

Portneuf Valley Bicycle Master Plan 2012



Appendix E – Bicycle Safety

March 14, 2012



BANNOCK

Transportation Planning

O R G A N I Z A T I O N

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Introduction

One of the most ambitious goals of the Bicycle Master Plan update is to reduce bicycle crashes to zero within twenty-years. This goal is similar to the Idaho Strategic Highway Safety Plan's goal of zero deaths. The closer the region is to achieving the goal of zero bicycle crashes, the closer we are to a bicycle friendly community.

The purpose of this technical memorandum is to provide the 2010 baseline data, an analysis of the 2005 – 2010 bicycle crash data, and provide recommendations to include in the 2011 BTPO Bicycle Master Plan. The trends and data may identify changes to existing strategies and policies which can reduce bicycle crashes.

The data included in this analysis is from the Idaho Transportation Department's WebCARS program. WebCARS is the database of all crashes in Idaho. The database consists of crash reports completed by all law enforcement agencies in Idaho. All law enforcement agencies use a standard crash report, as designated in Idaho Code 49-1307. The resulting numbers are conservative since the database consists of only crashes investigated by law enforcement officers. Only crashes resulting in injury or death of any person, or damage to the property of any one person in excess of \$1,500 were included. Crashes occurring on private property and any intentional acts are excluded. The database does have records where the law enforcement agency responded and completed the crash report but the crash did not meet the definition of reportable. The unreportable crash data was used to locate all the various crashes and to show that not all bicycle crashes result in injury.

This appendix will provide an overview of the bicycle crash data within the cities of Pocatello and Chubbuck. The locations as possible trends or clustering will be analyzed in the Crash Location section. Operator Actions and Demographics will be reviewed for any possible causes that can be addressed by the plan. The last section will provide recommendations of areas of further investigation.

Overview

From 2005 to 2010 the Bannock Transportation Planning Organization (BTPO) area averaged 25.7 bicycle crashes per year. The number of crashes increased from 2005 and peaked in 2007 and 2008 about the time gasoline prices spiked. A limitation with the bicycle crash data is the lack of data on the number of people who ride and how often they ride. Figure E-1 shows the number of crashes has increased, but without the number of people who ride and the mileage ridden it is uncertain if the rate of bicycle crashes has increased. Table E-1 indicates that Pocatello has an average annual crash rate of 5.0 per 10,000 people which is slightly below the average of 5.6 per 10,000 people for similar sized communities in Idaho. What is missing is the number of bicyclists; Coeur D'Alene, which had the highest rate, could also have twice the number of bicyclists. Table E-1 shows where Pocatello is in comparison to other urban areas in Idaho. Chubbuck was also compared to other similar sized communities. Chubbuck had the lowest crash rate at 2.17 crashes per 10,000 people.

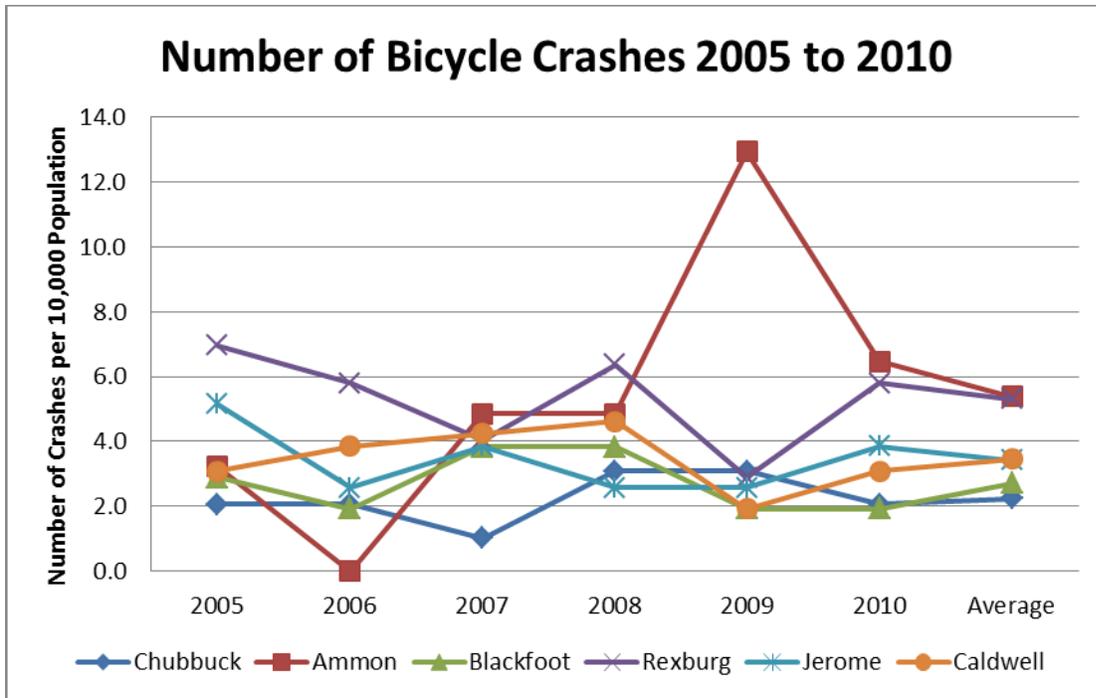


Figure E - 1: Bicycle crashes from 2005 to 2010 for various Idaho cities

Table E - 1: Bicycle crashes from 2005-2010 for Pocatello and Chubbuck

City	2005	2006	2007	2008	2009	2010	Average
Pocatello	17	23	31	31	27	25	25.67
Chubbuck	2	2	1	3	3	2	2.17

Idaho Transportation Department classifies injuries resulting from a crash in four different categories, they are:

Fatal Injury - Any injury that results in the death of a person within 30 days of the crash in which the injury was sustained.

Serious Injury - Any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities the person was capable of performing before the injury occurred.

Visible Injury - Any injury, other than a fatal injury or serious injury, which is evident to observers at the scene of the crash in which the injury occurred.

Possible Injury - Any injury reported or claimed which is not a fatal injury, serious injury, or visible injury.

If there was no injury type resulting from the crash the crash is listed as Property Damage Only.

Figure E-2 shows that the majority (77%) of bicycle related crashes result in injury. 42% of the bicycle crashes resulted in a Visible Injury. Many (20%) of the bicycle crashes do not result in a reportable crash, but if police are called, the crash is still sent to the Idaho Transportation Department’s WebCARS crash database.

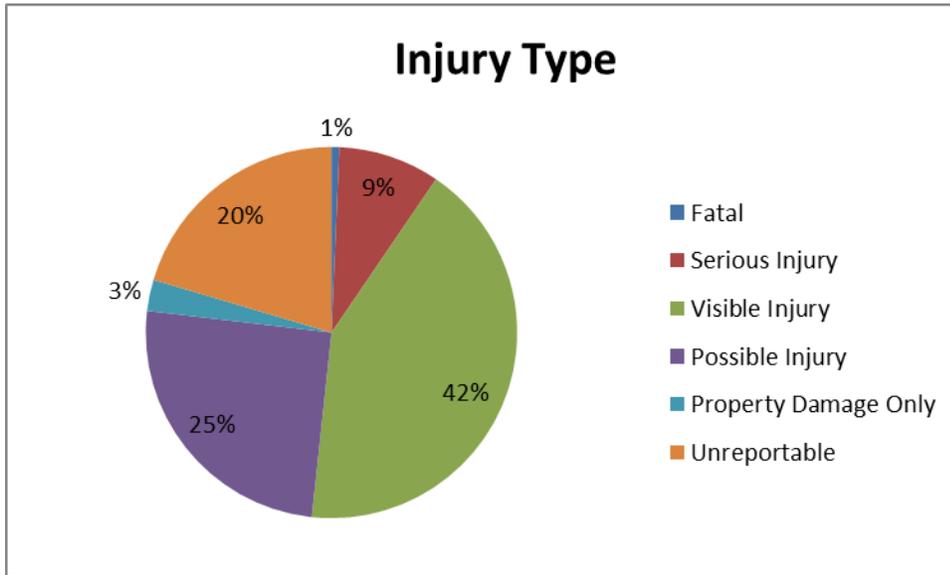


Figure E - 2: Bicycle Crash Injury Type from 2006 to 2010 in Pocatello and Chubbuck

Crash Locations

Between 2006 and 2010, 146 bicycle crashes were identified in the WebCARS database. These crashes were a mixture of reportable and un-reportable crashes. Figure E-3 shows the approximate location of all bicycle crashes for 2006 to 2010 in the BTPO area. Intersection related crashes were located at an intersection; non intersection related crashes were placed near the crash location as shown on the WebCARS database. While there are several locations where multiple crashes occurred, most do not have similar crash patterns. For example, there were three crashes at 4th and Center over a five year period, one had no cause reported, one was riding with traffic, and the last was crossing the street. None of the three are in the same year. To determine if a location is experiencing a higher than average crash history a crash rate is used. The crash rate is based on exposure or the number of bicycles using the facility divided by the number of crashes. While automobile volumes are available for vehicles, no volume is available for bicycle usage, as previously stated. Since there are no bicycle counts yet, crash rates have not yet been determined.

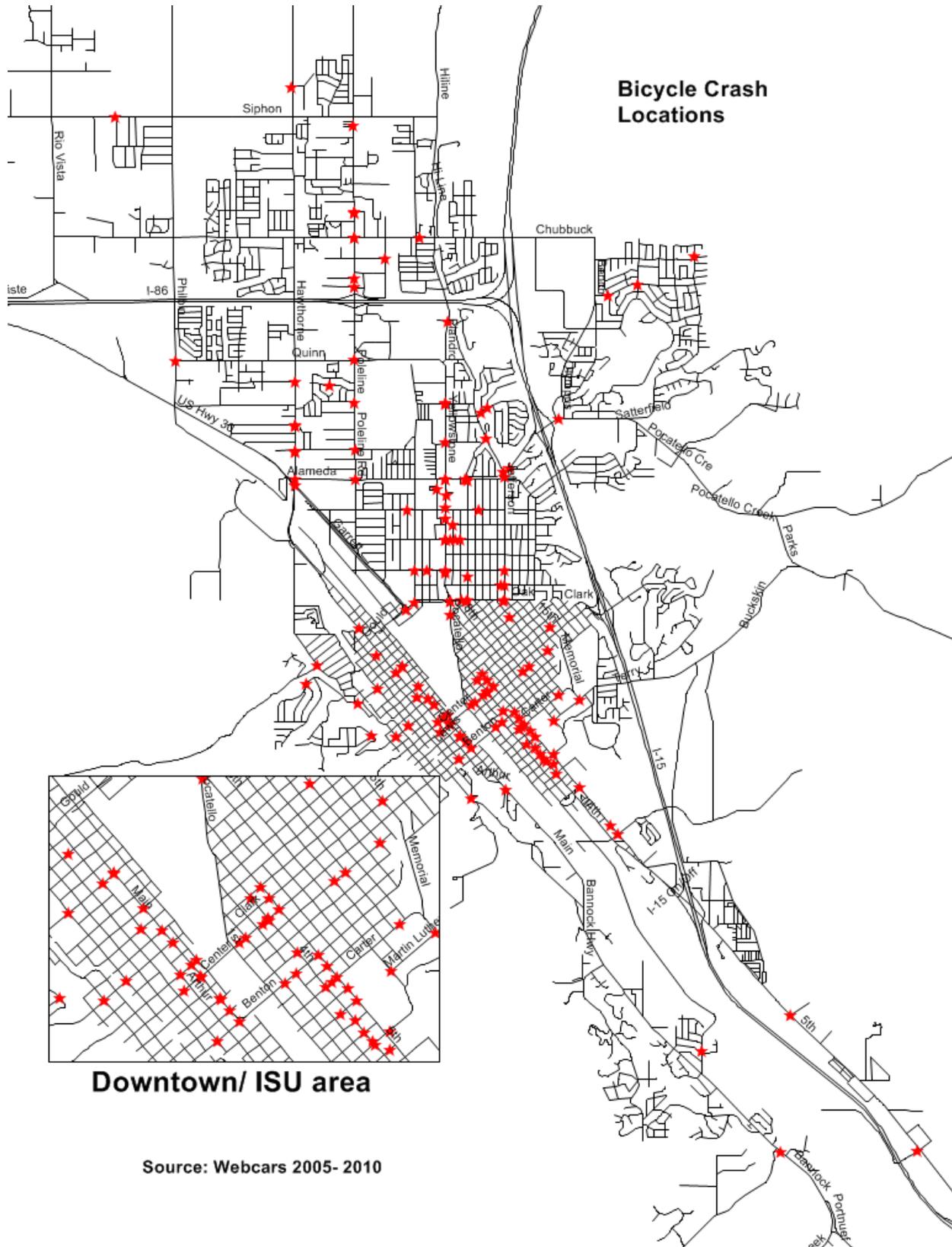


Figure E - 3: 2006 -2010 Bicycle Crash Locations

What is striking is the clustering along major arterial corridors. While there are several crashes within neighborhoods and in some isolated locations, by and large the crashes are along the arterial corridors. A higher number of bicycle crashes are present in the ISU and downtown corridor where more bicycle riders are assumed to be present.

Operators Action and Contributing Circumstance

The crash report lists the driver's action (which is what they were doing at the time of the crash). In the reports, it is hard to distinguish the actions of the vehicle driver from those of the bicycle rider. The results are almost equally divided between crossing a street and riding along it (Figure E-4). Two interesting statistics do appear in the data. The first is 15% of the crashes involve bicyclists riding against the flow of vehicular traffic, which in Idaho code is not the correct direction of travel for operating a bicycle. The second is an analysis of the driver's action and contributing circumstances showed a high number (11%) of crashes occurred when a motorist was leaving a driveway, parking lot, or alley. Over half of driveway crashes (3) involved a bicyclist riding against traffic on one-way streets.

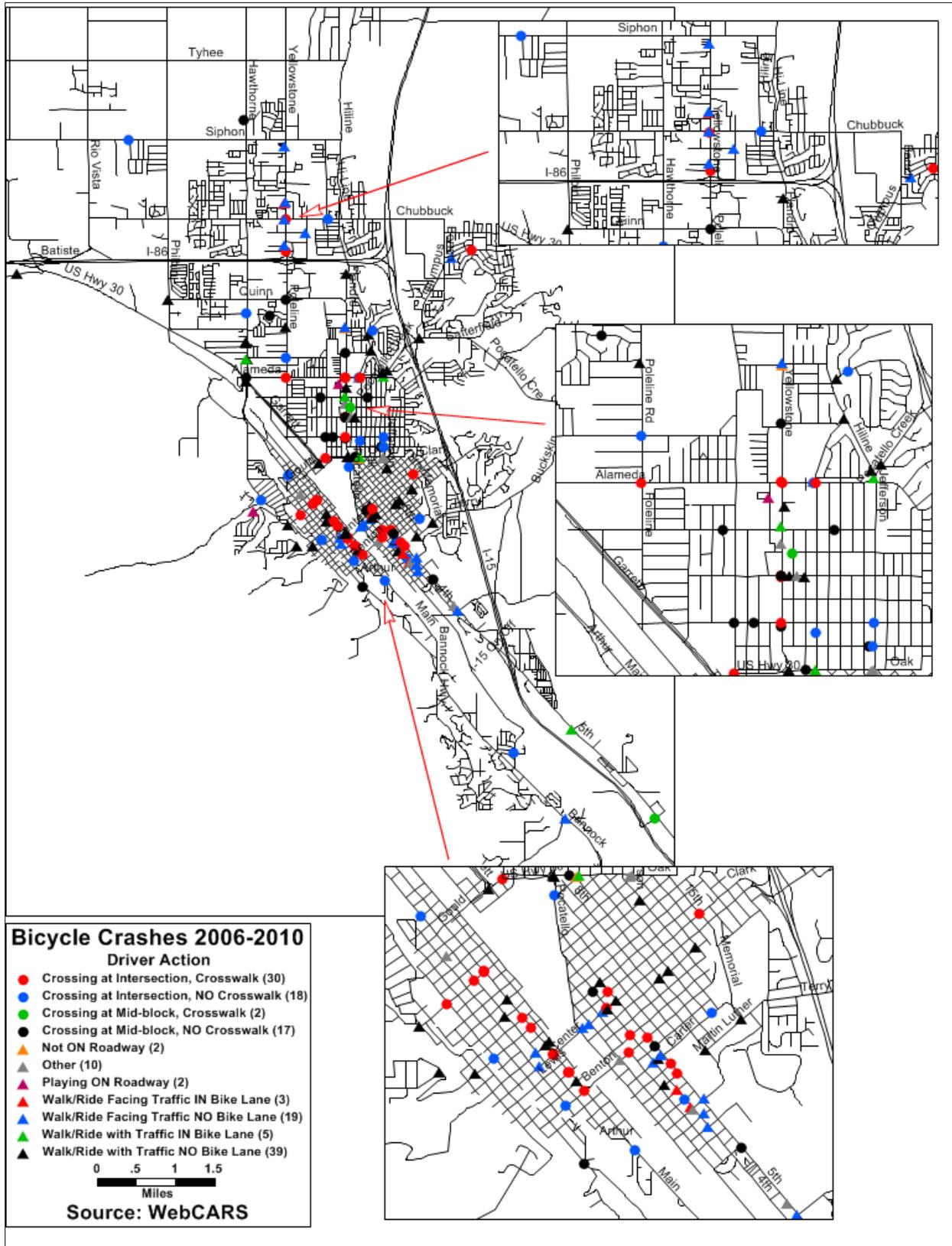


Figure E - 4: Operators Actions in Bicycle Crashes

Demographics and Other information

This section is intended to outline some trends related to age of bicycle riders involved in crashes. As mentioned earlier, no data exists on the number of bicycle riders in the region or the amount of miles they ride. People under 23 years old account for 60% of all bicycle crashes. Also, it is safe to say that this age group, due to the high percent of people without driver's licenses, is more likely to be bicycle riders. Of those bicycle riders under 10 years old (16 crashes), only three were not on a collector or arterial street.

Helmets used by those who were involved in crashes were low at only 19%. Most of those wearing a helmet in a crash were over 18 years old (89%).

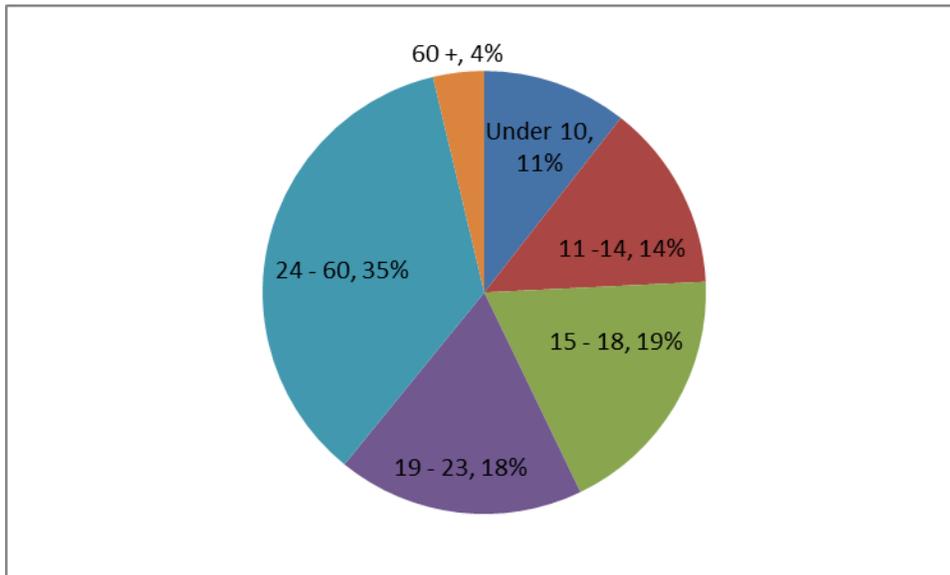


Figure E- 5: Age of bicycle riders involved in a crash 2005-2010

Recommendations and areas for future research

Tracking crashes is critical but only when it leads to activities and strategies which can be used to reduce the number and severity of crashes. In this section, those areas, with potential for improvement in crash numbers will be highlighted.

Young Riders

Forty-four (44%) of the crashes involve riders under 18 years old. BTPO's current planning and education efforts are directed toward riders over 18. While BTPO does partner with other groups to provide safety education to riders under the age of 18, it is not a major focus area for BTPO. One of BTPO's focus areas has been distribution of helmets. While this activity has increased the number of helmets used, the number of people under 18 involved in a crash not wearing a helmet is still unacceptable.

Driveways and alleys

Eleven percent of the crashes involve driveways and alleys. More research needs to occur to determine the potential solutions. In most of the midblock crashes, the bicyclist was riding on the roadway and the vehicle was entering the roadway. Did the motorist not see the bicycle rider due to sight obstruction; the location of the bicycle in the right portion of the lane; or did the motorist just not expect a bicycle to be on the road. Bicycle education can help in understanding defensive riding, but at some point education for the motorist will need to be included in the process.

Intersections

Signalized intersections and one way streets are the two areas of concern related to intersections. There are a surprising number of crashes at signalized intersections. The crash reports did not provide enough data to determine a cause for the crashes, but the number does raise concern regarding signalized intersections.

One way streets are the other area of concern regarding intersections. Like the signalized intersections, the crash reports do not provide data on cause, but from the reduced number of conflicts involved in one way streets the number of crashes should be lower.

In both signalized intersections and one way street intersections more research is needed to determine if some corrective action could be taken or if just the number of vehicles at these locations is the underlying cause.

Rules of the Road

Riding against traffic was one of the highest operator's action related to a bicycle crash. Most of these crashes are along one way streets which have no listing for contributing circumstance. "Failure to yield" was the most common listed contributing circumstance. Drivers do not expect a bicyclist on the roadway riding the wrong way, and along one way streets the driver's attention is usually directed toward the direction of traffic flow.

General Education

More education, enforcement, and encouragement can be done to improve safety of both motorists and bicyclists. The majority (58%) of crashes which have occurred are related to intersections. The crash reports list crossing and riding along the road as separate activities of the bicyclist but the crash occurred at an intersection. Improving understanding of intersection crossing and bringing awareness to bicyclists can help this cause. Motorcycle safety education has done a good job of getting people to be more aware of motorcycles. In a similar fashion, a safety campaign getting motorists to look in areas where bicycles occupy (right side of lane) instead of the middle could reduce the number of midblock or driveway crashes.

Summary

No simple remedy was found in the evaluation of bicycle crashes for dramatic potential reductions. The crashes appear random and the only major indicator is high traffic volume. The higher the traffic

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volume on a roadway the more bicycle crashes are along that road, but there is no easily identifiable solution to high traffic volumes.

Several areas for improvement or future study were identified in the analysis. Those include:

- Crashes involving motorists pulling out from intersections, driveways, and alleys;
- Crashes at signalized intersections;
- Crashes along one way streets;
- The number of crashes involving young riders;
- The number of crashes involving bicyclists riding the wrong way; and
- Lack of helmet use.