

2016 Bicycle Collision Summary



City of Phoenix

STREET TRANSPORTATION DEPARTMENT

TRAFFIC SERVICES DIVISION

TRAFFIC SAFETY SECTION

DECEMBER 2017

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Introduction

The 2016 Bicycle Collision Summary provides a brief analysis of bicycle collision statistics related to demographics, accident types, and locations. The report also includes collision data from 2012 through 2016 to identify and track bicycle collision trends that have emerged during the past five years. These statistics provide a strong indication of roadway behaviors that negatively impact bicyclists' safety and helps identify which violations should be prioritized for increased education and enforcement.

The 2016 collision summary includes a reported 515 bicycle-related collisions resulting in 468 injuries and 8 fatalities. These bicycle-related collisions accounted for nearly 2 percent of all collisions, 3 percent of all injuries, and 4 percent of all fatalities occurring on City Streets. Statistics show the number of collisions has increased (13 percent) as compared to the 2015 collisions, the 5-year trend is increasing. Consistent with previous years, male bicyclists were involved in more collisions at a male:female ratio of 3.3:1. Also, the age groups with the highest number of bicycle-related collisions were adults between the ages of 26 and 35. The majority (74 percent) of collisions occurred within 150 feet of an intersection.

The findings in this report are used to inform and influence the design of new bicycle facilities, the redesign of existing roadways, the development of education programs and enforcement campaigns for bicyclists and motorists. In an effort to identify locations and collision trends that may require special attention, this report also identifies intersections and street segments with the highest annual bicycle injury collisions.

NOTE: Some figures in the 2016 Bicycle Collision Summary differ from the 2016 Traffic Collision Summary due to the detailed analysis of crash reports.

2016 Phoenix Bicycle Collision Facts-at-a-Glance

515
collisions

468
injuries

8
deaths

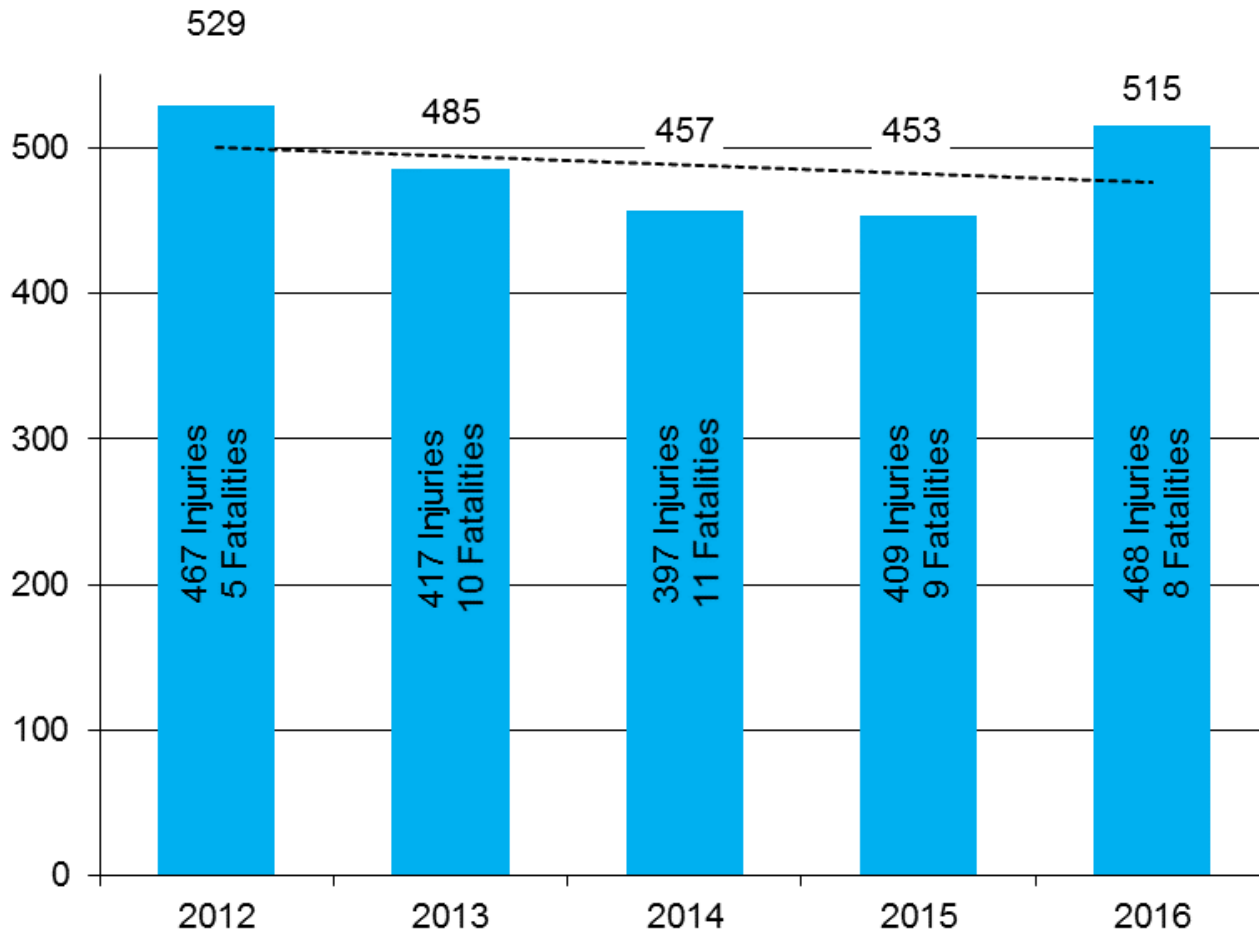
Important Points to Know About the Bicycle Collision Summary in 2016:

- Bicycle collisions increased for the first time in 5 years.
- Nearly seven out of ten collisions occurred at or within 150 feet of an intersection.
- More than eight out of ten non-intersection-related collisions occurred on an arterial street.
- More than a third of collisions occurred while the motorist was making a right-hand turn.
- Only eight percent of bicyclists involved in a collision are not injured.

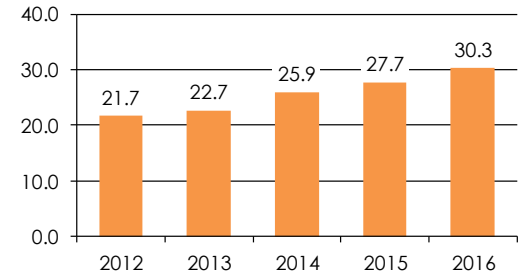
In 2016,

- Bicycle collisions in 2016 accounted for nearly 2% of all traffic collisions, 3% of all injuries, and 4% of all fatalities.
- Almost 15% of bicyclist in collisions were children below the age of 18.
- 36% of all collisions occurred in an intersection crosswalk and 20% at driveways.
- 33 school-age bicyclists (5 to 17 years old) were in crashes during school hours (Monday – Friday, 7 AM – 4 PM).
- Only 23% of all bicycle collisions occurred at night, including twilight, but 63% of all bicyclist fatalities occurred at night.
- Bicycle collisions occurred most frequently between the hours of 3 PM and 6 PM and on Tuesdays.
- September had the highest number of bicycle collisions (57).
- Only 13 bicyclists and two drivers were found to be under the influence of alcohol or drugs.
- 45% of all bicycle collisions occurred at uncontrolled locations.
- There were 90 hit and run collisions involving bicycles.

Five-Year Trend of Bicyclist-Involved Collisions, Injuries, and Fatalities



Five Year Trend All Crashes In thousands



Key Note:
The 10 year average is 477 collisions.

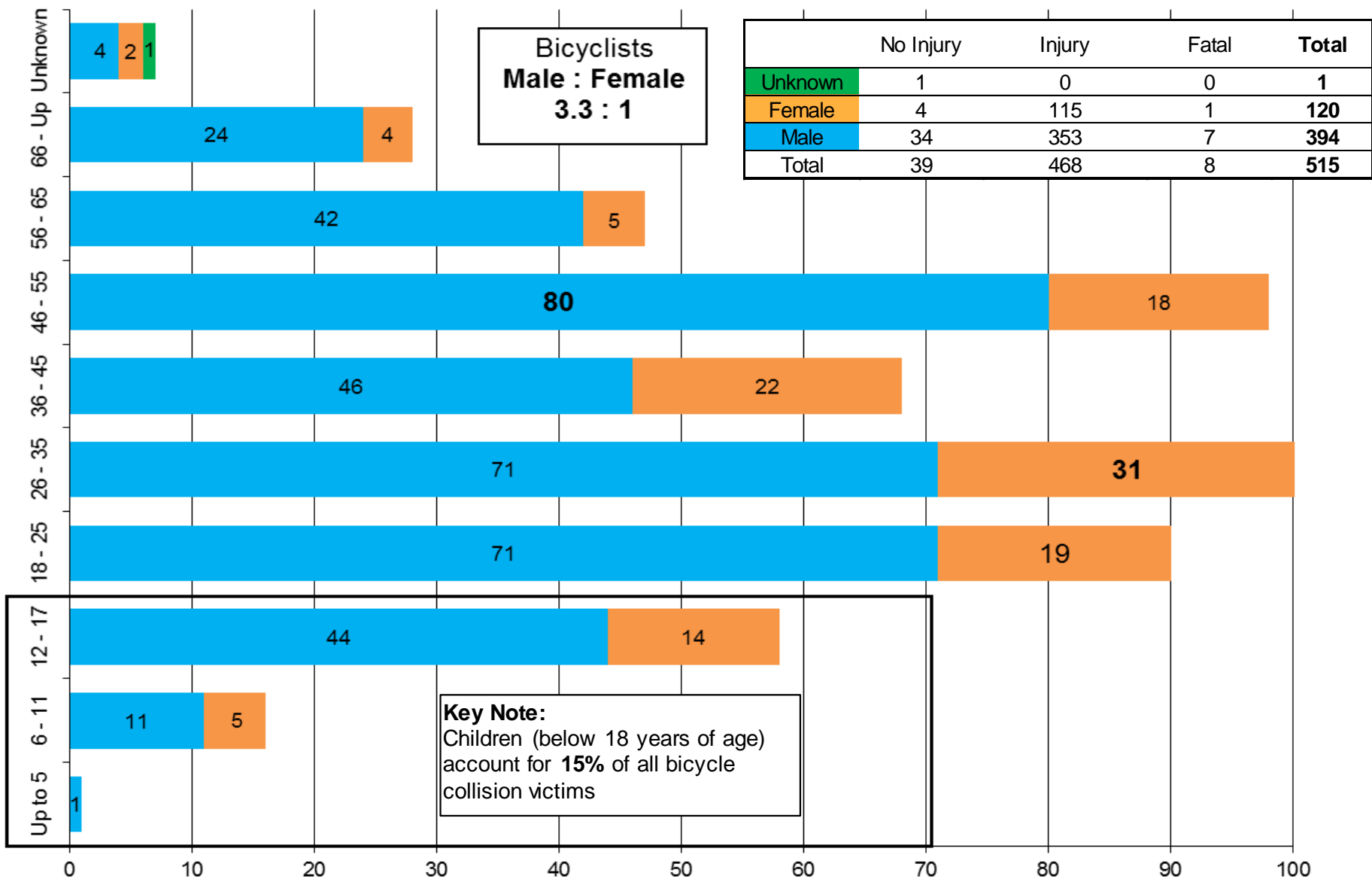


Bike lanes along East Cholla Street from 24th to 32nd Streets

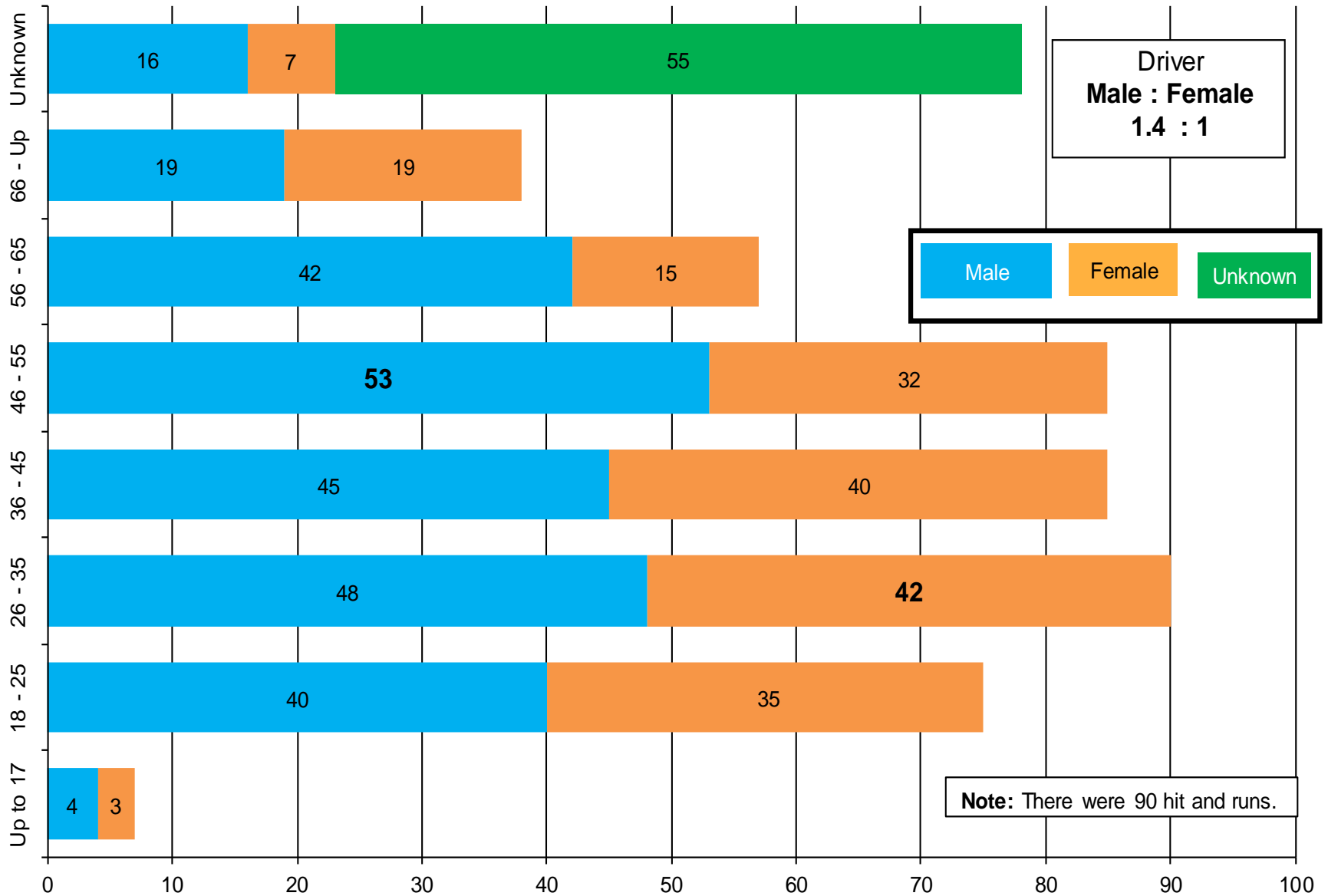
Shared-use bike lane markings on East Roosevelt Street west of 7th Street



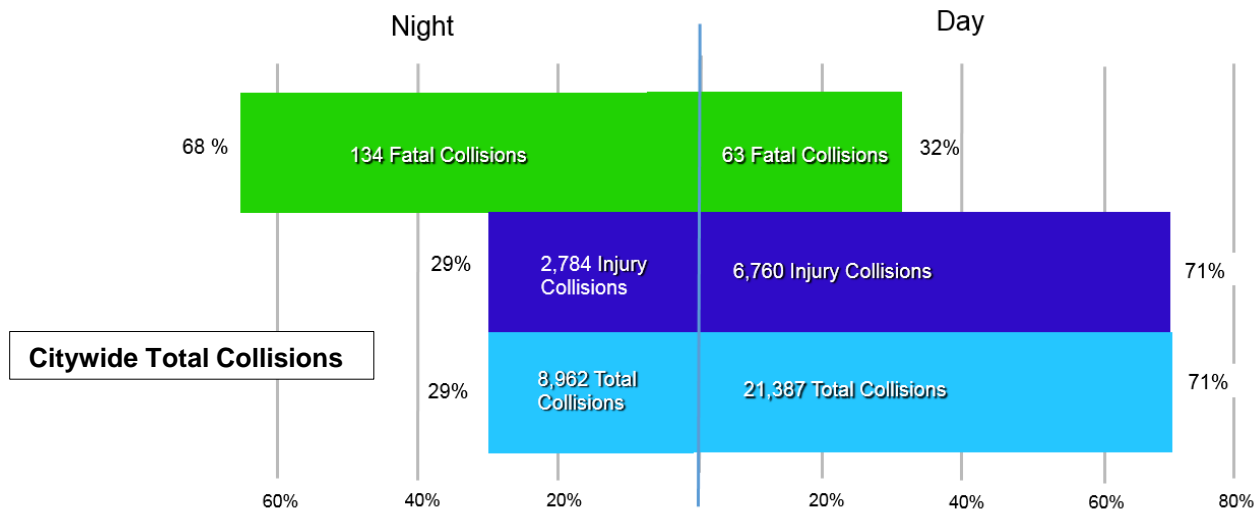
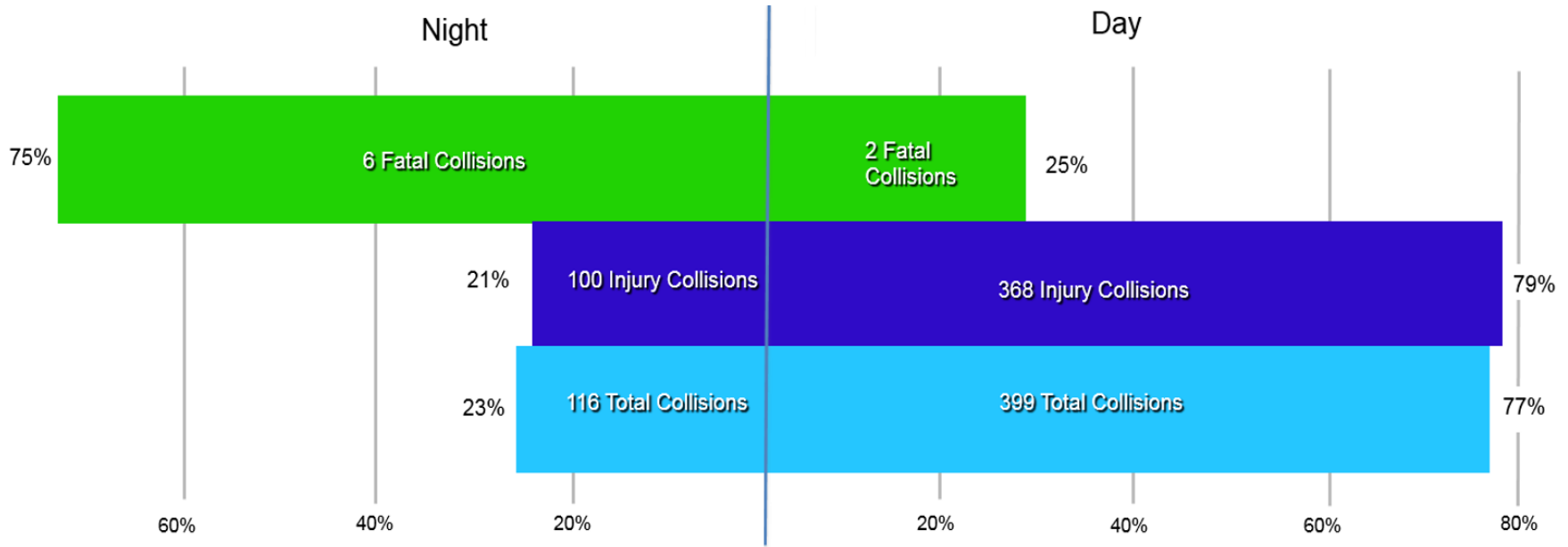
Age and Gender of Bicyclists in Collisions



Age and Gender of Drivers in Collisions



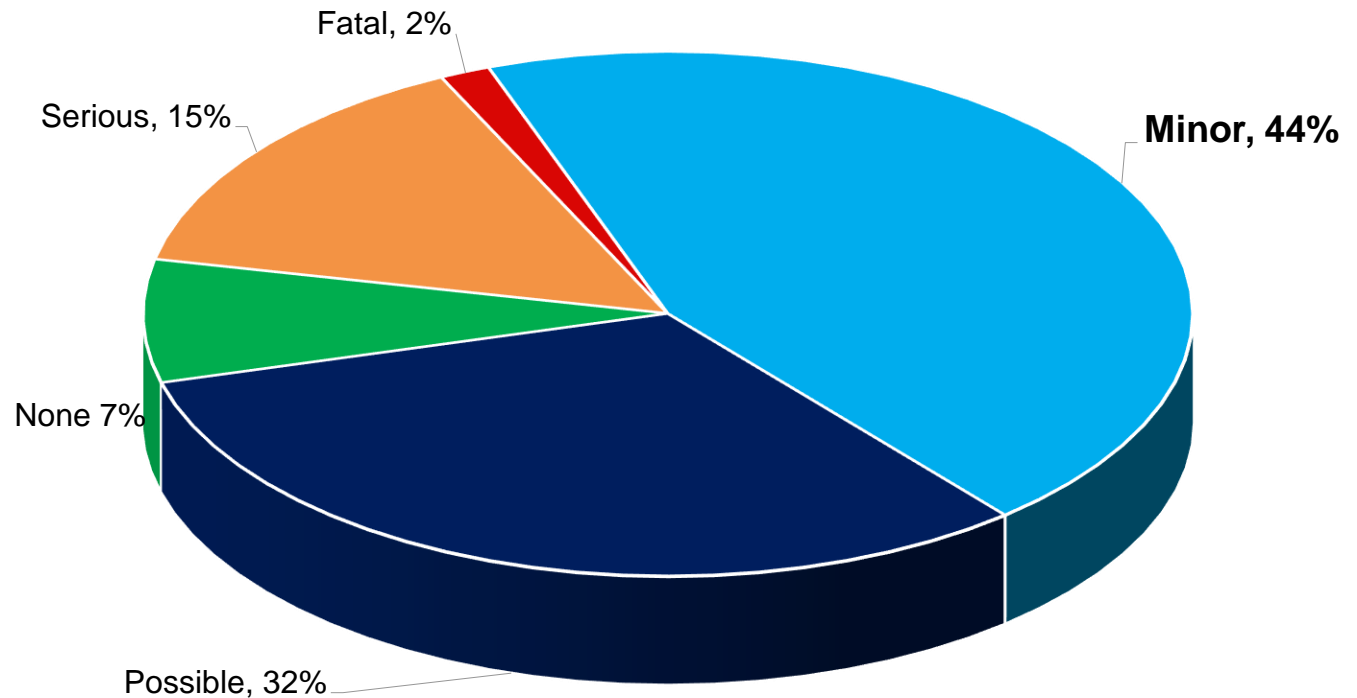
Bicyclists in Collisions by Light Conditions



Bicyclists in Collisions by Injury Severity

Key Note:

There were 229 minor injuries, 75 serious injuries, and 8 fatalities.

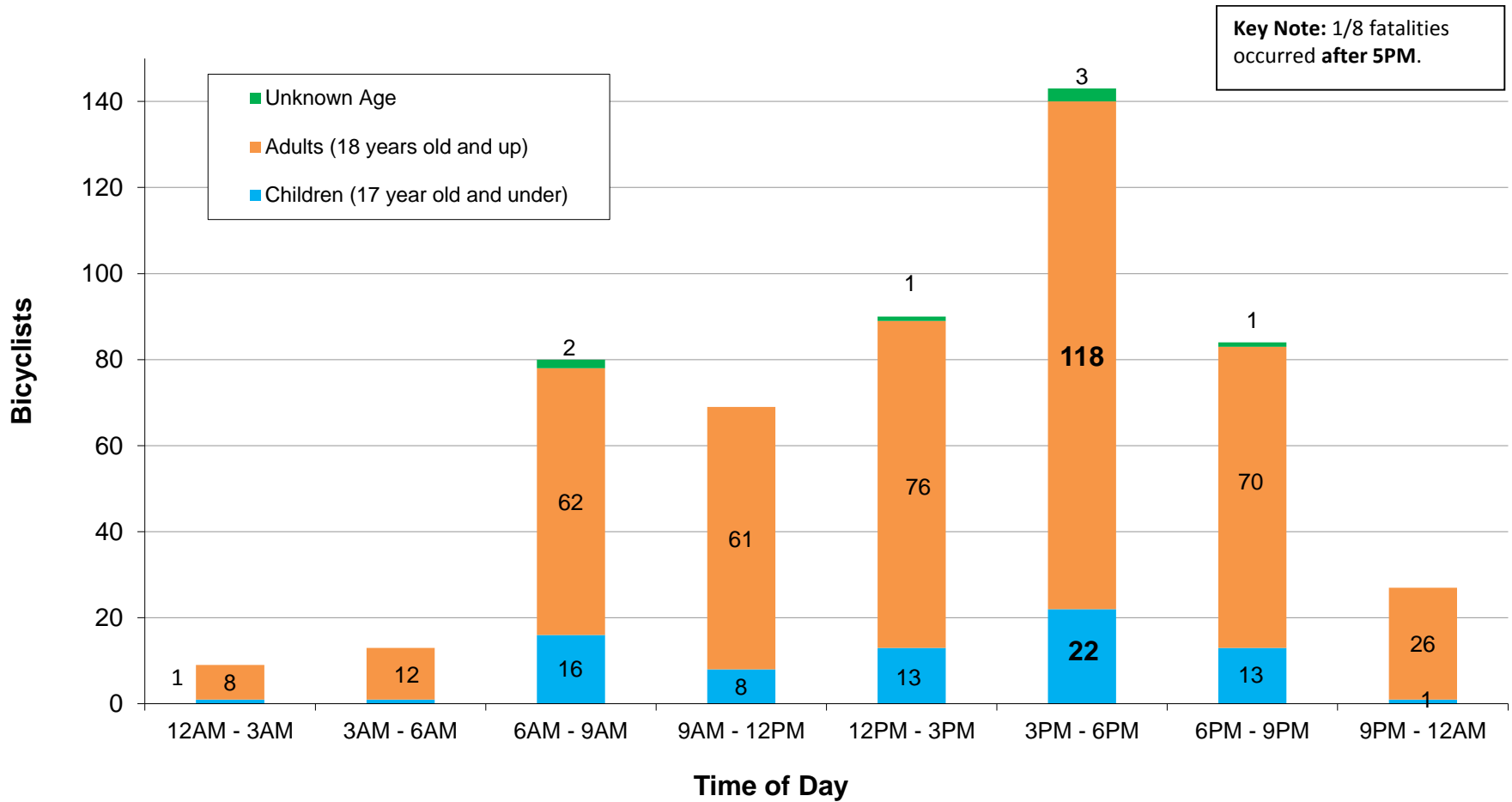


Note: This collision summary accounts for bicycle collisions with vehicles, not single bicycle collisions or two-bicycle collisions.

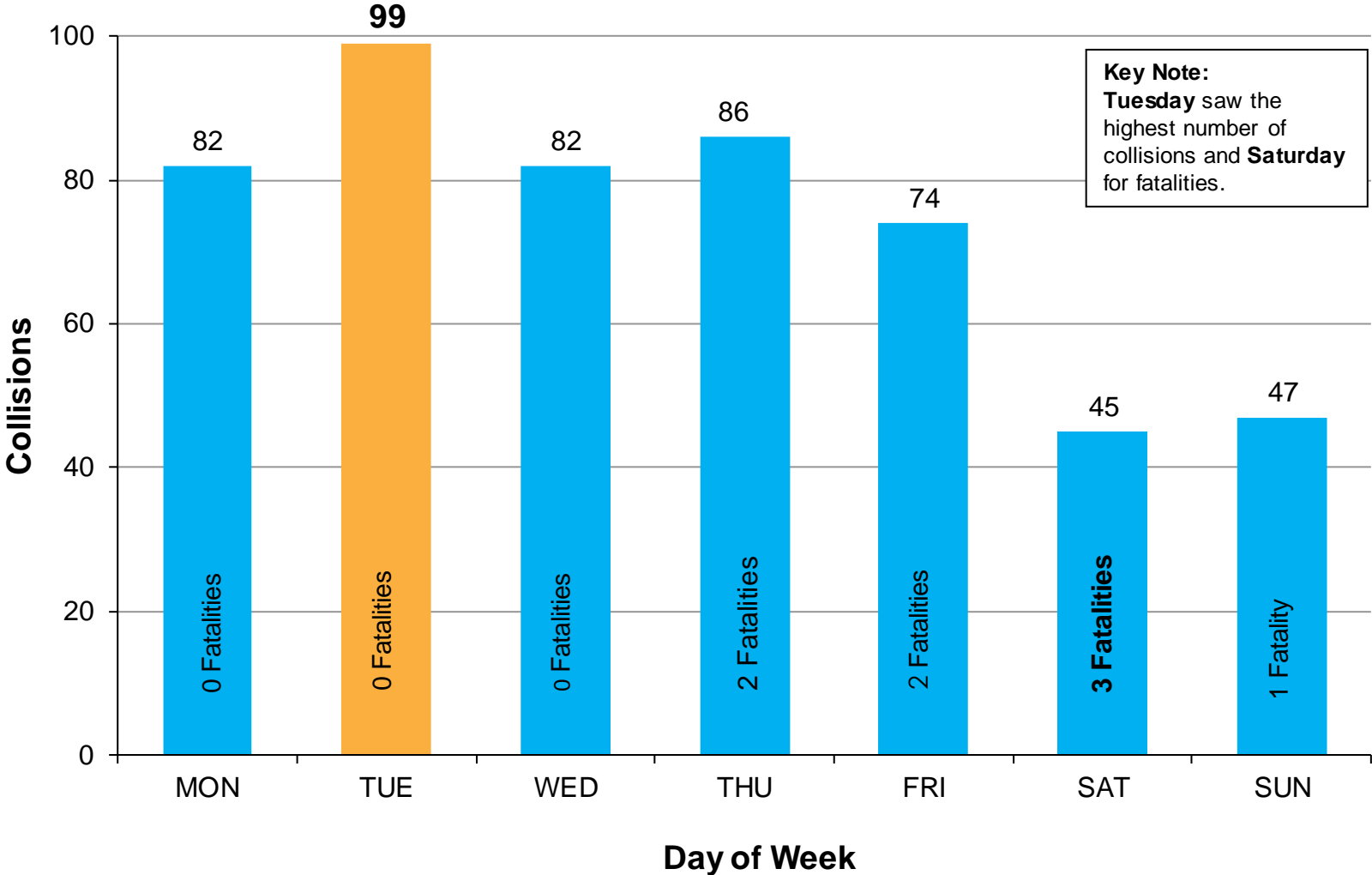
North 12th Street south of East Camelback Road Before / After Buffered Bike Lanes – March 2016



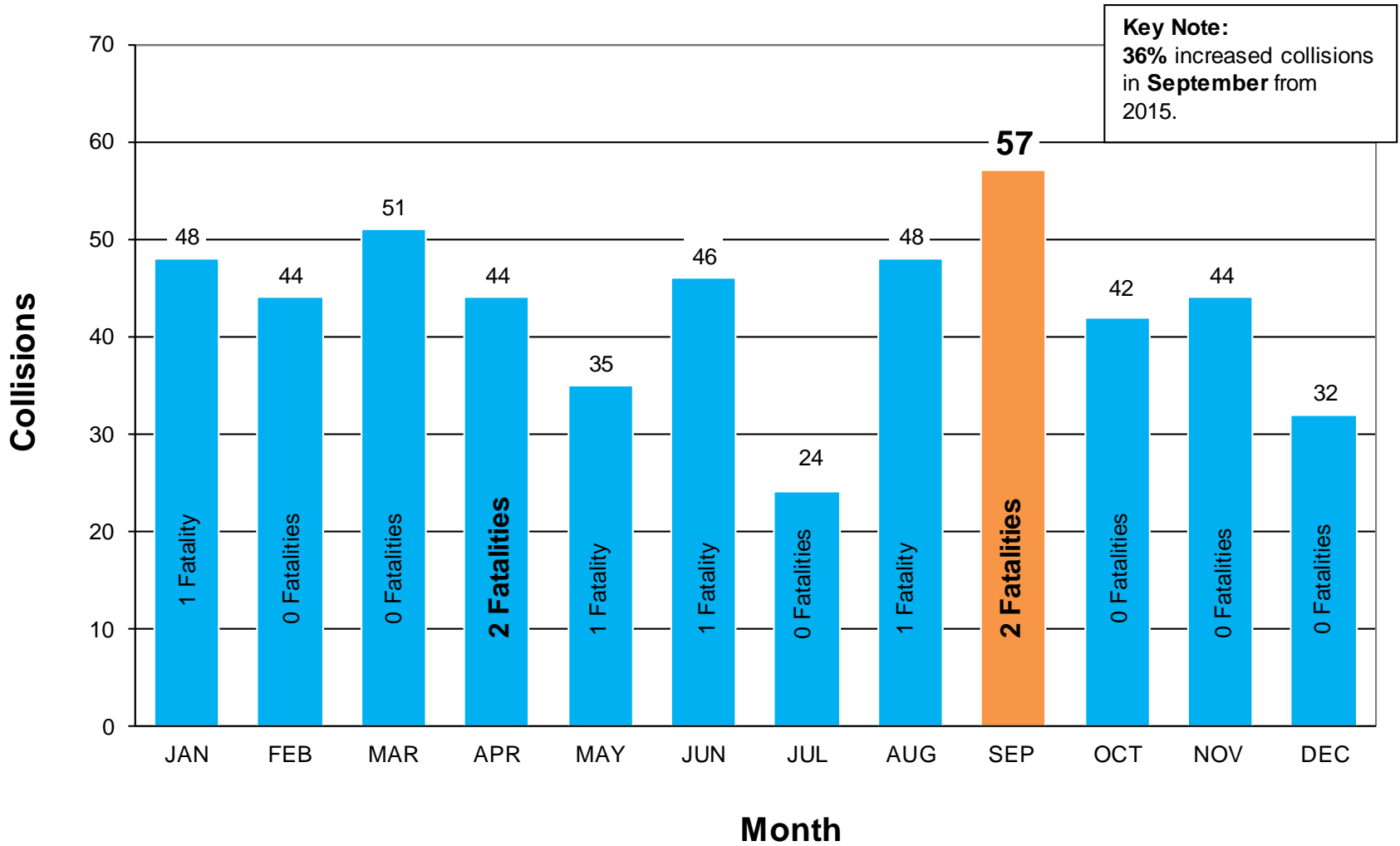
Bicyclist-Involved Collisions by Time of Day and Age Group



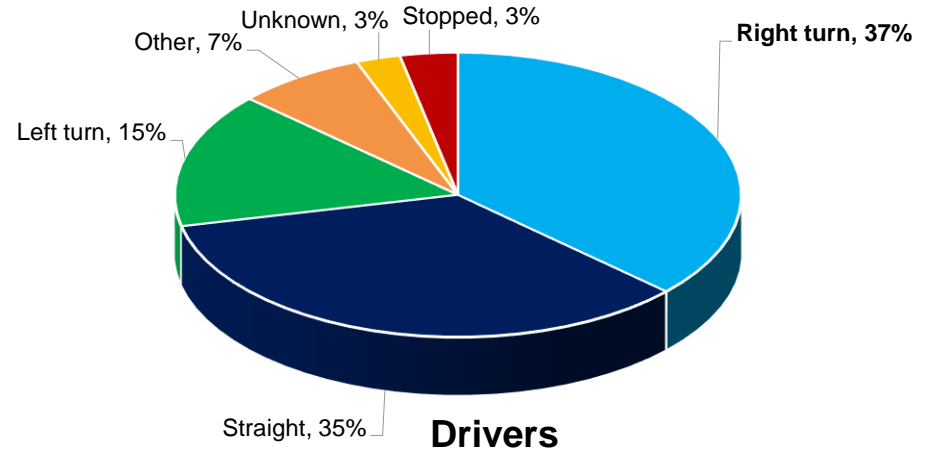
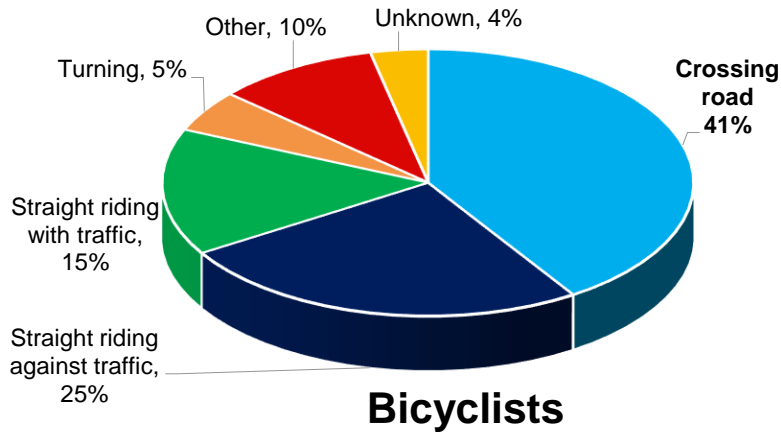
Bicyclist-Involved Collisions by Day of Week



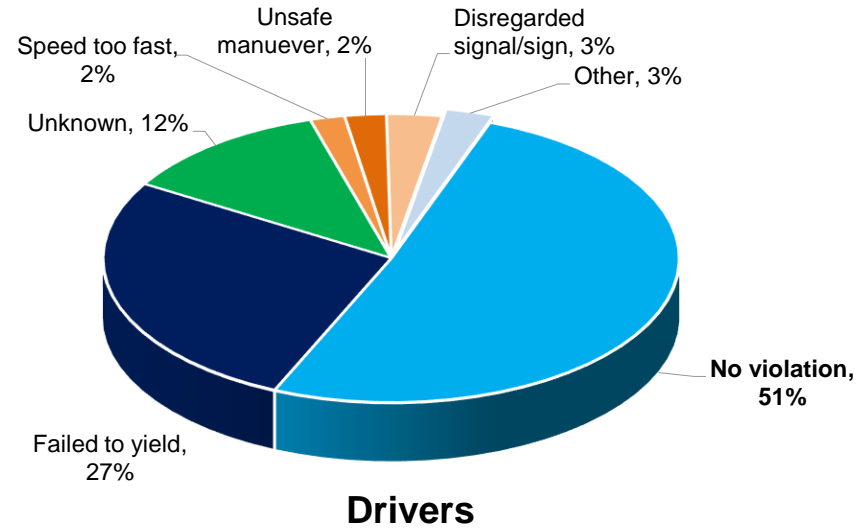
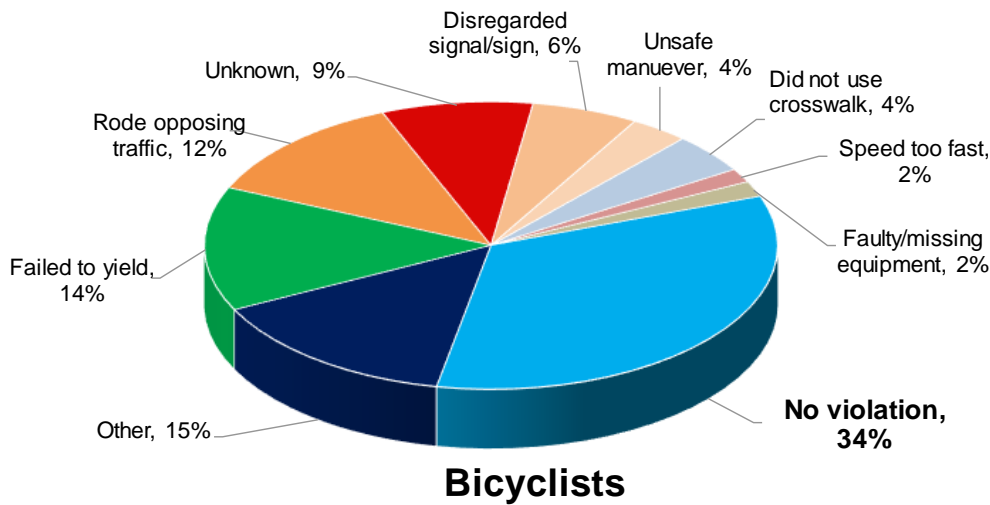
Bicyclist-Involved Collisions by Month



Actions of Bicyclists and Drivers

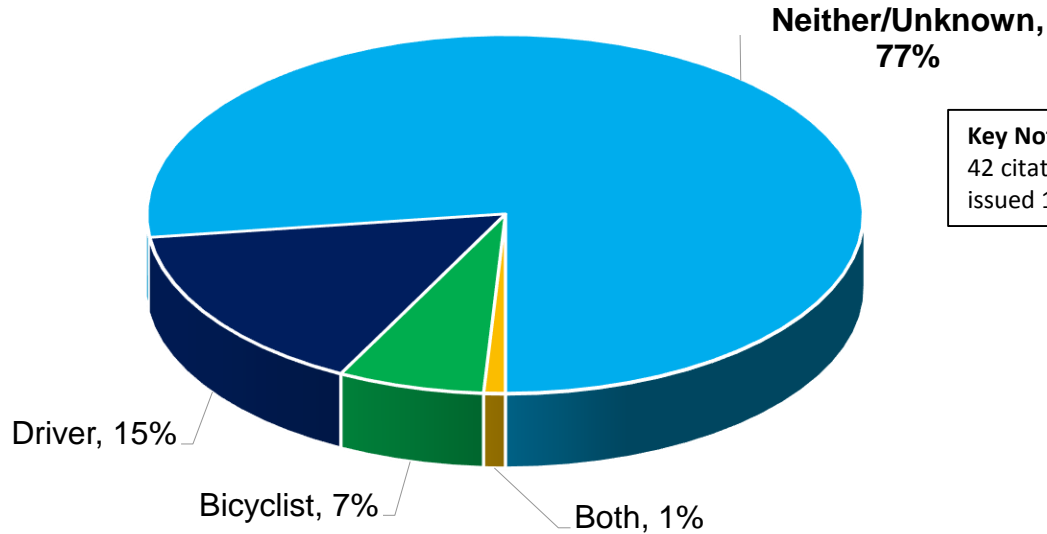


Behavior/Violations of Bicyclists and Drivers



"Other" and "Unknown" mostly conveys bike riding wrong side on sidewalk or not walking bike through intersection crosswalk

Who Was Cited?



Key Note: 34 bicyclists were issued 42 citations and 69 drivers were issued 123 citations.

Most frequent citations issued to...

Bicyclists
Failure to keep to the right-hand curb
Failure to Stop/Yield
Failure to obey signal

Drivers
Driving without proof of insurance
Driving without proof of valid drivers license
Failure to control speed
Failure to yield left turn

Bike to School Events - April / May 2016

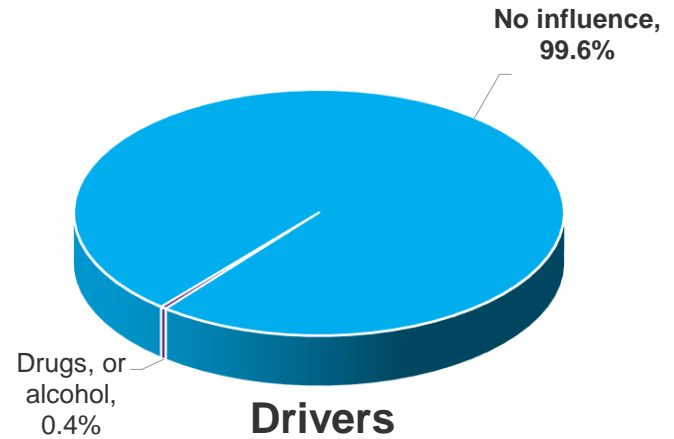
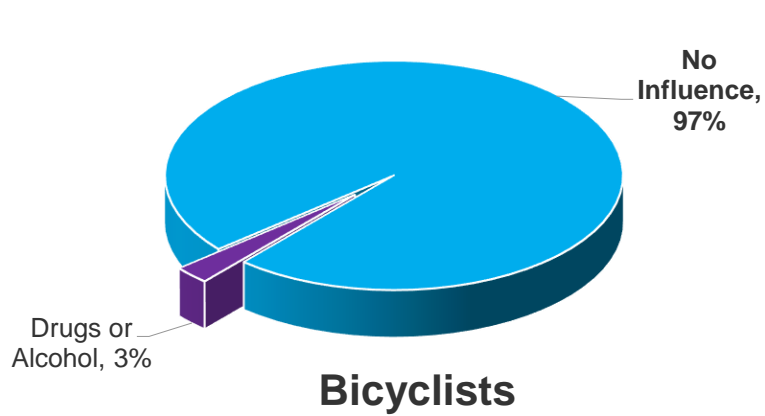


District 7 Community Bike and Safety Event in April 2016 at Food City Shopping Center located on SWC of 7th / Southern Avenues.

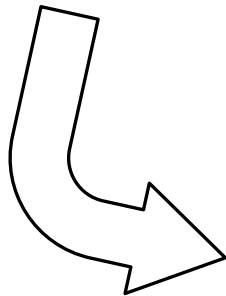
Eagle Ridge Elementary “Bike to School Day” Event in May 2016 at 12th Street / Wahalla Lane.



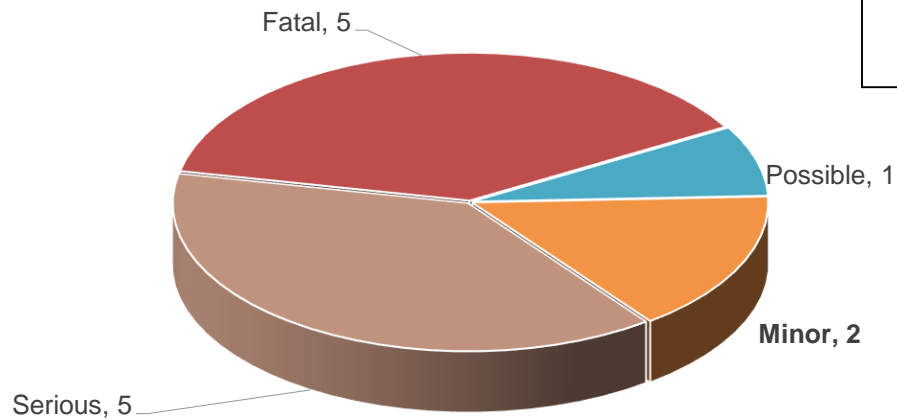
Impairment of Bicyclists and Drivers



Injury Severity of Bicyclists under the Influence

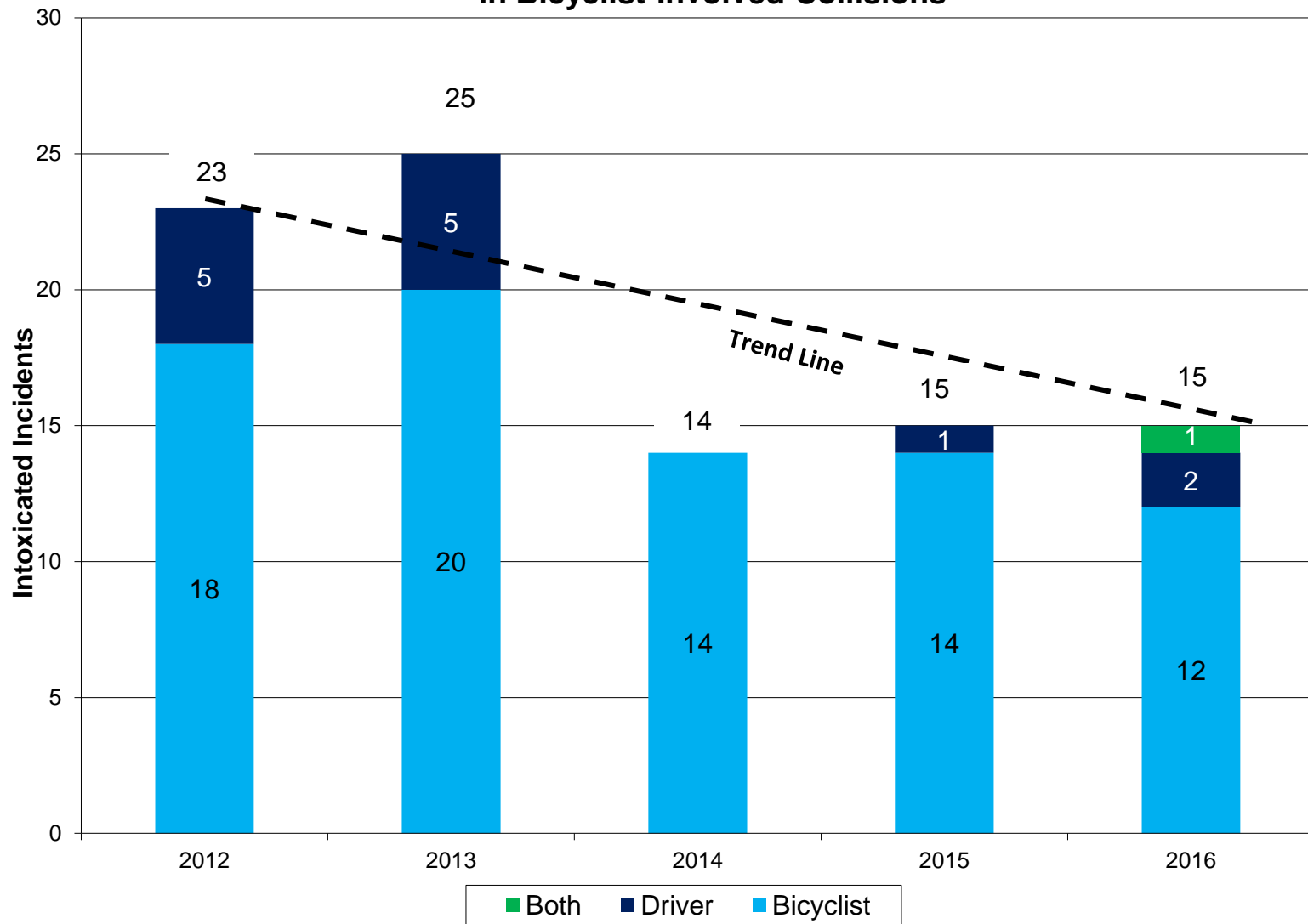


Key Note:
 There were 2 minor injuries, 5 serious injuries, and 5 fatalities involving drugs and/or alcohol and 1 Possible injury.

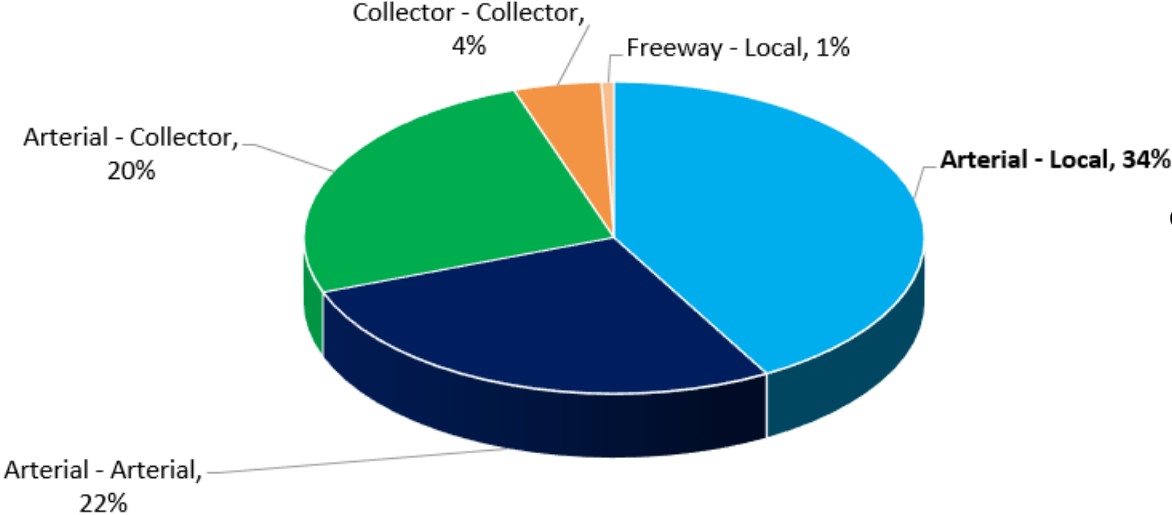


Under the Influence
Male:Female
3.3 : 1

Five-Year Trend of Drug or Alcohol Use in Bicyclist-Involved Collisions

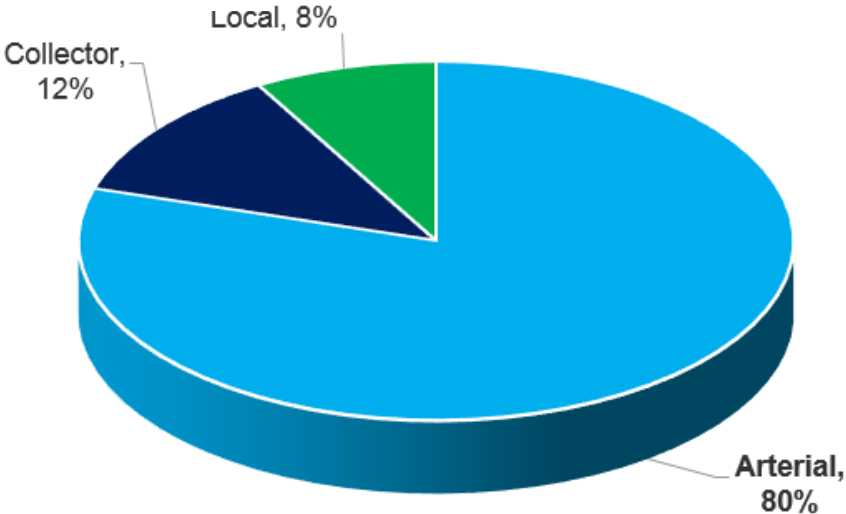


Bicyclist-Involved Collisions by Street Classification



**Intersection-Related
74%
of all bicycle collisions**

**Non-Intersection-Related
26%
of all bicycle collisions**



Street Classification Examples

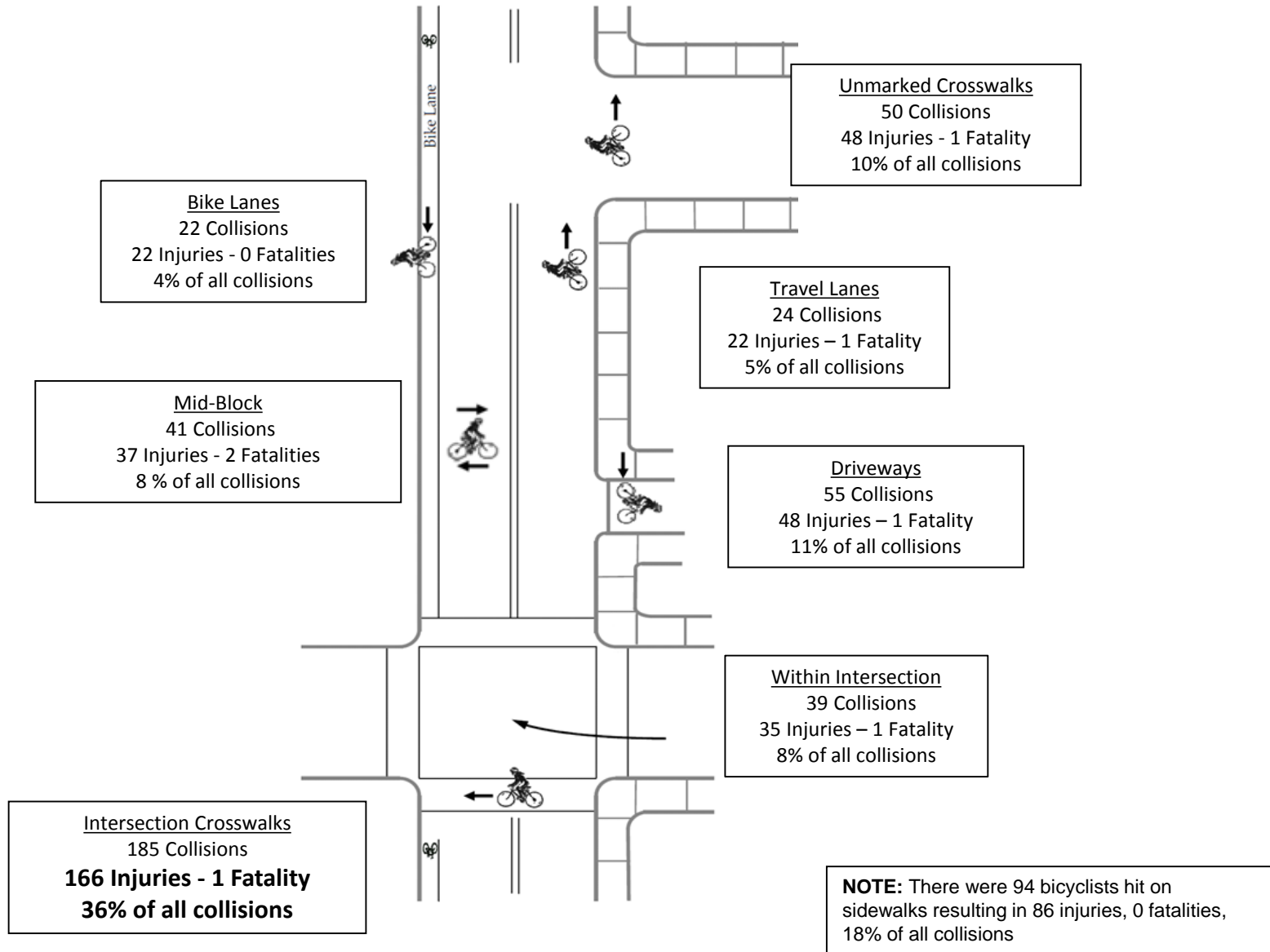
Freeways are I-17 (Black Canyon Freeway), I-10, Loop 202, on-ramps, access roads, etc.
 Arterial streets are typically the mile-line streets such as 7th Ave, 16th St, Camelback Rd, and Union Hills Dr as defined on the Phoenix Street Classification Map.
 Collector streets are typically the half-mile-line streets such as 39th Ave, 28th St, Roeser Rd, and Maryland Ave as defined on the Phoenix Street Classification Map.
 Local streets are typically the neighborhood streets such as 88th Ln, Dromedary Rd, Holly St, 21st St, and Glenn Dr and are not defined as arterial or collector streets.

2016 Bicycle Lane Improvements

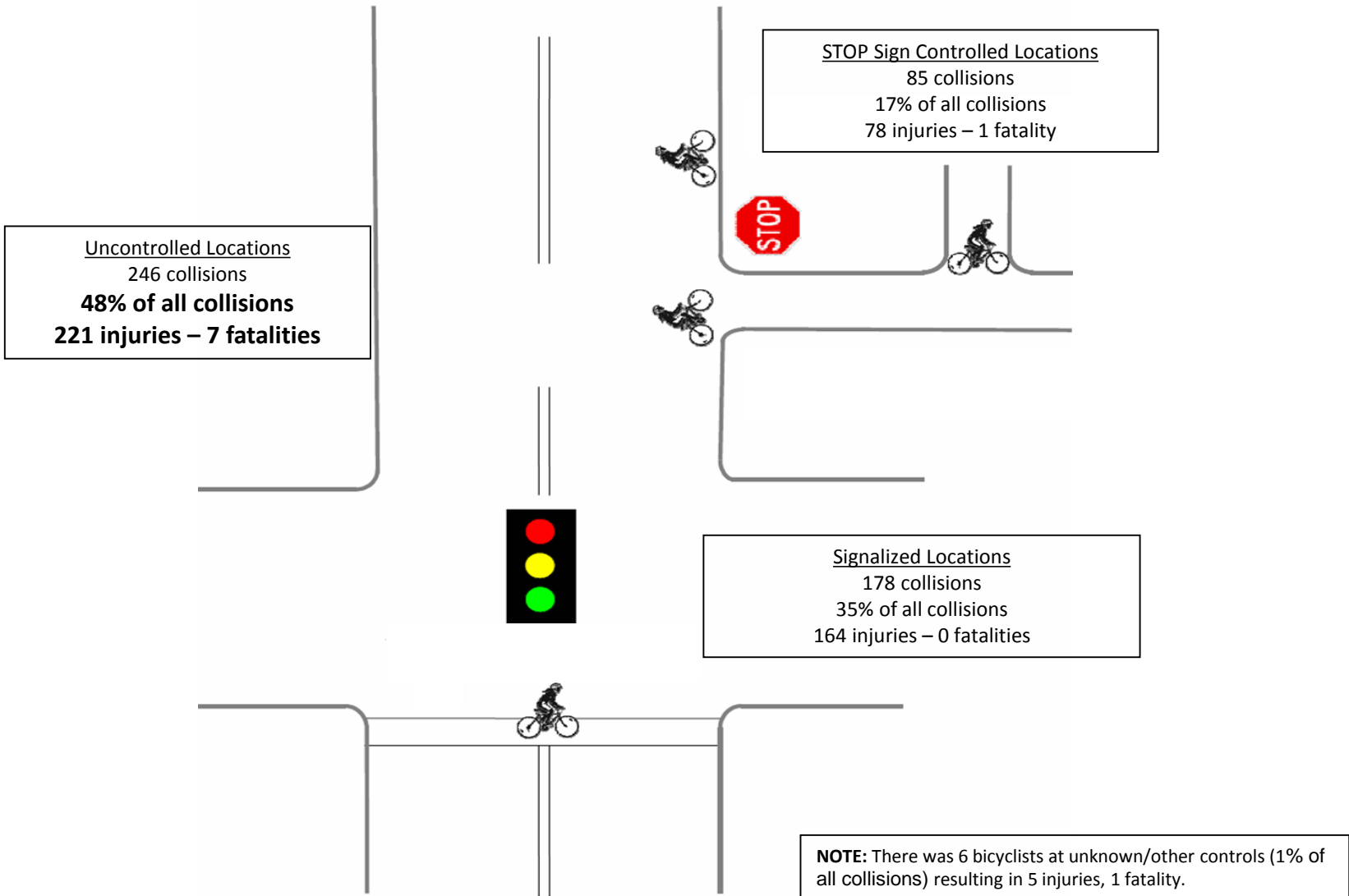
- Cholla Street from 40th to 44th Streets
- Roosevelt Street from 4th to 7th Streets
- Nevitt Bridge Path at 46th Place from Western Canal to Vineyard Road
- Indian School Road from 7th Avenue to 3rd Street
- Hearn Road from 7th to 12th Streets
- Virginia Avenue from 7th Street to Central Avenue
- Acoma Drive from 44th Street to Tatum Boulevard
- 55th Avenue from Dobbins to Baseline Roads
- Cholla Street from 24th to 32nd Streets
- 28th Street from Bell Road to Union Hills Drive
- 63rd Avenue from Durango to Sonora Streets
- 111th Avenue from Campbell Avenue to Indian School Road
- 39th Avenue from Greenway to Bell Roads for Safe Routes to School
- Durango Street from 63rd to 67th Avenues
- South Mountain Avenue from 51st Avenue to Mansa Drive
- Mansa Drive from South Mountain to 47th Avenues
- Lincoln Street from 7th to 2nd Avenues
- 48th Street from Washington to Van Buren Streets
- 39th Avenue from Missouri Avenue to Bethany Home Road

Bicyclist-Involved Roadway Collisions

Total Roadway Related Crashes

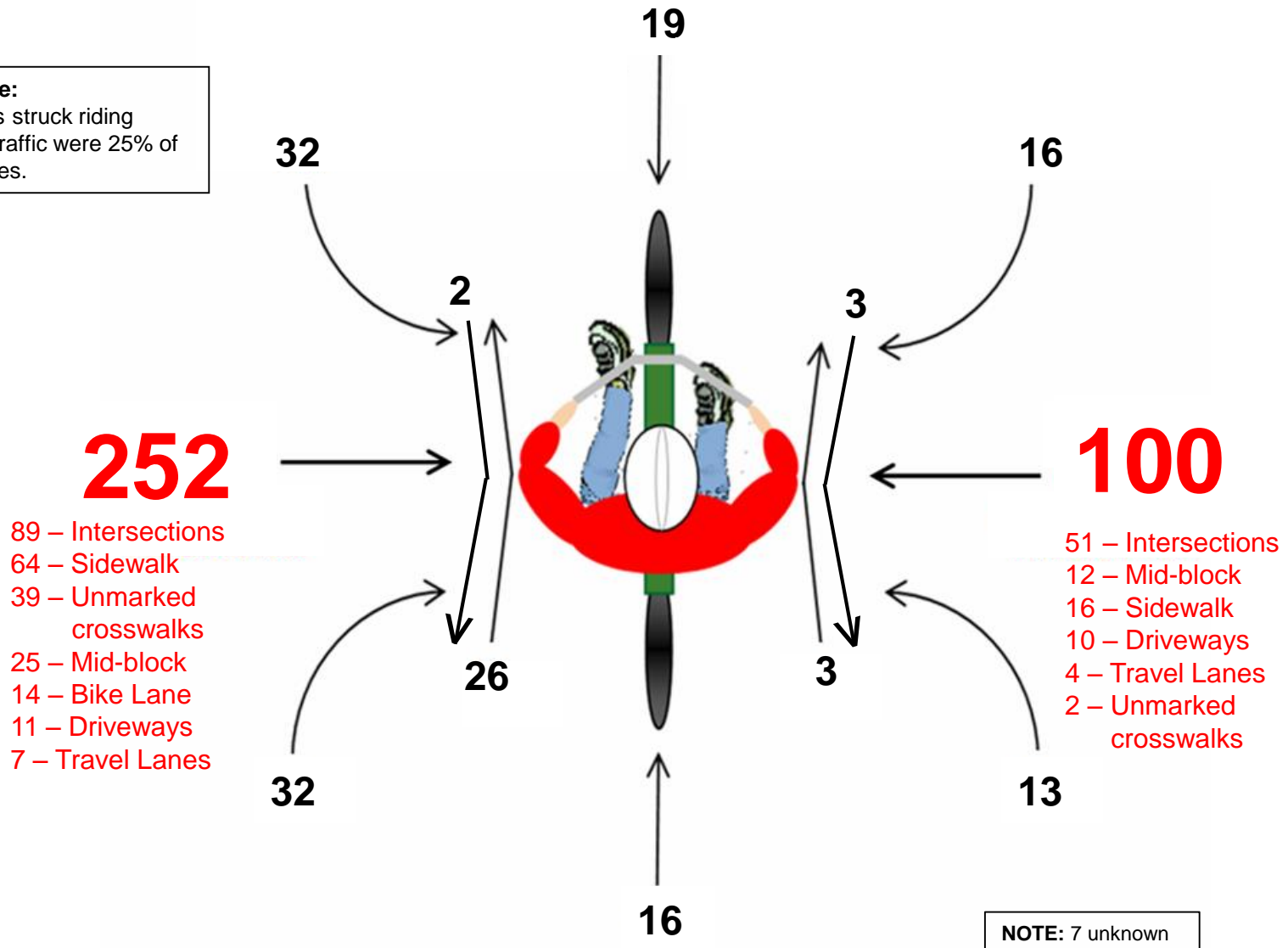


Bicyclist-Involved Collisions and Traffic Control



Direction of the Vehicle Impact with Bicyclist

Key Note:
Bicyclists struck riding against traffic were 25% of all crashes.

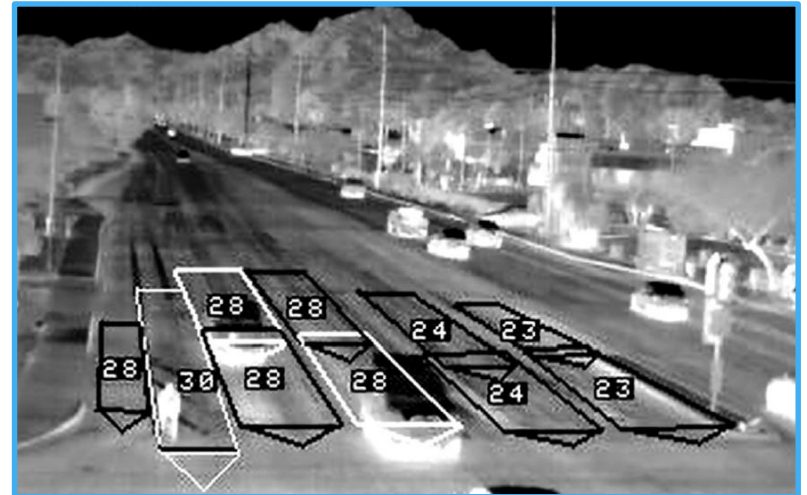
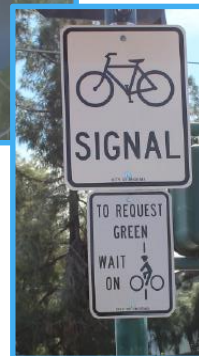


2016 Bicycle Detection Improvements

Bicycle detection improvements were added to seventeen signalized intersections in 2016. The intersection detection systems included inductive loops, bicycle signals, video cameras, and FLIR (Forward Looking Infrared).

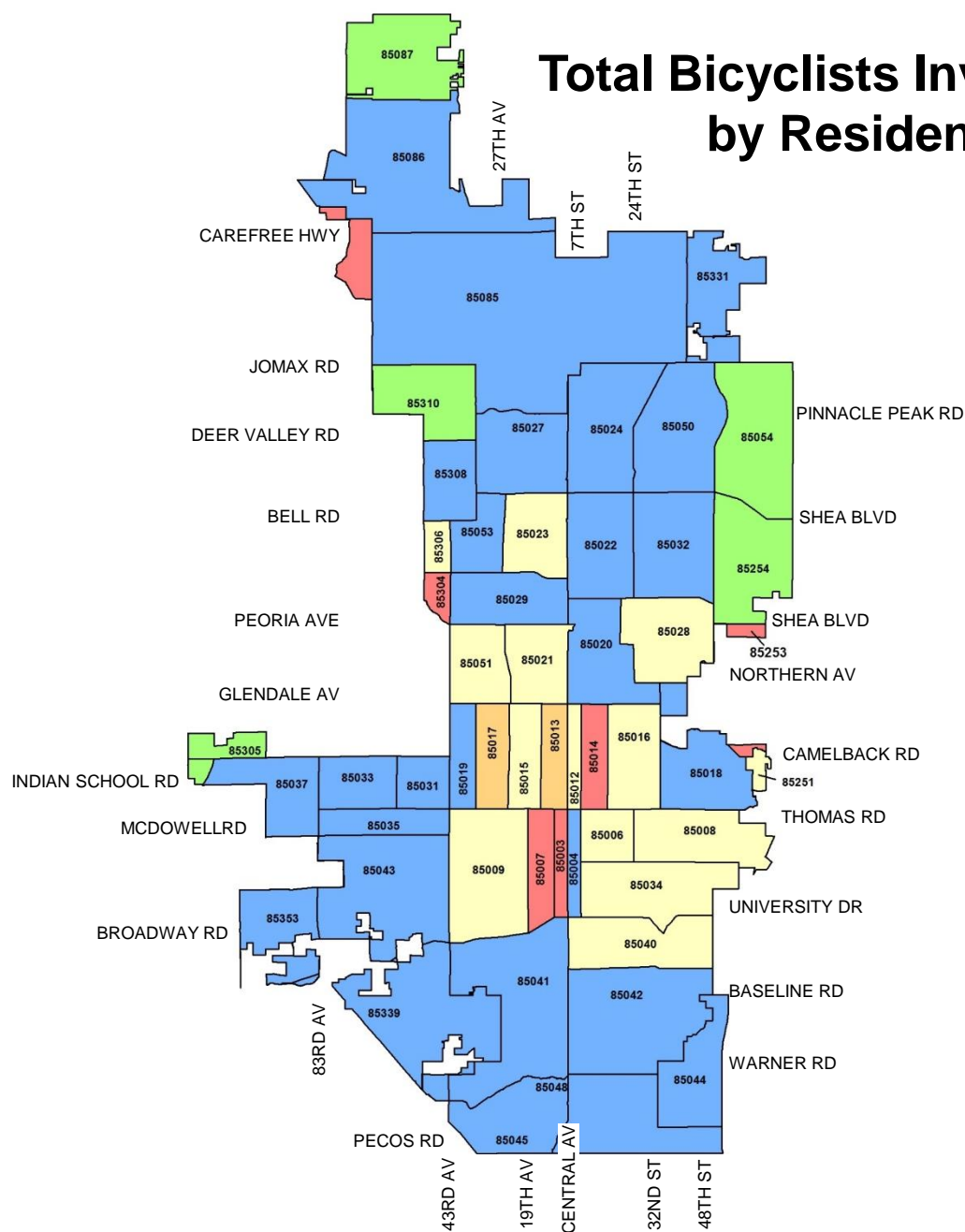
Example locations:

- 15th Avenue and Camelback Road
- 12th Street and Campbell Avenue
- 32nd Street at Cactus, Greenway, Thunderbird Roads, and Shea Boulevard

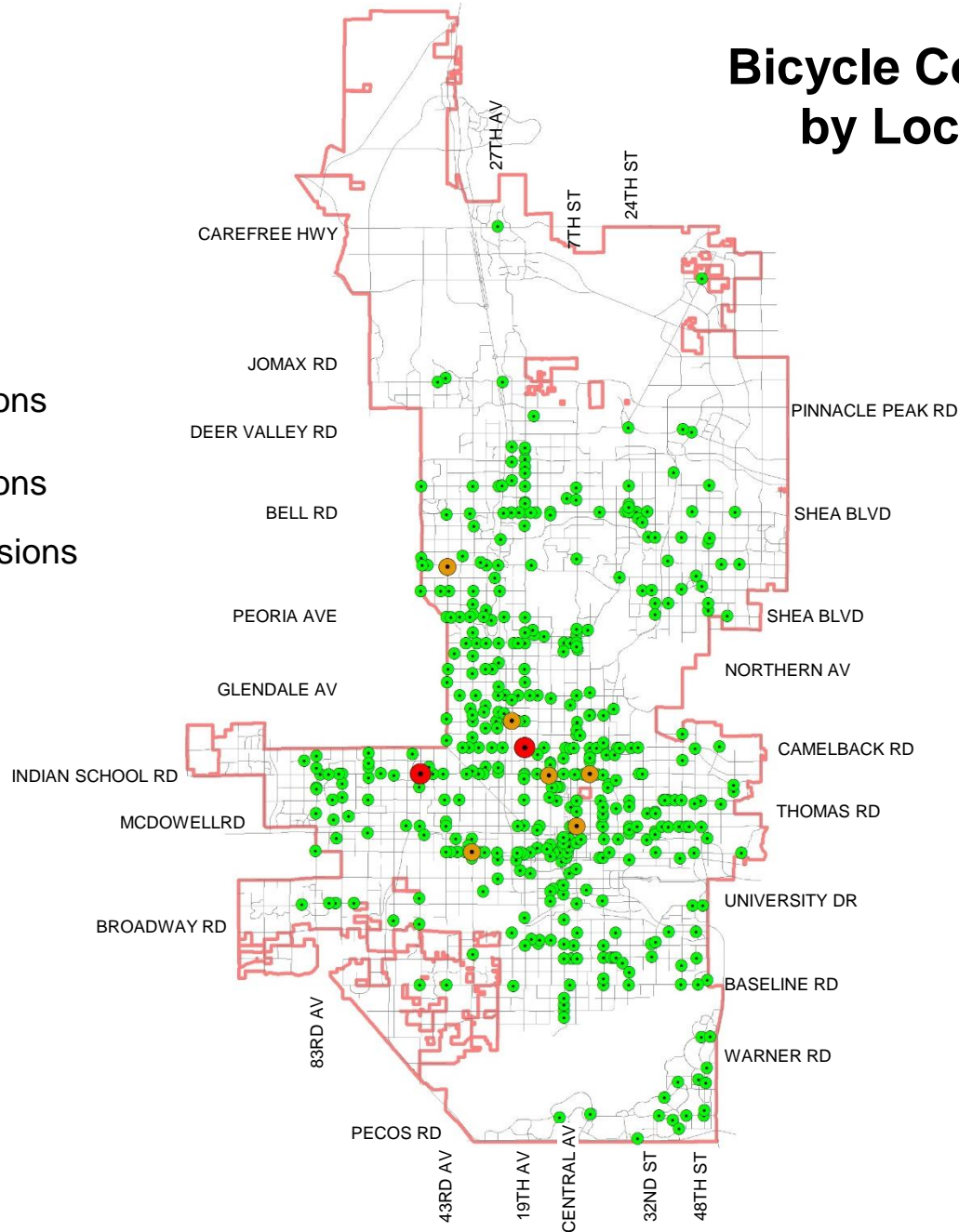
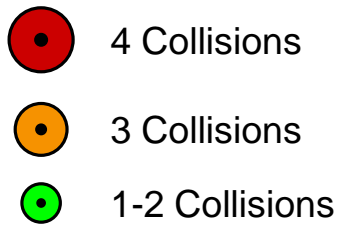


Total Bicyclists Involved in a Collision by Residential Zip Code

Bicyclists Hit per 10,000 Resident



Bicycle Collisions by Location



Acknowledgements

The 2016 Phoenix Bicycle Collision Summary documents the collisions involving bicyclists in the City of Phoenix throughout the 2016 calendar year. Collision data utilized for this report was acquired through Phoenix Police records and the database maintained by the Arizona Department of Transportation (ADOT) known as Safety Data Mart (SDM). The 2016 Phoenix Bicycle Collision Summary was prepared by Ramkiran Krishnakumar (ASU Intern) with assistance from Traffic Safety Section staff Richard Russ (Principal Engineering Technician) and Jacob Martinez (Senior Engineering Technician).

The SDM database includes motor vehicle crashes involving bicyclists that occurred on public right of way where someone was injured or killed or where property damage exceeded \$1,000.

Cover photograph: Phoenix Bike to Work day 2016
Photograph courtesy Joseph Perez (Bicycle Coordinator)

Presentation photographs courtesy Joseph Perez (Bicycle Coordinator), Don Cross (School Safety) and James Baker (Signal Systems)

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Questions?

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