



Recommendations to Improve Pedestrian & Bicycle Safety for the Arden-Arcade Community



June 2018

Acknowledgements

Planning Committee

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We would like to thank the planning committee for inviting us into their community and for planning and hosting the Community Pedestrian and Bicycle Safety Training in Arden-Arcade.

We also thank Safety Center Incorporated for providing dinner and the El Camino Recreation & Parks District for providing the venue and equipment for this workshop.

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 Arden-Arcade Community

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Introduction

At the invitation of Safety Center Incorporated, 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 Arden-Arcade. The workshop is a community-driven pedestrian and bicycle safety action-planning workshop to improve pedestrian safety, bicycle safety, walkability, and bikeability across the community.

Safety Center Incorporated requested a workshop to 1) provide San Juan Unified School District students from Arden Middle School and Thomas Edison Language Institute with an opportunity to assess walking and biking safety in their school communities and provide recommendations to improve safety for students walking to and from school; 2) strengthen working relationships between various agencies and organizations and other stakeholders to ensure the best outcomes for the residents of Arden-Arcade; and 3) develop consensus regarding pedestrian and bicycle safety priorities and actionable next steps.

Cal Walks and SafeTREC (Project Team) facilitated the workshop on May 6, 2018 at the Richard T. Conzelmann Community Center in Howe Community Park. Ten (10) individuals attended the workshop, including representatives from the Sacramento Department of Transportation, Sacramento County Office of Education, San Juan Unified School District, Fulton-El Camino Recreation & Park District, Arden Middle School, Safety Center Incorporated, Sacramento County Board of Supervisors District 3, and the neighborhood.



Workshop participants discuss pedestrian and bicycle safety concerns in Arden-Arcade.

The three-hour workshop 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) a crowd sourcing walkability and bikeability assessment; and 3) small group action-planning discussion to develop priority recommendations to support the community's active transportation efforts. This report summarizes the workshop proceedings, as well as recommendations for projects and programs for pedestrian and bicycle safety in Arden-Arcade.

Background

The CPBST is a joint project of Cal Walks and UC Berkeley 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 Arden-Arcade CPBST planning process was initiated in December 2017. 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:
 - [Sacramento County Pedestrian Master Plan](#), November 2017
 - [Sacramento County Bicycle Master Plan](#), April 2011
 - [San Juan Unified School District Assessments](#) for Howe Avenue Elementary, Arden Middle School, Thomas Edison Language Institute, and Encina Preparatory High School

- **Analysis and Mapping of Pedestrian and Bicycle Injury Data:** UC Berkeley SafeTREC used the Statewide Integrated Traffic Records System (SWITRS) data and the Transportation Injury Mapping System (tims.berkeley.edu) to analyze and present injury data in Arden-Arcade, as well as census data to create rates of collisions based on population. Patterns of pedestrian and bicycle injury collisions and victim demographics were analyzed and presented initially to the Planning Committee to help inform the development of the CPBST workshop.
- **Identification of Priority Discussion Topics for Training:** Safety Center has worked on Safe Routes to School education and encouragement programs with Arden-Arcade schools for a number of years and approached the Project Team to:
 - Help address community safety concerns around students getting to and from school;
 - Involve students in the assessment of safety concerns and development of recommendations to improve safety for walking and biking in their school communities; and
 - Support and build on their existing Safe Routes to School education and encouragement efforts in Arden-Arcade.
- **Site Visit:** The Project Team facilitated an in-person site visit on February 16, 2018 with the Planning Committee at the Richard T. Conzelmann Community Center to 1) review existing pedestrian and bicycle collision data 2) collect qualitative data based on in-person observations of existing conditions and travel behaviors and; 3) conduct a preliminary walk assessment of the focal area. Photos and notes were taken of relevant road safety challenges and opportunities around Howe Avenue Community Park and Howe Avenue Elementary School. The site visit findings were used to develop the workshop presentation, including providing local infrastructure examples and developing the walk/bike assessment route map. During the site visit, the Planning Committee identified local businesses, churches, parents, and the Sacramento County Board of Supervisors, District 3, Supervisor Peters office as key stakeholders to invite to the CPBST.

Existing Conditions

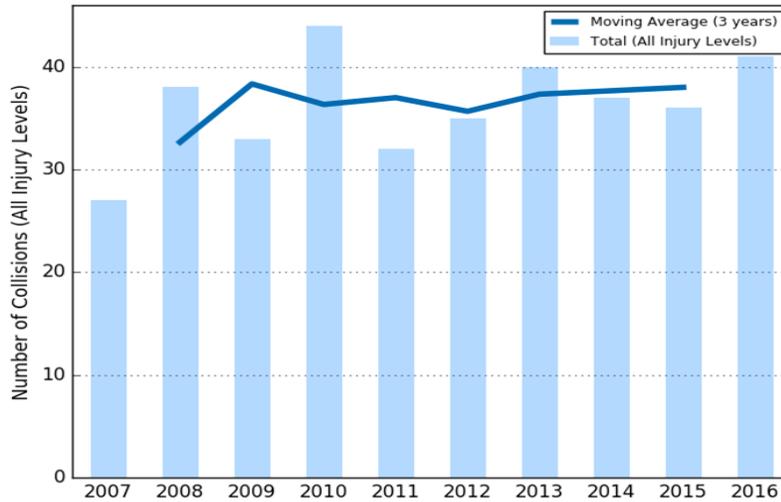
Pedestrian & Bicycle Collision History

Between 2007 - 2016, there were 363 pedestrian collisions, including 32 fatalities and 66 severe injuries in Arden-Arcade. Collisions in this time period are concentrated along major arterials, including Howe Avenue, Munroe/Fulton Avenue, Watt Avenue, Marconi Avenue, El Camino Avenue, and Arden Way¹. The top two primary collision factors for collisions involving pedestrians were pedestrians failing to yield to drivers when crossing outside a marked or unmarked crosswalk² (33.3%), and drivers failing to yield to a pedestrian with the right-of-way in a crosswalk (18.5%). Over the 10-year period, pedestrian collisions appear to be on an upward trajectory (Source: SWITRS, 2007-2016).

¹ SWITRS, 2007-2016; The data from 2015 and 2016 are provisional as of November 2017.

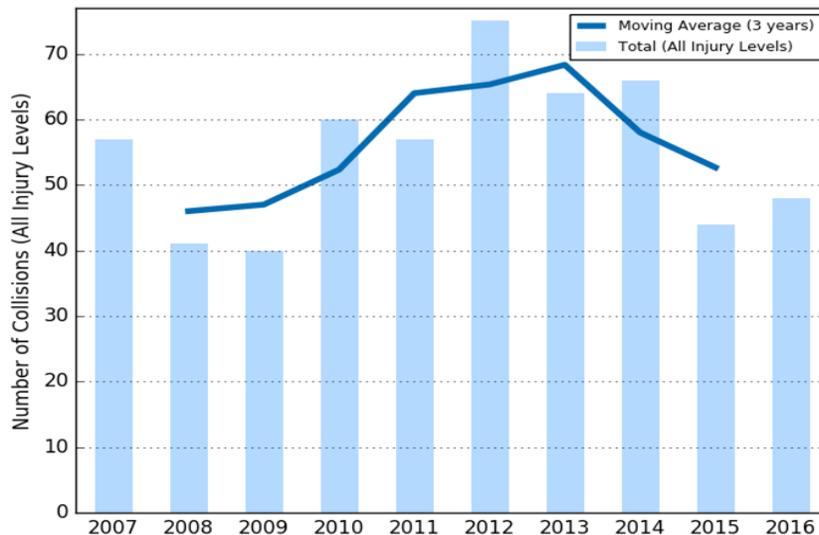
² Pedestrians have the right-of-way in marked and unmarked crossings, and drivers are legally required to yield to pedestrians in these instances. However, when pedestrians cross outside of marked or unmarked crossings, pedestrians must yield the right-of-way to drivers. A pedestrian is legally able 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.

Pedestrian Collisions Trends with 3-year moving average



Between 2007-2016, there were 552 bicycle collisions, including 11 fatalities and 46 severe injuries in Arden-Arcade. Collisions in this time period are concentrated on along major arterials, including Howe Avenue, Munroe/Fulton Avenue, Watt Avenue, Marconi Avenue, El Camino Avenue, and Arden Way. The top two primary collision factors for collisions involving bicycles were failure by the bicycle or driver to drive on the right half of the roadway (47.1%) and unsafe turn with or without signaling by the bicycle or driver (14.1%)³. Over the 10-year period, bicycle collisions appear to be on a downward trajectory.

Bicycle Collisions Trends with 3-year moving average



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.

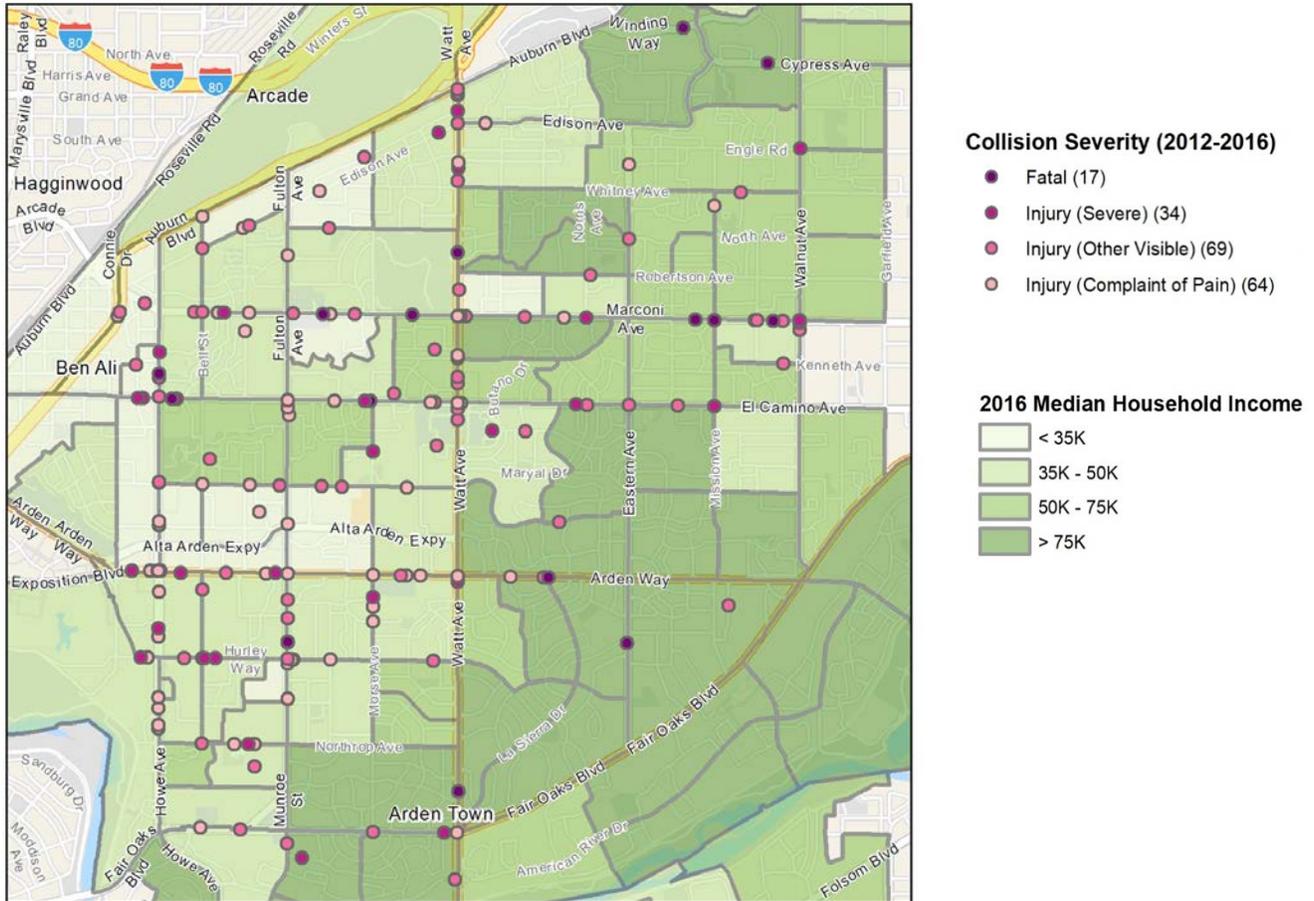
A full discussion of 2012-2016 pedestrian and bicyclist collision data prepared by UC Berkeley SafeTREC can be found in Appendix A.

Equity Concerns

A 2014 Governing Study found that nationwide, pedestrian fatality rates in lower-income communities were more than twice that of higher income communities⁴. Pedestrian collisions in Arden-Arcade between 2007-2016 mirror similar patterns found at the national level. Of the 184 pedestrian collisions geocoded on the Pedestrian Collisions 2012-2016 map, 51 were concentrated in the area or on the border of neighborhoods where the median household income is less than \$35,000 per year. Of the 293 bicycle collisions geocoded on the Bicycle Collisions 2012 -2106 map, 91 were concentrated in an area or on the border of neighborhoods where the median household income is less than \$35,000 per year. State funding programs generally define Census tracts at or below 80% of the statewide median household income (\$51,026) as disadvantaged communities. In the Arden-Arcade community, data shows a similar trajectory where rates of pedestrian and bicycle collisions and collision severity are disproportionately higher along corridors and in neighborhoods with lower median household income. Furthermore, the majority of pedestrian and bicycle collisions were geocoded on large arterials including Howe Avenue, Munroe Street/Fulton Avenue, Watt Avenue, Arden Way, El Camino Avenue, and Marconi Avenue, supporting the community's concerns with these roadways.

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

Arden_Arcade Pedestrian Collision Map (2012 - 2016)



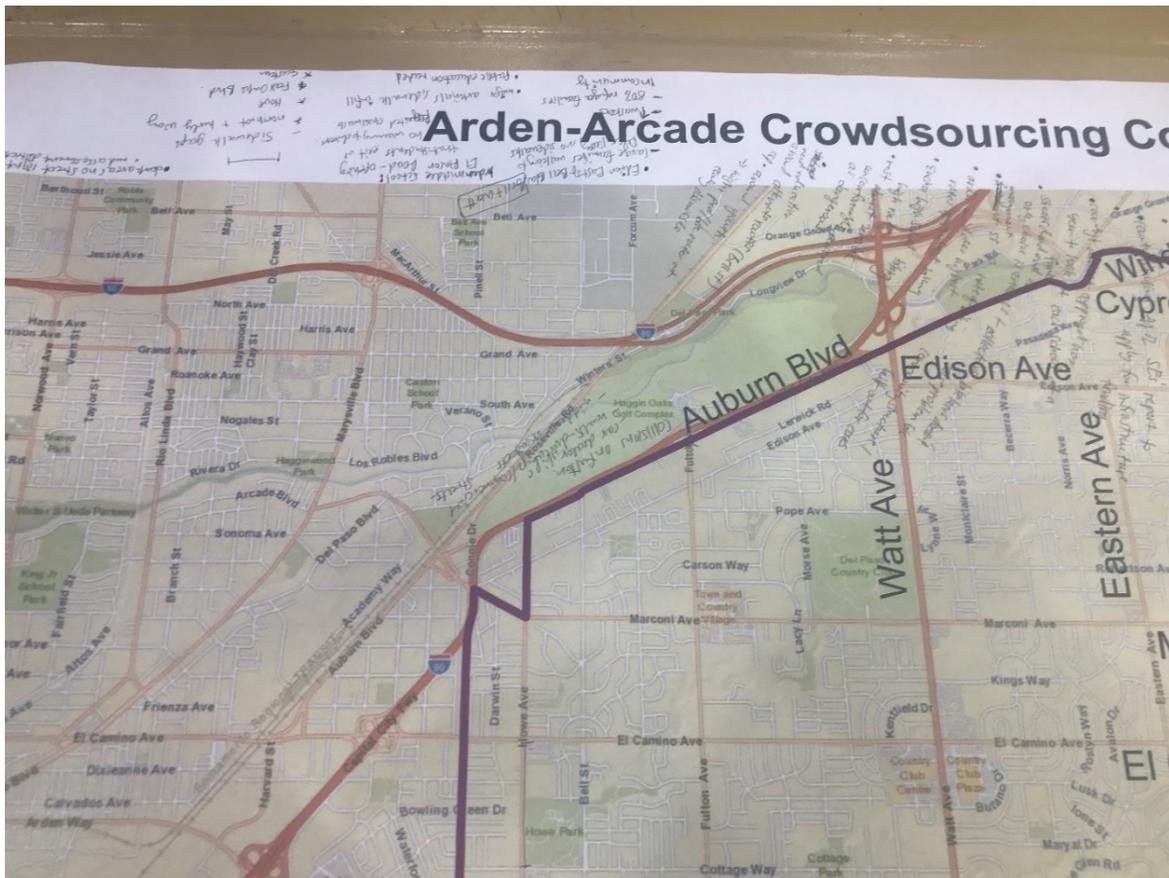
According to workshop participants, many residents walk and bike to and from work, school, and other community resources as their primary mode of transportation. People using the public right-of-way without the appropriate pedestrian and bicycle facilities increases the chances of collisions with vehicular traffic. Although Sacramento County has worked with local community-based organizations and the San Juan Unified School District to address roadway safety concerns and to install pedestrian and bicycle infrastructure near schools in Arden-Arcade, the demographics of the community are rapidly changing, resulting in more residents walking and biking as their primary transportation mode. Workshop participants shared that over the last few years the community has experienced a significant increase in Arabic- and Farsi-speaking refugee and immigrant families, particularly in school neighborhoods. Many of the families are single-vehicle or no-vehicle households and rely on walking and biking to get around, especially to and from school. Participants also noted that unsafe walking and biking behaviors might be attributed to a difference in infrastructure and differences in walking and biking behaviors between native countries and the U.S.

Participants also noted there is a high income inequality in Arden-Arcade, with strong income disparities from one side of a street to the other. A recent Sacramento Bee article noted a significant rise in low-income residents, including families moving into apartments on the west side of the community, where the majority of low income residents reside. The estimated poverty rate in Arden-Arcade increased from 19.9% in 2015 to 27.7% in 2016, the largest of any city or census-designated

community in the state.⁵ Changing community demographics, a lack of walking and biking safety education, and an increase in walking and biking in the community could account for the high rates of pedestrian and bicycle collision the community.

Walkability & Bikeability Assessment Reflections

Workshop participants conducted a community mapping exercise using a map of the Arden-Arcade community, they were asked to 1) recall and share infrastructure conditions and the behavior of all road users in the community; and 2) apply strategies learned from the presentation that could help overcome infrastructure concerns and unsafe driver, pedestrian, and bicyclist behavior, and 3) identify positive community assets and strategies which can be built upon.



Aerial map of Arden-Arcade with participant walking and biking safety concerns.

Following the community mapping exercise, the participants shared the following reflections:

High Rates of Traffic Collisions: Collisions in the community are concentrated along north to south arterials and collector streets—Howe Avenue, Fulton Avenue, Watt Avenue—which have higher traffic volumes and higher speeds. These streets also serve as connectors to Interstate 80, Capital City Freeway (Interstate 80 Business), and US Highway 50. Participants suggested the high rates of collisions

⁵ <http://www.sacbee.com/news/local/article173222226.html>

on Fulton Avenue might be due to the many business driveways and high concentration of car dealerships.

High Vehicle Speeds and Wide Roads: The posted speed limit along the arterial roads that run through the community - Howe Avenue, Fulton Avenue, Watt Avenue, Arden Way, El Camino Avenue, Marconi Avenue - is 35 or 40 miles per hour (MPH); however, workshop participants shared their experiences of drivers traveling at much higher speed. Many of these roads are characterized by two to three wide lanes in each direction with a striped center left turn lane or dedicated left turn lane. Due to large school catchment areas and discontinuous residential streets, students now have to cross these large arterials to get to and from school. Research has demonstrated that wide streets and wide travel lanes are associated with higher vehicle speeds, which affect the safety of people walking and bicycling. Cal Walks staff observed bicyclists riding on the sidewalk, likely due to their discomfort with traveling next to fast moving vehicles along these roads⁶.



A Howe Avenue Elementary School student waits to cross Howe Avenue in front of the school.

Missing and Sidewalks and Sidewalk Gaps: Sidewalk widths and conditions throughout the Arden-Arcade community vary. Sidewalks are present along most arterials streets—especially near commercial areas—but are absent along some segments of arterials, collectors, and along most residential streets. The majority of residential streets in Arden-Arcade have rolled curbs and no sidewalks. Workshop participants noted that sidewalks are missing along some segments of:

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.

- Watt Avenue in the Arden Manor neighborhood;
- Howe Avenue north of the Howe Avenue Community Center;
 - The County informed participants there is a project underway to address this concern.
- Hurley Way;
 - The County informed participants that sidewalk infill projects is underway and will be in the design phase in 2019 with excepted construction beginning in 2021.
- Fair Oaks Boulevard; and
- Eastern Avenue.



Missing sidewalks and wide travel lanes along a stretch of Howe Avenue between Cottage Way and El Camino Avenue, across from the Howe Community Park.

Bicycle Network Gaps and Bicyclist Behaviors: Bicycle lanes appear to be limited to some arterials and are identified by road markings or traditional signage. These bicycle lanes can be difficult to see in areas with high vehicle traffic and speeding cars often drive dangerously close or into the bicycle lane. Participants noted that bicyclists are often seen riding on the sidewalk or riding in the bike lane against traffic. Community members noted that a main safety concern for residents who bike along arterials and collector streets is the high speed of vehicles, which results in many bicyclists riding on the sidewalk instead of in the street even when bike lanes are present.



A bicyclist rides on the sidewalk and waits to cross Howe Avenue at El Camino Avenue.

Prior to the workshop, middle school students from Arden Middle School and Thomas Edison Language Institute performed observations and walk assessments around their schools to identify barriers and opportunities to walking to and from school.

Thomas Edison Language Institute Student Observations



Sidewalks are missing on the south side of Hurley Way near the school entrance.



Sidewalks along the school driveway from Hurley Way to the bike racks are found only on the west side and have rolled curbs. Students noted that vehicles are parking onto the sidewalks during pick-up and drop-off times, narrowing the sidewalk space and forcing students to walk onto the grass.



In the school parking lot, students noted a missing sidewalk from the sidewalk on the west side leading into the school and connecting to the area by the front office and cafeteria.



“No Parking” signage is missing from the driveway leading into the school. Vehicles often park onto the sidewalk on the west side or double park in the drive aisle causing congestion and an unsafe environment for students walking and biking to and from the school and through the parking lot.

Source: Joelle Orrock

Arden Middle School Student Observations



Students shared that the intersection of Arden Way and Watt Avenue experiences a high volume of vehicles crossing during school pick-up and drop-off times. Although a crossing guard is present to help students cross the street safely, students felt that additional signage was needed to signal to drivers that a school is nearby.



At the rear of the school, a paved path extends onto El Rincon Way and is used by students to enter and exit campus. El Rincon Way has no sidewalk where the path ends and students walk and bike on the path into the street. Arden Middle School students noted that trees and overgrown vegetation blocks visibility for students looking to cross at El Rincon Way.

Additionally, although the path opens onto a residential street with a 25 MPH speed limit, vehicles driving by the path have limited visibility of students walking and biking to and from the path.

Source: Joelle Orrock

Key Opportunities to Improve Walking and Biking Safety

Following the crowdsourcing activity and the walkability and bikeability assessments, the Project Team facilitated a small-group action planning discussion. Workshop participants discussed and prioritized infrastructure improvements for reducing the number of injuries and fatalities, as well as education and encouragement programs aimed at increasing the number of people and the frequency of walking and biking in Arden-Arcade.

- The first set of questions focused on identifying and prioritizing non-infrastructure community-led education and encouragement projects.
- The second set of questions focused identifying and prioritizing infrastructure improvements for reducing the number of injuries and fatalities.

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

Community Recommendations

Community Education Programs

School-Focused Education Campaign: Participants were interested in a safe walking and biking education campaigns that involved coordination between San Juan Unified School District, Sacramento County, and the City of Citrus Heights. Youth-focused education is needed to encourage students to walk and bike to and from school. Except for Encina Middle School and Arden Middle School, the San Juan Unified School District Safe Schools Coordinator noted low rates of biking to and from school across the District. The low rates of biking to school might be due to discontinuous residential streets which force students to ride on high-speed arterial and collector streets.

Participants also identified the need for culturally- and linguistically-competent walking and biking education for youth and parents to reach the growing immigrant and refugee families who rely on active transportation to get around in the community. Also, with expanding school catchment areas, parents and students travel longer distances to get to and from school and need to cross arterials and connector streets.

Alternative Bike Routes Education Campaign: Although there are streets with bike lanes in the community, Sacramento County is working to create a comprehensive bicycle network that would support bicyclists at all comfort levels riding with traffic. A well-connected bicycle network provides routes between desired destinations and does not limit bicyclists to routes that exceed their comfort levels or require undue detours or accommodations. In Arden-Arcade, the majority of bicycle collisions occur on arterials and collector streets, but there are existing low-stress alternative routes available to the public. A general public education campaign can help to raise awareness of safe bicycling behaviors and alternatives to high-speed roads.

Infrastructure Priorities

- **Daylighting** is a cost-effective strategy to improve pedestrian safety by removing visual barriers near a crosswalk or intersection. Workshop participants recommended daylighting, especially near school intersections and crossings to improve visibility for walking to and from school as well as the visibility of students by drivers.
- **Low-Cost Strategies:** Signage, paint, and speed humps were recommended as incremental solutions to improve walking and biking safety in the community. These strategies were specifically recommended along Bell Street from Cottage Way to Santa Anita Drive.
- **Community Sidewalk Inventory:** Participants noted there is currently no countywide inventory of sidewalks. They recommended a sidewalk inventory to help prioritize sidewalk infill projects in Arden-Arcade.

Thomas Edison Language Institute Student Recommendations

- Install sidewalks on the south side of Hurley Way near the school entrance.

- Widen sidewalks leading into the school along the drive aisle and install a barrier between vehicles and the sidewalk to prevent vehicles parking on the sidewalk.
- In the school parking lot, install a crosswalk from the sidewalk on the west side leading into the school and connecting to the area by the front office and cafeteria.
- Install “No Parking” signage along the driveway leading into the school.

Arden Middle School Student Recommendations

- Install a “School Crossing” sign at the intersection of Watt Avenue and Arden Way near the corner of the school to signal to drivers that students may be crossing.
- Install sidewalks along El Rincon Way near the path leading to the back entrance of the school.
- Ask residential neighbor to trim trees and bushes along path to improve visibility for and of students using the path. If needed, involve Sacramento County Code Enforcement.
- Install a marked crosswalk on El Rincon Way at the path near the rear of the school to signal to drivers to expect pedestrians and bicyclists to cross. Currently, there are only two crossing signs posted on either side of the path.

Cal Walks/SafeTREC Recommendations

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

- **Multi-Language Adult Pedestrian and Bicycle Education Campaign:** Participants noted that changing demographics in the Arden-Arcade community has resulted in an increase in walking and bicycling activity, especially among recently arrived refugees and immigrants. Participants noted it is common to see adults in the community riding against traffic in a bike lane or on the sidewalk. Although it is difficult to know if refugees and immigrants are exhibiting these behaviors, workshop participants expressed a need for targeted language-specific pedestrian and bicycle education to support this community as many rely on walking and biking to access employment and amenities. Participants also stated that refugee and immigrant mothers primarily walk their children to and from school since they do not drive or are single-vehicle households.
- The Project Team recommends targeted language-specific bicycle education to address wrong-way riding and other unsafe bicycling behaviors observed in the community. The San Juan Unified Safe School Coordinator shared two pedestrian safety resources available in English, Spanish, Farsi, and Arabic that can serve as a starting point for a community education campaign.
 - [Safe Walking Information for Parents](#)
 - [Drivers Helping Pedestrians](#)
- The Project Team recommends lower-cost printed education campaigns on benches and flyers posted at residential hubs, restaurants, markets, religious institutions, and other locations frequented by these community members.
- **Arden-Arcade SRTS Plan:** The Project Team recommends the development of a Safe Routes to School (SRTS) Plan specific to Arden-Arcade to address the main infrastructure barriers and student behaviors to safe walking and biking. Workshop participants noted that the current County and School District approach has been to focus on individual schools and school

community needs, but with the large number of schools in the community and large school catchment areas, the community will benefit from a more focused community-wide approach.

- **Community Lighting Assessment:** The Project Team recommends CPBST participants collaborate and perform a citywide street lighting assessment focused on pedestrian- and bicycle-oriented lighting needs around schools, parks, businesses, and along key pedestrian and bicycle corridors. Workshop participants noted a lack of street lighting and pedestrian-scale lighting around schools, parks, and community amenities, particularly at crosswalks leading. Proper street lighting provides safety and security and improves the overall well-being of road users. Lighting should be uniform, consistent, and reduce glare and light pollution.
- **Adopt a Standardized Daylighting Policy:** Workshop participants expressed concern for students' safety while crossing at school intersections. In addition to increasing daylighting near schools, the Project Team recommends daylighting for all marked crosswalks to increase pedestrian visibility. Policies regarding daylighting support implementation and provide direction to city traffic engineers.

Appendix A

Pedestrian and Bicycle Collision Data Analysis

2012-2016 ARDEN-ARCADE DATA ANALYSES

Community Pedestrian and Bicycle Safety Training Workshop March 6, 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 available to help your community better prioritize recommendations that emerge from this workshop.

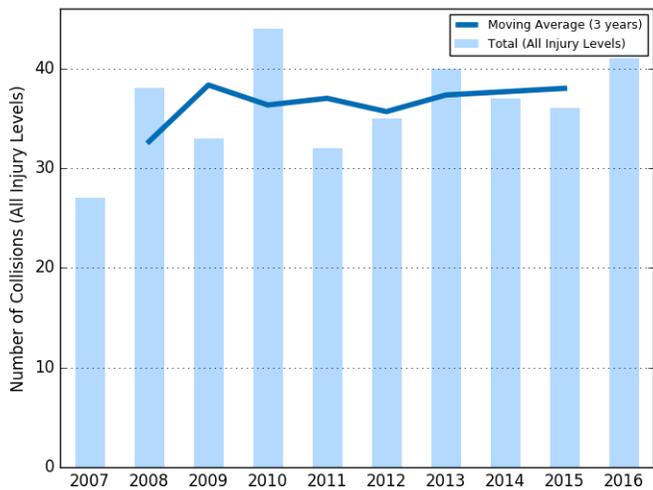
PEDESTRIANS



400 people were killed or injured in **363** pedestrian collisions in the last 10 years (2007-2016).

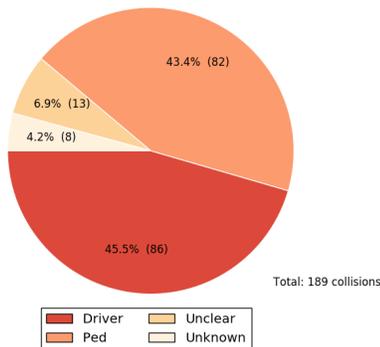
The **three-year moving average** line shows an **upward** trend in pedestrian collisions.*

There were **36** pedestrian collisions in 2015, but an average of **38** pedestrian collisions per year for the 3-year rolling average between 2014 and 2016.

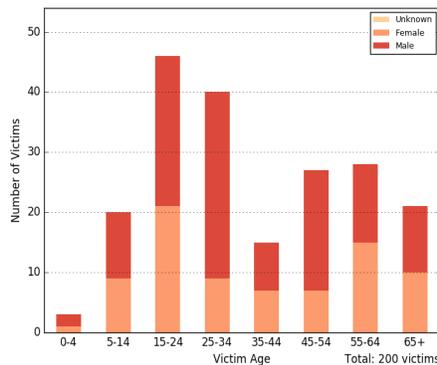


* This line is useful for tracking change over time, especially when the number of collisions changes a lot between years. Data points are at the midpoint of the three years of data specified.

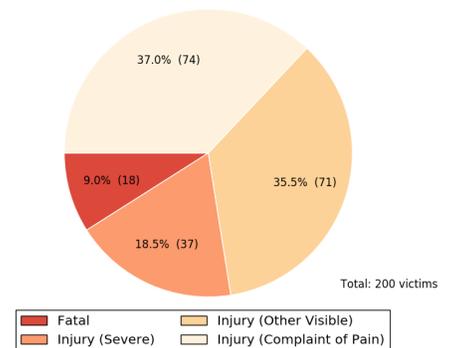
43.4% driver violations
VS.
45.5% pedestrian violations



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



60.5% of victims were male
22.0% of victims were under age 20
10.5% of victims were age 65+



27.5% of victims (or 55 people) were **KILLED** or **SEVERELY INJURED**

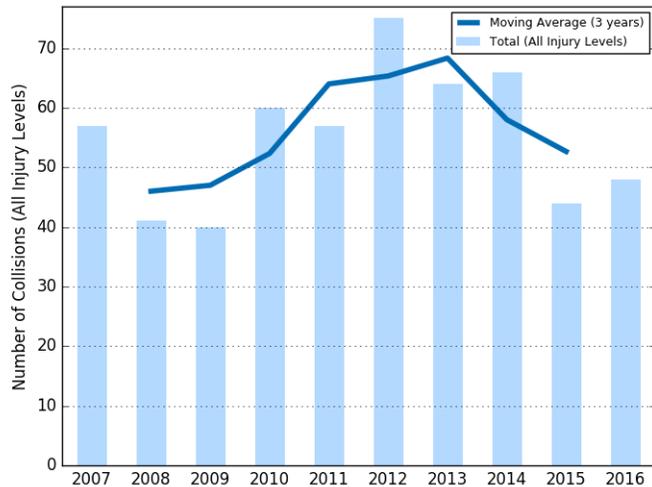
BICYCLES



566 people were killed or injured in 552 bicycle collisions in the last 10 years (2007-2016).

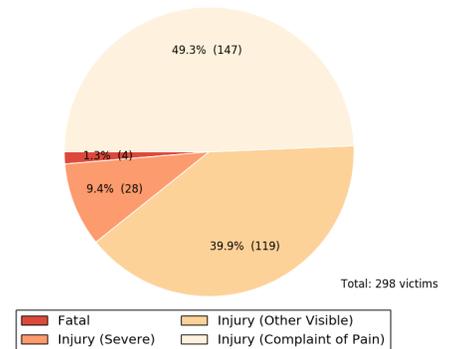
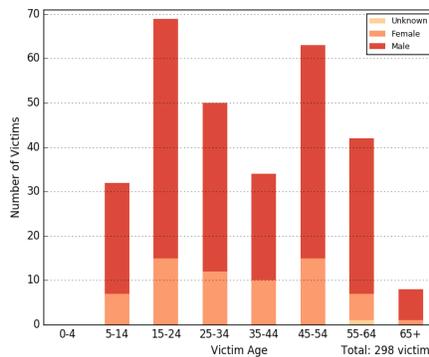
The **three-year moving average** line shows a **downward** trend in bicycle collisions.*

There were **44** bicycle collisions in 2015, but an average of **52.7** 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 cannot break down violations by driver vs. bicyclist.



- **76.6%** of victims were male
- **23.2%** of victims were under age 20
- **2.7%** of victims were age 65+

10.7% of victims (or 32 people) **KILLED or SEVERELY INJURED**

SUMMARY



43.4 pedestrian fatalities & injuries per 100,000 population over the last five years, which is **28.0% more than** Sacramento County and

20.9% more than California



64.7 bicyclist fatalities & injuries per 100,000 population over the last five years, which is **57.0% more than** Sacramento County and

94.3% more than California

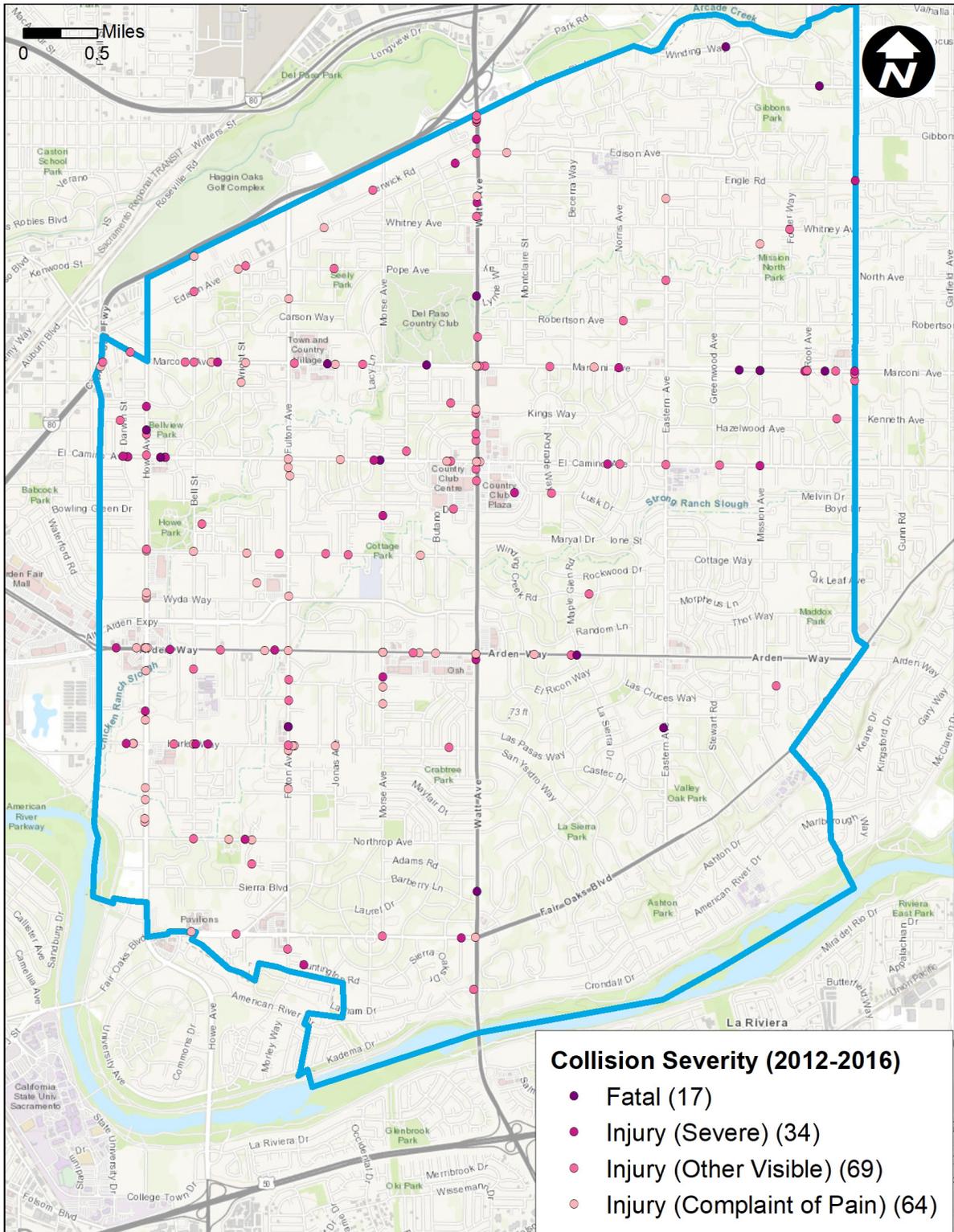
	Yearly Population Rate of Fatalities & Injuries per 100,000 Population Calculated Over a 5-year Period*	
	Pedestrian	Bicyclist
Arden-Arcade	43.4	64.7
Sacramento County	33.9	41.2
California	35.9	33.3

Source: U.S. Census Bureau, Population Division (2010 population data).

* The rate per population is calculated by adding the number of fatalities and injuries of pedestrian or bicyclist victims from 2012 to 2016 divided by five times the population in 2010

Pedestrian Collisions 2012-2016

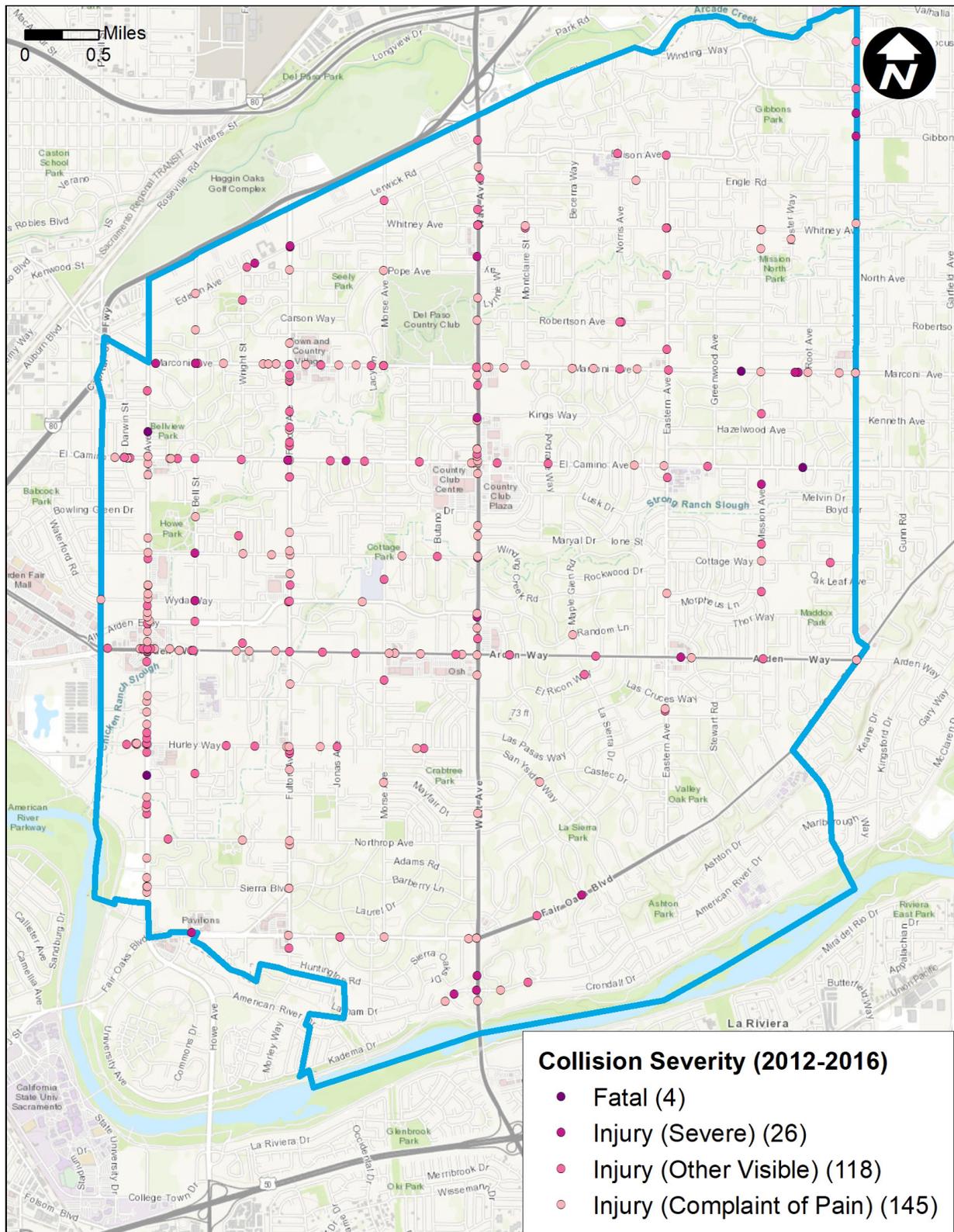
184 of 189 collisions mapped in Arden Arcade, CA.



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

Bicyclist collisions 2012-2016

293 of 297 collisions mapped in Arden-Arcade, CA.



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

Appendix B

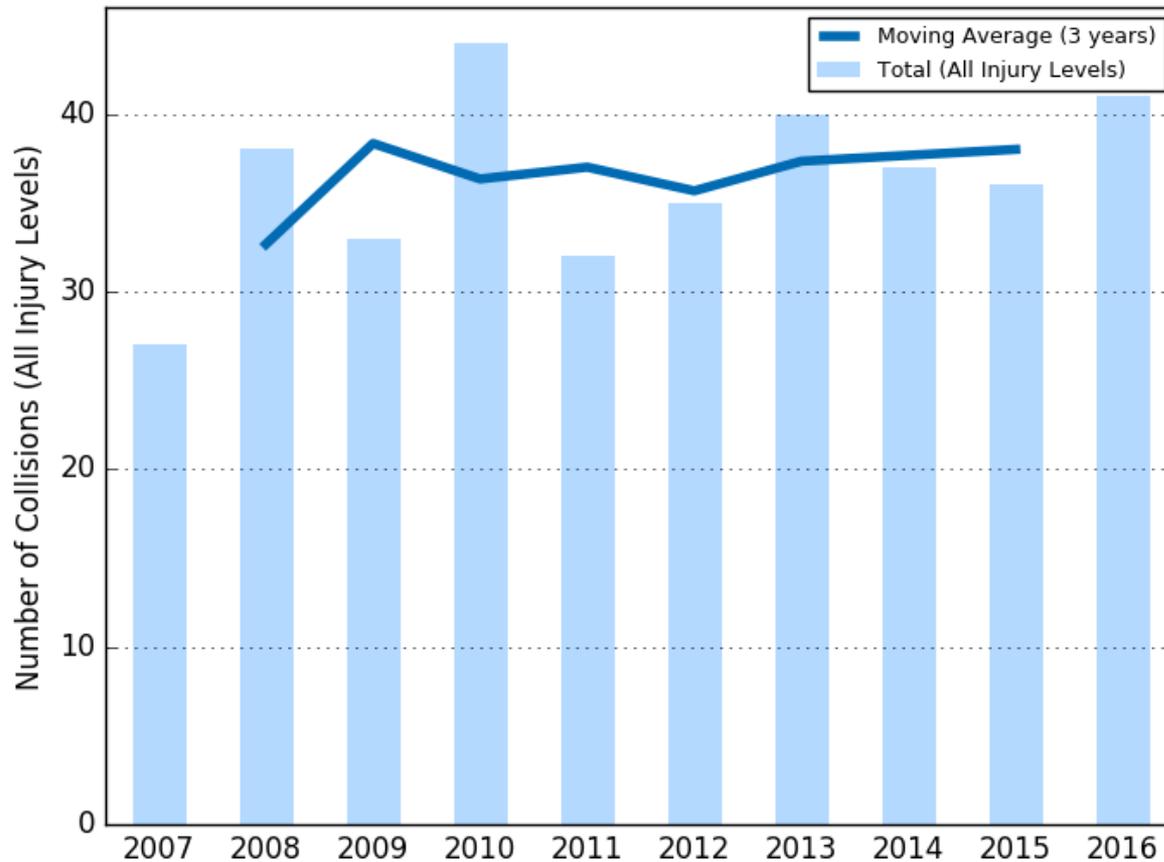
Pedestrian and Bicycle Collision Data Analysis
Site Visit Presentation

Community Pedestrian and Bicycle Safety Workshop Site Visit

Arden-Arcade, CA

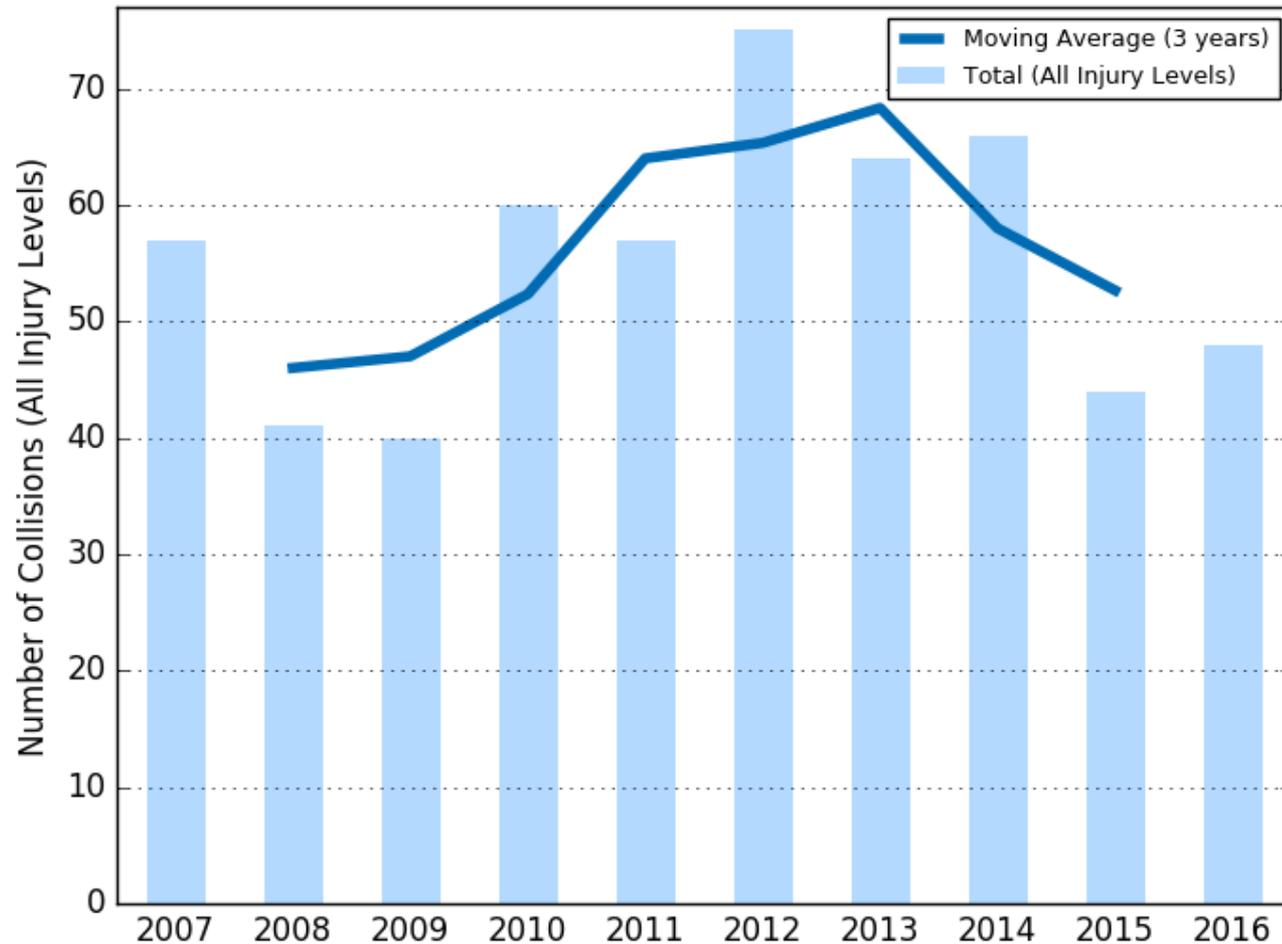
2/16/18

Pedestrian Injury Collision Trend with 3-year moving average



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

Bicycle Injury Collision Trend with 3-year moving average

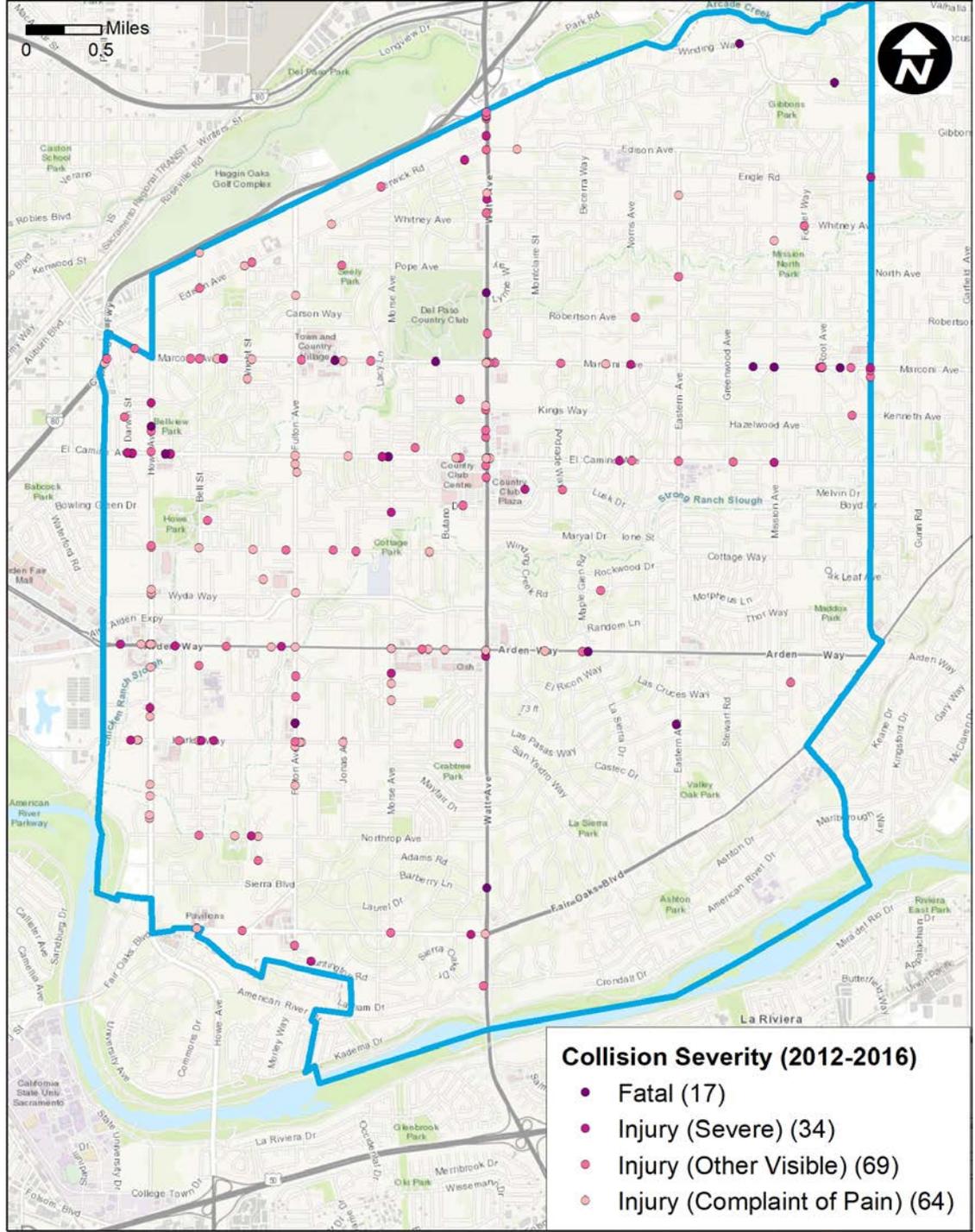


Note: 2015 and 2016 SWITRS data are provisional as of November 2017.

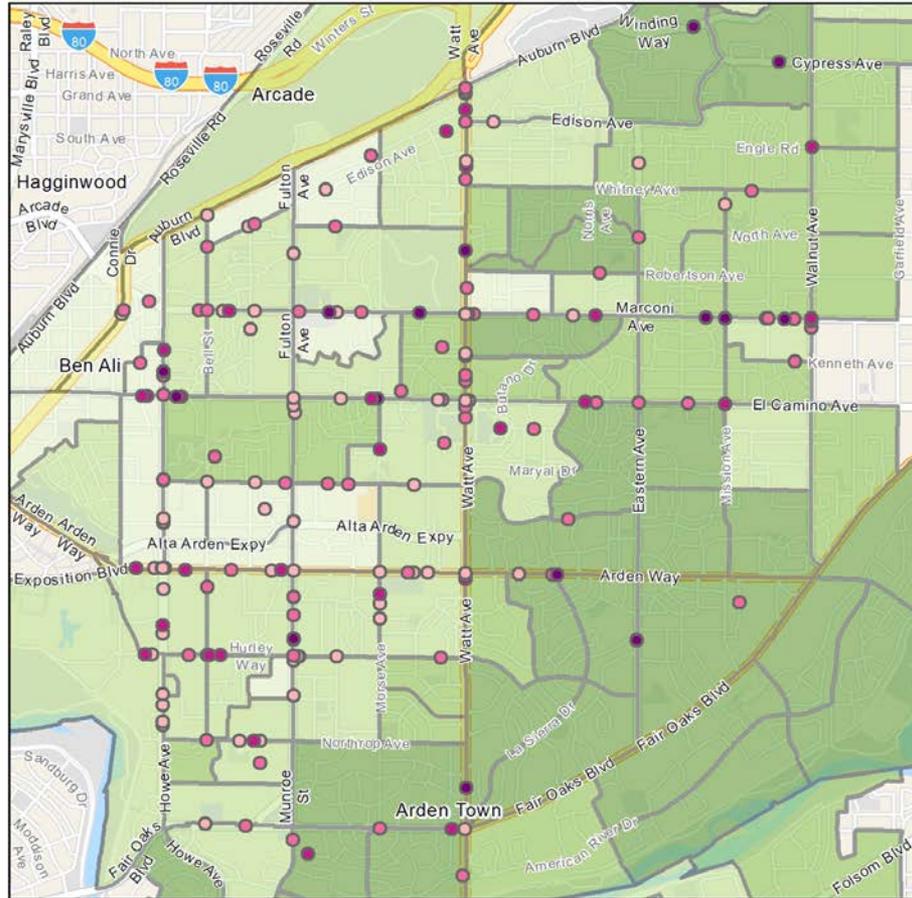
Pedestrian Injury Collisions 2012-2016

Only 184 of 189 collisions are mapped.

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



Arden_Arcade Pedestrian Collision Map (2012 - 2016)



Collision Severity (2012-2016)

- Fatal (17)
- Injury (Severe) (34)
- Injury (Other Visible) (69)
- Injury (Complaint of Pain) (64)

2016 Median Household Income

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

Pedestrian Injury Collisions by Time of Day and Day of Week Total: 189 collisions

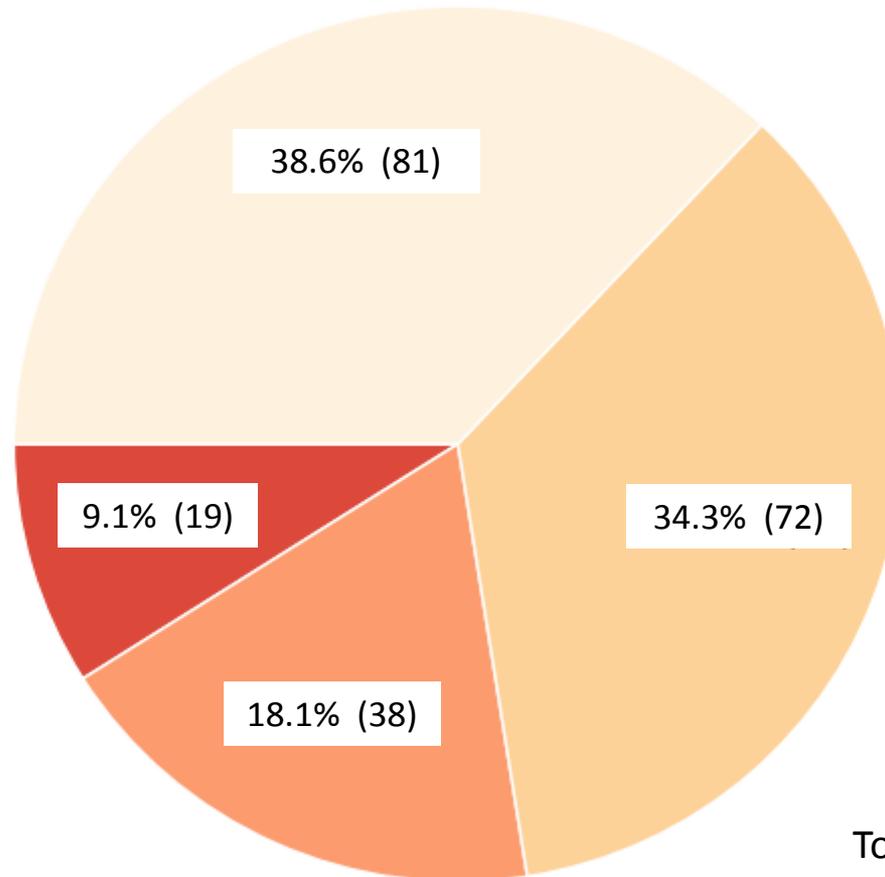
09:00PM-11:59PM	4	0	6	6	4	4	6
06:00PM-08:59PM	5	9	5	7	8	5	5
03:00PM-05:59PM	6	5	8	4	3	5	5
Noon-02:59PM	9	4	2	7	5	3	2
09:00AM-11:59AM	4	3	2	1	1	3	1
06:00AM-08:59AM	1	5	4	6	5	0	0
03:00AM-05:59AM	2	0	2	0	0	0	0
Midnight-02:59AM	2	1	0	0	0	2	1
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

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

Top 10 Violations in Pedestrian Injury Collisions (with # and %) Total: 189 collisions

CVC No.	Description	No.	%
21954	Pedestrian failure to yield right-of-way to vehicles	63	33.3%
21950	Failure to yield right-of-way to pedestrians at a crosswalk	35	18.5%
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	11	5.8%
22107	Unsafe turning with or without signaling	10	5.3%
21952	Failure to yield right-of-way to pedestrians on sidewalks	9	4.8%
0	Unknown	8	4.2%
21804	Failure to yield right-of-way when entering/crossing a highway	8	4.2%
22106	Unsafe starting or backing of vehicle	8	4.2%
21955	Pedestrian must cross at crosswalks between adjacent traffic signal controlled intersections	7	3.7%
22350	Speeding on the highway	7	3.7%

Pedestrian Victim Injury Severity

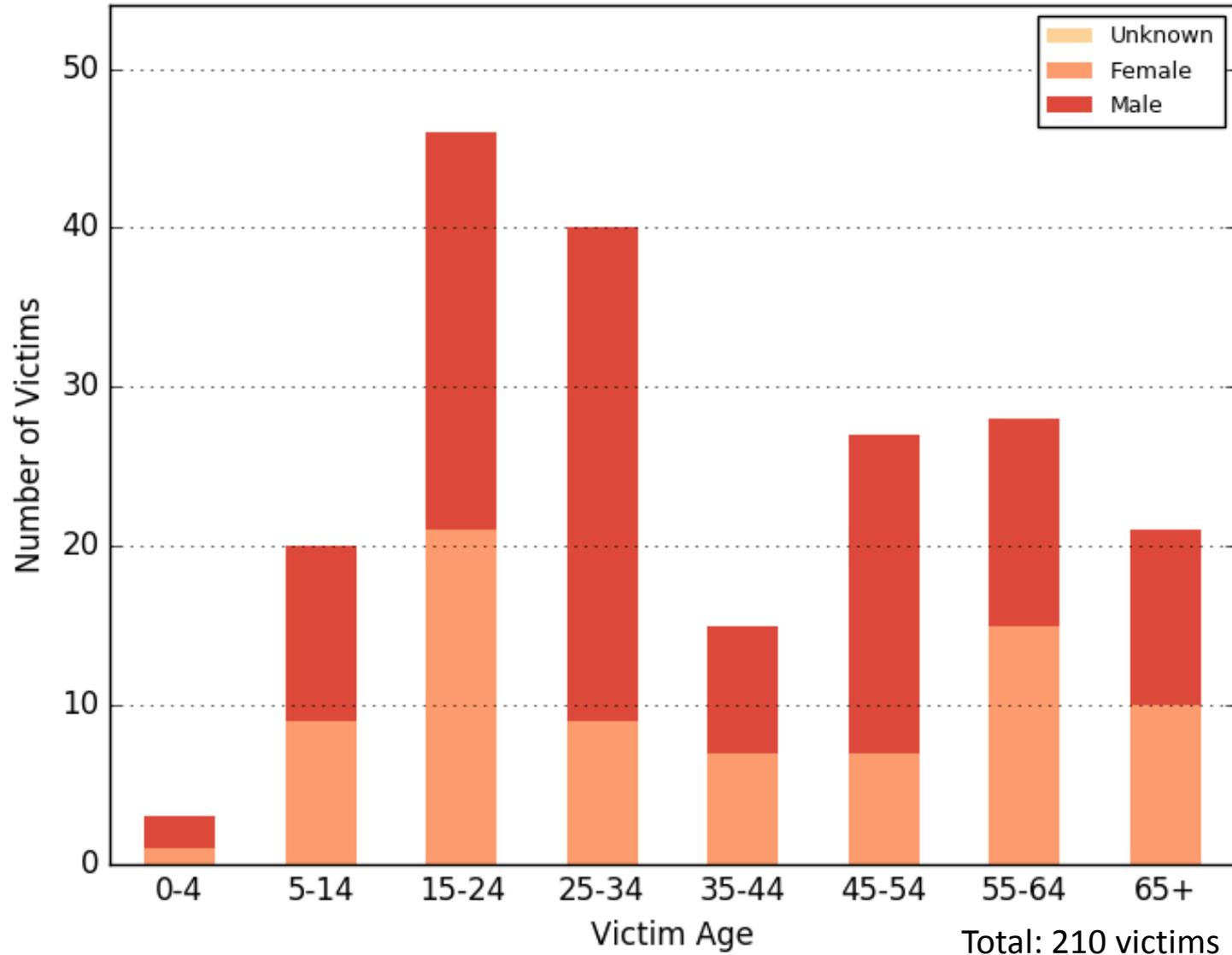


Total: 210 victims



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

Pedestrian Victims by Age and Gender

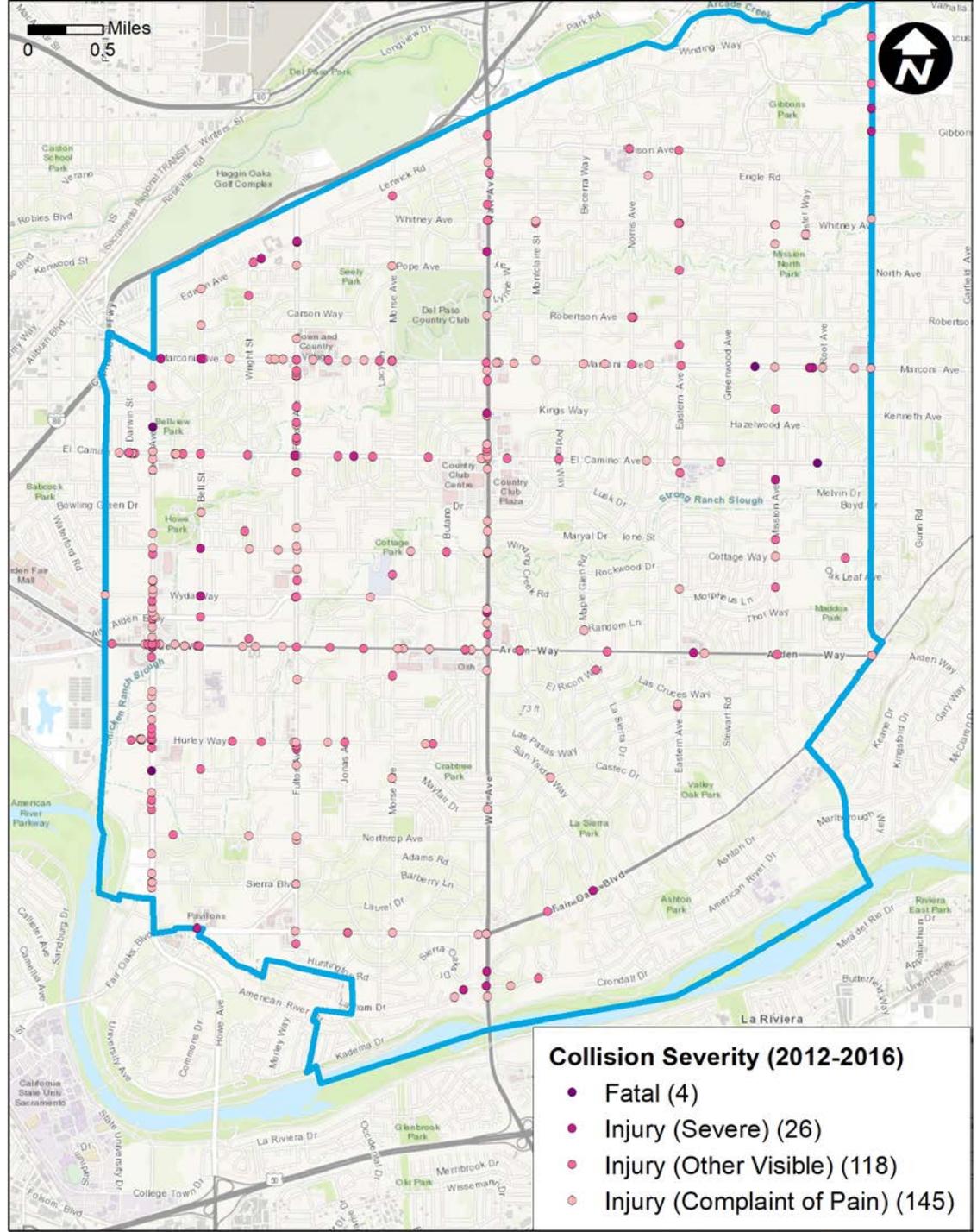


Note: 2015 and 2016 SWITRS data are provisional as of November 2017.

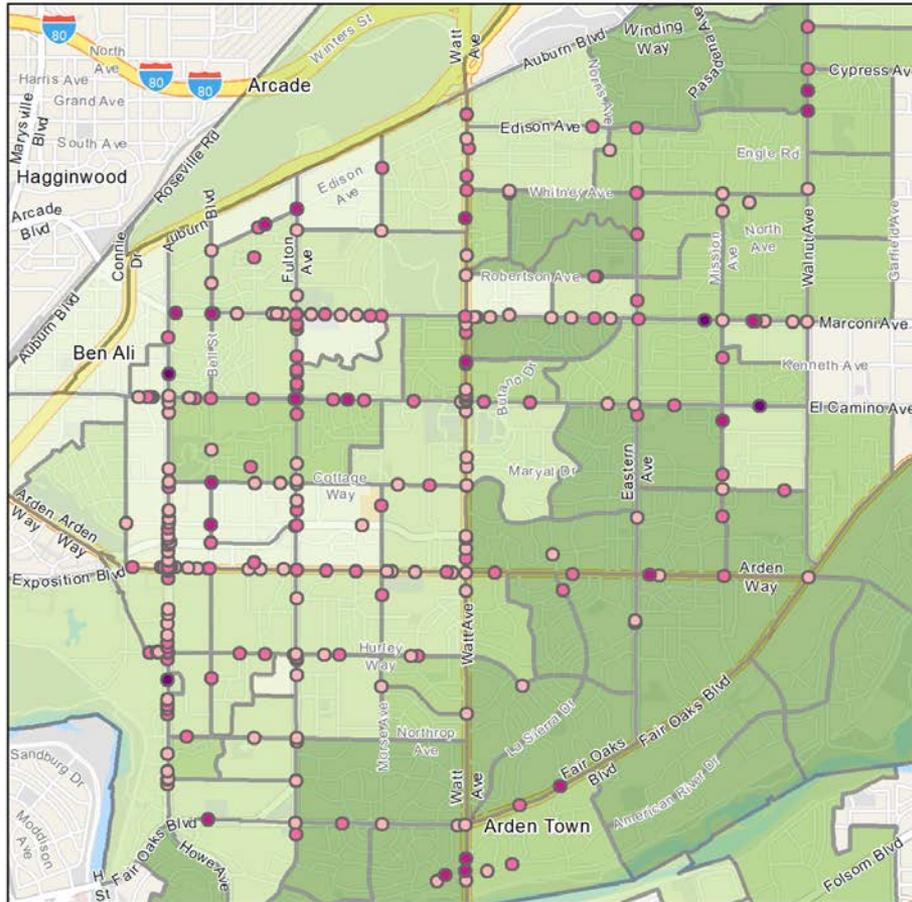
Bicycle Injury Collisions 2012-2016

Only 293 of 297 collisions are mapped.

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



Arden_Arcade Bicycle Collision Map (2012 - 2016)



Collision Severity (2012-2016)

- Fatal (4)
- Injury (Severe) (26)
- Injury (Other Visible) (118)
- Injury (Complaint of Pain) (145)

2016 Median Household Income

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

Bicycle Injury Collisions by Time of Day and Day of Week Total: 297 collisions

09:00PM-11:59PM	1	2	1	5	4	3	2
06:00PM-08:59PM	11	1	4	14	2	2	4
03:00PM-05:59PM	8	17	13	10	16	8	8
Noon-02:59PM	8	7	8	21	10	7	4
09:00AM-11:59AM	7	7	12	4	11	11	7
06:00AM-08:59AM	4	8	6	8	6	1	1
03:00AM-05:59AM	0	0	0	0	0	0	0
Midnight-02:59AM	0	0	0	0	1	1	1
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

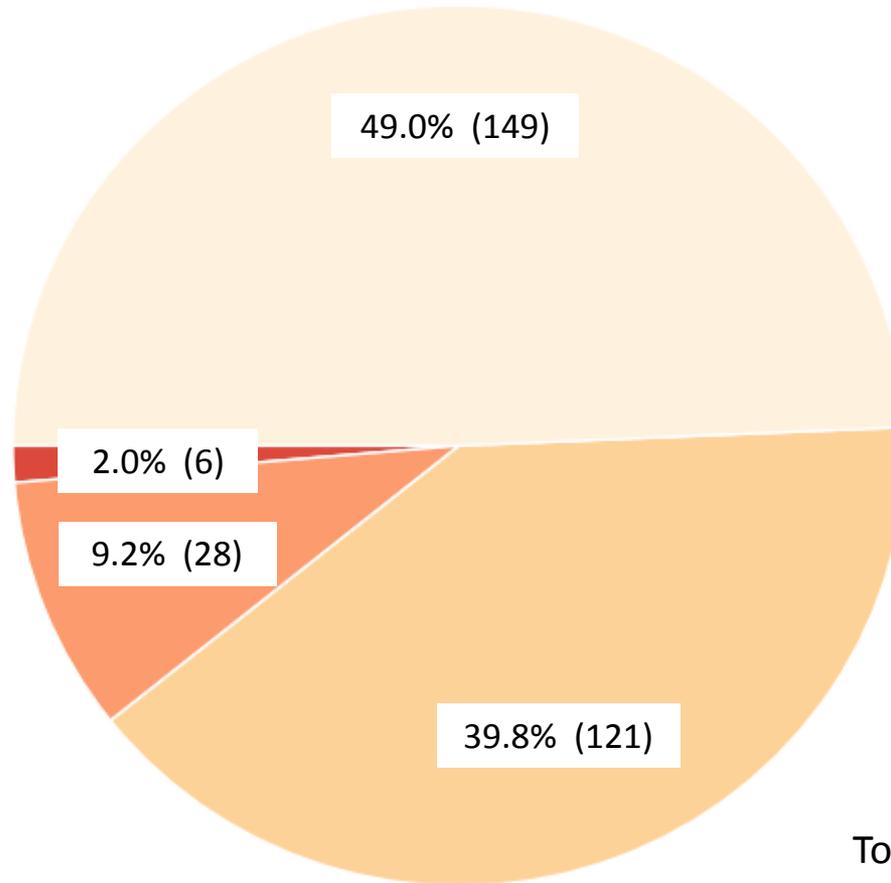
*The colors in this graph refer to how frequently a collision occurs at that time & day.

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

Total: 297 collisions

CVC No.	Description	No.	%
21650	Failure to drive on right half of the roadway (with some exceptions)	140	47.1%
22107	Unsafe turning with or without signaling	42	14.1%
21202	Bicyclist failure to ride on right edge of roadway (with some exceptions)	24	8.1%
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	22	7.4%
21801	Failure to yield right-of-way when making a left turn or U-turn	12	4.0%
22350	Speeding on the highway	10	3.4%
0	Unknown	9	3.0%
21804	Failure to yield right-of-way when entering/crossing a highway	8	2.7%
21802	Failure to stop or yield right-	6	2.0%
22450	Failure to stop at a limit line or crosswalk at a stop sign	5	1.7%

Bicycle Victim Injury Severity

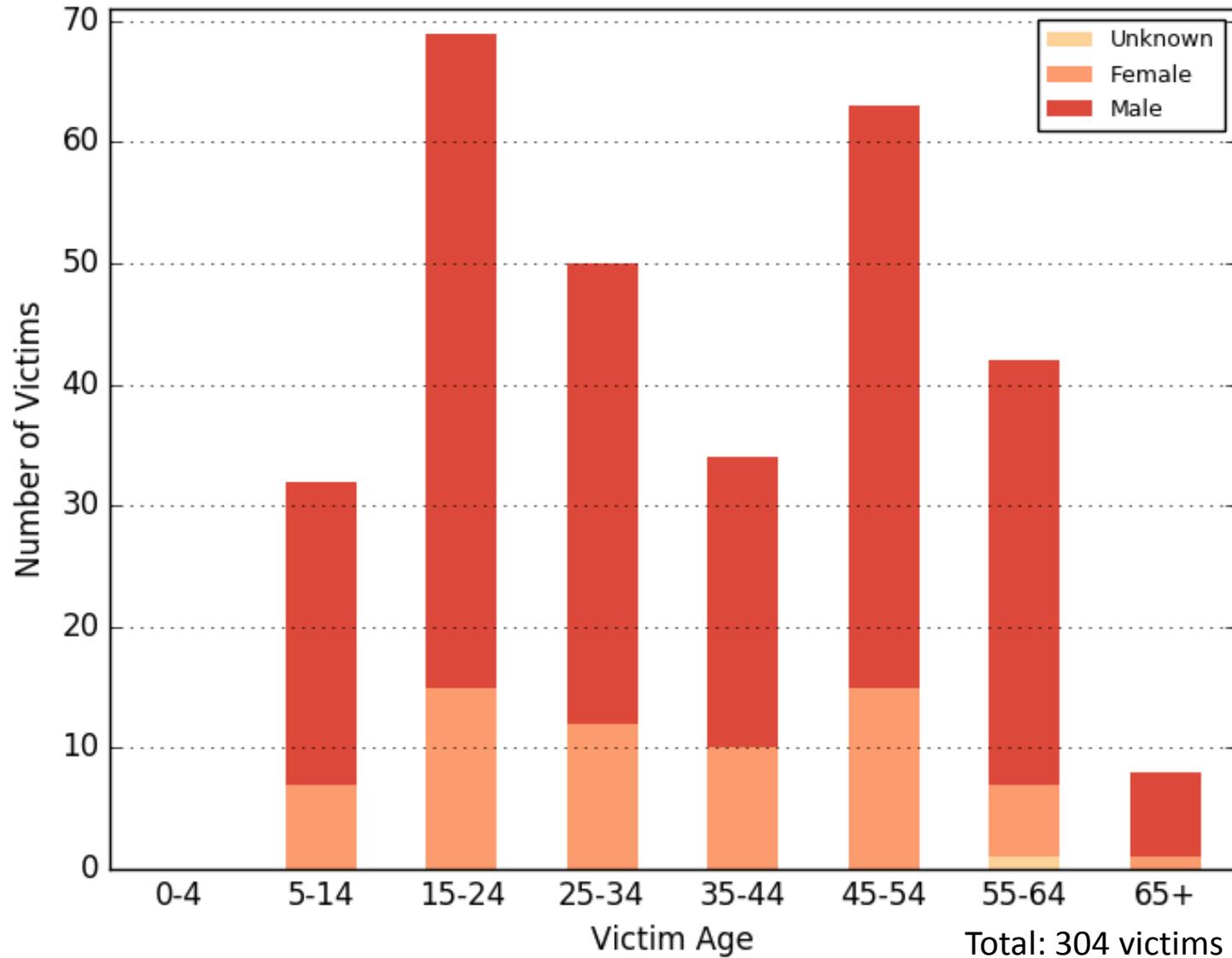


Total: 304 victims



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.

Arden Middle

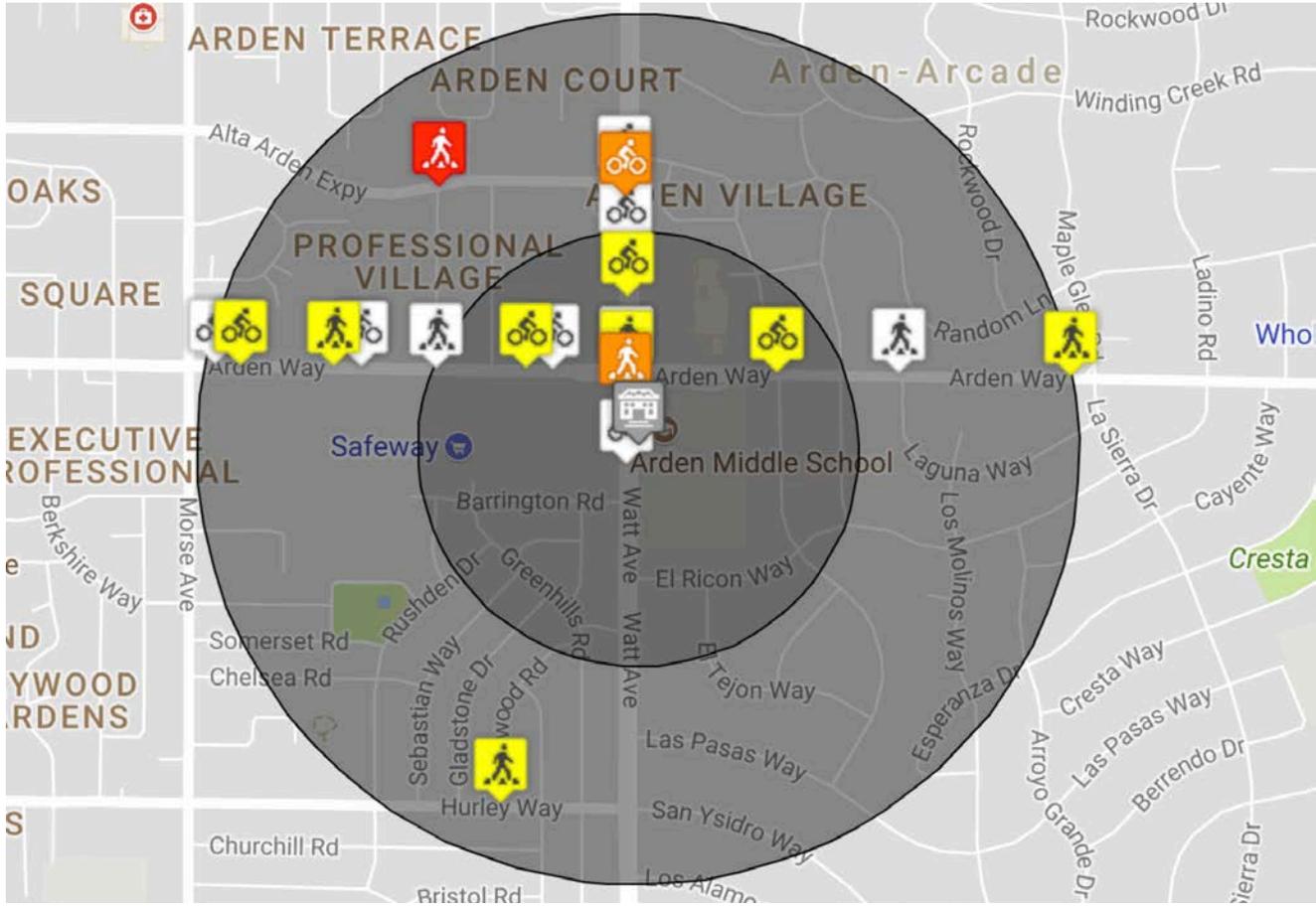
1640 Watt Avenue | Sacramento | Sacramento County | CDS: 34674476034359

Types of Collisions: Bicycle Pedestrian

Collision Severity: Fatal Severe Injury Other Visible Injury Complaint of Pain

Years: 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 * 2016 *

* 2015 - 2016 data is provisional and subject to change.



Radius	Fatal	Severe Injury	Visible Injury	Complaint of Pain	Pedestrian	Bicycle	Total
< ¼ mi.	0	1	5	6	4	8	12
¼ - ½ mi.	1	1	4	6	6	6	12
Total	1	2	9	12	10	14	24

Thomas Edison Language

Institute K-8

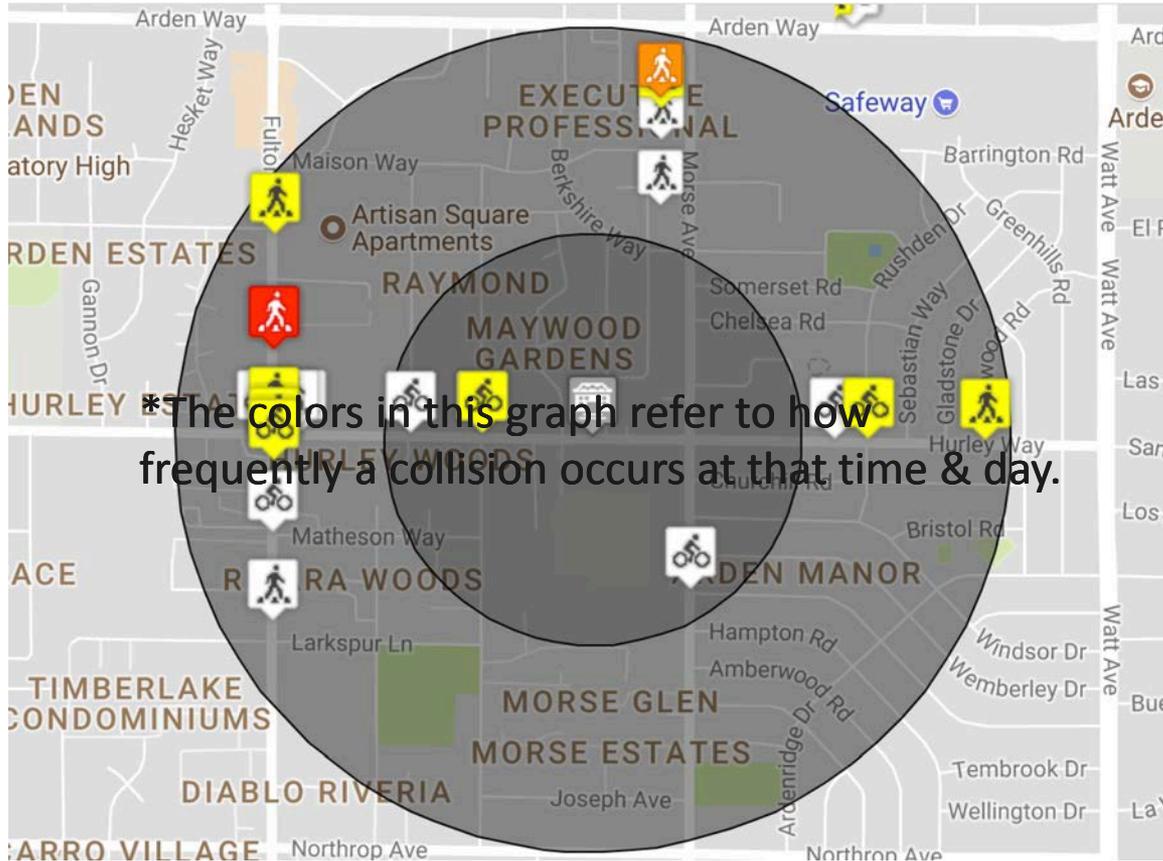
2950 Hurley Way | Sacramento | Sacramento County | CDS: 34674476034540

Types of Collisions: Bicycle Pedestrian

Collision Severity: Fatal Severe Injury Other Visible Injury Complaint of Pain

Years: 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 * 2016 *

* 2015 - 2016 data is provisional and subject to change.



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

Radius	Fatal	Severe Injury	Visible Injury	Complaint of Pain	Pedestrian	Bicycle	Total
<¼ mi.	0	0	1	3	1	3	4
¼ - ½ mi.	1	2	7	11	12	9	21
Total	1	2	8	14	13	12	25

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/>

