

Manner and Fault in Bicyclist Traffic Fatalities: Arizona 2009

Ed Beighe *azbikelaw.org*

November 15, 2010

Table of Contents

Abstract.....	2
Introduction.....	2
Methodology.....	3
Limitations.....	4
Most at Fault.....	4
Benchmarks.....	6
Age and Gender of Cyclist.....	6
Violation/Behavior (block 19 of ACR).....	6
Manner of Collision.....	7
Relation to Junction.....	8
Conditions Influencing Driver/Pedalcyclist / DUI.....	8
Hit and Run.....	9
Light and Weather Conditions.....	9
Cyclist Helmet Use.....	10
Case Reports.....	10
Case # 221.....	10
Case # 105.....	10
Case # 164.....	10
Case # 213.....	11
Case # 271.....	11
Case # 383.....	11
Case # 448.....	12
Case # 330.....	12
Case # 380.....	12
Case # 408.....	13
Case # 439.....	13
Case # 418.....	13
Case # 422.....	13
Case # 457.....	14
Case # 463.....	15
Case # 553.....	15
Case # 557.....	15
Case # 565.....	16
Case # 499.....	16
Case # 637.....	17
Case # 584.....	17
Case # 586.....	18

Case # 604.....	18
Case # 671.....	18
Case # 611.....	19
Appendix.....	19

Index of Tables

Table 1: 10 year Historical Overview of Crashes and Fatalities.....	3
Table 2: Most at Fault, driver vs. cyclist.....	5
Table 3: Cyclists Killed by Age and Gender.....	6
Table 4: Violation/Behavior.....	7
Table 5: Manner of Collision.....	8
Table 6: Block 13 Relation to Junction.....	8
Table 7: Block 20: Conditions Influencing Driver/Pedalcyclist.....	9
Table 8: Light Conditions.....	9
Table 9: Cyclist Helmet Use.....	10

Abstract

Traffic records for all bicyclist fatalities occurring in Arizona during the year 2009 were categorized and listed according to manner of collision and assignment of fault. Primary results are that 11 of 25 fatalities (44%) were determined to be the fault of the cyclist; while 14 of 25 (56%) were the fault of a motor vehicle driver. The most common manner of collision is when a driver strikes a cyclist from behind.

Introduction

Most bicyclist crashes are simple falls that don't involve a motor vehicle. However, the vast majority of fatalities of bicyclists involve a collision with a moving motor vehicle. The Arizona Department of Transportation (ADOT) is charged with collecting and recording all traffic crashes, including motor vehicles, bicyclists, and pedestrians that occur in Arizona.

The term pedalcyclist is often used in the ADOT and crash forms, in this report the term cyclist will usually be used and is synonymous with bicyclist and pedalcyclist.

A ten year historical overview of cyclist crashes, and fatal crashes as compared to all traffic is given below. Note that it was always the case that cyclist fatalities always equaled the number of cyclist fatal crashes, in other words exactly one cyclist was killed in each fatal crash. This is not the case for overall traffic fatalities, where most crashes have one fatality but a significant minority have two or more. In the table below number of fatal crashes is used for comparison.

10 year Historical Overview of Crashes and Fatalities											
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	10 year ave
CRASHES:											
# of cyclist crashes	2200	1993	1893	1874	2003	2016	1815	1907	1989	1995	1969
# of all crashes	131368	131899	134228	130895	138547	139265	142729	140371	120554	106767	131662
percent cyclist	1.67%	1.51%	1.41%	1.43%	1.45%	1.45%	1.27%	1.36%	1.65%	1.87%	1.50%
FATALITIES:											
# cyclist fatal crashes	25	29	15	15	27	35	30	21	19	25	24
# all fatal crashes	891	934	974	971	990	1038	1121	952	842	709	942
percent cyclist	2.81%	3.10%	1.54%	1.54%	2.73%	3.37%	2.68%	2.21%	2.26%	3.53%	2.56%

Table 1: 10 year Historical Overview of Crashes and Fatalities

Source: Arizona Crash Facts 2000 - 2009, Arizona Department of Transportation

2009 was a year that was close to the ten-year average in terms of the number of cyclists crashes and fatalities. The sharp drop in total crashes and fatal crashes seen since 2006 has unfortunately *not* been seen with cyclists.

The relative number of cyclist crashes to total crashes is given.

It should be pointed out that all these numbers are raw and unadjusted, and so can draw no conclusions about "how safe/dangerous" cycling is relative to all other types of traffic crashes or fatalities.

Methodology

Simply finding all cases of cyclist fatality proved difficult; searches of media reports, internet, and word-of-mouth only revealed 17, yet there were in fact 25 cyclists killed in 2009.

The key information for finding all fatalities is the ADOT report¹. This information for 2009 became available in the later part of September 2010. Information from the (each) state gets rolled up into the FARS, Fatal Analysis Reporting System, maintained for the entire United States by NHTSA.² These reports are anonymous, but contain detailed demographic and crash information (see appendix).

Ultimately the Arizona Crash Report (ACR) is the primary source of information; armed with the information of when and where each crash occurred from the ADOT report, the ACR can be obtained from the investigating jurisdiction. In addition, in the case of serious crashes, a departmental report (DR) (sometimes called the supplemental report) will also be available. ACRs have been obtained for most cases. DRs will be obtained on a case-by-case basis, if there seems to be consistent information available via ADOT/FARS and the ACR, a DR will not be required. This information is public record, and must be supplied to anyone requesting it for non-commercial purposes for a reasonable cost. The amount of bureaucratic red tape involved in obtaining an ACR or DR varies widely depending on jurisdiction, ideally a DR would be obtained for each and every crash. The level of information for the 25 cases is broken down:

- FARS/ADOT listing (7 cases)
- ACR (9 cases)
- both DR and ACR (9 cases); in one of those nine there is a DR but no ACR

1 All data supplied is contained within the study data, see footnote 3.

2 FARS: Fatal Analysis Reporting System. NHTSA. 2009 data queried 11/9/2010. <http://www-fars.nhtsa.dot.gov/>

In any event the available records and data are collated and checked for consistency, and certain benchmarks are tallied, including criteria such as who was most at fault, if hit-and-run or impairment was found, the manner of collision, lighting conditions, cyclist helmet use. Also, in the chapter Case Reports, a brief synopsis of each incident is presented.

The collated study data is organized as a spreadsheet with two rows per fatality, sorted chronologically. The first row in each incident is always the cyclist and the second is the driver.

The large majority of cyclist fatal crashes involves a cyclist and a moving motor vehicle, though this is not necessarily so, since some fatalities arise when a cyclist strikes a fixed object, in 2009 every case was a cyclist and a motor vehicle collision.

The spreadsheet is available for download³.

Limitations

This paper presents findings based on what was written by the investigator in the official records, and taken at face value, which might include biases that are hard or impossible to detect. When inconsistencies were discovered, or conclusions are disagreed with they are pointed out in the individual Case Reports section of this report.

It can only be pointed out that it is sometimes going to be the case where the cyclist is found most at fault where only driver's own statement of what happened becomes the official record, because no independent witnesses can be found. Or, as it was put in a large study in New York City bicyclist fatalities "In interpreting these data, it is important to remember that in some fatal crashes the motor vehicle driver's recollection of the crash is the only one available, which may bias these findings to show more bicyclist errors compared to motor vehicle driver errors".⁴

Most at Fault

In Arizona "Traffic Unit #1 is the vehicle, pedestrian, pedalcycle or animal rider that caused the collision or was most at fault"⁵. So the fault can be determined according to which PersonTypeDesc (either Pedalcyclist, or Driver) was UnitNumber 1. Additionally, court records were searched to determine what, if any, sanctions⁶ have been applied against the Driver; sanctions can be either TRaffic violations, or CRiminal indictments. Other sanctions including civil lawsuits brought by the families of the victim; are beyond the scope of this report. The cyclist themselves cannot be sanctioned because they are deceased.

As can be seen in the graphic, nearly all of the Drivers who were most at fault received either a traffic citation or criminal indictment. Traffic Citations are usually civil matters, but one (case #448) of the six was a criminal misdemeanor. Also, the driver noted at at fault but not receiving any sanction is

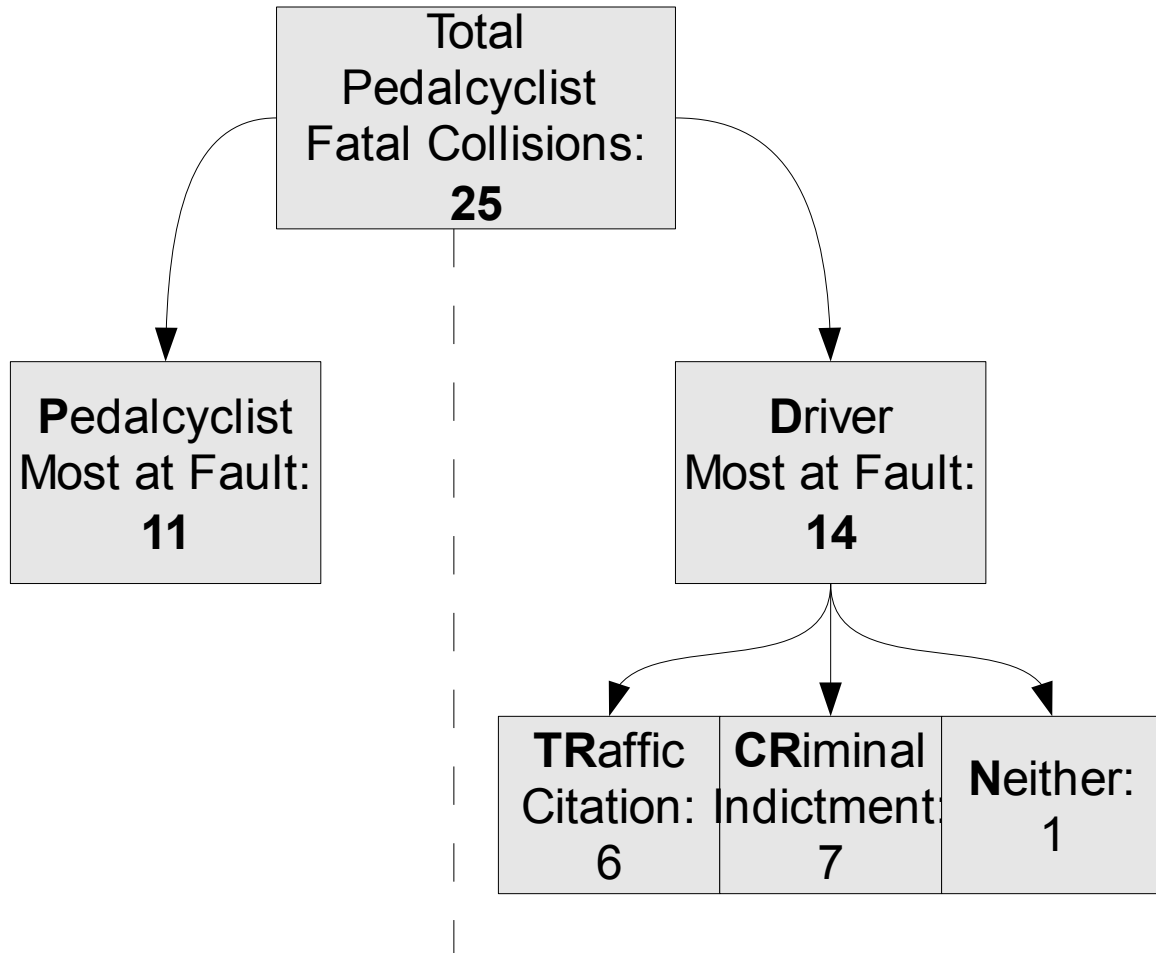
3 All report data including ADOT and FARS raw data can be downloaded in excel spreadsheet format at <http://azbikelaw.org/report/2009CyclistFatal.xls>

4 Bicyclist Fatalities and Serious Injuries in New York City 1996-2005 <http://www.nyc.gov/html/dot/downloads/pdf/bicycletfatalities.pdf>

5 State of Arizona Crash Report Manual, 8th edition. Page 49. A copy can be viewed at: <http://azbikelaw.org/images/ALISSManual1.1WebVersion.pdf>

6 Sally Cunningham of the Univ of Leicester, UK, has written extensively on legal culpability of road users and how it relates to safety, e.g. See *Driving Offences: Law Policy and Practice* (Ashgate, 2008) <http://www.le.ac.uk/law/staff/src14/>

probably a mis-coding, see case #422.



Most at Fault	
Driver:	
Traffic Citation	6
Criminal Indictment	7
no sanction	1
Driver (total):	14
Cyclist	11
	<hr/>
	25

Table 2: Most at Fault, driver vs. cyclist

In two cases (see case reports #330 and 557) where the cyclist was found most at fault, the driver was also found at fault. In the cases where the driver was found most at fault, there were no also at faults.

Benchmarks

Age and Gender of Cyclist

Cyclists Killed by Age and Gender			
Age	Total	Male	Female
10-14	2	1	1
15-19	0	0	0
20-24	3	3	0
25-34	2	2	0
35-44	6	4	2
45-54	4	4	0
55-64	5	5	0
65-74	1	0	1
75+	2	2	0
TOTAL	25	21	4

Table 3: Cyclists Killed by Age and Gender

Violation/Behavior (block 19 of ACR)

Note that the Violation/Behavior, block 19 of ACR, is distinct from block 9, Citation Charges. The citations or charges are rarely listed in block 9 for fatal crashes, probably for timing reasons; it is not unusual for fatal investigations to go on for many months, even more than a year, and the crash reports are desired to be filed in a timely manner.

The violation/behavior is listed in the table below, sorted by most at fault. Some categories of violation were grouped (e.g. Signal violations, speed violations). Up to two violation/behaviors can be checked for each traffic unit, if more than one is checked, below appears the "primary" violation.

The primary, or proximate, violation/behavior should be *directly* traceable to a specific violation of the law. So for example, if a person runs a red light because they were distracted, the primary violation is FAILED_TO_STOP_FOR_RED_SIGNAL and *not* INATTENTION_DISTRACTION, though inattention may also be checked off.

Some violations lend themselves to be non-specific, or perhaps even specious; they have been marked in red and are discussed in the individual case reports.

A word about impairment, there is a separate section, block 20 Conditions Influencing Driver / Pedalcyclist, which covers things that may have impaired the driver or cyclist. Note that being impaired does not automatically mean that that driver/cyclist was doing anything wrong from a violation/behavior point of view. So for example if a cyclist fails to stop for a red signal at an intersection and collides with a drunk driver proceeding on green (and otherwise not doing any improper driving), the cyclist should be faulted for the collision. The driver should be charged with

DUI, but that doesn't change the fault assignment for the collision.

Violation/Behavior (block 19 of ACR)	
When Driver was Most at Fault	
2	FAILED_TO_KEEP_IN_PROPER_LANE
1	DISREGARDED_PAVEMENT_MARKINGS
3	EXCEEDED_LAWFUL_SPEED or SPEED_TO_FAST_I
1	FAILED_TO_STOP_FOR_RED_SIGNAL
1	FAILED_TO_YIELD_RIGHT_OF_WAY
1	OTHER_UNSAFE_PASSING
2	INATTENTION_DISTRACTION
1	NO_IMPROPER_ACTION
2	OTHER or UNKNOWN
<hr/>	
14	
When Cyclist was Most at Fault	
3	FAILED_TO_STOP_FOR_RED_SIGNAL or DISREGAR
3	FAILED_TO_YIELD_RIGHT_OF_WAY
1	KNOWINGLY_OPERATED_WITH_FAULTY_MISSING_
1	UNSAFE_LANE_CHANGE
2	INATTENTION_DISTRACTION
1	OTHER
<hr/>	
11	

Table 4: Violation/Behavior

TRL report on cyclist collision causes in the UK⁷.

Manner of Collision

The manner of collision is described below from the perspective of the cyclist, with a breakdown of who was found most at fault.

As expected the driver was found most at fault for all (but see case # 422) rear-end collision. This was, by far, the most common manner of collision, at 40%. This type of collision has long been recognized as occurring relatively infrequently when considering all cyclist collisions, but being of significantly higher severity. The large, seminal bicycle crash data study, Cross and Fisher 1977⁸ found overtaking threats comprised just 10% of all injury collisions, but almost 40% of fatalities. Another study examining all cyclist collision in North Carolina over a five year period found that while only 14% of all collisions were "Motorist Overtaking", these accounted for 41% of the fatalities.⁹

Angle-right-angle collisions are only those occurring within and intersection, and colliding at right

7 Collisions Involving Pedal Cyclists on Britain's roads: establishing the causes, J Knowles, et. al. from Britain's TRL http://www.trl.co.uk/online_store/reports_publications/trl_reports/cat_road_user_safety/

8 Cross and Fisher 1977. A summary table of results can be viewed at <http://azbikelaw.org/blog/cross-and-fisher-1977/>

9 NCDOT Bicycle Crash Data <http://www.pedbikeinfo.org/pbcat/bicycle.cfm>. BICYCLE CRASH TYPES SUMMARY REPORT, 2003-2007 http://www.pedbikeinfo.org/pbcat/pdf/summary_bike_types5yrs.pdf

angles. This includes cyclists crossing within crosswalks. Most or all of these involve signalized intersections.

Both head-on collisions were the fault of the driver; in both cases the driver was driving to the left of center.

Angle-same-direction is a classic "right hook"; driver and cyclist are going in the same direction, and the driver turns.

Crossing road means a cyclist was crossing at other than an intersection, generally at a more-or-less right angle to direction of travel of the roadway. This is as distinct from changing lanes, where a cyclist is attempting to prepare to turn left.

Manner of Collision		Most at Fault		
		driver	cyclist	
Rear-end	10	10	0	Motorist overtaking
Angle right angle	6	1	5	collision occurred in an intersection, at right angles
Other	3	0	3	see below
Head on	2	2	0	
Crossing road	2	0	2	cyclist was crossing road, not at an intersection
Angle same direction	1	1	0	cyclist was "right hooked"
Changing lanes	1	0	1	cyclist was changing lanes
	25	14	11	

Table 5: Manner of Collision

Of the three described as 'Other', two involved cyclists who were on the sidewalk abruptly leaving, or perhaps losing control, and falling/riding into traffic (cases #164 and 221). The third was a cyclist riding on the sidewalk and was struck by an emerging driver.

Relation to Junction

Block 13 Relation to Junction	
Not Junction Related	14
Intersection	5
Intersection-related driveway	4
	2
	11

Table 6: Block 13 Relation to Junction

Conditions Influencing Driver/Pedalcyclist / DUI

This reflects the boxes checked in Block 20 of the ACR. Several categories were never checked (1 Illness, 2 Physical Impairment, or 3 Fell Asleep/Fatigued).

Conditions influencing motorists are sometimes overstated because in at least a few of the cases, no

impairment was even suspected but the alcohol or drugs box was checked anyway; apparently meant to indicate that testing for those substances was performed, the results of which ultimately proved negative.

Block 20: Conditions Influencing Driver/Pedalcyclist						
		4 Alcohol and/or Drugs	5 99 Unknown	97 Other	0 No Apparent	(totals)
cyclist	when cyclist was MaF	7	3		1	25
	when cyclist was not MaF	1	2		11	
driver	when driver was MaF	5	2	1	6	25
	when driver was not MaF	1			10	

Table 7: Block 20: Conditions Influencing Driver/Pedalcyclist

Five cases of driver's DUI (5/25 = 20%) led to negligent homicide or manslaughter criminal charges against the driver.

It is not knowable what percentage of cyclists were under the influence.

Hit and Run

There were six cases where the driver fled the scene (6/25 = 24%). The driver was most at fault in all six incidents. The drivers were all apprehended and all faced criminal charges (overlapped with four of the five DUI related, mentioned above).

Light and Weather Conditions

Light Conditions		
daylight		12
dawn		2
dusk		1
	dark lighted	6
	dark not lighted	3
	dark unknown	1
dark		10

Table 8: Light Conditions

Weather conditions were overwhelmingly Clear/Dry. Only one incident was Cloudy/Wet, and one was

Cloudy/dry.

Cyclist Helmet Use

Helmet Use	
Not_applicable	9
None used	10
Helmet used	6

Table 9: Cyclist Helmet Use

It is not known why so many are listed as "Not_applicable".

The Helmet used includes one addition that was coded as Not Applicable (see case reports #422).

Case Reports

A brief narrative on the circumstances surrounding each fatality.

In some cases, additional information can be found at azbikelaw.org/blog/, under the tag cyclist-fatality.

Case # 221

Based on an ACR conducted by Phoenix Police Department. A 40 year-old female cyclist was cycling on the sidewalk and at mid-block for unknown reasons lost control, "falling" into traffic where she was struck by a large truck.

The report faults the cyclist for #17 Inattention/distraction, and the driver was not faulted. No citations were issued.

Conditions Influencing: Cyclist, drugs. Driver, none.

Case # 105

Based on ADOT tabular data only. A 26 year-old male cyclist was struck from behind while riding on the shoulder/bikeway. The driver simply and inexplicably drifted off the roadway on into the shoulder. The driver was faulted for #14 Failure to keep in proper lane, and the cyclist was not faulted. The driver was cited for 28-735, violation of the three-foot rule, and 28-815D, driving in a bicycle path; based on internet reports.

Conditions Influencing: none.

Case # 164

Based on DR conducted by Mesa Police Department. An 11 year-old male cyclist was riding on the

sidewalk when he for unknown reasons abruptly left the sidewalk mid-block and was struck by a passing motorist.

The cyclist was faulted for #3 Failed to Yield Right-of-Way, and the driver was not faulted. No citations were issued.

Conditions Influencing: none.

Case # 213

Based on DR conducted by the Gila River Indian Community (GRIC) Police Department. A 43 year-old male cyclist was cyclist on a very narrow shoulder when a driver swerved sharply to the right and struck the cyclist from behind.

The driver was faulted for #2 Exceeded Lawful Speed, and #17 Inattention/Distraction, the cyclist was not faulted. More significantly the driver was under the influence of alcohol, and was indicted and plead guilty to manslaughter.

Conditions Influencing: Cyclist, none. Driver, alcohol.

Notes: Since the collision occurred near an intersection, it is coded as intersection-related, however the intersection had nothing to do with this particular crash.

Case # 271

Based on DR conducted by Tucson Police Department. A 55 year-old male cyclist was riding in a bike lane when a driver who was observed swerving and driving erratically struck him from behind. The driver fled the scene.

The driver was faulted for #99 Unknown, and the cyclist was not faulted. The driver was indicted, and plead guilty to leaving the scene and negligent homicide.

Conditions Influencing: Cyclist 99 Unknown. Driver, alcohol.

Concerns: It would be better if investigators avoided using Unknown and "Other" behaviors: likely behaviors the driver exhibited in this case are for example #14 Failed to keep in proper lane, #1 Speed to Fast for Conditions, or #2 Exceeded Lawful Speed.

Case # 383

Based on an ACR conducted by Phoenix Police Dept. A 77 year-old male cyclist was struck from behind by a driver who fled the scene.

The driver was faulted for #2 Speed too fast for conditions, and the cyclist was not faulted. The driver was apprehended a short time later and was indicted for leaving the scene.

Conditions Influencing: Cyclist None . Driver none.

Concerns: The cyclist drug influence was coded as drugs. This is perhaps in error, police went out of

their way to say to the media that the cyclist had been traveling "perfectly legally", and the none box was checked on the ACR, so for this report the 'none' was used.

Case # 448

Based on a DR conducted by Glendale Police Department. An 11 year-old girl was struck while crossing an intersection, riding in a crosswalk with a green signal.

The driver was faulted for #6 Failed to Stop for Red Signal, and #17 Inattention/Distraction, the cyclist was not faulted.

The driver was cited for running the red light, and 28-672 Causing Death or Serious Injury with Traffic Violation (a criminal misdemeanor charge).

Conditions Influencing: none.

Case # 330

Based on DR conducted by Tucson Police Department. A 49 year-old male cyclist was either turning, swerving, or otherwise crossing when he was struck by a speeding driver.

Several witnesses noted the cyclist weaving/riding erratically prior to the collision.

The cyclist was most-at-fault and was faulted for #13 Unsafe Lane Change. The driver was faulted for #2 Exceeded Lawful Speed.

Conditions Influencing: Cyclist, alcohol and drugs. Driver, none.

Concerns: the police estimated the driver's speed based on skid marks at 47mph; the posted speed limit was 35mph, yet he was not cited. The relative positions of the cyclist and driver are not completely clear from the report and there were some conflicting witness statements.

Case # 380

Based on an ACR conducted by Phoenix Police Dept. A 50 year-old male cyclist was struck from behind by a driver who fled the scene.

The driver was faulted for #17 Inattention/Distraction, and the cyclist was not faulted.

The driver was apprehended a short time later, alcohol impairment was suspected, and was indicted for manslaughter, endangerment and leaving the scene.

A lengthy trial was conducted where the defendant was found guilty of negligent homicide (which is one degree less serious than manslaughter).

Conditions Influencing: Cyclist, none. Driver, alcohol.

Concerns: It would be preferred if the primary violation/behavior be something specific as opposed to Inattention.

Case # 408

Based on an ACR conducted by Phoenix Police Dept. A 57 year-old male cyclist was struck in the early morning hours (dark) while trying to cross the road, or possibly attempting to turn. The cyclist was faulted for #10 Knowingly Operated with faulty or missing equipment (no lights or reflectors), and the motorist was not faulted.

Conditions Influencing: Cyclist, alcohol, drugs. Driver, none.

Case # 439

Based on an ACR conducted by Phoenix Police Dept. A 52 year-old male cyclist was struck by a driver who had been swerving and driving erratically. The driver fled the scene. The driver was faulted for #2 Exceeded Lawful Speed, and #14 Failure to keep in proper lane, the cyclist was not faulted. The driver was not apprehended until several days later; and was charged with manslaughter, leaving the scene, and tampering with evidence.

Conditions Influencing: Cyclist, none. Driver, 99 Unknown.

Notes: this story garnered widespread media attention when the suspect was apprehended due to trying to trade in the damaged vehicle in the "Cash for Clunkers" program. A "?" was placed in the DUI column because it is unknowable, since the driver fled the scene and was not apprehended until days later.

Case # 418

Based on ADOT tabular data. A 24 year-old male cyclist was struck head-on and killed. The driver fled the scene. The driver was apprehended a short time later and was suspected of being under the influence of alcohol. The driver was indicted for manslaughter and multiple counts of endangerment.

Conditions Influencing: Cyclist, drugs. Driver, alcohol.

Notes: according to media reports, the cyclist that was killed was riding with two friends. The others were apparently uninjured.

Case # 422

Based on DR conducted by Graham County Sheriff's Office, and ADOT tabular data (I do not have the ACR).

A 36 year-old male cyclist was struck from behind on a high-speed county highway. According to the tabular data and the DR the driver was listed as most-at-fault (traffic unit #1); however both the cyclist and the motorist are coded fault (in the ADOT data) as #0 No Improper Action.

Since the DR seems to conclude that the cyclist was at fault, there is probably a disconnect between the crash report and the ADOT coding; or possibly the investigator does not understand the significance of

what traffic unit #1 means.

Conditions Influencing: Cyclist, none. Driver, none (the ADOT coding of both Drugs and Alcohol appears to be a coding error; the DR indicates the driver was test, and results were negative. So for this report, the coding was overridden to 'none').

Concerns:

There were no independent witnesses to the collision.

The report's conclusion states: "upon approaching the bicyclist failed to see the rider initially due to the setting sun in his eyes. Upon approach and seeing the bicyclist, driver started around when the rider veered in the path of the passing vehicle"; and thus the investigator implies that cyclist was at fault. No citations were issued, according to court records.

However, if the setting sun was in fact reducing the driver's vision, he should have controlled his speed to account for his reduced visibility, which he obviously failed to do. "The driving of an automobile at such a speed that motorist cannot stop his automobile within range of his vision is negligence as a matter of law."¹⁰

The sudden swerving alluded to was speculated to have been caused by high-crosswinds, however it seems unlikely that that would explain more than three feet of movement – drivers are required to overtake cyclists with a minimum of 3-feet of clearance, §28-735¹¹. In any event, scrape marks indicate the point of impact was "within 20-24 inches of roadway edge"; thus it doesn't seem like there was significant amount of "sudden swerving".

It isn't clear if the investigators were aware of §28-735. Furthermore, the cyclist was struck rather near the fog line, also indicating the driver did not begin his pass with enough clearance.

Taken together the driver should have been faulted for either or both: #2 Speed too fast for conditions (due to limited visibility), and/or #16 Other unsafe passing. The driver should have been cited for either §28-701¹² speed greater than reasonable and prudent, and/or §28-735 overtaking bicyclist with less than 3-feet.

Notes: the DR has much background information – the cyclist was not from the area, but was visiting with his wife and staying with friends in the area. The cyclist and his friend were training for a triathlon, and note that his bicycle "appeared to be ... professional" quality.

This incident completely escaped media attention.

There was a discrepancy between the DR and ADOT table data, noted on the spreadsheet in magenta color; the DR stated that the cyclist was wearing a helmet, but the original ADOT data indicated NOT_APPLICABLE. I took and used the DR data for the tally presented here.

Case # 457

Based on ADOT tabular data only. An 86 year-old male cyclist was struck from behind while riding on the shoulder/bikeway. The driver simply and inexplicably drifted off the roadway on into the shoulder. The driver was faulted for #14 Failure to keep in proper lane, and the cyclist was not faulted.

10 Campbell v. English (1941) 56 Ariz. 549, 110 P.2d 219.

11 ARS §28-735 <http://www.azleg.state.az.us/ars/28/00735.htm>

12 ARS §28-701 <http://www.azleg.state.az.us/ars/28/00701.htm>

The driver was cited for 28-735, violation of the three-foot rule, and 28-815D, driving in a bicycle path; based on internet reports.

Conditions Influencing: none.

Case # 463

Based on ADOT tabular data only. A 43 year-old female cyclist was struck from behind. The driver fled the scene.

The driver was faulted for #97 Other, and the cyclist was not faulted.

The driver was apprehended a short time later and suspected of DUI; and was indicted manslaughter, leaving the scene, and DUI.

Conditions Influencing: Cyclist, none. Driver, alcohol.

Notes: At his sentencing, the judge noted that the driver had "about 20 moving violations".

Case # 553

Based on a DR conducted by Pinal County Sheriff's Office. A 63 year-old cyclist was struck from behind on a high-speed, narrow road; just before sunrise.

The driver was faulted for #97 Other (written in: "unsafe passing of bicycle"), and #17 Inattention/Distraction, the cyclist was not faulted.

The motorist was cited for violation of 28-735 fail to exercise due care when passing bike, and 28-922 Fail to display head lamps during darkness.

The cyclist was found to have met lighting requirements via a rear reflector.

Conditions Influencing: Cyclist, none. Driver, 97 Other (Based on the narrative of the DR, it should have been 6 Medications, see below, but was not overridden).

Concerns: The possibility of prescription drug impairment was not followed up on; the driver stated that he taken Oxycontin. A blood draw was consented to and was "submitted to the department of public Safety crime lab for testing for alcohol **and drugs**". However, when the results were returned "the blood sample...had been examined by the DPS Laboratory. The results showed there was no alcohol in the blood of .J at the time of this samples collection. The sample was submitted by Deputy Lombardi #1537, and **did not show an examination request for controlled substances or prescription drugs**. The blood sample taken from was not tested for any other substances" (emphasis added).

In any event, there appears to be some mis-coding on the ACR in block 19 Conditions Influencing section. The box checked for the driver (unit 1), 97 Other, appears to should have been 6 Medications, and then the box B Test Given should have been in the Unit 1 column, and not the cyclists column. And lastly the box D Testing Unknown should not have been checked at all.

Case # 557

Based on an ACR conducted by Phoenix Police Dept. A 36 year-old male cyclist was struck while riding in a crosswalk at a signalized intersecting. He was riding southbound in the west side crosswalk

(i.e. "with" traffic), and was struck by a westbound driver.

The cyclist was most-at-fault (listed as traffic unit #1) and was faulted for #7 Disregarded Traffic Signal. The driver was faulted for #1 Speed too fast for conditions, and *also* #7 Disregarded Traffic Signal.

Witnesses stated that both units entered the intersection on a red light; one ran the red, and the other entered the intersection during the all-red phase.

No citations have been issued to the driver; however the police and prosecutor are still considering criminal charges (as of October 2010).

Conditions Influencing: Cyclist, drugs. Driver, none.

Concerns: Given that the motorist was traveling too fast and disregarded the signal, it seems that the driver should have been most at fault, not the cyclist.

Notes: According to court records the driver has several issues with driving without insurance and resultant suspensions; some quite near the date of the fatal collision.

Case # 565

Based on DR conducted by Somerton Police Department. A group of cyclist was proceeding westbound on a two-lane rural road. A westbound motorist while attempting to pass a farm implement collided head-on with several of the cyclists, killing a 37 year-old male.

The motorist was faulted for #16 Other unsafe passing, the cyclist was not faulted.

Sun glare was mentioned as limiting the driver's visibility.

Ultimately, the driver was cited for 28-701 Speed greater than reasonable and prudent, and 28-735 Failed to pass safely on the left...

Concerns: The citations weren't issued until almost one year later, and it appears the Somerton Police were not inclined to issue these citations unless prodded.

Conditions Influencing: none.

Case # 499

Based on a DR conducted by AZ DPS (with some legibility problems). A 56 year-old male cyclist riding on the sidewalk entered a crosswalk, in daylight, very slowly, on a green signal and was struck by the driver of a large-truck that was making a right-on-red at a highway exit ramp intersection.

The cyclist was southbound, and the truck made a right to go southbound; that is to say that the cyclist was traveling in the same direction as adjacent traffic.

The cyclist was faulted for #97 Unknown, and the driver was not faulted.

Next to the Unknown there is something written in the space provided but it is illegible on the copy available.

Conditions Influencing: cyclist, drugs per ADOT coding, the ACR isn't very legible but seems to indicate 99: Unknown (see below). Driver, none.

Concerns: Faults such as "Other" and "Unknown" are indications that there may be problems with the investigation.

The witness indicated the cyclist was traveling quite slowly "approximately three to five miles per hour". There is no explanation as to why the driver would not have seen such a slow moving object, in daylight.

In the narrative there is a fairly lengthy discussion of cyclists and crosswalks and 28-812, and 28-815 – the conclusion indicates the investigator may have an incorrect notion of cyclist's duties in light of *Maxwell* (see footnote attached to Case #671).

It was not stated whether or not there was a sign indicating "No Turn on Red".

The driver stated he stopped for the red signal, (implying a full stop); no independent witnesses could confirm this.

The conditions influencing cyclist are listed as either Drugs (in the ADOT coding), while there ACR itself appears to indicate 99 Unknown. Either are somewhat suspicious because the text of the report makes no reference to any apparent influences by the witnesses or investigator. FARS data indicates all unknowns for drug testing.

Neither the driver or either of the witnesses could say what the condition of the pedestrian crossing signal was. It is undisputed that the light was green for the direction of travel for the cyclist; and that the driver was facing a red signal.

Case # 637

Based on an ACR conducted by Phoenix Police Dept. A 31 year-old male cyclist was struck at an intersection which he entered against a red signal. The driver had a green signal.

The cyclist was faulted for #7 Disregarded Traffic signal, the driver was not faulted

Conditions Influencing: Cyclist, alcohol. Driver, alcohol.

Concerns: the form was the obsolete "Arizona Traffic Accident Report"

Case # 584

Based on a DR conducted by Flagstaff Police Department. A 23 year-old male cyclist was struck by a right-turning large truck headed in the same direction (a "right hook") at a signalized intersection.

The driver was faulted for #3 Failed to yield right of way, and the cyclist was not faulted.

At the conclusion of a lengthy investigation, the county attorney declined any criminal charges, and the driver was cited for "UNSAFE TURN OR NO TURN SIGNAL".

Conditions Influencing: both, 99 Unknown.

Notes: There was in addition to the Flagstaff PD's DR, a report made by AZ DPS, which was not obtained for this report.

Case # 586

Based on a DR conducted by Mesa Police Department. A 68 year-old female cyclist was struck by the driver of a motorcycle at an intersection. The cyclist was traveling against a red light, and the motorcyclist had green.

The cyclist was faulted for #3 Failed to yield, and #6 Failed to stop for red signal, the driver of the motorcycle was not faulted.

The driver of the motorcycle was cited for technical restrictions on his driver's license, he was not wearing vision correction, and also did not have a motorcycle endorsement so was cited for 28-3480, and 28-3151A respectively – these violation were not found to be factors in the collision.

Conditions Influencing: cyclist, 99 Unknown. Driver, none.

Case # 604

Based on a DR conducted by AZ DPS (with some legibility problems). A 59 year-old southbound cyclist riding either in or near the crosswalk collided with an eastbound driver at a signalized intersection, on a very high speed road, posted 65mph.

Based on the driver's statement, the cyclist was faulted for #3 Failed to yield right of way, the driver was not faulted.

Conditions Influencing: none.

Concerns: The collision happened in darkness, 6am in early December. There was no indication in the report if the bicycle was lighted; this seems an odd omission.

The only witness was the driver, who according to his statement entered the intersection on a green light. The driver also stated that the cyclist was difficult to see due to dark clothing; possibly alluding to the cyclist not being lighted. The only other witness was a passenger in the driver's car who "was not looking at the roadway" and did not indicate the color of the signal. A would-be independent witness left the scene before police arrived, according to the driver.

Case # 671

Based on an ACR conducted by Phoenix Police Department.

A 20 year-old male cyclist was riding on the sidewalk in daylight, upon crossing a private driveway he was struck by a driver emerging from the driveway intending to turn right.

The cyclist was faulted for #17 Inattention/Distracton and the driver was not faulted.

No citation were issued.

Conditions Influencing: cyclist, 99 Unknown. Driver, none.

Concerns: The inattention behavior ascribed to the cyclist may be specious, the cyclist's operation was not in violation of any law. Police understanding of the legal position of cyclists riding on the sidewalk is spotty; despite clear case law, see *Maxwell v. Gossett*¹³, that riding in a crosswalk (or by extension, a

¹³ *Maxwell v. Gossett*, 126 Ariz. 98 612 P.2d 1061, 1062 The Arizona Supreme Court found that "We do not read the cited statutes as prohibiting the riding of a bicycle in a crosswalk". The opinion can be viewed at <http://azbikelaw.org/blog/sidewalk-cycling-in-arizona/>

driveway), is lawful.

In section 13, Relation to Junction, was coded as not junction related. It should have been coded as Driveway, and counted as such for this report.

The DR was not available in time to be reviewed for this report.

Case # 611

Based on a DR conducted by AZ DPS (with some legibility problems). A 50 year-old male cyclist rode out westbound from a commercial driveway and collided with a northbound driver of a large truck. The cyclist was faulted for #3 Failed to yield right of way, the driver was not faulted.

Conditions Influencing: The cyclist was suspected of being influenced by alcohol; this was corroborated by a witness who had been with the cyclist earlier in the day stating "he was so drunk that she didn't know how he rode the bike". Driver, none.

Notes: The crash happened in darkness, the report gave a clear and complete description of the bicycle's lighting situation which was no lights, but did have a rear reflector

Appendix

Data fields available in the ADOT report (one row of data for each traffic unit; so nominally the cyclist is a traffic unit, and the motorist another):

IncidentMicrofilm
IncidentDateTime
IncidentOnroad
IncidentCrossingFeature
IncidentOffset
IncidentInjurySeverityDesc
IncidentFirstHarmfulDesc
IncidentCollisionMannerDesc
IncidentLightConditionDesc
IncidentWeatherDesc
IncidentSurfaceConditionDesc
IncidentJunctionRelationDesc
IncidentPedestrianFlag
IncidentPedalCyclistFlag
UnitBodyStyleDesc
UnitTravelDirectionDesc
UnitActionDesc
UnitNumber
PersonTypeDesc
PersonSafetyDeviceDesc
PersonViolationDesc1
PersonPhysicalDesc0 PersonPhysicalDesc1 PersonPhysicalDesc2
PersonPhysicalDesc3 PersonPhysicalDesc4 PersonPhysicalDesc5
PersonPhysicalDesc6 PersonPhysicalDesc97 PersonPhysicalDesc99

...