

# City of Mesa Annual Bicycle Crash Analysis 2008

Transportation Department  
Traffic Studies Group



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## 1.0 EXECUTIVE SUMMARY

### 1.1 INTRODUCTION AND BACKGROUND

The **2008 Pedalcycle Crash Analysis** is a statistical review of the 212 pedalcycle crashes and the 214 pedalcyclists involved in crashes on the City of Mesa streets in 2008. It focuses on crashes involving pedalcycles and motor vehicles identified in the 2008 Police Accident Reports (PARs) investigated and reported by the City of Mesa Police Department. Crashes occurring on the Superstition Freeway (US 60), the Price Freeway (Loop 101) and the Red Mountain/San Tan Freeway (Loop 202), which are under the jurisdiction of the Arizona Department of Public Safety, were not included in the analysis.

The database used to prepare this report was compiled and maintained by the Traffic Records Section of the Arizona Department of Transportation. Definitions and terms were extracted from the Arizona Traffic Accident Report Instruction Manual and Glossary, 7th Edition, dated 2000.

The purpose of analyzing pedalcycle crashes is to better understand the underlying causes of collisions between pedalcycles and motor vehicles. Analysis of the crashes reveals facts about the types of streets where crashes happened, behavior of pedalcyclists and motorists that caused the crashes, the times of day and year crashes occur, and age and gender of bicyclists involved in pedalcycle/motor vehicle collisions. Once an understanding of the root causes of pedalcycle crashes is gained, the Transportation Department can do further analysis to determine if the traffic environment in the City of Mesa can be made safer for pedalcyclists. Analysis of pedalcycle crashes also helps in developing appropriate messages for educating the public on safer pedalcycling habits and how pedalcyclists and motorists can best share the streets in the City of Mesa.

Pedalcycle crashes that were not traffic related, that is, crashes that occurred at a location other than a public roadway or adjacent sidewalk and for which no PAR was submitted, are not included in this report. Based on national studies, the majority of non-fatal pedalcycle crashes are not traffic related and anyone seeking to fully understand pedalcycle crash causes and patterns should not rely solely on this report.

The percentages shown in certain tables may not add up to 100% due to rounding. Questions or comments concerning this report should be directed to:

City of Mesa, Transportation Department  
Telephone: 480.644.2160  
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### 1.2 FACTS AND FIGURES

- 🚲 Pedalcycle crashes decreased in frequency from 231 in 2007 to 212 in 2008.
- 🚲 There were no fatal pedalcycle crashes in 2008.
- 🚲 The number of incapacitating injuries decreased to 8.9% of all crashes.
- 🚲 Pedalcyclists were considered most at fault in 56.1% of all crashes involving pedalcycles and motor vehicles.
- 🚲 Pedalcyclists riding against traffic on sidewalks, in crosswalks or in bike lanes were a contributing factor in 56.6% of all pedalcycle crashes.

- 🚲 When the data is normalized, the 15 to 19 year old age group had the highest over representation in crashes of all age groups.
- 🚲 The average age of all pedalcyclists involved in a crash was 30.6 and the median age was 26.
- 🚲 Almost 76% of all involved pedalcyclists were males.
- 🚲 Of all pedalcycle related crashes occurring on the streets in the City of Mesa, 47.2% occurred within a 2-1/2 mile radius of downtown Mesa. Pedalcycle crashes occurring west of or on Gilbert Road accounted for 65.1% of all crashes.
- 🚲 Pedalcycle crashes occurring on arterial streets or intersections having at least one arterial approach accounted for 74.5% of all crashes.
- 🚲 Pedalcycle crashes occurring on weekdays accounted for 80.2% of all crashes.
- 🚲 The hour of 4:01 to 5:00 PM had the highest frequency of pedalcycle crashes.
- 🚲 Protective helmet usage was 4.7% for pedalcyclists involved in crashes.
- 🚲 Alcohol was associated with 9 crashes, or 4.2% of all pedalcycle related crashes.

### 1.3 DEFINITIONS

**Head-On.** A collision involving vehicles traveling in opposite directions wherein at least one of the vehicles crosses the roadway centerline.

**Hit Pedalcyclist.** A traffic accident that occurs when a vehicle collides with any other vehicle that is operated by pedals and propelled by human power.

**Incapacitating Injury.** An injury, other than fatal, which prevents injured person from walking, driving, or normally continuing the activities which he was capable of performing prior to the crash. Includes severe lacerations, broken or distorted limbs, unconsciousness, inability to leave crash scene without assistance.

**Intersection Related Crash.** A traffic crash where the first harmful event (1) occurs on an approach to, movement through or exit from an intersection and (2) has resulted from an activity, behavior, or control related to the intersection.

**Left-Turn.** A traffic crash that occurs when a left-turning vehicle collides with a through vehicle on the opposite approach of the left-turning vehicle.

**Non-Incapacitating Injury.** Any injury other than fatal and incapacitating which is evident to any observer on the scene of the crash. Includes bumps, abrasions, bruises and minor lacerations. The person receiving these injuries is still able to leave the scene under their own power.

**Pedalcycle.** A non-motorized vehicle operated by pedals and propelled by human power. Includes: bicycles, tricycles, unicycles, pedal cars, etc.

**Possible Injury.** Any injury reported or claimed which is not a fatal, incapacitating, or non-incapacitating evident injury. Includes such situations as nausea, hysteria, complaint of pain, and injuries not evident.

**Rear-End.** A collision with the rear of another vehicle, either moving or stopped (excluding parked vehicles).

**Sideswipe, Same Direction.** A collision with another vehicle or bicyclist traveling in the same direction.

**Traffic Unit.** A traffic unit is a vehicle, pedestrian, pedalcyclist, or rider on an animal involved in a motor vehicle traffic crash. Traffic unit number is used as an identifier for each involved unit (i.e. U1, U2, U3, etc.). It is preferred that police jurisdictions assign traffic unit number 1 (U1) to the vehicle, pedestrian, pedalcyclist, or animal rider causing the collision, however, this procedure is not mandatory.

**Unit Action.** The action at the moment of and/or which most directly affected the crash.

## 2.0 TRENDS

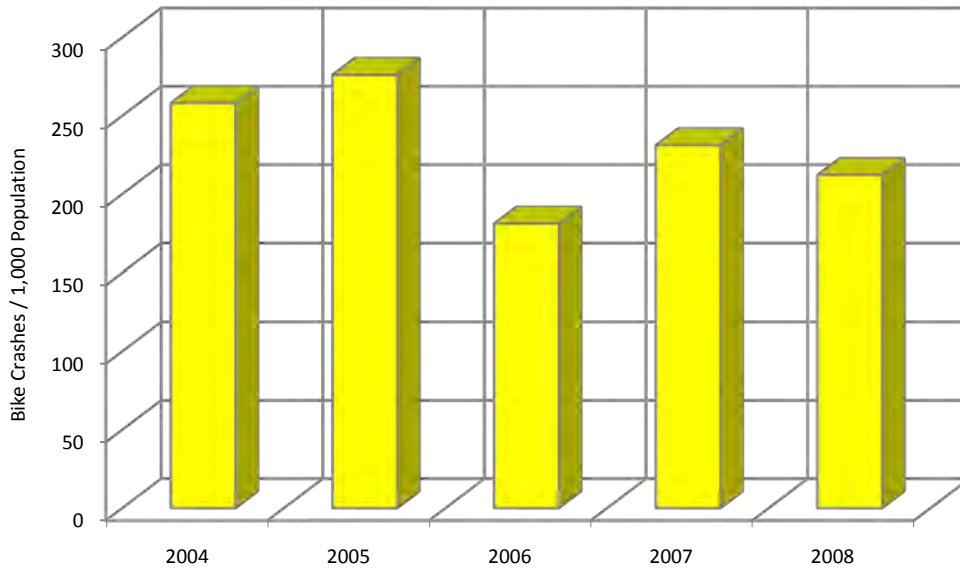
### 2.1 FIVE YEAR CRASH TREND – MESA

The number of pedalcycle crashes has fluctuated over the past five years. The frequency of pedalcycle crashes in 2008 is below the five-year average. When the number of crashes is normalized by looking at how many pedalcycle crashes occur per every 1,000 people in Mesa’s population in a given year, the crash rate in 2008 was 0.46. Normalization puts into perspective an increase or decrease in the number of pedalcycle crashes when there is a concurrent rise in the number of drivers, cyclists and automobiles due to population growth (and a consequent increase in opportunities for pedalcycle/motor vehicle conflicts).

TABLE 1: PEDALCYCLE CRASH RATE—FIVE YEAR TREND

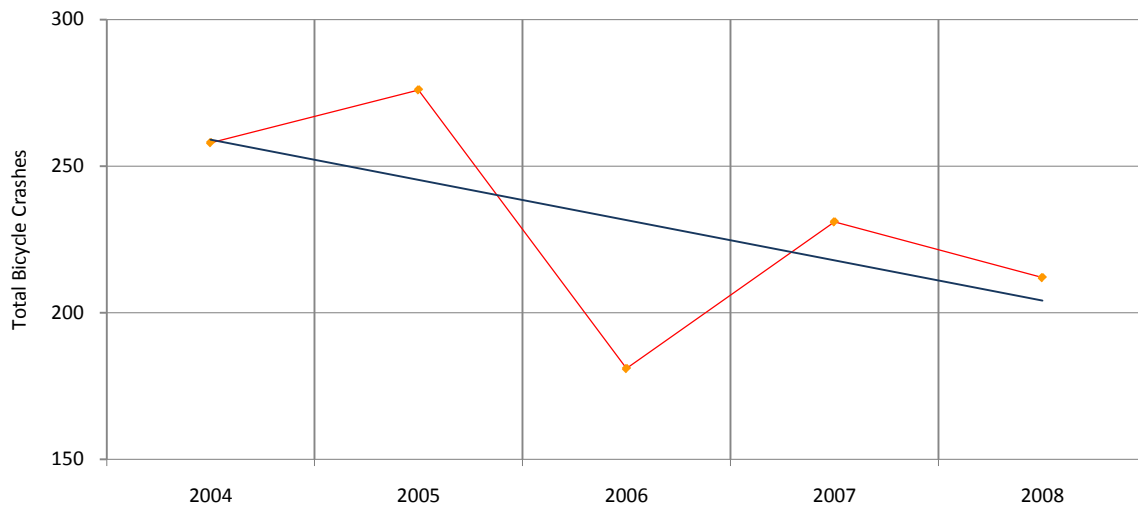
Year	Bicycle Crashes	All Traffic Crashes	Bicycle Crashes as Percent of All Crashes	Bicycle Crashes Per 1,000 Population	Estimated Population
2004	258	9184	2.81%	0.57	449,017
2005	276	9205	3.00%	0.61	452,856
2006	181	8522	2.12%	0.40	455,984
2007	231	7933	2.91%	0.50	462,165
2008	212	5908	3.59%	0.46	464,465
Average	232	8150	2.84%	0.51	456,897

CHART 1: PEDALCYCLE CRASHES



Trendlines are used to graphically display trends in data and to analyze problems of prediction. The trendline shown in Chart 2 is a best-fit straight line that is used with simple linear data sets. The data is linear if the pattern in its data points resembles a line. A linear trendline usually shows that something is increasing or decreasing at a steady rate. So when applied to the average crash rate for the past five years, the trendline shows a steady decrease in pedalcycle crashes.

CHART 2: PEDALCYCLE CRASHES – NORMALIZED PER 1,000 POPULATION



## 2.2 STATE COMPARISON

The AZ Department of Transportation, 2008 Arizona Crash Facts Summary, indicates a decrease in pedalcycle crashes from 2007 to 2008. State wide, there has been a steady decline in pedalcycle crashes over the past 10 years. Mesa had experienced a downward trend in pedalcycle crashes over the same period; the percent of pedalcycle crashes also decreased from 2007 to 2008.

CHART 3: TOTAL PEDALCYCLE CRASHES - MESA

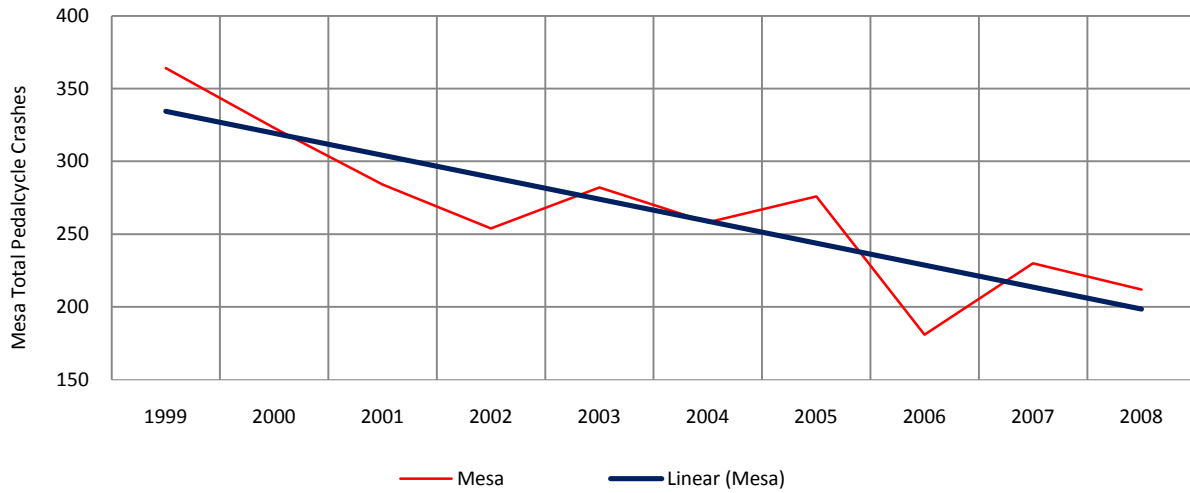
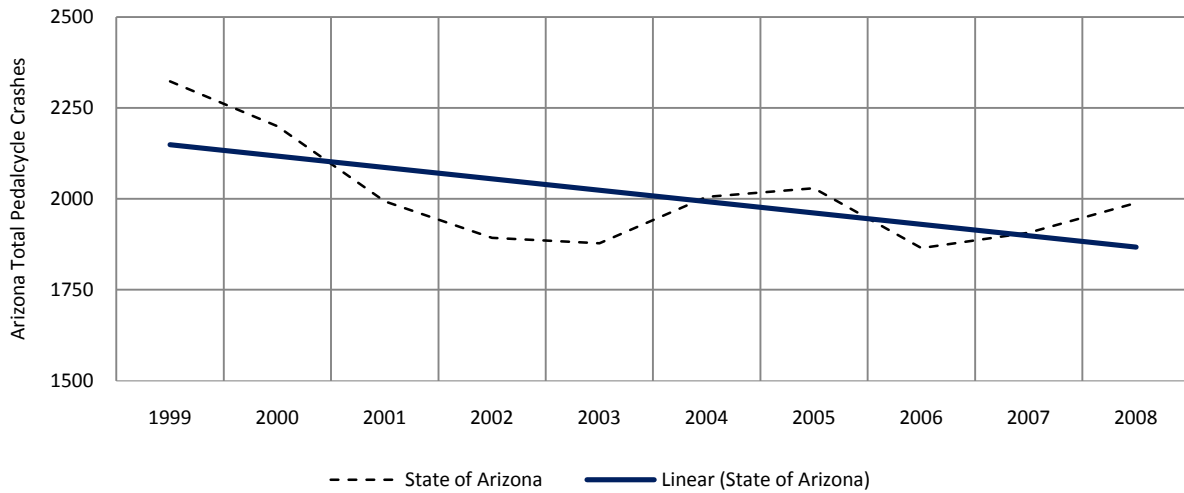
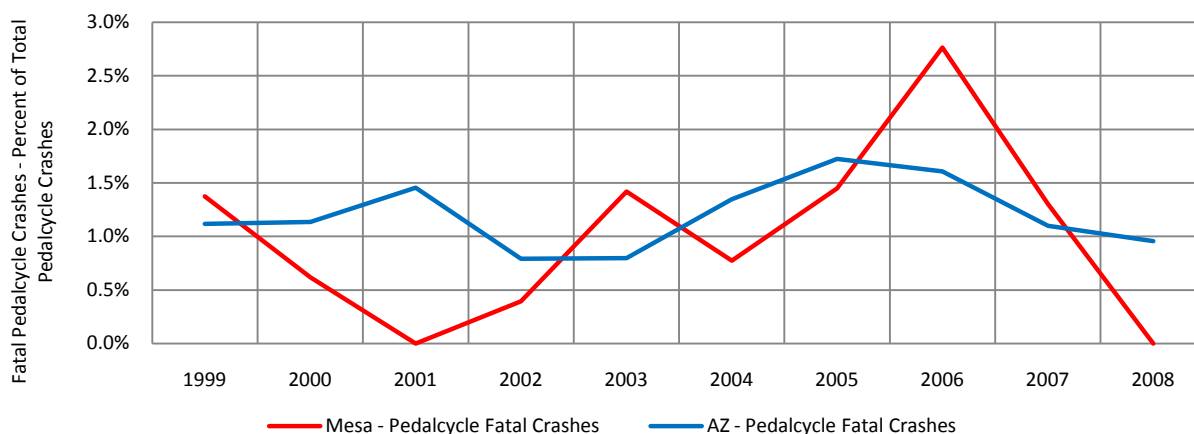


CHART 4: TOTAL PEDALCYCLE CRASHES – STATE OF ARIZONA



## 2.3 TEN YEAR PEDALCYCLE FATAL CRASH TREND – MESA vs. STATE AVERAGE

CHART 5: PEDALCYCLE FATAL CRASHES - MESA vs. STATE AVERAGE



## 3.0 LOCATION

### 3.1 STREET CLASSIFICATION

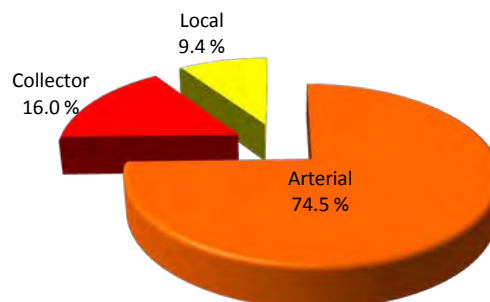
In 2008, 74.5% of all pedalcycle crashes occurred on arterial streets or at intersections (intersection related crashes) having at least one arterial street. Arterial streets are roadways that often extend across city boundaries, carry large volumes of traffic, and may have limited access to properties along the roadway. University Drive and Power Road are examples of arterial streets. The remainder of pedalcycle crashes occurred on collector or local streets. Collector streets typically funnel traffic from local streets. Examples of collector streets are Hermosa Vista Drive, Alta Mesa and 8th Street. Local streets are low volume streets in residential and commercial areas.

Percent of pedalcycle crashes increased on arterials from 70.1% in 2007 to 74.5% in 2008, while decreasing on collector and local streets from 29.9% in 2007 to 25.4% in 2008.

TABLE 2: STREET CLASSIFICATION

On Street	Number of Crashes	Percent of Pedalcycle Crashes
Arterial	158	74.5%
Collector	34	16.0%
Local	20	9.4%
<b>Total</b>	<b>212</b>	

CHART 6: STREET CLASSIFICATION



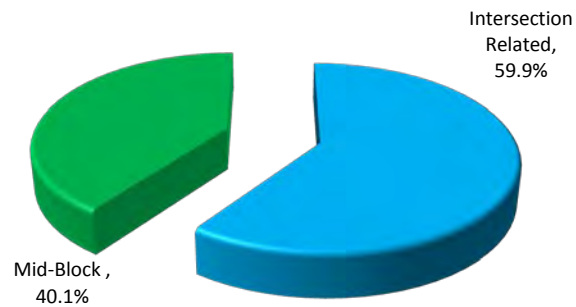
### 3.2 INTERSECTION vs. MID-BLOCK

All crashes are categorized as either intersection related or mid-block. Mid-block crashes accounted for 40.1% of all pedalcycle crashes

TABLE 3: LOCATION - INTERSECTION vs. MID-BLOCK

Location	Number of Crashes	Percent of Total Pedalcycle crashes
Intersection Related	127	59.9%
Mid-Block	85	40.1%
<b>Total</b>	<b>212</b>	

CHART 7: INTERSECTION v.s. MID-BLOCK



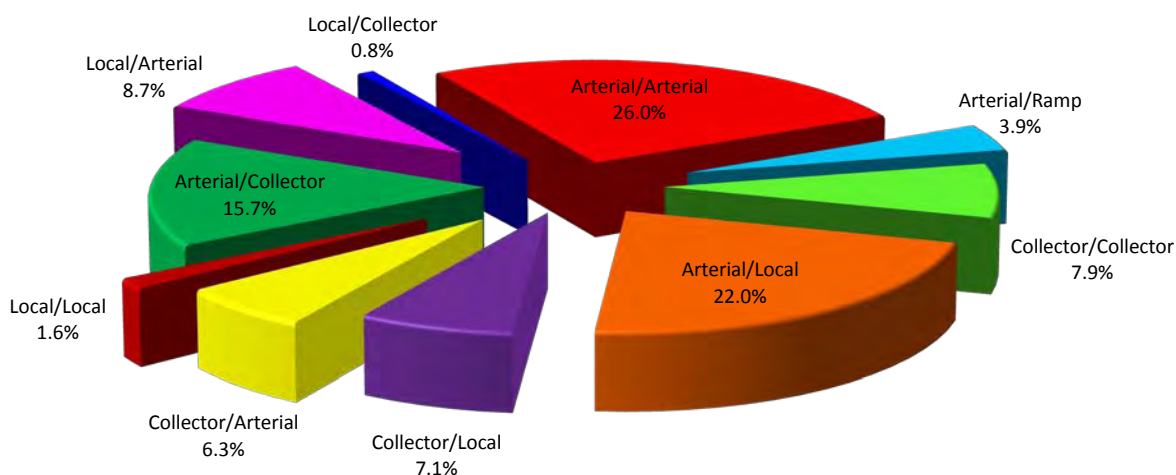
### 3.3 INTERSECTION CLASSIFICATION

As previously stated, 127 crashes were intersection related. The intersections where these crashes occurred are classified by on street (approach where crash occurred) and cross street.

TABLE 4: INTERSECTION CLASSIFICATION

Type of Intersection	Number of Crashes	Percent of Intersection Crashes
Arterial/Arterial	33	26.00%
Arterial/Collector	20	15.70%
Arterial/Local	28	22.00%
Arterial/Ramp	5	3.90%
Collector/Arterial	8	6.30%
Collector/Collector	10	7.90%
Collector/Local	9	7.10%
Local/Arterial	11	8.70%
Local/Collector	1	0.80%
Local/Local	2	1.60%
<b>Total</b>	<b>127</b>	

CHART 8: INTERSECTION CLASSIFICATION



### 3.4. GEOGRAPHIC LOCATION

Of all pedalcycle related crashes occurring within the city limits, 47.2% occurred within a 2 ½-mile radius of downtown Mesa. One hundred and thirty eight crashes or 65.1% occurred on or west of Gilbert Road. Broadway Road had the highest frequency of any single street with 18 or 8.5% crashes. Main Street had the second highest frequency with 16 or 7.5% of total pedalcycle crashes in 2008. The highest frequency of any single street represents frequency on “on” street and does not account for “at” or “from” street.

2008 Pedalcycle crash locations map is contained in the appendix.

## 4.0 DEMOGRAPHICS

### 4.1 AGE

Certain groups of pedalcyclists, defined by age and sex, have a greater probability of being involved in pedalcycle crashes. When the number of crashes is normalized by looking at how many pedalcycle crashes occur per every 1,000 people in each age group, it is readily apparent that the 15 - 19 year old group is over represented. This group is followed by the 10 - 14 year olds. These are the same age groups that were over represented in the last five years.

TABLE 5: AGE OF PEDALCYCLISTS

Age	§ Population	Percent of Total Population	No. of Pedalcyclists Involved	Percent of Total Pedalcyclists	Pedalcycle/1,000 Persons
Under 5	38,417	8.3%	1	0.5%	0.03
5 - 9	35,835	7.7%	4	1.9%	0.11
10 - 14	34,185	7.4%	38	17.8%	1.11
15 - 19	30,553	6.6%	35	16.4%	1.15
20 - 24	32,146	6.9%	23	10.7%	0.72
25 - 34	69,844	15.0%	26	12.1%	0.37
35 - 44	60,934	13.1%	30	14.0%	0.49
45 - 54	52,470	11.3%	23	10.7%	0.44
55 - 59	21,135	4.6%	16	7.5%	0.76
60 - 64	18,640	4.0%	4	1.9%	0.21
65 - 74	34,528	7.4%	6	2.8%	0.17
75 - 84	26,279	5.7%	1	0.5%	0.04
Over 84	9,500	2.0%	0	0.0%	0.00
<b>Total</b>	<b>464,465</b>		<b>207</b>	<b>96.7%</b>	
<b>Not Reported</b>			<b>7</b>	<b>3.3%</b>	
<b>Total*</b>			<b>214</b>		

\*Total of 214 pedalcyclists involved in 212 pedalcycle crashes  
 § Estimated population information provided by the City of Mesa Planning Division.

CHART 9: NORMALIZED CRASHES BY AGE PER 1,000 POPULATION

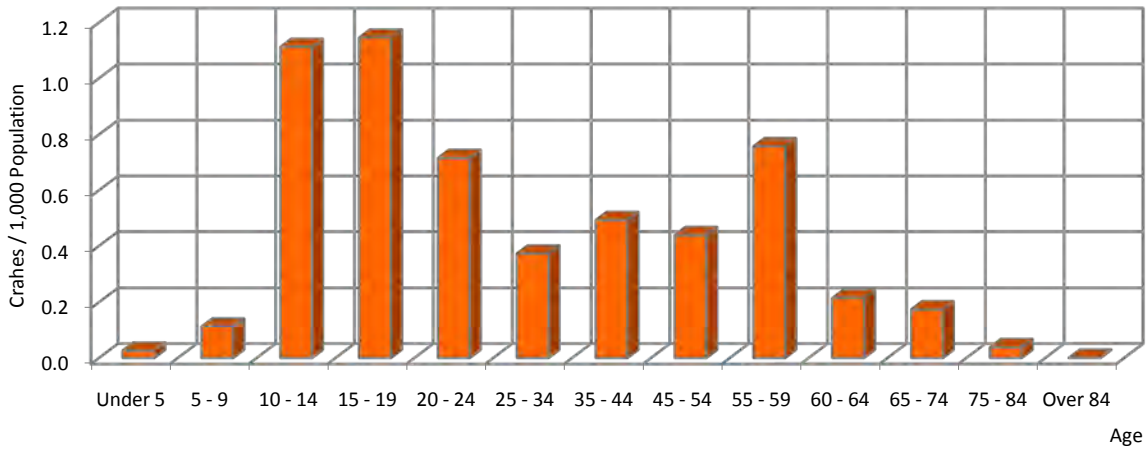
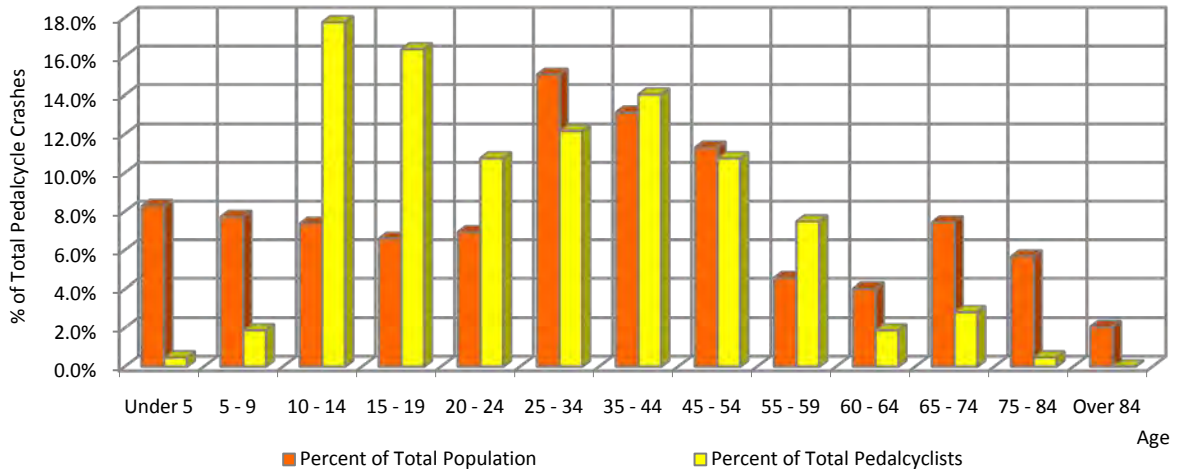


CHART 10: PERCENTAGE OF POPULATION vs. PERCENTAGE OF CRASHES



AVERAGE and MEDIAN AGE. The average age of pedalcyclists involved in crashes in 2008 was 30.6 vs. 27.7 in 2007, and the median age was 26 in 2008 vs. 22 in 2007. The average age of the motor vehicle operator was 40.5 and the median age was 38.

## 4.2 GENDER

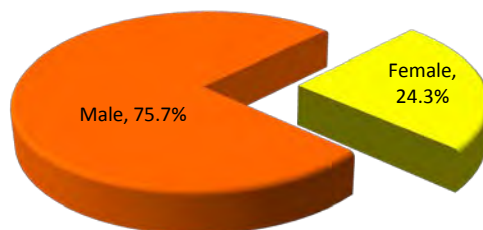
Males have a much greater rate of involvement in pedalcycle crashes than do females. Mesa’s male population comprises 49.5% of the total population; however, males were involved in 75.7% of all pedalcycle crashes.

TABLE 9: GENDER OF PEDALCYCLIST

Gender	No. of Pedalcyclists Involved*	Percent of Total Involved	Percent of Estimated Population
Male	162	75.7%	49.50%
Female	52	24.3%	50.50%
Total	214		

\* Total of 214 pedalcyclists involved in 212 pedalcycle crashes.

CHART 11: GENDER OF PEDALCYCLIST



## 5.0 ANALYSIS

### 5.1 CRASH CAUSE (VIOLATION/BEHAVIOR)

This analysis is based on the premise that in all Police Accident Reports (PAR), the unit that caused the collision or was most at fault is identified as Unit 1 as outlined in the Arizona Traffic Accident Report Instruction Manual and Glossary.

TABLE 9: UNIT 1 VIOLATION

Violation - Unit 1	Pedalcyclist	Motorist	Percent of Total Crashes
Failed to Yield ROW	15 (7.1 %)	60 (28.3 %)	35.4 %
Drove in Opposing Traffic Lane	49 (23.1 %)	0 (0.0 %)	23.1 %
Other/Unknown Violation	30 (14.2 %)	15 (7.1 %)	21.2 %
Disregarded Traffic Signal or Sign	17 (8.0 %)	4 (1.9 %)	9.9 %
Inattention	4 (1.9 %)	7 (3.3 %)	5.2 %
No Improper Driving		5 (2.4 %)	2.4 %
Operated with Faulty/Missing Equipment	2 (0.9 %)		0.9 %
Speed Too Fast for Conditions		2 (0.9 %)	0.9 %
Made Improper Turn or Unsafe Lane Change	2 (0.9 %)		0.9 %
Total	119 (56.1 %)	93 (43.9 %)	212 (100 %)

Failure to Yield Right-of-Way. This violation was identified as the leading cause of pedalcycle crashes. The motor vehicle operator failed to yield right-of-way 28.3% of the time and the pedalcyclist 7.1%.

Drove in Opposing Traffic Lane. This violation accounted for 23.1% of all Unit 1 violations and ranked the second.

Other violation. A review of PARs seemed to indicate that this was a catch-all classification. If there appeared to be a question as to which operator was at fault, this violation was identified and attributed to the pedalcyclist 14.2% of the time.

### 5.2 ACTION PRIOR TO CRASH

#### 5.2.1 ACTION PRIOR TO CRASH – UNIT 1

Pedalcyclists were the unit most at fault, Unit 1, in 56.1% of all pedalcycle/motor vehicle crashes. This is a slight decrease from 56.7% in 2007. Pedalcyclists most at fault were most frequently going straight and in opposing traffic lane when the crash occurred. Motor vehicle operators were at fault most frequently when they were executing right turns.

TABLE 10: UNIT 1 – MOTORIST v.s. PEDALCYCLE

Unit 1 Action	Pedalcyclist	Motorist	Total Crashes	Percent of Total Crashes
Changing Lanes	2		2	0.9%
Entering Alley or Driveway		1	1	0.5%
Leaving Alley or Driveway	2	14	16	7.5%
Making Left Turn	4	17	21	9.9%
Making Right Turn	3	41	44	20.8%
Other Action	19	1	20	9.4%
Overtaking or Passing		2	2	0.9%
Straight	87	13	100	47.2%
Unknown Action	2	1	3	1.4%
Slowing in Traffic		2	2	0.9%
Stopped in Traffic		1	1	0.5%
<b>Total</b>	<b>119</b>	<b>93</b>	<b>212</b>	

### 5.2.2 ACTION PRIOR TO CRASH – MOTOR VEHICLE

Almost half, 46.7%, of all motor vehicles, both Unit 1 and Unit 2, involved in pedalcycle crashes were either executing or starting to execute a right turn. Couple the driver’s primary attention to the left with pedalcyclist’s approach from the right (against the flow of traffic), and the probability of a crash is significantly increased.

TABLE 11: MOTOR VEHICLE ACTION PRIOR TO CRASH

Motor Vehicle Action Prior to Crash	Number of Instances	Percentage of Total
Making Right Turn	99	46.7%
Going Straight*	49	23.1%
Entering or Leaving Alley or Driveway	30	14.2%
Making Left Turn	24	11.3%
Slowing in Traffic	3	1.4%
Other Action	2	0.9%
Overtaking or Passing	2	0.9%
Avoiding Vehicles or Objects	1	0.5%
Stopped in Traffic	1	0.5%
Unknown Action	1	0.5%
<b>Total</b>	<b>212</b>	

\*Includes motor vehicles leaving alleys or driveways with action that could not be determined.

## 5.3 LOCATION AND DIRECTION OF PEDALCYCLE TRAVEL

TABLE 12: LOCATION AND DIRECTION OF PEDALCYCLIST TRAVEL

Location and Direction	Number of Crashes	Percent of Total Crashes	Sum of Location
<b>Midblock</b>			
Across Roadway	15	7.1%	7.1%
<b>Sidewalk</b>			
Private Drive - Against Traffic	25	11.8%	19.8%
Private Drive - With Traffic	2	0.9%	
Intersection - Against Traffic (Ride out)	13	6.1%	
Intersection - With Traffic (Ride out)	1	0.5%	
Midblock - Against Traffic	1	0.5%	
<b>In Crosswalk</b>			
Against Traffic	31	14.6%	26.4%
With Traffic	25	11.8%	
<b>In Bike Lane</b>			
Against Traffic	4	1.9%	21.7%
With Traffic	8	3.8%	
Private Drive - Against Traffic	4	1.9%	
Private Drive - With Traffic	7	3.3%	
Intersection - Against Traffic	15	7.1%	
Intersection - With Traffic	8	3.8%	
<b>In Roadway</b>			
Against Traffic	5	2.4%	24.5%
With Traffic	10	4.7%	
Private Drive - Against Traffic	9	4.2%	
Private Drive - With Traffic	2	0.9%	
Intersection - Against Traffic	13	6.1%	
Intersection - With Traffic	13	6.1%	
<b>Unknown Location</b>			
Unknown	1	0.5%	0.5%
<b>Total</b>	<b>212</b>	<b>100.0%</b>	

When pedalcyclists riding off the sidewalk into the travelway are added to the number of pedalcyclists already in the travelway, 86.4% of all pedalcycle related crashes occurred in the roadway. The remaining 13.7% involved the collision of pedalcyclists on sidewalks with motor vehicles primarily entering or exiting private driveways.

The percent of all pedalcyclists involved in crashes traveling against the flow of traffic - either in the traffic way, bicycle lane, crosswalk or sidewalk is 56.6%. This number is down from 57.6% in 2007.

Pedalcyclists traveling in the crosswalk against the flow of traffic at an intersection had the highest frequency of all crashes, 14.6%. Pedalcyclists riding on the sidewalk against the flow of traffic and pedalcyclists in the crosswalk traveling with the flow of traffic had the second highest crash frequency.

## 5.4 TIME OF CRASHES

### 5.4.1 TIME OF DAY

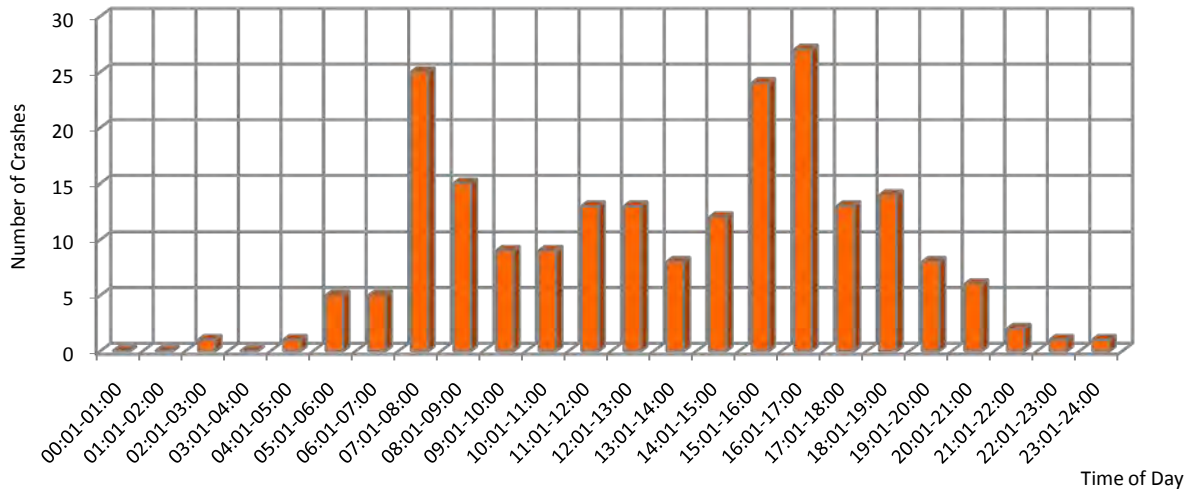
The number of vehicles on Mesa’s streets at any given time of day has a direct correlation to the likelihood of being involved in pedalcycle traffic crash. As can be seen below, 4:01 PM to 5 PM had the highest frequency of crashes. The five-hour period between 2:01 PM and 7:00 PM experienced 42.5% of all crashes. See Table 13 below and Chart 12 on the next page.

TABLE 13: TIME AND DAY

Time of Day	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Total	% of Crashes by Time
00:01-01:00	0	0	0	0	0	0	0	0	0.0%
01:01-02:00	0	0	0	0	0	0	0	0	0.0%
02:01-03:00	0	0	0	0	1	0	0	1	0.5%
03:01-04:00	0	0	0	0	0	0	0	0	0.0%
04:01-05:00	0	1	0	0	0	0	0	1	0.5%
05:01-06:00	0	1	1	0	3	0	0	5	2.4%
06:01-07:00	0	1	2	0	1	1	0	5	2.4%
07:01-08:00	0	3	7	6	2	5	2	25	11.8%
08:01-09:00	0	0	3	4	1	6	1	15	7.1%
09:01-10:00	2	3	1	1	0	0	2	9	4.2%
10:01-11:00	2	1	2	0	2	0	2	9	4.2%
11:01-12:00	1	2	3	1	1	4	1	13	6.1%
12:01-13:00	0	2	2	2	3	3	1	13	6.1%
13:01-14:00	0	2	1	0	1	3	1	8	3.8%
14:01-15:00	1	2	2	2	0	2	3	12	5.7%
15:01-16:00	2	6	2	5	2	3	4	24	11.3%
16:01-17:00	2	2	6	4	5	6	2	27	12.7%
17:01-18:00	1	0	3	3	1	5	0	13	6.1%
18:01-19:00	0	2	3	2	0	3	4	14	6.6%
19:01-20:00	1	1	1	0	0	1	4	8	3.8%
20:01-21:00	0	1	0	1	2	1	1	6	2.8%
21:01-22:00	0	1	0	0	0	0	1	2	0.9%
22:01-23:00	0	0	0	1	0	0	0	1	0.5%
23:01-24:00	1	0	0	0	0	0	0	1	0.5%
<b>Total</b>	<b>13</b>	<b>31</b>	<b>39</b>	<b>32</b>	<b>25</b>	<b>43</b>	<b>29</b>	<b>212</b>	

XX = Hour with highest crash frequency.

CHART 12: TIME OF DAY



### 5.4.2 DAY OF THE WEEK AND MONTH OF THE YEAR

Pedalcycle crashes occurring on weekdays accounted for 80.2% of all crashes. September had the highest number of crashes, while December had the fewest. See Table 13 below and Chart 14 on the next page.

TABLE 13: MONTH OF YEAR

Month	Number of Crashes	Percent of All Crashes
January	19	8.2%
February	13	5.6%
March	21	9.1%
April	16	6.9%
May	19	8.2%
June	17	7.4%
July	18	7.8%
August	17	7.4%
September	26	11.3%
October	18	7.8%
November	19	8.2%
December	9	3.9%
<b>Total</b>	<b>212</b>	

CHART 13: DAY OF THE WEEK

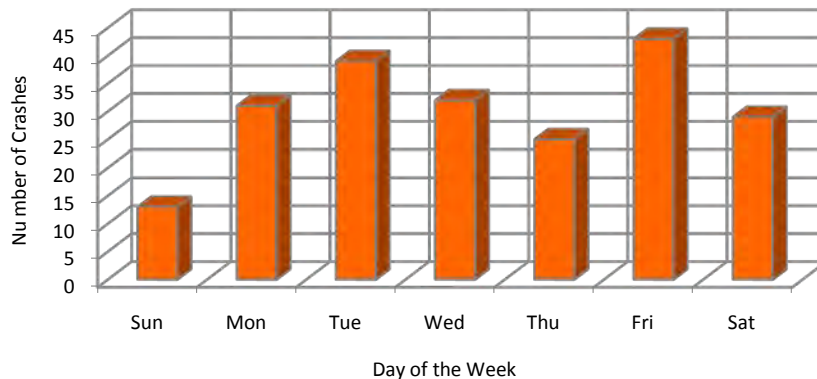
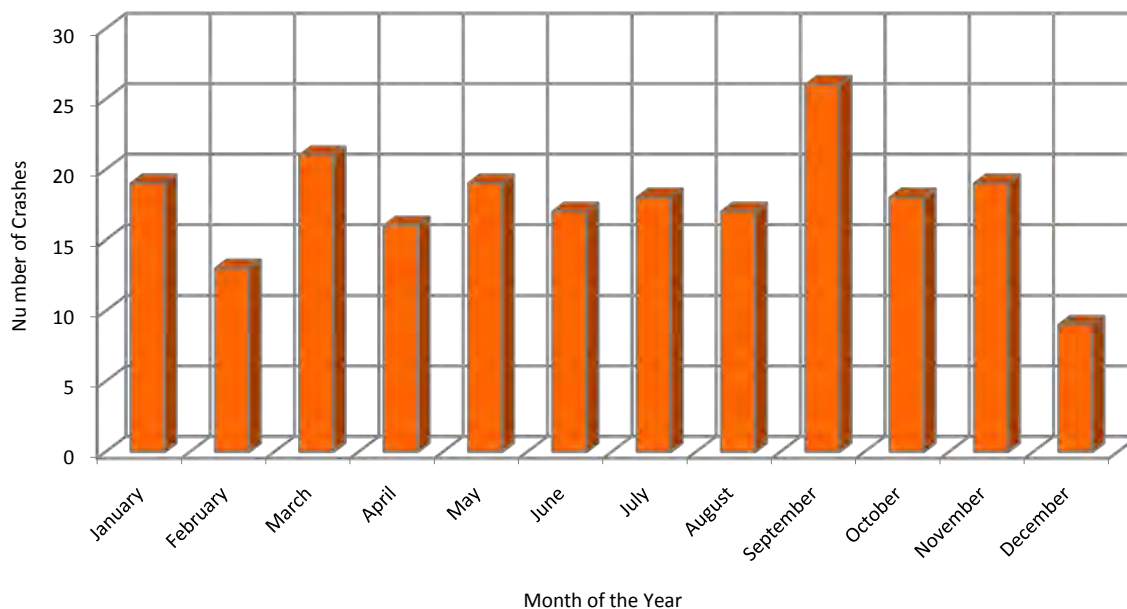


CHART 14: MONTH OF YEAR



## 5.5 CONTRIBUTING FACTORS

### 5.5.1 PEDALCYCLE EQUIPMENT

In part the Arizona Revised Statutes, Title 28, states “A bicycle that is used at nighttime shall have a lamp on the front that emits a white light visible from a distance of at least five hundred feet to the front.” Approximately 17% of pedalcycle crashes in 2008 occurred during the hours of dusk, dawn, or darkness.

### 5.5.2 HELMET USAGE

Of the 214 documented, involved, pedalcyclists, only 4.7% of the pedalcyclists were reported as wearing a protective helmet; however, this number may not reflect the actual numbers of pedalcyclists wearing helmets. A review of PARs revealed that the design of PAR could contribute to this statistics being reported so low. Helmet usage is reported in the “Safety Device Code” block of PAR. It was observed that on numerous PARs a “n/a” or ‘-’ was entered in the Safety Device Code block instead of an appropriate device/restraint code. As stated, this

administrative procedure could skew the helmet usage numbers; however, the narrative section of the PAR appears to substantiate low helmet usage.

### 5.5.3 CONDITIONS INFLUENCING DRIVER / PEDALCYCLIST

Alcohol or drugs were associated with 11 or 5.2% of all pedalcycle related crashes. Of these 11 crashes, the pedalcyclist had been drinking or was under the influence of drugs in 72.7% of these crashes which was down from 73.7% in 2007.

### 5.5.4 HIT AND RUN

There were 30 hit and run related pedalcycle crashes in 2008. This represented 14.2% of all pedalcycle crashes and was down from the 19.1% in 2007.

## 6.0 INJURY SEVERITY

### 6.1 SEVERITY OF INJURIES SUFFERED IN PEDALCYCLE CRASHES

Incapacitated injuries comprised 8.9% of all pedalcyclist's injuries. This percentage decreased from 2007. The slow speeds associated with motor vehicles exiting private driveways, starting to make right turns from stops, and pedalcyclists riding off a sidewalk into a motor vehicle are typical actions that result in minor or no injuries.

TABLE 14: SEVERITY OF INJURIES PER PEDALCYCLIST

Severity of Injury	Number of Occurrences*	Percent of Total Injured
Fatal	0	0.0%
Incapacitating Injury	19	8.9%
No Injury	32	15.0%
Non Incapacitating Injury	83	38.8%
Possible Injury	69	32.2%
Unknown Injury Severity	11	5.1%
<b>Total</b>	<b>214</b>	

\* Total of 214 pedalcyclists involved in 212 pedalcycle crashes

### 6.2 PEDALCYCLE FATALITIES – FIVE YEAR TREND

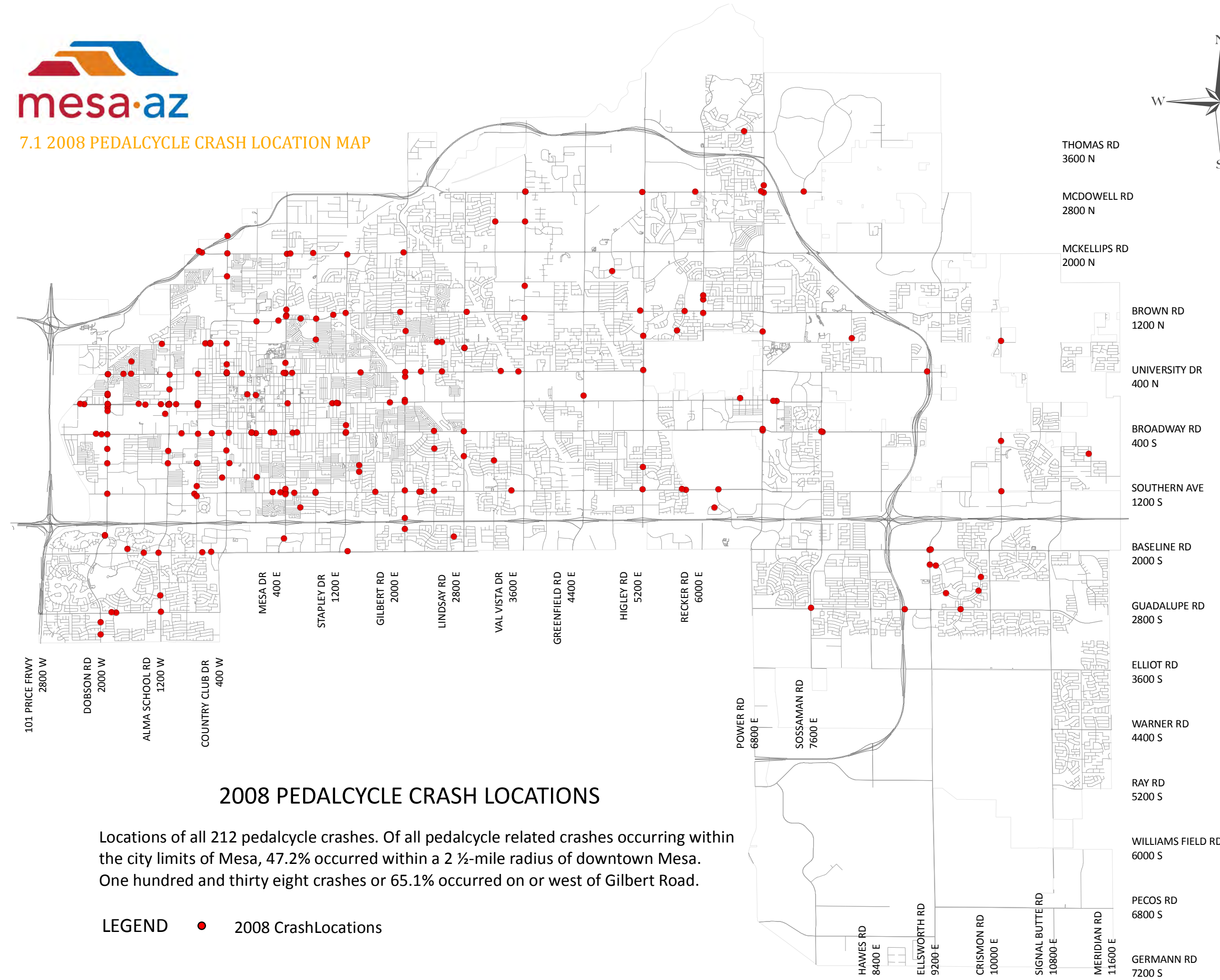
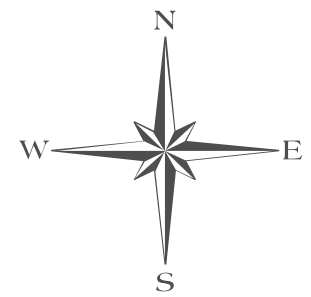
TABLE 15: PEDALCYCLE FATALITIES – FIVE YEARS

Year	Number of Pedalcycle Fatalities	Number of Fatalities - All Traffic Crashes	Percent of All Traffic fatalities
2004	2	27	7.4%
2005	4	67	6.0%
2006	5	50	10.0%
2007	3	26	11.5%
2008	0	26	0.0%

## 7.0 APPENDIX



7.1 2008 PEDALCYCLE CRASH LOCATION MAP



2008 PEDALCYCLE CRASH LOCATIONS

Locations of all 212 pedalcycle crashes. Of all pedalcycle related crashes occurring within the city limits of Mesa, 47.2% occurred within a 2 ½-mile radius of downtown Mesa. One hundred and thirty eight crashes or 65.1% occurred on or west of Gilbert Road.

LEGEND ● 2008 CrashLocations