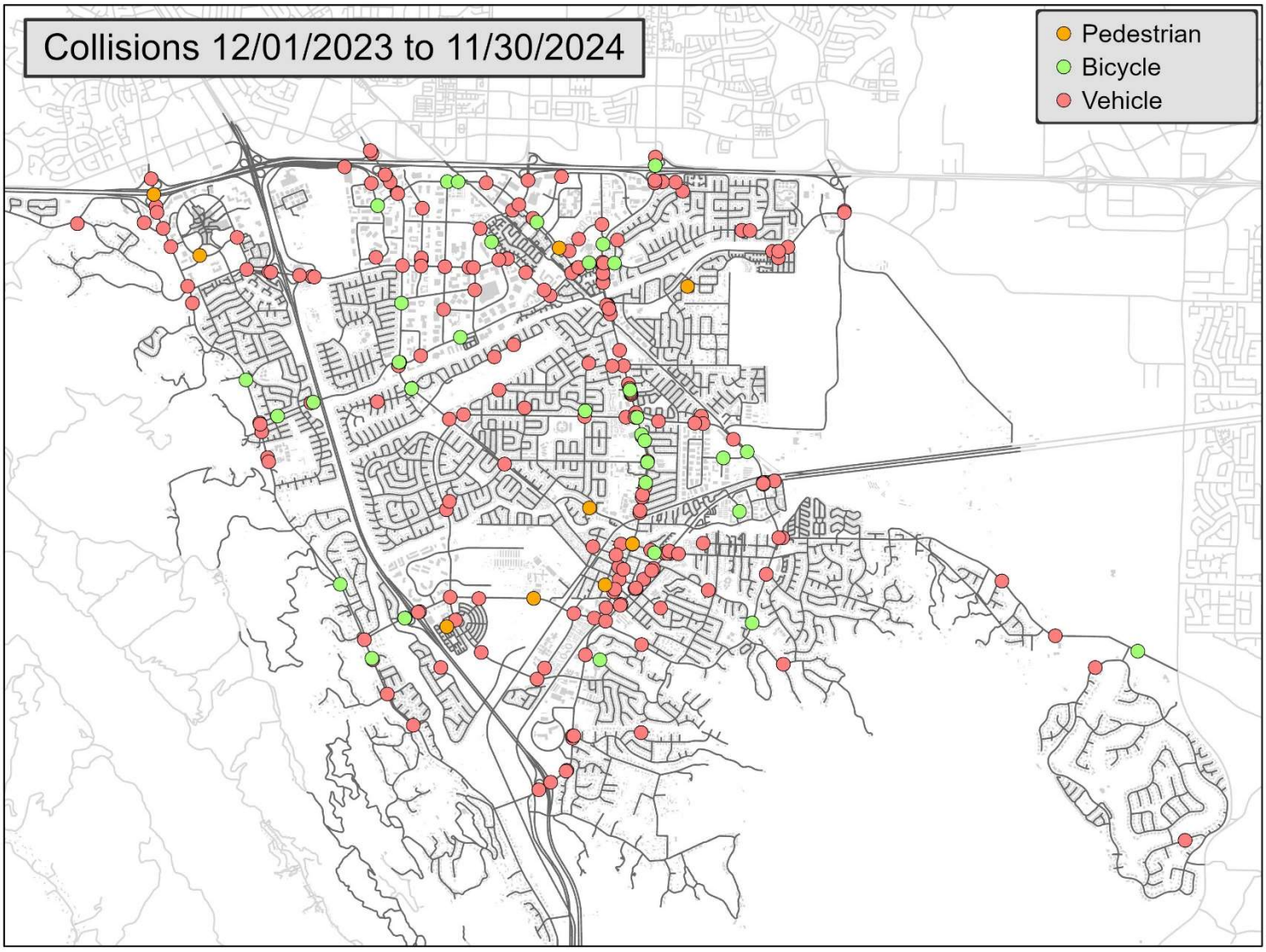
Annual Collision Analysis 2025



Annual Collision Analysis 2025

Summary

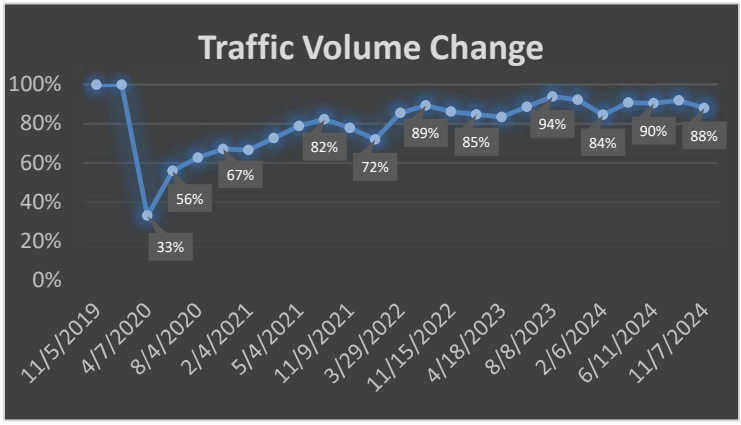
This report summarizes the collisions within the City in 2024 and analyzes trends and patterns to identify changes that can be made to reduce the number of collisions. Reported traffic collisions involving vehicles, bicyclists and pedestrians are reviewed on a weekly basis by Traffic Engineering. The weekly review looks at individual collisions to determine if improvements can be made to improve safety. This annual report takes a comprehensive look at the one-year and three-year trends to identify larger patterns and improvements that can improve safety.

Improvements are countermeasures designed to address a collision pattern. The Federal Highway Administration and CalTrans collaborated to match typical collision patterns with proven countermeasures to improve safety by cataloging them into tables which appear in Section 4.2 of the CalTrans Local Road Safety Manual (LRSM). This report utilizes these tables to identify solutions to the City's collision patterns. The full list of countermeasures is included as an attachment to this report[1].

Unlike other local road safety plans, which may be renewed every few years, staff elected to commission collision analysis and improvements reports yearly to provide the most flexibility identifying collision trends and implementing countermeasures.

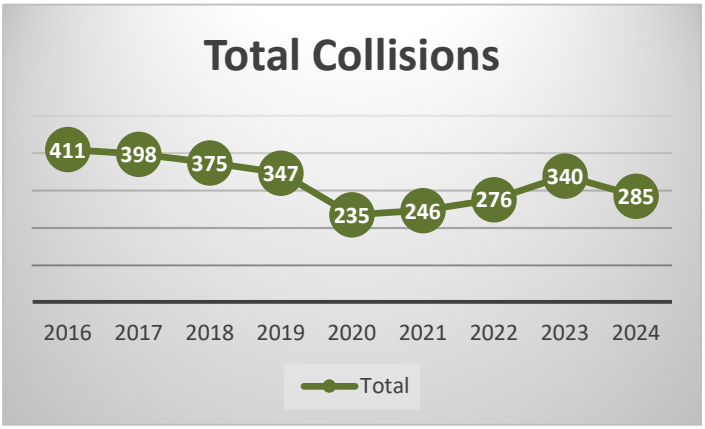
Volume Trends

The pandemic caused a significant decrease in vehicle traffic and a corresponding decrease in overall collisions. However, traffic has largely returned to at or near pre-pandemic levels. This trend has been reported by multiple transportation agencies and a sampling of key Pleasanton intersections showed the trend locally.



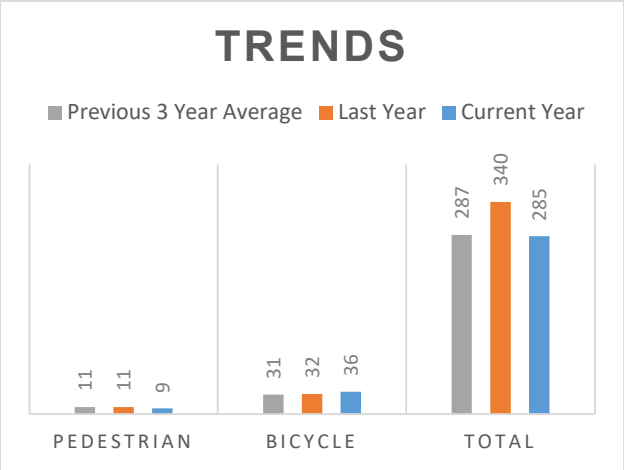
Collision Trends

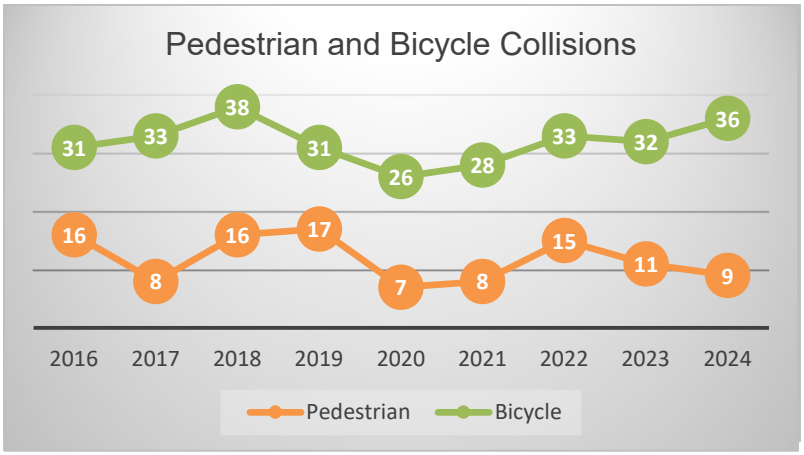
The total number of collisions for the current year was approximately 16% less than the prior year's number of collisions (285 compared to 340) and almost equal to the previous three-year average of 287.



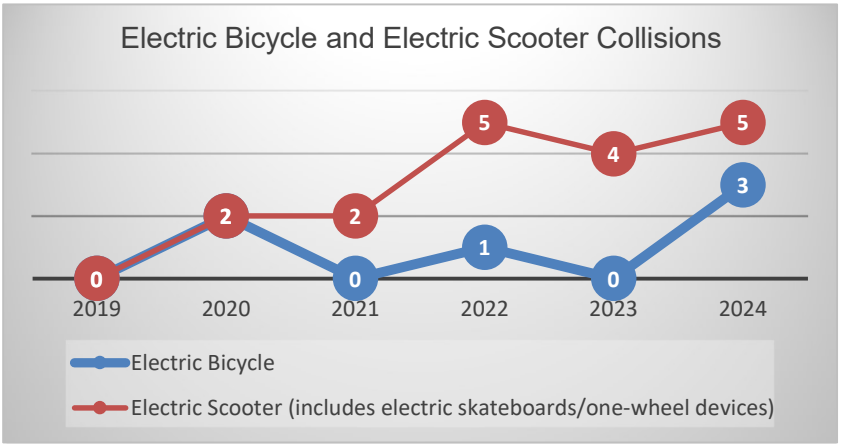
[1] The full countermeasures list is included as Attachment "A" to this report

There were four more bicyclist collisions this year, 36 compared to 32 last year and 31 for the three-year average. Pedestrian collisions decreased by two, with nine compared to eleven last year and eleven for the three-year average.



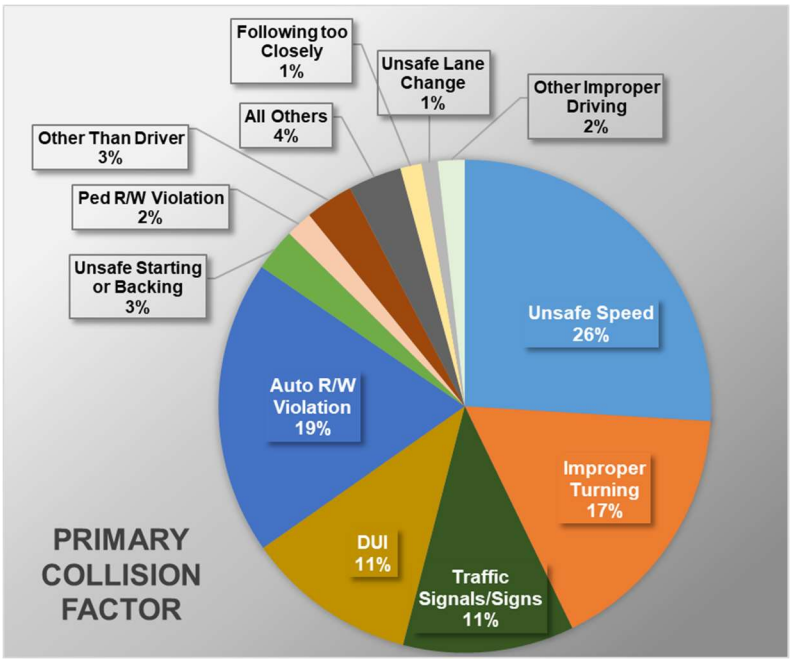


Electric scooter[2] and electric bicycle collisions have been tracked since 2019. There were five electric scooter collisions, and three electric bicycle collisions included in the current 36 bicycle collisions. Starting in 2022 there has been a growing number of electric scooter collisions. The uptick in these types of collisions mirrors the growing popularity of these types of micromobility vehicles.



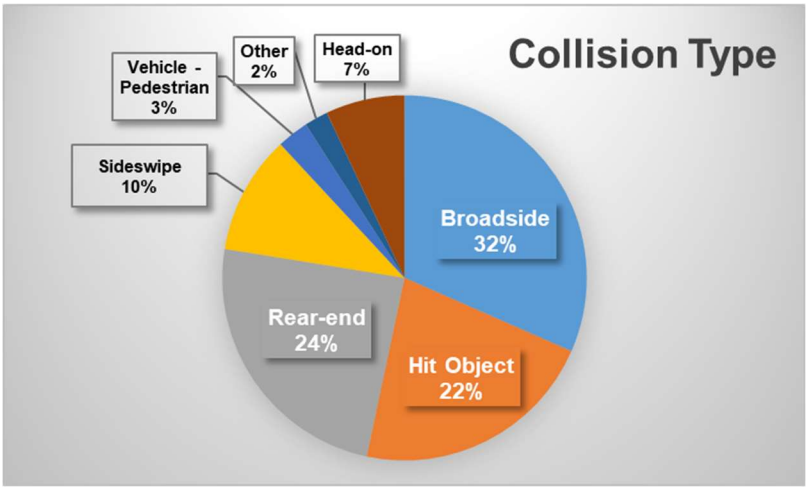
Primary collision factors[3] (by percentage) showed a five percent increase in both unsafe speed and auto right-of-way collisions compared to previous years. There was a decrease of five percent in improper turning collisions.

Unsafe speed and auto right-of-way are the most common reasons for collisions. The two combine to account for 45% of all collisions. Historically, improper turning is the second most common collision factor. However, this year it has fallen to number three.

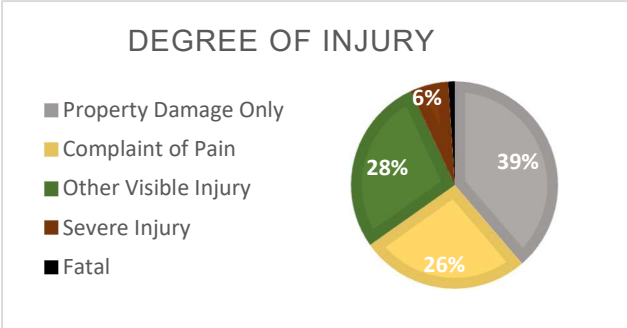


[2] Electric scooter includes electric skateboards/one-wheel devices
[3] The primary collision factor is the main cause of the collision as determined by the investigating officer

For primary collision type, broadside collisions continue to be the number one collisions type. Rear-end collisions are the second most common. Collision types have returned to pre-pandemic percentages. Run-off-the-road collisions (Hit-object) were the number one collision type in both 2020 and 2021. Typically broadside collisions are greater in number.

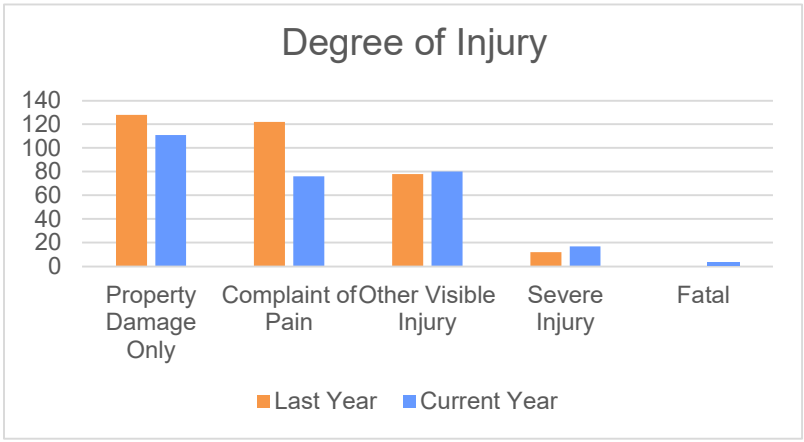


Out of the 285 collisions in the City, approximately 58% involve a second moving vehicle. Vehicles hitting an object or parked car represent 27% of collisions, and about 13% of the collisions have a vehicle involved with a bicycle or pedestrian.



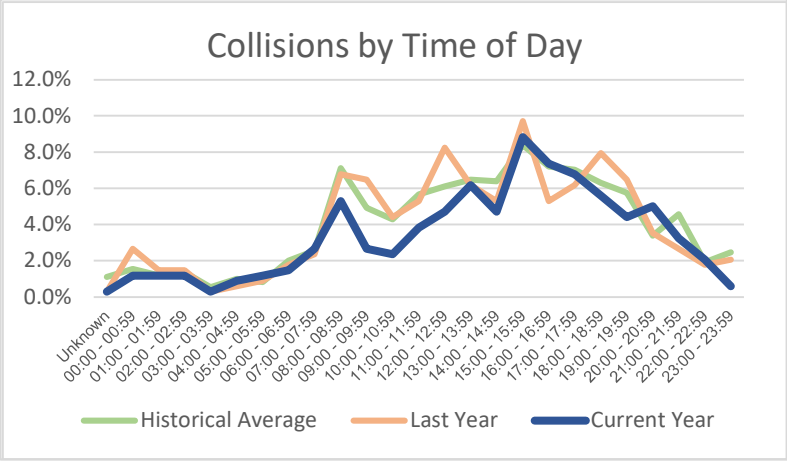
The highest degree of injury reported in each collision is categorized by five levels (fatal, severe, other visible injury, complaint of pain and property damage only). The percentage of collisions with complaint of pain decreased while other visible injury and severe injury increased when compared to last year.

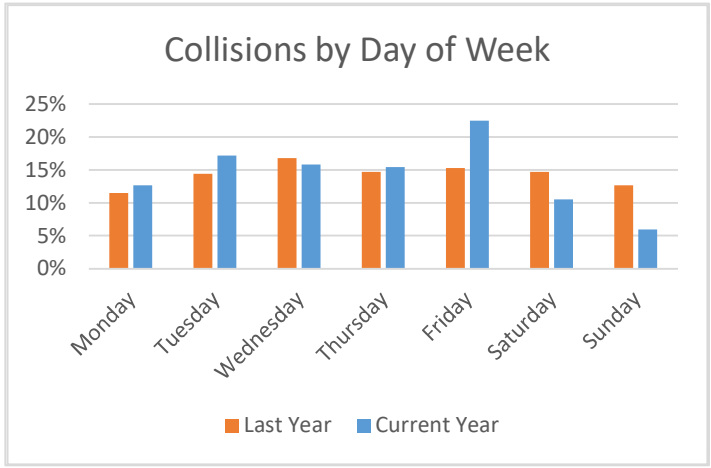
There was one fatal collision this year and none last year (Foothill Road south of Stoneridge Drive – southbound driver hit tree on north side of roadway). Over the past 20 years there have been 22 fatalities which averages approximately one fatality per year (12 vehicle, 4 bicycle and 6 pedestrian).



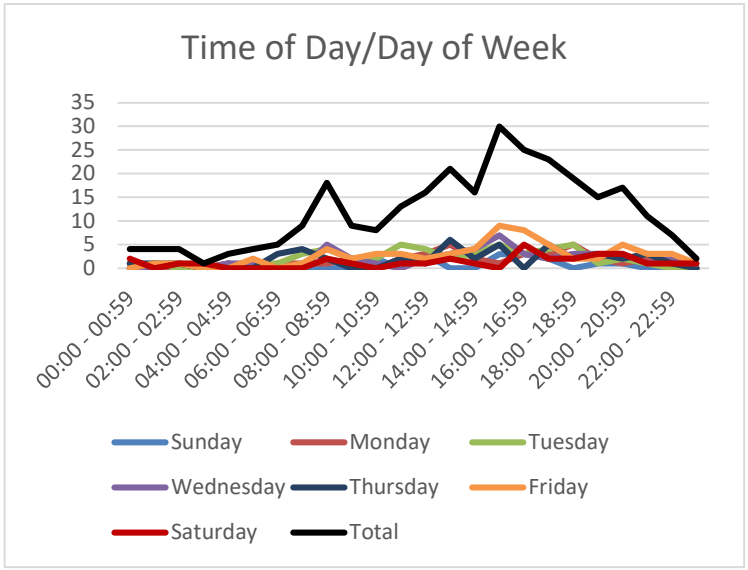
The percentage of vehicle collisions occurring at night versus day trended to more nighttime collisions than last year (32 percent of all collisions occurring at night and 67 percent during the day). These figures are very close to the historical average (nighttime collisions at 30 percent and daytime collisions at 70 percent).

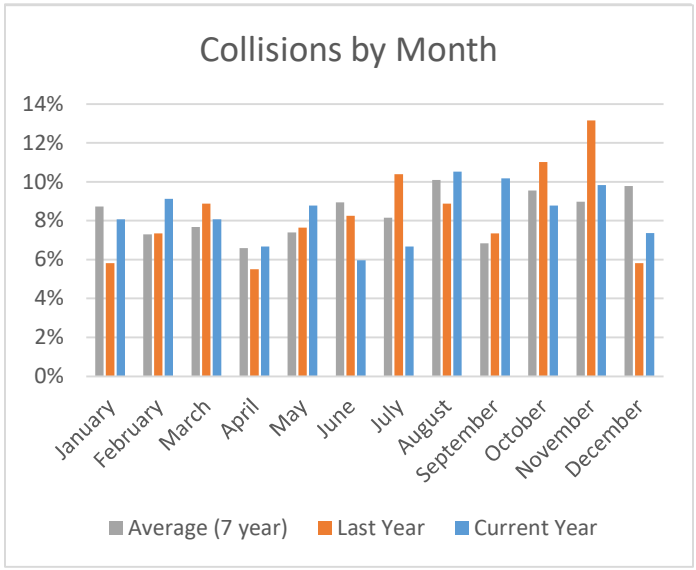
Time of day analysis shows the majority of the collisions in the morning, school pick-up, and afternoon commute periods. This is not surprising as there is an increase in vehicle trips during these times. In looking at the different days of week Friday has the most collisions and the hour of the day with the





most collisions is 3:00 – 4:00 PM. Collisions by month analysis showed June with the lowest percentage of collisions. August showed the most collisions with 11% of the year's collisions. Historically August has the most collisions.





California Office of Traffic Safety (OTS) Rankings

The OTS Rankings were developed so that individual cities could compare their city's traffic safety statistics to those of other cities with similar-sized populations in California. Pleasanton is part of the "midsize" city category.

In the most current year's OTS data (2022) Pleasanton's composite rank was 99 out of 104 (meaning our overall traffic safety was rated better than 98 other similar sized cities). The composite ranking is meant to be an indication of overall traffic safety. This is an improvement from being ranked 91 in the previous year's data.

Current Year Analysis

Intersection

The intersections with the most collisions (vehicle, bicyclist and pedestrian combined) were identified for the current year and compared to both last year and the previous three-year period. Collisions that occur within 200 feet (250 feet if rear-end) of the intersections are considered intersection collisions. There are often year-to-year fluctuations in collision locations, which is why the three-year trend is included in the analysis.

Traffic engineering staff analyzed each intersection in detail to identify correctable patterns using countermeasure mitigations.

The top three intersections are described below as well as any intersections where staff identified patterns/improvements.

Current Year (12/1/23 - 11/30/24)		
Rank	Intersection	Collisions
1	Santa Rita Rd at Stoneridge Dr	8
2	Hopyard Rd at W Las Positas Bl	7
3	Sunol Bl at I-680	5
4	First St at Vineyard Av	5
5	Santa Rita Rd at W Las Positas Bl	5
6	Owens Dr at W Las Positas Bl	5
7	Stanley Bl at Valley Av/Bernal	5
8	Santa Rita Rd at Valley Av	5
9	Bernal Av at I-680 SB Off Ramp	4
10	Main St at Ray St	4
11	Santa Rita Rd at Black Av	4
12	Santa Rita Rd at Lockhart Ln	4

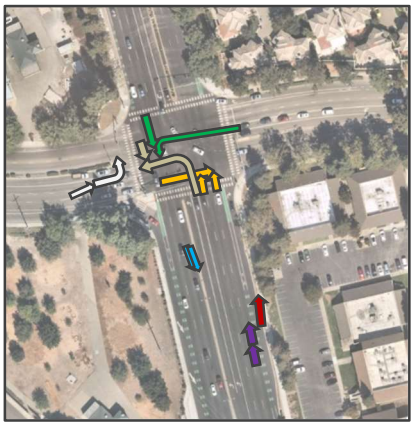
Last Year (12/1/22 - 11/30/23)		
Rank	Intersection	Collisions
1	Sunol Bl at I-680	12
2	Stanley Bl at Valley Av/Bernal Av	8
3	Hopyard Rd at Parkside Dr	7
4	Foothill Rd at Dublin Canyon Rd	6
5	Hopyard Rd at W Las Positas Bl	6
6	Santa Rita Rd at Valley Av	6
7	Hopyard Rd at Owens Dr	5
8	Owens Dr at Chabot Dr	5
9	Stoneridge Dr at Hacienda Dr	5
10	Hopyard Rd at Stoneridge Dr	5

Previous 3 Years (12/1/20 - 11/30/23)		
Rank	Intersection	Collisions
1	Sunol Bl at I-680	22
2	Foothill Rd at Dublin Canyon Rd	22
3	Santa Rita Rd at Valley Av	18
4	Stanley Bl at Valley/Bernal Av	17
5	Hopyard Rd at Owens Dr	15
6	Hopyard Rd at Stoneridge Dr	12
7	Hopyard Rd at W Las Positas Bl	12
8	Owens Dr at Hacienda Dr	11
9	W Las Positas Bl at Stoneridge Dr	9

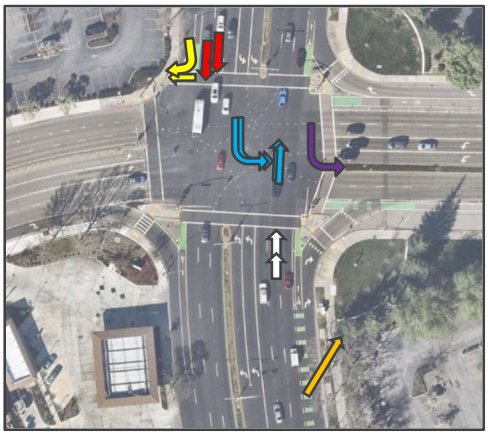
Santa Rita Road at Stoneridge Drive

Two of the eight collisions were southbound vehicles hitting the center median just south of the intersection (blue) both at night in the rain. Three collisions involved vehicles running a red light, all different movements (green, orange, and tan arrows).

We will refresh the median striping and add additional reflectors to add extra notification of the median for southbound south of intersection (Caltrans countermeasure R28).



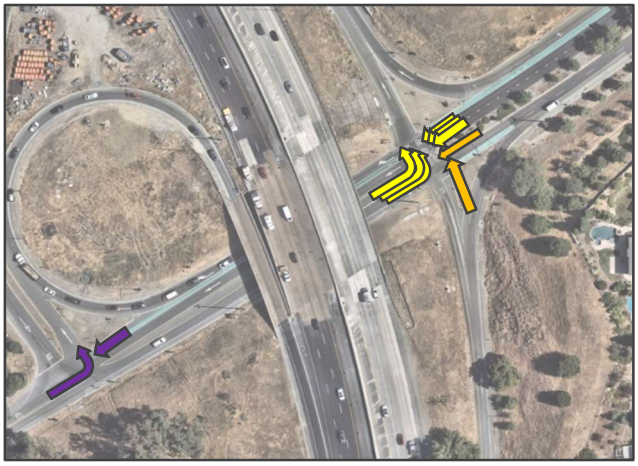
Hopyard Road at West Las Positas Boulevard



Two of the seven collisions involved a southbound left turning vehicle running the red light and hitting a northbound vehicle (blue arrows).

Examine signal head visibility for the southbound left turning movement and address any deficiencies (Caltrans countermeasure NS11).

Sunol Boulevard at I-680 northbound ramps



Four collisions were head-on/broadside involving drivers trying to enter the northbound I-680 on ramp with the remaining collision a driver entering the southbound ramp. Four of the five collisions involved an east bound left turning vehicle.

This pattern of broadside/head-on collisions has been noted through this corridor in the past and this intersection will be signalized as part of the Sunol Boulevard I-680 Interchange Modernization project (Caltrans countermeasure NS03).

No correctable patterns were identified at the remaining intersections.

Midblock

High Incidence Midblock Collisions were analyzed over a three-year period. A three-year time frame is used as a one-year analysis does not typically have enough collisions to identify patterns. A midblock collision is defined as a collision that occurred greater than 200 feet from an intersection (or 250 feet if it is a rear-end collision). There were six segments that had four or more midblock collisions (the four-collision threshold was chosen to analyze locations that may have more than one collision per year over the three-year period). Each of the segments was reviewed in detail to identify correctable patterns and found the following:

Dublin Canyon Road from Foothill Road to Laurel Creek Drive

All five collisions were hit object (all different objects) and in three of those collisions the driver was DUI or lost consciousness.

In past reports there was a pattern of collisions at the westernmost curve. Additional and larger signs were installed on this curve in 2016. No collisions appear at that location on this report.

Pavement striping was evaluated last year and found to be adequate. This roadway was resurfaced in September 2024. We added some additional striping through the western most curve to add extra notification of curves in roadway. Caltrans countermeasure R28.

Action to take:

Inform Police Department of prevalence of DUI collisions on this section of roadway.

First Street from Arendt Way to Kottinger Drive

All five collisions were northbound rear-end collisions, with four of them rear-ending a parked northbound vehicle. In three of the collisions the driver fell asleep or was driving under the influence. In the remaining two collisions the driver fled the scene before police arrived (sobriety/consciousness at time of collision undetermined). Four of the collisions occurred in the early morning hours in the dark, and all five occurred on the weekend.

Action to take:

Inform Police Department of prevalence of DUI collisions on this section of roadway.

Santa Rita Road from Sutter Gate Avenue to Stoneridge Drive

Three of the four collisions were analyzed on last year's report. One new collision occurred this year. Two of the four collisions were northbound rear-end collisions into stopped vehicles at the red light at Stoneridge Drive. Both of these collisions happened midday on a weekday.

We recommended an evaluation of midday traffic signal timing to see If more green time can be given to this direction. Caltrans countermeasures S03. Staff is finalizing signal timing through this corridor.

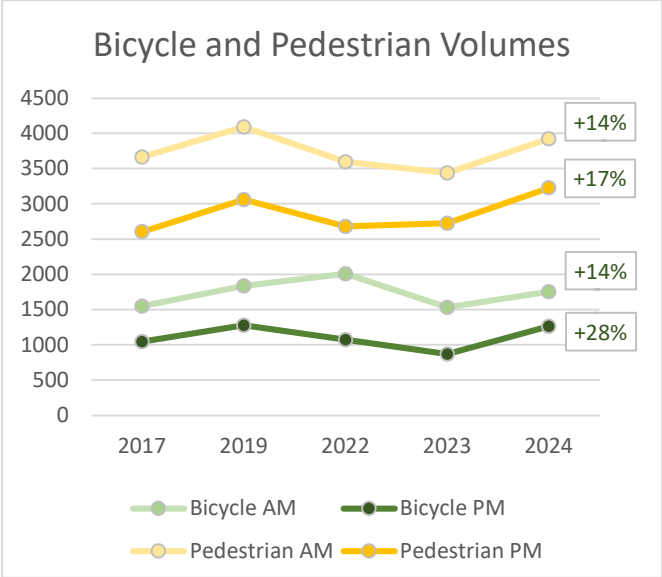
No correctable patterns were identified at the remaining roadway segments.

Pedestrian & Bicycle Trends

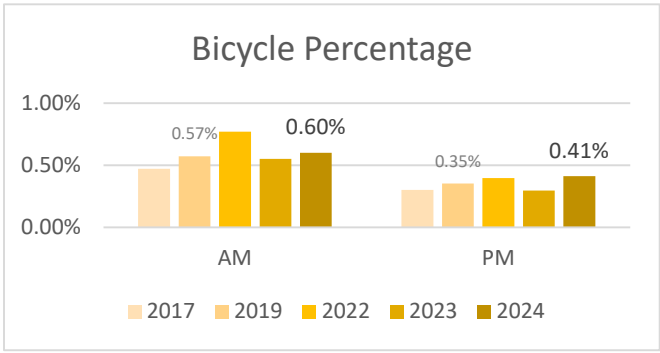
Collisions involving pedestrians and bicyclists are examined separately from vehicle collisions as these are the most vulnerable users of the transportation network. Due to the low number of pedestrians and bicycle collisions, the collision analysis spans a three-year period[4]. Pedestrian collisions increased by one and bicycle collisions increased by eight this period. There were 35 collisions involving pedestrians and 101 bicycle collisions over the three-year period (there were 34 pedestrian and 93 bicycle collisions in the previous three-year period[5]).

Twenty-four of the 101 bicycle collisions were "solo" bicycle collisions (a bicyclist crashing without another party involved)[6].

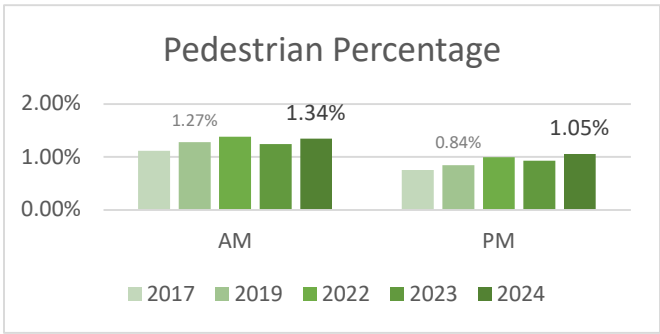
Citywide traffic counts were conducted at 153 intersections in both 2023 and 2024. Vehicle, bicycle, and pedestrian volumes were recorded during the morning and evening peak travel times. This data was used to calculate changes in bicycle use (14% increase in the morning and 28% increase in the evening) and changes in pedestrian activity (14% increase in the morning and 17% increase in the evening). Pedestrian and bicycle volumes are trending closer to the 2019 counts.



The percentage of bicyclists and pedestrians compared to overall traffic volume was calculated and both the bicycle and pedestrian percentages increased from 2023 to 2024[7].



The 2024 data shows that pedestrian and bicycle volumes are trending closer to pre-pandemic numbers and that their percentage of the overall commute mode has also returned to levels closer to, although slightly higher than pre-pandemic levels. It should be noted that some of the increase in percent mode can still be attributed to lower vehicle volumes than pre-pandemic. Peak hour morning vehicle volumes in 2024 are 90% of pre-pandemic values and evening are 86%.

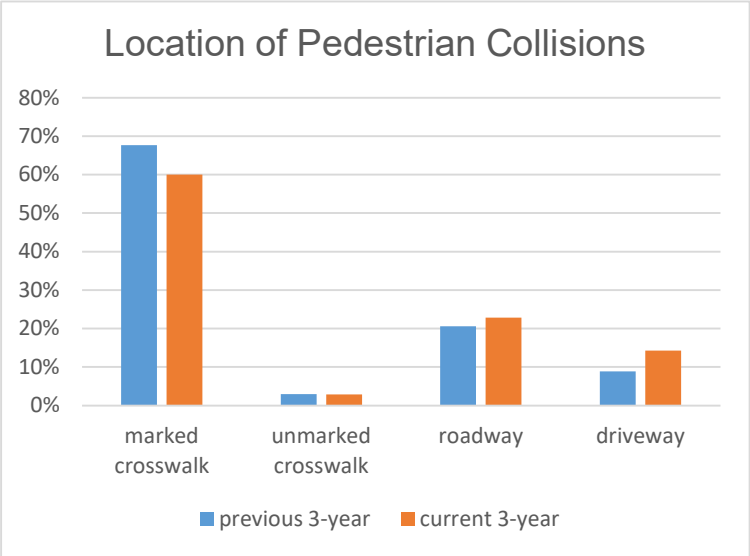


[4] The current three-year period is 12/1/2021 to 11/30/2024
[5] The previous three-year period is 12/1/2020 to 11/30/2023
[6] "Solo" bicycles collisions are the result of a bicyclist falling off the bicycle for various reasons (medical, inattention, hitting an object, roadway conditions, etc.)
[7] Total bicyclists and total pedestrians were divided by total of vehicles for 153 intersections to calculate bicycle and pedestrian usage percentages

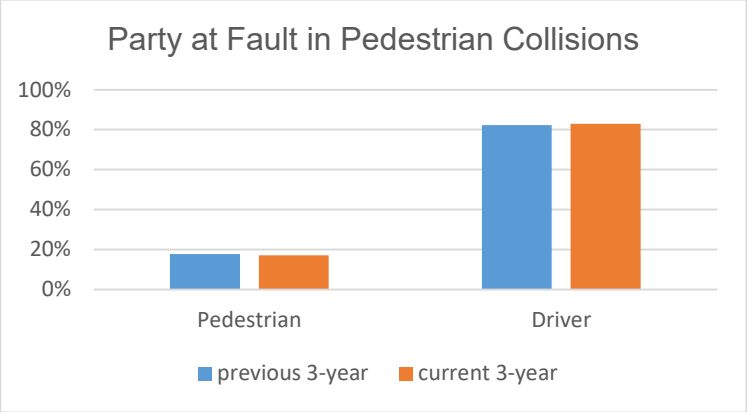
Pedestrian Collision Statistics

Numerous data points are collected regarding collision details for pedestrians. The pedestrian's location, party at fault and age are shown to provide better understanding of where and who are involved in collisions.

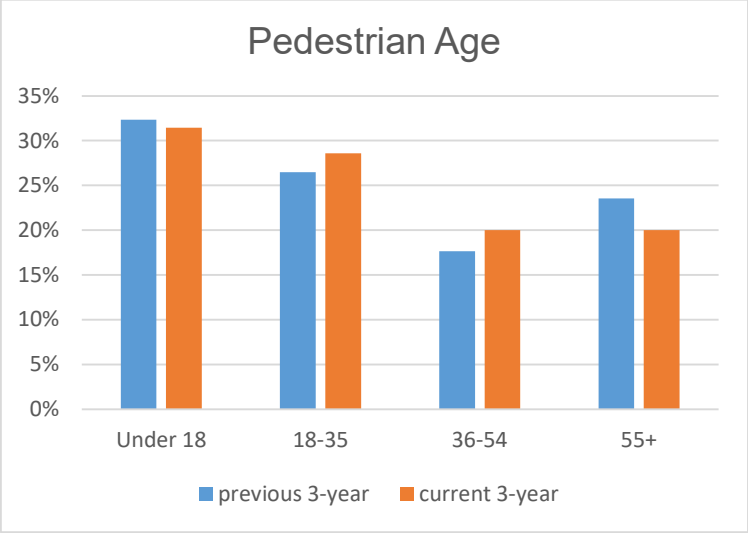
The chart to the right illustrates the percentage of collisions that occurred in marked and unmarked crosswalks, in the roadway (outside of a marked or unmarked crosswalk), or at a driveway. While the number of collisions at marked crosswalks is greater than the other location types, this does not necessarily equate to reduced relative safety as there are more pedestrians crossing at marked crosswalks than the other location types. The volume of pedestrians crossing at the different location types is difficult to quantify given the number of locations/intersections within the City.



The Party at Fault chart shows vehicles are found at fault around 80% of the time. This year shows the highest percentage with 83% of the collisions having the driver at fault. This is the highest percentage of drivers found at fault since we started tracking this number in 2014.



The Pedestrian Age chart shows the age distribution. The highest category is under 18, with 31% of the collisions (11 of the 35 collisions). This data does not necessarily suggest that pedestrians under the age of 18 are more likely to be involved in a collision, as we don't collect the total number of pedestrians walking by age.



Bicycle Collision Statistics

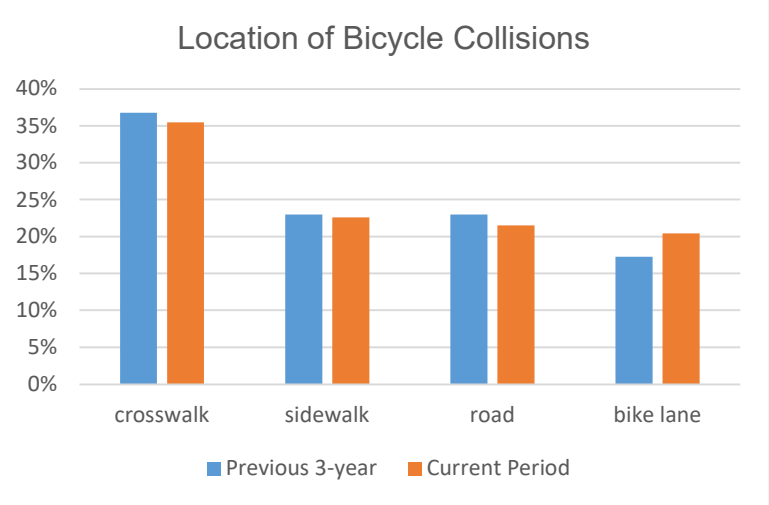
Similar to the pedestrian collision section, the location, fault and age statistics are shown to better understand who, where, and when bicycle collisions occur. The percentages of bike collisions that occurred in a crosswalk, on a sidewalk, in a bike lane, or simply on the "road" (outside of a bike lane or crosswalk) are shown on the bar graph to the right. Similar to pedestrian collisions, the greater number of collisions within a crosswalk does not necessarily indicate reduced safety.

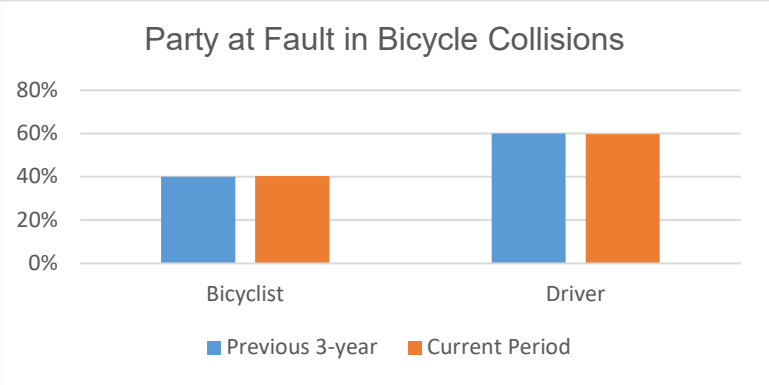
Party at fault (bicyclist, driver or unknown) is shown on the bar graph to the right[8]. Bicyclists were found at fault in 40% of the collisions (excluding the solo bicycle collisions).

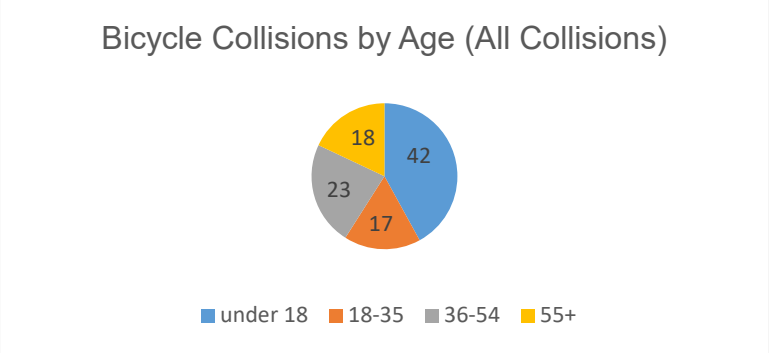
The Bicyclist Age chart shows the differences between age categories. The under 18 category has the largest share of bicycle collisions, 42% (42 of the 100)[9]. However, this does not mean that bicyclists under 18 are more likely to be involved in a collision as we do not collect the total number of bicyclists by age. Last period we also had 42% for the under 18 category. We are still below the historic average of 47% for this category.

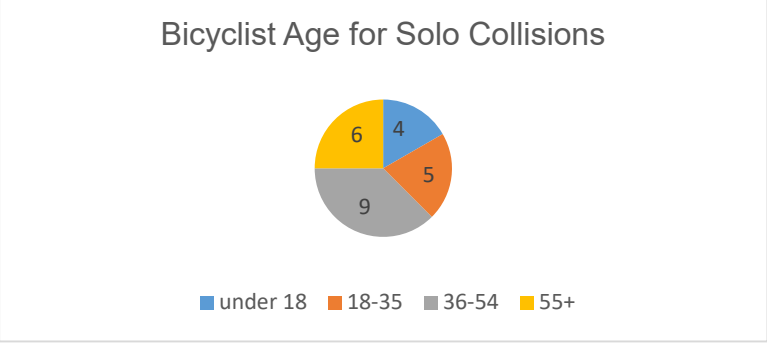
As noted previously in the report 24 of the 101 bicycle crashes were solo crashes (crashes that do not involve another vehicle).

The 55+ age group included 18 crashes with 33% of those solo. This is similar to the 36 – 54 age group where 39% were solo. This data doesn't necessarily imply that older cyclists fall more often. It could be they fall at the same rate but are hurt more often.









[8] Collisions where the bicyclist was at fault include collisions where one bicyclist hits another bicyclist.
[9] There are 100 collisions in the current period where age of the bicyclist was determined (there were 101 total bicyclist collisions)

Pedestrian Analysis

Intersection and Midblock

Intersections and midblock segments with more than one collision are typically analyzed. However, there were no intersection locations during the current three-year period with more than one collision. There were also no midblock locations with more than one collision. We expanded our search to the last five-year period and found two intersection locations with more than one collision and analyzed both below. Even with the expanded five-year time frame we still had no midblock locations with more than one collision. While the lack of locations with more than one pedestrian collision is great from a traffic safety perspective, it makes it very difficult to identify location specific patterns.

First Street at Spring Street/Kottinger Drive

Both collisions involved a westbound right turning vehicle hitting a pedestrian in a crosswalk (one in the east crosswalk and one in the north crosswalk. One of the collisions was a right turn on red and the other was a right turn on green. Right turning vehicles have good sight distance of this crosswalk, as long as they are looking in that direction.

Both of these collisions were reviewed last year, with no new collisions at this intersection. We conducted a 10-year collision review to determine if LPI (leading pedestrian interval) or prohibiting the right turn on red were needed. Countermeasures S21-PB and PLS-RTOR. Our analysis showed no collision pattern to support LPI or prohibiting the right turn on red.

Santa Rita Road at Francisco Street

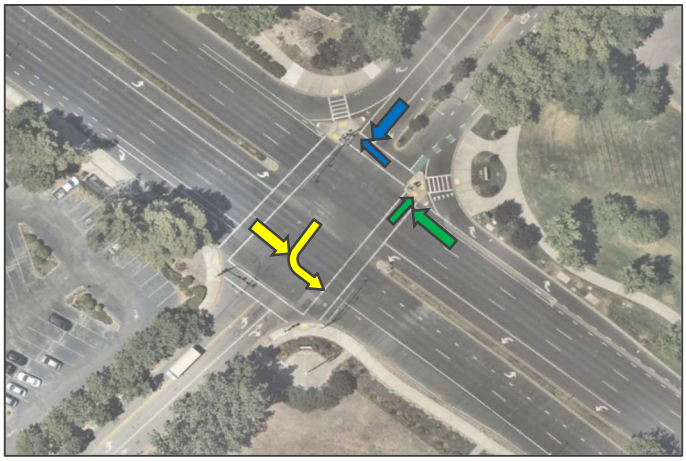
Neither of the two collision occurred in the crosswalk across Santa Rita Road, and only one of the two collisions occurred at the intersection. The collision at the intersection was between a westbound right turning vehicle and a southbound pedestrian in the east crosswalk. The other collision occurred north of the intersection at one of the nearby shopping center driveways. Both collisions involved a right turning vehicle. No other patterns were identified and no actions recommended at this time.

Bicycle Analysis

Intersection (Bicycle)

Intersections and midblock segments with more than one bicycle collision are analyzed. Eleven intersections had two or more collisions in the current three-year period. Patterns or actions to take were identified at the following intersections:

Hopyard Road at Parkside Drive/Valley Trails (south)

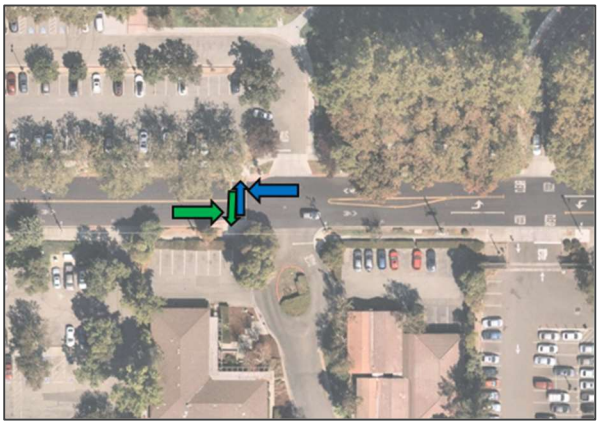


These three collisions were analyzed on the last report. No new collisions occurred at this intersection this year.

Two of the bicyclists were hit in a crosswalk. In the first collision the bicyclist was using the south crosswalk but did not use the pedestrian button. The second collision the northbound bicyclist was in the east crosswalk entered against a red pedestrian signal.

No further patterns were identified. Staff upgraded detection to extend the all-red period (time the signal shows red to all directions between signal phases) when a bicycle is detected in the intersection in April of 2024. Pleasanton countermeasure PLS-BSMOD. Staff also worked with schools to get message to school aged bicyclists on the importance of using pedestrian push buttons at signalized intersections. Pleasanton countermeasure PLS-EDMSG.

Black Avenue at Cedarwood Lane



Both collisions occurred in the same marked crosswalk, found the bicyclist at fault and involved a juvenile traveling to or from school. In the first collision the bicyclist thought the vehicle was slowing to let him cross. In the second collisions neither the bicyclist nor the driver saw each other prior to the collision.

It should be noted this crosswalk is bulbed out to increase visibility of those pedestrians/bicyclists choosing to cross there. This section of Black Avenue is level and straight with parking prohibited near the intersection to allow for good visibility. Pedestrian crossing signs are located both in advance of the intersection and at the intersection to identify this as a crossing location.

Both collisions were analyzed in previous reports. We recommended and installed an RRFB system at this location in June of 2024 and no collisions have occurred since the installation. Caltrans countermeasure R37PB

Black Avenue at Crestline Road

Both bicycle collisions involved a juvenile bicyclist being hit by a southbound right turning vehicle where the driver did not see the bicyclist. In both instances the bicyclist did not make eye-contact with driver before starting into the crosswalk.

Based on the last report the following actions were taken:

Parking was removed to increase sight distance in August of 2024 and no further collisions have occurred at this intersection. Caltrans countermeasure NS11. Staff also reached out to school district to promote bicycle safety to their students. Link to BikePleasanton.com was shared with information and current events/classes. Pleasanton countermeasure PLS-EDMSG.

Midblock (Bicycle)

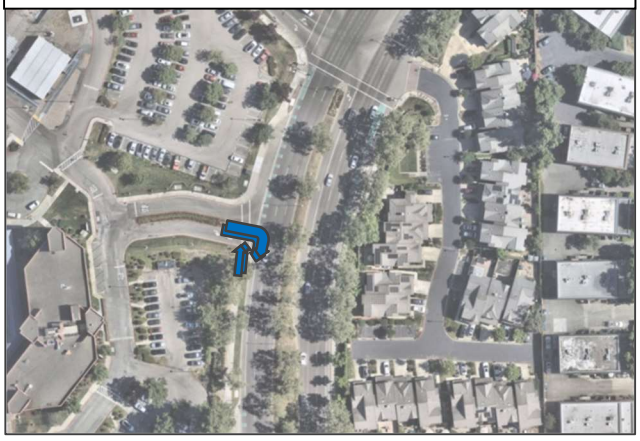
Two midblock segments were identified with more than one bicycle collision during the three-year period (Bernal Avenue from Puerto Vallarta to First Street and Santa Rita Road from West Las Positas Boulevard to Pickens Lane/Old Santa Rita Road).

Bernal Avenue from Puerto Vallarta to First Street

The segment of Bernal Avenue was analyzed last year and had two collisions (one of them being a solo bicycle collision). No correctable patterns were identified.

The segment of Santa Rita Road also had two collisions. Both collisions happened in the Stanford/Valley Care driveway crosswalk and involved a northbound bicyclist being hit by an eastbound right-turning vehicle exiting the driveway to enter Santa Rita Road. In both cases the driver was looking left for gap in southbound traffic.

Santa Rita Road from W Las Positas to Pickens Ln



Action to take:

Install warning signage for northbound bicyclists/pedestrians to be cautious/make eye-contact with driver before crossing driveway. Caltrans countermeasure NS06.

Attachment "A" (page 1 of 4)

Table 1. Countermeasures for Signalized Intersections

No.	Type	Countermeasure Name	Crash Type	CRF	Expected Life (Years)	HSIP Funding Eligibility	Systemic Approach Opportunity?
S01	Lighting	Add intersection lighting (S.I.)	Night	40%	20	100%	Medium
S02	Signal Mod.	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	All	15%	10	100%	Very High
S03	Signal Mod.	Improve signal timing (coordination, phases, red, yellow, or operation)	All	15%	10	50%	Very High
S04	Signal Mod.	Provide Advanced Dilemma Zone Detection for high speed approaches	All	40%	10	100%	High
S05	Signal Mod.	Install emergency vehicle pre-emption systems	Emergency Vehicle	70%	10	100%	High
S06	Signal Mod.	Install left-turn lane and add turn phase (signal has no left-turn lane or phase before)	All	55%	20	90%	Low
S07	Signal Mod.	Provide protected left turn phase (left turn lane already exists)	All	30%	20	100%	High
S08	Signal Mod.	Convert signal to mast arm (from pedestal-mounted)	All	30%	20	100%	Medium
S09	Operation/ Warning	Install raised pavement markers and striping (Through Intersection)	All	10%	10	100%	Very High
S10	Operation/ Warning	Install flashing beacons as advance warning (S.I.)	All	30%	10	100%	Medium
S11	Operation/ Warning	Improve pavement friction (High Friction Surface Treatments)	All	55%	10	100%	Medium
S12	Geometric Mod.	Install raised median on approaches (S.I.)	All	25%	20	90%	Medium
S13PB	Geometric Mod.	Install pedestrian median fencing on approaches	P & B	35%	20	90%	Low
S14	Geometric Mod.	Create directional median openings to allow (and restrict) left-turns and u-turns (S.I.)	All	50%	20	90%	Medium
S15	Geometric Mod.	Reduced Left-Turn Conflict Intersections (S.I.)	All	50%	20	90%	Medium
S16	Geometric Mod.	Convert intersection to roundabout (from signal)	All	Varies	20	100%	Low
S17PB	Ped and Bike	Install pedestrian countdown signal heads	P & B	25%	20	100%	Very High
S18PB	Ped and Bike	Install pedestrian crossing (S.I.)	P & B	25%	20	100%	High
S19PB	Ped and Bike	Pedestrian Scramble	P & B	40%	20	100%	High
S20PB	Ped and Bike	Install advance stop bar before crosswalk (Bicycle Box)	P & B	15%	10	100%	Very High
S21PB	Ped and Bike	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	P & B	60%	10	100%	Very High

Table 2. Countermeasures for Non-Signalized Intersections

No.	Type	Countermeasure Name	Crash Type	CRF	Expected Life (Years)	HSIP Funding Eligibility	Systemic Approach Opportunity?
NS01	Lighting	Add intersection lighting (NS.I.)	Night	40%	20	100%	Medium
NS02	Control	Convert to all-way STOP control (from 2-way or Yield control)	All	50%	10	100%	High
NS03	Control	Install signals	All	30%	20	100%	Low
NS04	Control	Convert intersection to roundabout (from all way stop)	All	Varies	20	100%	Low
NS05	Control	Convert intersection to roundabout (from stop or yield control on minor road)	All	Varies	20	100%	Low
NS06	Operation/ Warning	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	All	15%	10	100%	Very High
NS07	Operation/ Warning	Upgrade intersection pavement markings (NS.I.)	All	25%	10	100%	Very High
NS08	Operation/ Warning	Install Flashing Beacons at Stop-Controlled Intersections	All	15%	10	100%	High
NS09	Operation/ Warning	Install flashing beacons as advance warning (NS.I.)	All	30%	10	100%	High
NS10	Operation/ Warning	Install transverse rumble strips on approaches	All	20%	10	90%	High
NS11	Operation/ Warning	Improve sight distance to intersection (Clear Sight Triangles)	All	20%	10	90%	High
NS12	Operation/ Warning	Improve pavement friction (High Friction Surface Treatments)	All	55%	10	100%	Medium
NS13	Geometric Mod.	Install splitter-islands on the minor road approaches	All	40%	20	90%	Medium
NS14	Geometric Mod.	Install raised median on approaches (NS.I.)	All	25%	20	90%	Medium
NS15	Geometric Mod.	Create directional median openings to allow (and restrict) left-turns and u-turns (NS.I.)	All	50%	20	90%	Medium
NS16	Geometric Mod.	Reduced Left-Turn Conflict Intersections (NS.I.)	All	50%	20	90%	Medium
NS17	Geometric Mod.	Install right-turn lane (NS.I.)	All	20%	20	90%	Low
NS18	Geometric Mod.	Install left-turn lane (where no left-turn lane exists)	All	35%	20	90%	Low
NS19PB	Ped and Bike	Install raised medians / refuge islands (NS.I.)	Ped and Bike	45%	20	90%	Medium
NS20PB	Ped and Bike	Install pedestrian crossing at uncontrolled locations (new signs and markings only)	Ped and Bike	25%	10	100%	High
NS21PB	Ped and Bike	Install/upgrade pedestrian crossing at uncontrolled locations (with enhanced safety features)	Ped and Bike	35%	20	100%	Medium
NS22PB	Ped and Bike	Install Rectangular Rapid Flashing Beacon (RRFB)	Ped and Bike	35%	20	100%	Medium
NS23PB	Ped and Bike	Install Pedestrian Signal (including Pedestrian Hybrid Beacon (HAWK))	Ped and Bike	55%	20	100%	Low

Table 3. Countermeasures for Roadways

No.	Type	Countermeasure Name	Crash Type	CRF	Expected Life (Years)	HSIP Funding Eligibility	Systemic Approach Opportunity?
R01	Lighting	Add segment lighting	Night	35%	20	100%	Medium
R02	Remove/ Shield Obstacles	Remove or relocate fixed objects outside of Clear Recovery Zone	All	35%	20	90%	High
R03	Remove/ Shield Obstacles	Install Median Barrier	All	25%	20	100%	Medium
R04	Remove/ Shield Obstacles	Install Guardrail	All	25%	20	100%	High
R05	Remove/ Shield Obstacles	Install impact attenuators	All	25%	10	100%	High
R06	Remove/ Shield Obstacles	Flatten side slopes	All	30%	20	90%	Medium
R07	Remove/ Shield Obstacles	Flatten side slopes and remove guardrail	All	40%	20	90%	Medium
R08	Geometric Mod.	Install raised median	All	25%	20	90%	Medium
R09	Geometric Mod.	Install median (flush)	All	15%	20	90%	Medium
R10PB	Geometric Mod.	Install pedestrian median fencing on approaches	P & B	35%	20	90%	Low
R11	Geometric Mod.	Install acceleration/ deceleration lanes	All	25%	20	90%	Low
R12	Geometric Mod.	Widen lane (initially less than 10 ft)	All	25%	20	90%	Medium
R13	Geometric Mod.	Add two-way left-turn lane (without reducing travel lanes)	All	30%	20	90%	Medium
R14	Geometric Mod.	Road Diet (Reduce travel lanes from 4 to 3 and add a two way left-turn and bike lanes)	All	30%	20	90%	Medium
R15	Geometric Mod.	Widen shoulder	All	30%	20	90%	Medium
R16	Geometric Mod.	Curve Shoulder widening (Outside Only)	All	45%	20	90%	Medium
R17	Geometric Mod.	Improve horizontal alignment (flatten curves)	All	50%	20	90%	Low
R18	Geometric Mod.	Flatten crest vertical curve	All	25%	20	90%	Low
R19	Geometric Mod.	Improve curve superelevation	All	45%	20	90%	Medium
R20	Geometric Mod.	Convert from two-way to one-way traffic	All	35%	20	90%	Medium
R21	Geometric Mod.	Improve pavement friction (High Friction Surface Treatments)	All	55%	10	100%	High

Table 3. Countermeasures for Roadways (Continued)

No.	Type	Countermeasure Name	Crash Type	CRF	Expected Life (Years)	HSIP Funding Eligibility	Systemic Approach Opportunity?
R22	Operation/ Warning	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	All	15%	10	100%	Very High
R23	Operation/ Warning	Install chevron signs on horizontal curves	All	40%	10	100%	Very High
R24	Operation/ Warning	Install curve advance warning signs	All	25%	10	100%	Very High
R25	Operation/ Warning	Install curve advance warning signs (flashing beacon)	All	30%	10	100%	High
R26	Operation/ Warning	Install dynamic/variable speed warning signs	All	30%	10	100%	High
R27	Operation/ Warning	Install delineators, reflectors and/or object markers	All	15%	10	100%	Very High
R28	Operation/ Warning	Install edge-lines and centerlines	All	25%	10	100%	Very High
R29	Operation/ Warning	Install no-passing line	All	45%	10	100%	Very High
R30	Operation/ Warning	Install centerline rumble strips/stripes	All	20%	10	100%	High
R31	Operation/ Warning	Install edgeline rumble strips/stripes	All	15%	10	100%	High
R32PB	Ped and Bike	Install bike lanes	P & B	35%	20	90%	High
R33PB	Ped and Bike	Install Separated Bike Lanes	P & B	45%	20	90%	High
R34PB	Ped and Bike	Install sidewalk/pathway (to avoid walking along roadway)	P & B	80%	20	90%	Medium
R35PB	Ped & Bike	Install/upgrade pedestrian crossing (with enhanced safety features)	P & B	35%	20	90%	Medium
R36PB	Ped and Bike	Install raised pedestrian crossing	P & B	35%	20	90%	Medium
R37PB	Ped and Bike	Install Rectangular Rapid Flashing Beacon (RRFB)	P & B	35%	20	100%	Medium
R38	Animal	Install animal fencing	Animal	80%	20	90%	Medium

Table 4. City of Pleasanton Specific Countermeasures

PLS-INTNAR	Ped and Bike	Intersection narrowing to improve visibility and reduce pedestrian/bicyclist exposure by reducing intersection crossing distances
PLS-LOS	Geometric Mod	Modify intersection through physical changes and/or signal timing to improve capacity and reduce intersection delay
PLS-RMOD	Ped and Bike	Investigate/modify bridge railing
PLS-BSMOD	Ped and Bike	Upgrade detection to extend the all-red period when a bicycle is detected in the intersection.
PLS-RTOR	Ped and Bike	Prohibit right turn on red
PLS-SASMSG	Ped and Bike	Work with schools to get message to school aged bicyclists on the importance of using pedestrian push buttons at signalized intersections.

Attachment "B" (page 1 of 2)

Collision Pattern Analysis Procedure

Last update: Mark Candland 01/11/2023

The process for searching for patterns in collision data is described in detail below. The first step is to identify locations with multiple collisions over the desired time frames. These locations are either at an intersection or along a roadway segment. This is accomplished with reports generated from our collision analysis software (Crossroads Analytics). Reports are currently based on frequency of collisions, not rates. The second step is a detailed analysis of the specifics of each collision.

Locations:

Reports created through Crossroads Analytics:

- The following intersection and midblock reports are created:
  - All Vehicle High Incident Intersection (current year)
  - All Vehicle High Incident Intersection (three-year)
  - Bicycle High Incident Intersection (three-year)
  - Pedestrian High Incident Intersection (three-year)
  - All Vehicle High Incident Midblock (current year and three-year)
  - Bicycle High Incident Midblock (three-year)
  - Pedestrian High Incident Midblock (three-year)

Analysis:

The intersection and midblock reports are analyzed for patterns. Initial review looks for patterns in the summary reports created in Crossroads Analytics. Some will only be able to be identified when reviewing the detailed collision reports. Patterns in the following attributes are reviewed:

- Direction of travel
- Collision type
- Time of day
- Day of week
- Time of year
- School or peak travel time
- Movement preceding collision
- Vehicle at fault
- Primary collision factor
- Object type hit
- Location of collisions
  - Look at what happens at that location (driveway/lane merge/congestion)
  - Also consider land use/landscaping/sight distance
- Vehicle involved with bicycle/pedestrian
- Sobriety/Fatigue
- Weather
- Sun position
- Traffic control device visibility
- Driver speeds
- Unusual roadway conditions (construction/recent change/event)
- Witness and party statements as to why collision occurred
  - Many times the driver at fault is not paying attention (for various reasons)

Also consider:

- Has the intersection/segment been on previous year's reports?
- Were any trends noted last time, did they continue?
- Have there been any recent changes/improvements to the location?

Trends:

In addition to the locations reports trend reports are run/created for the current year and then compared to previous years for the following conditions:

- Primary Collision Factor and Collision Type
- Severity and Lighting Report
- Time of Day, Day of Week and Monthly Trend Report
- Citywide traffic volume trends are graphed/analyzed
- Total number of collisions
- Number of bicyclist collisions
- Number of pedestrian collisions

Overall trend questions/analysis

- Have locations been on previous year's reports?
- Are collisions trending up/down?
- Have there been improvements/changes to explain current trends?
- How do volume changes and collision total trends compare?

Things to remember about data:

- Collisions in the database are on public streets only (no private street/parking lot collisions are entered except for Ruby Hill)
- Only reported collisions are in database, there are many collisions that go unreported.
- Bicyclists and pedestrians are more vulnerable and when involved in a collision are more likely to be injured, the numbers will reflect this. Collisions involving bicyclists/pedestrians are analyzed both with vehicle collisions and separately when looking for patterns.
- Collisions involving electric scooters are marked as the bicycle vehicle type (they are traveling at speeds and in locations more like a bicycle)
- Collisions involving people on skateboards and manual scooters are recorded as pedestrian collisions.

Due to the low number of bicycle/pedestrian collisions, and midblock collisions, it is necessary to look over a longer time frame to have enough collisions to identify patterns.

Attachment "C"

Recommended Actions

Location	Action	Countermeasure Code	Year	Status
Foothill Rd at Dublin Canyon Rd/Canyon Way	Install additional signal head for northbound through	Countermeasure S02	2023	Completed 3/2023, Signal head installed
Sunol Blvd at I680 Northbound Ramps	Signalize intersection	Countermeasure NS03	2024 2025	Design Still in design
Dublin Canyon Rd from Foothill Rd to Laurel Creek Dr	Look for opportunities to enhance striping to provide extra notification of curves in roadway	Countermeasure R22	2024	Striping was modified 9/2024
Sunol Blvd from Sonoma Dr to Sycamore Rd	Evaluate sight distance of left turn pocket into cemetery	Countermeasure NS11	2024	Evaluated, sight distance good
Santa Rita Rd from Sutter Gate Ave to Stoneridge Dr	Evaluate midday traffic signal timing to see if more green time can be given to northbound through	Countermeasure S03	2024	Staff is finalizing signal timing
First St at Spring St/Kottinger Dr	We will conduct a 10-year collision review to determine if LPI (leading pedestrian interval) or prohibiting the right turn on red are needed.	Countermeasure S21-PB and PLS-RTOR	2024	Completed. The 10-year collision history does not show a pattern that would support LPI or no RTOR.
Hopyard Rd at Parkside Dr	Staff will upgrade signal detection to extend the all-red period when a bicycle is detected in the intersection	Countermeasure PLS-BSMOD	2024	Completed, 4/2024
Hopyard Rd at Parkside Dr	Staff will also work with schools to get message to school aged bicyclists on the importance of using pedestrian push buttons at signalized intersections. Pleasanton	Countermeasure PLS-EDMSG	2024	Staff reached out to school district to promote bicycle safety to their students. Link to BikePleasanton.com was shared with safety information and current events/classes.
Black Av at Cedarwood Ln	Install RRFB system	Countermeasure R37PB	2023	Completed 6/17/2024

Black at Crestline Rd	Remove parking on Crestline Road as you approach the intersection to increase sight distance	Countermeasure NS11	2024	Completed 8/8/2024
Black at Crestline Rd	Work with school to offer students bicycle safety education	Countermeasure PLS-EDMSG	2024	Staff reached out to school district to promote bicycle safety to their students. Link to BikePleasanton.com was shared with safety information and current events/classes.
Santa Rita Rd at Stoneridge Dr	Refresh and yellow median striping and add more reflectors for SB south of intersection	Countermeasure R28	2025	
Hopyard Rd at W Las Positas Bl	Examine signal head visibility for the southbound left turning movement and address any deficiencies	Countermeasure NS11	2025	
Dublin Canyon Rd from Foothill Rd to Canyon Creek Cir	Inform Police Department of prevalence of DUI collisions on this section of roadway		2025	Discussed with Police Department 05/19/2025
First St from Arendt Wy to Kottinger Dr	Inform Police Department of prevalence of DUI collisions on this section of roadway		2025	Discussed with Police Department 05/19/2025
Santa Rita Road at Stanford/Valley Care Driveway	Install warning signage for northbound bicyclists/pedestrians to be cautious/make eye-contact with driver before crossing driveway.	Countermeasure NS06	2025	Sign installed 5/22/2025