Recommendations to Improve Pedestrian & Bicycle Safety for the Fremont Elementary School Community in Modesto

October 2018

California Walks
Stepping Up for Health, Equity, & Sustainability

Berkeley SafeTREC
SAFE TRANSPORTATION RESEARCH AND EDUCATION CENTER

OTS
CALIFORNIA OFFICE OF TRAFFIC SAFETY

Acknowledgments

Planning Committee

Veronica Tovar	Catholic Charities Diocese of Stockton
Megan Distaso	City of Modesto, Rideshare
Sandeep Sandhu	City of Modesto, Transportation Engineering & Design
Brad Wall	City of Modesto, Planning Division
Rena Lepard	Doctor's Medical Center of Modesto
Justin Woodbridge	Fremont Elementary School, Modesto City Schools
Elizabeth Hahn	Stanislaus Council of Governments
Kyle Fliflet	Stanislaus County Health Services Agency
Robert Moser	Stanislaus County Health Services Agency

We would like to thank the Planning Committee for inviting us into their community and for hosting the Community Pedestrian and Bicycle Safety Training in the Fremont Elementary School community of Modesto.

Thank you to Fremont Elementary School and Principal Woodbridge for providing breakfast, interpretation, the venue, and support from staff for 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.

Table of Contents

Recommendations to Improve Pedestrian & Bicycle Safety for the Fremont Elementary School Community

By Esther Rivera, Tony Dang, Mihaela Tomuta, California Walks;
Jill Cooper, Garrett Fortin, UC Berkeley Safe Transportation Research & Education Center

Introduction

At the invitation of Fremont Elementary School, California Walks (Cal Walks), the University of California at Berkeley Safe Transportation Research and Education Center (SafeTREC), and the Planning Committee collaboratively planned and facilitated a Community Pedestrian and Bicycle Safety Training (CPBST) in Modesto on August 28, 2018. The CPBST is a community-driven pedestrian and bicycle safety action-planning workshop aimed to improve walkability, and bikeability across California.

Fremont Elementary School requested a workshop to 1) develop consensus regarding pedestrian and bicycle safety priority and actionable next steps; 2) identify safety challenges and potential solutions for children walking and biking to and from Fremont Elementary School; 3) provide the City of Modesto, community organizations, and residents with a toolkit for promoting pedestrian and bicycle safety to inform future active transportation projects; and 4) strengthen working relationships between various agencies and organizations and other stakeholders to ensure the best outcomes for the residents of the Fremont Elementary School community in Modesto.

Fremont Elementary School Principal Woodbridge welcoming participants to the workshop.

Cal Walks and SafeTREC (the Project Team) facilitated the workshop from 8:30 a.m. to 12:00 p.m. on August 28, 2018. Breakfast and simultaneous English-to-Spanish and English-to-Farsi interpretation were provided to maximize community participation. Thirty-one (31) individuals attended the workshop, including representatives from the Stanislaus Council of Governments (StanCOG), Stanislaus County Health Services Agency, the City of Modesto, Modesto City Schools, Fremont Elementary School, California Highway Patrol, Catholic Charities Diocese of Stockton Environmental Justice Program, Family Support Network, Fremont Open Plan, Sutter Health, Safe Kids Stanislaus County, Doctor's Medical Center, and Fremont Elementary School parents.

The three and a half (3.5) hour training consisted of: 1) three walking assessments along three key routes; 2) 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; 3) small group action-planning discussions to prioritize recommendations for the Fremont Elementary School community in Modesto's active transportation efforts. This report summarizes the workshop proceedings, as well as recommendations for projects, policies, and programs for pedestrian and bicycle safety in the Fremont Elementary School community in Modesto.

Background

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. The Project Team conducts 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 Modesto-Fremont Elementary School community CPBST planning process was initiated in April 2018. The planning process consisted of:

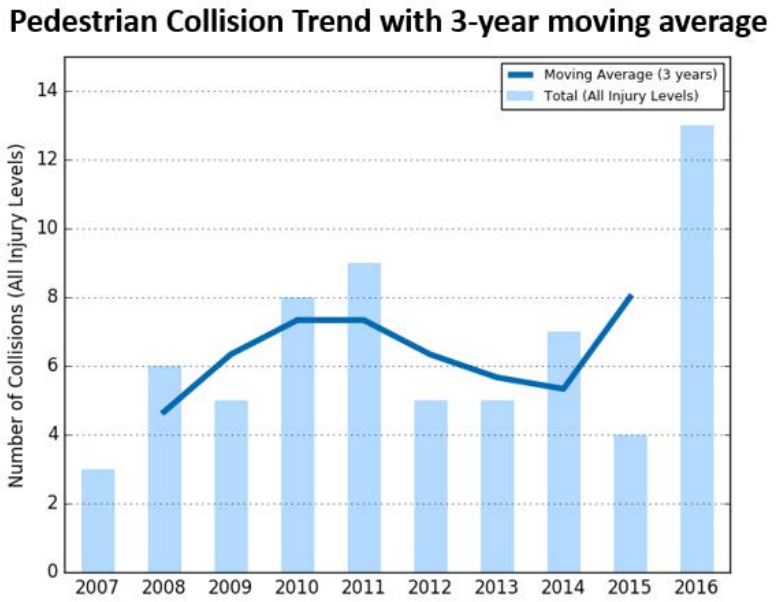
- **Community Plans and Policies Review:** Cal Walks conducted a review of current community planning documents to inform the training with local context and prepare to build off existing efforts. The following documents were reviewed prior to the site visit:
    - Modesto Non-Motorized Transportation Master Plan, 2006
    - City of Modesto General Plan Chapter V: Community Services and Facilities, 2008
    - Stanislaus Council of Governments (StanCOG) Non-Motorized Transportation Master Plan, 2013

- **Analysis and Mapping of Pedestrian and Bicycle Injury Data:** SafeTREC used the Statewide Integrated Traffic Records System (SWITRS) and the Transportation Injury Mapping System (tims.berkeley.edu) to analyze pedestrian and bicycle collision injury data within a 1-mile radius of the Fremont Elementary community, as well as Census data to create rates based on population. Patterns of injury collisions, victim characteristics, and demographics were analyzed and presented at the site visit and during the workshop.
- **Identification of Priority Discussion Topics for Training:** The Fremont Elementary School principal contacted the Project Team due to concerns over the location of the school site at a busy intersection, numerous arrival zones, and the number of collisions near the school site in the past year. The Planning Committee identified a one-mile buffer around Fremont Elementary School to focus on as the community for the Modesto CPBST and developed the following goals for the training:
    - To determine how to improve safety for children walking and biking to and from school; and
    - Identify potential solutions for arrival and dismissal patterns and procedures at Fremont Elementary School.
- **Site Visit:** The Project Team facilitated an in-person site visit on May 21, 2018 with the Planning Committee at Fremont Elementary School to 1) review existing pedestrian and bicycle collision data for the Fremont Elementary School community; 2) collect qualitative data based on in-person observations of existing conditions and travel behaviors and; 3) conduct preliminary walking assessments of the focal neighborhood. 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 Risk Management Director for Modesto City Schools, City of Modesto Parks and Recreation, and Parents from the PTA and Parent Coffee Hours as key stakeholders to invite to the CPBST.

Existing Conditions

Pedestrian & Bicycle Collision History[1]

Between 2012-2016, there were thirty-four (34) pedestrian collisions, including one (1) fatality and seven (7) severe injuries within a one-mile drive from Fremont Elementary School. Collisions in this time period were concentrated on Orangeburg Avenue, Carver Road, and Tully Road. Collisions primarily occurred during high-traffic times in the morning, between 6:00 a.m. and 8:59 a.m., and evening, between 6:00 p.m. and 8:59 p.m. The top two primary collision factors for pedestrian collisions were driver failure to yield the right-of-way to pedestrians at a crosswalk (44.1%) and pedestrian failing to yield the right-of-way to vehicles (29.4%).[2] While pedestrian collisions have generally been on a downward trajectory, 2016 experienced a marked increase in pedestrian collisions.

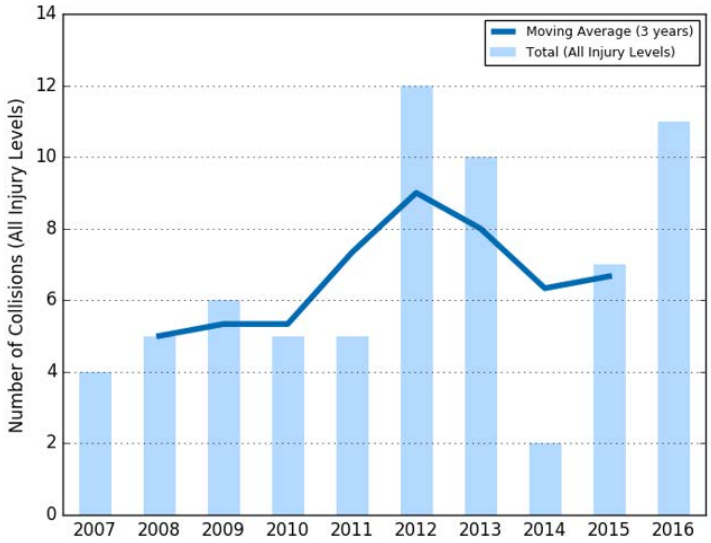


[1] 2016 SWITRS data are provisional as of March 2018.

[2] 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-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.

Between 2012-2016, there were forty-two (42) bicycle collisions, including four (4) severe injuries within a one-mile drive from Fremont Elementary School. Collisions in this time period were concentrated on Orangeburg Avenue between Tully Road and McHenry Avenue and on Tully Road between Mt. Vernon Drive and Yale Avenue. Collisions primarily occurred during high-traffic times in the afternoon, between 3:00 p.m. and 5:59 p.m. The top two primary collision factors for bicycle collisions were driver failure to yield the right-of-way when entering/crossing a highway (14.3%) and unsafe turning with or without signaling (14.3%).[3] While bicycle collisions have generally been on a downward trend since 2012, 2016 experienced a marked increase in bicycle collisions.

Bicycle Collision Trend with 3-year moving average



A full discussion of the pedestrian and bicyclist collision data prepared by UC Berkeley SafeTREC can be found in Appendix A and B.

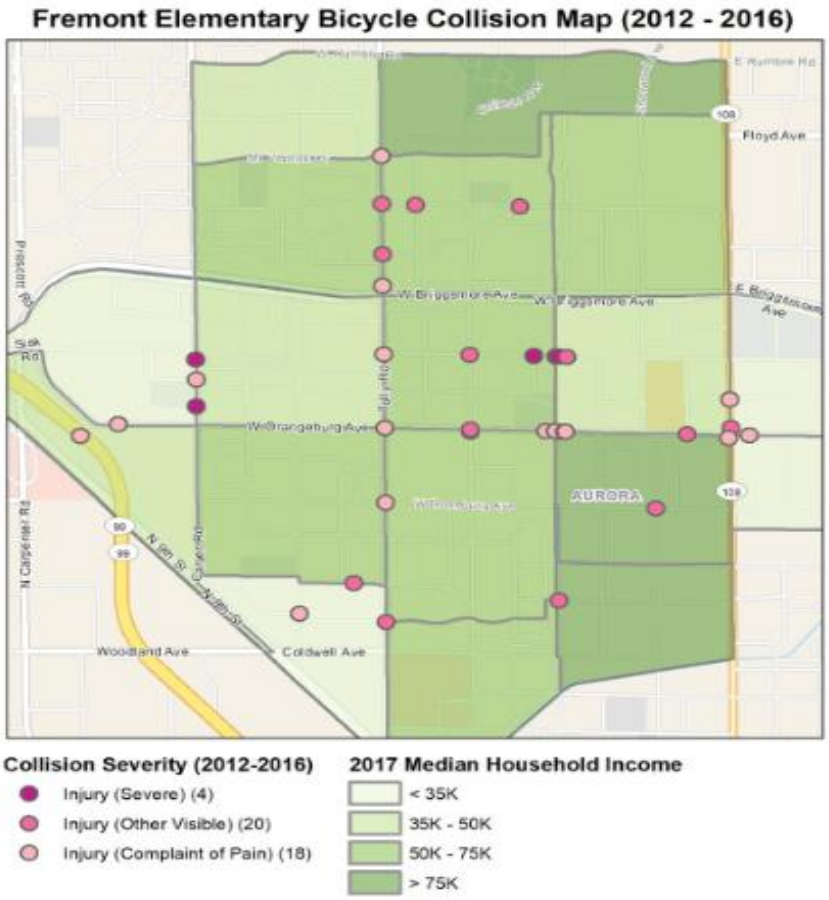
Equity Concerns

Nationwide, pedestrian fatality rates in lower-income communities are generally higher–sometimes more than more than twice as high[4]–when compared to higher income communities. State funding programs generally define Census tracts at or below 80% of the statewide median household income ($51,026) as disadvantaged communities. Pedestrian

[3] According to California Vehicle Code 21200, bicycles are considered vehicles, therefore, bicyclists on public streets have the same rights and responsibilities as automobile drivers. This makes it difficult to discern whether a bicyclist or driver is at fault.

[4] Pedestrian Deaths in Poorer Neighborhoods Report," Governing, August 2014. Available at http://www.governing.com/gov-data/pedestrian-deaths-poor-neighborhoods-report.html

collisions in the community around Fremont Elementary School show pedestrian collisions and collision severity disproportionately concentrated and occurring more frequently along corridors and in neighborhoods with lower median household incomes, mirroring nationwide trends. While workshop participants recognized vast improvements in the bicycle and pedestrian network along College Avenue, many reported still feeling unsafe along high speed roads like Tully Road and Orangeburg Avenue, which were assessed during the workshop. The Planning Committee and workshop participants shared that there are high concentrations of people experiencing homelessness and substance use disorders in Roosevelt Park and the Virginia Corridor Trail. There may be additional collisions that are unreported by community members experiencing homelessness due to a fear of reporting and interacting with law enforcement. Additionally, the existing collisions highlighted on the map along the trail, in high income Census tracts, may involve people experiencing homelessness who are using the trail as shelter or to connect to other parts of the City. The trail intersections at Granger Avenue and Orangeburg Avenue were noted as areas of concern in data presented at the CPBST site visit due to their close proximity to Fremont Elementary School.



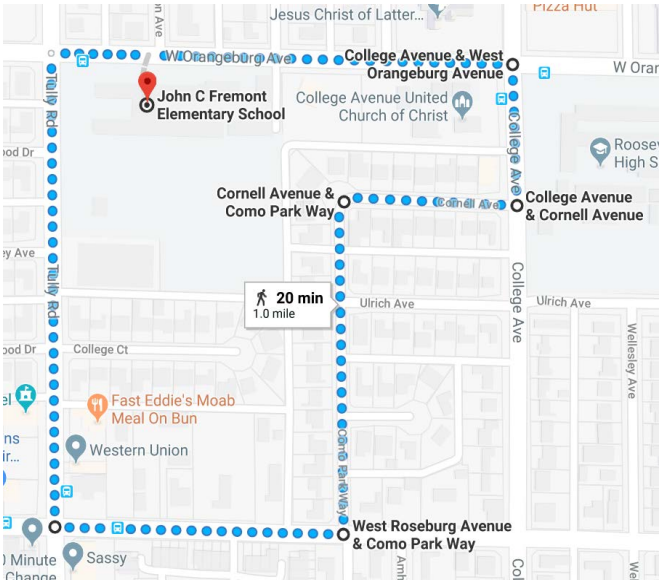
Walking & Biking Assessment Reflections

Participants were asked to 1) observe infrastructure conditions and the behavior of all road users; 2) assess the qualitative and 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.

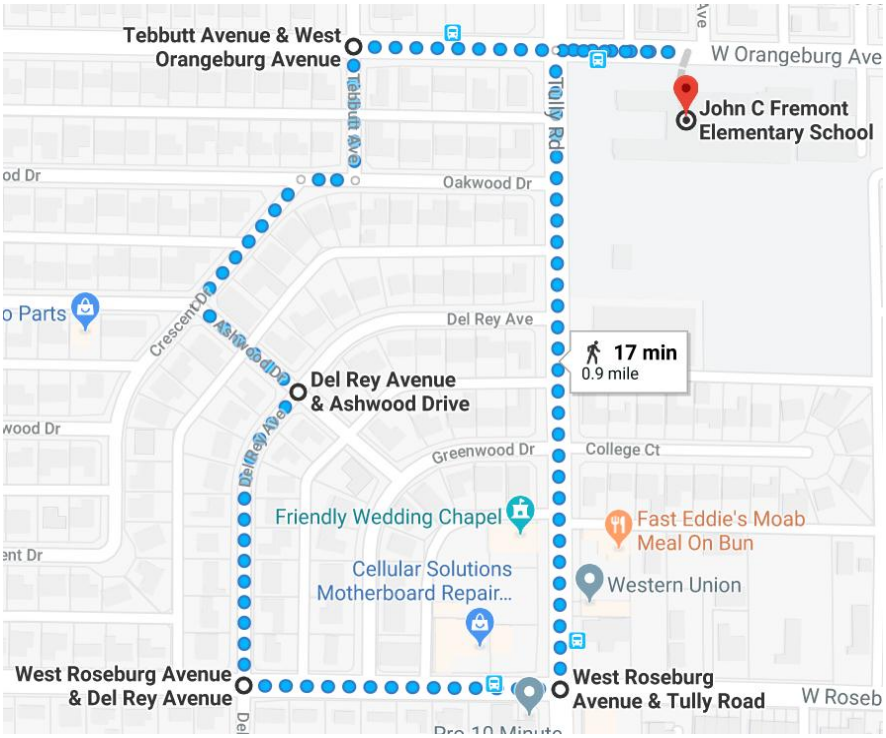
Workshop participants conducted walking and biking assessments along three key routes:

Route 1: East Orangeburg Avenue

The first walking route focused on East Orangeburg Avenue and the residential area located southeast of Fremont Elementary School, a route which students use to access the school site. This route was also chosen to help inform challenges and opportunities for children walking from the southeast neighborhood due to the informal arrival/dismissal zone located in the alleyway behind Como Park Way. During school arrival times, the residential neighborhood streets are congested with parents accessing the alley to drop children off for school. Parents from this community also use the alley to walk children to the school gate where school staff is present. Starting the walking assessment at the school, the participants walked east on West Orangeburg Avenue, south on College Avenue , west on Cornell Avenue , south on Como Park Way, west on Roseburg, and north on Tully Road ending at Fremont Elementary School.



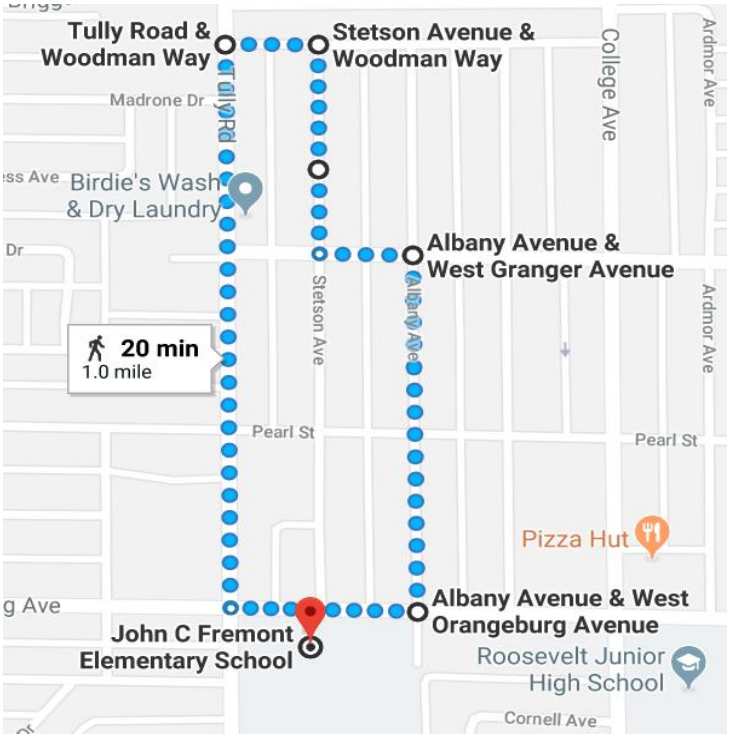
Route 2: South Tully Road

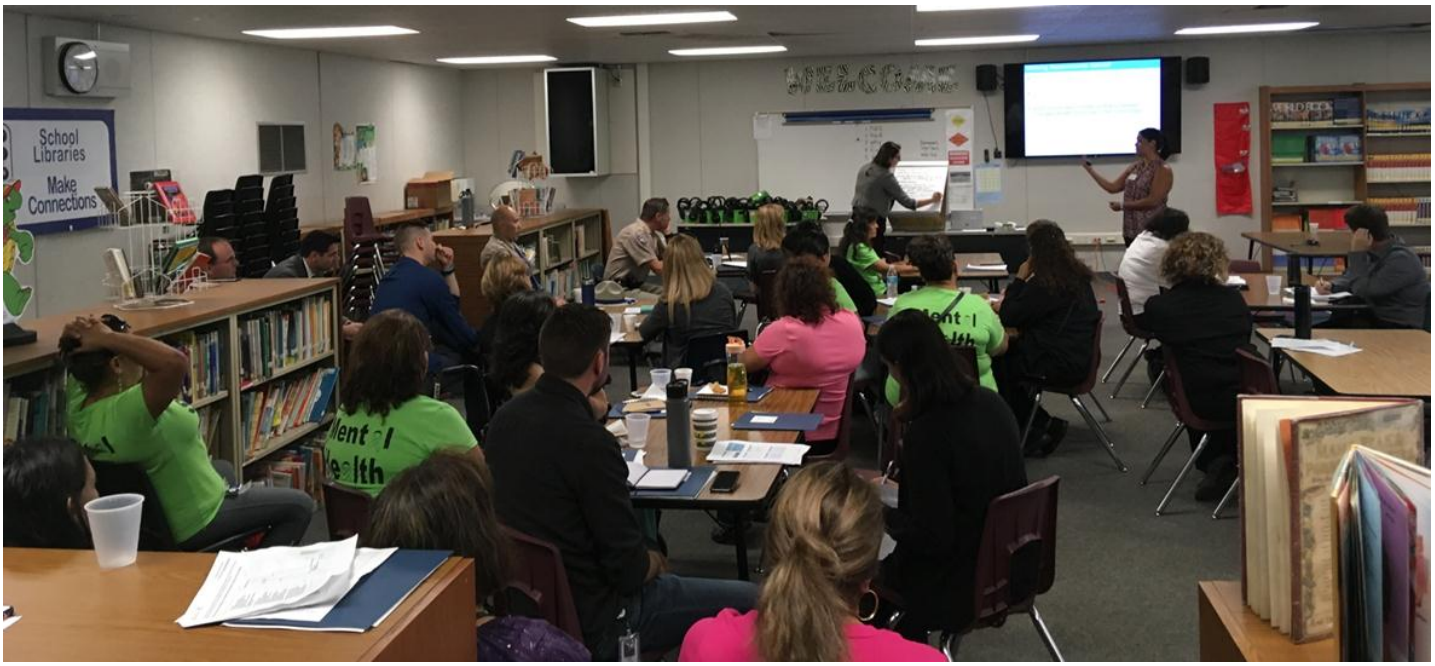


The second walking route focused on residential areas west of Tully Road and south of Orangeburg Avenue which students use to access Fremont Elementary School. Starting the walk at Fremont Elementary School, the group of observers walked south on the east side of Tully Road, west on Roseburg Avenue, north on Del Rey Avenue, north west on Ashwood Drive, north east on Crescent Drive, north on Tebbutt Avenue, and East on Orangeburg Avenue ending at Fremont Elementary School.

Route 3: North Tully Road

The third walking route focused on North Tully and the residential neighborhood located North of Fremont Elementary which students use to access Fremont Elementary School. This route was chosen due to reports from parents and school administration of children walking and biking from the neighborhood and children crossing at an unmarked crossing located directly in front of the school. Starting the walking assessment at Fremont Elementary School, participants walked north on Tully Road, east on Woodman Way, south on Stetson Avenue, east on Granger Avenue, south on Albany Avenue, and west on Orangeburg Avenue.





Participants debriefing walking and biking assessments and sharing observations of the walks.

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

High Speed Vehicles, Wide Roads, and Unsafe Driver Behavior: Along several of the principal roads in the community–Orangeburg Avenue and Tully Road–the posted speed limits are 45 miles per hour (mph) and 35 mph, respectively. Participants and the Project Team observed that drivers were traveling at much higher speeds during the assessment despite the school zone speed limit of 25 mph. Both Orangeburg Avenue and Tully Road are wide roads measuring about 65 feet and 63 feet respectively, with two travel lanes in each direction, a left turn lane, bike lanes, parallel parking in various locations along both sides of the street, sidewalks, and a mix of unmarked and marked crosswalks. Motorist traffic on Tully Road and Orangeburg Avenue was dense and loud during morning student arrival hours. In addition to drivers exceeding the posted school zone speed limit on Tully Road and Orangeburg Avenue, participants noted that there was not enough physical separation between pedestrians or bicyclists and drivers to feel safe given the high travel speeds. This was particularly evident on Route 2 when participants walked along Tully Road south of College Court where an overgrown shrub narrowed sidewalks by almost 12 inches. Drivers, thus, often passing extremely close to pedestrians at high speeds, and participants felt that many of the drivers were passing through their community without regard for the safety of the people who lived there. Research has demonstrated that wide streets and wide travel lanes are associated with higher vehicle speeds,[5] which affect the safety of people walking and bicycling.

[5] See Kay Fitzpatrick, Paul Carlson, Marcus Brewer, and Mark Wooldridge, "Design Factors That Affect Driver Speed on Suburban Arterials": Transportation Research Record 1751 (2000):18–25.

Participants observe a faded crosswalk and an abrupt end to a sidewalk on the Northeast corner of Roseburg Avenue/Del Rey Avenue.

Upheaved and patched sidewalks along Tully Road/ Granger Avenue

Sidewalk Gaps and Poorly Maintained Roads: Participants noted that sidewalks conditions varied throughout the community. The majority of arterial streets had sidewalks of various widths and conditions. Residential neighborhoods contained numerous gaps in sidewalk infrastructure, creating safety barriers for children walking to and from school, as they must walk on the street when there are no sidewalks. Lack of sidewalks in residential areas become more of a safety hazard given that there are cars parked on the side of these roads, further narrowing the street and requiring pedestrians and cyclists onto a narrowed roadway with motor vehicles. This narrowing of the roadway, does not easily accommodate two-way traffic and places pedestrians and cyclists in extremely close proximity to vehicles. Participants on Route 2 observed missing sidewalks along Del Rey Avenue and noted that landscaping and parked

cars would force pedestrians to walk in the street with drivers. Some sidewalks were extremely deteriorated due to cracks, uplifted tree roots, extended tree wells, and general wear and tear. Sidewalks and driveways on the Northwest Corner of Tully Road and Roseburg Avenue had severe cracks and holes creating tripping hazards for community residents trying to access the convenience store on the Northwest corner. While these may only be minor inconveniences for most people, poorly maintained sidewalks and obstructions are very difficult to navigate for a person using a wheelchair or an assistive mobility device.

Students and parents walking in close proximity to vehicles in the informal alley school arrival/dismissal zone at Fremont Elementary School.

Increased Conflict Zones in Residential Areas

Participants on Route 2 shared that residential areas along their route had many alleyways, creating a potential for increased conflict zones for pedestrians and cyclists with drivers. Many of the alleyways observed in residential areas had overgrown shrubs or shrubbery that obstructed ability of drivers to see pedestrians and cyclists, such as children walking to and from school. Participants on Route 1 observed the alleyway access to Fremont Elementary School, located behind homes on Como Park Way. The Project Team provided video observations taken a week before the workshop. Through the video footage, participants observed children and parents walking in close proximity to vehicles that lined the entire stretch of the alleyway. Additionally, children can be seen exiting vehicles at various points in the alley and running along stopped vehicles. Participants expressed concerns with the alleyways in other residential areas that are similarly used as walking routes to school and suggested engaging parent groups and residential areas to collect more information on how these alleyways are being used by students to access Fremont Elementary School.

Inadequate Marked Pedestrian Crossings and Unmarked Crossings

Constricted sidewalks due to overgrown trees along Albany Avenue.

Participants on Route 3 shared that drivers often fail to yield to pedestrians in marked and unmarked crosswalks along Tully Road and Orangeburg Avenue and routinely stop in the pedestrian crosswalk when stopping at a stop sign or making a turn. Marked crosswalks near Fremont Elementary are standard transverse markings, making them difficult to see by drivers traveling at high speeds, especially 1) during dawn and dusk hours when visibility is limited, and 2) when they are faded or worn away. Curb ramp designs and conditions varied throughout the community, with intersections having older apex-style curb ramps–which direct pedestrians into the intersection rather than directly into the marked or unmarked crosswalks–or newer Americans with Disabilities Act (ADA) compliant ramps. Participants noted that curb ramp issues create barriers for parents with strollers and people using wheelchairs and other assistive mobility devices.

Faded marked crosswalks along Tully Road traveling towards Granger Avenue and older style apex curb ramps.

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 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 the Fremont Elementary School community in Modesto.

Through a voting process during the training, participants chose to focus on and outline plans for crossing enhancements, a pilot Walking School Bus program, and a VideoVoice media project. For the development of preliminary plans during the workshop, participants self-selected which project they wanted to collaborate on with their 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

Infrastructure Improvements

Crossing Enhancements at the Front Entrance of Fremont Elementary: Workshop participants identified enhanced crossings at the front entrance of the school on Orangeburg as a priority to increase the safety of children walking to school. During the action planning activity, community residents strategized how to involve parents in the planning and implementation and how to coordinate with the school and city to ensure the improvements are completed. The group's preliminary plans were as follows:

Target Completion Date	Activity
March 2019	Identify priority crosswalk(s) for repainting and enhancements by engaging parents, school site administration and other key stakeholders like Safe Kids Stanislaus County and the Stanislaus County Health Services Agency. City of Modesto Public Works staff shared they would need at least 8 weeks to implement repainting after examining cost and available funds. The staff person recommended reporting issues to the City of Modesto and community engagement to elevate the needs of Fremont Elementary School students and parents.
June 2019	Encourage community residents and parents to use the GoModesto! App and place calls to the City of Modesto Public Works Department to report issues with identified crosswalks near Fremont Elementary School.
August 2019	Based on recommendations by the City of Modesto Public Works to complete painting during Summer breaks, the group decided to set August 2019 as the target to complete the crossing enhancements.

Community Programs, Policies, and Campaigns

- **Walking School Bus Program:** Participants in this group were interested in developing a pilot walking school bus program at Fremont Elementary School, with an initial program focused on Mondays and Fridays on a weekly basis. The group also showed interest in conducting an assessment to gauge parent and student interest in a Walking School Bus program. The group set out the following preliminary steps and timeline:

Target Completion Date	Activity
September 2018	Assembly a group to lead and guide the program. The group should include: Safe Kids Stanislaus County, Fremont Elementary School Staff, Stanislaus County Health and Human Services Agency, Modesto Police Department, parents of Fremont Elementary students, and Champions from other school sites. Gauge parent interest in a Walking School Bus program through open house, newsletters, monthly parent meetings and classroom engagement to ensure sustainability and implementation of a program. Gauge the number of students walking to school using classroom tallies to determine the need and scope of the program.
December 2018	Prepare a list of supplies, resources, and budget needs to support the program. This should include: volunteer training in traffic safety, Cardiopulmonary Resuscitation (CPR) certification, safety vests, stop signs, and student participation incentives. Coordinate with the Project Team to identify Walking School Bus routes and stops. Complete planning for the launch event. Planning should include: incentives (such as Fremont Bucks for students and stipends for parent volunteers), the school mascot, and education for students and parents.
Early January 2019	Host a volunteer training including traffic safety and CPR to prepare volunteers for the launch date. Conduct outreach and promote the program to parents and students of Fremont Elementary School.
Mid-January 2019	Implement the Walking School Bus program in the third week of January with the launch event at the school site.

- **VideoVoice Walking and Biking Safety Education Campaign:** Workshop participants expressed interest in the development of a VideoVoice safety campaign for Fremont Elementary School. VideoVoice is a method for students to share messages through video. Participants felt that rather than focus on correcting unsafe walking and biking behaviors one student at a time, VideoVoice would allow the school to have a series of walking and biking safety videos to share with each classroom. Participants wanted to focus on the most common unsafe behaviors walking and biking behaviors, including 1) distracted walking; 2) distracted crossing; and 3) not wearing a helmet. Participants suggested Roosevelt High School students in media or videography courses could collaborate with Fremont students to design and film several safety videos.

Cal Walks/SafeTREC Recommendations

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

- **Fremont Elementary School SRTS Plan:** The Project Team **recommends the development of a Safe Routes to School (SRTS) Plan specific to Fremont Elementary School community** to address the main infrastructure barriers and student behaviors to safe walking and biking. A SRTS Plan would help identify and prioritize projects and identify potential funding sources for implementation. The Project Team **recommends the Planning Committee apply for the Safe Routes to School Launch Program**, a joint project of the Safe Routes to School National Partnership and UC Berkeley SafeTREC. The program is designed to start and strengthen Safe Routes to School programs in California.
- **Establish Traffic Safety Action Team at Fremont Elementary School:** Many of the preliminary action plans developed during the workshop will require an ongoing body to oversee successful implementation of these community priorities. Two recurring themes in conversations throughout the day were the need to increase engagement with parents and address the arrival issue in the alleyway. The Project Team **encourages Fremont Elementary School to establish a Traffic Safety Action Team** that would be a time-limited body to help track the implementation of the ideas developed during this workshop. The Action Team could simply be a subset of the two PTAs or other parent groups who are most interested in improving traffic safety for students. Moreover, with a regularly meeting schedule and focused purpose, the Action Team meetings could also be the perfect venue for the Stanislaus County Health Services Agency and Safe Kids Stanislaus County to engage and support the efforts to encourage safe routes to school. Lastly, since the format of the Action Team would be time-limited, there is a reduced

likelihood of burnout and fatigue, since the group is focused on implementing the preliminary action plans.

- **Implement Speed Calming Measures and Other Safety Improvements along Tully Road and Orangeburg Avenue:** Both Tully Road and Orangeburg Avenue function as local roads with 12-foot vehicle travel lanes. Research has demonstrated that wide streets and wide travel lanes are associated with higher vehicle speeds,[6] which affect the safety of people walking and bicycling. The Project Team ***recommends that the City of Modesto consider speed calming and pedestrian and bicycle safety measures along Tully Road and Orangeburg Avenue, such as reducing vehicle lane widths, installing Leading Pedestrian Intervals (LPI) at high traffic intersections, and vehicle right-turn only lanes.***

[6] See Kay Fitzpatrick, Paul Carlson, Marcus Brewer, and Mark Wooldridge, "Design Factors That Affect Driver Speed on Suburban Arterials": Transportation Research Record 1751 (2000):18–25.

Appendix A

Pedestrian and Bicycle Collision Data Analysis
Workshop Handout

2012-2016 FREMONT ELEMENTARY SCHOOL DATA ANALYSES

Community Pedestrian and Bicycle Safety Training Workshop
Modesto, CA | August 28, 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 2012-2016 pedestrian and bicycle collision data within a one-mile walking radius of Fremont Elementary School in Modesto, CA to help your community better prioritize recommendations that emerge from this workshop.

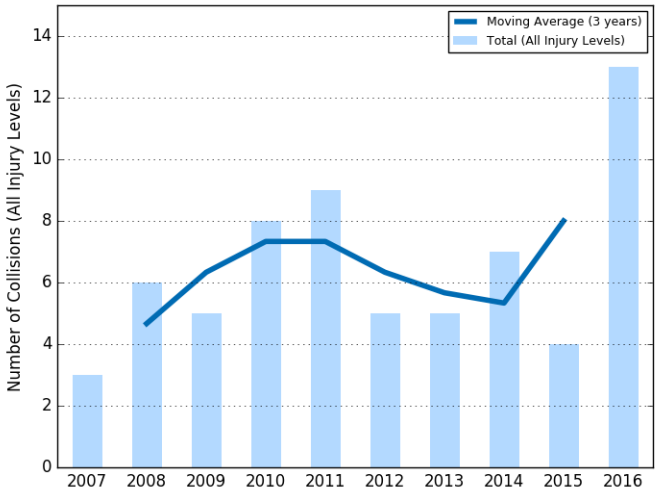
PEDESTRIANS

71 people were killed or injured in **65** pedestrian collisions in the last 10 years (2007-2016).

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

There were **4** pedestrian collisions in 2015, but an average of **8** pedestrian collisions per year for the 3-year rolling average between 2014 and 2016.

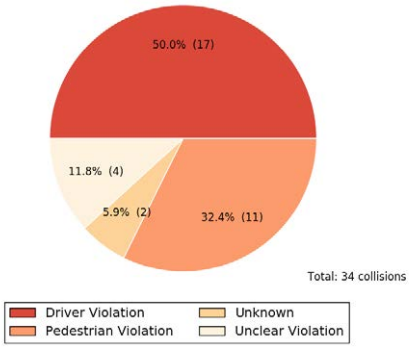
*This line is useful for tracking change over time, especially when the number of collisions changes a lot between years. Data points are at the midpoint of the three years of data specified.



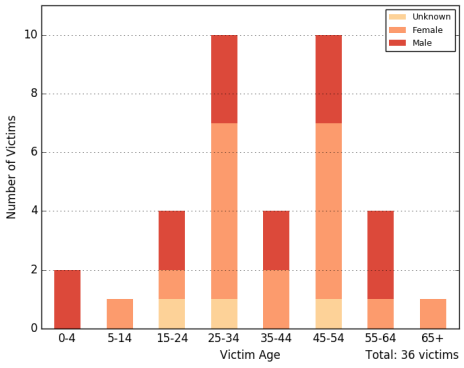
50.0% driver violations

VS.

32.4% pedestrian violations

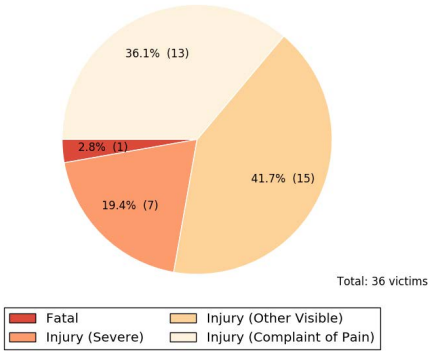


*Unclear violations were committed either by the driver, pedestrian or bicyclist.



50.0% of victims were female

Age groups **25-34** and **45-54** had the highest number of victims (10 people)



22.2%

of victims (or 8 people) were KILLED or SEVERELY INJURED

Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2015 and 2016 are provisional at this time.

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

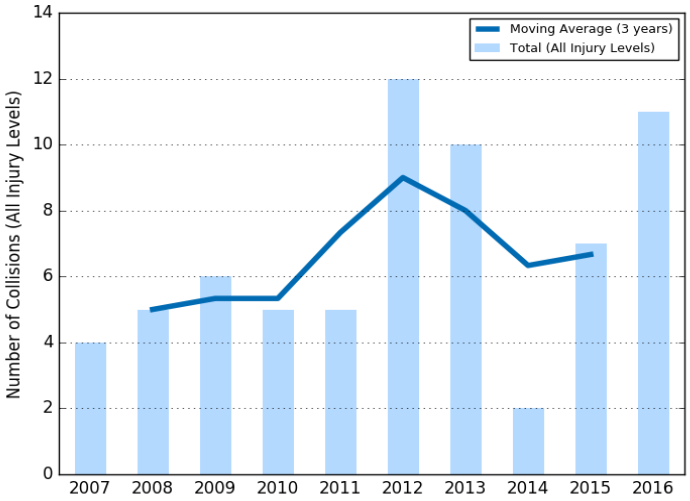
BICYCLES

68 people were killed or injured in **67** bicycle collisions in the last 10 years (2007-2016).

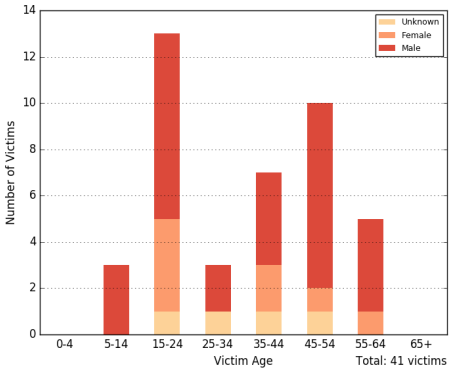
The **three-year moving average** line shows a **upward** trend in bicycle collisions.*

There were **7** bicycle collisions in 2015, but an average of 6.7 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.

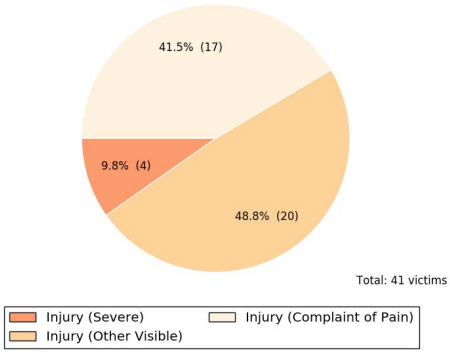


Bicycles **must follow all the same rules of the road as vehicles.** As a result, we can**not** break down violations by driver vs. bicyclist.



70.7% of victims were male

26.8% of victims were under age 20



9.8%
of victims (or 4 people)
were SEVERELY INJURED

SUMMARY

43.7 pedestrian fatalities & injuries per 100,000 population over the last five years in the City of Modesto, which is **38.3% more than** Stanislaus County and **21.7% more than** California

43.5 bicyclist fatalities & injuries per 100,000 population over the last five years in the City of Modesto, which is **40.3% more than** Stanislaus County and **30.6% more than** California

	Yearly Population Rate of Fatalities & Injuries per 100,000 Population Calculated Over a 5-year Period*	
	Pedestrian	Bicyclist
Modesto	43.7	43.5
Stanislaus County	31.6	31.0
California	35.9	33.3

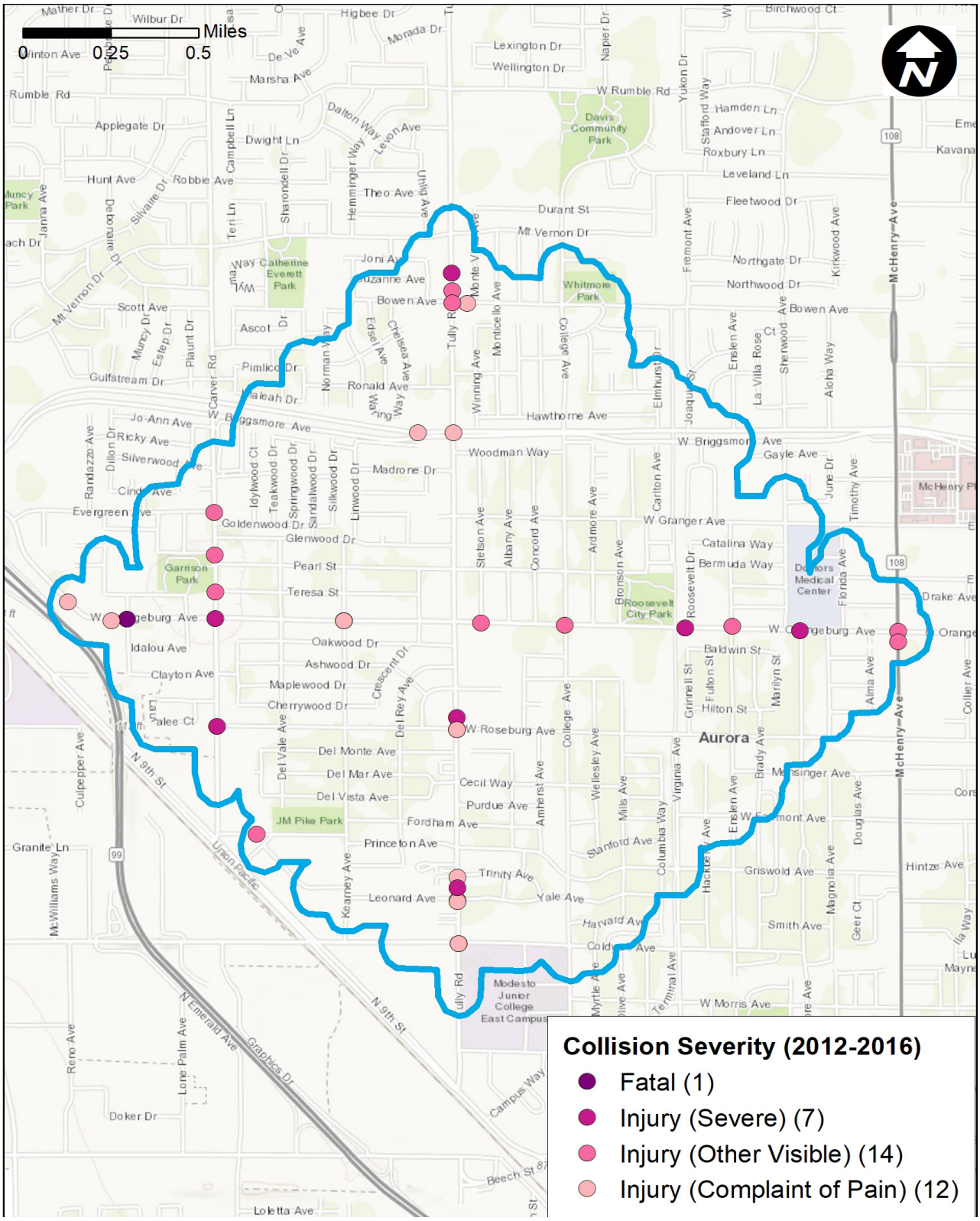
Source: U.S. Census Bureau, Population Division (intercensal population data for 2016).

* 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.

Berkeley SafeTREC
OTS California Office of Traffic Safety
California Walks

Pedestrian Collisions 2012-2016

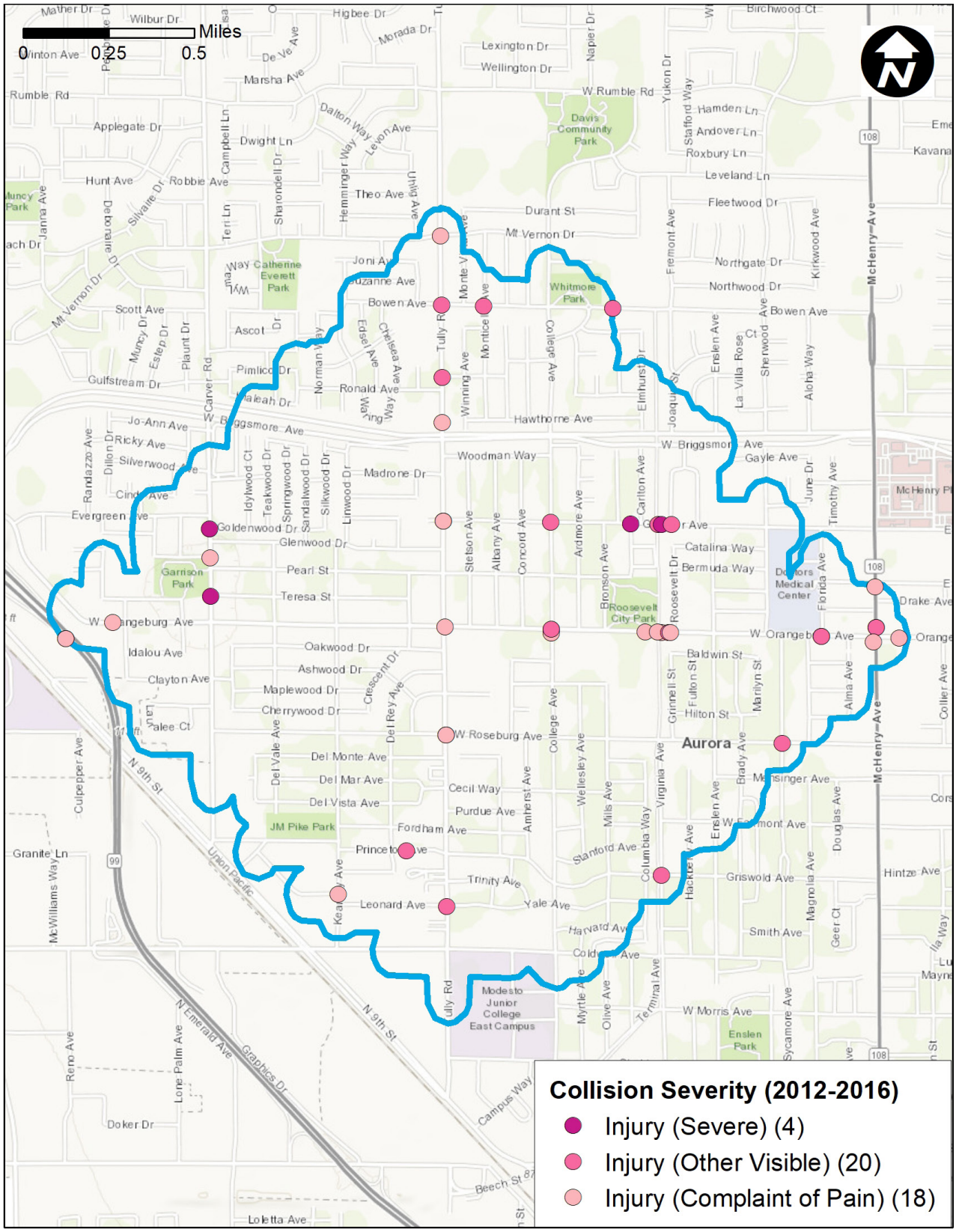
34 collisions mapped within the 1-mile walking radius of Fremont Elementary School in Modesto, CA.



Data Source: California Statewide Initegrated Traffic Records System (SWITRS). Collision data for 2015 and 2016 are provisional as of November 2017.

Bicyclist collision locations, 2012-2016

42 collisions mapped within the 1-mile walking radius of Fremont Elementary School in Modesto, CA.



Data Source: California Statewide Initegrated Traffic Records System (SWITRS). Collision data for 2015 and 2016 are provisional as of November 2017.

Appendix B

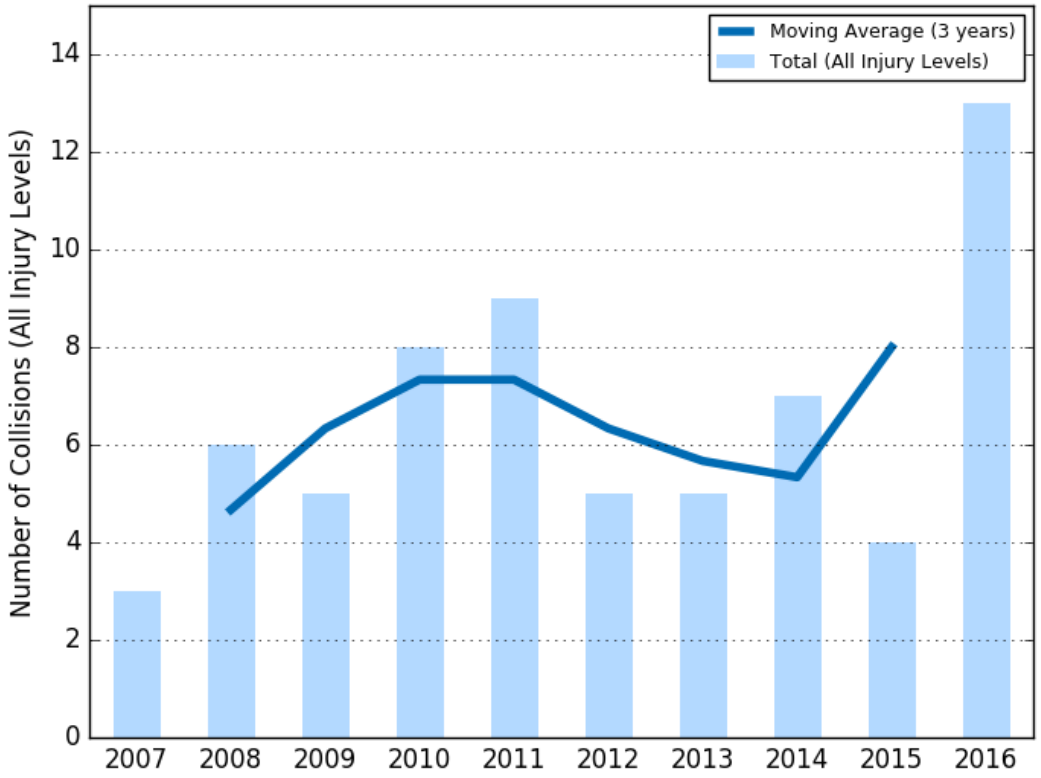
Pedestrian and Bicycle Collision Data Analysis
Site Visit Presentation

Community Pedestrian and Bicycle Safety Workshop Site Visit

Fremont Elementary School – Modesto, CA

May 21, 2018

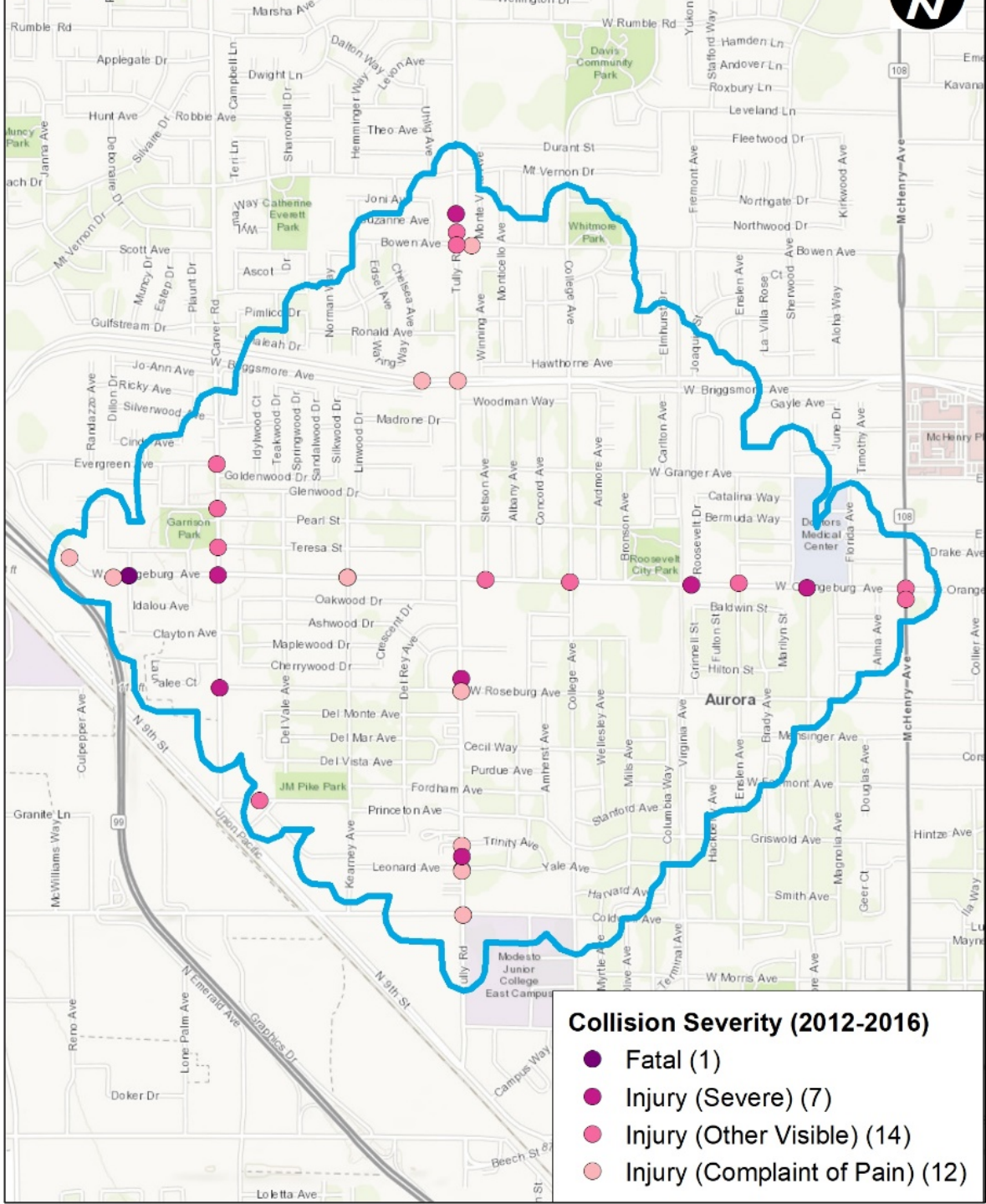
Pedestrian Injury Collision Trend with 3-year moving average



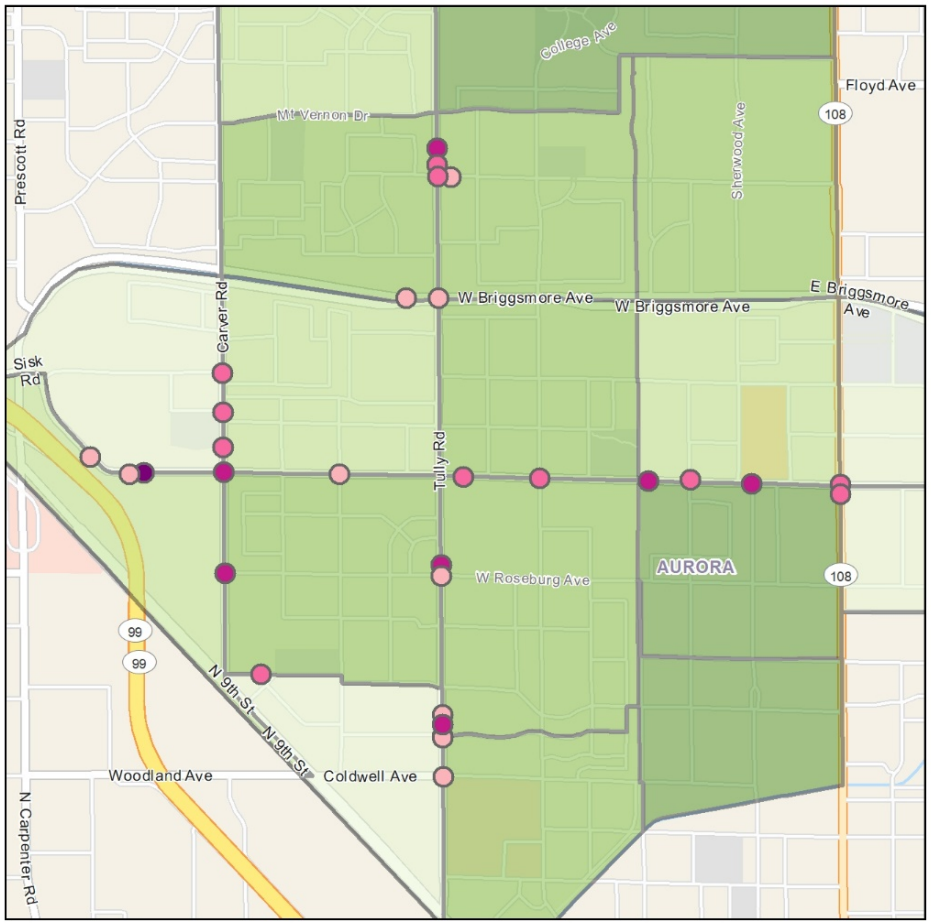
Note: Statewide Integrated Traffic Records System (SWITRS) 2015 and 2016 are provisional as of November 2017.

Pedestrian Injury Collisions
2012-2016

- Developed based on a 1-mile walking radius from Fremont Elementary School



Fremont Elementary Pedestrian Collision Map (2012 - 2016)



Collision Severity (2012-2016)

- Fatal (1)
- Injury (Severe) (7)
- Injury (Other Visible) (14)
- Injury (Complaint of Pain) (12)

2017 Median Household Income

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

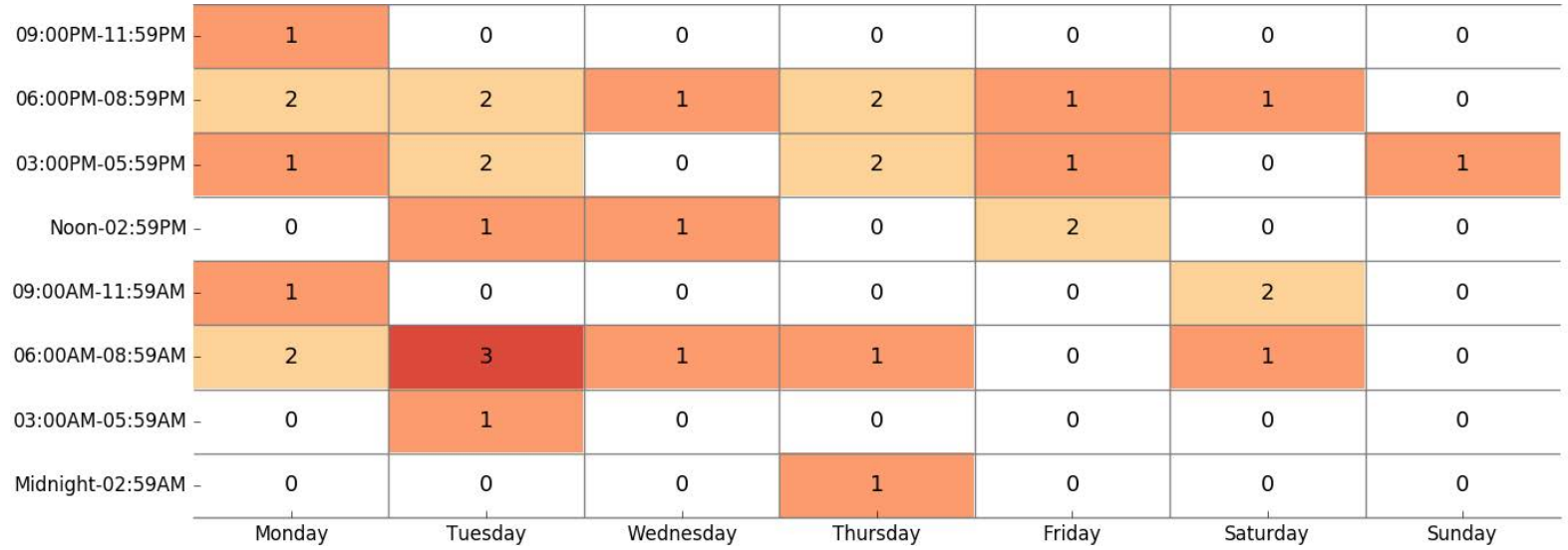
Berkeley SafeTREC

Data Source: Collision - SWITRS 2012 - 2016 (2015 - 2016 data is provisional);
Demographics - Esri, US Census Bureau, and ACS

Date: 5/4/2018

This map shows where all the pedestrian/bicycle injury collisions occurred and may not extend to the city's boundaries.

Pedestrian Collisions by Time of Day and Day of Week Total: 34 collisions

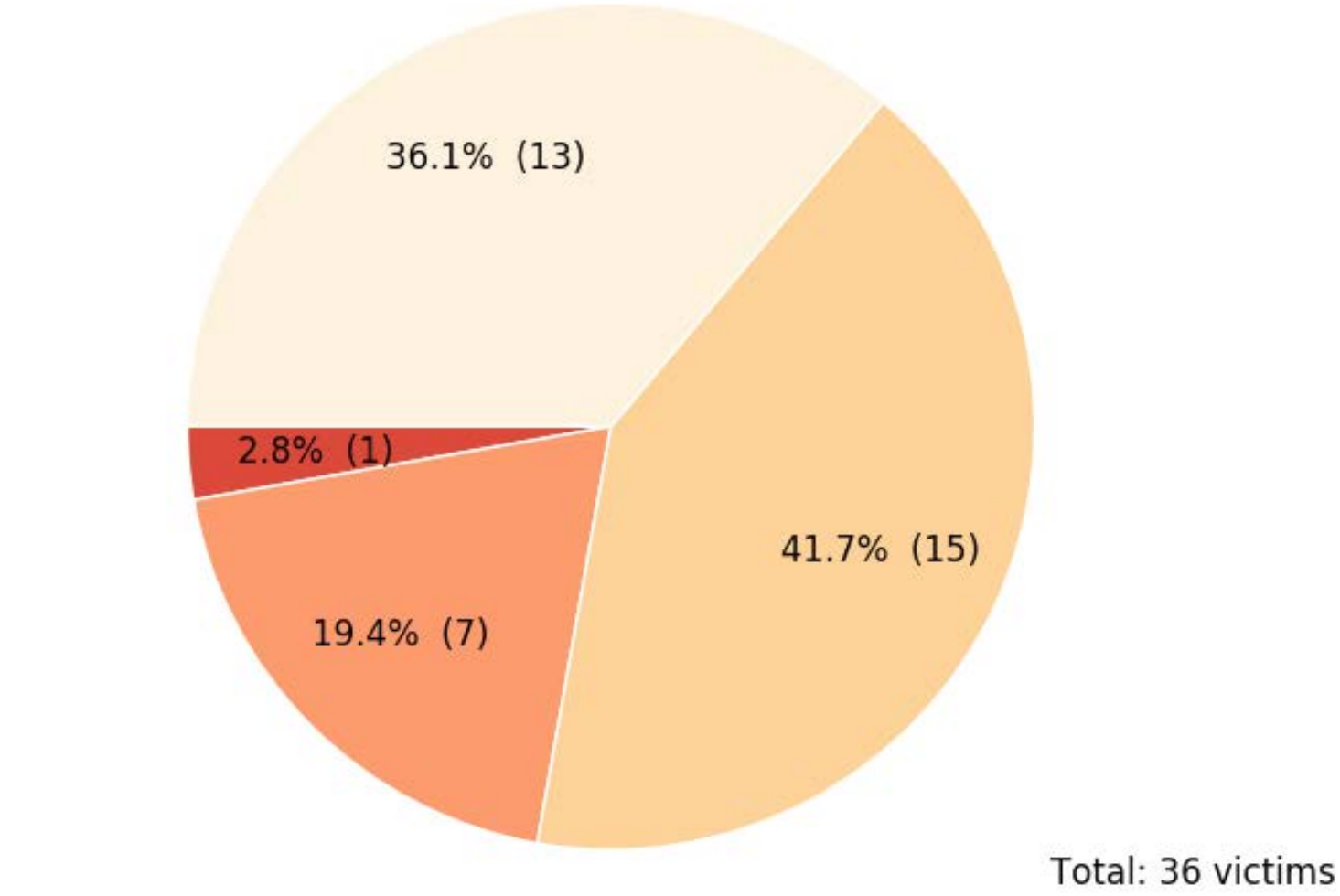


*The colors in this graph refer to how frequently a collision occurs at that time and day

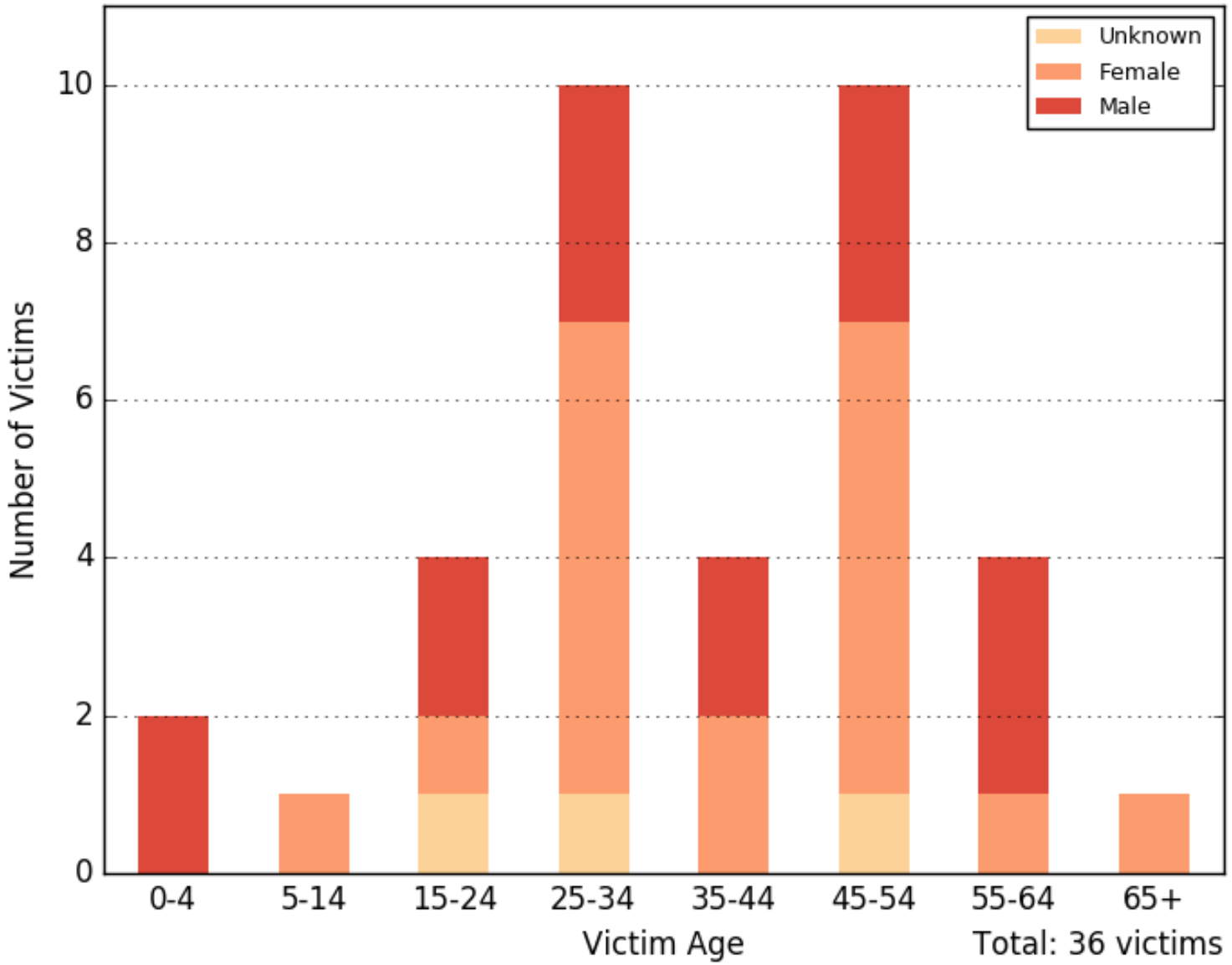
Top 10 Violations in Pedestrian Collisions (with # and %)

CVC No	Description	Freq.	Percent
21950	Driver failure to yield right-of-way to pedestrians at a crosswalk	15	44.1%
21954	Pedestrian failure to yield right-of-way to vehicles	10	29.4%
0	Unknown	2	5.9%
22107	Unsafe turning with or without signaling	2	5.9%
21650	Failure to drive/ride on right half of the roadway (with some exceptions)	1	2.9%
21802	Failure to stop or yield right-of-way at a stop sign.	1	2.9%
21955	Pedestrian must cross at crosswalks between adjacent traffic signal controlled intersections	1	2.9%
22106	Unsafe starting or backing of vehicle	1	2.9%
22350	Speeding on the highway	1	2.9%
Total		**34**	**100.0%**

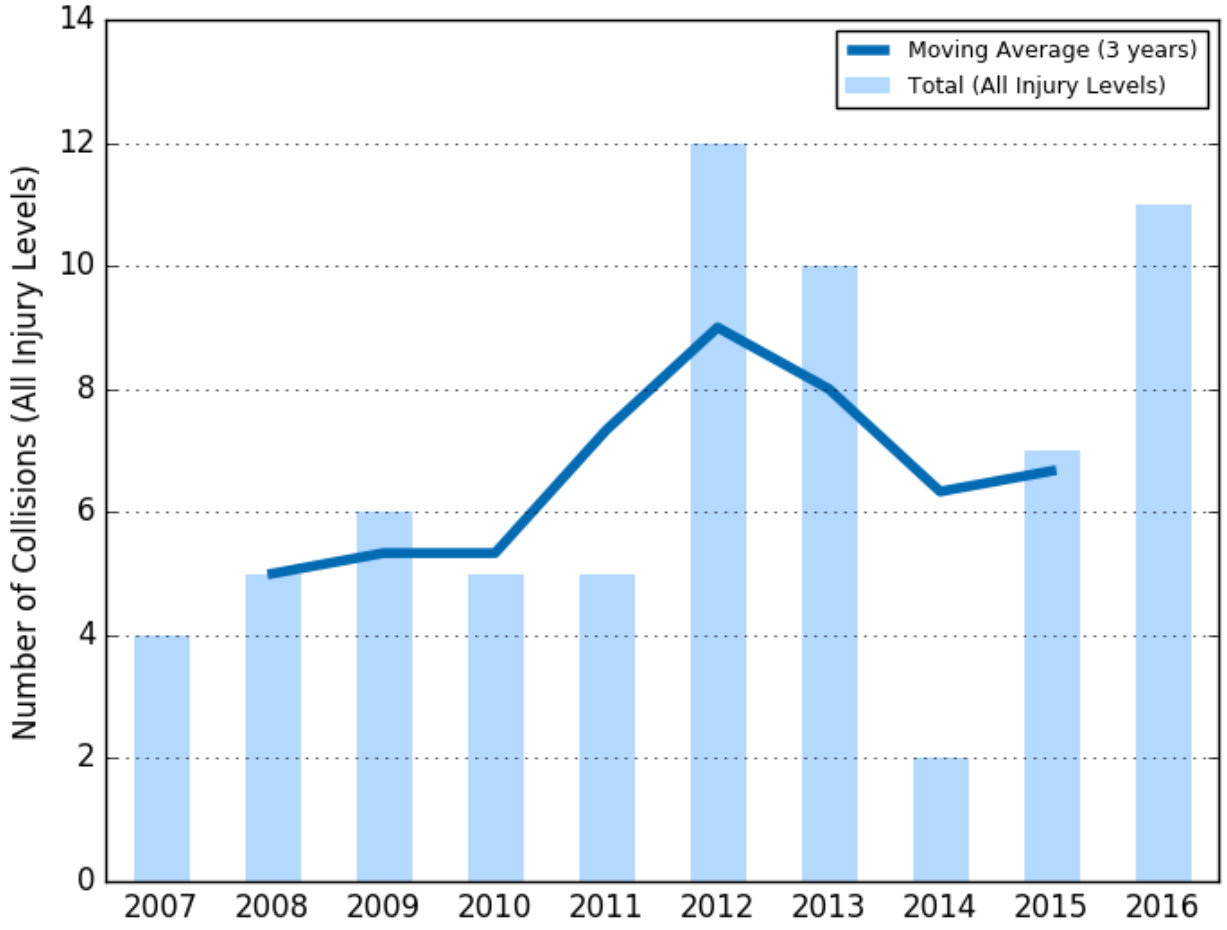
Pedestrian Victim Injury Severity (2012-2016)



Pedestrian Victims by Age and Gender (2012-2016)

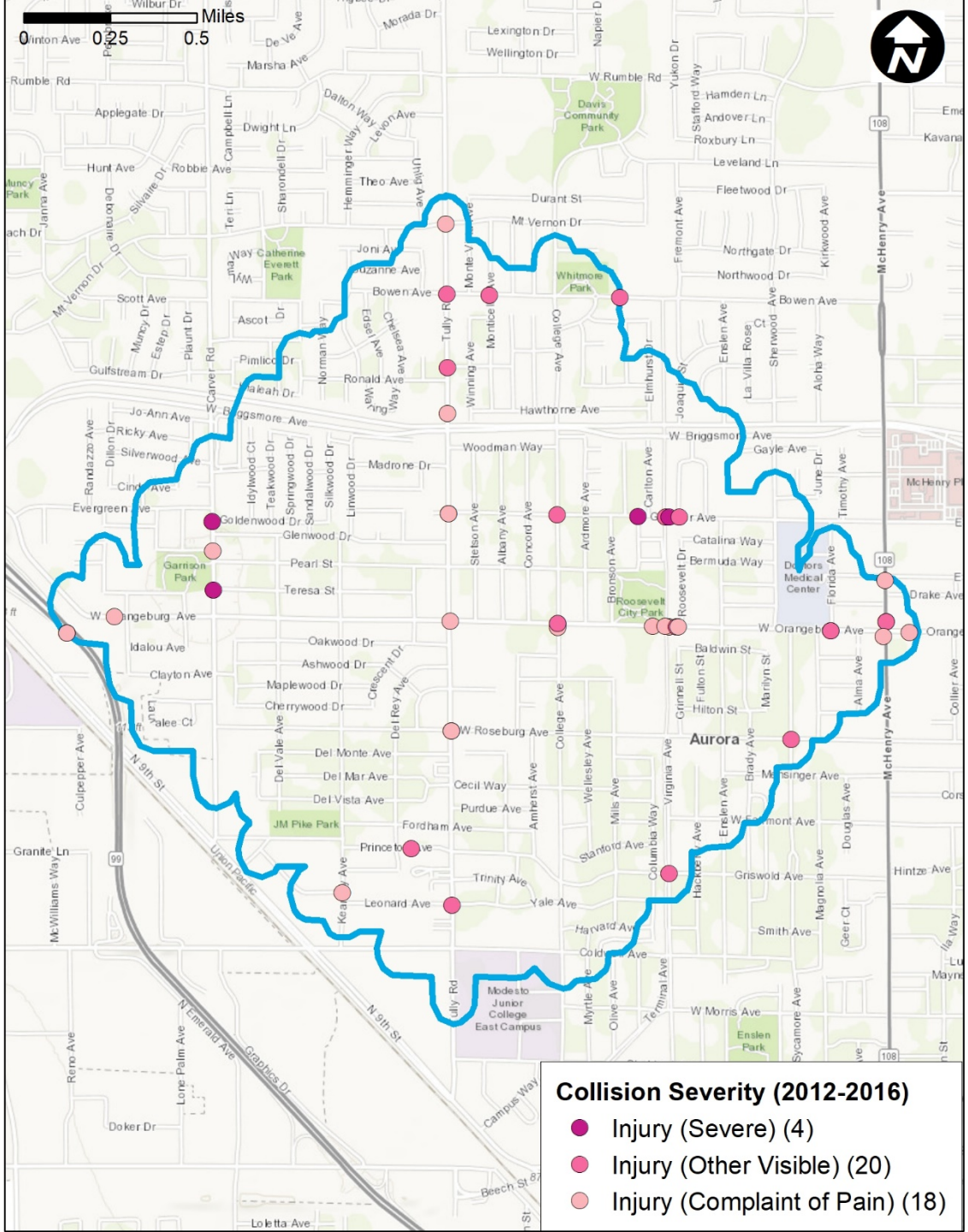


Bicycle Injury Collision Trend with 3-year moving average



Bicycle Injury Collisions
2012-2016

Developed based on a 1-mile walking radius from Fremont Elementary School



Fremont Elementary Bicycle Collision Map (2012 - 2016)

Collision Severity (2012-2016)

- Injury (Severe) (4)
- Injury (Other Visible) (20)
- Injury (Complaint of Pain) (18)

2017 Median Household Income

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

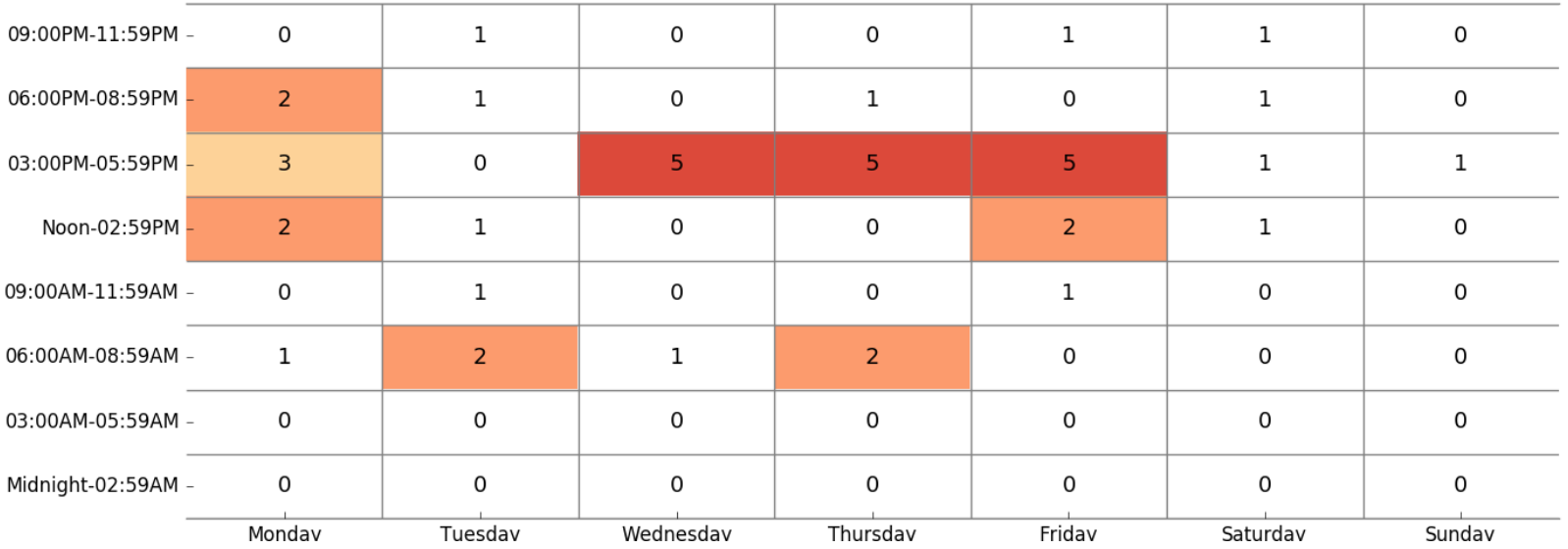
Berkeley SafeTREC

Data Source: Collision - SWITRS 2012 - 2016 (2015 - 2016 data is provisional);
Demographics - Esri, US Census Bureau, and ACS
Date: 5/4/2018

This map shows where all the pedestrian/bicycle injury collisions occurred and may not extend to the city's boundaries.

Bicycle Collisions by Time of Day and Day of Week

Total: 42 collisions

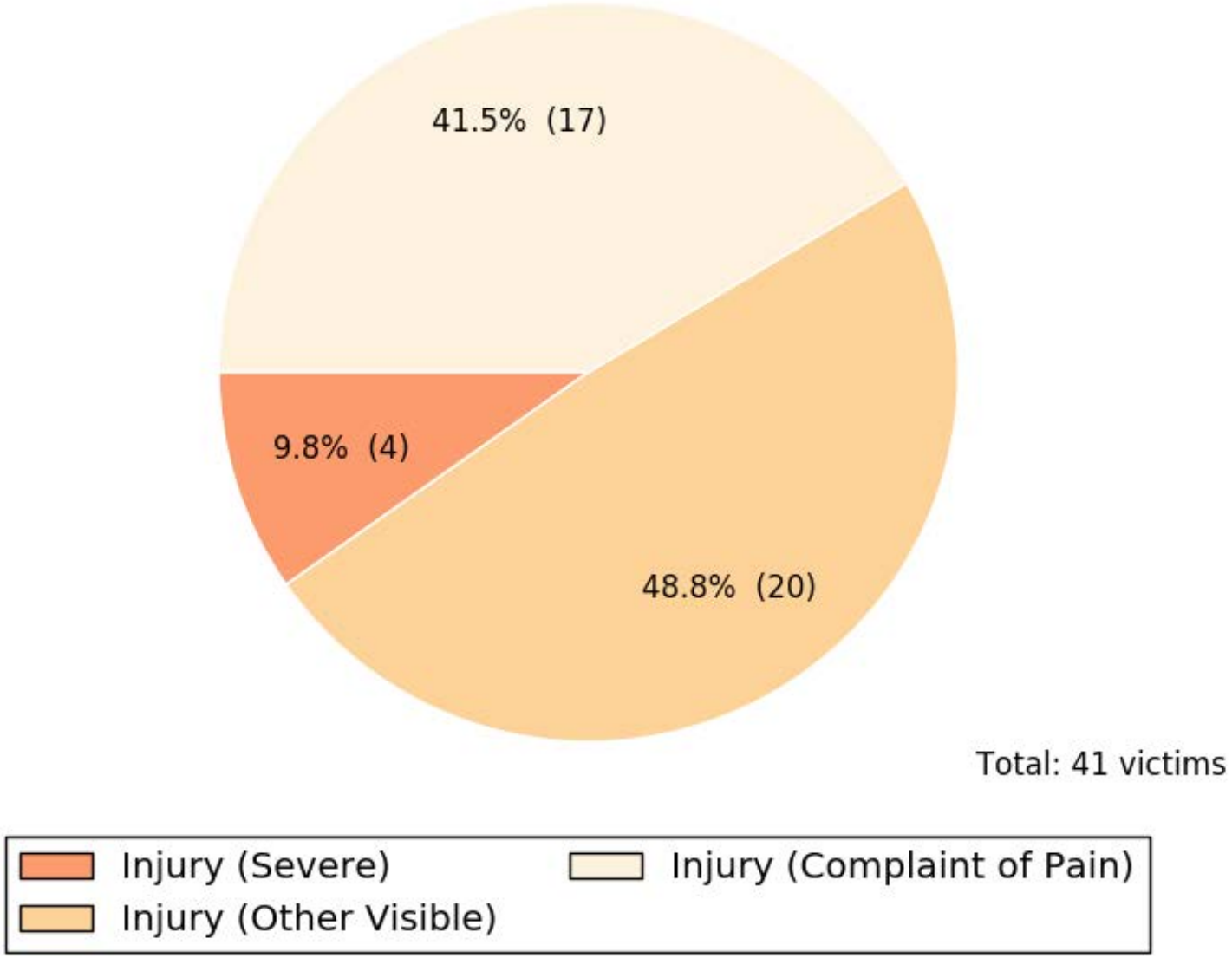


*The colors in this graph refer to how frequently a collision occurs at that time and day

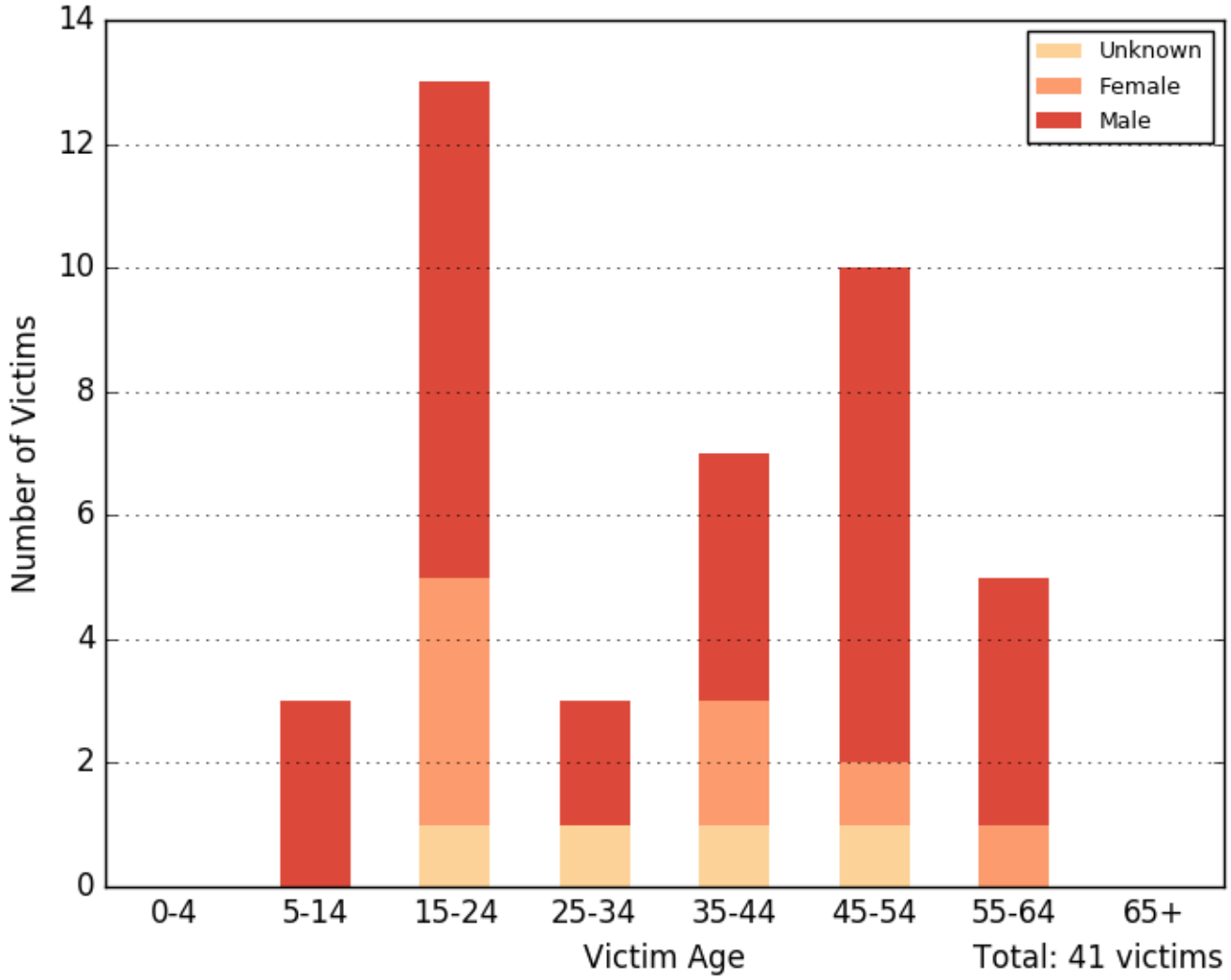
Top 10 Violations in Bicycle Collisions (with # and %)

CVC No	Description	Freq.	Percent
21804	Driver failure to yield right-of-way when entering/crossing a highway	6	14.3%
22107	Unsafe turning with or without signaling	6	14.3%
21453	Failure to stop at a limit line or crosswalk at a red light. Failure to yield right-of-way to pedestrian when turning on a red light	5	11.9%
21650	Failure to drive/ride on right half of the roadway (with some exceptions)	5	11.9%
22450	Driver failure to stop at a limit line or crosswalk at a stop sign	5	11.9%
21202	Bicyclist failure to ride on right edge of roadway if riding below the normal speed of traffic	3	7.1%
21451	Driver or pedestrian failure to yield right-of-way at an intersection or adjacent crosswalk	2	4.8%
21801	Driver failure to yield right-of-way when making a left turn or U-turn	2	4.8%
21802	Failure to stop or yield right-of-way at a stop sign.	2	4.8%
22350	Speeding on the highway	2	4.8%
Total		38	90.5%

Bicycle Victim Injury Severity (2012-2016)

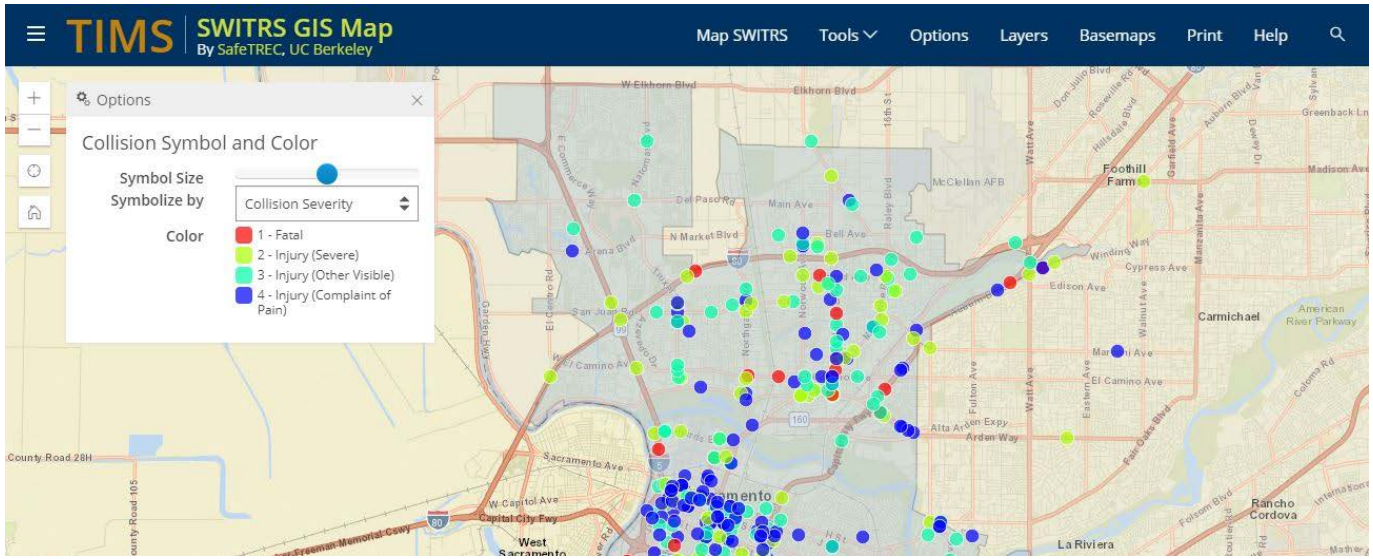


Bicycle Victims by Age and Gender (2012-2016)



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/



Berkeley SafeTREC