2019
Annual Traffic Safety Report

City of Santa Cruz
Public Works Department

I. Introduction

The purpose of the 2019 City of Santa Cruz Traffic Safety Report is to provide an overview of traffic safety trends to help guide future enforcement and engineering efforts. Collisions form a significant portion of the Police Department's workload, and create substantial costs for the City and society as a whole. In 2019 there were 155 reported injury collisions in Santa Cruz, causing 171 injuries and 1 fatality. According to estimates from the American Association of State Highway Transportation Officials' *Highway Safety Manual*, these collisions resulted in more than $49M in societal costs. Property damage only collisions are not included in these figures, making the costs likely to be even higher.

This report focuses on collision data of reported traffic collisions for the full calendar year (covering January 1, 2019 through December 31, 2019) that resulted in an injury or fatality. *The majority of collision data for this report is accessed through the Statewide Integrated Traffic Records System (SWITRS), due to the superior analysis and mapping features of the system. SWITRS data adoption is delayed, so the annual report for a given year will be submitted approximately one year later, and 2018-2019 data is still provisional. Property damage only collisions are not included in SWITRS, and therefore are not included in this report. Although not all collisions are reported, use of the reported collisions provides a consistent measure of collision rates, and focusing on injury collisions allows for analysis of the most serious incidents*.

This report examines travel mode split, current traffic safety campaigns, and high collision streets. Collision trends over the past 10 years are analyzed, including bike, pedestrian, motorcycle and youth collisions, as well as key factors in collisions. Overall, collision trends were positive. **Total injury collisions are down 9% (16) and fatal collisions are down 50% (1) from 2018 to 2019**. After a significant decrease from 2017 to 2018, bicycle injury collisions increased by 36% (17) from 2018. That said, bicycle injury collisions have been trending downward over the past 10 years, with a decrease of 40% since 2015. In very encouraging trends**:**

- **injury collisions involving motorcycles decreased by 27% (7)** from 2018 to 2019
- **injury collisions involving pedestrians decreased by 60% (25)**
- The number of **felony hit-and-run collisions decreased by 24% (4)** from 2018 to 2019,
- **alchohol-involved collisions decreased by 35% (10).**

The number of **collisions involving youth going to or from school decreased by 63%** from 2018 to 2019, and Section V includes an analysis of each 2019 incident. While the

total number of collisions is small, continued work will be done to direct enforcement, education, and engineering efforts towards improving safe routes to schools.

II. Travel Modality

An understanding of the different ways people travel within the city is useful when analyzing collision data. Below is a table of 'mode splits'—the breakdown by percentage of the ways people travel to work in Santa Cruz. During the latest five years reported (2015-2019), 58.7% of commuters drove alone, 11.9% walked, 7.6% bicycled, 7.5% carpooled, 7% took the bus, 1.4% used other modes such as taxi, motorcycle, etc., and 5.9% worked at home. This data marks significant progress towards the City's Climate Action Plan goals to increase biking and walking and decrease single-occupancy vehicle use. Santa Cruz has one of the highest bicycle mode splits in the country, and a significantly lower 'Drive Alone' mode split than most California cities.

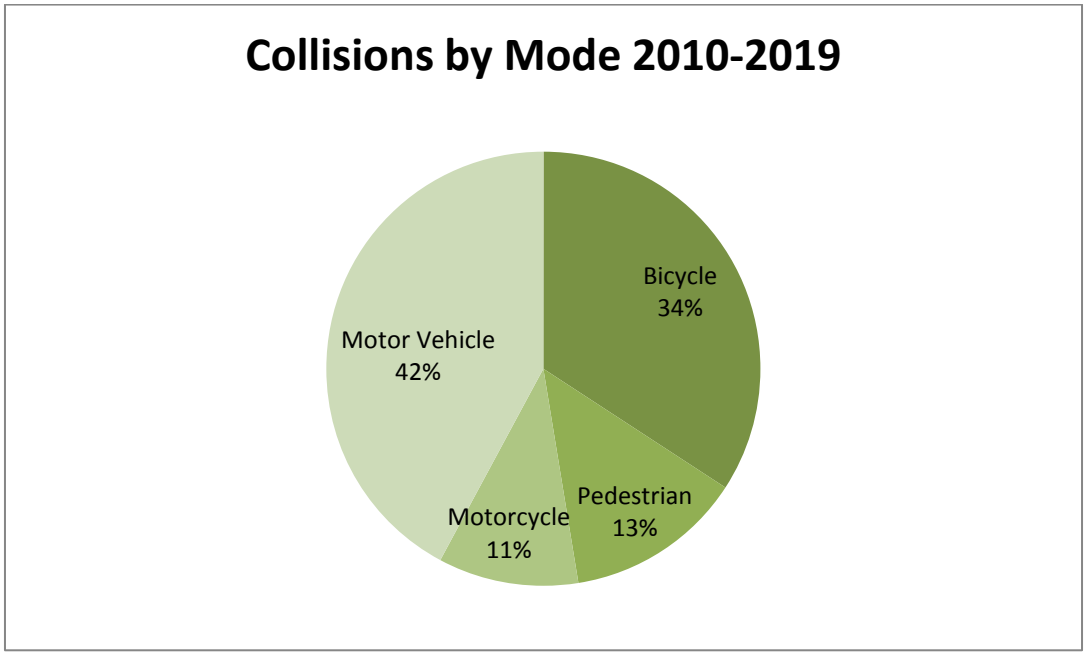
City of Santa Cruz Mode Split

	Drove Alone	Carpool	Public transit	Walked	Bicycle	Taxi/ Other	Worked at home
USA	76.3%	9.0%	5.0%	2.7%	0.5%	1.3%	5.2%
California	73.7%	10.1%	5.1%	2.6%	1.0%	1.6%	5.9%
Santa Cruz County	69.0%	9.2%	3.0%	4.9%	3.0%	3.0%	7.8%
Santa Cruz City	58.7%	7.5%	7.0%	11.9%	7.6%	1.4%	5.9%

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

When mode split is compared with collisions by travel mode, the data shows that cyclists are disproportionally involved in injury collisions. Bicyclists account for about 8% of work trips, but are involved in 34% of injury collisions (includes all trips). The California Office of Traffic Safety (OTS) collision rankings for cities of similar population size (50,000-100,000) consistently rank Santa Cruz among the highest for bicyclist collisions. However, an important caveat to note that OTS data is not adjusted for mode split - our collision numbers are higher than other cities in part due to our high rates of bicycle trips.

Pedestrians are also involved in in a slightly higher rate of injury collisions (13%), and motorcyclists are also overrepresented in collision data (11%). Focusing enforcement, education and engineering efforts on cyclist, pedestrian, and motorcyclist collisions could help address this disparity.



Source: SWITRS

III. Current Traffic Safety Campaigns

In 2019, the Santa Cruz City Council adopted a Vision Zero resolution, joining the ranks of other cities worldwide in a commitment to make our streets safer. In early 2020, the City had taken the first step of implementing Vision Zero through beginning work on a Local Roadway Safety Plan, a data driven analysis of roadway safety with specific recommendations. At the time of the 2019 Annual Traffic Safety Report, this work was underway.

The City of Santa Cruz and partner agencies are currently involved in the following traffic safety campaigns, designed to improve safety and reduce collisions on our roadways.

Santa Cruz Public Works Department

The majority of Transportation Engineering activities are geared towards improving safety. These activities include:

- Securing grant funding for a wide variety of projects, including safety improvements near schools and operational improvements. Most recently, this work included a $1 million dollar Highway Safety Improvement Program (HSIP) grant to fund pedestrian infrastructure improvements at unsignalized intersections, a $950,000 Active Transportation Program grant for Riverwalk Lighting, and a $4.6 million dollar Active Transportation Program grant to design and permit the Segments 8 and 9 of the Rail Trail.
- Maintaining infrastructure and addressing traffic safety issues, such as potholes
- The Street Smarts campaign raises awareness of common traffic safety issues, and encourages safe behavior among drivers, cyclists and pedestrians
- Responding to pedestrian and bicyclist hazard reports filed by the community
- Responding to requests for neighborhood safety improvements
- Reviewing traffic safety plans for projects in the public right-of-way
- The GO Santa Cruz program for downtown employees promotes sustainable transportation modes such as biking and walking and hosts safe cycling workshops by Ecology Action staff with bike helmet and light giveaways

Santa Cruz Police Department

- Office of Traffic Safety grant funded program to increase enforcement surrounding schools during bell times.
- Traffic safety tips shared via Police Department blog and social media
- Back to school bike and pedestrian safety videos
- School crossing guard program at all City of Santa Cruz elementary schools
- In-school safety presentations at elementary schools
- Officer attendance at neighborhood meetings
- Targeted neighborhood speed enforcement
- Multi-jurisdictional speed enforcement efforts
- Online form available to residents to register traffic safety concerns
- Traffic safety plans for special events

Non-Profit Sector Traffic Safety Partners:

Community Traffic Safety Coalition (sponsored by County of Santa Cruz Public Health)

- Vision Zero campaign raises awareness of traffic injuries and fatalities as preventable, and focuses the conversation around proven strategies
- Ride 'n' Stride program provides bike and pedestrian safety education at elementary schools throughout the county
- Neighborhood Pace Car program encourages people to set an example by driving slowly in their neighborhoods
- Traffic Calming Trash Can Sticker program provides free "Please Slow Down" stickers to City of Santa Cruz residents
- Bike Traffic School provides a bike safety class to people who receive a traffic ticket while bicycling. Classes are open to the public.

Ecology Action

- Bike Smart program provides bike safety training for all fifth graders at Santa Cruz City elementary schools (funded via grants awarded to City of Santa Cruz and Measure D)
- Walk Smart provides pedestrian safety training for all second grade elementary school students at Santa Cruz City Schools (funded via grants awarded to City of Santa Cruz and Measure D)
- UCSC bike safety classes and bike light giveaways
- Biannual Bike to Work/School Days celebrate cycling and provide data on local bike commuting habits as well as opportunities for bike safety education

- Santa Cruz City Schools Complete Streets Master Plan provides recommendations for improvements to improve safe routes to schools (partnership with City of Santa Cruz and Santa Cruz City Schools). The recommendations from this Plan were then rolled in to the City Active Transportation Plan (ATP)
- Bike safety trainings at local employers through Employer Membership Program

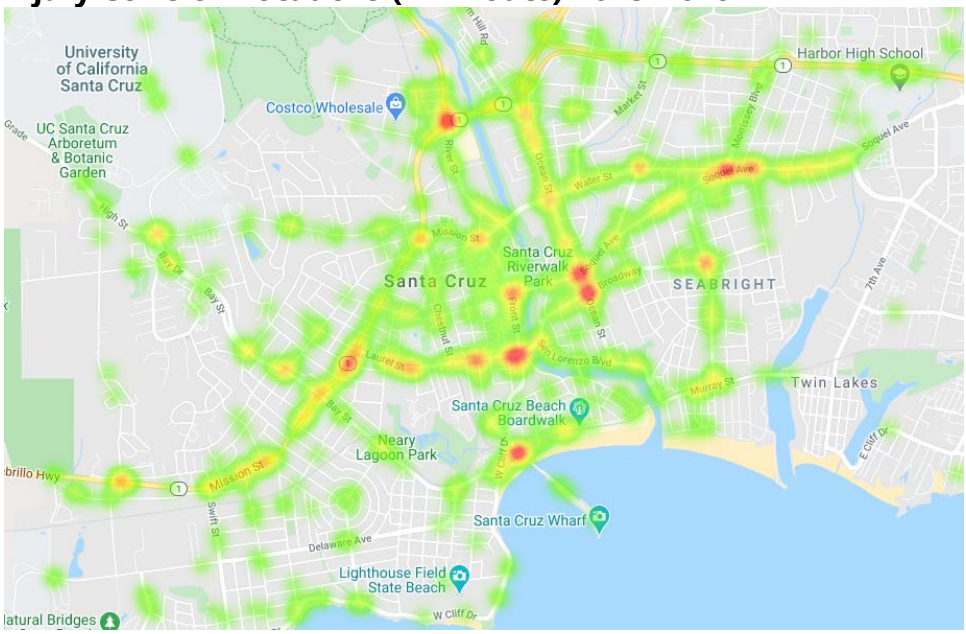
Bike Santa Cruz County

- Middle School Bike Clubs at Mission Hill and Branciforte Middle Schools teach bike safety skills to students through on-bike field trips

IV. Highest Collision Locations

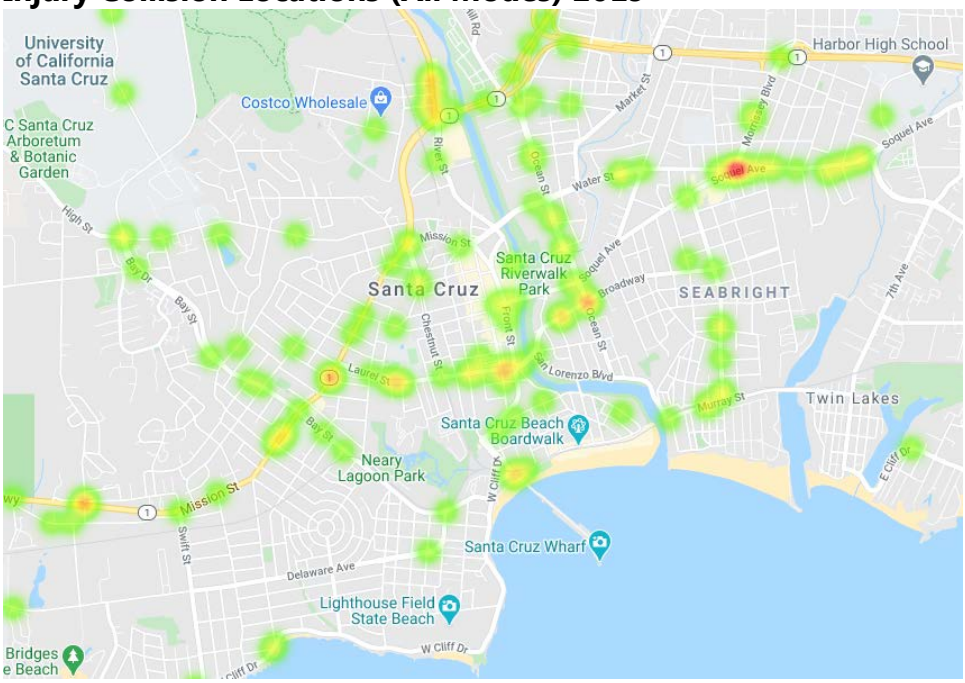
As shown below in the heat map of injury collision locations from 2015-2019, the majority of collisions in Santa Cruz occur along our major transportation corridors and other high-traffic areas, particularly at intersections. Looking at the heat map for 2019, you can see that injury collisions have decreased overall and are more concentrated in specific locations. Included in this section are rankings of the top injury collision locations for the five year period from 2015 to 2019. Data is divided into intersection and mid-block locations.

Injury Collision Locations (All Modes) 2015-2019



Source: SWITRS

Injury Collision Locations (All Modes) 2019



Source: SWITRS

Highest Injury Collision Intersection Locations 2015-2019 (All Modes)

1. Three locations tied for 1st with 7 collisions each (1.4 per year):
    - Mission St at Bay St
    - Seabright Ave at Broadway
    - Washington St at Laurel St
2. Two locations tied for 2nd with 6 collisions each (1.2 per year):
    - State Hwy 1 at River St
    - Water St at Morrissey Blvd
3. Pacific Ave at Laurel St – 5 collisions (1 per year)
4. Seven locations tied for 4th with 4 collisions each (0.8 per year):
    - King St at Bay St
    - Ocean St at Broadway
    - Plymouth St at Ocean St
    - Soquel Ave at Front St
    - State Hwy 1 at Mission St (N)
    - Walti St at Laurel St
    - Water St at North Branciforte Ave.

For the top intersection collision locations of Mission St at Bay St, Seabright Ave at Broadway, and Washington St at Laurel St, the top 3 primary collision factors made up 52% of the collisions:

1. Automobile Right of Way – 22% or 1.2 collisions per year
2. Unsafe Speed – 19% or 1 collision per year
3. Traffic Signals or Signs – 11% or 0.6 collision per year

Unfortunately, 15% of collisions (0.8 per year) at these locations had an unknown or unstated primary collision factor (many being hit and runs). The remaining 33% of collisions at these locations had the following primary collision factors (in order of highest to lowest number of collisions): Improper Turning, Pedestrian Violation, Unsafe Starting or Backing, Driving or Bicycling Under the Influence, Pedestrian Right of Way, Other Hazardous Violation, and Other Improper Driving. Primary collision factors across the board vary, which necessitates looking at each location for context sensitive solutions.

Corridor improvements on Laurel Street were installed in late 2011, including pedestrian median islands, dedicated left-turned lane pockets, parking removal, and relocated bus stops. While collisions along this corridor remain high, there has been a reduction since improvements were installed. **Between 2008 and 2011, there were 18 injury collisions on Laurel Street between California and Chestnut. In the 4 years (2012-2015) after improvements were installed, that number went down to 13 (28% reduction)**. Green bike lane treatments were also installed in conflict zones along the Laurel St. corridor in early 2015, as well as a left-turn pocket at Walti, new pavement markings and visibility improvements at intersections.

The bicycle collision reduction at Laurel and Walti has been significant**. In the three years since the 2015 improvements there was an 80% reduction in bike collisions at Laurel and Walti, compared to the three years prior.** After no bicycle collisions occurring at this location in 2018, there were two bicycle collisions in this location in 2019 (more details in Bicycle & Pedestrian Top Collision Locations section below).

State Hwy 1 at River Street is one of the two locations tied for the second highest collision location and that intersection is scheduled for improvements in the next few years, including new lanes and assignments designed to reduce rear-end and sideswipe collisions. The intersection of Seabright and Broadway received new green bike lane treatments in 2016, and the intersection of Bay and King has a new left turn pocket, dedicated signal phase and new sidewalk.

Highest Injury Collision Mid-block Locations 2015 – 2019 (All Modes)

1. Three locations tied for 1st with 6 collisions each (1.2 per year):
    - State Hwy 1 from River St to Chestnut St Ext
    - Mission St from Van Ness Ave to Laurent St
    - Murray St from Lake Ave to Seabright Ave
2. Five locations tied for 2nd with 5 collisions each (1 per year):
    - Laurel St from San Lorenzo Blvd to Front St
    - Laurel St from Walti St to California St
    - Ocean St from Leonard St to Water St
    - Soquel Ave from Ocean St to Dakota Ave
    - Beach St from Riverside Ave to Cliff St
3. Seven locations tied for 3rd with 4 collisions each (0.8 per year):
    - Water St from Ocean St to River St
    - Chestnut St Ext from Mission St to State Hwy 1
    - Mission St Ext from Burkett St to Schaffer Rd
    - Municipal Wharf from End to Beach St
    - San Lorenzo Blvd from Broadway to Laurel St
    - Washington St from Center St to Laurel St
    - Water St from North Branciforte Ave to Josefa Wy

    Source: Crossroads

For the top midblock intersection collision locations of State Hwy 1 from River St to Chestnut St Ext, Mission St from Van Ness Ave to Laurent St, and Murray St from Lake Ave to Seabright Ave, the top 2 primary collision factors made up 38% of the collisions:

1. Unsafe Speed – 29% or 2.4 collisions per year
2. Following Too Closely – 9% or 0.8 collisions per year

Unfortunately, 14% of collisions at these locations had an unknown or unstated primary collision factor (many being hit and runs). The remaining 48% of collisions at these locations had the following primary collision factors (in order of highest to lowest number of collisions): Improper Turning, Automobile Right of Way, Pedestrian Violation, Pedestrian Right of Way, Unsafe Starting or Backing, Traffic Signals or Signs, Unsafe Lane Change, Driving Under the Influence, Other than Driver or Pedestrian, and Other Equipment. Primary collision factors across the board vary, which necessitates looking at each location for context sensitive solutions.

Bicycle & Pedestrian Top Collision Locations

People biking and walking are disproportionately involved in collisions, and the top bike and pedestrian collision locations were analyzed separately to guide future improvements.

Highest Collision Intersection Locations 2015 – 2019 (Bicycles)

1. Washington St at Laurel St – 3 collisions (0.6 per year)
2. Five locations tied for 2nd with 2 collisions each (0.4 per year):
    - Laurel St at California St
    - Soquel Ave at Front St
    - Walti St at Laurel St
    - Water St at Mission St
    - Water St at Morrissey Blvd
3. Thirty locations tied for 3rd with 1 collision each (0.2 per year):
    - Escalona Dr at Bay Dr
    - Glen Canyon Rd at Branciforte Dr
    - Grant St at Berry St
    - High St at Cardiff House Dr
    - Laurel St at Felix St
    - Laurel St at King St
    - Lincoln St at Chestnut St
    - Meder St at Bay Dr
    - Mission St at Fair Ave
    - Mission St at Laurel St
    - Mission St at Laurent St
    - Murray St at Mott Ave
    - Otis St at California St
    - Plymouth St at Ocean St
    - River St at Golf Club Dr
    - Seabright Ave at Broadway
    - Seabright Ave at Clinton St
    - Seaside St at Bay St
    - Soquel Ave at Capitola Rd (E)
    - Soquel Ave at Forest Ave
    - State Hwy 17 at State Hwy 1
    - Storey St at High St
    - Trevethan Ave at Soquel Ave
    - Union St at Cedar St
    - Van Ness Ave at Mission St
    - Washington Ave at Pacific Ave
    - Water St at Market St
    - Water St at Reed Wy
    - West Cliff Dr at Bay St
    - West Cliff Dr at David Wy

Laurel and Walti, one of the #2 locations of bicycle collisions, as mentioned above has seen a significant reduction in these collisions following improvements installed in 2015. While this location is still the top bicycle collision location, the number of collisions has decreased significantly, with only two bicycle collisions from 2016-2018, no bicycle collisions in 2018, and two bicycle collisions in 2019. One of the 2019 bicycle collisions was a solo bicycle collision with a fixed object as a result of improper turning (bicyclist at fault, daytime) and the other was a vehicle that hit a bicyclist as a result of improper turning (driver at fault, daytime).

Highest Collision Intersection Locations 2015 – 2019 (Pedestrians)

1. Pacific Ave at Laurel St – 5 collisions (1 per year)
2. State Hwy 1 at River St – 3 collisions (0.6 per year)
3. Five locations tied for 3rd with 2 collisions each (0.4 per year):

- Plymouth St at Ocean St
- Soquel Ave at Dakota Ave
- Van Ness Ave at Mission St
- Water St at May St
- Water St at Ocean St

4. Twenty-three locations tied for 4th with 1 collision each (0.2 per year):
    - Church St at Chestnut St
    - Church St at Cedar St
    - Cliff St at Beach St
    - Drift Wy at 2nd St
    - Grant St at Berry St
    - King St at Bay St
    - Laurel St at Cedar St
    - Laurel St at Chestnut St
    - Laurel St at Felix St
    - Lincoln St at Chestnut St
    - Mission St at Emmet St
    - Ocean St at Glenwood Ave
    - Pacific Ave at Cathcart St
    - Rigg St at Mission St
    - River St at Potrero St
    - Seabright Ave at Broadway
    - Soquel Ave at Mentel Ave
    - Soquel Ave at Pacheco Ave
    - Soquel Ave at River Street South
    - South Branciforte Ave at Broadway
    - Spruce St at Pacific Ave
    - Walnut Ave at California St
    - Washington St at Laurel St

Public Works will continue to investigate possible improvements at Laurel and Pacific, the top pedestrian collision intersection. There was only one pedestrian injury collision at this location in 2019, in which a driver of a car failed to yield to a pedestrian in the crosswalk (driver at fault, daytime).

Pedestrian countdown signals were installed in late 2015, which provide more warning to pedestrians on when it is safe to cross. While this change is too recent to provide conclusive data, early results are positive – **in the first three years since the new signals were installed there were two pedestrian collisions, compared to four collisions in the three years prior to improvements.**

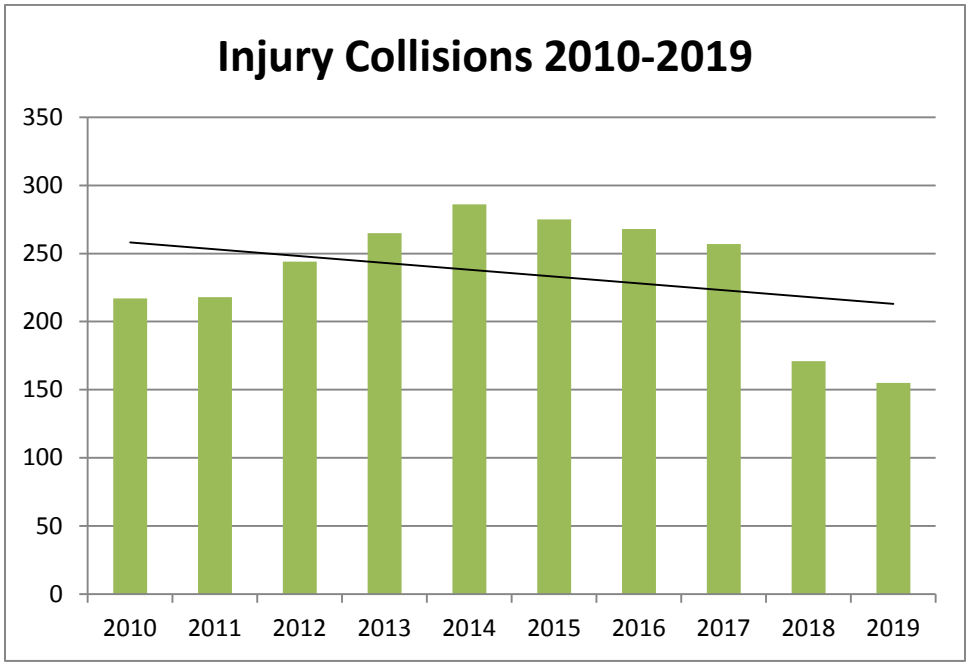
The improvements planned for Highway 1 at River Street include new bike lanes on River Street, which may help reduce bike collisions. The City has also constructed a bike and pedestrian path under Highway 1, as well as a bike and pedestrian bridge at Felker, to provide a safe alternative to this high-traffic intersection.

V. Collision Trends

To establish collision trends, injury collisions for the 10-year period from 2010-2019 were analyzed. This is enough time to adjust for changes in population, economic variations, and transportation mode shifts and infrastructure improvements.

The decline in collisions in 2010 was likely due to the economic recession, which resulted in higher unemployment and fewer car trips nationwide. Statewide collision data has followed a similar trend, with collisions decreasing significantly from 2005-2010, and rising steadily from 2011-2014. Therefore, the rise in collisions between 2012 and 2014 should be viewed in the context of increased overall trips resulting from economic recovery.

In 2019, injury collisions were down 9% from 2018, after a 33% decrease from 2017 to 2018. While too soon to know if this trend will continue, these reductions are a huge victory for roadway safety for all modes.



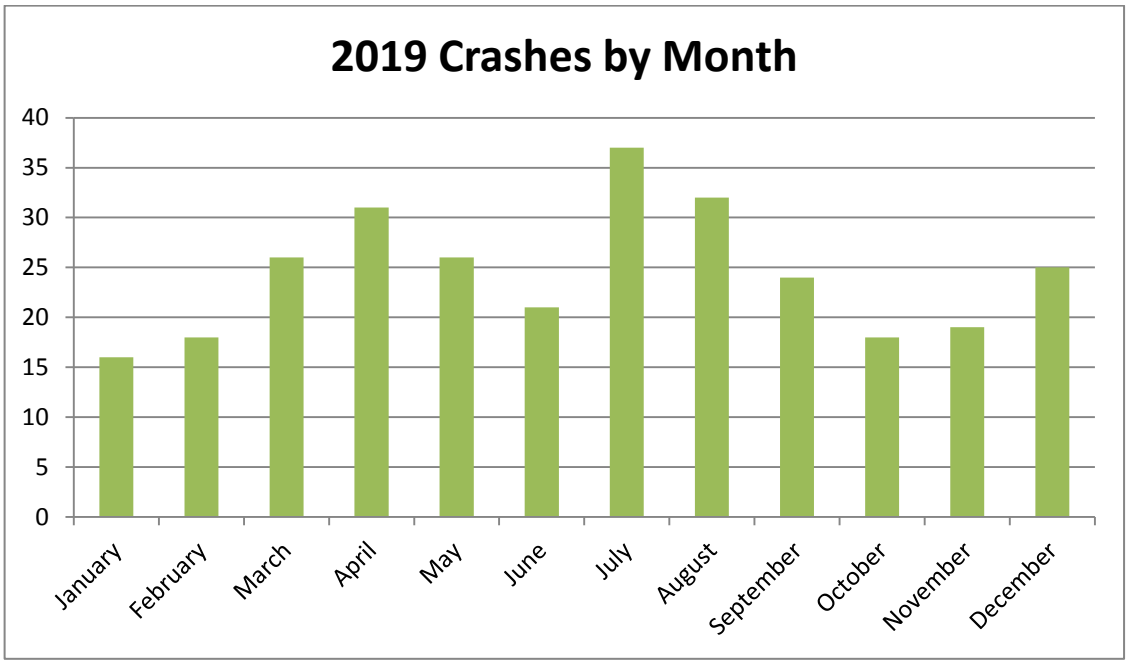
Source: SWITRS

Of these total injury collisions, only one collision caused a fatality, down 50% from 2018. Enforcement and engineering are the primary tools in the work required to eliminate fatal collisions. The City of Santa Cruz has adopted a Vision Zero resolution, and work on the Local Roadway Safety Plan is underway. This data driven work will further assist in

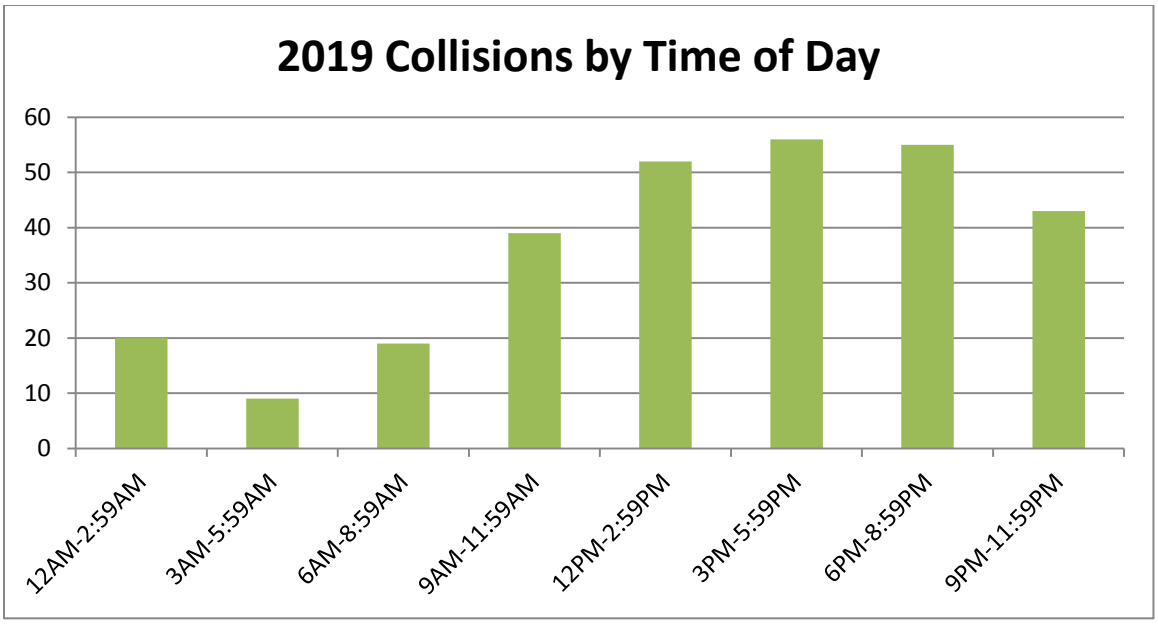
identifying correctable collision patterns and tools to address them, continuing the effort towards eliminating fatal collisions.

Collison Date and Time Data

Looking at all 2019 collisions by month, day of the week, and time of day, the trends are as expected. Collisions are higher in the summer when traffic volumes are higher. Collisions are also highest during the peak commute time, 3:00pm-6:00pm. Collisions peaked on Fridays through Sundays and the midweek period had a much lower rate of collisions in 2019.



Source: Crossroads



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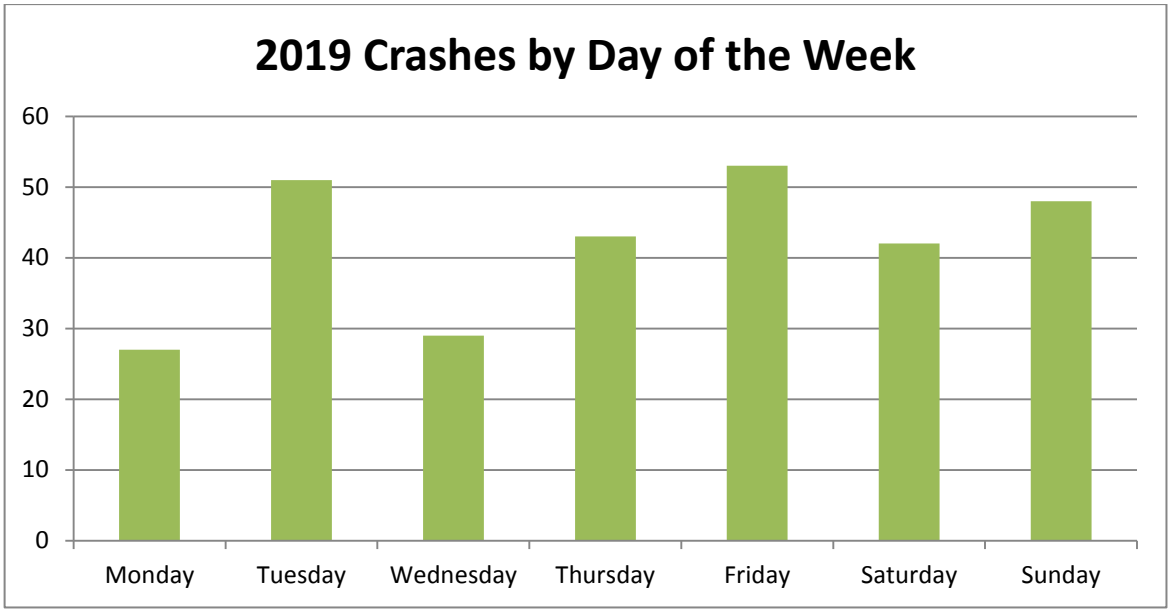
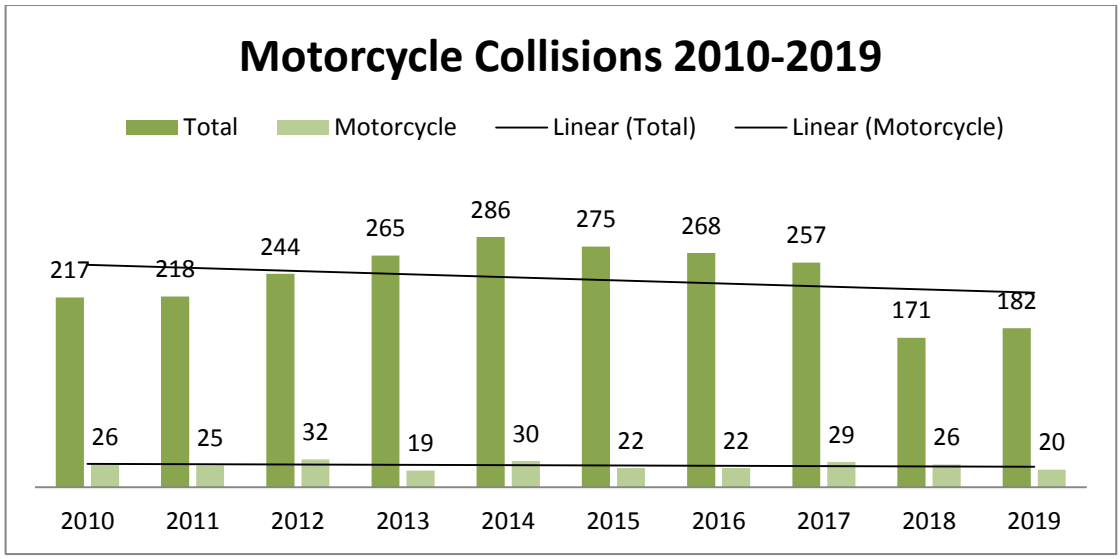


Source: Crossroads

Motorcycle Collisions

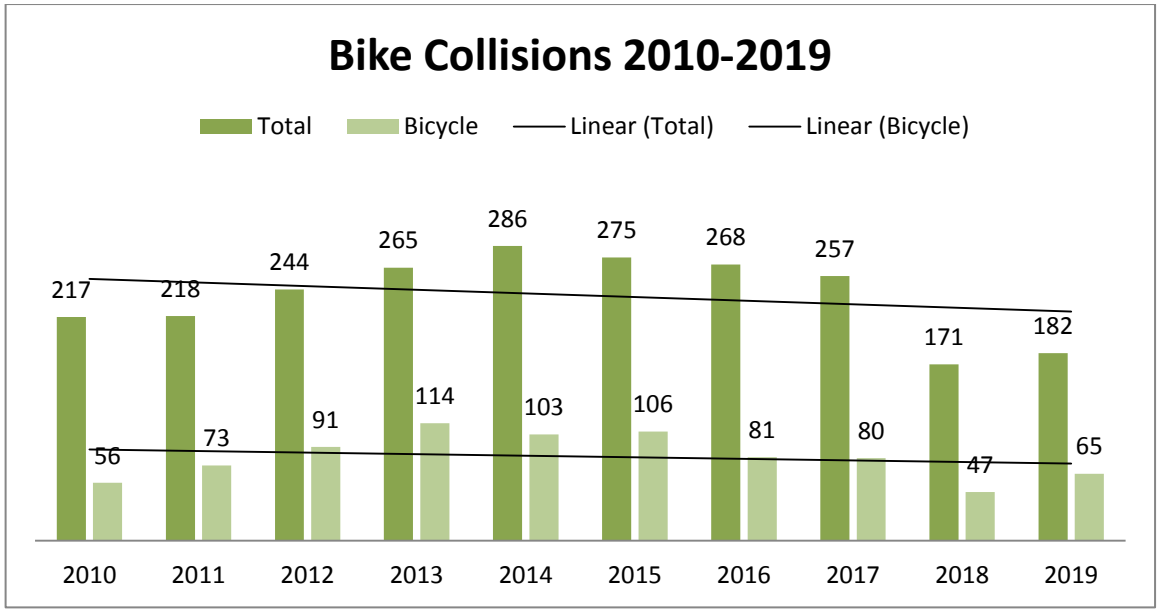
Motorcycle collisions are consistently high for our jurisdiction. In 2017, the most recent year available, the Office of Traffic Safety ranked Santa Cruz #1 out of 105 cities of similar size for motorcycle collisions. With this, **from 2017 to 2019, the total number of collisions involving motorcycles dropped by 31%.** Comparing motorcyclist injury collisions to total injury collisions for the 10 year period, the trend line for motorcyclist collisions remains relatively flat while overall collisions show a slight downward trend.



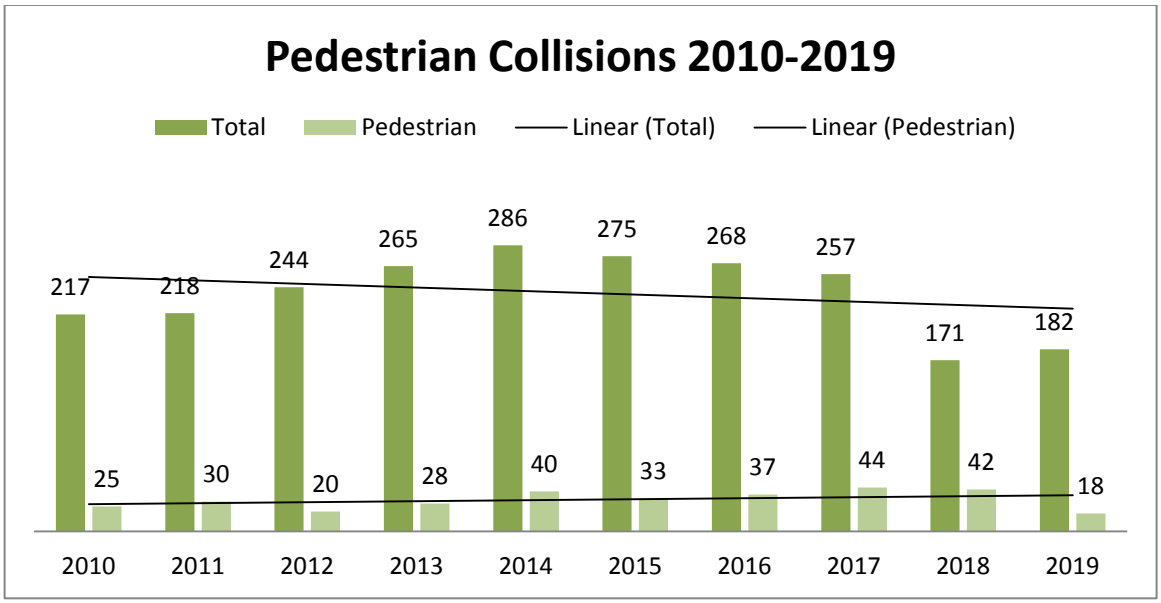
Source: SWITRS

Bike and Pedestrian Collisions

Santa Cruz has a high bike and pedestrian mode split, and a correspondingly high number of collisions involving people biking and walking. Over a 10-year period, the trend for bicyclist collisions has been relatively flat. Despite an increase of 38% (19) from 2018 to 2019, **bicycle collisions have decreased 43% (49) from a peak in 2013**. Over this same time period, there has been a slight upward trend in pedestrian collisions.

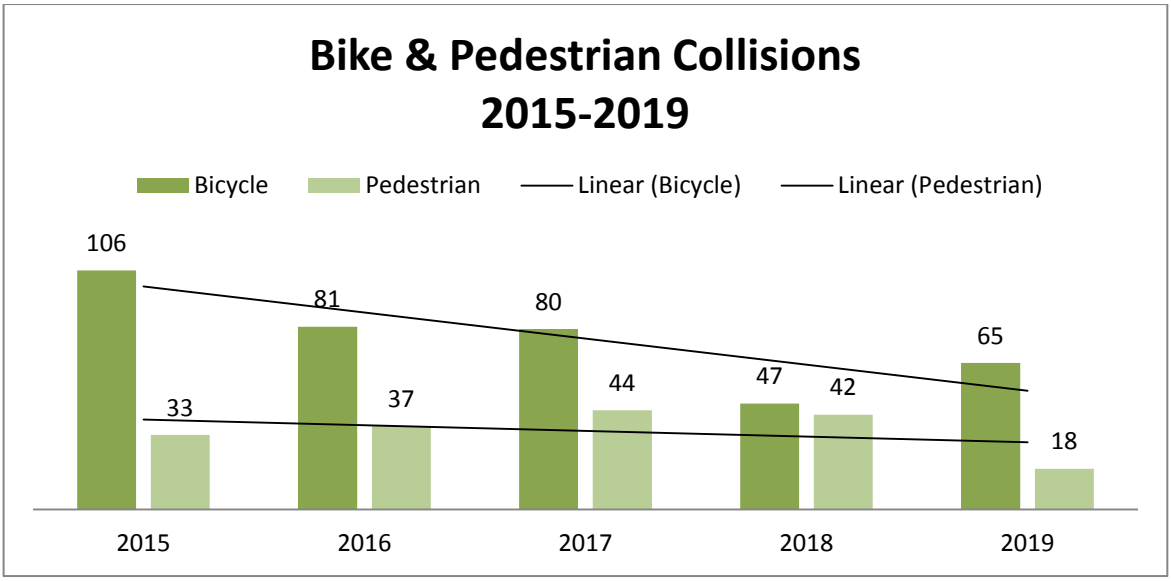


Source: SWITRS



Source: SWITRS

Since 2017, the City of Santa Cruz has seen a 19% decrease in the number of bicycle collisions, which can be attributed to bicycle infrastructure improvements throughout the City, safety education, and outreach campaigns during that same time period. As shown in the chart below, the number of bicycle collisions has steadily decreased over the five year period from 2015 to 2019. It is also very encouraging that **pedestrian collisions decreased 57% (24) from 2018 to 2019.**



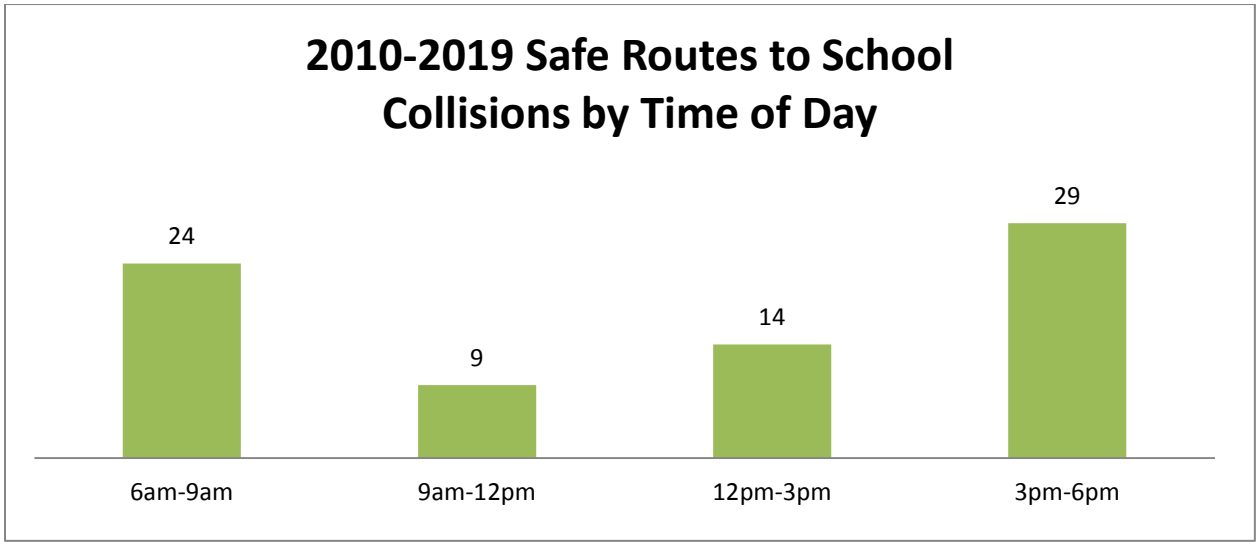
Source: SWITRS

Safe Route to Schools Data

The safety of youth biking and walking to school is a frequent concern in our community. Analysis of injury collisions involving school-aged pedestrians and bicyclists for the 10-year period, focusing on trips to and from school, provides insight into the data behind the perception of safety. The following graphs represent bicycle and pedestrian collisions that occurred on weekdays from September through June, between 6:00am and 6:00pm, and involving young people aged 5-17.

During the 10 year period from 2010 to 2019, the majority of injury collisions (71%) involved bicyclists rather than pedestrians. For the first time over the last ten years, Safe Routes to School collisions have decreased to 2010 levels (3 collisions total). While pedestrian collisions reduced significantly from 2018 to 2019 (-6), bicycle collisions increased slightly (+1). **There has been a 5-year downward trend from 2015 to 2019, in which bicycle collisions have decreased by 73% and pedestrian collisions have decreased by 100%.**

High school-aged youth had the highest rate of injury collisions, averaging 5 injuries annually. Elementary school students were involved in collisions at the lowest rate, averaging less than two injuries per year for the entire city. There was 1 collision involving elementary school-aged youth (10 years old) and two collisions involving high school-aged youth (16 and 17 years old) in 2019. The three youth injury collisions in 2019 occurred between 3pm-6pm, when young people are sharing the roads with commute traffic. As shown below, there has been a significant decrease in both bicycle and pedestrian collisions during the five year period from 2015 to 2019.



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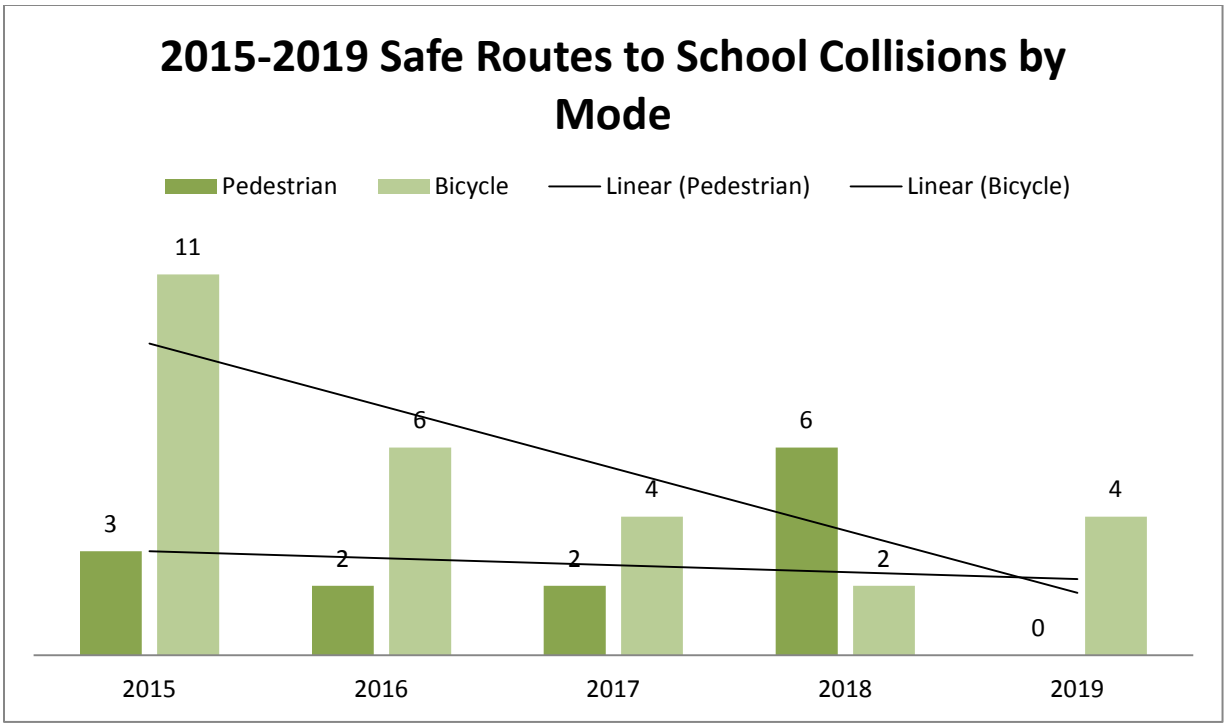

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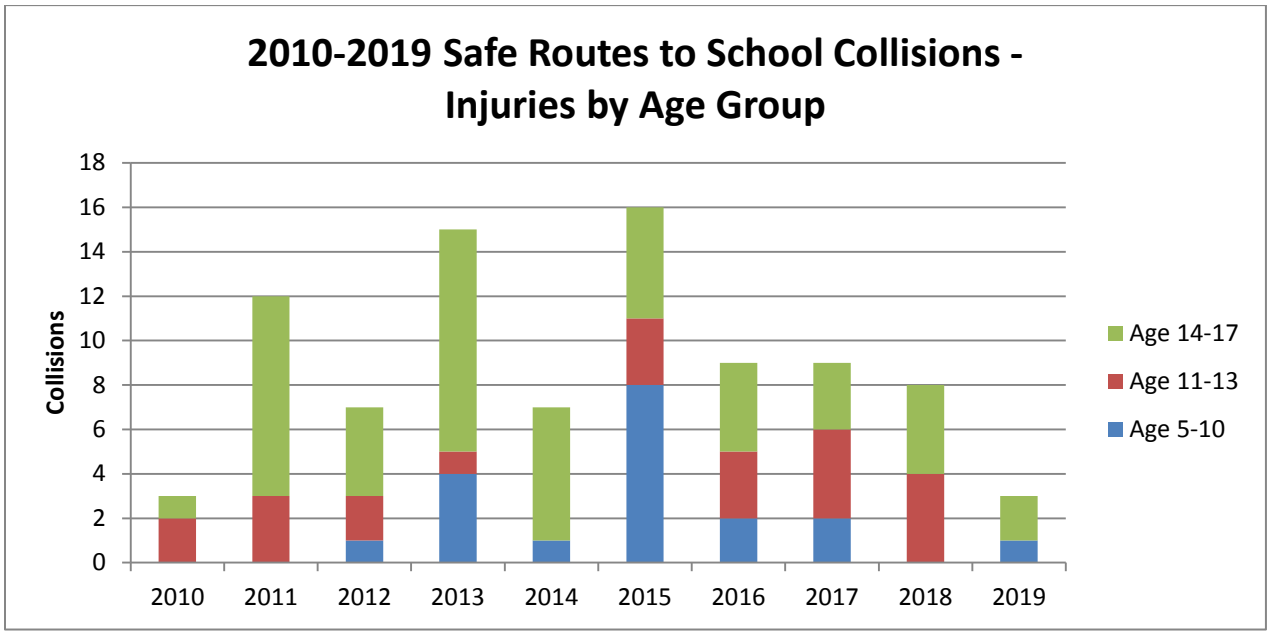


Source: SWITRS

Top 4 SRTS Collision Streets 2010-2019

1. Soquel Ave – 9 collisions (0.9 per year)
2. Tie: Laurel St and Bay St/Dr – 6 collisions (0.6 per year)
3. Tie: King St and Walnut Ave – 4 collisions (0.4 per year)
4. Tie: Seabright and La Fonda Ave – 3 collisions (0.3 per year)

Source: SWITRS

Between 2010 and 2019, 78% of collisions occurred on seven streets, with Soquel Avenue accounting for 12% (9 collisions) of all collisions in this group. Laurel St and Bay Street/Drive were tied for the 2nd highest collision location, with 6 collisions each in the ten year period. Soquel Ave, Laurel Street, Bay Street/Drive, King Street, Walnut Avenue, Seabright Avenue, and La Fonda all remained on the top four streets with Safe Routes to School collisions from 2018 to 2019.

The number of injury collisions involving youth going to or from school decreased by 79% from 2015 to 2019. Of the three collisions involving cyclists and pedestrians aged 5-17 in 2019, three involved cyclists and none involved pedestrians. One of the collisions was the fault of a driver and two of the collisions were the fault of the cyclist. The collision where the driver was found at fault had the primary collision factor of improper turning. For the collisions where the bicyclists were found at fault, improper turning and unsafe speed were the primary collision factors.

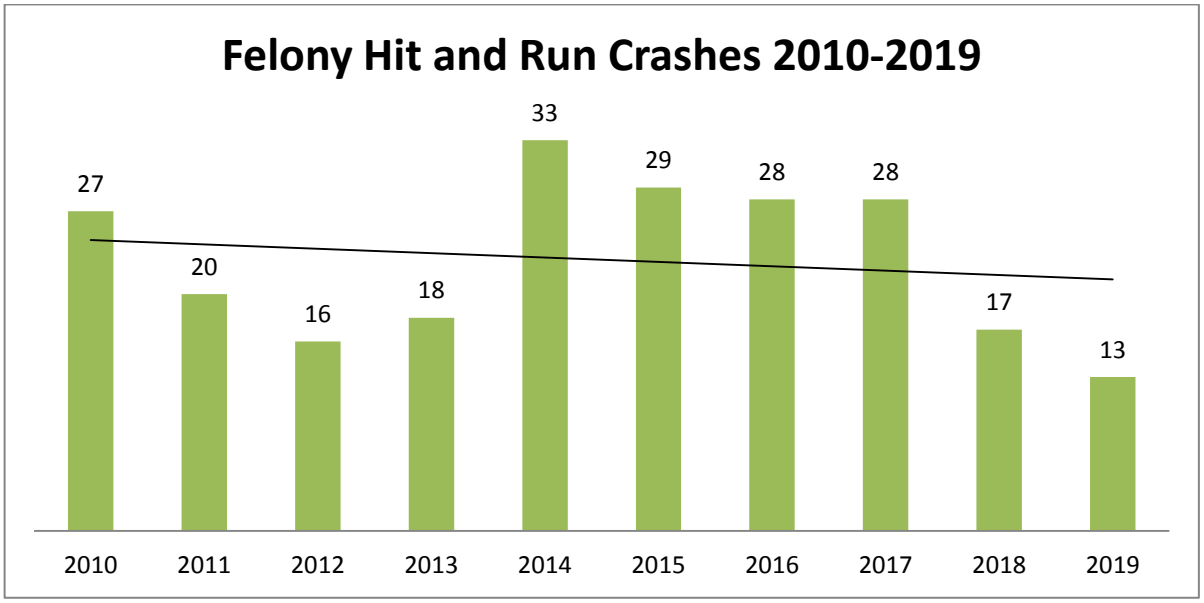
Both collisions that were the fault of the bicyclist were solo bicyclist collisions not involving another motor vehicle or pedestrian. One was a bicyclist who overturned after travelling at an unsafe speed downhill on Water Street near Reed Way and one was a bicyclist who made an improper turn on Laurel Street near Walti Street and hit a fixed object. The collision that was the fault of a driver was a collision between a passenger car and a bicyclist on Laurel Street near Felix Street. In this collision, the driver made an improper turn and broadsided the bicyclist. All three collisions occurred during daylight hours, on dry roadways, and occurred at or near un-signalized intersections.

In 2019 and 2020, crosswalks improvements were completed at many Safe Routes to School locations throughout the city. This project included intersection improvements at 24 locations surrounding all eight Santa Cruz City Schools, and was driven by input from the Santa Cruz City Schools Complete Streets Master Plan. This project was completed in 2020 and the coming years of data will hopefully reflect improvements in SRTS collision data surrounding schools. Additionally, bicycle infrastructure improvements were also made on Water Street in 2019, where buffered or protected bike lanes were installed from Branciforte Drive to Ocean Street.

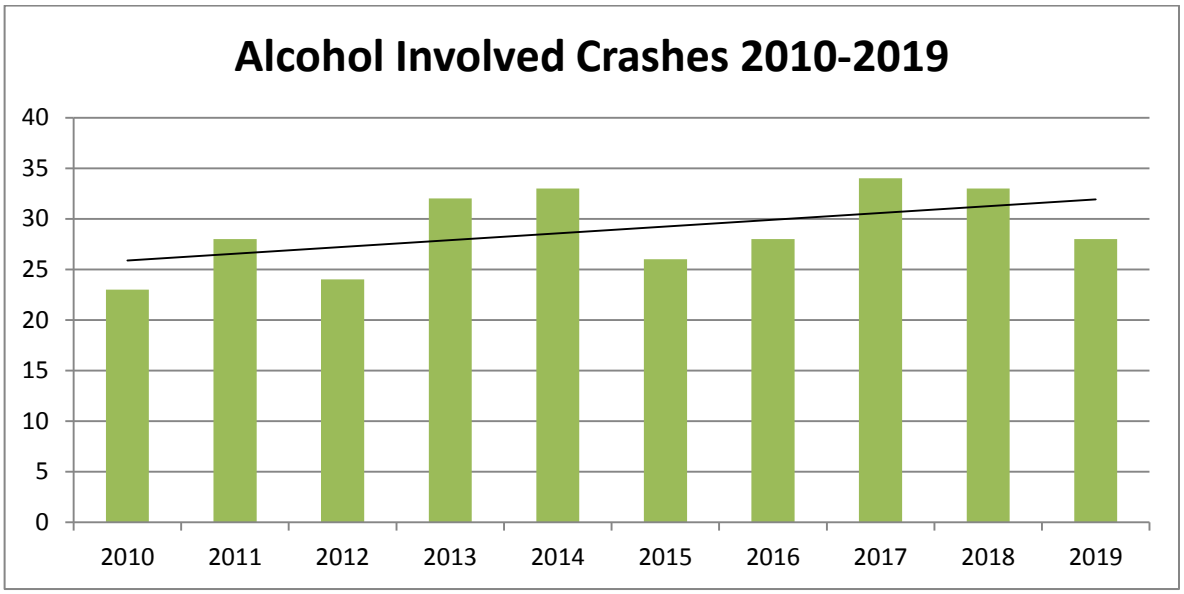
Awareness is a key factor in all of these collisions. Reminding drivers to check for cyclists and pedestrians before all turns, and encouraging youth to check for cars before making turning movements or entering crosswalks, is an important complement to enforcement and engineering activities. The City of Santa Cruz Street Smarts campaign is aimed at increasing this awareness, and reminding all road users to follow the rules of the road. This data represents a more complete picture of the relative risk of biking or walking to school in Santa Cruz, and may suggest that additional bike and pedestrian safety education for older students is warranted.

VI. Key Collision Factors

Finally, collision data was analyzed by primary collision factor, as well as for trends in hit and run and alcohol-involved collisions. After remaining the same from 2016-2017, **felony hit and run collisions decreased by 54% from 2017 to 2019.** Despite an upward trend since 2015, **Alcohol-involved collisions decreased by 36% from 2018 to 2019.** Improper Turning (49) was the #1 cause of collisions, followed by Unsafe Speed (37) and Driving or Bicycling Under the Influence of Alcohol or Drugs (26).



Source: SWITRS



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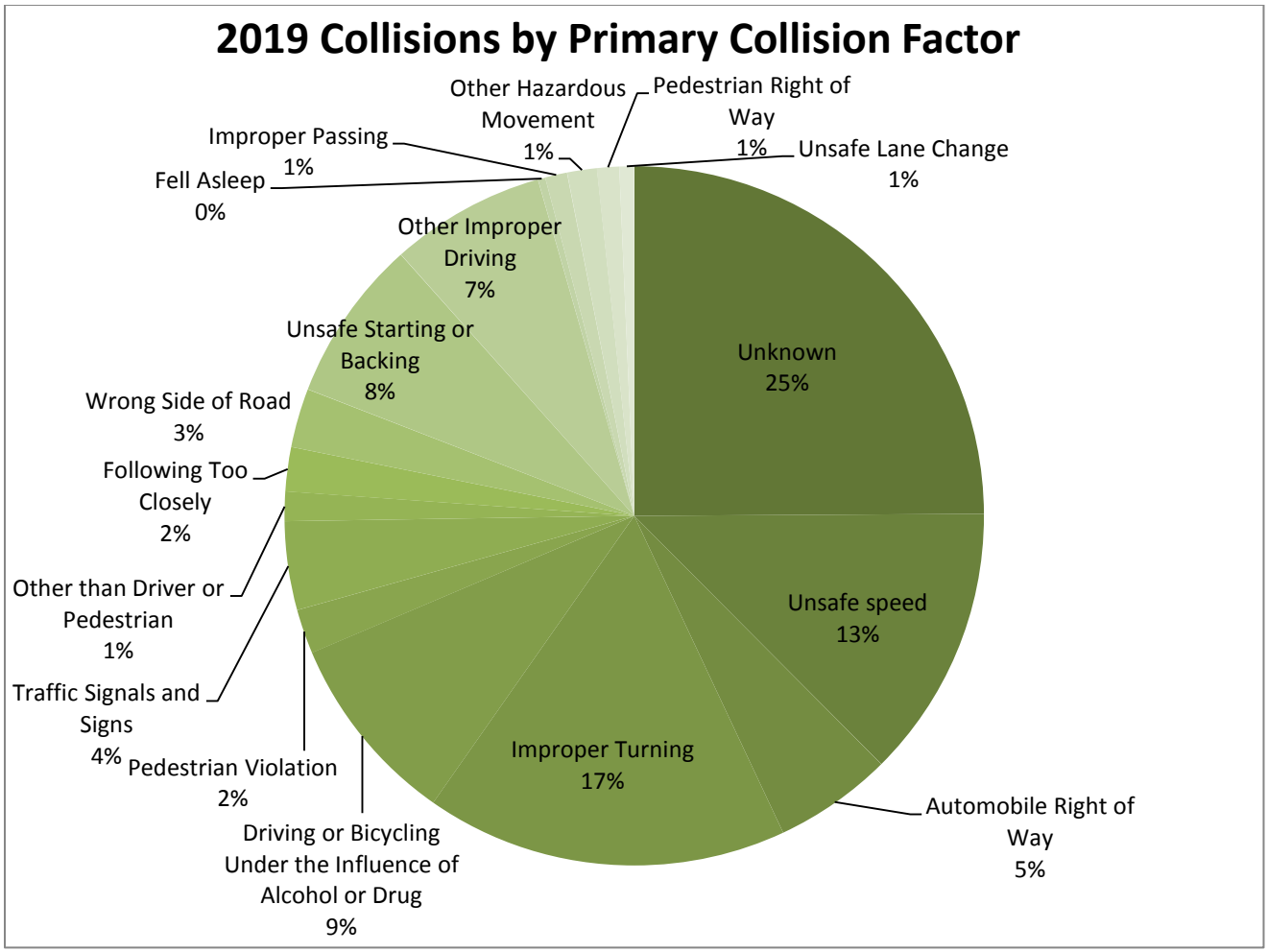

Source: Crossroads

Primary Collision Factor Definitions

Unsafe speed: Driving at a speed greater than is reasonable or prudent, or without due regard for weather, visibility, traffic, etc.

Automobile Right of way: Failure to yield right of way to other roadway users.

Improper Turning: Making an unsafe turning movement, or failure to signal.

Driving or Bicycling Under the Influence of Alcohol or Drug: Operating a vehicle while under the influence.

Pedestrian Violation: Pedestrian failure to yield right of way to other vehicles while outside of a legal crosswalk.

Other than Driver (or Pedestrian): Collision caused by outside factor.

Pedestrian Right of Way: Driver failing to yield right of way to a pedestrian at a legal crosswalk.

Following Too Closely: Following another vehicle more closely than is reasonable and prudent.

Wrong Side of Road: Driving a vehicle on the wrong side of the road or against traffic.