



CITY OF RAPID CITY

Engineering Services

300 Sixth Street
Rapid City, SD 57701-2724

MEMORANDUM

TO: Patsy Horton
Long Range Planning Division Manager

FROM: John Less, PE, PTOE *John Less*
City Traffic Engineer

SUBJECT: Rapid City Area Metropolitan Planning Organization
Pedestrian/ Bicyclist Crash Report
2002 – 2013

DATE: 23 January 2014

INTRODUCTION

This is an abbreviated version of the annual Pedestrian/Bicyclist Crash Report that is presented to the MPO's three transportation process committees. In 2012 a comprehensive report analyzing ten years worth of crash data was completed. That report concluded that "the 10 years of data do not point towards any specific mitigation strategies to address Rapid City's high pedestrian and bicyclist crash rates," and recommended that "there needs to be a serious re-examination of how we are trying to deliver our safety message to pedestrians, bicyclists and drivers with adjustments made accordingly."

Following the 2012 report, the Rapid City Police Department began an enforcement program targeting driver and pedestrian behavior at marked, mid-block crossings. The enforcement program was also accompanied by public service announcements on local radio and television and social media. The Rapid City YMCA is also leading an educational program called "Pioneering Healthier Communities". This group has begun

working with local bicycle retailers to have bicycle safety literature accompany new bike sales.

This abbreviated report will present tabular summaries of Rapid City's 2012 and 2013 pedestrian and bicyclist crashes, comparing those values to average values for 2002 – 2011.

CRASH TYPES

Crash type descriptors were developed based on criteria presented in the Federal Highway Administration's PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System (September 2004) and in the National Highway Traffic Safety Administration's Pedestrian & Bicycle Crash Analysis Tool software. The crash types used in this report are defined below; note that not every crash type was necessarily represented in the reviewed ten years of data.

Pedestrian Crash Types

Backing Vehicle - The pedestrian was struck by a backing vehicle on a street, in a driveway, on a sidewalk, in a parking lot, or at another location.

Bus Related - The pedestrian was struck by a vehicle while: (1) crossing in front of a commercial bus stopped at a bus stop; (2) going to or from a school bus stop; or (3) going to or from, or waiting near a commercial bus stop.

Dart/Dash - The pedestrian walked or ran into the roadway at an intersection or mid-block location and was struck by a vehicle. The motorist's view of the pedestrian may have been blocked until an instant before the impact.

Driverless Vehicle – The pedestrian was struck by a driverless vehicle that was left in gear or one that rolled forward or back.

Multiple Threat/Trapped - The pedestrian entered the roadway in front of stopped or slowed traffic and was struck by a multiple threat vehicle in an adjacent lane after becoming trapped in the middle of the roadway.

Non-Roadway - The pedestrian was standing or walking near the roadway edge, on the sidewalk, in a driveway or alley, or in a parking lot when struck by a vehicle.

Other - Pedestrian struck after a vehicle/vehicle collision, pedestrian struck by falling cargo, emergency vehicle striking a pedestrian, pedestrian lying in the road, etc.

Through Vehicle No Traffic Control - The pedestrian was struck at an unsignalized intersection or mid-block location. Either the motorist or the pedestrian may have failed to yield.

Through Vehicle, Traffic Control - The pedestrian was struck at a signalized intersection or mid-block location by a vehicle that was traveling straight ahead.

Turning Vehicle - The pedestrian was attempting to cross at an intersection, driveway or alley and was struck by a vehicle that was turning right or left.

Unique Mid-block - The pedestrian was struck while crossing the road to/from a mailbox, newspaper box, or ice cream truck, or while getting into or out of a stopped vehicle.

Unknown - The crash report did not provide adequate information to type the crash.

Walking Along Roadway - The pedestrian was moving along the roadway and was struck from the front or from behind by a vehicle.

Working/Playing in Road - A vehicle struck a pedestrian who was: (1) standing or walking near a disabled vehicle, (2) riding a play vehicle that was not a bicycle, (3) playing in the road or (4) working in the road.

Bicyclist Crash Types

Assault with Vehicle – The bicyclist was intentionally struck by a vehicle.

Backing Vehicle – The bicyclist was struck by a backing vehicle on a street, in a driveway, on a sidewalk, in a parking lot, or at another location.

Bicyclist Ride Out - The bicyclist was struck at a location where the bicyclist was facing a traffic control device or the bicyclist entered the roadway from an alley or driveway.

Head On – The bicyclist and vehicle directly collided while traveling in opposite directions.

Overtaking Vehicle – The bicyclist was struck by a vehicle that was traveling in the same direction.

Through Vehicle No Traffic Control - The bicyclist was struck at an unsignalized intersection or mid-block location. Either the motorist or the bicyclist may have failed to yield.

Through Vehicle, Traffic Control - The bicyclist was struck at a signalized intersection or mid-block location by a vehicle that was traveling straight ahead.

Turning Bicyclist - The bicyclist made a right or left turn in front of a vehicle.

Turning Vehicle - The motorist made a right or left turn in front of a bicyclist.

Vehicle Pull Out - The bicyclist was struck at a location where the vehicle was facing a traffic control device or the vehicle exiting from an alley or driveway.

Other – The bicyclist was struck under unusual circumstances.

Unknown – The crash report did not provide adequate information to type the crash.

PRESENTATION OF DATA

**TABLE 1
RAPID CITY PEDESTRIAN CRASH TYPES
2002 - 2013**

CRASH TYPE	2002-2011 AVERAGE ANNUAL FREQUENCY	2012 FREQUENCY	2013 FREQUENCY
DART/DASH	7	9	7
TURNING VEHICLE	6	6	13
THROUGH VEHICLE - TRAFFIC CONTROL	1	2	0
THROUGH VEHICLE - NO TRAFFIC CONTROL	1	0	0
BACKING VEHICLE	1	0	0
WALKING ALONG ROADWAY	1	0	1
NON-ROADWAY	1	0	0
OTHER	0	1	2
DRIVERLESS VEHICLE	0	0	0
WALKING INTO VEHICLE	0	0	1
UNKNOWN	0	0	0
WORKING/PLAYING IN ROAD	0	0	1
MULTIPLE THREAT/TRAPPED	0	0	0
ASSAULT WITH VEHICLE	0	0	1
LAYING IN ROAD	0	0	0
UNIQUE MIDBLOCK	0	0	0
TOTAL	20	18	26

TABLE 2
RAPID CITY PEDESTRIAN CRASH AGE DISTRIBUTION
2002 - 2013

AGE OF PEDESTRIAN (YEARS)	2002-2011 AVERAGE ANNUAL FREQUENCY	2012 FREQUENCY	2013 FREQUENCY
0 - 5	1	0	0
6 - 13	4	5	4
14 - 19	2	1	2
20 - 24	1	0	1
25 - 34	2	2	5
35 - 44	3	4	7
45 - 54	3	2	2
55 - 64	2	4	3
65 - OVER	1	0	2
TOTAL	20	18	26

TABLE 3
RAPID CITY PEDESTRIAN CRASH RESPONSIBILITY
2002 - 2013

YEAR	DRIVER'S FAULT	PEDESTRIAN'S FAULT	NONE/UNKNOWN
2002 - 2011 AVERAGE	10	9	2
2012	8	9	1
2013	16	9	1

TABLE 4
RAPID CITY PEDESTRIAN INJURY CRASH RATE*
2002 - 2013

YEAR	RAPID CITY INJURY CRASH RATE	SOUTH DAKOTA INJURY CRASH RATE	UNITED STATES INJURY CRASH RATE
2002 – 2011 AVERAGE	31.29	13.30	22.44
2012	25.77	13.91	N/A
2013	37.22	N/A	N/A
* INJURY CRASHES PER 100,000 POPULATION			

TABLE 5
RAPID CITY PEDESTRIAN FATAL CRASH RATE*
2002 - 2013

YEAR	RAPID CITY FATALITY CRASH RATE	SOUTH DAKOTA FATALITY CRASH RATE	UNITED STATES FATALITY CRASH RATE
2002 – 2011 AVERAGE	1.45	1.12	1.53
2011	2.96	0.86	1.42
2012	0.00	0.24	N/A
2013	0.00	N/A	N/A
* FATAL CRASHES PER 100,000 POPULATION			

TABLE 6
RAPID CITY BICYCLIST CRASH TYPES
2002 - 2013

CRASH TYPE	2002-2011 AVERAGE ANNUAL FREQUENCY	2012 FREQUENCY	2013 FREQUENCY
BICYCLIST RIDE-OUT	7	8	21
TURNING VEHICLE	6	4	2
VEHICLE PULL-OUT	1	2	5
THROUGH VEHICLE - TRAFFIC CONTROL	1	1	0
OTHER	0	0	3
OVERTAKING VEHICLE	0	0	0
BACKING VEHICLE	0	0	0
UNKNOWN	0	0	0
ASSAULT WITH VEHICLE	0	0	0
HEAD ON	0	0	0
TOTAL	18	15	31

TABLE 7
RAPID CITY BICYCLIST CRASH AGE DISTRIBUTION
2002 - 2013

AGE OF BICYCLIST (YEARS)	2002-2011 AVERAGE ANNUAL FREQUENCY	2012 FREQUENCY	2013 FREQUENCY
0 - 5	1	1	1
6 - 13	4	5	6
14 - 19	2	1	5
20 - 24	1	0	4
25 - 34	2	3	9
35 - 44	2	2	3
45 - 54	3	3	1
55 - 64	2	0	2
65 - OVER	1	0	0
TOTAL	18	15	31

TABLE 8
RAPID CITY BICYCLIST CRASH RESPONSIBILITY
2002 - 2013

YEAR	DRIVER'S FAULT	BICYCLIST'S FAULT	NONE/UNKNOWN
2002 - 2011 AVERAGE	6	10	1
2012	7	8	0
2013	6	23	2

**TABLE 9
RAPID CITY BICYCLIST INJURY CRASH RATE*
2002 - 2013**

YEAR	RAPID CITY INJURY CRASH RATE	SOUTH DAKOTA INJURY CRASH RATE	UNITED STATES INJURY CRASH RATE
2002 – 2011 AVERAGE	28.46	12.58	15.65
2012	21.47	13.19	N/A
2013	47.23	N/A	N/A
* INJURY CRASHES PER 100,000 POPULATION			

**TABLE 10
RAPID CITY BICYCLIST FATAL CRASH RATE*
2002 - 2013**

YEAR	RAPID CITY FATALITY CRASH RATE	SOUTH DAKOTA FATALITY CRASH RATE	UNITED STATES FATALITY CRASH RATE
2002 – 2011 AVERAGE	0.00	0.09	0.23
2012	0.00	0.00	N/A
2013	0.00	N/A	N/A
* FATAL CRASHES PER 100,000 POPULATION			

CONCLUSIONS/RECOMMENDATIONS

- The frequency of pedestrian and bicyclist crashes occurring in 2012 and 2013 showed no significant reduction from the crash numbers for the preceding decade.

- Even though the data did not point towards any improvement, the Rapid City Police Department's safety efforts should in no way be construed as being ineffective. As with other public safety campaigns, changing longstanding cultural and societal attitudes often takes several years to show results. If anything, consideration should be given to widening the scope of the safety effort to address the most prevalent crash types, i.e. dart/dash, turning vehicle, and bicycle ride outs.
- There exists a serious need in Rapid City to coordinate the efforts of the pedestrian and bicyclist advocacy community so that resources are efficiently used. As justification, consider the Pioneering Healthier Communities program's efforts; while certainly laudable, the safety literature they are getting out to purchasers does not include any reference to prevention measures for Rapid City's most common type of bicyclist crash. The Rapid City Bicycle and Pedestrian Master Plan also noted the need for coordination and recommended that this occur at the MPO level. This continues to be the best solution as there would be benefit to member communities to be able to draw on such a resource.