middlefield Road Improvement Project

Table 5:

Primary Street	Secondary Street	Install/upgrade larger or additional warning/regulatory	Upgrade intersection pavement markings	Install flashing beacons as advance warning	Create directional median openings to allow/restrict left/U-	Install raised medians/refuge Island	Improve signal hardware	Improve signal timing	Install raised pavement markers and striping through intersection	Modify signal phasing to implement a Leading Pedestrian Interval
State Route 1	Capistrano Ave					X	X	X	X	X
Alameda de las Pulgas	Valparaiso Ave									X
Middlefield Road	5 th Ave						X	X	X	X
Ralston Ave	State Route 92	X		X						

8. EVALUATION

San Mateo County will continue to host meetings with stakeholders to discuss implementation of the plan and strategies for each emphasis area. The LRSP is a living document and will be re-evaluated and updated within 5 years with new data as it is made available.

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9. APPENDICES

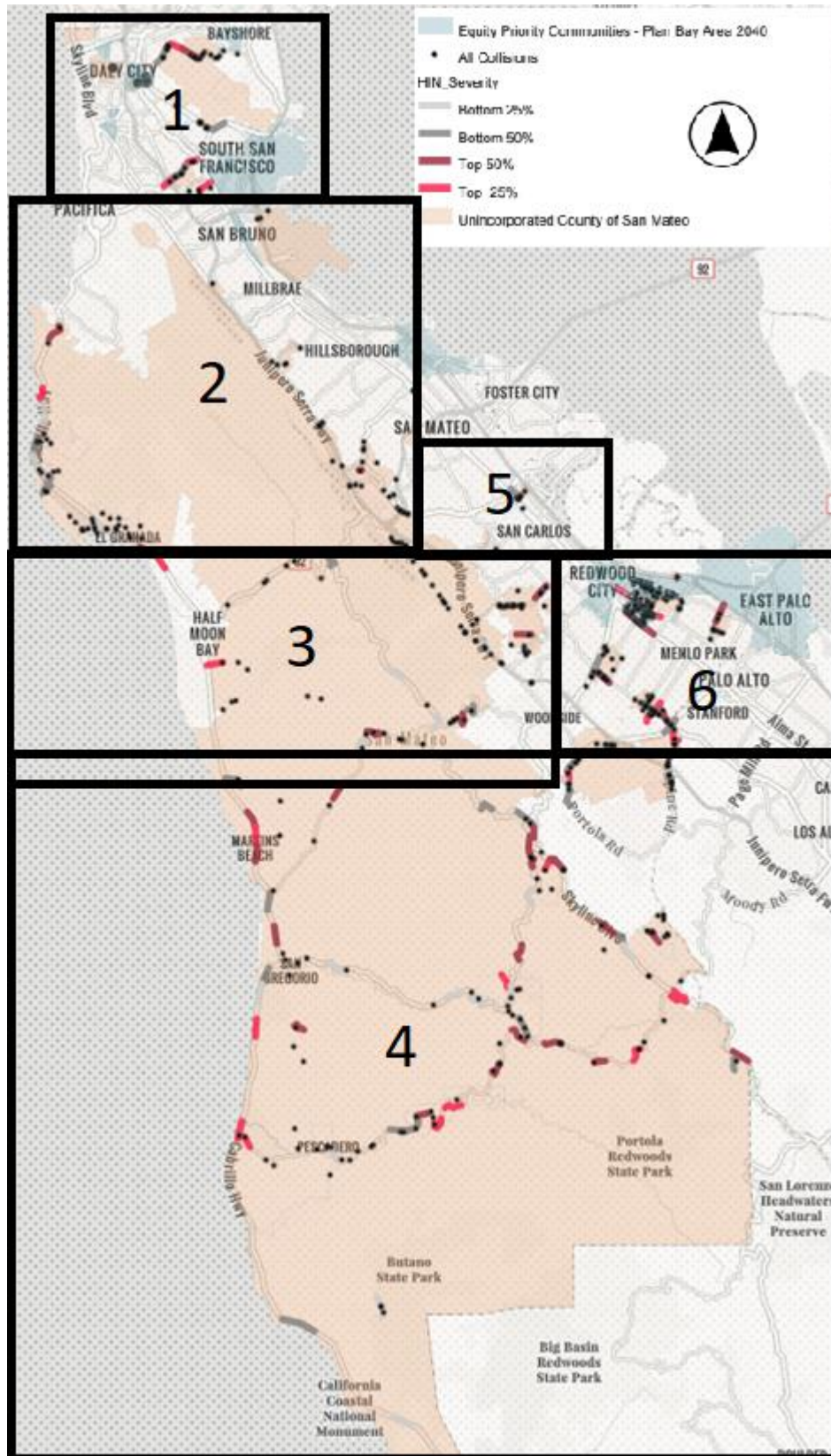
APPENDIX A: C/CAG San Mateo County Safe Routes to School High Injury Network

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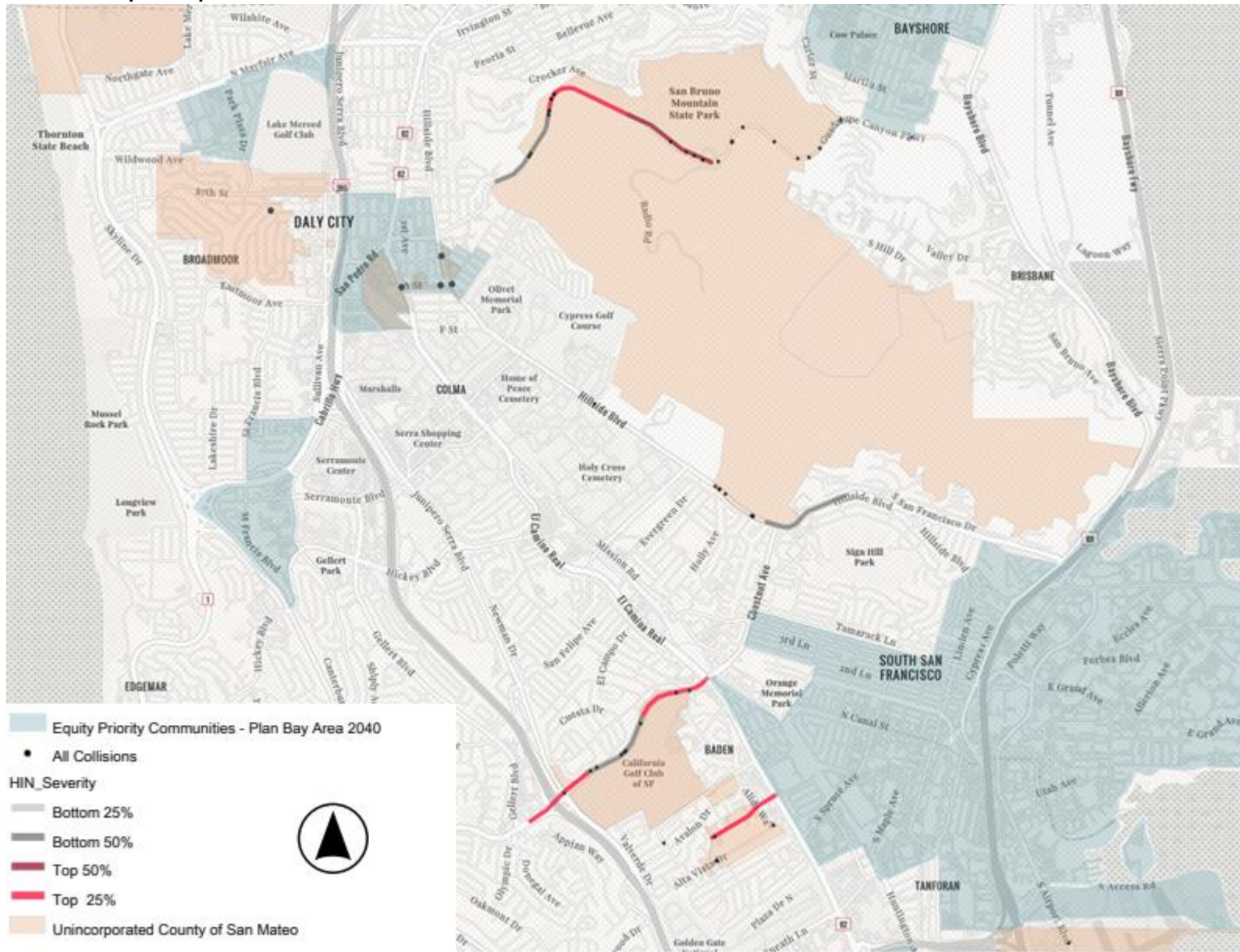
APPENDIX B: COLLISION MAPS

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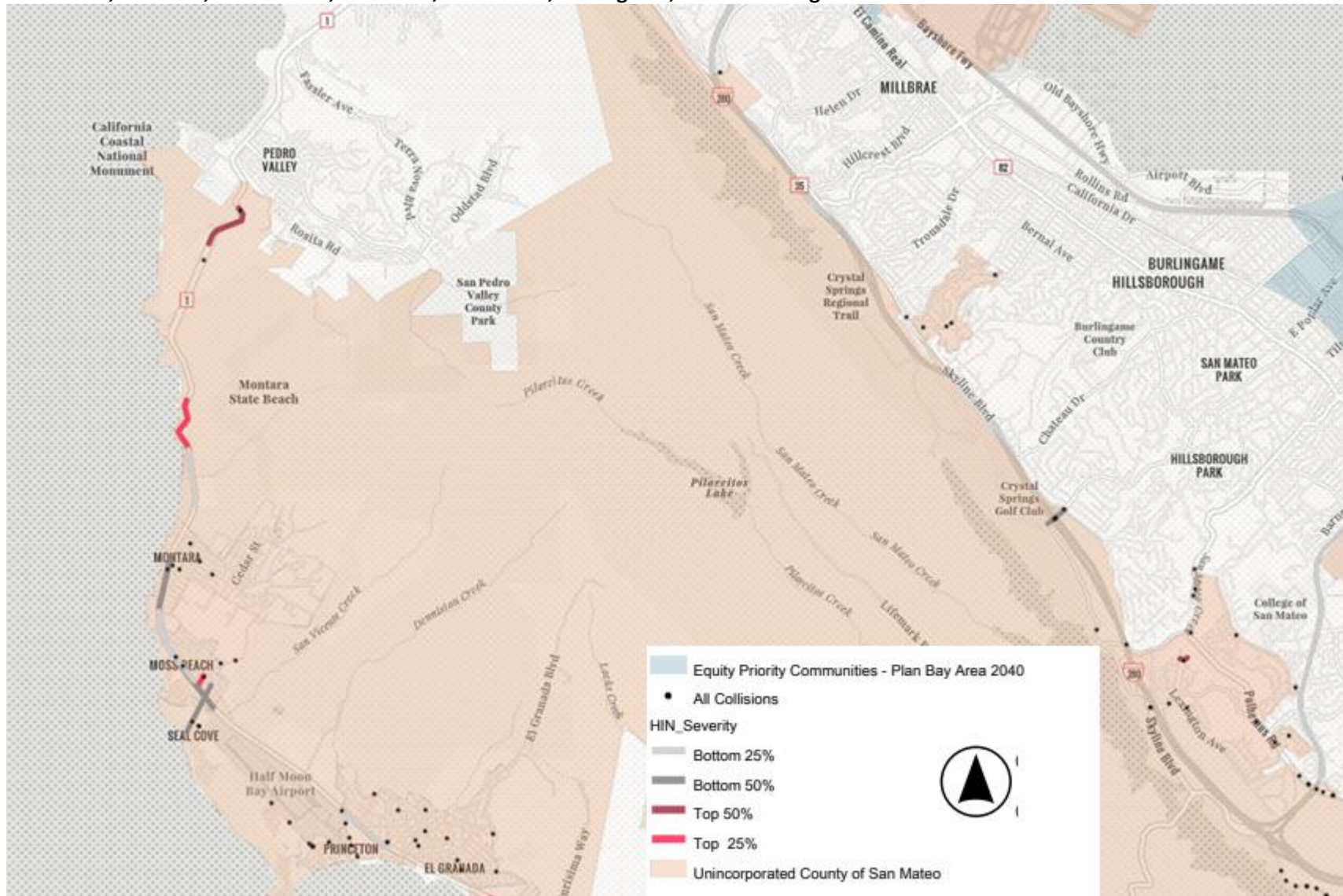
A1 – High Severity Weighted Collision Maps



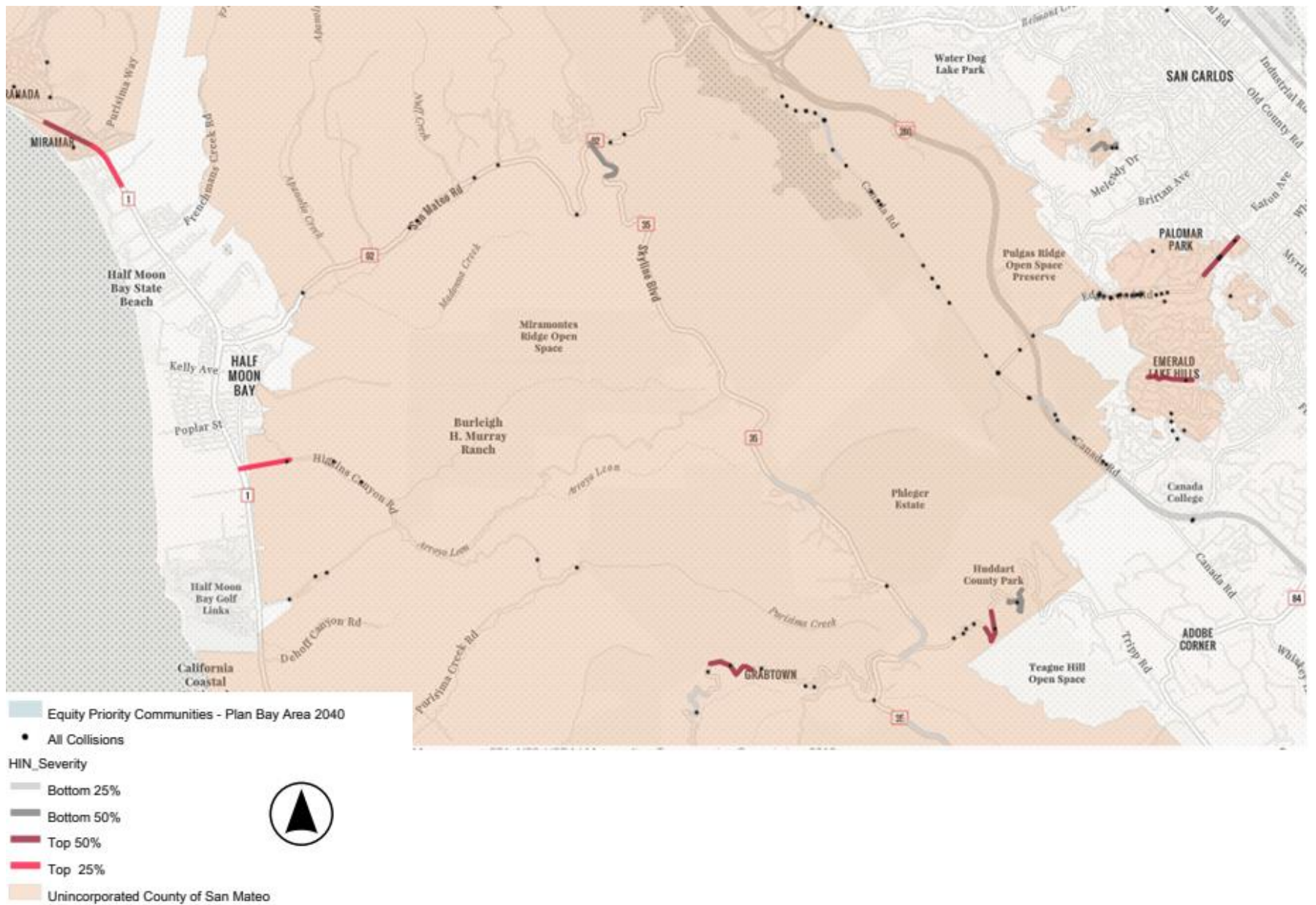
1 - Broadmoor/Colma/San Bruno Mountains and South San Francisco



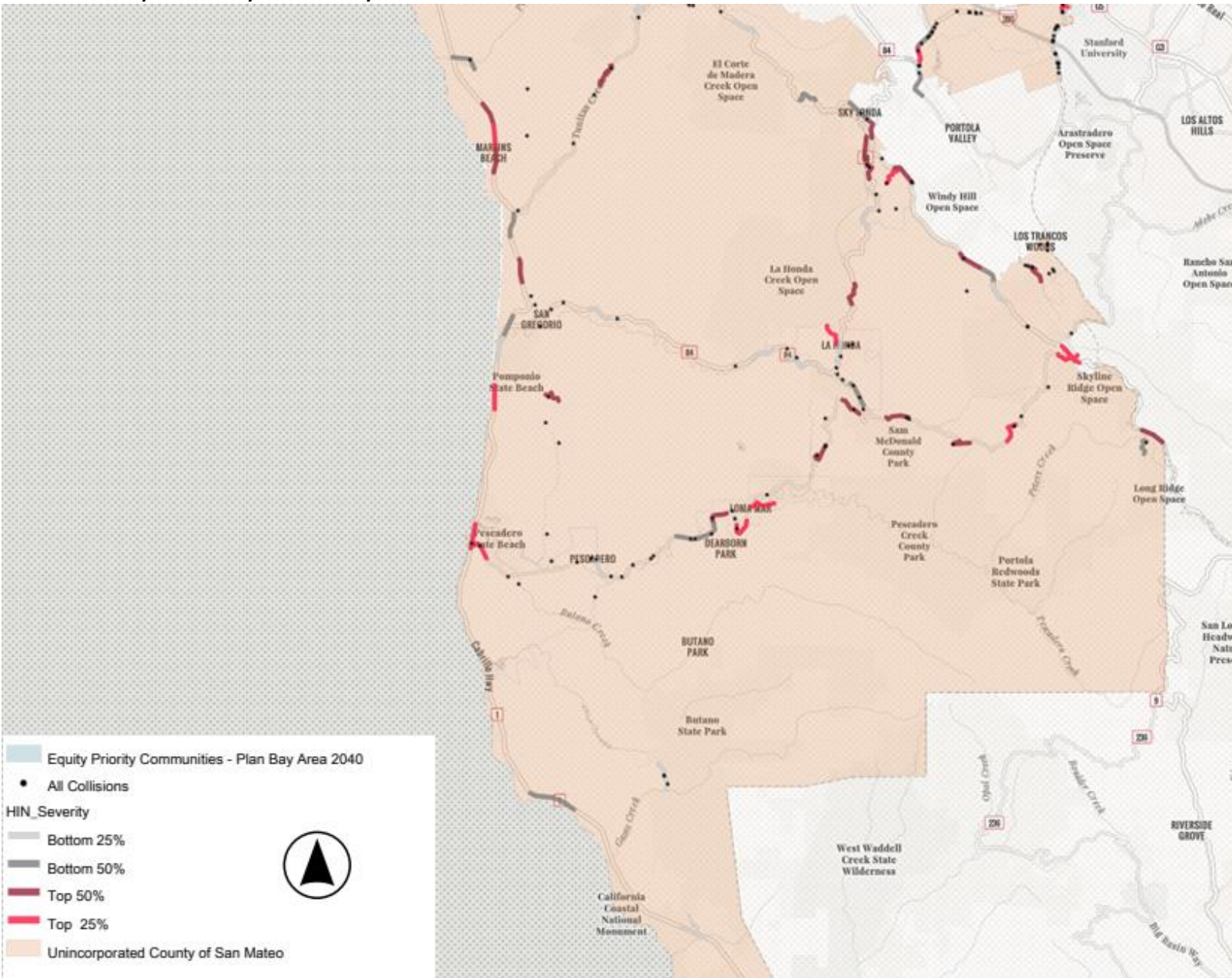
2 - Pacifica, Montara, Moss Beach, Princeton, El Granada, Burlingame, San Mateo Highlands



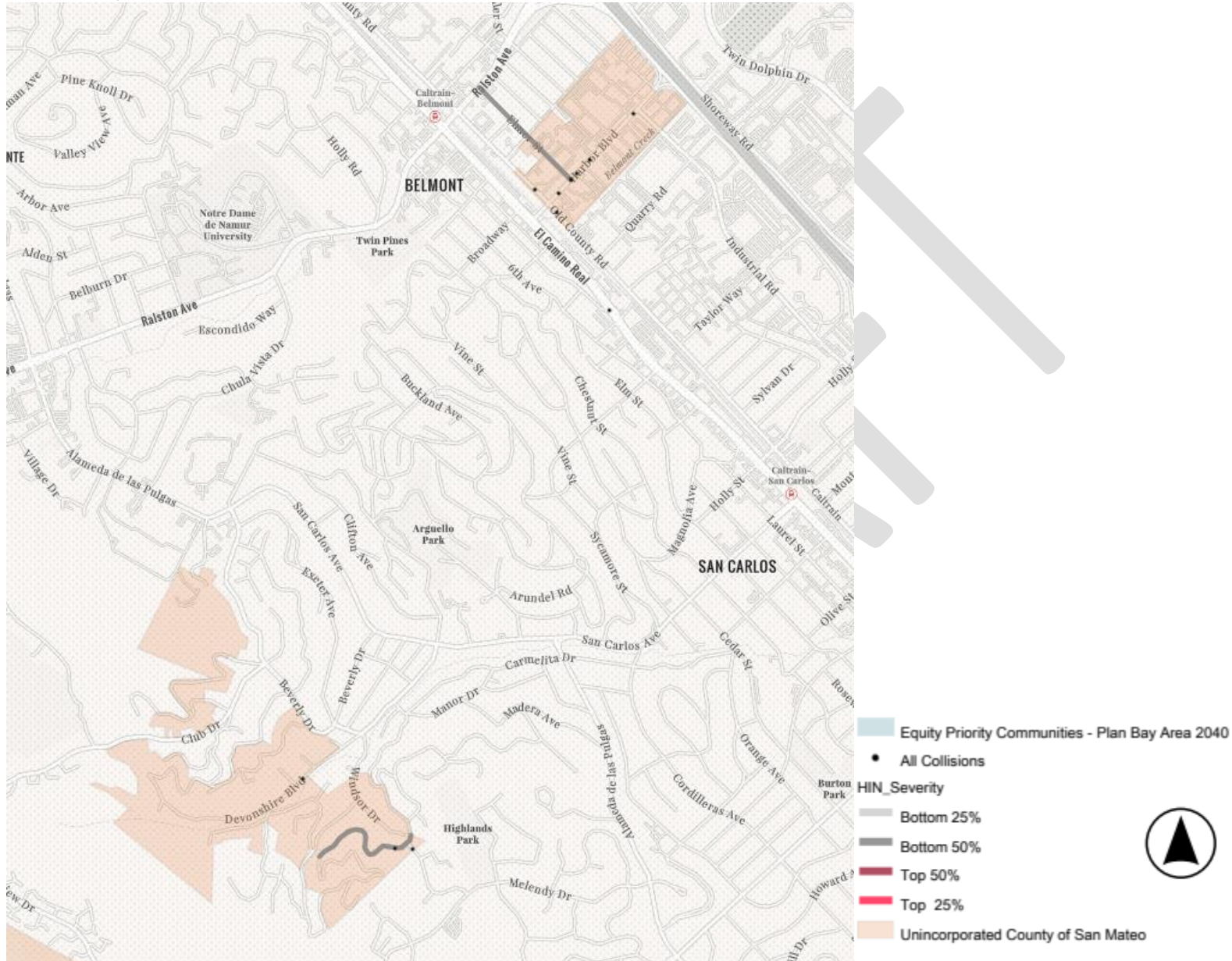
3 - Mid-Coast/Emerald Lake Hills



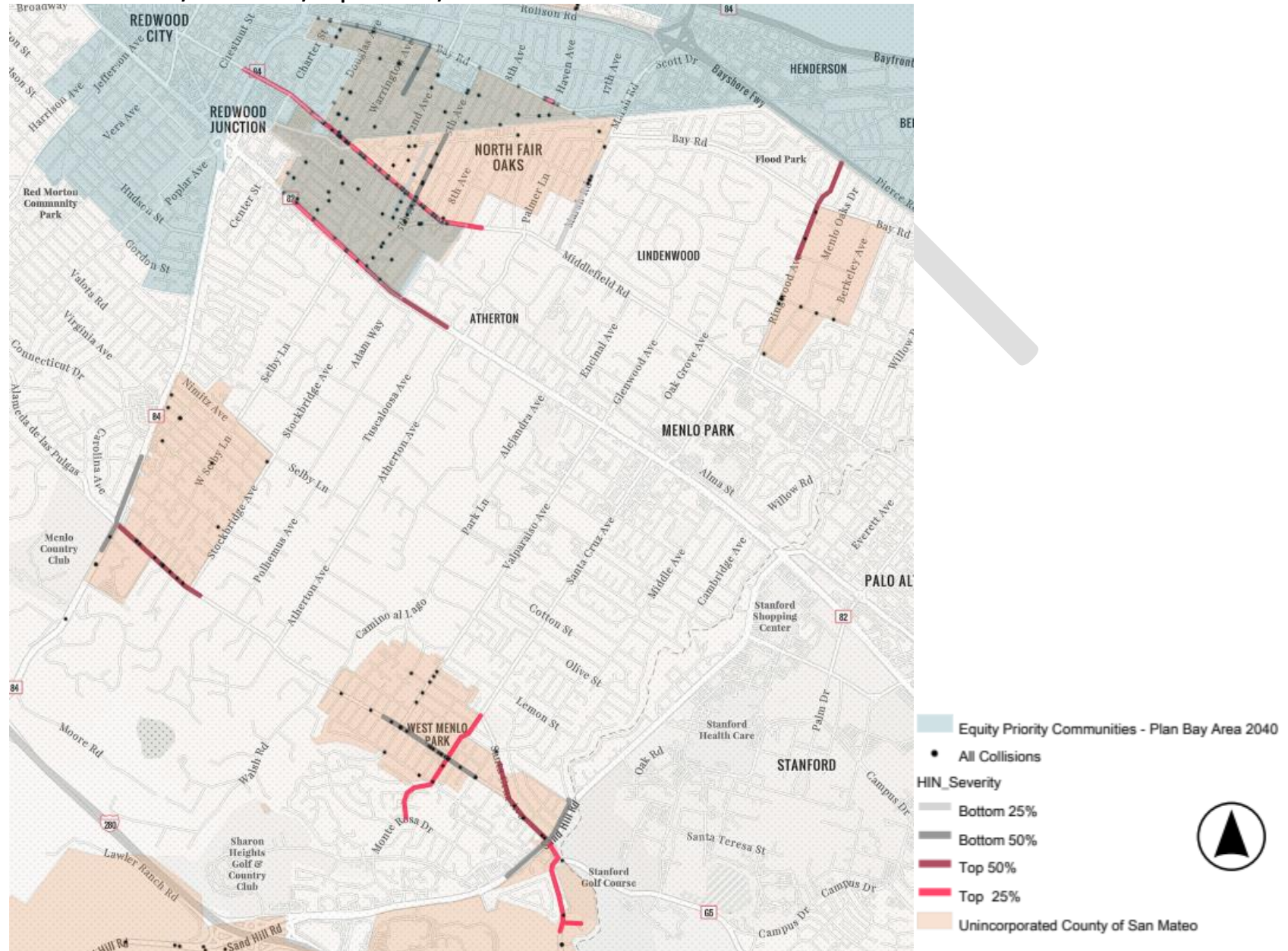
4 - South Coast/Pescadero/Los Trancos/Stanford Land



5 - Belmont/Devonshire



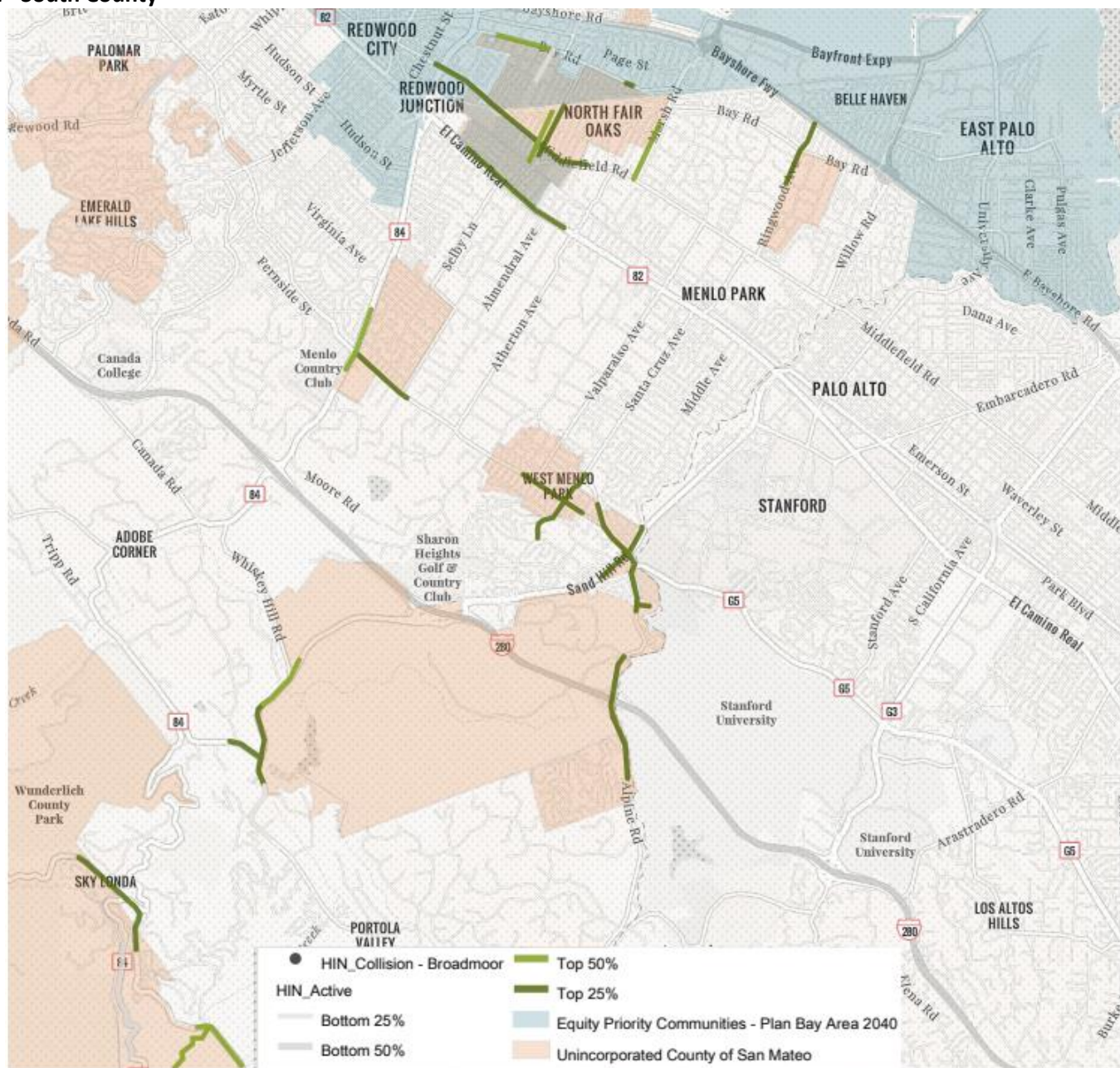
6 - North Fair Oaks/Menlo Oaks/Sequoia Tract/West Menlo



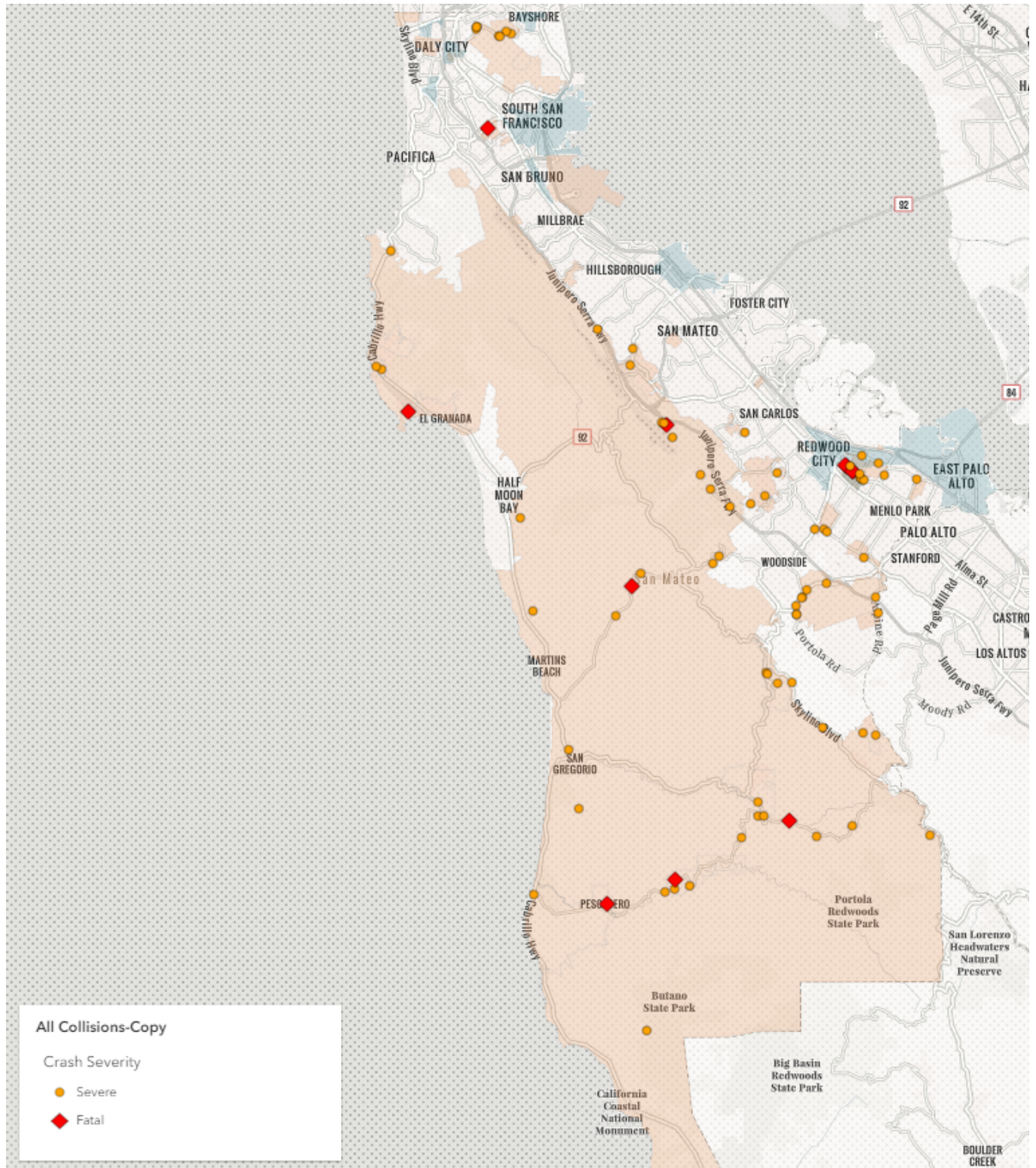
B2 – High Active Mode Involved Collision Roads



1 - South County



B2 – Severe and Fatal Collisions



APPENDIX C: COLLISION DATA

Pedestrian Involved Collisions

Of the 52 pedestrian-involved collisions recorded, the County found that the majority occurred in the roadway/shoulder (13, 33%), crossing in crosswalks at intersection (11, 28%) and crossing in crosswalk not in at Intersection (11, 28 %). The remaining (17, 11%) occur at midblock crosswalks or not in the road.

As for the causes of those collisions, the top reason was because of driver failure to yield to pedestrians at crosswalks (16), followed by pedestrians' failure to yield to vehicles at crosswalks (12), and driver speeding (5).

Primary Collision Factor Pedestrian Location	Collision Type					Grand Total
	Sideswipe	Rear End	Broadside	Hit Object	Vehicle Pedestrian	
Unknown					3	3
In Road, Including Shoulder					2	2
Not in Road					1	1
Driving/Biking Under the Influence					2	2
Crossing in Crosswalk at Intersection					1	1
In Road, Including Shoulder					1	1
Unsafe Speed		2		1	5	8
Crossing Not in Crosswalk					3	3
In Road, Including Shoulder		2		1	2	5
Improper Passing					1	1
Crossing Not in Crosswalk					1	1
Improper Turning	2				1	3
In Road, Including Shoulder	1				1	2
Not in Road	1					1
Automobile Right of Way			2			2
Crossing Not in Crosswalk			1			1
Not in Road			1			1
Pedestrian Right of Way					16	16
Crossing in Crosswalk at Intersection					12	12
Crossing in Crosswalk Not at Intersection					1	1
Crossing Not in Crosswalk					3	3
Pedestrian Violation			1		11	12
Crossing in Crosswalk at Intersection					2	2
Crossing Not in Crosswalk			1		6	7
In Road, Including Shoulder					3	3
Unsafe Starting or Backing	1				4	5
Crossing Not in Crosswalk					1	1
In Road, Including Shoulder	1				3	4
Grand Total	3	2	3	1	43	52

Bicycle Involved Collisions

Primary Collision Factor	Collision Type (Bike At Fault)									Grand Total
	Not Stated	Head-on	Sideswipe	Rear End	Broadside	Hit Object	Overtaken	Vehicle Pedestrian	Other	
Unsafe Speed	1			4	1	8	17	2	2	35
Wrong Side of the Road		1	1		4			1		7
Improper Turning			4			7	15			27
Automobile Right of Way					11				2	13
Traffic Signal and Signs		1	1		4					6
Other Hazardous Violation		1								1
Unsafe Starting or Backing						1				1
Other Improper Driving							1			1
Grand Total	1	3	6	4	21	16	33	3	4	91

The data shows that most collisions are caused by unsafe speeds, improper turning, and not yielding properly to the right of way. This typically resulted in overturning, hitting objects, or vehicles.

Table XX below shows the collision types and primary collision factor for bicycle collisions where the driver is at fault.

Table 5.8

Primary Collision Factor	Collision Type (Vehicle At Fault)						Grand Total
	Head-on	Sideswipe	Rear End	Broadside	Overtaken	Other	
Unknown						1	1
Driving/Biking Under the Influence			1			1	2
Unsafe Speed			1	3	1		5
Wrong Side of the Road	2						2
Improper Passing			1			1	2
Improper Turning		5	1	6	1	2	15
Automobile Right of Way	1			13	1	1	16
Other Hazardous Violation		1					1
Grand Total	3	6	4	22	3	6	44

The leading primary collision factors are improper turning, and automobile right-of-way. Improper turning and automobile right-of-way suggest there are conflicts between vehicles with bicyclist resulting in broadside collisions.

Fatal and Severe Injury Collisions

The County had 91 fatal and severe injury collisions. Table xx below shows that unsafe speeds, improper turning, and driving/biking under the influence are the leading collision factors, leading to hit object, overturning, and broadside accidents.

Primary Collision Factor	Collision Type Head-on	Sideswipe	Rear End	Broadside	Hit Object	Overturned	Vehicle Pedestrian	Other	Grand Total
Unknown							2		2
Driving/Biking Under the Influence			1		10	2		2	15
Unsafe Speed			2	1	6	13	2	1	25
Wrong Side of the Road	1	1		3		1			6
Improper Passing								1	1
Improper Turning				1	12	6			19
Automobile Right of Way				9	1	1			11
Pedestrian Right of Way							2		2
Pedestrian Violation							2		2
Traffic Signal and Signs	1								1
Hazardous Parking					1		1		2
Other Hazardous Violation	1								1
Other than Driver				1		1			2
Unsafe Starting or Backing							1		1
Other Improper Driving						1			1
Grand Total	3	1	3	15	30	25	10	4	91