



Recommendations to Improve Pedestrian & Bicycle Safety for the City of Hayward: Tennyson Road Corridor



October 2018



Acknowledgments

Planning Committee

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We would like to thank the planning committee for inviting us into their community and for hosting the Community Pedestrian and Bicycle Safety Training for the City of Hayward's Tennyson Road Corridor.

We would like to thank Bike East Bay, Toole Design Group, and Kittelson & Associates, Inc. for providing breakfast, snacks, and refreshments in support of this training.

We would like to acknowledge the many community members and agencies present at the workshop and their dedication to pedestrian and bicycle safety. Their collective participation meaningfully informed and strengthened the workshop's outcomes.

Funding for this program was provided by a grant from the California Office of Traffic Safety, through the National Highway Traffic Safety Administration.

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Recommendations to Improve Pedestrian & Bicycle Safety for the City of Hayward: Tennyson Road Corridor

By Jaime Fearer, Danny Gonzalez, Esther Rivera, California Walks;
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Introduction

At the invitation of the City of Hayward, California Walks (Cal Walks), the University of California at Berkeley's Safe Transportation Research and Education Center (SafeTREC), and the Planning Committee collaboratively planned and facilitated a Community Pedestrian and Bicycle Safety Training (CPBST) in Hayward on September 21, 2018. The CPBST is a community-driven pedestrian and bicycle safety action-planning workshop aimed to develop a community-driven pedestrian and bicycle safety action plan and to identify pedestrian and bicycle safety priorities and actionable next steps in collaboration with community partners in the City of Hayward, and in particular, along and near the Tennyson Road Corridor.



Participants identify challenges and solutions for walking and biking in their community.

The City of Hayward requested a workshop to 1) provide City staff, community organizations, and residents with a toolkit for promoting pedestrian and bicycle safety to inform the current Hayward Bicycle & Pedestrian Master Plan process and future active transportation projects; 2) strengthen working relationships between various agencies and organizations and other stakeholders to maximize positive outcomes for the residents of Hayward; 3) develop consensus regarding pedestrian and bicycle safety priorities and actionable next steps; and 4) educate community members on how to improve pedestrian and bicycle safety.

Cal Walks and SafeTREC (Project Team) facilitated the workshop on September 21, 2018 from 9:00 am to 12:30 pm at the Weekes Park Community Center. Breakfast, refreshments, and simultaneous English-to-Spanish interpretation were provided to maximize community participation. Thirty-four (34) individuals attended the workshop, including representatives from Bay Area Rapid Transit (BART), Bike East Bay, Caltrans, City of Hayward, Tiburcio Vásquez Health Center (TVHC), Toole Design Group,

parents, community members, and parents from Grupo Cafe con Patty Garcia/TVHC.

The three-and-a-half (3.5) hour training consisted of: 1) an overview of multidisciplinary approaches to improve pedestrian and bicycle safety using the intersectional 6 E's framework including: Equity & Empowerment, Evaluation, Engineering, Education, Encouragement, and Enforcement; 2) walkability assessments along three key routes; and 3) small group action-planning discussions to prioritize recommendations for Hayward's active transportation efforts.

Background

The CPBST is a joint project of Cal Walks and SafeTREC that aims to leverage a community's existing strengths to develop a community-driven pedestrian and bicycle safety action plan and to identify pedestrian and bicycle safety priorities and actionable next steps in collaboration with community partners. For each training, the program convenes a local multi-disciplinary planning committee to tailor and refine the training's curriculum and focus to meet the community's needs. Cal Walks and SafeTREC conduct pre-training site visits to collect on-the-ground observations of existing walking and biking conditions to adapt the CPBST curriculum and to provide context-specific strategies for the community's existing conditions.

Planning Process

The Hayward CPBST planning process was initiated in April 2018. The planning process consisted of:

- **Community Plans and Policies Review:** Cal Walks conducted a review of current community planning documents to inform the training with local context and prepare to build off existing efforts. The following documents were reviewed prior to the site visit:
 - [City of Hayward Bicycle & Pedestrian Master Plan Update](#) (in progress)
 - [City of Hayward Bicycle Master Plan](#) (2007)
 - [City of Hayward Complete Streets Policy](#) (2013)
 - [Alameda County Bike and Ped Master Plan](#) (2012)
 - [Transportation Improvement Projects](#) (ongoing)
 - [Hayward 2040 General Plan](#) (2014)
 - [Caltrans District 4 Bike Plan](#) (2018)
- **Analysis and Mapping of Pedestrian and Bicycle Injury Data:** SafeTREC used the Statewide Integrated Traffic Record System (SWITRS) and the Transportation Injury Mapping System (tims.berkeley.edu) to analyze pedestrian and bicycle collision injury data for the City of Hayward, as well as census data to create rates based on population. Patterns of injury collisions, victim characteristics, and demographics were analyzed to inform the planning process for the CPBST and presented at the site visit and during the workshop.
- **Identification of Priority Discussion Topics for Training:** The Planning Committee identified Tennyson Road as the focus of the Hayward CPBST because of the high number of collisions on

the corridor as well as community safety concerns. The Planning Committee identified the following goals for the CPBST:

- To determine potential solutions to make walking and biking along the Tennyson Road Corridor safer for residents;
 - Identify opportunities to create safe routes to school for children walking and biking to Eldridge Elementary School, Tyrrell Elementary School, St. Bede's Parochial School, and Ruus Elementary School; and
 - To determine potential solutions to increase accessibility to the Weekes Community Center and Park and Weekes Branch Library.
- **Site Visit:** The Project Team facilitated an in-person site visit on August 10, 2018 with the Planning Committee at Tennyson High School to 1) review existing pedestrian and bicycle collision data for the City of Hayward; 2) collect qualitative data based on in-person observations of existing conditions and travel behaviors; and 3) conduct preliminary walking assessments of the Tennyson Road Corridor. The Project Team used the site visit findings to develop the workshop presentation, including featuring local infrastructure examples and developing the walking and biking assessment route maps. During the site visit, the Planning Committee identified the Caltrans District 4 Bicycle and Pedestrian Coordinator, community residents, City Councilmember Francisco Zermeño, and CAFE Coordinator Patty Garcia and participants of the CAFE group as key stakeholders to invite to the CPBST.

Existing Conditions

Pedestrian & Bicycle Collision History¹

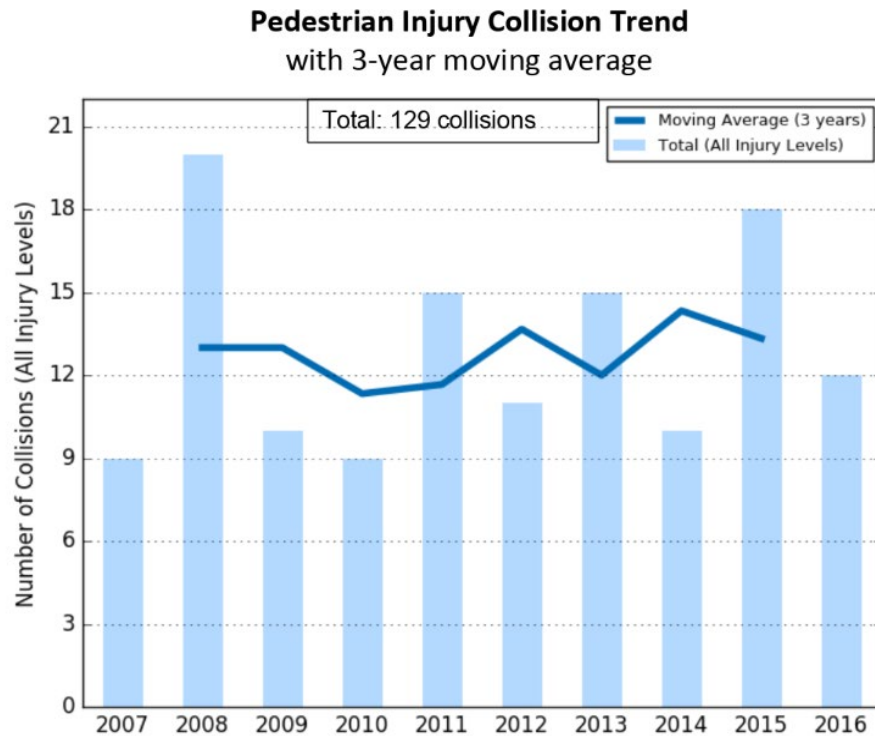
Between 2012-2016, there were 66 pedestrian collisions, including three (3) fatalities and thirteen (13) severe injuries within ½-mile north and south of the Tennyson corridor, between Mission and Hesperian in Hayward, CA². Collisions in this time period were concentrated along Tennyson Road and primarily occurred during high traffic times in the morning, between 6:00 am and 8:59 am, and the evening between 6:00 pm and 8:59 pm. The top three primary collision factors for collisions involving pedestrians were driver failure to yield right-of-way to pedestrians at a crosswalk (51.6%), pedestrian failure to yield right-of-way to vehicles (14.5%)³, and speeding on the highway (8.1%).

¹ 2016 SWITRS data are provisional as of March 2018.

² The Tennyson Corridor focus area was identified by the Planning Committee as ½-mile north and south of Tennyson Road from Mission Blvd to Hesperian Blvd.

³ Pedestrians have the right-of-way in marked and unmarked crossings, and drivers are legally required to yield to pedestrians in these instances. However, when pedestrians cross outside of marked or unmarked crossings, pedestrians must yield the right-of-way to drivers. A pedestrian is legally able to cross outside of a marked or unmarked crossing between two intersections where one or none of the intersections is signalized but only if the pedestrian yields the right-of-

Pedestrian collisions appear to be on a downward trajectory, as illustrated by the three-year moving average in the graphic below.

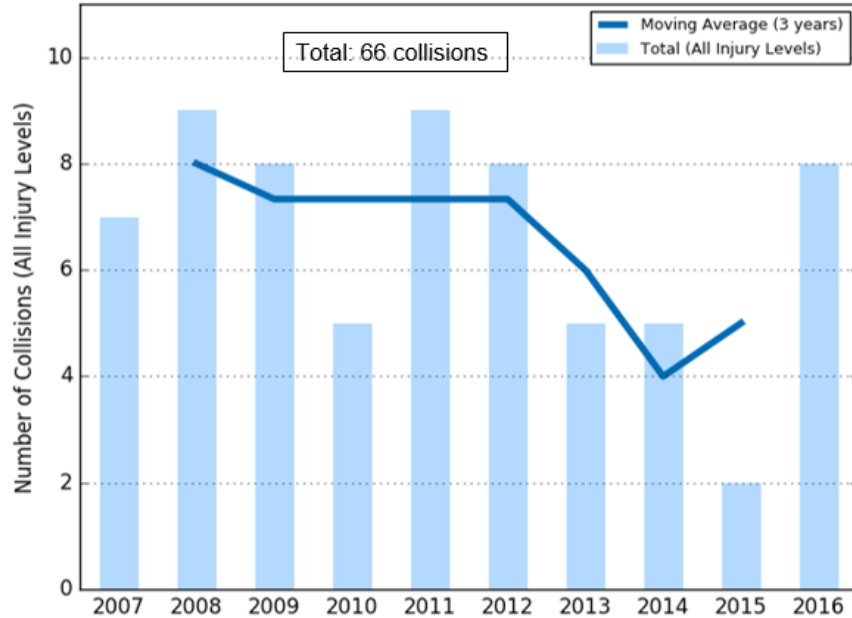


Between 2012-2016, there were twenty-eight (28) bicycle collisions, including one (1) fatality and four (4) severe injuries within ½-mile north and south of the Tennyson corridor, between Mission and Hesperian in Hayward, CA⁴. Bicycle collisions in this time period were concentrated on Tennyson Road and primarily occurred during high traffic times in the afternoon from 3:00 p.m. to 5:59 p.m. The primary collision factors for collisions involving bicyclists were driver failure to stop at a limit line or crosswalk at a stop sign (16.0%). Bicyclist collisions appear to be on an upward trajectory, as illustrated by the three-year moving average in the graphic below.

way to oncoming drivers. This is not the same as the term “jaywalking,” which refers to crossing outside of a marked or unmarked crossing between two signalized intersections.

⁴ The Tennyson Corridor focus area was identified by the Planning Committee as ½-mile north and south of Tennyson Road from Mission Blvd to Hesperian Blvd.

Bicycle Injury Collision Trend
with 3-year moving average



Equity Concerns

A 2014 Governing Study found that pedestrian fatality rates in lower-income communities nationwide were more than twice that of higher income communities.⁵ The Pedestrian Collision and Income Map (2012-2016) highlights this inequity along the Tennyson Road corridor in Hayward. Community participants shared that their community has seen little investment, while more affluent communities have seen improvements for not only active transportation, but also for community hubs and amenities, like parks. Participants also noted an area along the south side of Tennyson Road, east of the I-880 northbound off ramp, where people experiencing homelessness congregate and often live. The map below shows multiple collisions in this area. Taking into account vulnerable populations, such as those experiencing homelessness, in community assessments and improvements is important to creating a safe community for all.

⁵ Pedestrian Deaths in Poorer Neighborhoods Report, "Governing," August 2014.

Pedestrian Collisions and Income 2012-2016 Total: 66 collisions mapped

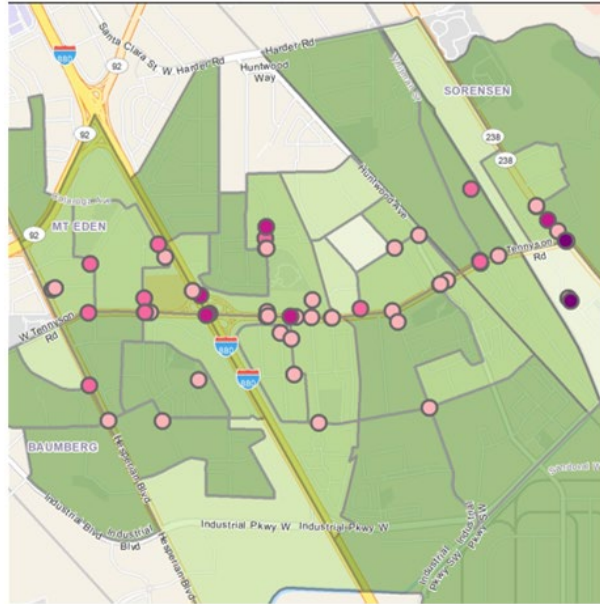
Collision Severity (2012-2016)

- Fatal (3)
- Injury (Severe) (12)
- Injury (Other Visible) (12)
- Injury (Complaint of Pain) (39)

2017 Median Household Income

- < 35K
- 35K - 50K
- 50K - 75K
- > 75K

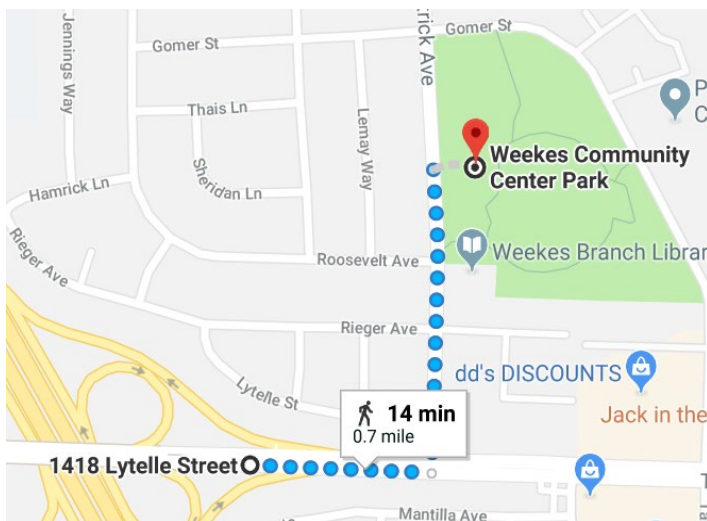
Source: SWITRS, 2012-16;
Demographics – ESRI, US
Census Bureau; ACS



Walkability and Bikeability Assessment Reflections

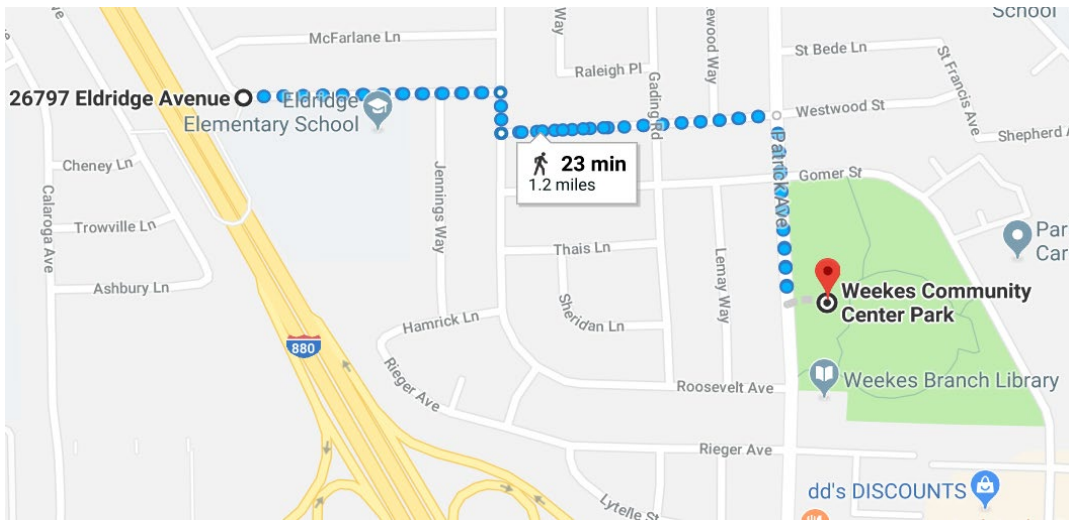
Participants were asked to 1) observe infrastructure conditions and the behavior of all road users; 2) assess the emotional experience of walking or biking along the route; 3) identify positive community assets and strategies which can be built upon; and 4) consider how the walking and biking experience might feel different for other vulnerable users. Workshop participants conducted walking and biking assessments along three key routes:

Route 1: Patrick Avenue & Tennyson Road/I-880



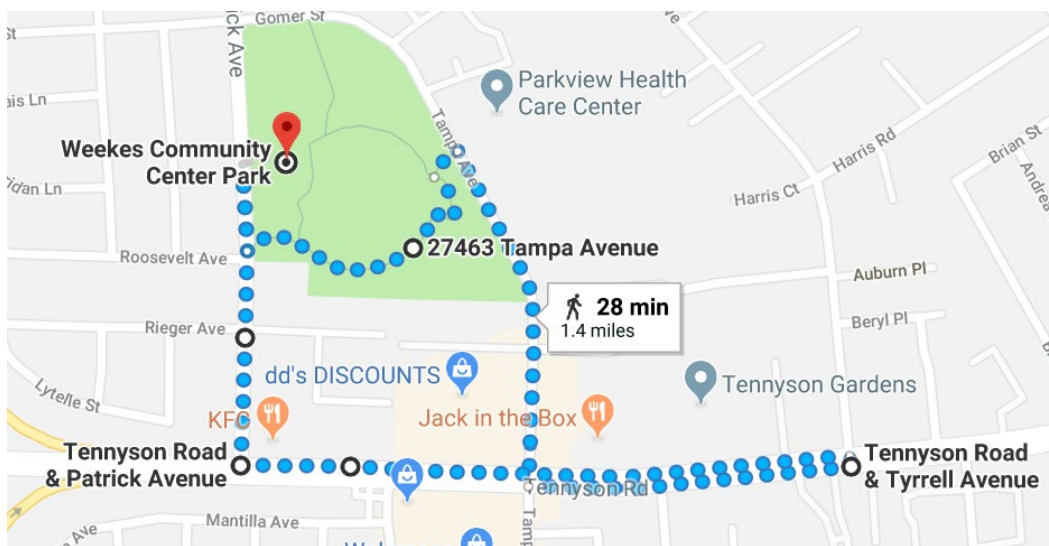
The first walking route focused on Tennyson Road and the I-880 interchange. The Planning Committee chose this route due to a history of collisions and recent fatality on Tennyson Road. Starting the walk assessment at Weekes Park Community Center, the group of observers walked south on Patrick Avenue, west on Tennyson Road to the northbound I-880 off-ramp, east on Tennyson Road, and north on Patrick Avenue back to the Community Center.

Route 2: Eldridge Elementary & I-880 Ped/Bike Bridge



The second walking route focused on Eldridge Elementary School and the adjacent pedestrian and bike bridge over I-880. The Planning Committee chose this route to observe the challenges faced by children walking and biking to school and to observe the approach to the deteriorating pedestrian and bicycle bridge. Starting the walk assessment at Weekes Park Community Center, participants walked north on Patrick Avenue, west on Westwood Street, North on Underwood Avenue, and east on Eldridge Avenue. Participants then returned to the Community Center by walking east on Eldridge Avenue, South on Underwood Avenue, east on Westwood Street, and south on Patrick Avenue.

Route 3: Tennyson Road Businesses



The third walking route focused on Tennyson Road and its local commercial businesses. The Planning Committee chose this route because local businesses along this segment of Tennyson Road are frequented by motorists, pedestrians, and bicyclists in the community. Participants started at Weekes Park Community Center and walked east along Weekes Park, south on Tampa Avenue, east on Tennyson Road, north on Tyrell Avenue, west on Tennyson Road, and north on Patrick Avenue back to the Community Center.

Following the walking and biking assessment, the participants shared the following reflections:

- **Inadequate Enhancements for Marked and Unmarked Pedestrian Crossings:** Community members



on Route 1 and Route 2 noted that drivers routinely stop in the pedestrian crosswalk when stopping at a stop sign or fail to yield the right of way before the pedestrian crosses the travel lane. On Route 2, participants pointed out the lack of “daylighting” at intersections which occurs when vehicles are parked close to both marked and unmarked crosswalks. This behavior means that drivers are less likely to see and yield to people crossing, particularly young children, who may be shorter than the vehicles. Participants also noted school zone crossings that are not stop-controlled on all legs, including the Westwood Street/Gading Road intersection and the Patrick Avenue/Westwood Street intersection.

Community residents requested enhancements at the Roosevelt Avenue and Patrick Avenue intersection to connect the Library, Park, and Weekes Community Center on the east side of Patrick Avenue with the Church and Food Bank on the west side of the road.

Participants requested crossing enhancements, including high visibility crosswalks and a rectangular rapid flash beacon (RRFB) at the Patrick Avenue /Roosevelt Avenue intersection and at the Patrick Avenue/Westwood Street intersection.



A school zone crossing at the Westwood Street/Gading Road intersection. Note that the intersection does not have stop signs for drivers on Gading Road.

- **High Vehicle Speeds, Wide Roads, and Dangerous Driver Behavior:** Participants on Route 1 and Route 3 noted that drivers travel at high speeds along Tennyson Road, and participants on Route 2 noted that drivers travel at high speeds on Patrick Avenue. Participants on Route 1, while on Tennyson Road between I-880 and Patrick Avenue, observed that the posted speed limit is 35 mph, but participants felt that drivers were exceeding the speed limit. Along with high speeds, participants noted distracted drivers at the intersection of Tennyson Road and Patrick Avenue, as well as drivers



Participants at the Tennyson Road/Patrick Avenue intersection observe a community resident riding on the sidewalk rather than on the road alongside high-speed motorists.

accelerating quickly from the northbound I-880 off-ramp. Many drivers were distracted with merging with oncoming traffic behind them, and they often failed to look ahead at the pedestrian crossing. Participants on Route 3 expressed concern at crossing the pedestrian crosswalk on Tennyson Road and Dickens Avenue because of motorists traveling at speeds that seemed substantially higher than the posted speed limit of 35 mph. They shared that, despite the marked crosswalk's high visibility, motorists do not respect pedestrian right-of-way. Thus, students and parents who travel to and from Ruus Elementary School need to wait for long periods of time before it is safe to cross Tennyson Road. Cal Walks staff observed bicyclists riding on the sidewalk of Tennyson Road, which participants shared is due to their discomfort with traveling next to fast-moving motorists along these roads.

- **Construction Zones and Accessibility Issues:** Participants on Route 1 noted that the sidewalk on the north side of Tennyson Road was closed to pedestrians due to construction along the overpass and interstate on and off ramps. While there were signs indicating the sidewalk closure, the alternative route on the south side of Tennyson Road posed challenges to community members who required a mobility device or had a stroller. Additionally, sidewalk conditions were poor, likely because of construction, and presented pedestrians with uneven and unpaved surfaces that were challenging to maneuver. Unsafe sidewalk conditions at the I-880 off ramp create an unsafe walking environment.



Construction zones at Tennyson Road and I-880 create barriers for pedestrians and community members who require mobility assistance devices.

- Sidewalk Conditions:** Sidewalk conditions and widths vary along the three assessment routes. Participants along Route 3 observed that sidewalks are narrow, have cracks and dips, and are blocked by household and personal items that had been abandoned, particularly along Tennyson Road. Participants shared that they have seen parents with strollers struggle as they navigate Tennyson Road, and that existing sidewalks and the wall along the sidewalk do not allow for groups of three or more to walk together, which leads some students to walk on the grass or the street. While conducting the assessment, participants walking east on Tennyson Road noted that they may choose to walk on the south side along the wall because of the shading, but they prefer walking on the north side of Tennyson Road because the wall creates a barrier which makes them feel vulnerable, trapped between the wall and fast-moving motorists, and potentially subject to harassment.



Large hole along the gutter and drain on westbound Tennyson Road. Participants observe how an older adult or someone using an assistive device or stroller can get stuck and hurt.



Participants walk east on Tennyson Road and observe that the wall along Tennyson Road between Tampa Avenue and Thornton Court is unsafe to walk by because the walkway is narrowed and people can hide along the wall as it juts in and out.

- **Bike Lanes and Bicyclist Behaviors:** Participants viewed the bike lanes as an asset for the community and hoped to see additional bicycle lanes installed to encourage more trips by bike. Participants were concerned about potential conflicts for bicyclists due to the narrow width of bike lanes along Tennyson Road and the abrupt disappearance of bike lanes at the I-880 overpass. During the assessment, participants observed bicyclists riding on the sidewalk along Tennyson Avenue and in the crosswalk at the Tennyson Road/Patrick Avenue intersection. Participants indicated that residents did not use the bike lanes along Tennyson Road because they fear the high motorist speeds along the corridor. They noted that they themselves would not ride in the bike lanes and do not allow or encourage their children to ride their bicycles in the bike lanes or elsewhere in the community.



Pedestrians walking west on Tennyson Road discuss narrow bike lanes that are still uncomfortable to bike in despite new, green paint.



A cyclist riding south on Patrick Avenue gets back onto sidewalk after giving pedestrians right-of-way on the sidewalk.

Key Opportunities to Improve Walking and Biking Safety

Following the walking and biking assessment, the Project Team facilitated small-group action planning discussions where participants prioritized and outlined plans for infrastructure projects and community programs aimed at reducing the number of injuries and fatalities, as well as increasing the number of people walking and biking in Hayward.

Through a voting and self-selecting process during the training, participants chose to focus on and outline plans for Safe Routes to School Programing, Community Educational Campaign Bicycle Improvements and Pedestrian Improvements. Participants selected which project they wanted to collaborate on with fellow participants and discussed:

- The problem the infrastructure project/community program is intended to solve;
- The people, organizations and agencies that should be involved to implement the infrastructure project/community program;
- Resources needed to implement the infrastructure project/community program; and
- Short-term and long-term action steps to implement the infrastructure project/community program.

Community Recommendations

Workshop participants provided the following recommendations and next steps for overall pedestrian and bicyclist safety improvements:

Infrastructure Projects

- **Roadway Improvements and Streetscape Improvements on Patrick Avenue:** Residents were interested in advancing a road diet on Patrick Avenue between Tennyson Road, and stretching north to Gading Road and Dumont Avenue. Residents felt that this would help create better accessibility to the Weekes Community Center, Weekes Branch Library, surrounding park, and Glassbrook Elementary School. Participants felt that by narrowing and reducing travel lanes on Patrick Avenue, the street could incorporate bike lanes and pedestrian improvements to enhance safety for pedestrians and bicyclists. The group determined the following preliminary action steps:
 - Plan and implement an educational campaign for residents, stakeholders, and decision makers;
 - Conduct a temporary demonstration to help community visualize the potential improvements (see below);
 - Identify and share successful examples of road diets in other cities similar to Hayward; and
 - Work with the City of Hayward to determine public engagement efforts and needs to fund a road diet on Patrick Avenue.

Community Programs, Policies, and Campaigns

- **Temporary Demonstration—Patrick Avenue Road Diet:** As noted above, participants are interested in conducting a temporary demonstration road diet on Patrick Avenue with a focus on pedestrian accessibility. The group identified the following stakeholders: the City of Hayward Public Works - Engineering & Transportation Department, the City of Hayward Police and Fire Departments, City Council, Hayward Area Recreation & Park District (HARD), Hayward Public Library, the Alameda County Safe Routes to School Program, nearby schools and parents (including Eldridge Elementary and St. Bede’s Parochial School), Tiburcio Vásquez Health

Center, Inc. and CAFE, Bike East Bay, and California Walks. The group determined the following preliminary action steps:

- Outreach to the City Council Sustainability Committee, City Manager’s Office, and Public Works - Engineering & Transportation Department to foster City champions for the project;
 - Establish a “quick-build” timeline that coincides with another pedestrian and/or bicyclist-focused event, like Walk to School Day, Bike to School Day, summer park events, or the forthcoming release of the City’s Bicycle & Pedestrian Master Plan;
 - Recruit volunteers and solicit materials donations; and
 - Draft a traffic control plan.
- **Temporary Demonstration—Enhanced Crosswalks:** Participants identified the implementation of a temporary crosswalk enhancement at the Amador Street/Jackson Street intersection, and the Harder Road/Jane Avenue intersection at Harder Elementary School to envision how the implementation of a permanent high-visibility crosswalk can improve pedestrian safety conditions. The Amador Street/Jackson Street intersection is busy with motorists, pedestrians, and bicyclists traveling from the adjacent residential neighborhoods to this intersection with commercial plazas. The Harder Road/Jane Avenue intersection at Harder Elementary School is one that many students, parents, and residents walk or bike through on their way to and from school and adjacent businesses. While both intersections have pedestrian markings and signals, participants agree their visibility is poor, so traffic does not slow down when approaching the intersection or when making right or left turns. Participants will use this temporary demonstration to bring awareness to the need for enhanced crossings.

Within the first two months after the CPBST, participants will conduct outreach in the community to establish a group of parents and youth to engage with Harding Elementary School and City of Hayward staff to support and assist with the development of these temporary demonstrations. Once this stakeholder group is established, participants will connect with the City of Hayward, develop a budget, begin the application process, and plan the temporary demonstrations. Simultaneously, participants will begin obtaining necessary materials such as plants, flags, cones, and chalk. By November 2018, participants will finalize preparations to have the temporary demonstrations and continue outreach and education to the community. Participants will use these short-term action steps as data collection to present to City of Hayward to encourage the development of high visibility marked pedestrian crossings in Hayward.

California Walks/SafeTREC Recommendations

California Walks and SafeTREC also submit the following recommendations for consideration by the Planning Committee and City of Hayward:

- **Establish a Bicycle & Pedestrian Advisory Committee:** The Project Team *encourages the City of Hayward to establish a formal Hayward Bicycle and Pedestrian Advisory Committee (BPAC)* to advise City Council and staff on pedestrian and bicycle safety plans, projects, and policy development. The City of Hayward is currently developing an updated Bicycle & Pedestrian Master Plan, and the project has ongoing community engagement efforts slated through the upcoming year. A BPAC could help review project plans and engage their community networks to provide feedback on the development of the this and future plans. This committee would be chaired and include appointed community residents that represent the diversity and needs of the City. The committee would help increase the connection and outreach efforts of the City to community residents, which will lead to better planning and execution of projects that meet the needs of entire community.
- **Lighting Assessment:** The Project Team *encourages and recommends the Planning Committee and workshop participants to collaboratively perform a community-wide street lighting assessment* focused on pedestrian and bicycle lighting needs along Tennyson Road, Tyrell Avenue, community schools, centers, parks, and adjacent key pedestrian and bicycle corridors such as Tennyson Road, Tyrell Avenue, and Patrick Avenue. Workshop participants noted the majority of lighting is vehicle-oriented street lighting and lacks pedestrian-scale lighting that discourages people from walking or bicycling at night, or makes it unsafe to do so. Proper street lights provide safety and security of road users. Lighting should be uniform, consistent, and reduce glare and light pollution.
- **Conduct Future Transportation Planning Workshops in Spanish:** The Project Team *encourages the City of Hayward and its consultants to conduct outreach and planning workshops in Spanish* with simultaneous Spanish-to-English interpretation services and hard copy materials in Spanish. This workshop highlighted both the need and the demand not only for bilingual engagement, but also for dedicated engagement that is Spanish-focused. Over half of the participants used the simultaneous English-to-Spanish interpretation and Spanish materials.

Appendix A

Pedestrian and Bicycle Collision Data Analysis
Workshop Handout

2012-2016 Tennyson Corridor Data Analyses

Hayward Community Pedestrian and Bicycle Safety Training Workshop September 21, 2018

The goal of the Community Pedestrian and Bicycle Safety Training (CPBST) is to make communities safer and more pleasant for walking and bicycling. This workshop will train local residents and safety advocates in pedestrian and bicycle safety as well as create opportunities for collaboration with local officials and agency staff.

This fact sheet highlights some of the most recent pedestrian and bicycle collision data available to help the community better prioritize recommendations that emerge from this workshop. The following information focuses on data collected within 1/2 mile north and south of Tennyson corridor between Mission and Hesperian Blvd. in Hayward, CA.

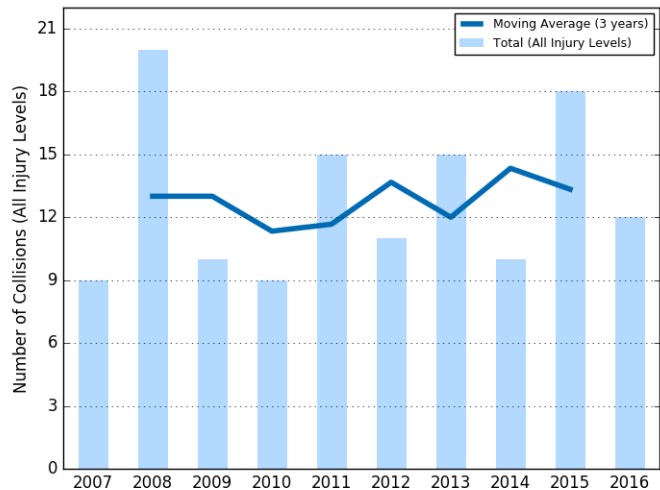
PEDESTRIANS



133 people were killed or injured in **129** pedestrian collisions in the last 10 years (2007-2016).

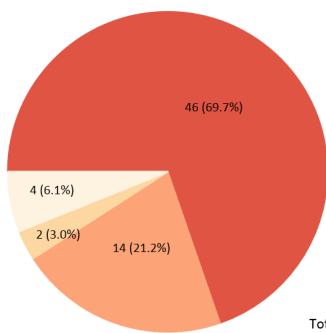
The **three-year moving average** line shows an **downward** trend in pedestrian collisions.*

There were **18** pedestrian collisions in 2015, but an average of **13.3** pedestrian collisions per year for the 3-year rolling average between 2014 and 2016.



*This line is useful for tracking change over time, especially when the number of collisions changes a lot between years. Data points are at the midpoint of the three years of data specified.

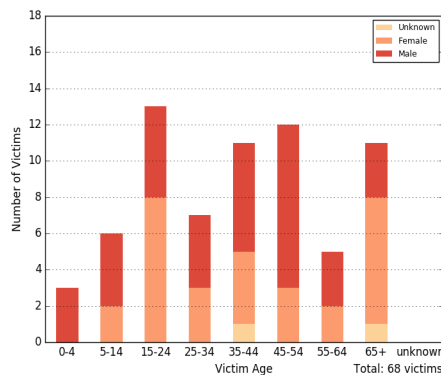
69.7% driver violations
VS.
21.2% pedestrian violations



Total: 66 collisions

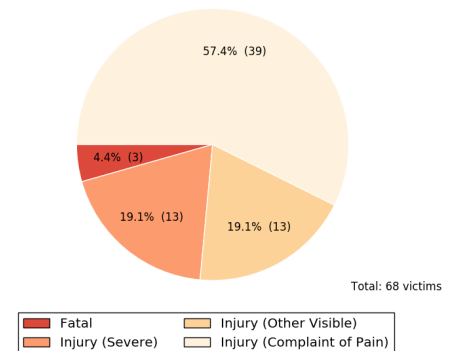
■ Driver Violation ■ Pedestrian Violation
■ Unknown ■ Unclear Violation

*Unclear violations were committed either by the driver, pedestrian or bicyclist.



Total: 68 victims

54.4% of victims were male
23.5% of victims were under age 20
16.2% of victims were age 65+



23.5% of victims (or 16 people) were **KILLED** or **SEVERELY INJURED**

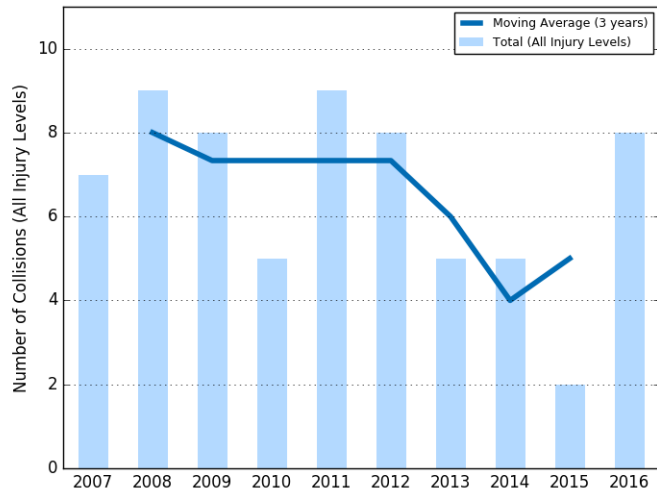
BICYCLES



69 people were killed or injured in 66 bicycle collisions in the last 10 years (2007-2016).

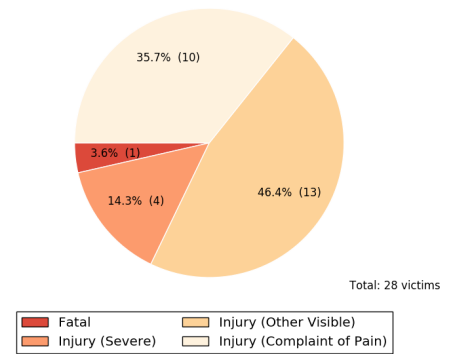
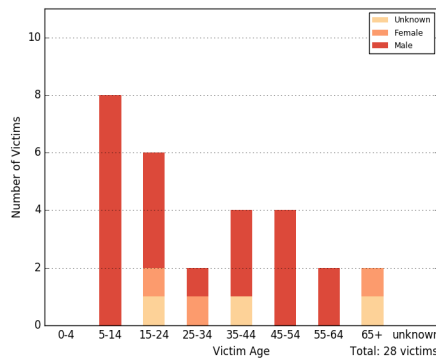
The **three-year moving average** line shows an **upward** trend in bicycle collisions.*

There were **2** bicycle collisions in 2015, but an average of **5** bicycle collisions per year for the 3-year rolling average between 2014 and 2016.



* This line is useful for tracking change over time, especially when the number of collisions changes a lot between years. Data points are at the midpoint of the three years of data specified.

Bicycles **must follow all the same rules of the road as vehicles**. As a result, we cannot break down violations by driver vs. bicyclist.



- **82.1%** of victims were male
- **42.9%** of victims were under age 20
- **7.1%** of victims were age 65+

17.9%
of victims (or 5 people)
KILLED or SEVERELY INJURED

SUMMARY



35.6 pedestrian fatalities & injuries per 100,000 population over the last five years in the City of Hayward, which is **19.3% less than** Alameda County and **0.8% less than** California



20.4 bicyclist fatalities & injuries per 100,000 population over the last five years in the City of Hayward, which is **48.9% less than** Alameda County and **38.7% less than** California

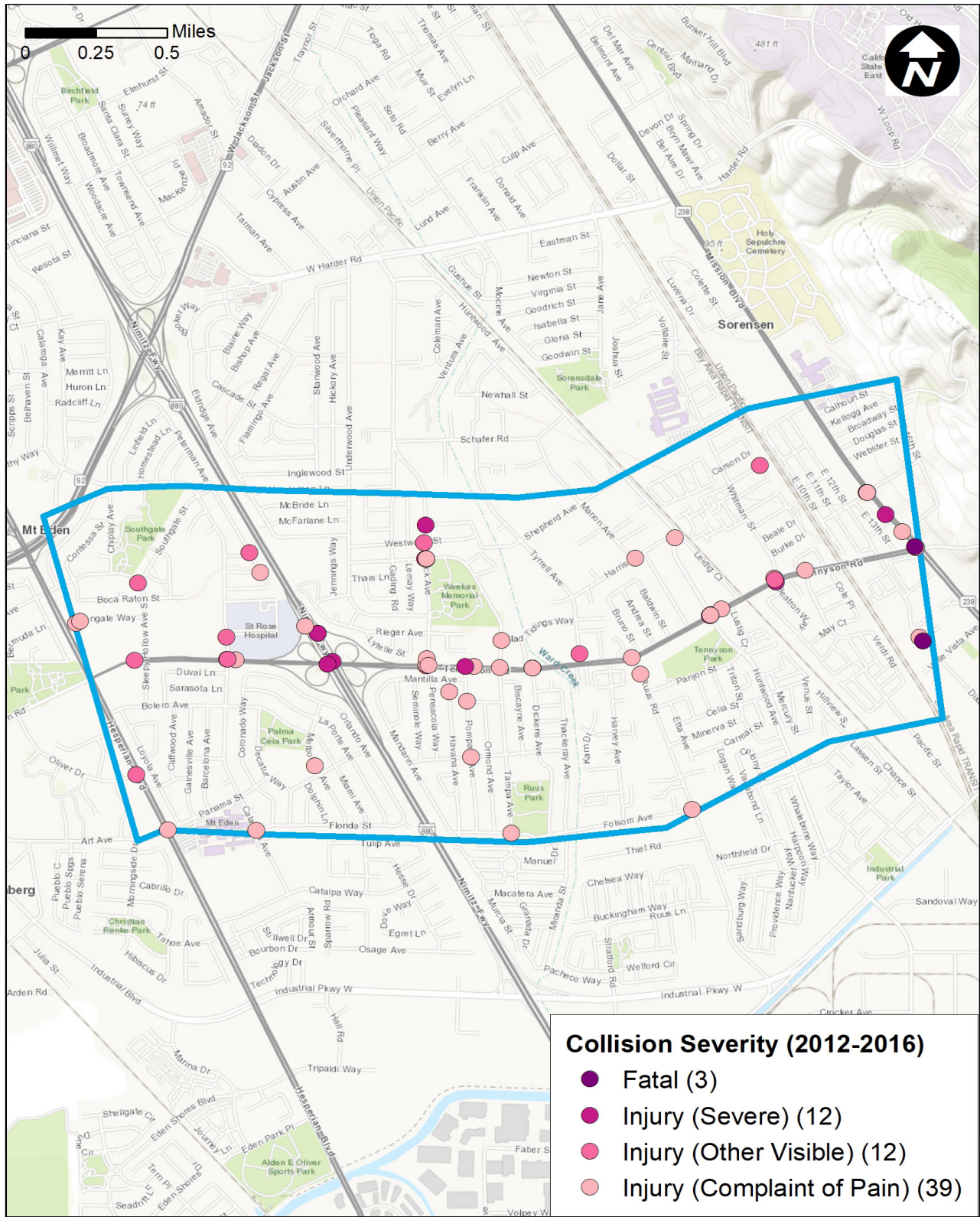
	Yearly Population Rate of Fatalities & Injuries per 100,000 Population Calculated Over a 5-year Period*	
	Pedestrian	Bicyclist
Hayward	35.6	20.4
Alameda County	44.1	39.9
California	35.9	33.3

Source: U.S. Census Bureau, Population Division (intercensal population data for 2016).

* The rate per population is calculated by adding the number of fatalities and injuries from 2012 to 2016 divided by five times the population in 2016.

Pedestrian Collisions 2012-2016

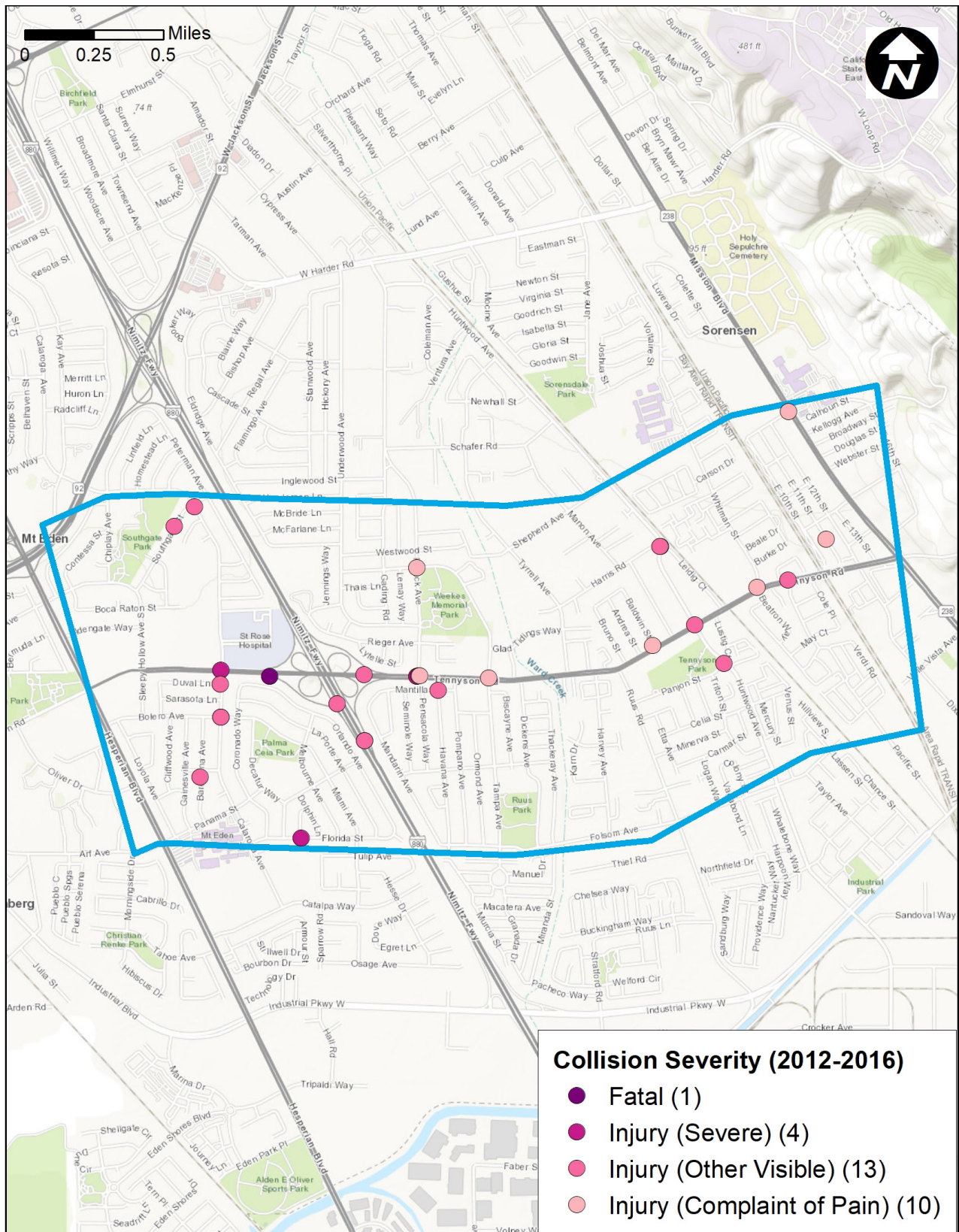
Collision analysis within 1/2 mile north and south of Tennyson corridor between Mission and Hesperian Blvd. in Hayward, CA.



Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2016 is provisional as of March 2018.

Bicyclist collision locations, 2012-2016

Collision analysis within 1/2 mile north and south of Tennyson corridor between Mission and Hesperian Blvd. in Hayward, CA.



Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2016 is provisional as of March 2018.

Appendix B

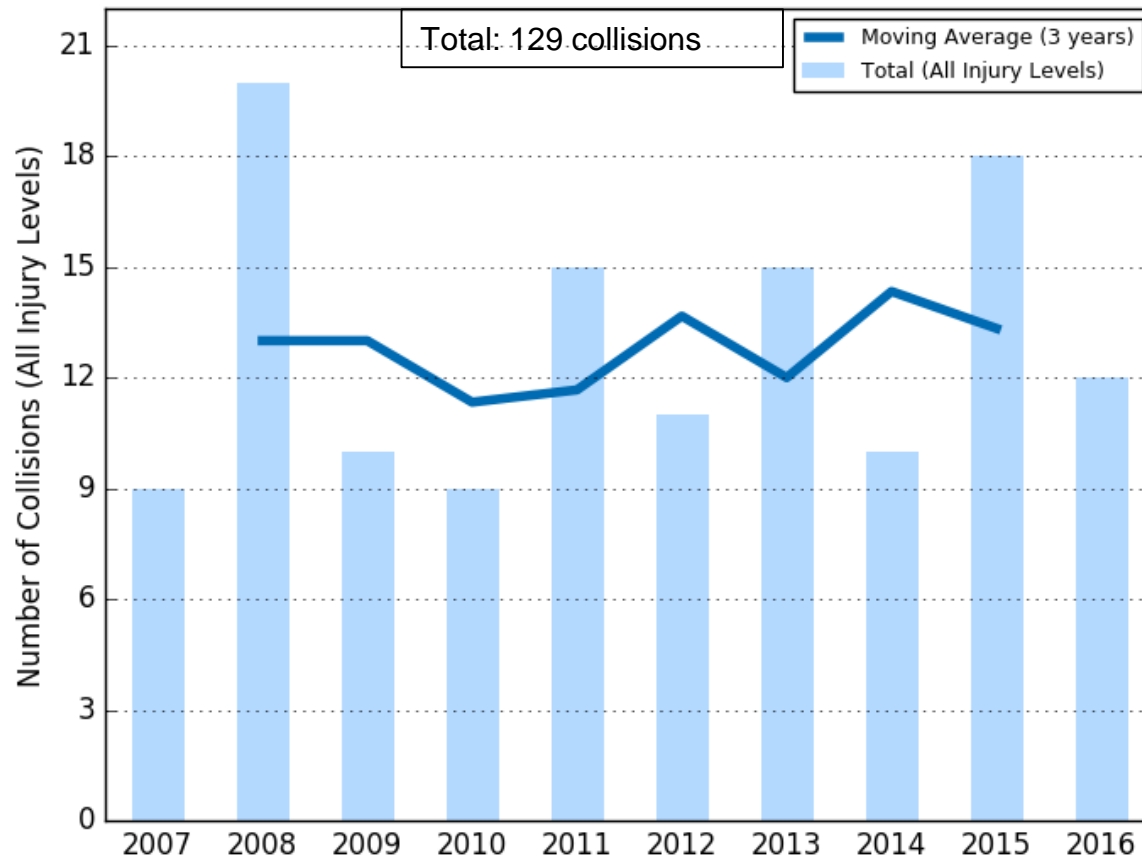
Pedestrian and Bicycle Collision Data Analysis
Site Visit Presentation

Community Pedestrian and Bicycle Safety Workshop - Data

Hayward, CA

8/10/18

Pedestrian Injury Collision Trend
with 3-year moving average



Note: 2015 and 2016 Statewide Integrated Traffic Records Systems (SWITRS) data are provisional as of November 2017.

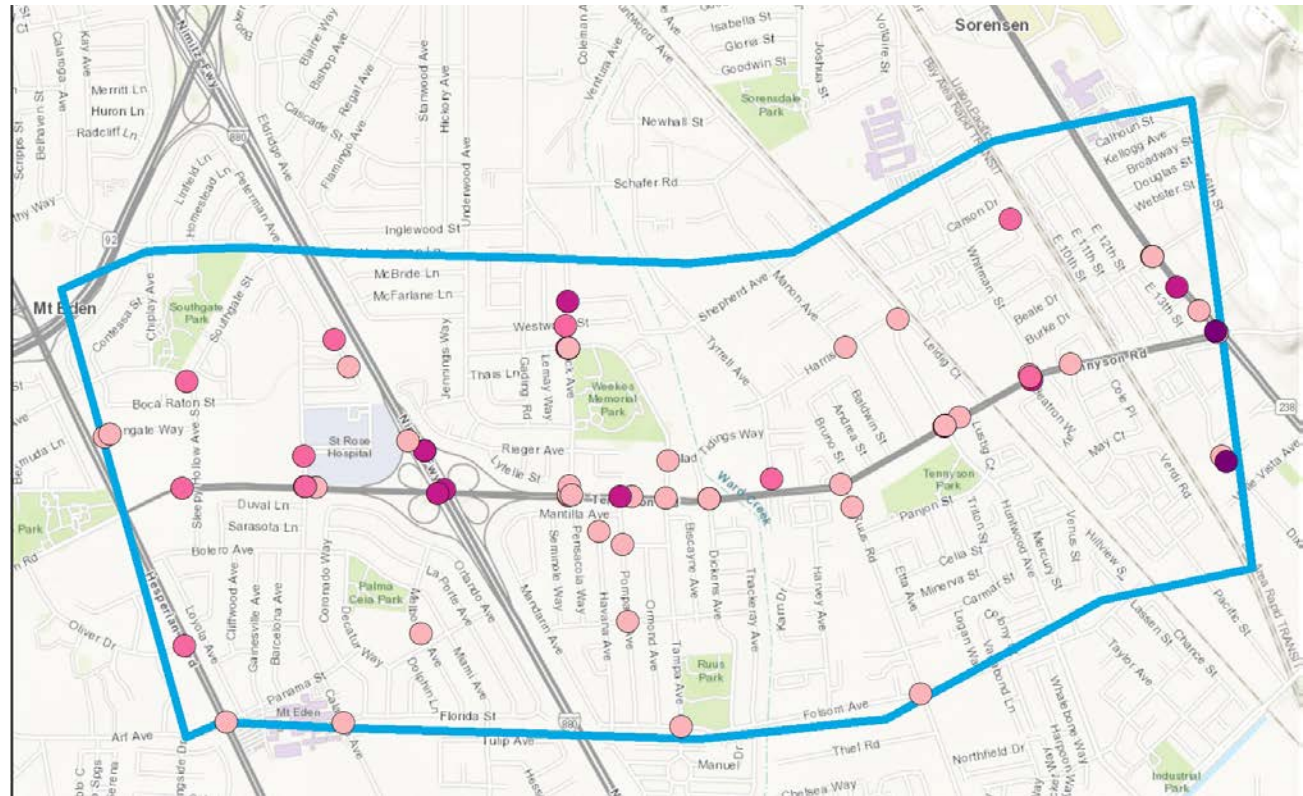
Pedestrian Injury Collisions

2012-2016

Total: 66 collisions mapped

Collision Severity (2012-2016)

- Fatal (3)
- Injury (Severe) (12)
- Injury (Other Visible) (12)
- Injury (Complaint of Pain) (39)



Note: 2015 & 2016 SWITRS data is provisional as of November 2017.

Pedestrian Collisions and Income

2012-2016

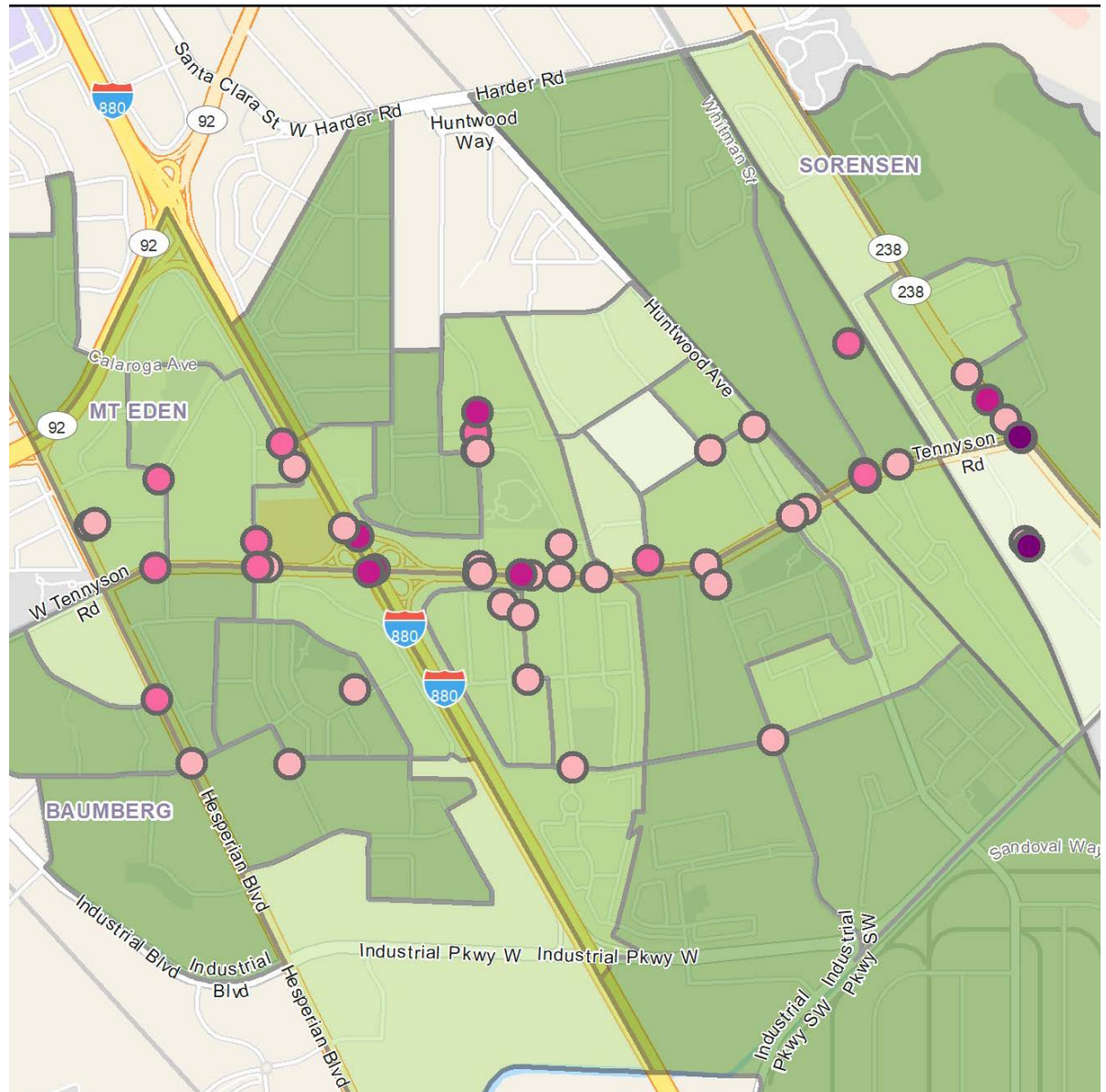
Total: 66 collisions mapped

Collision Severity (2012-2016)

- Fatal (3)
- Injury (Severe) (12)
- Injury (Other Visible) (12)
- Injury (Complaint of Pain) (39)

2017 Median Household Income

- < 35K
- 35K - 50K
- 50K - 75K
- > 75K



Source: SWITRS, 2012-16;
Demographics – ESRI, US
Census Bureau; ACS

Note: 2015 & 2016 SWITRS data is provisional as of November 2017.

Pedestrian Injury Collisions by Time of Day and Day of Week

09:00PM-11:59PM -	0	2	3	0	1	1	0	7
06:00PM-08:59PM -	1	5	1	3	4	0	3	17
03:00PM-05:59PM -	1	1	2	1	1	3	0	9
Noon-02:59PM -	0	1	2	1	1	1	1	7
09:00AM-11:59AM -	1	1	4	0	0	0	0	6
06:00AM-08:59AM -	2	3	4	2	4	1	1	17
03:00AM-05:59AM -	0	0	1	0	1	0	0	2
Midnight-02:59AM -	0	0	0	0	1	0	0	1
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
	5	13	17	7	13	6	5	

Total: 66 collisions

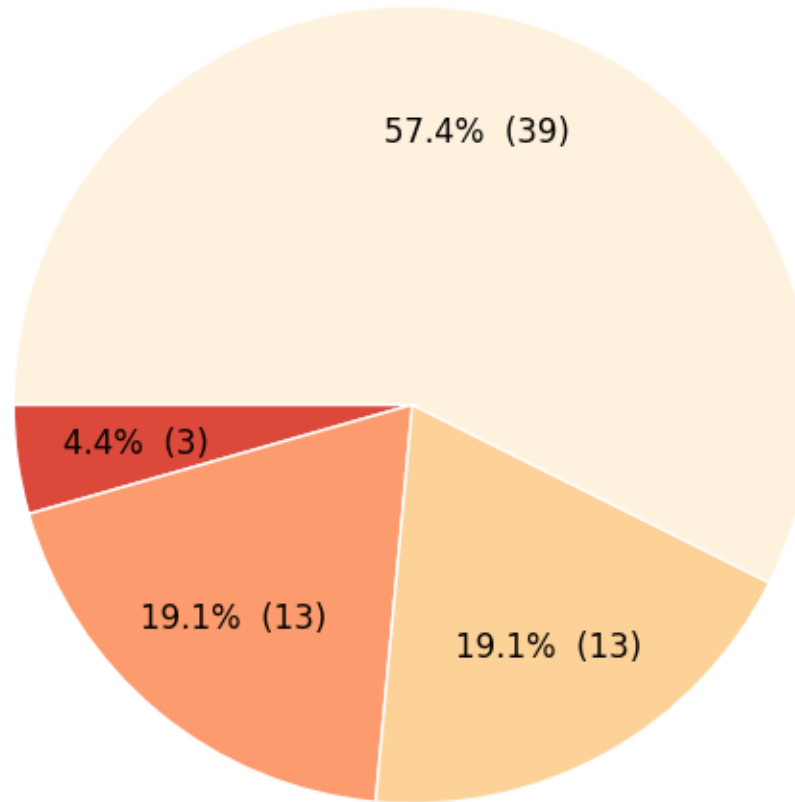
*The color gradient in this graph refers to the collision frequency.

Top Violations in Pedestrian Injury Collisions (with # and %)

CVC No.	Description	Freq.	Percent
21950	Driver failure to yield right-of-way to pedestrians at a crosswalk	32	51.6%
21954	Pedestrian failure to yield right-of-way to vehicles	9	14.5%
22350	Speeding on the highway	5	8.1%
21955	At intersections, pedestrians can't cross anywhere except at a crosswalk	3	4.8%
21456	"Walk" pedestrian failure to yield right-of-way to vehicles already in crosswalk	2	3.2%
21952	Motor vehicle drivers must yield to pedestrians	2	3.2%
22106	Unsafe starting or backing of vehicle	2	3.2%
21453	Red or Stop, vehicles stop at limit line or X-walk. When making right turn at a red light/stop sign driver required to yield to any vehicle approaching so closely as to constitute an immediate hazard	1	1.6%
21800	Driver approaching an intersection must yield to driver who has entered the intersection from another highway	1	1.6%
21801	Failure to yield right-of-way to incoming cars while turning left or making U-turn	1	1.6%
Total		58	93.5%

Total: 58 collisions

Pedestrian Victim Injury Severity

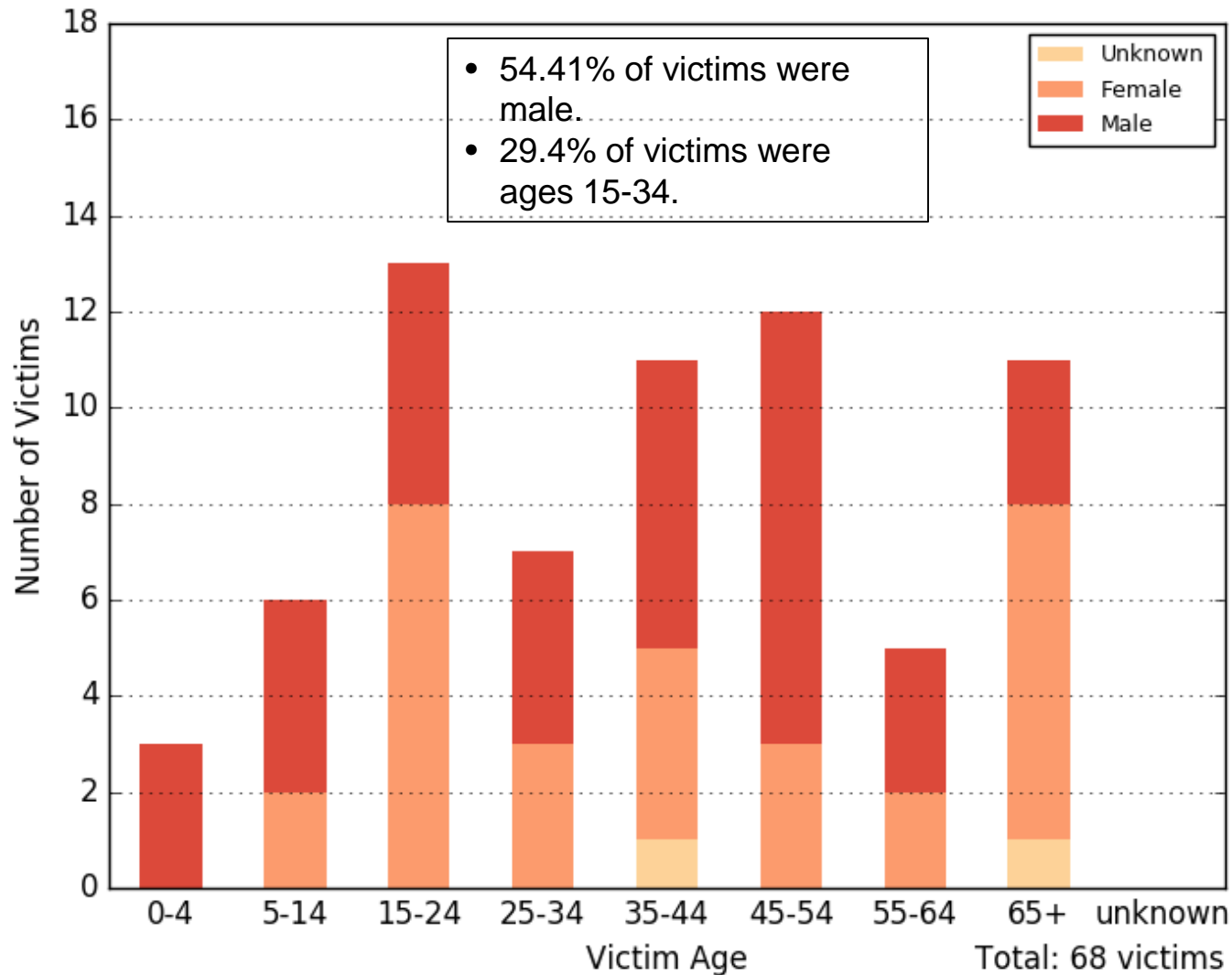


Total: 68 victims



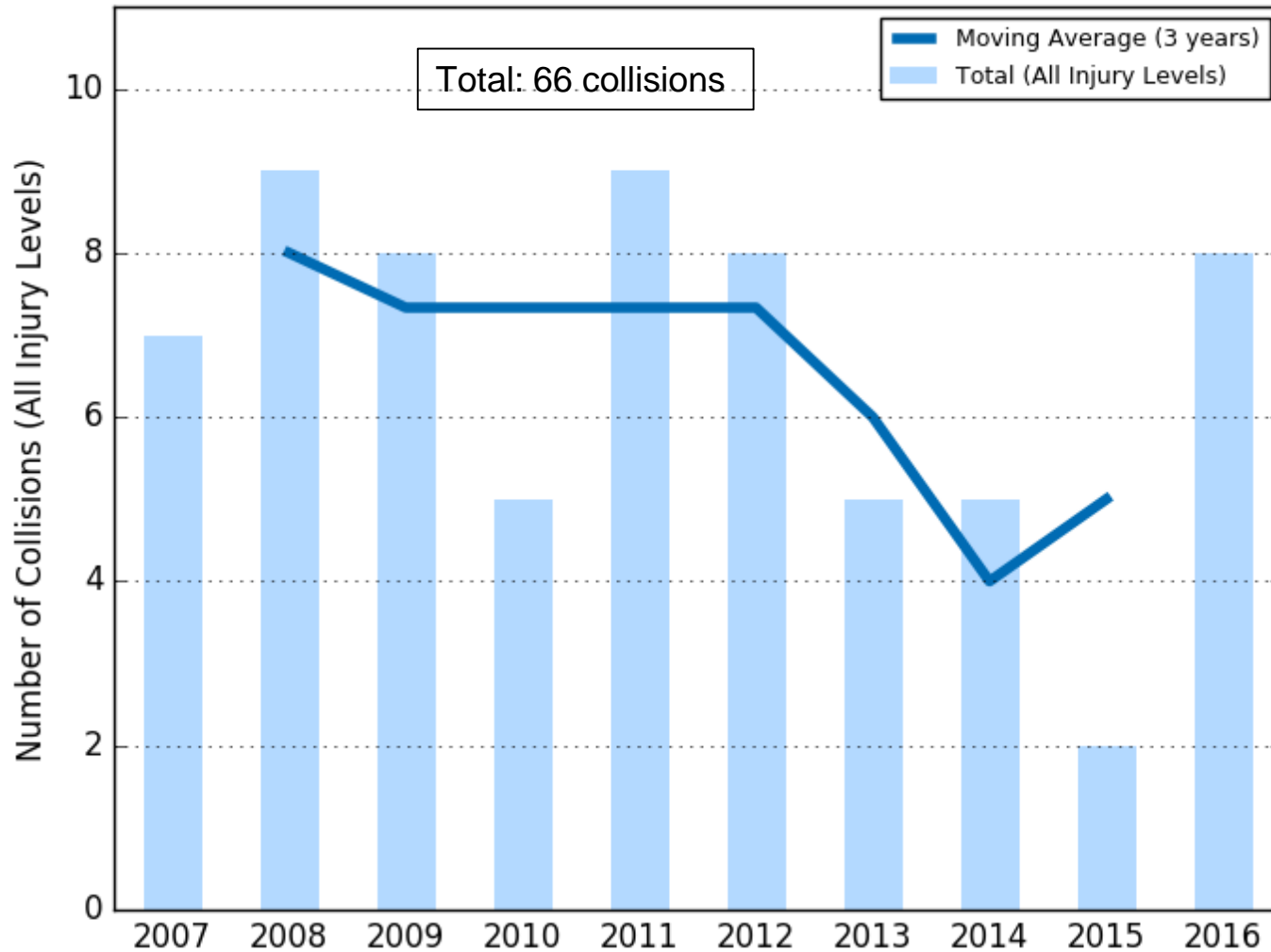
Note: 2015 and 2016 SWITRS data are provisional as of November 2017.

Pedestrian Victim Injury by Age and Gender



Note: 2015 and 2016 SWITRS data are provisional as of November 2017.

Bicycle Injury Collision Trend with 3-year moving average



Note: 2015 and 2016 SWITRS data are provisional as of November 2017.

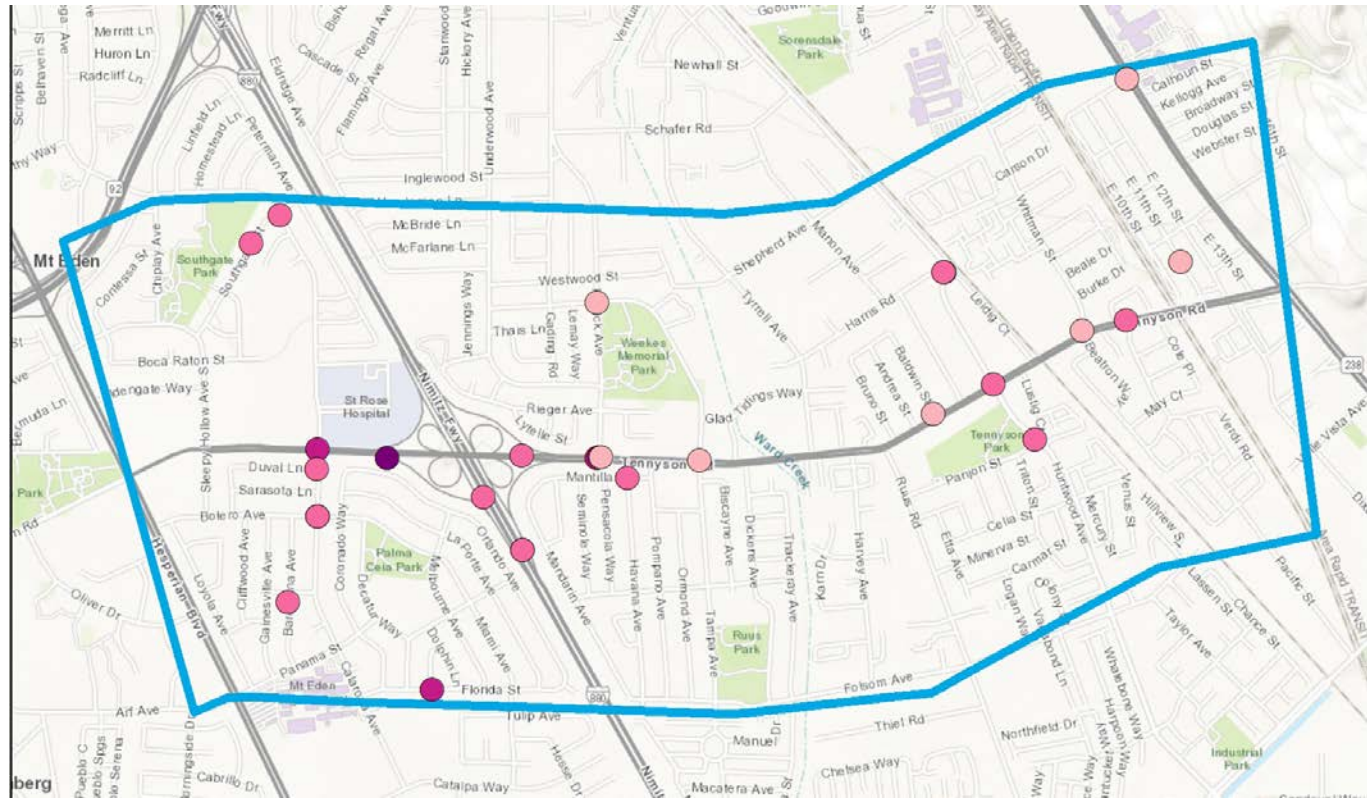
Bicycle Injury Collisions

2012-2016

Total: 28 collisions mapped

Collision Severity (2012-2016)

- Fatal (1)
- Injury (Severe) (4)
- Injury (Other Visible) (13)
- Injury (Complaint of Pain) (10)



Note: 2015 & 2016 SWITRS data is provisional as of November 2017.

Bicycle Collisions and Income 2012-2016

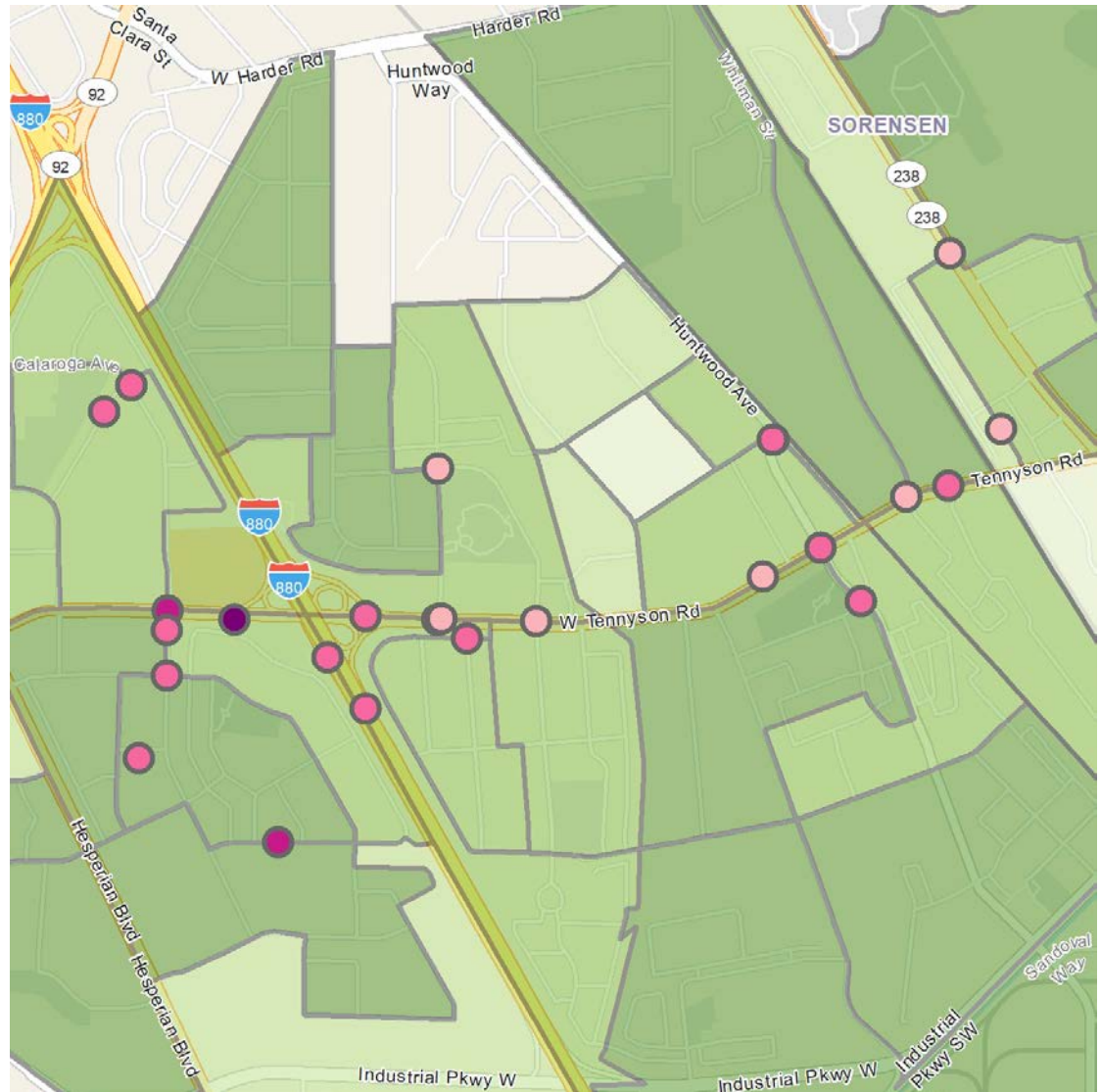
Total: 28 collisions mapped

Collision Severity (2012-2016)

- Fatal (1)
- Injury (Severe) (4)
- Injury (Other Visible) (13)
- Injury (Complaint of Pain) (10)

2017 Median Household Income

- < 35K
- 35K - 50K
- 50K - 75K
- > 75K



Source: SWITRS, 2012-16;
Demographics – ESRI, US
Census Bureau; ACS

Note: 2015 & 2016 SWITRS data is provisional as of November 2017.

Bicycle Injury Collisions by Time of Day and Day of Week

09:00PM-11:59PM	1	0	0	1	0	0	0	2
06:00PM-08:59PM	1	1	1	0	1	0	1	5
03:00PM-05:59PM	2	2	0	1	0	4	0	9
Noon-02:59PM	0	0	0	0	0	0	1	1
09:00AM-11:59AM	1	1	1	1	0	0	1	5
06:00AM-08:59AM	1	0	0	2	1	1	0	5
03:00AM-05:59AM	0	0	0	0	0	0	0	0
Midnight-02:59AM	0	0	0	0	0	0	0	0
	Monday 6	Tuesday 4	Wednesday 2	Thursday 5	Friday 2	Saturday 5	Sunday 3	

Total: 28 collisions

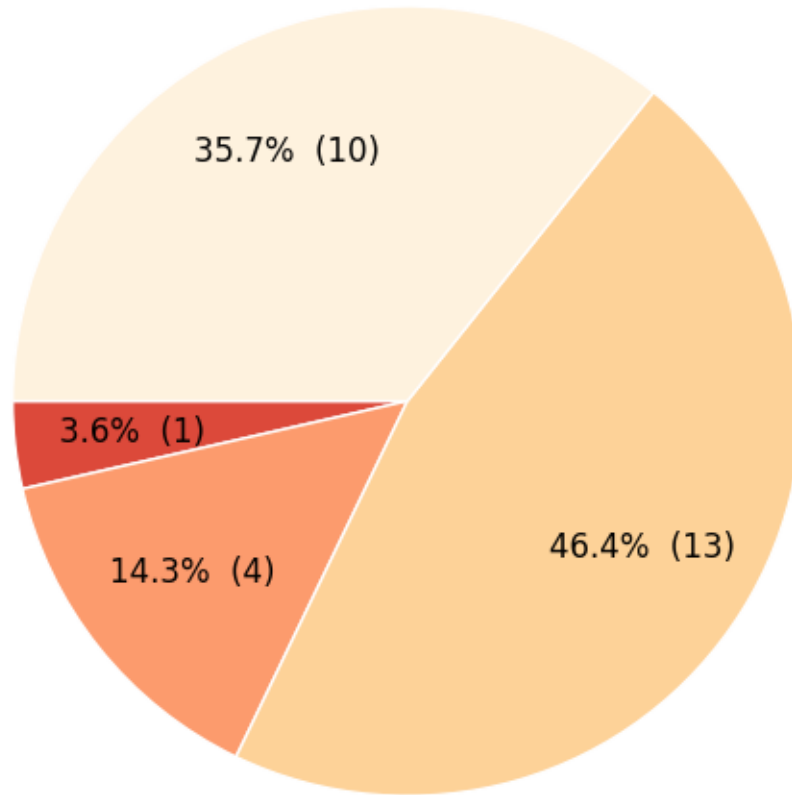
*The color gradient in this graph refers to the collision frequency.

Top Violations in Bicycle Collisions (with # and %)

CVC No.	Description	Freq.	Percent
22450	Driver failure to stop at a limit line or crosswalk at a stop sign	4	16.0%
21453	Red or Stop, vehicles stop at limit line or X-walk. When making right turn at a red light/stop sign driver required to yield to any vehicle approaching so closely as to constitute an immediate hazard	3	12.0%
21804	Driver failure to yield right-of-way when entering/crossing a highway	3	12.0%
22350	Speeding on the highway	3	12.0%
21650	Failure to drive on right half of the roadway (with some exceptions)	2	8.0%
21800	Driver approaching an intersection must yield to driver who has entered the intersection from another highway	2	8.0%
21950	Driver failure to yield right-of-way to pedestrians at a crosswalk	2	8.0%
22107	Unsafe turning with or without signaling	2	8.0%
21451	Circular green signal, shall proceed but shall yield to vehicles and pedestrians lawfully within intersection	1	4.0%
21456	"Walk" pedestrian failure to yield right-of-way to vehicles already in crosswalk	1	4.0%
Total		23	92.0%

Total: 28 collisions

Bicycle Victim Injury Severity

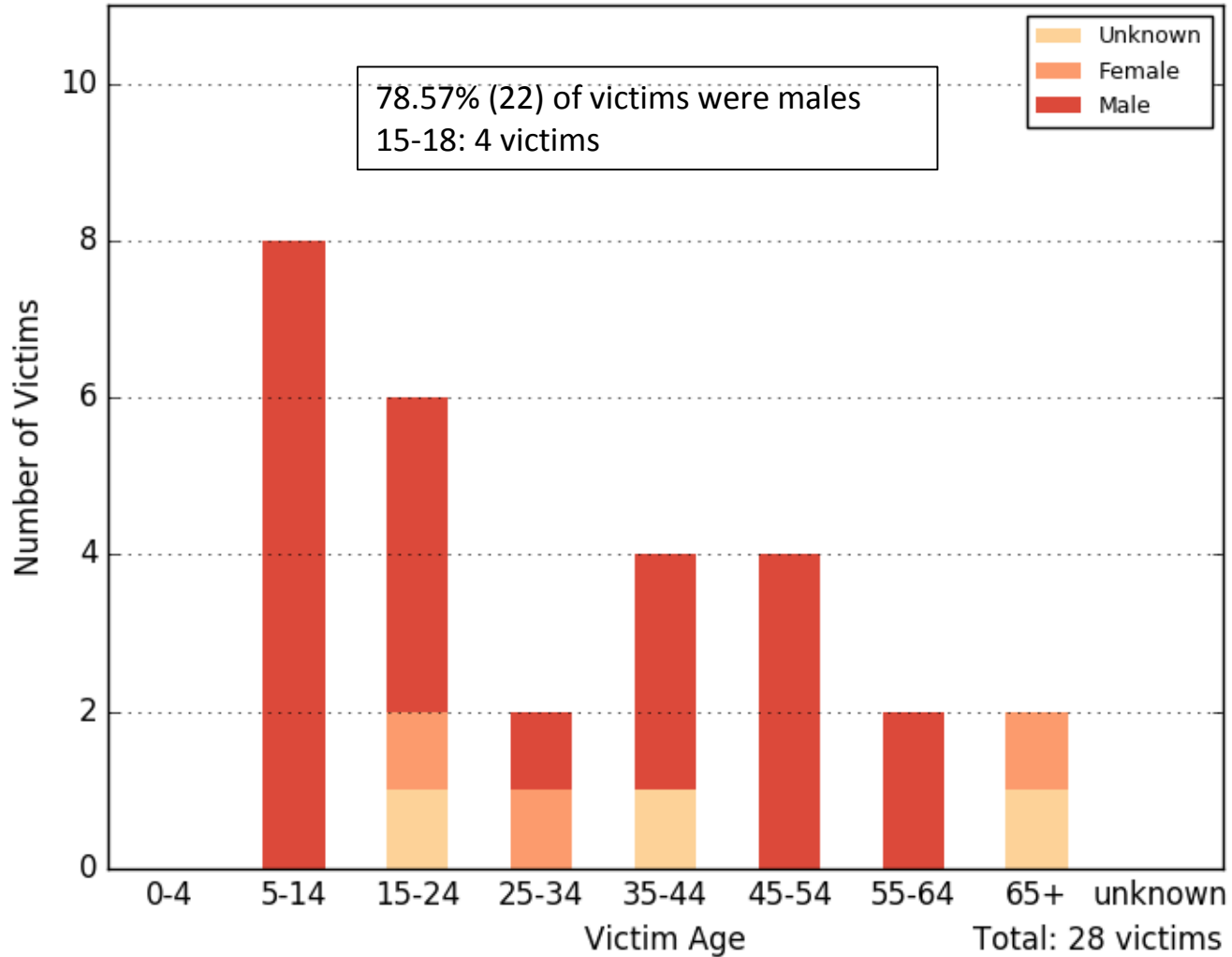


Total: 28 victims



Note: 2015 and 2016 SWITRS data are provisional as of November 2017.

Bicycle Injury Victims by Age and Gender



Note: 2015 and 2016 SWITRS data are provisional as of November 2017.

The Transportation Injury Mapping System (TIMS) is a web-based tool that allows users to analyze and map data from California's Statewide Integrated Traffic Records System (SWITRS).

To further explore collision data, register for a free account to access the tools and resources on TIMS.

<https://tims.berkeley.edu/>

