Appendix E: Bike Crash Analysis (2009-2012)

Davis Bicycle Crashes Analysis

2009 - 2012

December 2013

Ride Walk Davis
Active Transportation Program
City of Davis

December 2013

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Introduction

This report analyzes bicycle crashes in Davis from 2009 through 2012. Findings identify trends based on year, month, time, location, and crash details.

Data from the City of Davis include the specific date for each crash, time, location, and CA vehicle code violation. This report also defines each crash location as either at an intersection or midblock.

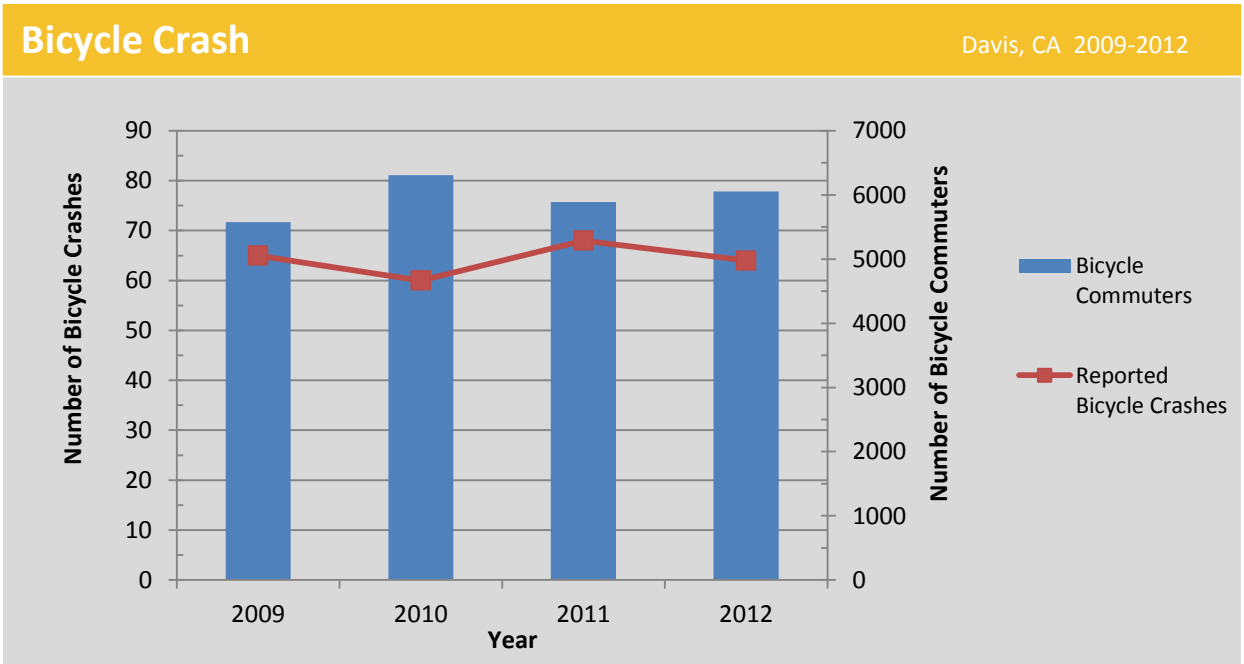
All data shown reflect only reported bicycle crashes in Davis. Bicycle crashes that are reported are generally those that involve a motor vehicle resulting in injury to the bicyclist, or simply crashes that requires emergency services (police and paramedic response). Solo bicycle crashes, bicycle versus bicycle crashes, and other minor crashes tend to go unreported, so there is uncertainty to the approximate number of these instances.

Considerations for improvements in data collection and analysis for future bicycle crash studies include: thorough analysis of all types of bicycle crashes (e.g. solo, bicycle versus bicycle, and bicycle versus pedestrian), detailed information about the cause of the crash, and bicycle and motor vehicle traffic volumes at crash location. In order to provide context-specific estimates of crash rates, more detailed information should be collected about overall bike mode share.

The Beyond Platinum Bicycle Action Plan provides a comprehensive framework to not only increase the percentage of people bicycling, but to also decrease the number of bicycle crashes through education and infrastructure improvements.

Yearly Trends

The number of reported bicycle crashes has remained steady in recent years with an average of 64 crashes per year. During the same time period, the number of commuters biking to work has remained relatively unchanged as well, hovering around a 20% bike mode share.[1] This figure is defined as the number of commuters biking to work over total number of workers (age 16 and above).



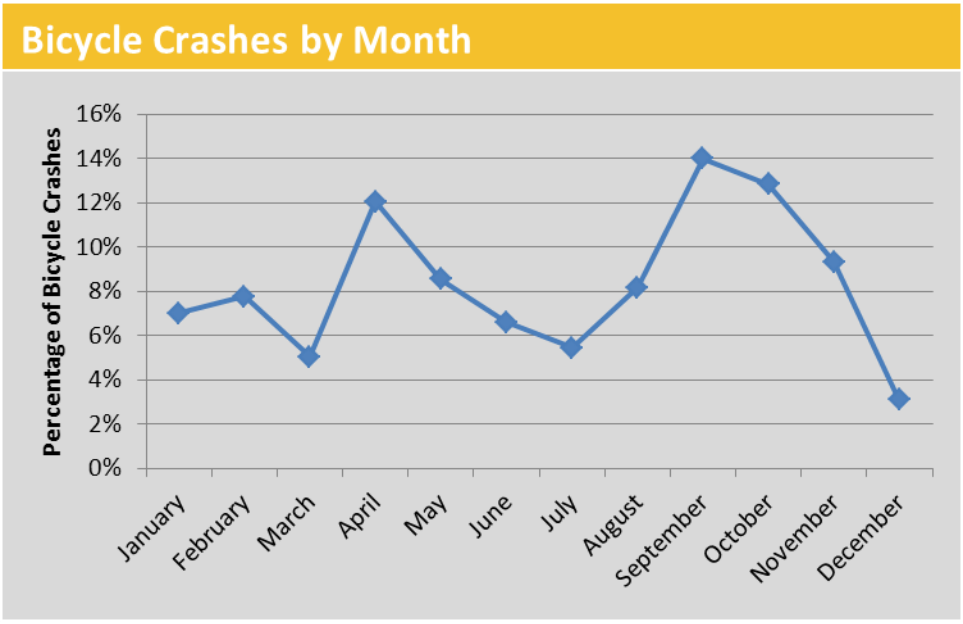
A rough comparison of bicycle crashes with other cities similar in size to Davis provides some perspective. Like Davis, each of these cities has a higher than national average bicycle mode share and a large student population. When comparing crash rates, as defined by number of crashes over total number of bicycle commuters, Davis has a lower crash rate than any of these cities.

Bicycle Crashes Comparison

City	Average Bicycle Crashes Per Year	Variation +/-	Population	Bicycle Mode Share	Number of Bicycle Commuters	Analysis Period
Davis, CA	64	4	65,622	19.7%	5,918	2009-2012
Boulder, CO[2]	162	14	97,385	11.6%	5,972	2008-2011
Flagstaff, AZ[3]	65	28	65,870	6.7%	2,190	2005-2009

Monthly Trends

Looking at bicycles crashes by month, crashes peak in September and April and drop severely during March, July, and December. This trend reflects both weather patterns and the UC Davis academic schedule. When students are away on breaks, crashes decrease. The high number of crashes in September is most likely a result of the influx of relatively inexperienced cyclists that start school at UC Davis each fall. Poor weather and holiday breaks likely play a large role in the decrease in crashes during winter. Likewise, the resurgence of bicycling during the spring may account for the return to higher crashes. A large student population leaving Davis for the summer reflects the other decrease.

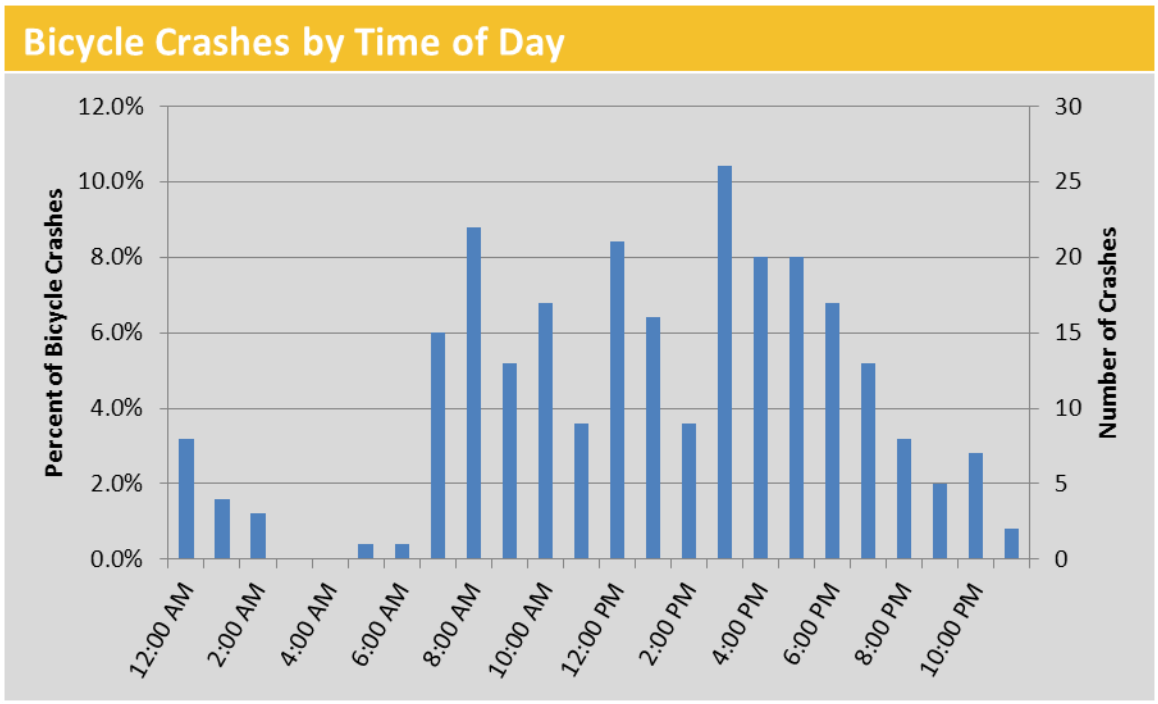


These trends provide key opportunities for bicyclist safety education during the peak periods of bicycle crashes. Seeing that there are higher percentages of crashes during the fall and spring, education efforts can be focused during these key periods of the year.

However, a keen observation of how Davis is evolving needs to be taken into account. In recent years, the student population at UC Davis has continued to grow, and the overall population during the summer has been observed to be higher than previous years. The educational strategy may need to be adjusted to reflect ongoing changes and developments.

Daily Trends

Reported bicycle crashes understandably coincide with the peak travel times during the day. The data reflect the highest number of crashes during the afternoon commute, followed by the morning commute, and lunchtime travel. These are also the times with the highest volumes of cars and bicycles on the road.



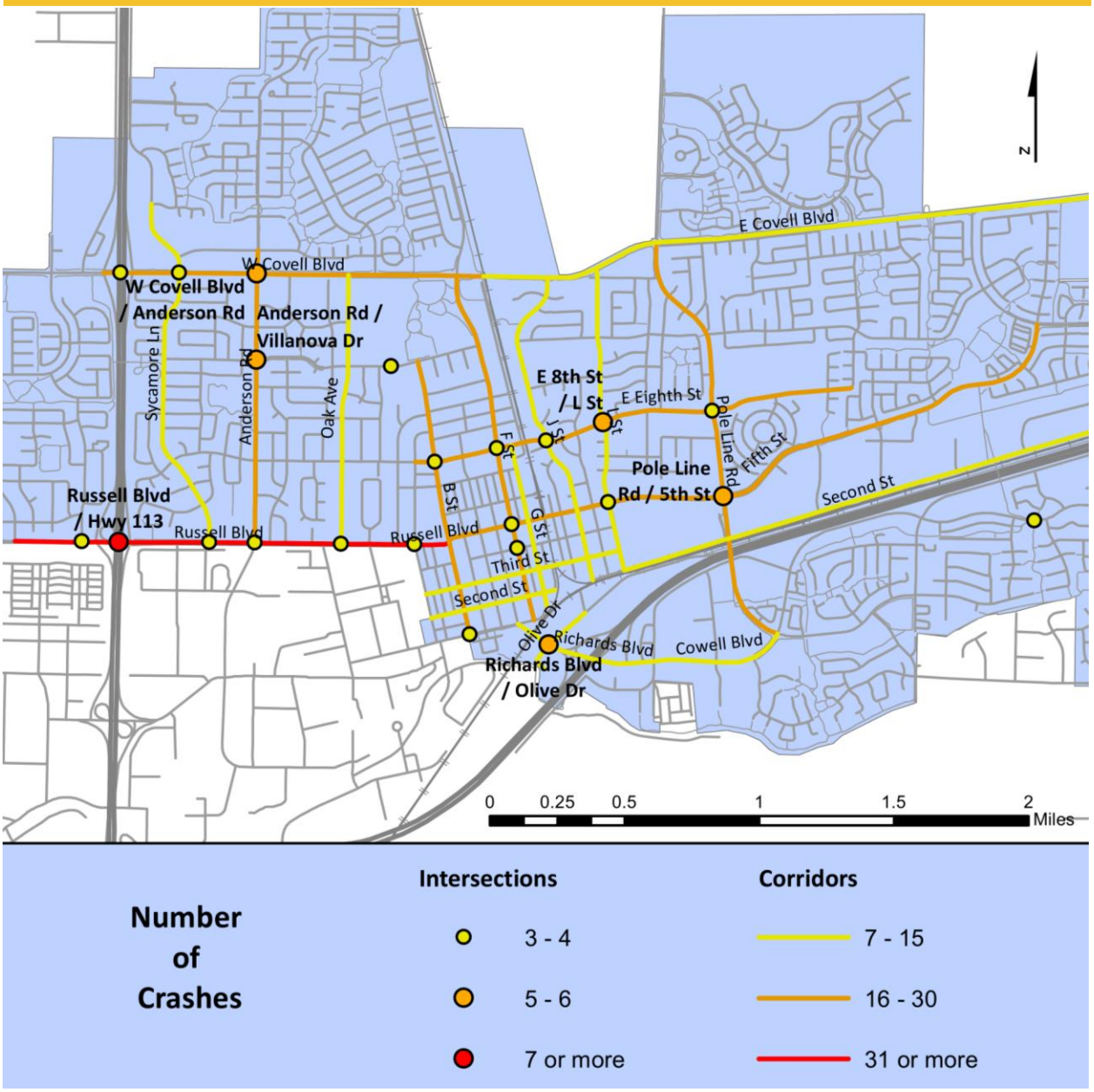
Enforcement focused on these peak times could help improve road safety when it is most needed.

Location

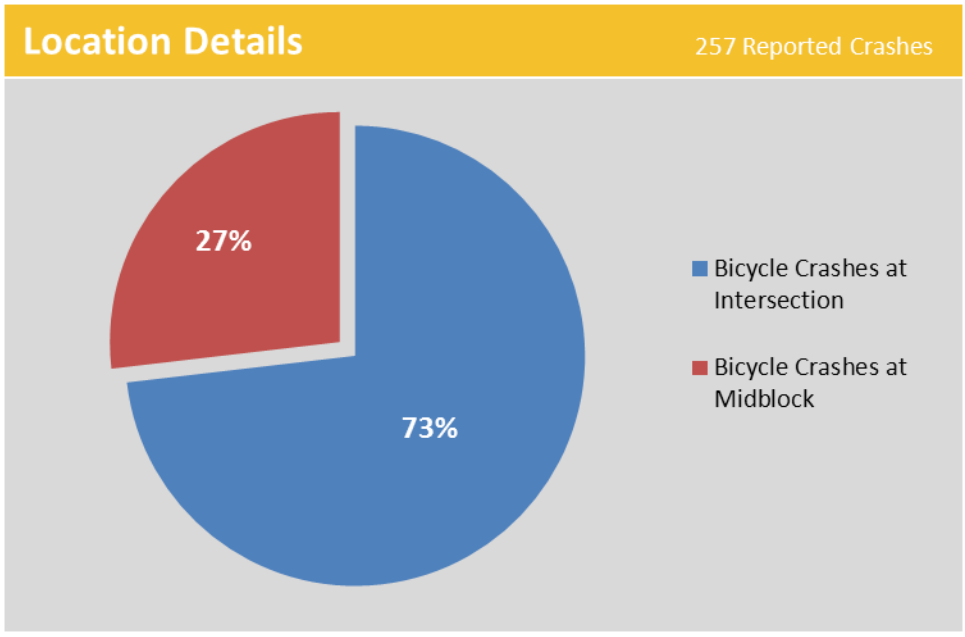
The most frequent locations of bicycle crashes tend to occur at places where there are high bicycle volumes, high motor vehicle volume, high motor vehicle speeds, and/or lack of safe bicycle infrastructure.

Most Frequent Bicycle Crash Locations and Corridors

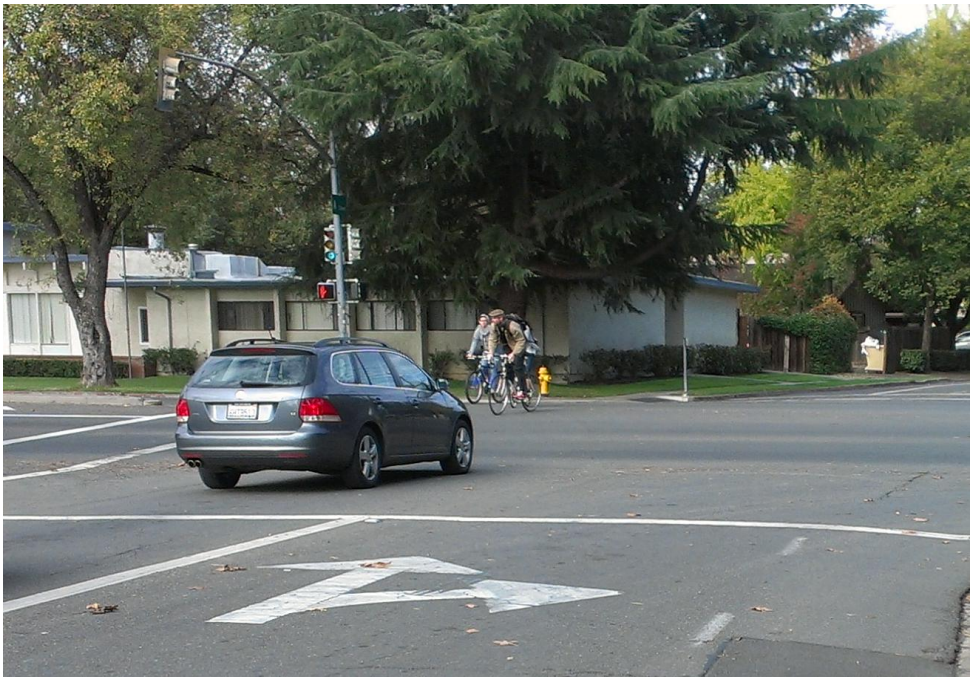
Reported Bicycle Involved Crashes for Davis, 2009-2012



A further breakdown of crash locations reveals that a high majority of crashes occur at intersections, rather than midblock.

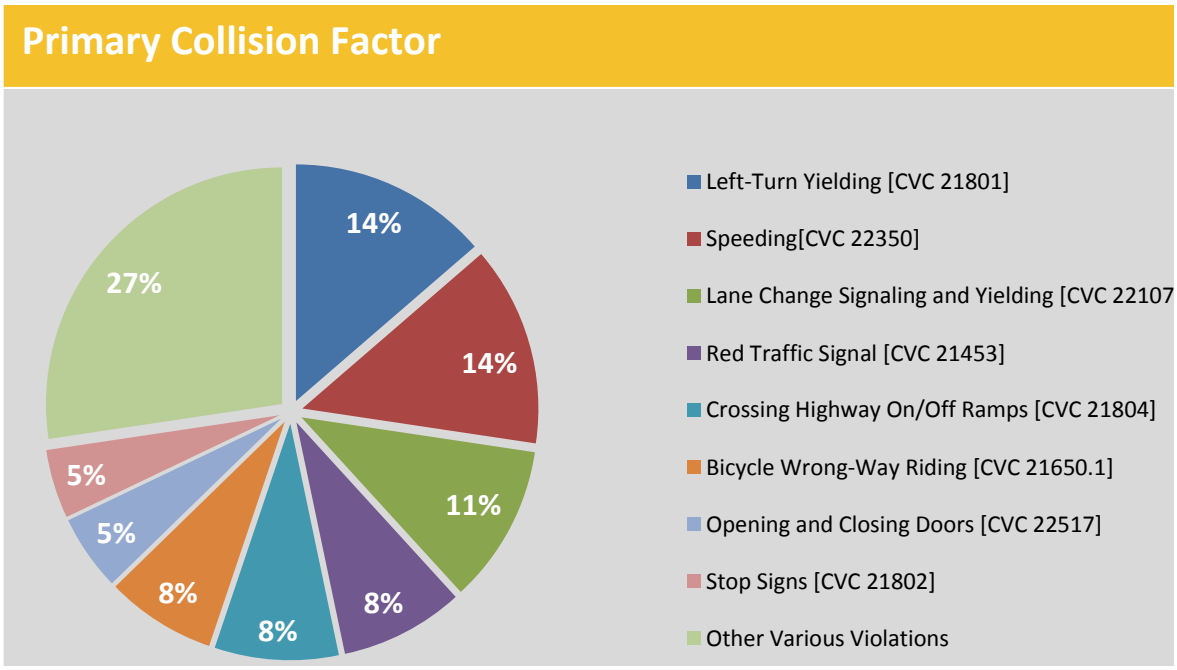


The Beyond Platinum Bicycle Action Plan provides detailed strategies to improve the bicycle infrastructure throughout the city and improve bicyclist safety. The Plan will use the current crash locations to help prioritize infrastructure improvements at the intersections and corridors with the highest concern.



Crash Details

Basic crash details are provided by the California Vehicle Code violation cited with each crash. Determination of who was at fault, whether the motor vehicle driver or bicyclist, was difficult to determine based on the provided data. Nonetheless, the primary factors involved with the crashes do provide insight into what is occuring on the streets, as well as areas of focus for bicyclist and motor vehicle driver education.



Cited Sources

[1] American Community Survey, Means of Transportation to Work – 1 Year Estimates.

[2] City of Boulder Transportation Division, *Transportation to Sustain a Community: A Report on Progress*. February 2012.

[3] City of Flagstaff, *Flagstaff Bicycle Crash Data 2005-2009*. April 2011.

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