

# 2017 Bicycle Collision Summary



**City of Phoenix**  
STREET TRANSPORTATION DEPARTMENT

---

TRAFFIC SERVICES DIVISION  
TRAFFIC SAFETY SECTION  
DECEMBER 2018

# Table of Contents

❖ <a href="#"><u>Introduction</u></a>	<a href="#"><u>3</u></a>
❖ <a href="#"><u>2017 Phoenix Bicycle Collision Facts-at-a-Glance</u></a>	<a href="#"><u>4</u></a>
❖ <a href="#"><u>Five-Year Trend of Collisions, Injuries, and Fatalities</u></a>	<a href="#"><u>5</u></a>
❖ <a href="#"><u>Age and Gender of Bicyclists in Collisions</u></a>	<a href="#"><u>7</u></a>
❖ <a href="#"><u>Age and Gender of Drivers in Collisions</u></a>	<a href="#"><u>8</u></a>
❖ <a href="#"><u>Collisions by Light Conditions</u></a>	<a href="#"><u>9</u></a>
❖ <a href="#"><u>Collisions by Injury Severity</u></a>	<a href="#"><u>10</u></a>
❖ <a href="#"><u>Collisions by Time of Day and Age Group</u></a>	<a href="#"><u>12</u></a>
❖ <a href="#"><u>Collisions by Day of Week</u></a>	<a href="#"><u>13</u></a>
❖ <a href="#"><u>Collisions by Month</u></a>	<a href="#"><u>14</u></a>
❖ <a href="#"><u>Actions of Bicyclists and Drivers</u></a>	<a href="#"><u>15</u></a>
❖ <a href="#"><u>Primary Violations of Bicyclists and Drivers</u></a>	<a href="#"><u>15</u></a>
❖ <a href="#"><u>Who was Cited?</u></a>	<a href="#"><u>16</u></a>
❖ <a href="#"><u>Physical Conditions of Bicyclists and Drivers</u></a>	<a href="#"><u>18</u></a>
❖ <a href="#"><u>Impairment of Bicyclist and Drivers</u></a>	<a href="#"><u>18</u></a>
❖ <a href="#"><u>Five-Year Trend of Drug or Alcohol Use</u></a>	<a href="#"><u>19</u></a>
❖ <a href="#"><u>Collisions by Street Classification</u></a>	<a href="#"><u>20</u></a>
❖ <a href="#"><u>Collisions by Location Type</u></a>	<a href="#"><u>22</u></a>
❖ <a href="#"><u>Collisions by Traffic Control Type</u></a>	<a href="#"><u>23</u></a>
❖ <a href="#"><u>Vehicle Movement Prior to Impact</u></a>	<a href="#"><u>24</u></a>
❖ <a href="#"><u>Collisions by Residential Zip Code of Bicyclist</u></a>	<a href="#"><u>26</u></a>
❖ <a href="#"><u>Collisions by Intersection</u></a>	<a href="#"><u>27</u></a>
❖ <a href="#"><u>Acknowledgements</u></a>	<a href="#"><u>28</u></a>

# Introduction

The 2017 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 2013 through 2017 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 2017 collision summary includes a reported 518 bicycle-related collisions resulting in 489 injuries and 12 fatalities. These bicycle-related collisions accounted for 1.7 percent of all collisions, 3.4 percent of all injuries, and almost 6 percent of all fatalities occurring on City Streets. Statistics show no significant increase (less than 1 percent) over 2016 collisions, however the 5-year trend continues upward. Consistent with previous years, male bicyclists were involved in more collisions at a male:female ratio of 3.6:1. Also, the age groups with the highest number of bicycle-related collisions were adults between the ages of 26 and 35. The majority (79 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 2017 Bicycle Collision Summary differ from the 2017 Traffic Collision Summary due to the detailed analysis of crash reports.

# 2017 Phoenix Bicycle Collision Facts-at-a-Glance

518  
collisions

489  
injuries

12  
deaths

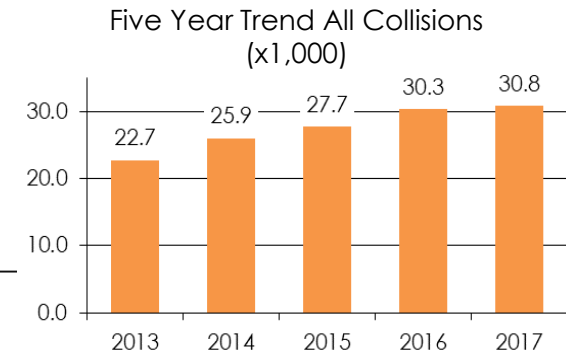
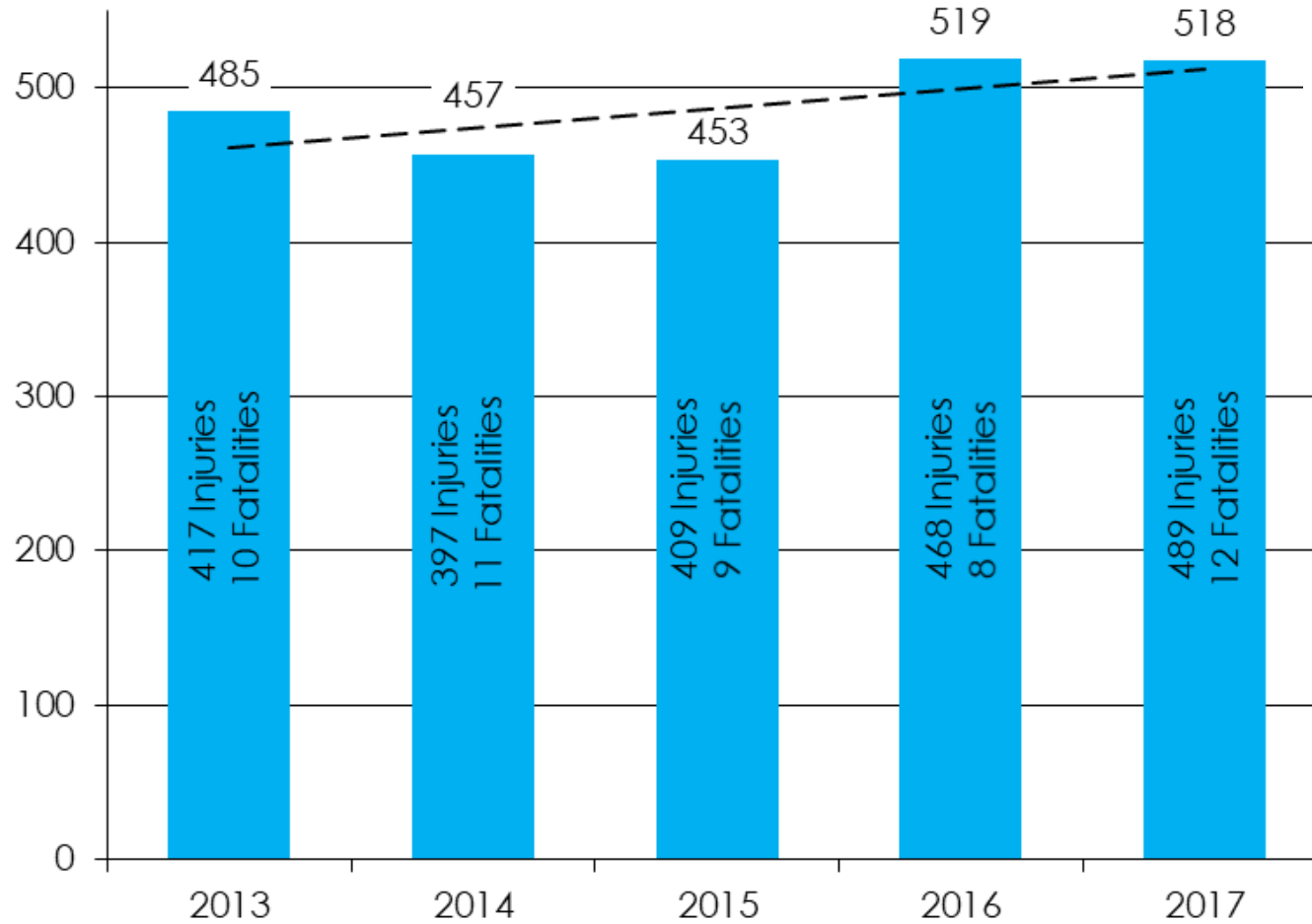
Important Points to Know About the Bicycle Collision Summary in 2017:

- There were three more bicycle collisions than in 2016.
- Nearly eight out of ten collisions occurred at or within 150 feet of an intersection.
- More than seven out of ten non-intersection-related collisions occurred on an arterial street.
- Almost 40 percent of collisions occurred while the motorist was making a right-hand turn.
- Only three percent of bicyclists involved in a collision were not injured.

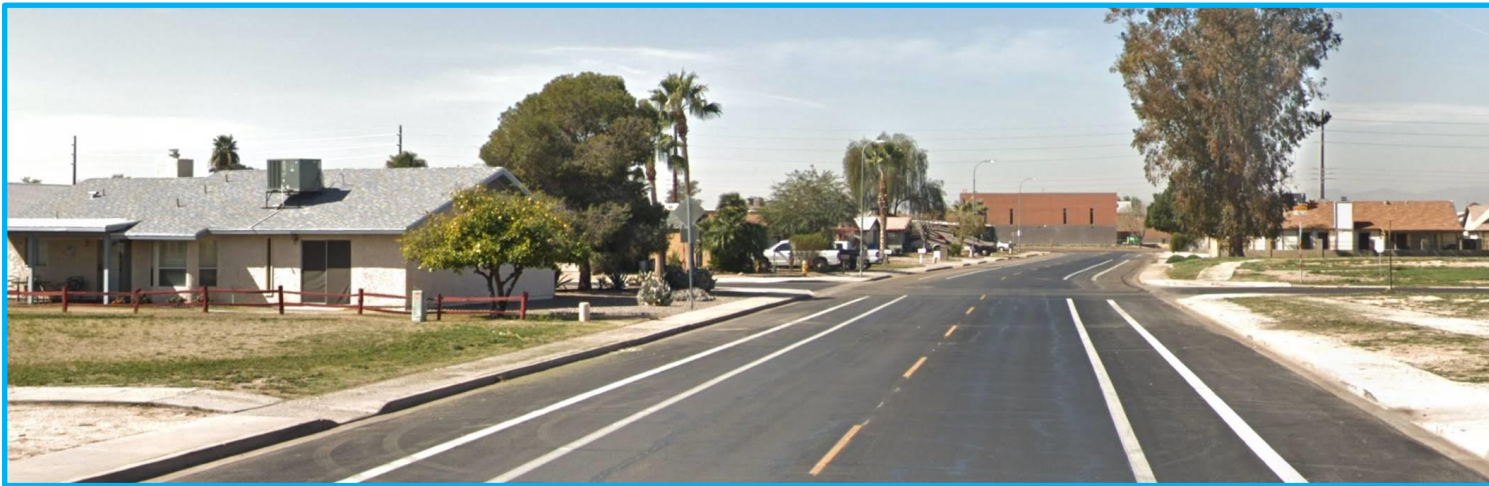
In 2017,

- Bicycle collisions in 2017 accounted for 1.7 % of all traffic collisions, 3.4% of all injuries, and almost 6% of all fatalities.
- Almost 17% of bicyclist in collisions were children below the age of 18.
- 32% of all collisions occurred in an intersection crosswalk and 17% at driveways.
- 35 school-age bicyclists (5 to 17 years old) were in crashes during school hours (Monday – Friday, 7 AM – 4 PM).
- 28% of all bicycle collisions occurred at night, including twilight, and 25% of all bicyclist fatalities occurred at night.
- Bicycle collisions occurred most frequently between the hours of 3 PM and 6 PM and on Thursdays.
- February had the highest number of bicycle collisions (50).
- Only eight bicyclists and one driver were found to be under the influence of alcohol or drugs.
- 44% of all bicycle collisions occurred at uncontrolled locations.
- There were 93 hit and run collisions involving bicycles.

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



**Key Note:**  
The 10 year average is 485 collisions.



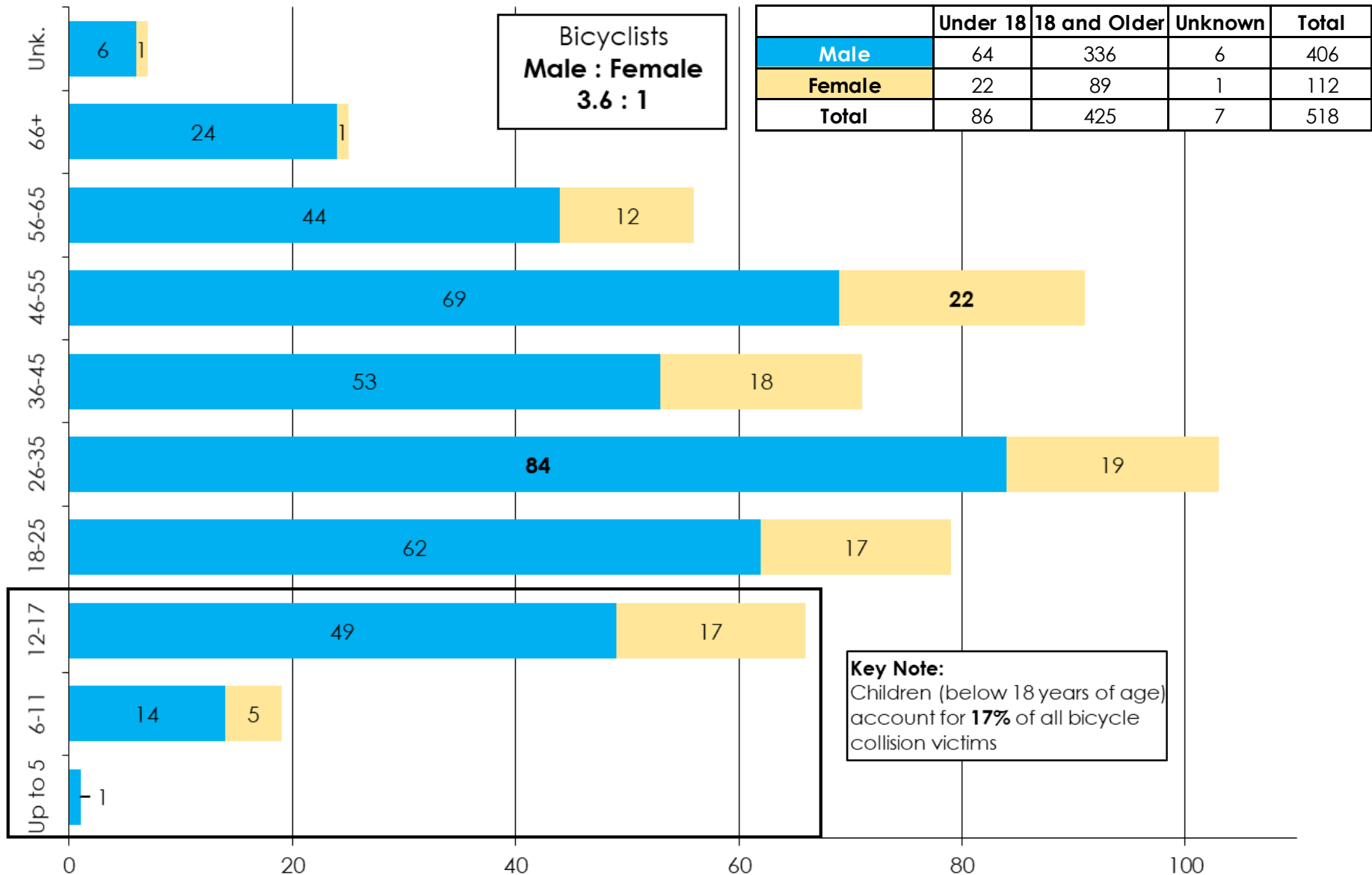
Bike lanes along West Campbell  
Avenue west of 99<sup>th</sup> Avenue

New bike lane on West Grovers  
Avenue west of 35th Avenue

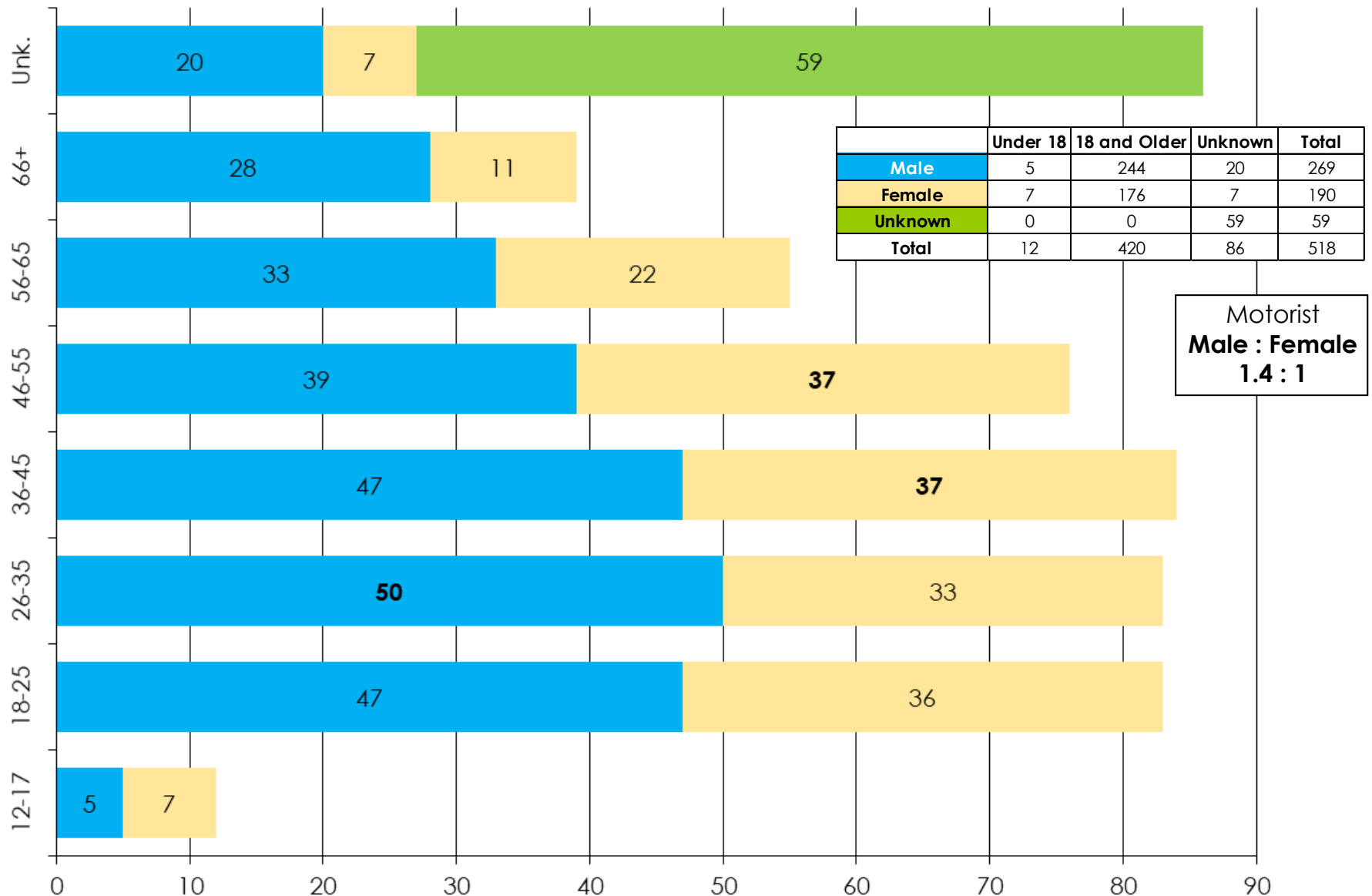




# Age and Gender of Bicyclists in Collisions

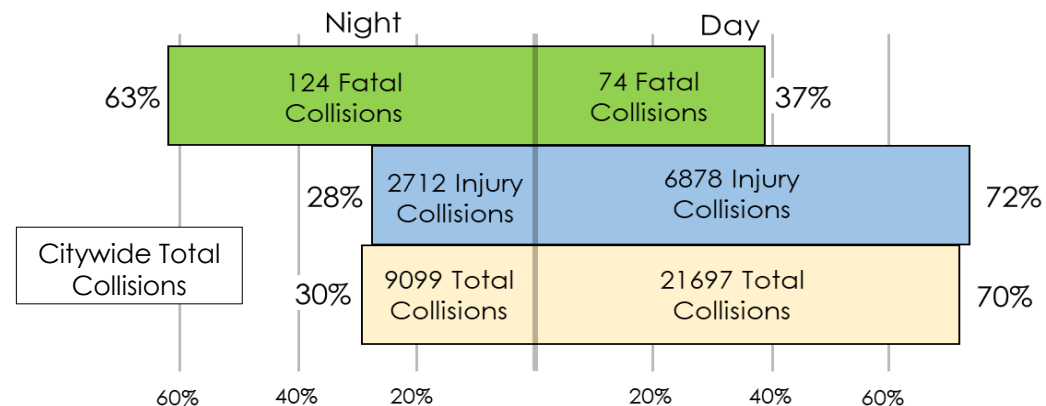
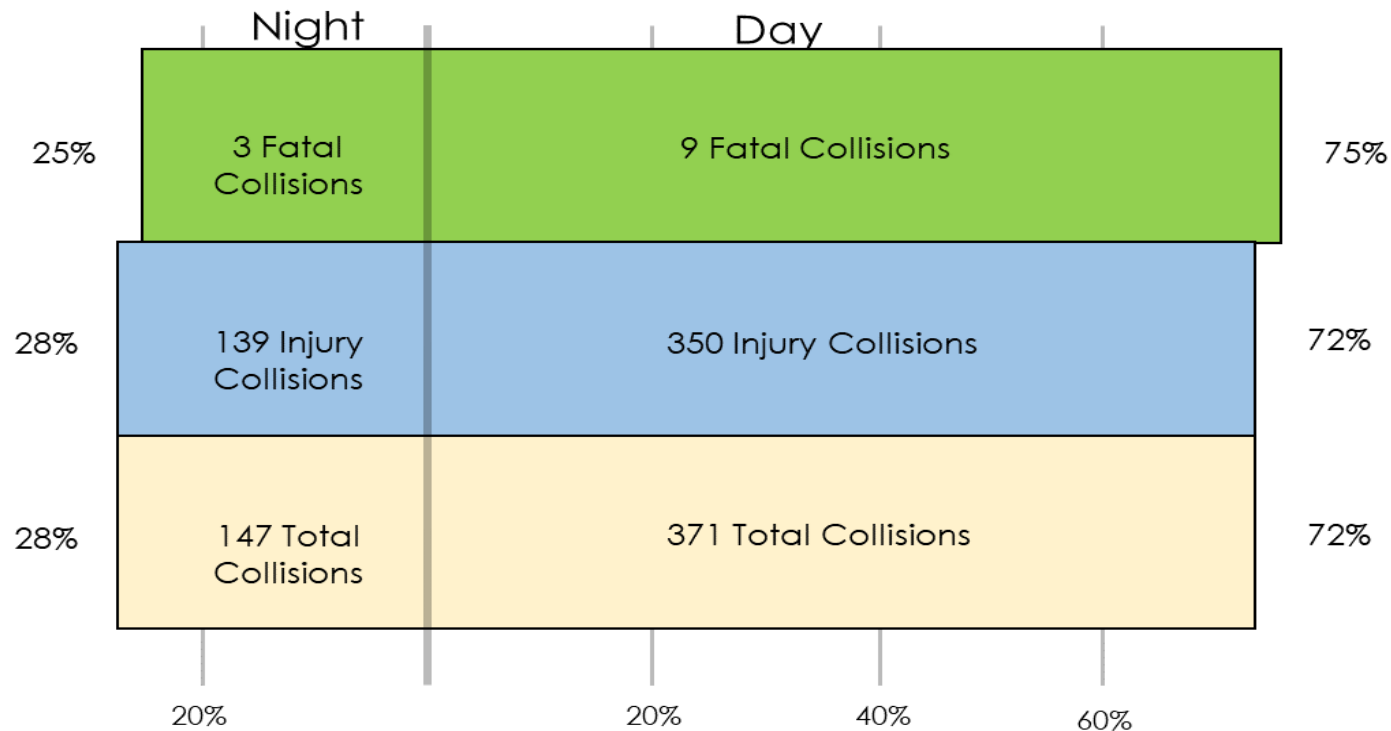


# Age and Gender of Drivers in Collisions





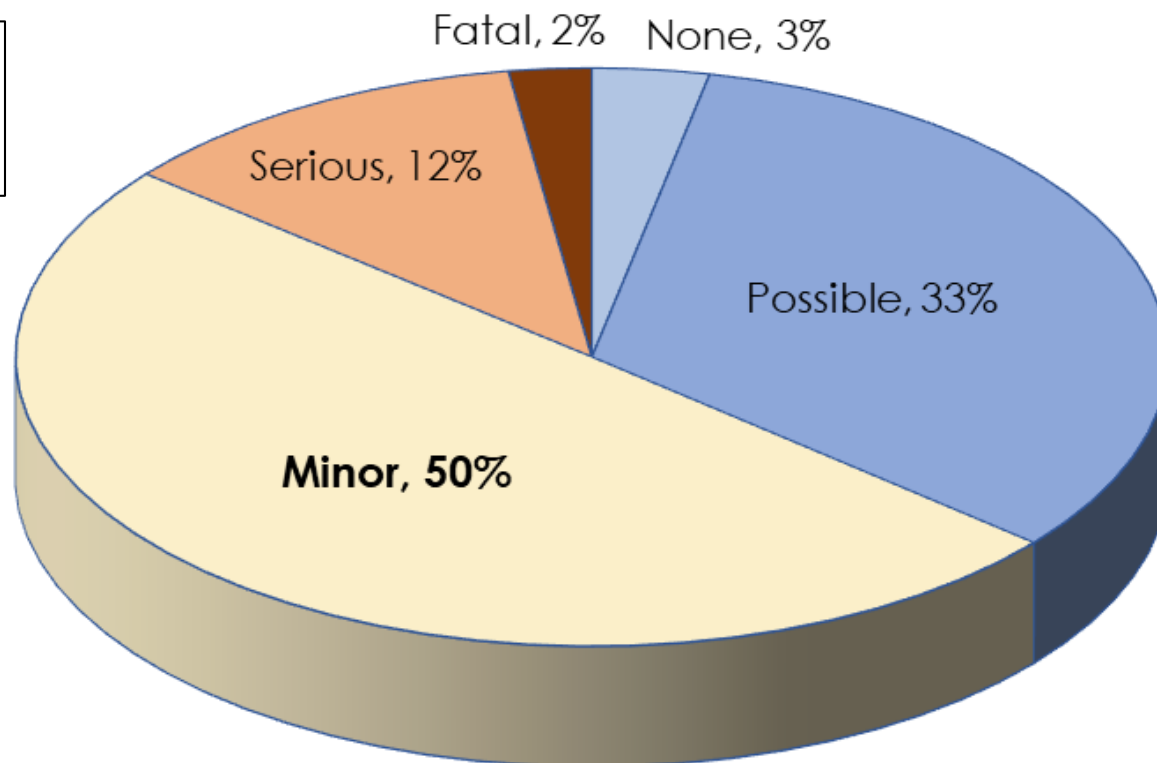
# Collisions by Light Conditions



# Collisions by Injury Severity

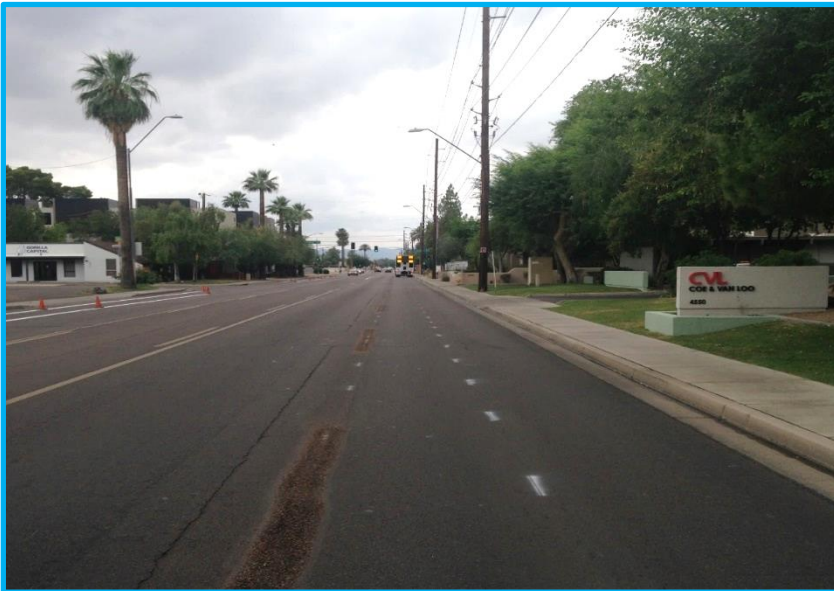
**Key Note:**

There were 258 minor injuries, 61 serious injuries, and 12 fatalities.

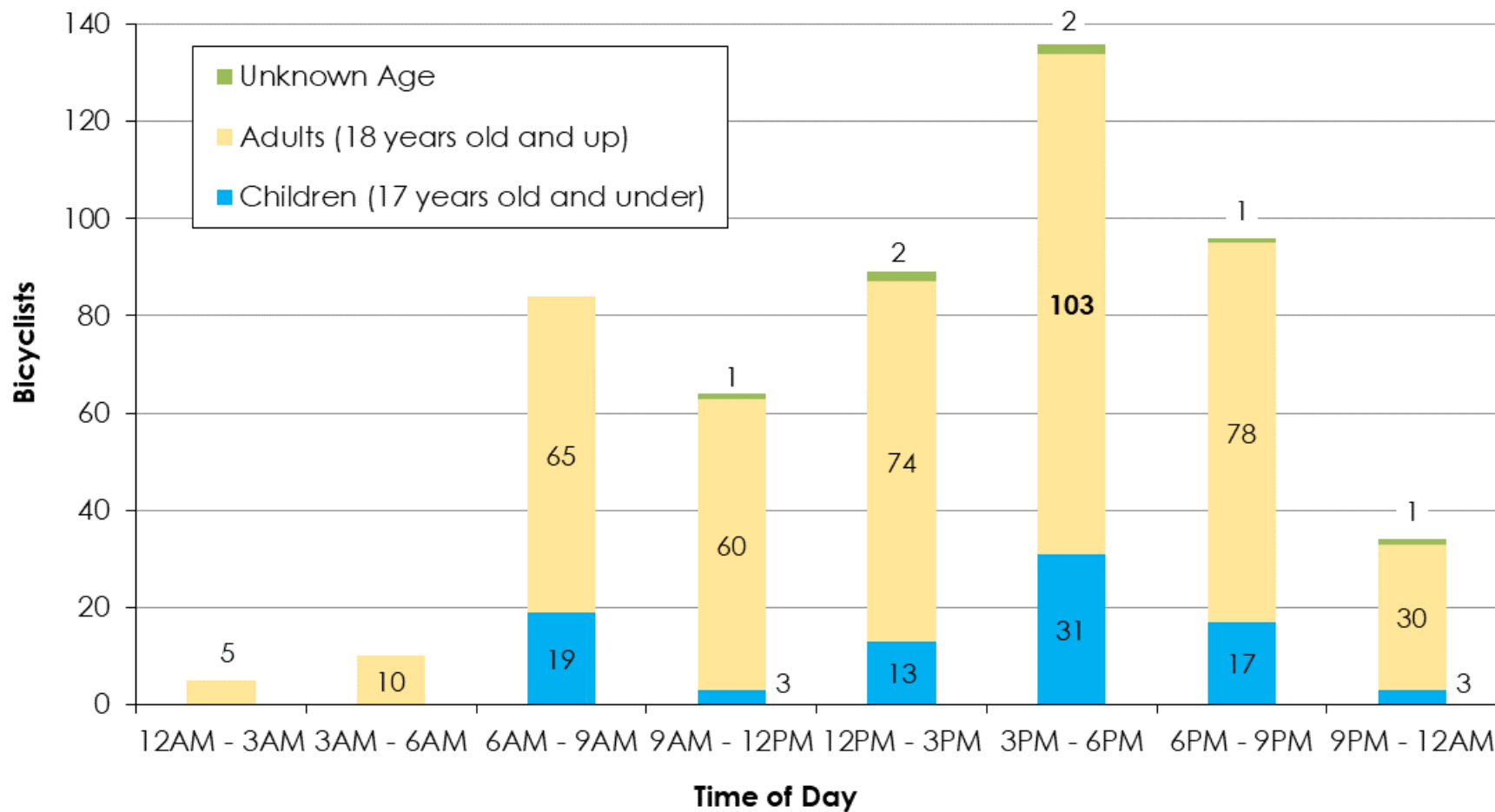


**Note:** This collision summary accounts for bicycle collisions with vehicles, not single bicycle collisions or two-bicycle collisions.

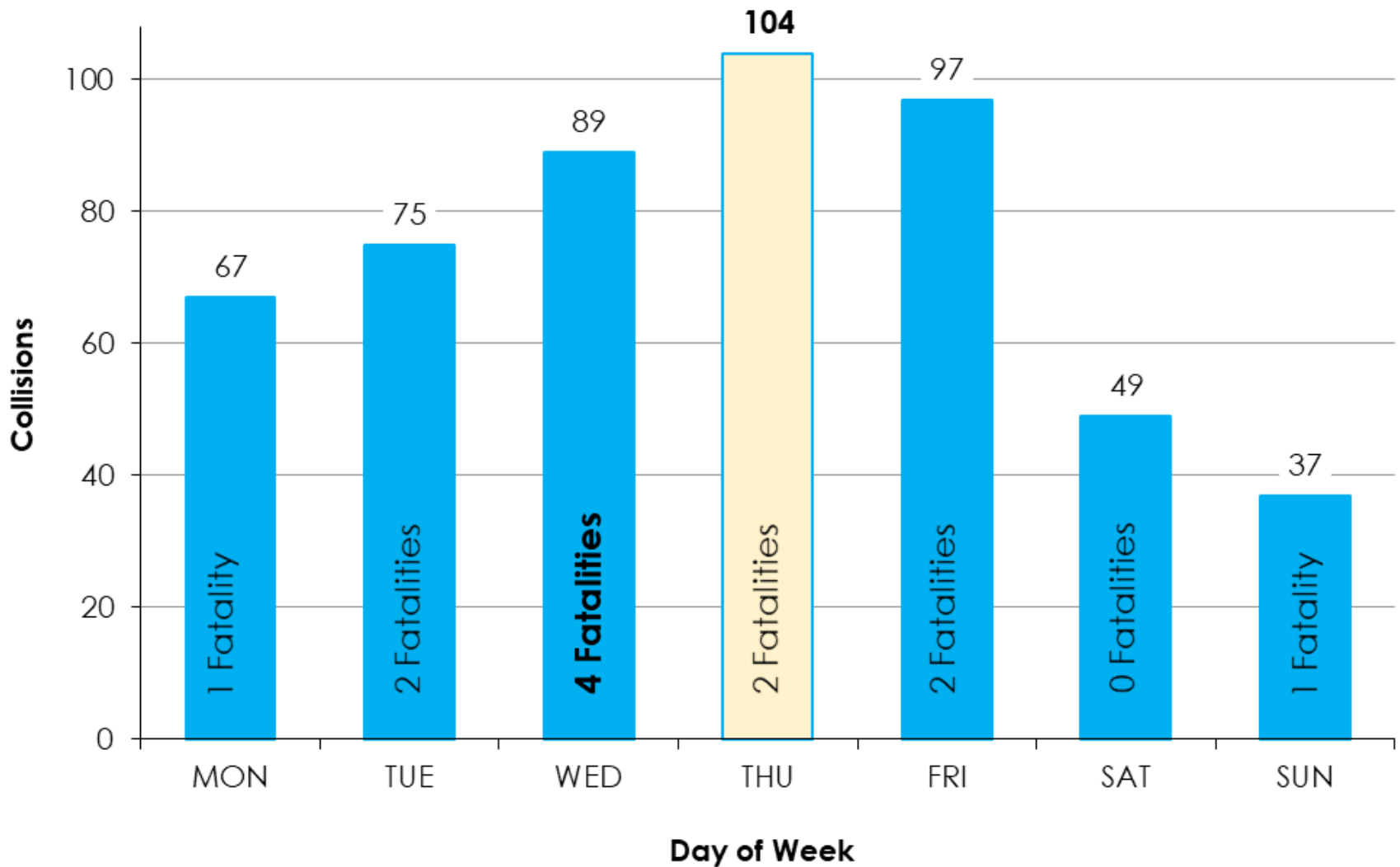
# North 12th Street south of East Camelback Road Before / After Buffered Bike Lanes



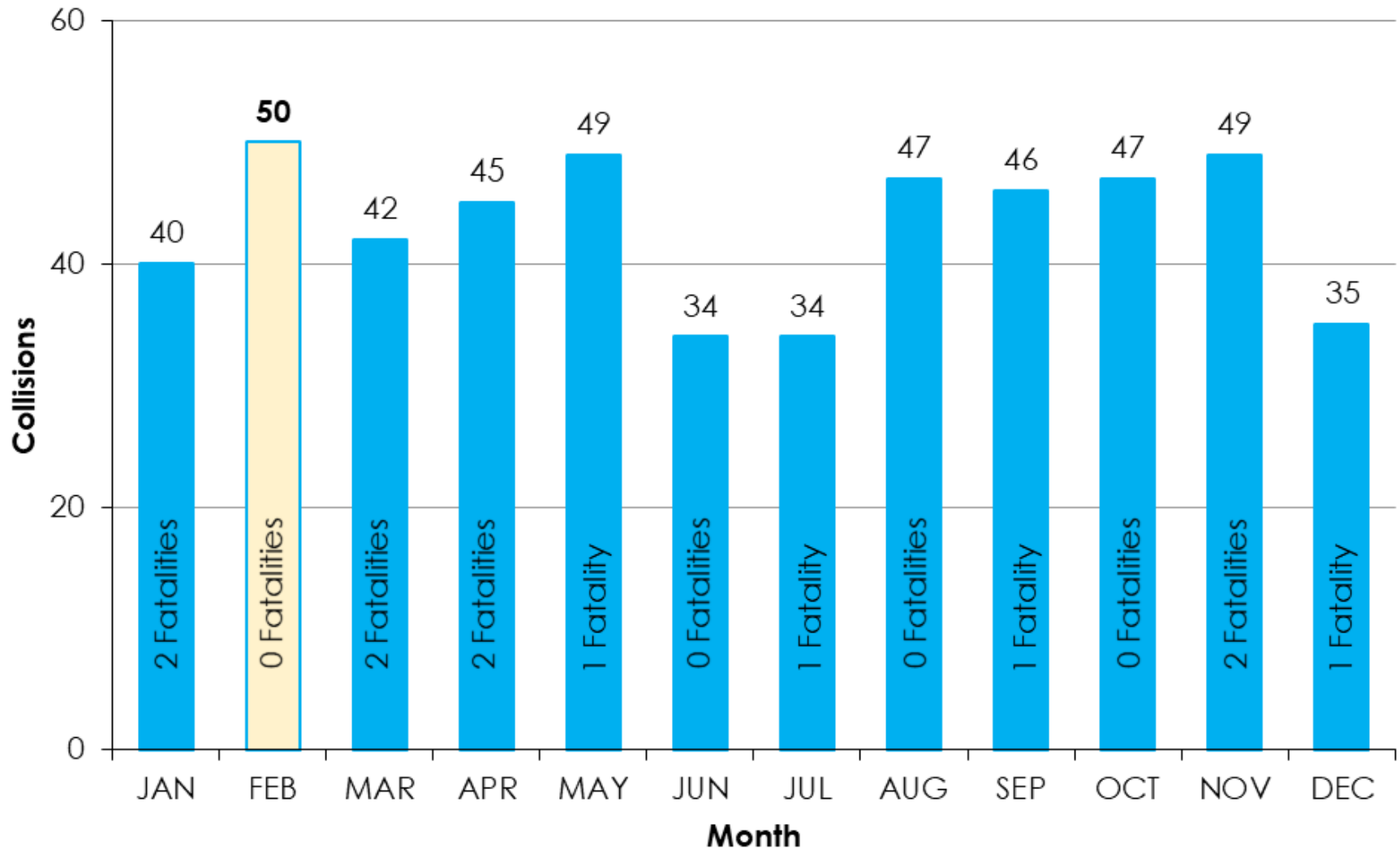
# Collisions by Time of Day and Age Group



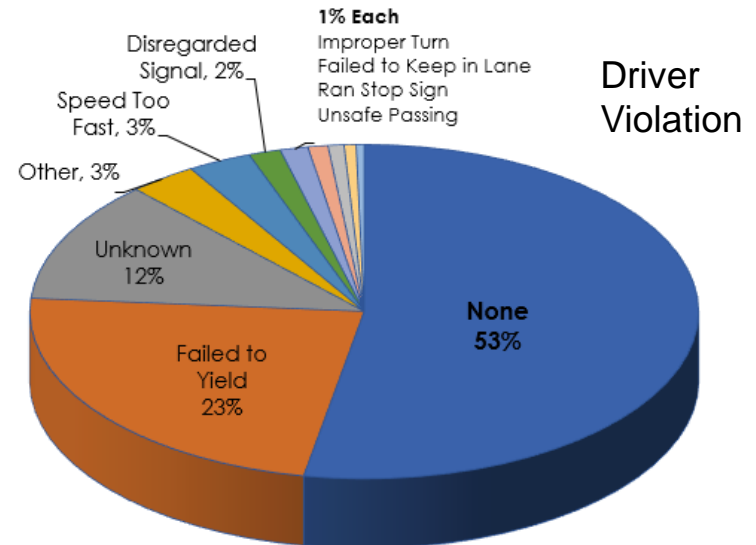
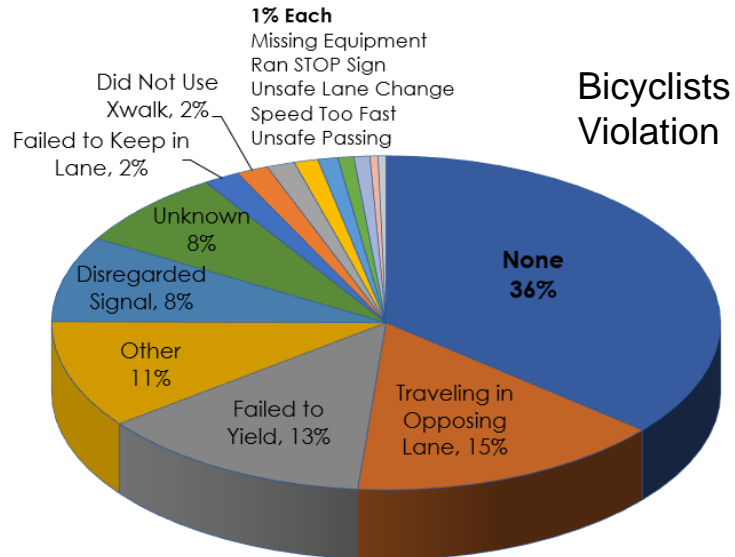
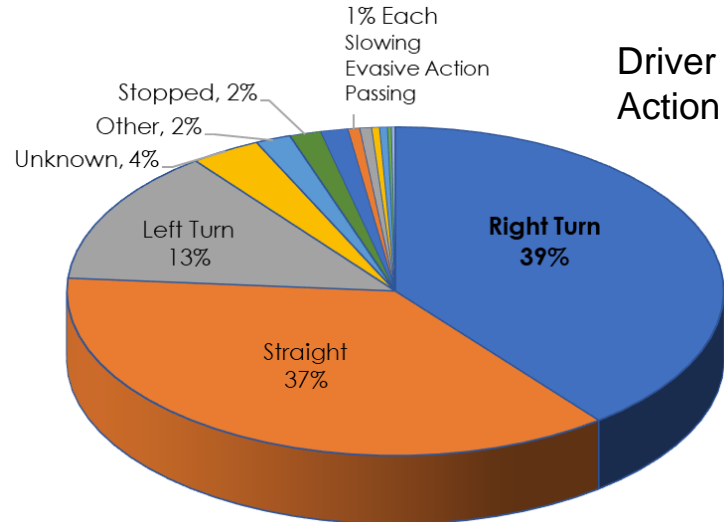
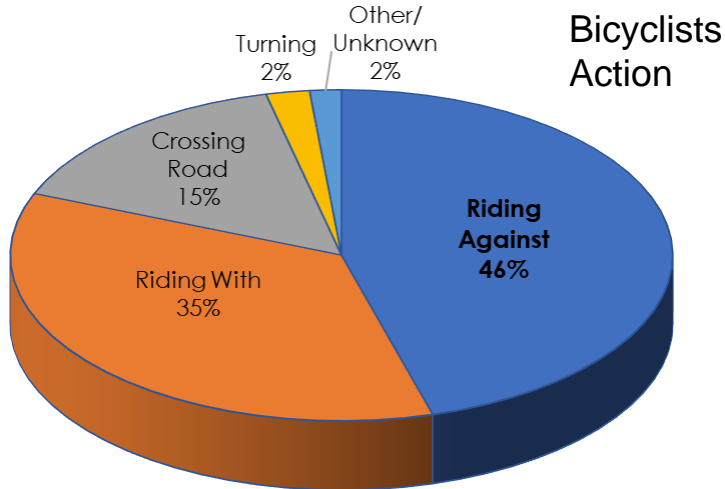
# Collisions by Day of Week



# Collisions by Month



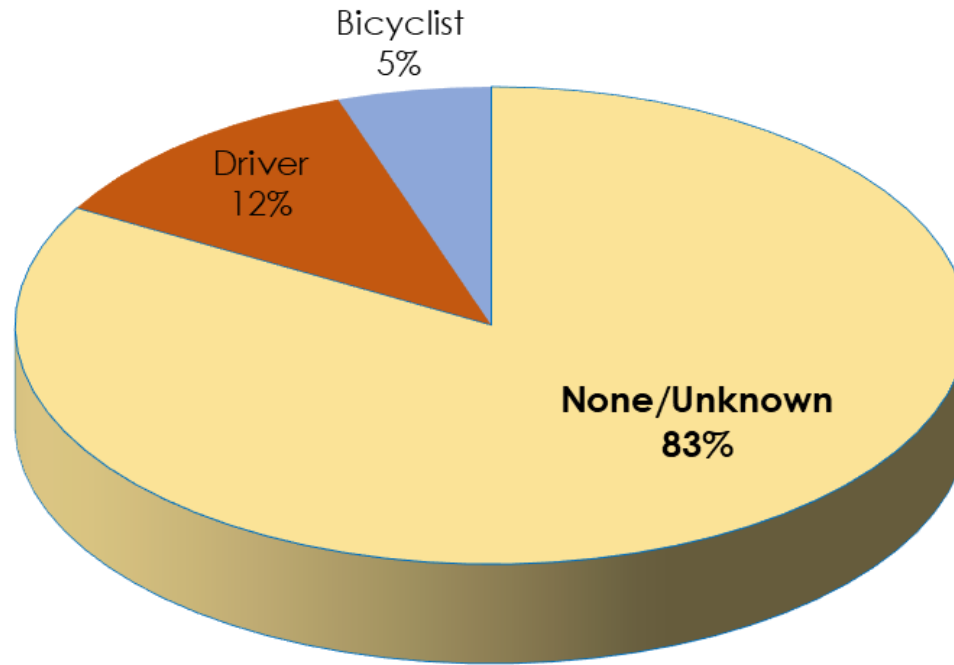
# Actions and Violations



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



# Who Was Cited?



**Key Note:** 28 bicyclists were issued 30 citations and 61 drivers were issued 80 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

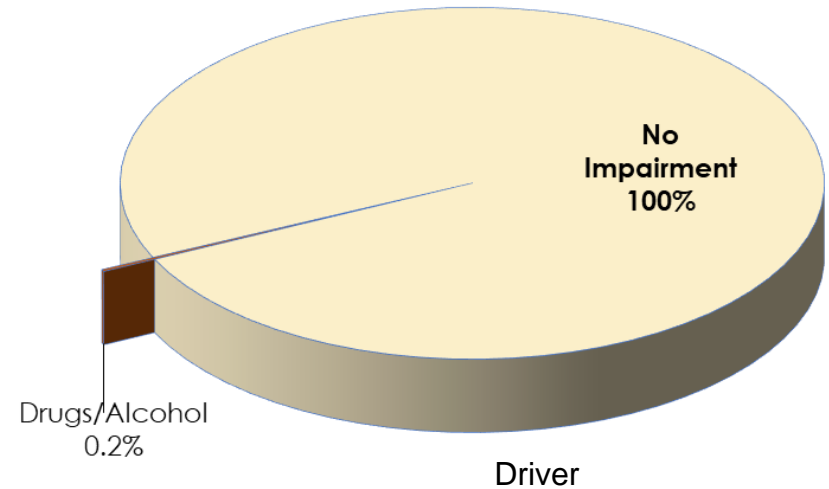
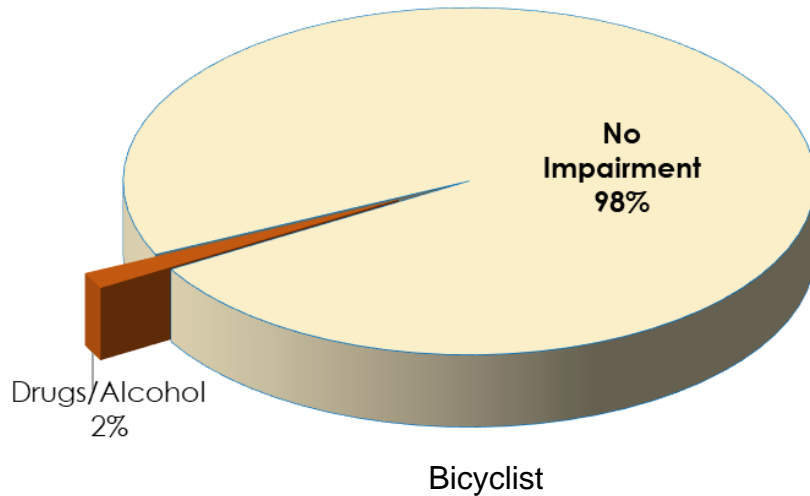


District 7 Community Bike and Safety Event at Food City Shopping Center 7th / Southern Avenues.

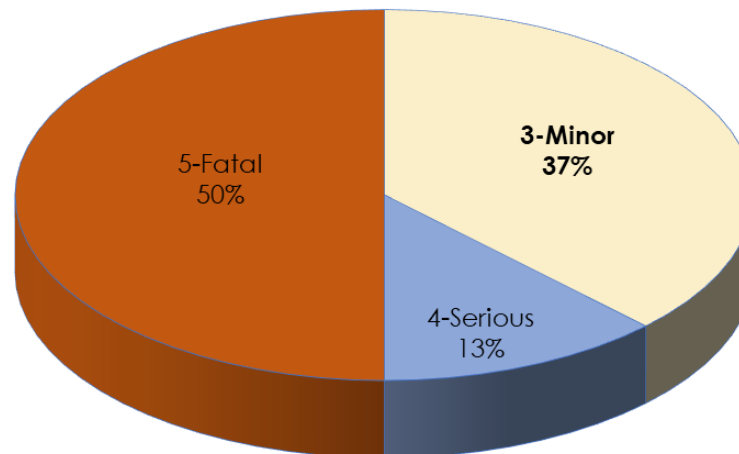
Vista del Sur Elementary  
“Bike to School Day” Event



## Impairment of Bicyclists and Drivers



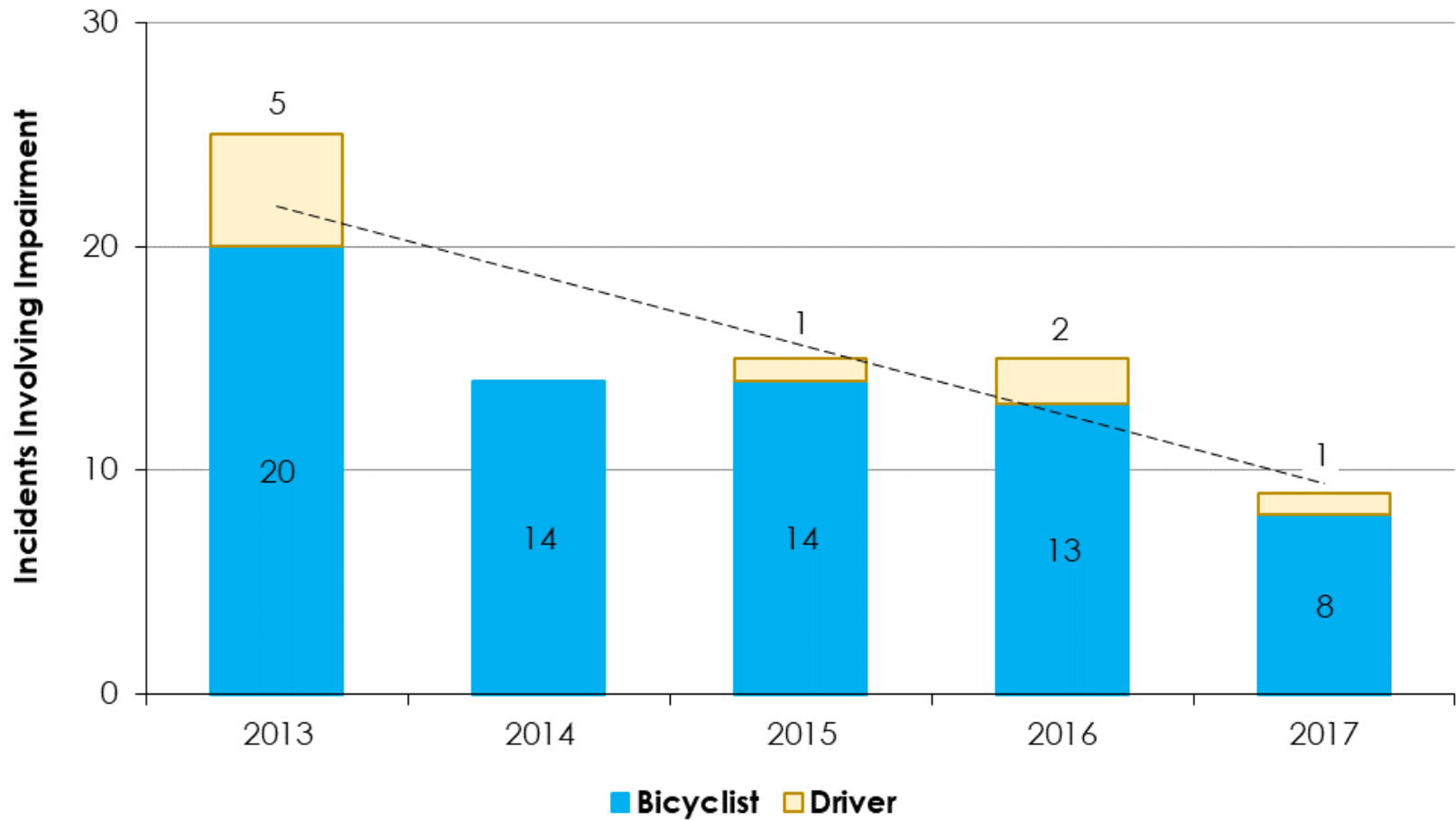
## Injury Severity of Bicyclists under the Influence



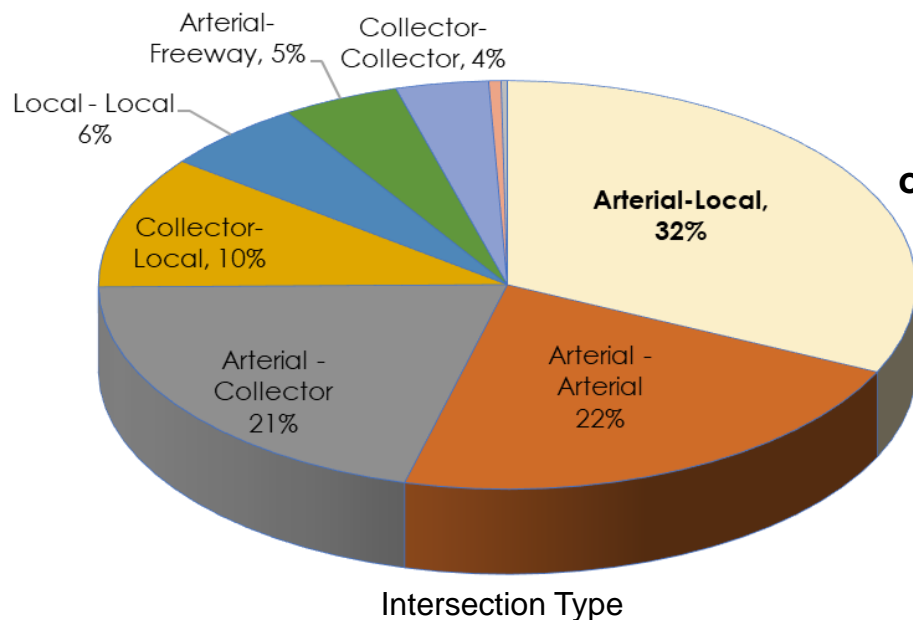
Under the Influence  
Male:Female  
7 : 1

**Key Note:**  
There were 3 minor injuries, 1 serious injury, and **4 fatalities** involving drugs and/or alcohol.

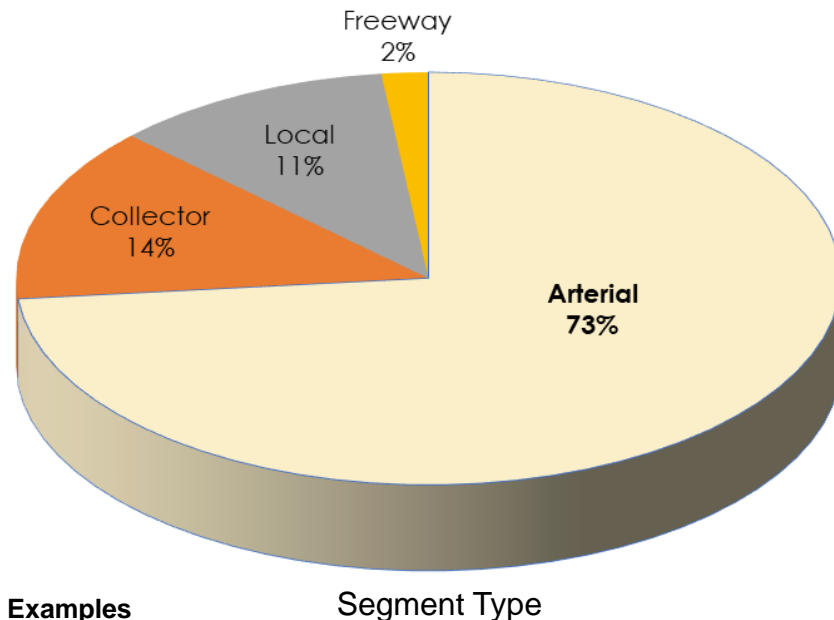
# Five-Year Trend of Drug or Alcohol Use



# Collisions by Street Classification



**Non-Intersection-Related**  
**21%**  
**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.

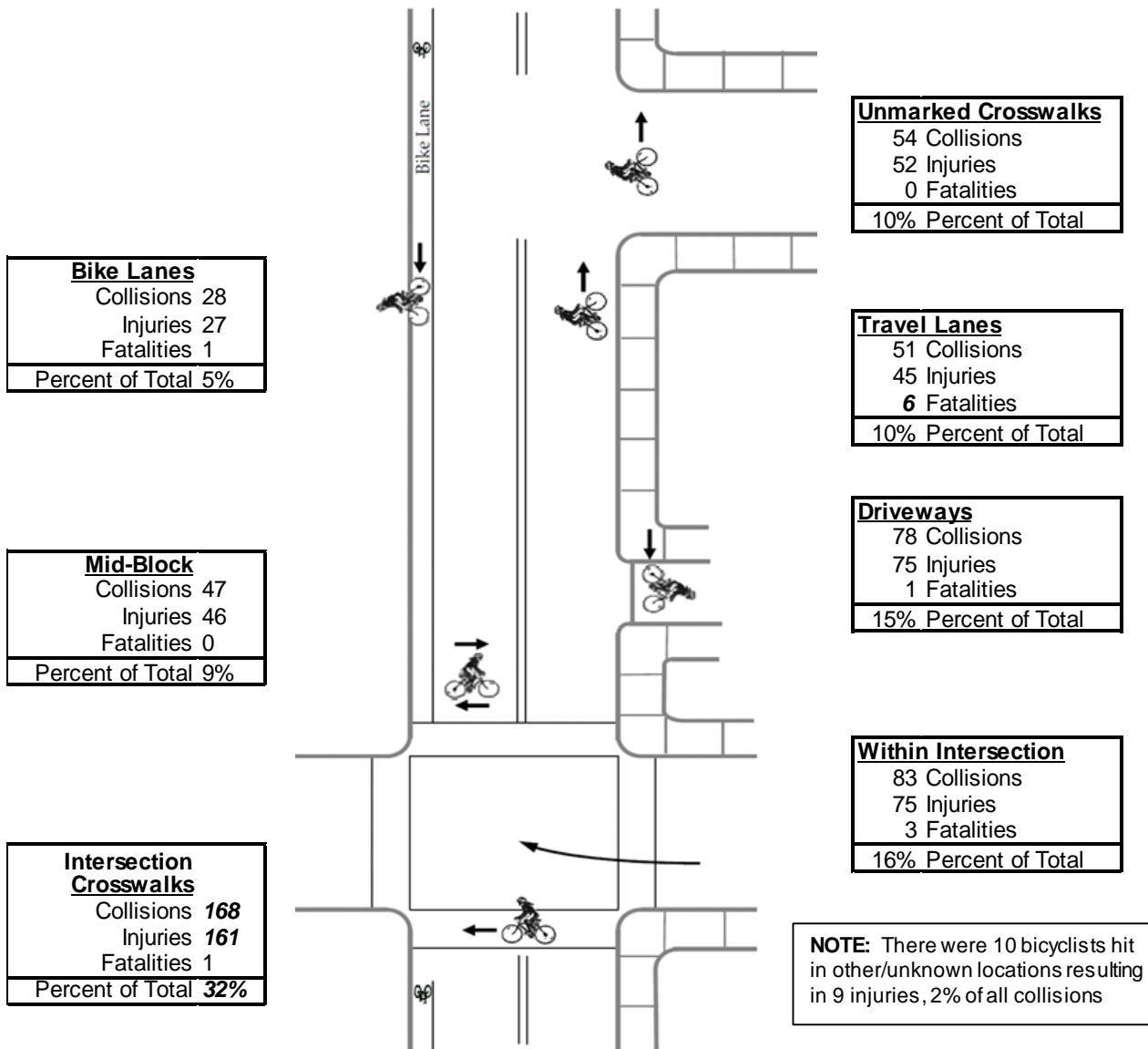
Local streets are typically the neighborhood streets such as 88th Ln, Dromedary Rd, Holly St, 21st St, and Glenn Dr and are not defined as arterial or collector streets.

# 2017 Bicycle Facility Improvement

- Baseline Road; 19th Avenue to 7th Avenue
- Elwood Street; 75th Avenue to 79th Avenue
- Pinnacle Peak Road; 19th Avenue to I-17
- Southern Avenue; 51st Avenue to 59th Avenue
- Southern Avenue; 24th Street to 32nd Street
- 24th Street; Baseline Road to Southern Avenue
- 32nd Street; Southern Avenue to Broadway Road
- Chandler Boulevard; 19th Avenue to 27th Avenue
- Cave Creek Road; Dynamite Road to Tatum Boulevard
- Cave Creek Road; Rancho Paloma to Rancho North
- Union Hills Drive; 19th Avenue to 24th Drive
- Deer Valley Road; Cav Creek Road to Sky Crossing Way
- 75th Avenue; Broadway Road to Buckeye Road
- Pinnacle Peak Road; 40th Street to 44th Street
- 44th Street; Cholla Street to Shea Boulevard
- Pinnacle Peak Road; 40th Way to Tatum Boulevard
- Cholla Street; 31st Avenue to 43rd Avenue

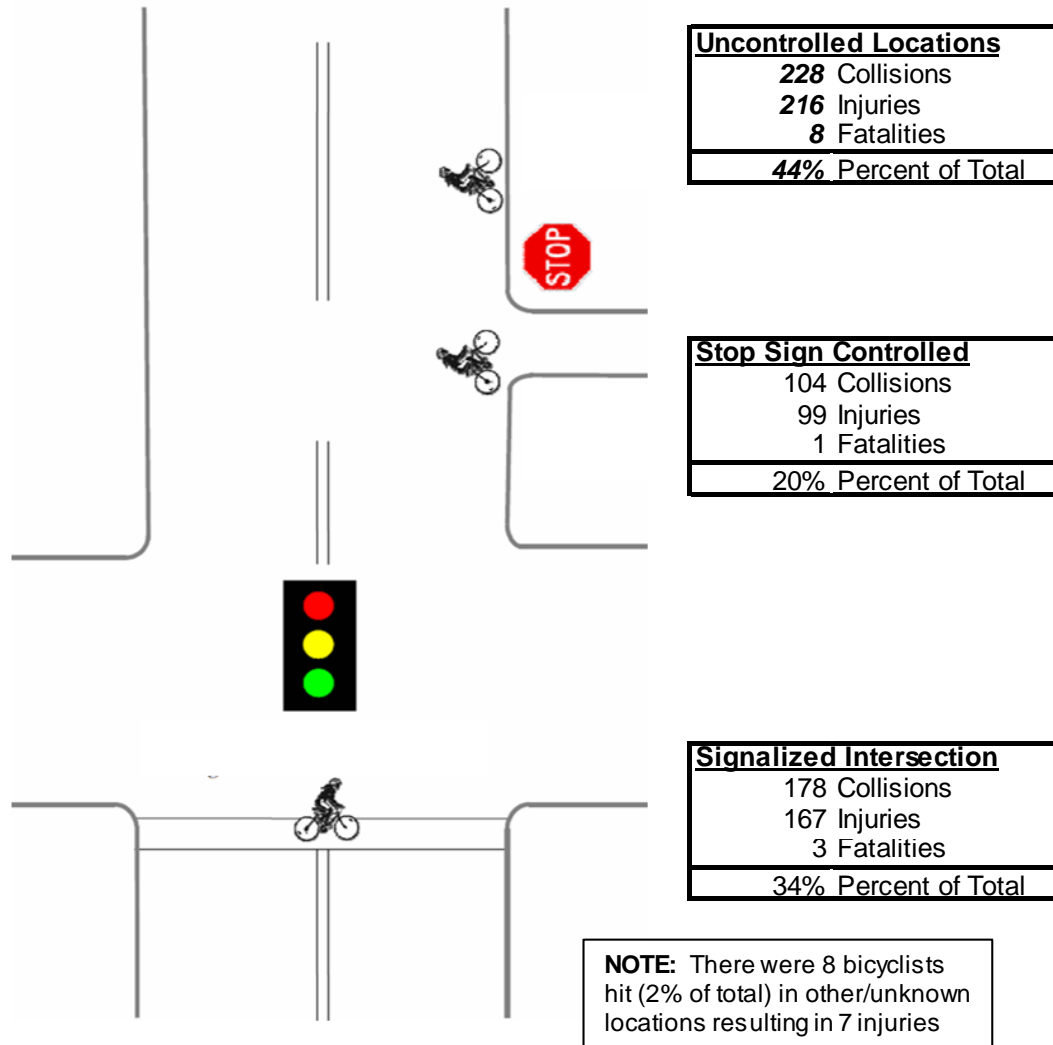


# Collisions by Location Type





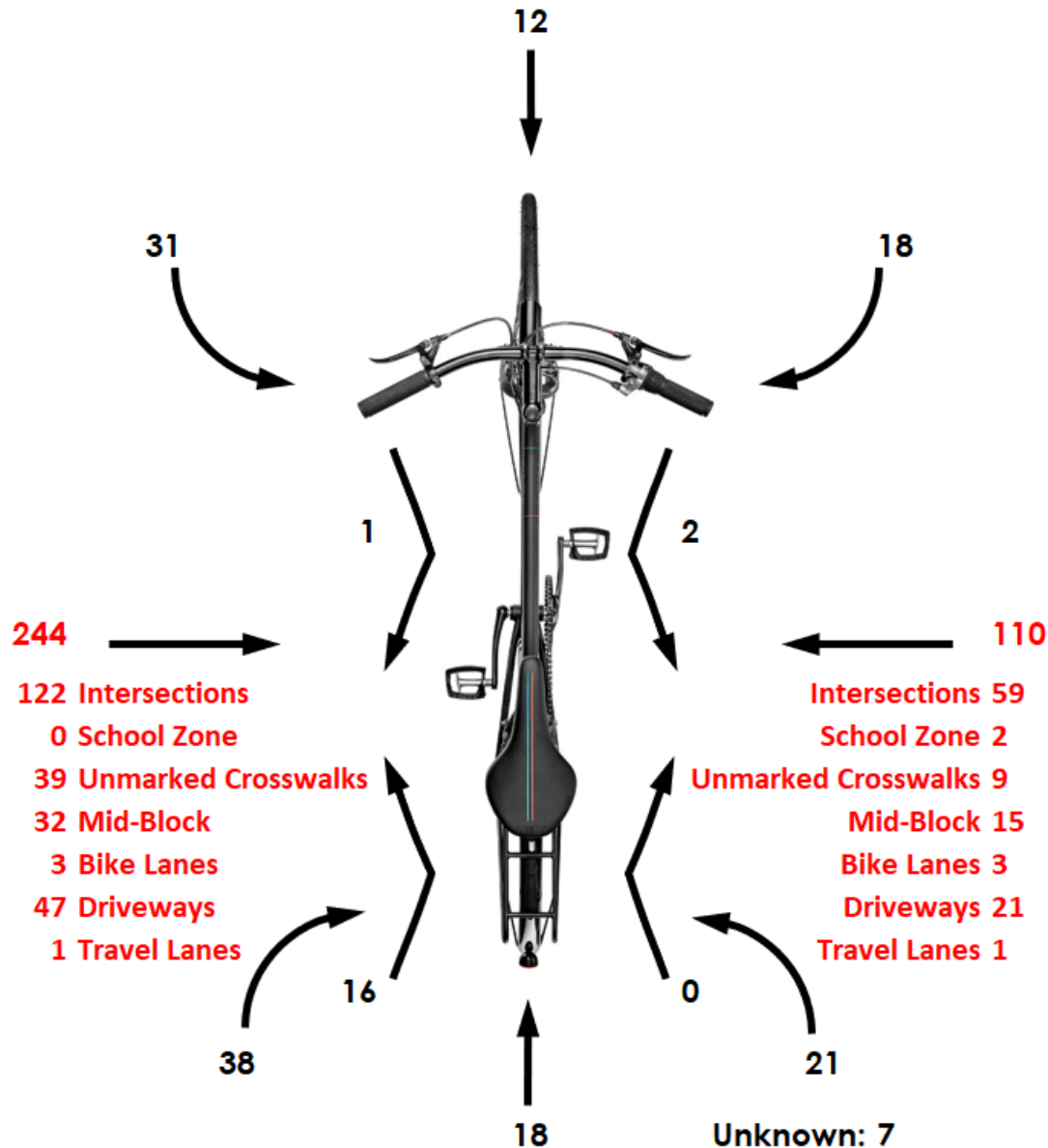
# Collisions by Traffic Control Type



# Vehicle Movement Prior to Impact

## Key Note:

Bicyclists struck riding against traffic were 46% of all crashes.

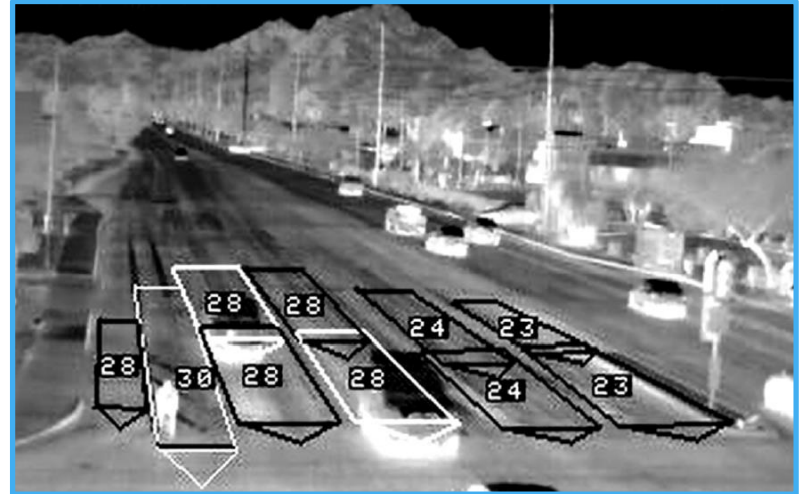


# 2017 Bicycle Detection Improvements

Bicycle detection improvements were added to seventeen signalized intersections in 2017. The intersection detection systems included inductive loops, bicycle signals, video cameras, and FLIR (Forward Looking Infrared).

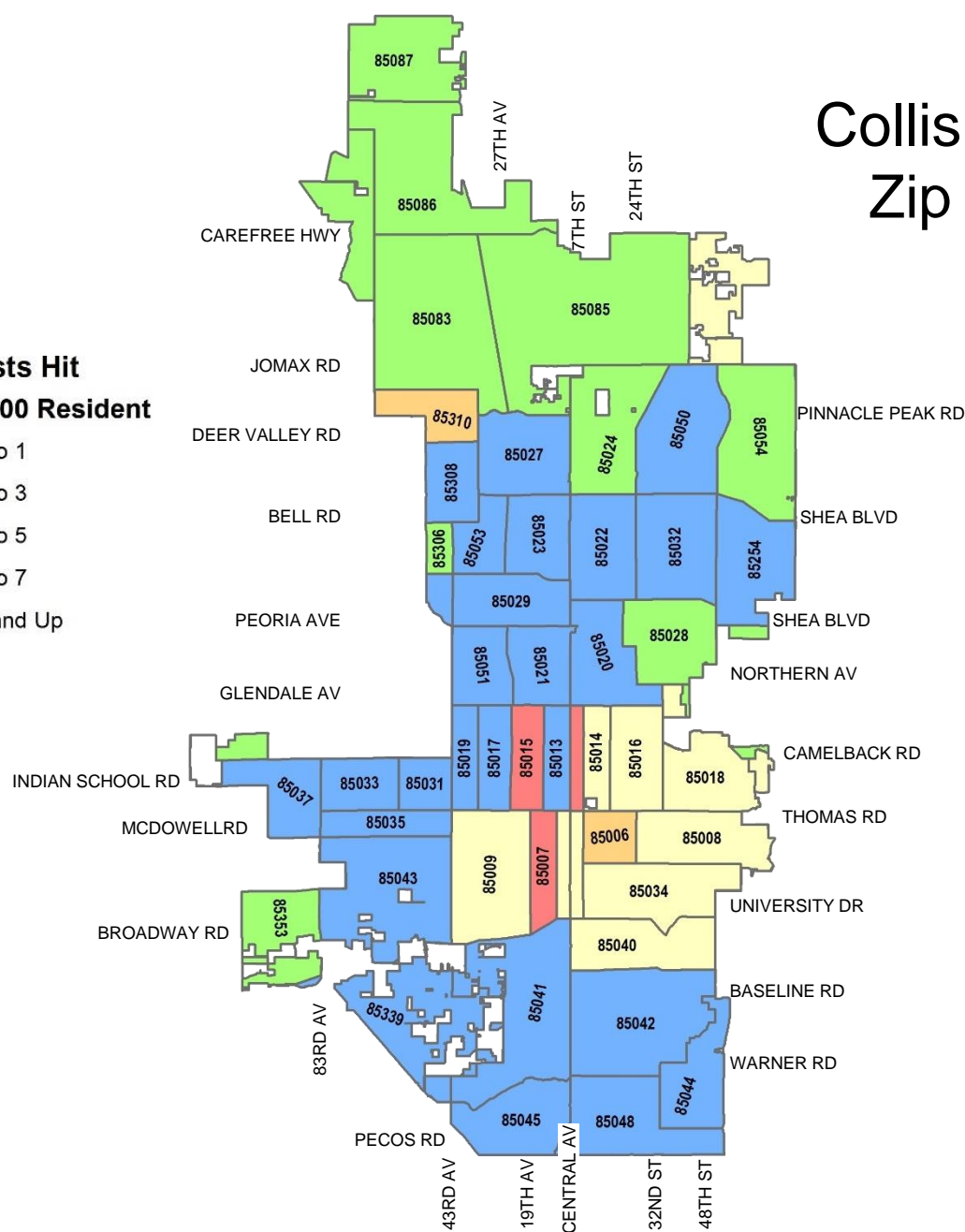
Example locations:

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

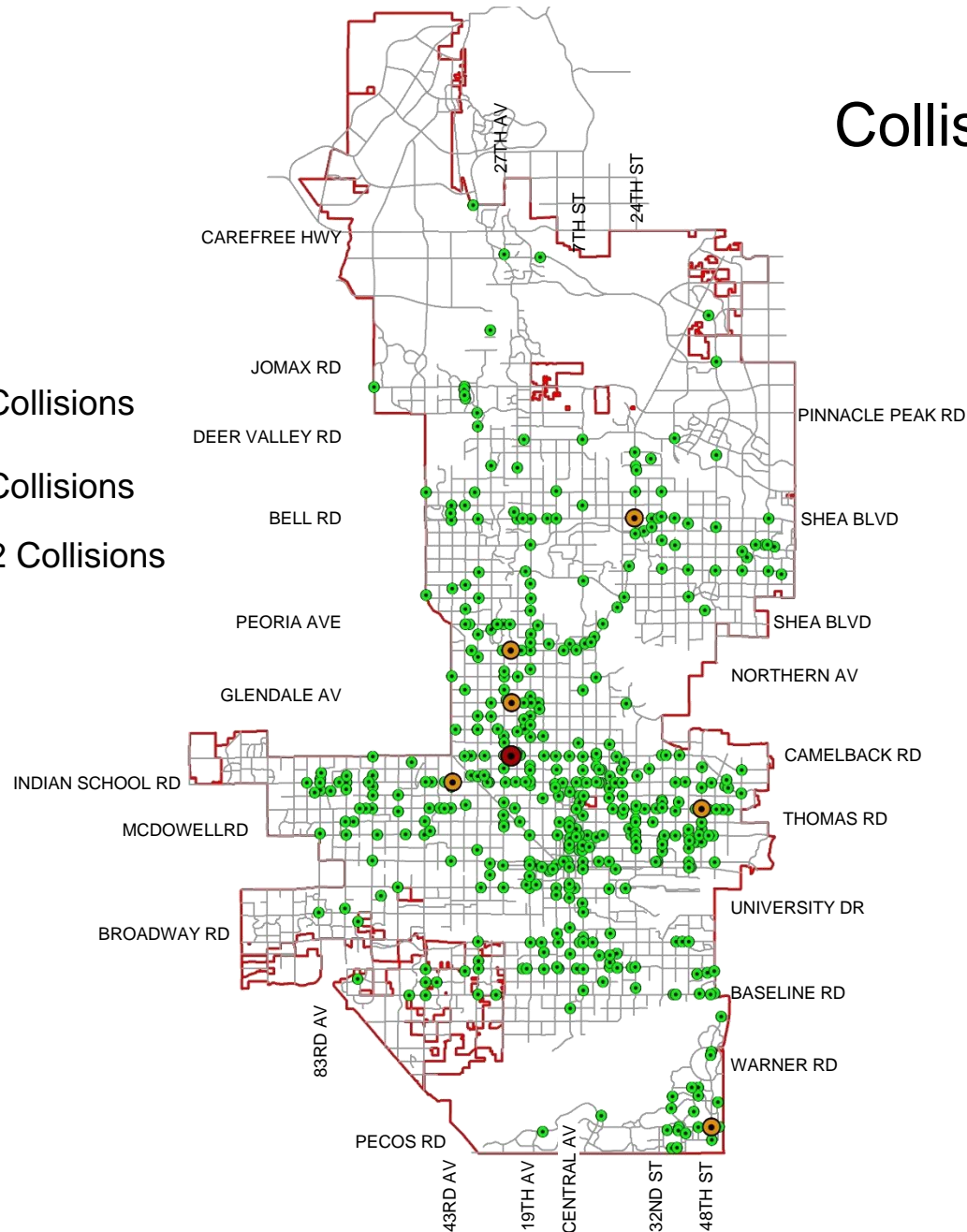
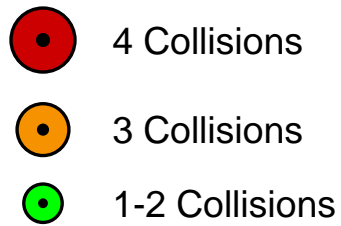


# Collisions by Residential Zip Code of Bicyclist

## Bicyclists Hit per 10,000 Resident



# Collisions by Intersection



# Acknowledgements

The 2017 Phoenix Bicycle Collision Summary documents the collisions involving bicyclists in the City of Phoenix throughout the 2017 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 2017 Phoenix Bicycle Collision Summary was prepared by Chris Monahan (ASU Intern) with assistance from Traffic Safety Section staff 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: Council District 8 Bike Rodeo 2017

Photograph courtesy Joseph Perez (Bicycle Coordinator)

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

This publication can be made available in an alternative format upon request. Contact the Street Transportation Department at 602-262-6284 if you would like any of these services. Our TTY phone number is 711.

# Questions?

**Please contact Street Transportation Department at  
602-262-6284 or TTY 711**



**City of Phoenix**  
STREET TRANSPORTATION DEPARTMENT