



Recommendations to Improve Pedestrian & Bicycle Safety for the Community of East Bakersfield



October 2017



Berkeley SafeTREC

SAFE TRANSPORTATION RESEARCH AND EDUCATION CENTER

Recommendations to Improve Pedestrian & Bicycle Safety for the Community of East Bakersfield

By Austin Hall, Tony Dang, Wendy Ortiz, California Walks; Jill Cooper, Katherine Chen, Ana Lopez, UC Berkeley Safe Transportation Research & Education Center (SafeTREC)

Introduction

At the invitation of the Kern County Department of Public Health, the University of California at Berkeley's Safe Transportation Research and Education Center (SafeTREC) and California Walks (Cal Walks) facilitated a community-driven pedestrian and bicycle safety action-planning workshop in East Bakersfield to improve pedestrian safety, bicycle safety, walkability, and bikeability across the East Bakersfield community.

Prior to the workshop, Cal Walks staff conducted an in-person site visit on Friday, July 14, 2017, to adapt the Community Pedestrian and Bicycle Safety Training program curriculum to meet the local communities' needs and to provide context-sensitive example strategies for the community's existing conditions. Cal Walks facilitated the workshop on August 22, 2017, which consisted of: 1) an overview of multidisciplinary approaches to improve pedestrian and bicycle safety; 2) three walkability and bikeability assessments along three routes; and 3) small group action-planning discussions to facilitate the development of community-prioritized recommendations to inform East Bakersfield's active transportation efforts. This report summarizes the workshop proceedings, as well as ideas identified during the process and recommendations for pedestrian and bicycle safety projects, policies, and programs.

Background

Community Pedestrian and Bicycle Safety Training Program

The Community Pedestrian and Bicycle Safety Training (CPBST) program is a joint project of UC Berkeley SafeTREC and Cal Walks. Funding for this program is provided by a grant from the California Office of Traffic Safety (OTS) through the National Highway Traffic Safety Administration (NHTSA). The purpose of the CPBST program is to train local neighborhood residents and safety advocates on how to improve pedestrian and bicycle safety and to strengthen their collaboration with local officials and agency staff to make communities safer and more pleasant to walk and bike. For each training, the program convenes a multi-sector, multi-disciplinary local planning committee to tailor and refine the training's curriculum and focus to meet the community's needs. Additionally, Cal Walks staff conduct pre-training site visits to collect on-the-ground observations of existing walking and biking conditions to inform the training's scope and focus.

The half-day training is designed to provide participants with both pedestrian and bicycle safety best practices and a range of proven strategies (the 6 E's: Empowerment & Equity, Evaluation, Engineering, Enforcement, Education, and Encouragement) to address and improve pedestrian and bicycle safety conditions and concerns. Participants are then guided on a walkability and bikeability assessment of nearby streets before setting pedestrian and bicycle safety priorities and actionable next steps for their community.

For a summary of outcomes from past CPBST workshops, please visit:

www.californiawalks.org/projects/cpbst and <https://safetrec.berkeley.edu/programs/cpbst>

Selected Pedestrian & Bicycle Safety Conditions in East Bakersfield

High Speeds & Wide Streets

While the posted speed limits along many of the arterial streets that run through the community—including Niles Street, Monterey Street, Oswell Street, and Mt. Vernon Avenue—are 40-45 miles per hour (MPH), the width of the street and travel lanes are documented to encourage drivers to travel at higher speeds. 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.¹ Additionally, as former state highways, Niles Street and Monterey Street were likely designed for higher speeds than is appropriate for their current function as a surface street in a residential community.



Very wide travel lanes and overall width of street on Mt. Vernon Avenue.

¹ 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.

Faded Markings & Lack of Bicycle Facilities

Marked crosswalks and bicycle lanes are infrequent in the community, and the existing pavement markings for drivers, pedestrians, and bicycles are faded and in poor condition. Particularly for people walking and biking, these faded markings create challenging conditions when walking or biking or when attempting to cross the street. Moreover, many streets lacked striped bicycle lanes and where we observed bicyclists riding on the sidewalk instead due to their concerns with high vehicle speeds.



Faded bike lane markings on Mt. Vernon Avenue.



Faded stop sign and stop bar markings.



Bicyclist using sidewalk on Niles Street rather than biking next to fast moving vehicles on the street.

Numerous Unmarked Crossings

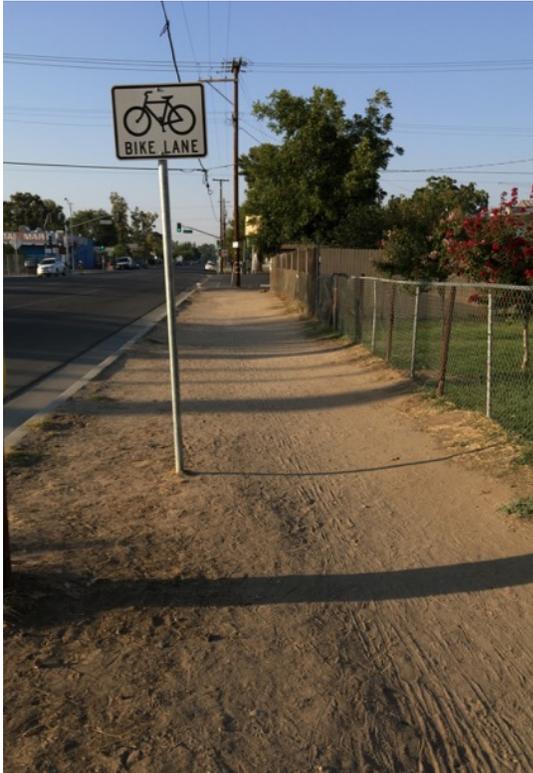
During Cal Walks' site visit and during the workshop, we noted that marked crossings generally only existed at signalized intersections, with the remaining uncontrolled intersections lacking any crosswalk marking. Due to the lengthy distances between the marked, signalized crossings, we observed numerous pedestrians legally crossing in these unmarked crossings, as well as legally crossing outside the unmarked crosswalks while yielding the right-of-way to drivers. Both drivers and pedestrians may not be aware of the pedestrians' right-of-way in unmarked crosswalks, creating challenges and conflicts between people driving and walking.



Pedestrian legally crossing midblock and outside a crosswalk on Niles Street, where marked crosswalks are only provided at signalized intersections (left) and pedestrian legally crossing in unmarked crossing in Old Town Kern (right).

Sidewalk Gaps & Accessibility Challenges

While Old Town Kern and the immediate area generally had sidewalks, we observed numerous sidewalk gaps in the residential areas of the community. Additionally, we observed a mix of curb ramps throughout the community, with Old Town Kern featuring more updated ramps, while residential streets and even some arterials either featured older style curb ramps that do not conform to ADA standards or best practices, or lack curb ramps completely.



Missing sidewalks in residential areas.



Missing curb ramps on Niles Street.

Pedestrian & Bicycle Collision History

Between 2006-2015,² there were 195 pedestrian collisions, with an overall increasing trend of pedestrian collisions over this 10-year period. Between 2011-2015, pedestrian collisions resulted in 7 fatalities and 18 severe injuries in the community of East Bakersfield, with collisions concentrated on Mt. Vernon Avenue, Niles Street, Monterey Street, and Oswell Street. The data also revealed that approximately one quarter of the victims in these pedestrian collisions were aged 14 or younger. When examining the Primary Collision Factors (PCF) over the same 5 year period, driver violations accounted for 62.3% of pedestrian collisions, while pedestrian violations accounted for 37.7%. The majority of driver violations consisted of pedestrian right-of-way violations, while pedestrian violations involved pedestrians failing to yield to a driver when legally crossing outside of a crosswalk.³

² Please note 2014 and 2015 data is provisional.

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

Between 2006-2015, there were 115 bicycle collisions in the community of East Bakersfield, with an overall increasing trend of pedestrian collisions over this 10-year period. Over the most recent 5-year period from 2011-2015, there was 1 fatal bicycle collision and 4 severe injury bicycle collisions, with collisions concentrated on Mt. Vernon Avenue, Niles Street, and Oswell Street. The data revealed almost half (47.4%) of the victims in these bicyclist collisions were aged 19 or younger, and more than three-quarters (78%) were male.

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

August 22, 2017 Workshop

The Kern County Department of Public Health requested a workshop to 1) provide City/County staff, community organizations, and residents with a toolkit for promoting pedestrian and bicycle safety to inform future active transportation projects; 2) strengthen working relationships between residents, City and County staff, and other stakeholders to ensure the best outcomes for the residents of East Bakersfield; and 3) develop consensus regarding pedestrian and bicycle safety priority and actionable next steps.



Participants learning and discussing the 6 E's approach to pedestrian and bicycle safety.

The workshop was hosted from 3:30 pm to 8:00 pm at the Boys and Girls Club of Kern County, and dinner and simultaneous interpretation from English to Spanish were provided to maximize community participation. Twenty-seven (27) individuals attended the workshop, including representatives from City of Bakersfield Public Works Department, Bakersfield Police Department, Bakersfield City Manager's Office, Bakersfield City Councilmembers Andrae Gonzales and Bob Smith, Bike Bakersfield, Golden Empire Transit (GET), Kern County Department of Public Works, Kern County Department of Public Health, Kern Medical, Kern Family Health Care, the Kern Council of Governments (KernCOG), and

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.

community residents. Additionally, local TV news stations KGET TV17 and KERO23 representatives attended the workshop and filmed segments to extend the reach pedestrian and bicycle safety education messages promoted during the workshop.

Reflections from Walkability & Bikeability Assessment

Workshop participants conducted walkability and bikeability assessments along 3 routes:

- Route 1 traveled west on Niles Street, south on Baker Street, east on Kentucky Street, and north on Beale Avenue. This route was focused on the general walking environment in the area of Old Town Kern immediately adjacent to the Boys and Girls Club;
- Route 2 traveled east on Niles Street to Williams Street and then back west on Monterey Street. This route focused on examining conditions along the Niles Street and Monterey Street couplet, particularly crossing conditions;
- Route 3 traveled west on Niles Street, south on Tulare Street, east on Lake Street, and north on King Street. This route was focused on the general walking environment in the area of Old Town Kern immediately adjacent to the Boys and Girls Club.

Participants were asked to 1) observe infrastructure conditions and the behavior of all road users; 2) apply strategies learned from the 6 E's 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.

Following the walkability and bikeability assessment, the participants shared the following reflections:

- **Sidewalk Maintenance & Accessibility Challenges:** Participants noted that sidewalks in the neighborhood, particularly on Niles Street and Kentucky Street, were broken and uneven due to overgrown tree roots. Participants also identified overgrown vegetation encroaching on the sidewalk as a recurring issue that limited the use of the sidewalk.

Additionally, participants observed a general lack of curb cuts and truncated domes where curb cuts were present. Participants did note that some locations, particularly in the Old Town Kern area, had curb ramps and some accessible pedestrian signals. Overall, participants commented that accessibility and ADA-compliance was mixed in the observation areas.

- **Faded Crosswalk Markings & Lack of Marked Crosswalks:** Participants observed numerous worn and faded crosswalk markings near the Boys and Girls Club of Kern County, especially along King Street. Along King Street and many adjacent streets, the road pavement is in poor condition, and participants identified numerous faded marked crosswalks that made crossing more challenging and potentially dangerous for pedestrians. Along Route 2, participants observed numerous unmarked crossings existed between the signalized intersections on Niles Street and Monterey Street, and the group discussed the legal right of pedestrians to cross at these unmarked crosswalks.



Wide travel lanes and street width on Monterey Street, which is signed for 40 MPH.

- **High Speeds & Wide Roads:** The posted speed limit on Niles Street is 40 MPH, yet participants shared that drivers appeared to travel at much higher speeds. Additionally, participants noted a lack of speed limit signage near the Boys and Girls Club, particularly along Beale Avenue. Overall, participants identified the high speeds along the major roads in the area as a huge safety barrier for people walking and biking.
- **Lack of Pedestrian-Scale Lighting:** Participants commented on the lack of pedestrian-scale lighting during the walk assessment. In particular, participants identified a need for more adequate lighting at transit stops, near storefronts, and community activity areas such as the Boys and Girls Club.
- **Distracted Driving:** Participants commented that numerous drivers were observed using their cell phones or otherwise distracted by their cell phones during the walk assessment.
- **Extending Improvements from Old Town Kern to Neighborhood:** Participants highlighted numerous aspects of the Old Town Kern walking environment—including wide sidewalks, landscape buffer/planter strips, nice trees, and a lively street with people out walking—that they would like to see extended to other areas of the community.



Example of good walking conditions in Old Town Kern that participants would like to see extended to other parts of the community.

Community Resident Recommendations

Following the walkability and bikeability assessment, Cal Walks facilitated small-group action planning discussions. Workshop participants discussed a series of questions developed in conjunction with local partners, including:

- The first set of questions focused on identifying education and encouragement programs that would be most effective for the community and would be most effective at engaging East Bakersfield's drivers, bicyclists, and pedestrians in promoting safety. This set of questions also included a discussion on what currently prevents participants from walking or riding your bicycle more often.
- The second set of questions focused on identifying specific infrastructure projects for East Bakersfield, where those infrastructure projects are most needed, and how should the City and the County prioritize which projects to pursue.



Participants engaged in small group action planning discussions.

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

Non-Infrastructure Priorities & Recommendations

- **Community Walking Groups:** Workshop participants identified the establishment of community walking groups as a priority. These walking groups could act as bodies to identify infrastructure challenges related to walking in East Bakersfield. This recommendation included developing a more formal walking school bus program at local schools; organizing the community around weekly clean ups, tree planting/beautification, and establishing and managing trash receptacles; and organizing a neighborhood watch component to walking groups.
- **Empowering Youth & Parent Leadership:** Participants expressed a strong desire for already established youth leadership efforts in East Bakersfield to serve as the foundation for engaging and empowering more youth to work with the City and County to address walking and biking issues, with parents engaged in the process as leaders as well. Participants were interested in training high school students using a “train the trainer” model to cultivate youth leaders who would in turn educate younger students around walk and bike safety. Educating senior youth would tie into a walking school bus program led by the Boys and Girls Club and/or the Bakersfield City School District and could include incentives for participants and possible weekend walk groups. Participants also identified that they would like bike rodeos, safety presentations, and selected enforcement by the Bakersfield Police Department to continue. Participants expressed interest in Heritage Park, Williams Elementary School, and/or the Boys and Girls Club being “hubs” for these educational efforts.
- **Public Safety Education Campaign:** Participants expressed strong interest in an educational campaign around safe behaviors for pedestrians, bicyclists, and drivers. Participants identified the following behaviors for the focus of a safety education campaign: establishing eye contact between pedestrians, bicyclists, and drivers; promoting people to lead by example; and education on how to cross the street without a marked crosswalk. Participants also identified the need for a safety campaign to address the overall culture of being in a hurry, which participants believed greatly impacted how safely people drive, walk, or bike in the community.

Specific strategies for where and how to implement the campaign included:

- Strengthening the pedestrian and bicyclist elements of local Driver’s Education courses;
- Incorporating a “Stop, Look, and Wave” campaign similar to the campaign from the City of San Bruno;
- Implementing and expanding police officers patrolling on bicycles;
- Public service announcements using: billboards; bus shelters; bus wraps; radio, social media, local news, and Spanish TV stations;
- **Walking & Biking Encouragement Campaign:** Participants agreed that there were numerous stigmas associated with walking and biking in East Bakersfield and discussed launching a public information campaign to combat those stigmas. Participants suggested highlighting and profiling people who walk or bike to school to increase community awareness and address the perceived negative mindset. These profiles could also be linked with the proposed public safety education campaign. The addition of police officers on bikes would benefit this campaign as well. Participants expressed interest in organizing community pledges to walk and/or bike a few times a week. Finally, participants considered organizing a Ciclovía on Baker Street or on Niles

Street/Monterey Street as something that could help challenge community members to walk and bike more.

Additionally, participants identified the following challenges that prevent them from walking and biking and that the encouragement campaign would need to consider:

- Extreme weather, particularly heat and the lack of shade;
- Glass on the street in bike lanes and litter on sidewalks;
- Lack of pedestrian-scale lighting;
- High speed of traffic; and
- Aggressive and/or stray animals.

Infrastructure Priorities & Recommendations

- **Data-Driven Prioritization & Special Consideration for Schools and Parks:** Participants agreed on the need for more efficient and up-to-date data on collisions in order to identify and prioritize where improvements were most necessary in a timely manner. Participants identified as a priority for the City to develop an integrated database utilizing collision information from local law enforcement to track the most recent injuries and fatalities. Participants also expressed interest in the City creating a web-reporting tool to identify high-frequency collision locations and other areas of concern by residents to enable more effective planning for infrastructure improvements. Participants shared a specific interest in having improvements target schools and parks, as they are destinations that serve youth--who are more likely to rely on walking and biking than adults.
- **Bicycle Improvements:** Participants strongly supported improving the overall bicycle infrastructure of East Bakersfield with more dedicated on-street bicycle facilities. Specifically, participants supported the installation of physically separated bicycle lane along Niles Street, as well as implementing increasing the number of road diets in the community to create the space necessary for bicyclists and to slow traffic. Participants also identified the need for additional bicycle racks in the community, particularly in the Old Town Kern area.
- **Improved Street Lighting:** Workshop participants unanimously agreed East Bakersfield lacked adequate street lighting and pedestrian-scale lighting. Participants shared that existing lighting is too dim and that more lighting is needed in key activity areas such as the Boys and Girls Club, where children and families attend evening and nighttime events.
- **Improved Pedestrian Crossings:** East Bakersfield has few marked crosswalks aside from at signalized intersections, and those that are marked often feel unsafe. Participants supported the addition of beacon lights to increase crosswalk visibility, as well as to increase the number and frequency of marked crosswalks present in the community. Two particular projects cited were the addition of an enhanced crosswalk where Niles Street and Monterey Street join and where a new community pocket park is slated for construction and improving the crosswalk at Ridge Road and Mt. Vernon Avenue. Participants also requested addition curb ramps be added throughout community.



Future location of community pocket park where an enhanced crossing is needed to enable residents to access the pocket park.

California Walks/SafeTREC Recommendations

California Walks and SafeTREC also submit the following recommendations for consideration by the Kern County Department of Public Health, Kern County Department of Public Works, City of Bakersfield Public Works, and residents:

- **Establish Crosswalk Installation Guidelines:**⁴ Due to the numerous unmarked crossings observed in the community and the distances between signalized intersections where marked crossings are generally provided, we recommend the City Public Works Department develop crosswalk installation guidelines to establish standards for new crosswalk installation, preferred marked crosswalk frequency, and minimum safety enhancements to be considered for marked crosswalk installation (such as high-visibility crosswalk markings, pedestrian median islands, rectangular rapid flashing beacons, corner parking restrictions/daylighting, etc.). A publicly available guideline can clarify decision-making and prioritization for new crosswalk marking installations or crosswalk enhancement requests and can communicate this process for all stakeholders.
- **Integrate Complete Streets into Maintenance Projects:** We recommend that the City integrate a complete streets approach in the Department of Public Works' maintenance projects through the use of a complete streets/paving project coordination checklist⁵ to help ensure that regular

⁴ We recommend looking at other cities crosswalk guidelines, including the City of Sacramento's Pedestrian Crossing Guidelines, available at <https://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Publications/Transportation/Bicycle-Pedestrian/Ped-Safety.pdf>; the City of El Cerrito Active Transportation Plan Appendix A Crosswalk Policy (2016), available at elcerrito.civicplus.com/DocumentCenter/View/6291; and the City of Oakland's Crosswalk Policy and accompanying Crosswalk Location Decision Matrix and Crosswalk Treatment Options Chart, available at www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak025058.pdf

⁵ See City of Oakland Checklist for Complete Streets/Paving Project Coordination as an example. Available at https://safety.fhwa.dot.gov/road_diets/guidance/docs/oakland_chklist.pdf

road maintenance projects include pedestrian and bicycle safety improvements whenever possible. This is a cost-effective approach that we have seen work in other communities to dramatically expand their bicycle networks and to improve pedestrian and bicycle safety.

- **Invest in Real-Time Collision Data Collection:** We recommend that the City pursue funding, either internally or through grant funding, to invest in a real-time collision data collection system. We also recommend that Kern County Department of Public Health consider providing partial funding to the City to pursue this shift to a digital real-time collision data collection system. Many police departments across the state are switching to the digital collection of traffic collision data and enables data input and analysis within in a timely fashion. A digital collision data system would also enable data to be more quickly finalized and shared to non-law enforcement stakeholder agencies and the public.
- **Document Speeds on Selected Roadways:** Since speed was identified as a concern by our team and the community, and many vehicles were judged to be speeding before and during the workshop, we recommend that the City conduct updated speed surveys to provide quantitative data about the problem in the community and to inform pedestrian and bicycle safety strategies going forward.

Acknowledgments

We would like to thank Tammy Fisher and Flor Del Hoyo of Kern County Public Health for inviting us to East Bakersfield and for hosting the Community Pedestrian and Bicycle Safety Training. We would also like to thank Bakersfield City Councilmembers Andrae Gonzales and Bob Smith for joining and fully participating in the 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.

Appendix A

Pedestrian and Bicycle Collision Data Analysis

Community Pedestrian and Bicyclist Safety Workshop – East Bakersfield, CA – August 22, 2017

Pedestrian and Bicycle Collision Analyses, 2006-15*

PEDESTRIANS

Number of Collisions Involving Pedestrians, 2006-15



The **blue** line shows the number of pedestrian collisions where a fatality and/or injury occurred. There were 215 people injured or killed in 195 pedestrian collisions over the last 10 years.

The **green** line shows the three-year moving average of the number of pedestrian collisions where a fatality and/or injury occurred. The moving average is useful for tracking trend change over time, especially when the number of collisions is subject to variability. Data points are the midpoint of the three years of data specified.

The following analyses are based on the most current five years, 2011 to 2015, of data for East Bakersfield, CA. There were 117 people killed or injured in 106 pedestrian collisions.

Top Violation Types for Collisions Involving Pedestrians

| Type of Violation | Collisions N (%) |
|---|---------------------|
| Pedestrian yield, upon roadway outside crosswalk | 40 (37.7%) |
| Driver must yield to pedestrian right of way in a crosswalk | 32 (30.2%) |
| Unsafe speed for prevailing conditions (use for all prima facie limits) | 6 (5.7%) |
| Unsafe turn with or without signaling | 5 (4.7%) |
| Red or stop, vehicles stop at limit line or crosswalk. 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 | 4 (3.8%) |
| Other violations | 19 (17.9%) |
| Total | 106 (100.0%) |

Pedestrian Actions in Collisions Involving Pedestrians

| Pedestrian Action | Collisions N (%) |
|---------------------------------------|---------------------|
| Crossing in Crosswalk at Intersection | 41 (36.7%) |
| Crossing Not in Crosswalk | 40 (37.7%) |
| In Road, including shoulder | 22 (20.8%) |
| Not in Road | 3 (2.8%) |
| Total | 106 (100.0%) |

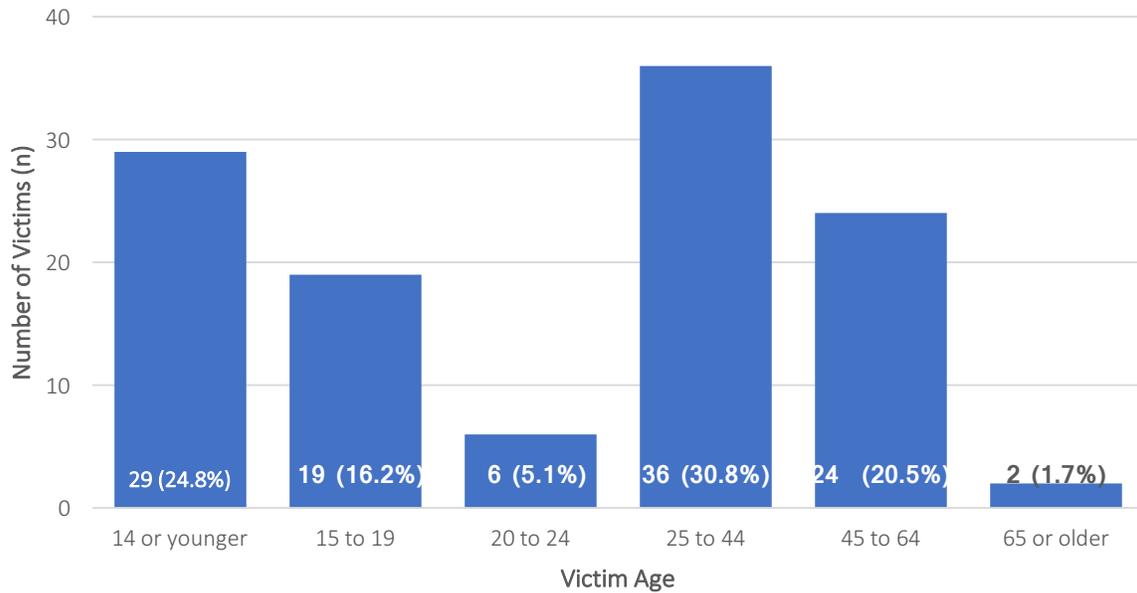
* Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2014 and 2015 are provisional at this time.

Community Pedestrian and Bicyclist Safety Workshop – East Bakersfield, CA – August 22, 2017

Pedestrian and Bicycle Collision Analyses, 2006-15*

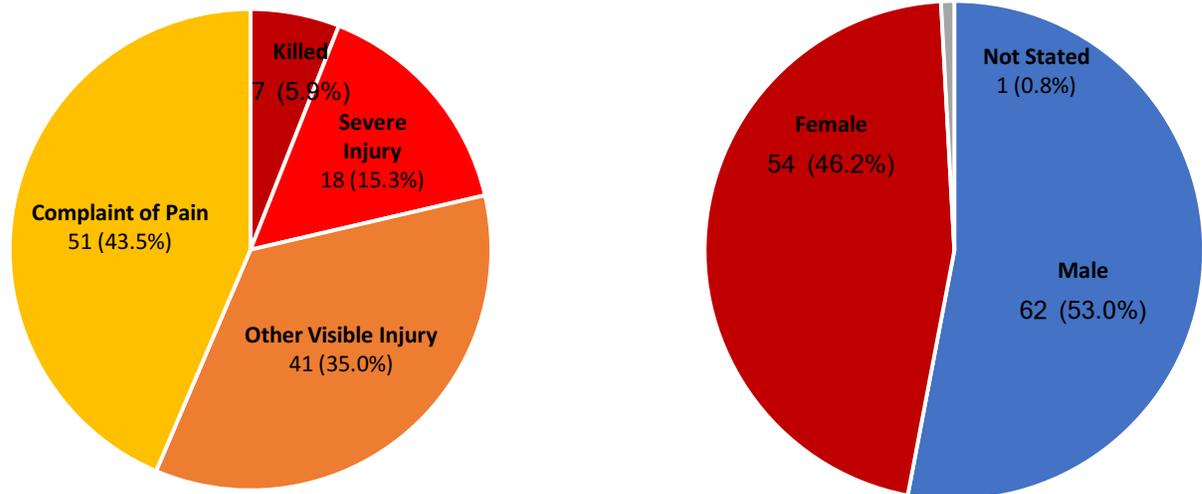
Pedestrian Victim Demographics

The age of pedestrian victims ranged considerably across all age groups, but youth age 19 and younger accounted for 41.0% of all pedestrian victims.



Victim Injury Severity, 2011-15

Most collisions resulted in minor injuries.



* Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2014 and 2015 are provisional at this time.

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

Community Pedestrian and Bicyclist Safety Workshop – East Bakersfield, CA – August 22, 2017

Pedestrian and Bicycle Collision Analyses, 2006-15*

BICYCLISTS

Number of Collisions Involving Bicyclists, 2006-2015



The **blue** line shows the number of bicycle collisions where a fatality and/or injury occurred. There were 120 people injured in 115 bicycle collisions over the last 10 years.

The **green** line shows the three-year moving average of the number of bicycle collisions where a fatality and/or injury occurred. The moving average is useful for tracking trend change over time, especially when the number of collisions is subject to variability.

The following analyses are based on the most current five years, 2011 to 2015, of data for East Bakersfield, CA. There were 59 people injured in 58 bicycle collisions.

Top Violation Types for Collisions Involving Bicycles

| Type of Violation | Collisions N (%) |
|---------------------------|--------------------|
| Automobile Right of Way | 17 (29.3%) |
| Wrong Side of the Road | 15 (25.9%) |
| Improper Turning | 11 (19.0%) |
| Traffic Signals and Signs | 7 (12.1%) |
| Other Violations | 8 (13.8%) |
| Total | 58 (100.0%) |

* Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2014 and 2015 are provisional at this time.

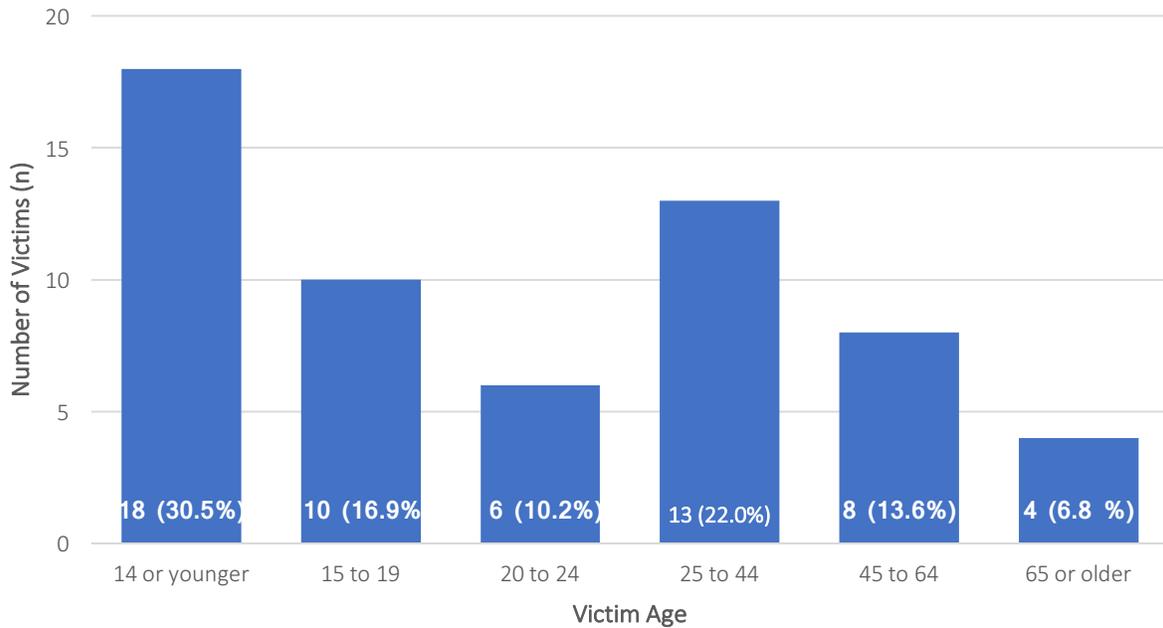
Funding for this project was provided by a grant from the California Office of Traffic Safety through the National Highway Traffic Safety Administration.

Community Pedestrian and Bicyclist Safety Workshop – East Bakersfield, CA – August 22, 2017

Pedestrian and Bicycle Collision Analyses, 2006-15*

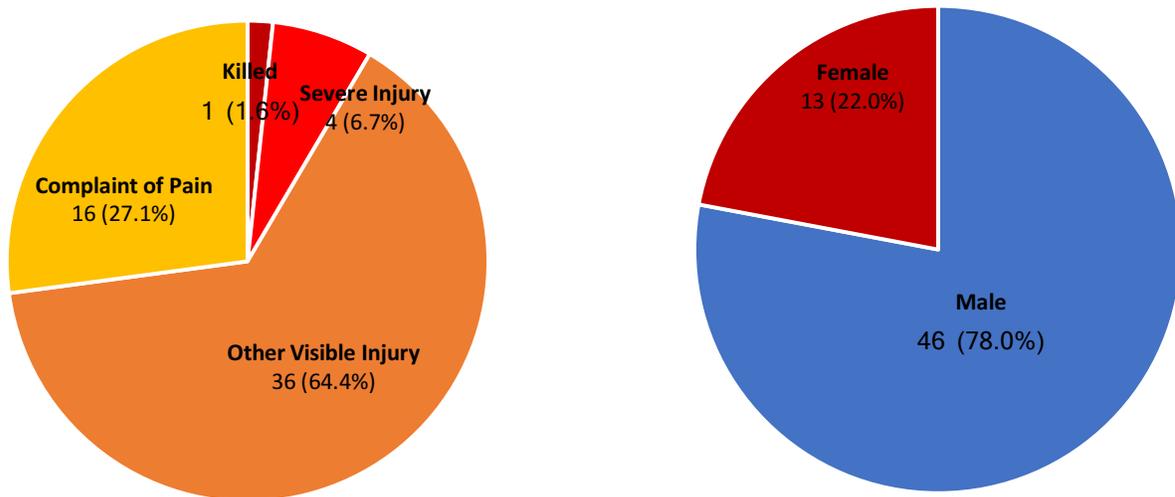
Bicycling Victims Demographics

The age of bicycling collision victims varied across all age groups, with youth age 14 or younger accounting for 25.53 percent of victims. The majority of victims were male.



Victim Injury Severity, 2011-15

Most collisions resulted in minor injuries.



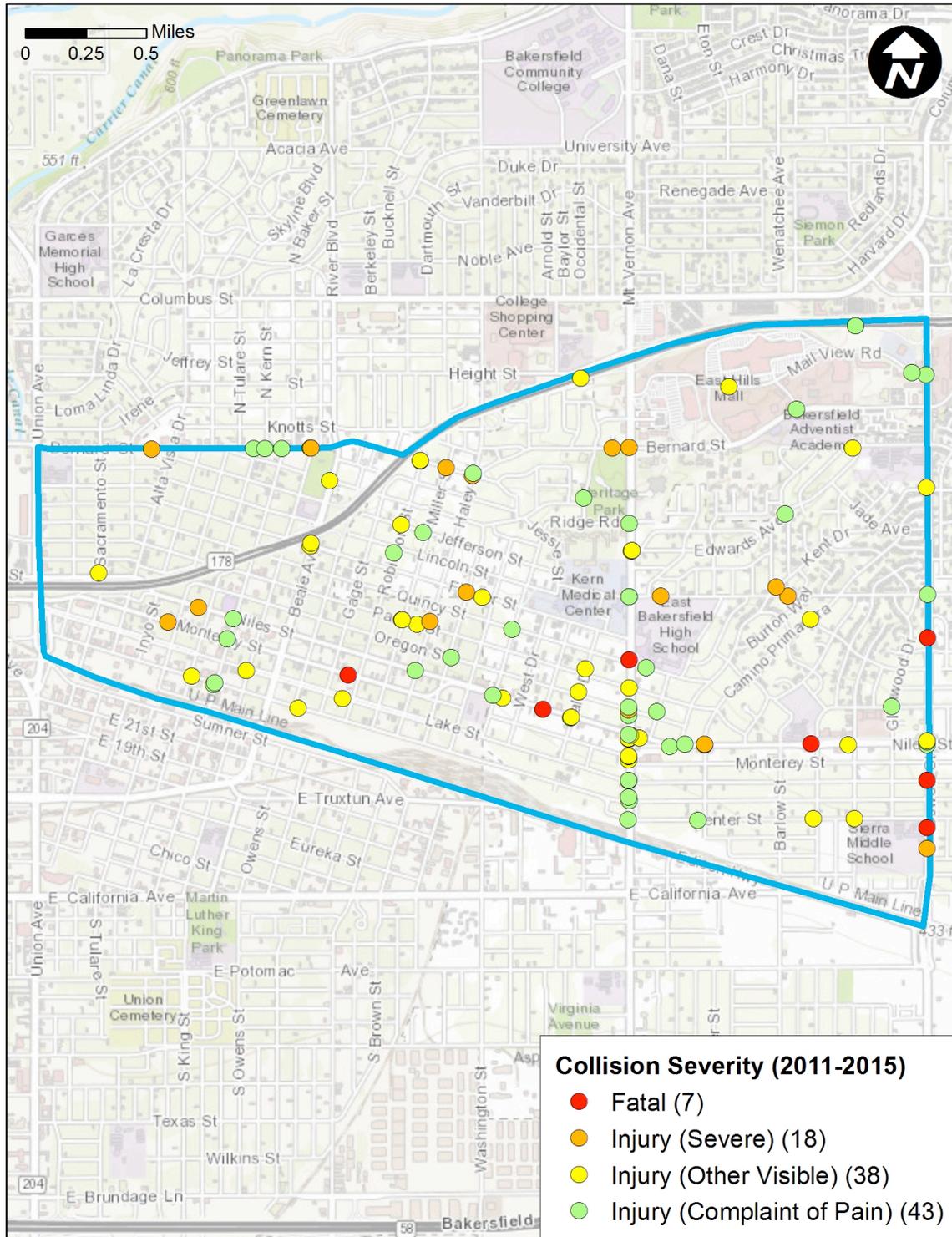
* Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2014 and 2015 are provisional at this time.

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

Community Pedestrian and Bicyclist Safety Workshop – East Bakersfield, CA – August 22, 2017

Pedestrian and Bicycle Collision Analyses, 2006-15*

Pedestrian Collision Locations, 2011-15



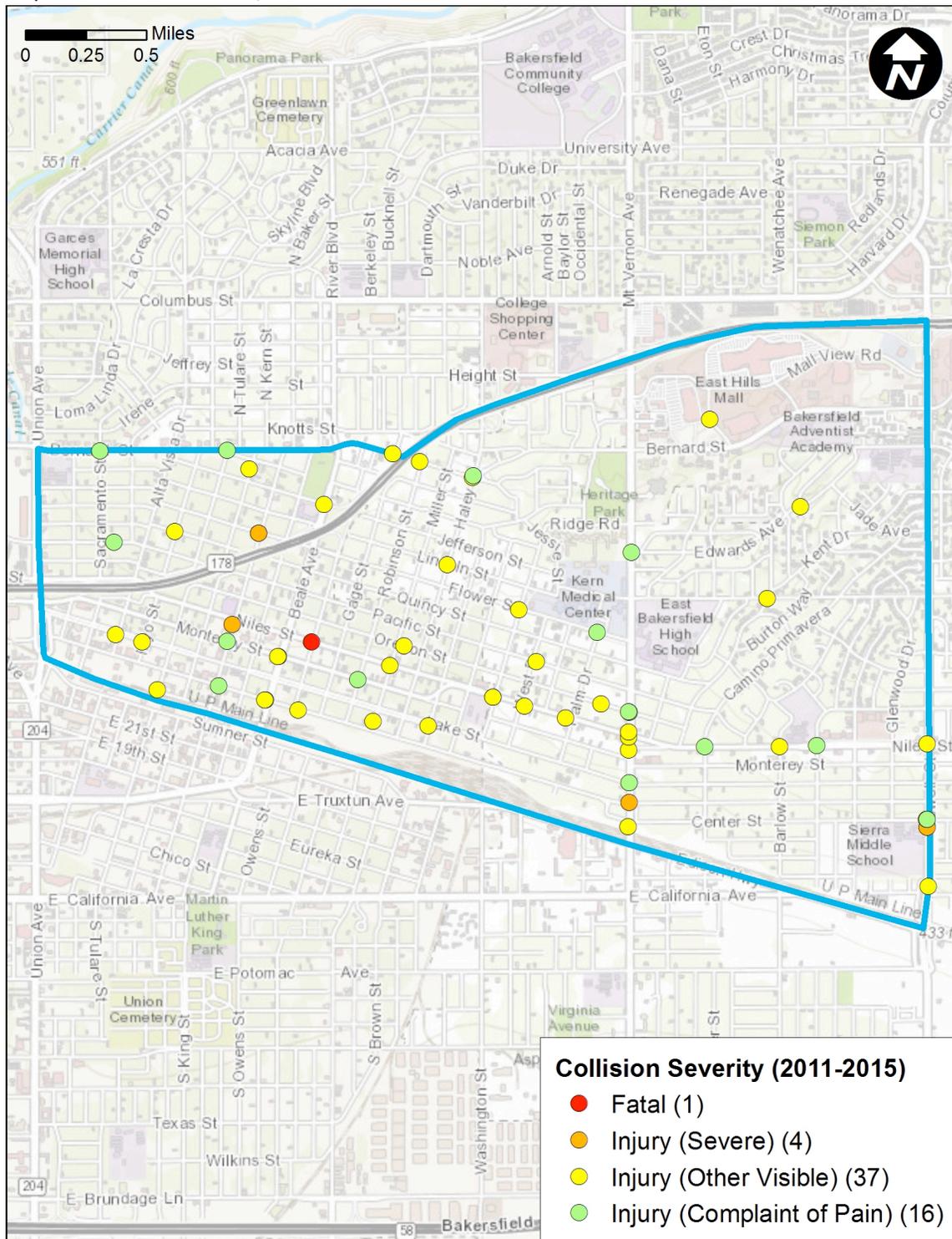
* Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2014 and 2015 are provisional at this time.

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

Community Pedestrian and Bicyclist Safety Workshop – East Bakersfield, CA – August 22, 2017

Pedestrian and Bicycle Collision Analyses, 2006-15*

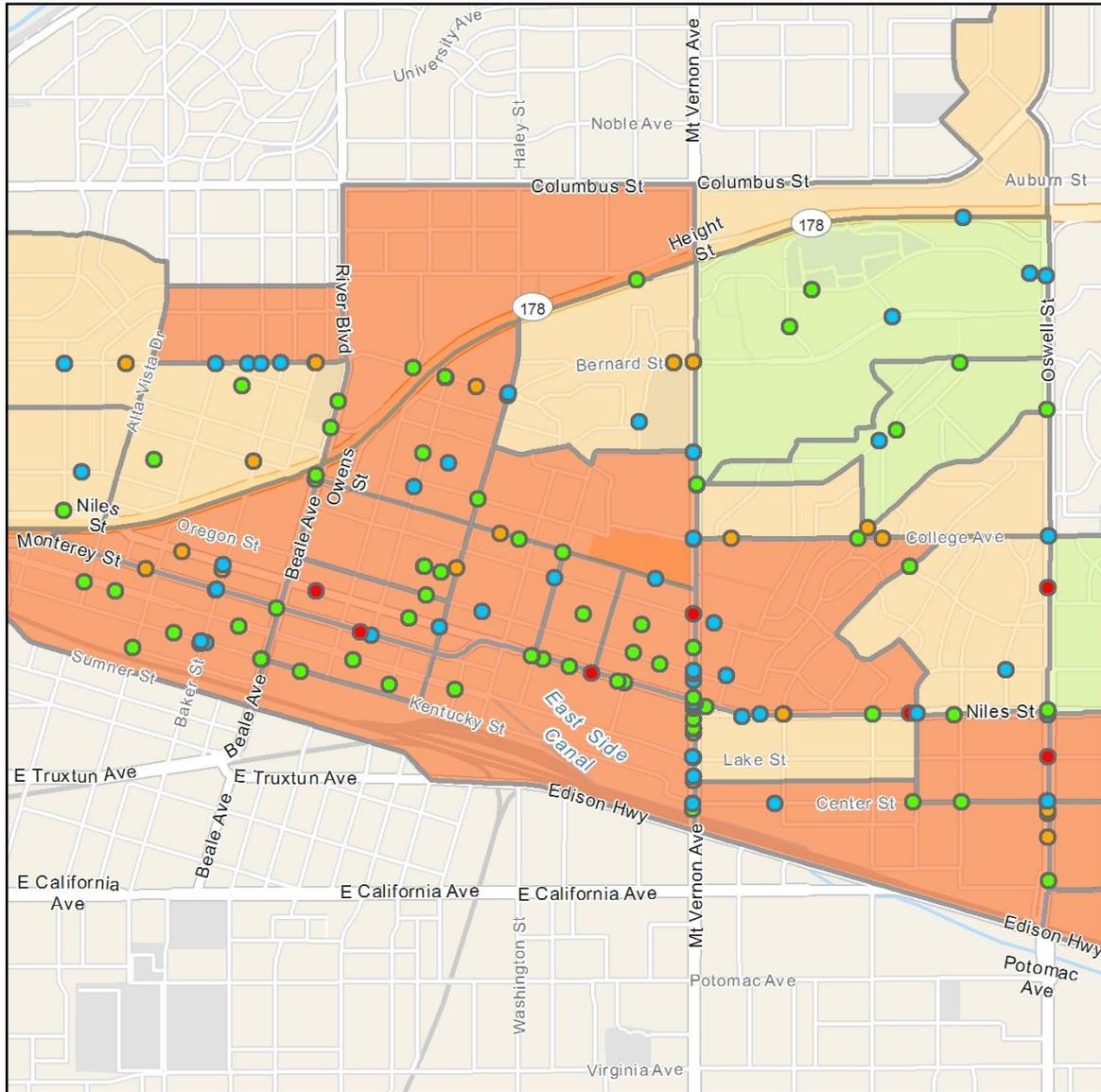
Bicyclist Collision Locations, 2011-15



* Data Source: California Statewide Integrated Traffic Records System (SWITRS). Collision data for 2014 and 2015 are provisional at this time.

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

East_Bakersfield_new Bicycle/Pedestrian Collision Map (2011 - 2015)



Collision Severity (2011-2015)

- Fatal (8)
- Injury (Severe) (22)
- Injury (Other Visible) (74)
- Injury (Complaint of Pain) (59)

2016 Median Household Income

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