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NON-MOTORISTS 2015

INDIANA TRAFFIC SAFETY FACTS

IN 2015:

- 2,863 non-motorists were involved in Indiana collisions.
- The largest number of non-motorist fatal and incapacitating injuries was in the 15-24 age group.
- The number of male non-motorists killed or incapacitated in Indiana collisions was nearly two times greater than female non-motorists.
- Most non-motorists were involved in collisions during weekdays between 3pm and 7pm.
- *Crossing roadways* was the most frequently reported contributing factor in collisions for non-motorists.
- Non-motorists were more likely to suffer fatal or incapacitating injuries in alcohol-impaired collisions.

INTRODUCTION

This fact sheet examines non-motorists involved in traffic collisions in Indiana from 2011 to 2015. Non-motorists include *animal-drawn vehicle operators, pedalcyclists*, and *pedestrians*. Information is presented on injury status, age, gender, time of day, month, locale, road type, contributing factors, and alcohol impairment related to non-motorists involved in collisions. The data come from the Indiana State Police Automated Reporting Information Exchange (ARIES) as of March 17, 2016.

From 2011 to 2015, approximately one percent of individuals involved in Indiana collisions were non-motorists (Table 1). Despite a 1.6 percent increase from 2014 to 2015, the number of non-motorists involved in collisions has remained fairly constant over the past 5 years with a -0.1 percent annual rate of change. Annually, the number of non-motorists killed increased by nearly 6 percent while the number non-motorists injured decreased by 2 percent. Approximately 16 percent of all individuals killed (12 percent) or injured (4 percent) in Indiana collisions were non-motorists during 2015. Of the three categories of non-motorists, on average between 2011 and 2015, pedestrians typically comprised about 62 percent of the total, followed by pedalcyclists (on average about 35 percent of total non-motorists) (calculated from Table 1).

Table 1. Individuals involved in Indiana collisions, by person type and injury status, 2011-2015

	Count of individuals					Annual rate of change	
Person type/injury status	2011	2012	2013	2014	2015	2014-15	2011-15
All individuals	**304,008**	**306,392**	**310,303**	**330,956**	**351,012**	**6.1%**	**3.7%**
Fatal	751	781	784	747	821	9.9%	2.3%
Non-fatal injury	47,226	49,156	47,534	48,558	51,419	5.9%	2.1%
Not injured	256,031	256,455	261,985	281,651	298,772	6.1%	3.9%
All non-motorists	**2,871**	**2,976**	**2,829**	**2,818**	**2,863**	**1.6%**	**-0.1%**
Fatal	81	79	87	92	102	10.9%	5.9%
Non-fatal injury	2,413	2,424	2,279	2,229	2,219	-0.4%	-2.1%
Not injured	377	473	463	497	542	9.1%	9.5%
Non-motorists as % of total	**0.9%**	**1.0%**	**0.9%**	**0.9%**	**0.8%**	**-4.2%**	**-3.6%**
Fatal	10.8%	10.1%	11.1%	12.3%	12.4%	0.9%	3.6%
Non-fatal injury	5.1%	4.9%	4.8%	4.6%	4.3%	-6.0%	-4.1%
Not injured	0.1%	0.2%	0.2%	0.2%	0.2%	2.8%	5.4%
Pedalcyclist	**959**	**1,119**	**1,032**	**928**	**964**	**3.9%**	**0.1%**
Fatal	13	14	15	13	9	-30.8%	-8.8%
Non-fatal injury	783	894	822	713	732	2.7%	-1.7%
Not injured	163	211	195	202	223	10.4%	8.2%
Pedestrian	**1,812**	**1,754**	**1,688**	**1,778**	**1,793**	**0.8%**	**-0.3%**
Fatal	64	64	70	79	92	16.5%	9.5%
Non-fatal injury	1,603	1,507	1,429	1,484	1,450	-2.3%	-2.5%
Not injured	145	183	189	215	251	16.7%	14.7%
Animal-drawn vehicle operator	**100**	**103**	**109**	**112**	**106**	**-5.4%**	**1.5%**
Fatal	4	1	2	0	1	na	-29.3%
Non-fatal injury	27	23	28	32	37	15.6%	8.2%
Not injured	69	79	79	80	68	-15.0%	-0.4%

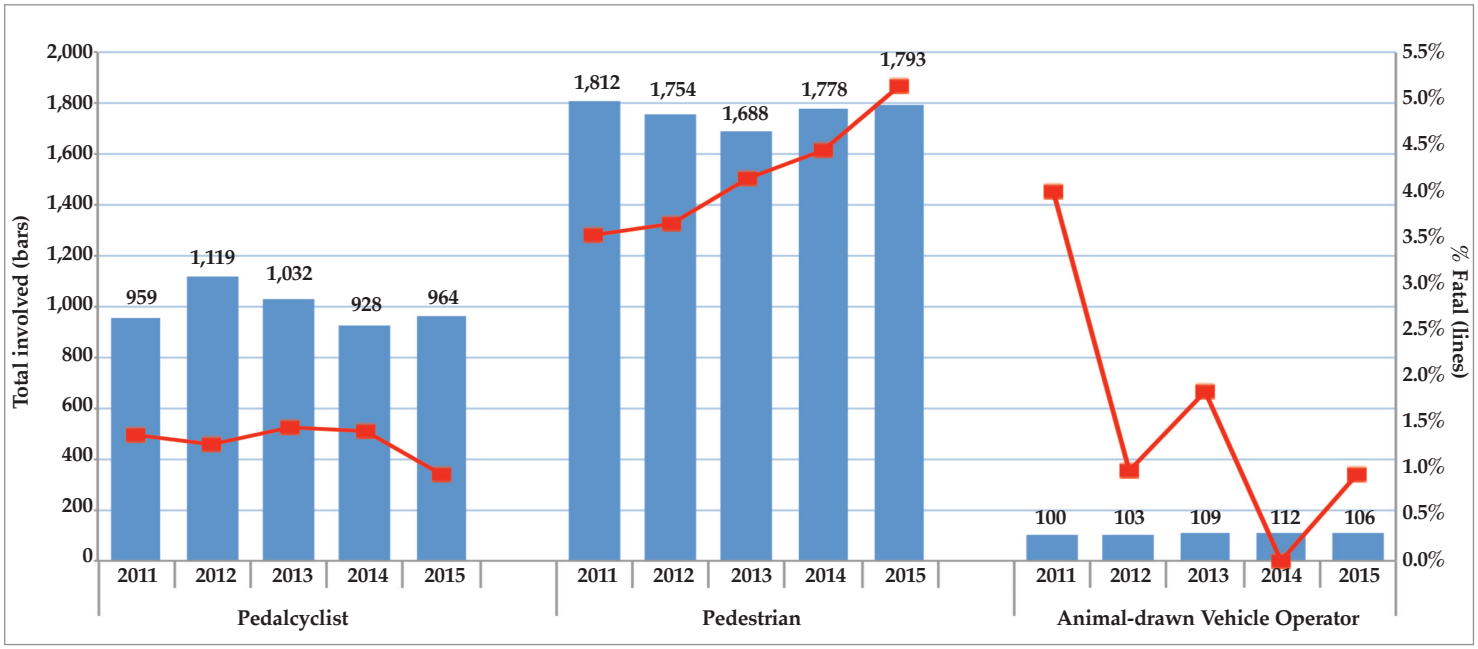
Source: Indiana State Police Automated Reporting Information Exchange System, as of March 17, 2016

Notes:
1) ***Non-motorists*** **include** ***pedalcyclists, pedestrians,*** **and** ***animal-drawn vehicle operators.***
2) ***Non-fatal*** **injury includes** ***incapacitating, non-incapacitating, possible, not reported, unknown,*** **and** ***refused (treatment)*** **injury categories.**
3) ***Not injured*** **status includes individuals involved in collisions reported as** ***null*** **values in the injury status code field.**

INDIANA CRIMINAL JUSTICE INSTITUTE
INDIANA UNIVERSITY PUBLIC POLICY INSTITUTE

Of the 2,863 non-motorists involved in 2015 Indiana traffic collisions, 1,793 were pedestrians, 964 were pedalcyclists, and 106 were animal drawn vehicle operators (Figure 1). The annual increase in non-motorists killed between 2011 and 2015 was primarily driven by an increase in pedestrian fatalities. The percentage of pedestrians involved in collisions who were killed has increased each year from 3.5 percent in 2011 to 5.1 percent in 2015. During the same period, the percentage of pedalcyclists killed in collisions was lowest in 2015, at less than 1 percent.

Figure 1. Non-motorists involved in Indiana collisions and fatality rate, by person type, 2011-2015



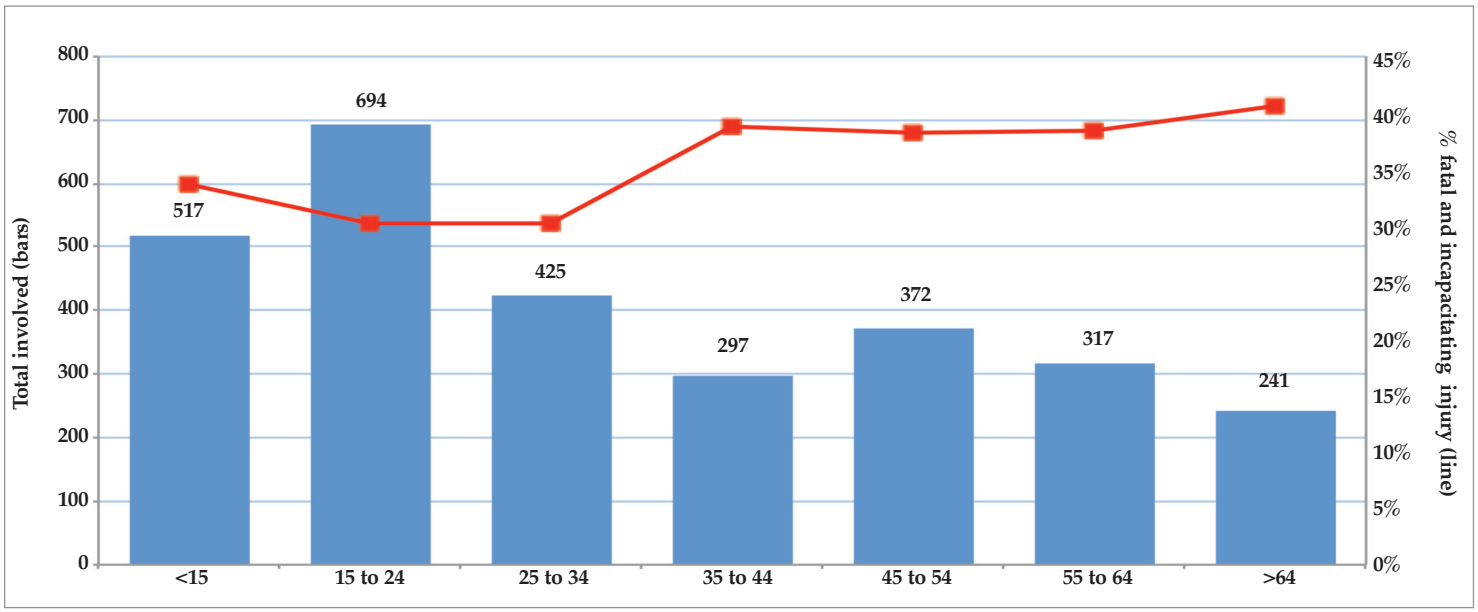
Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

NON-MOTORIST INJURIES BY AGE AND GENDER

Figure 2 shows the number of non-motorists involved in Indiana collisions by age and injury severity. Most non-motorists involved in Indiana collisions during 2015 were under 34 years old. The largest number of non-motorists involved in collisions was in the 15-24 age grouping. While involvement in collisions was lower for non-motorists more than 34 years old, the probability of being killed or incapacitated increased with age. The rate of fatal and incapacitating injuries was highest among non-motorists age 35 and over.

Figure 3 shows the number of non-motorist fatalities and incapacitating injuries by gender and age in 2015. The number of non-motorist sustaining fatal or incapacitating injuries was greatest in the 15 to 24 age group for both males and females. The total number of male non-motorists killed or incapacitated in Indiana collisions was nearly two times greater than female non-motorists during 2015.

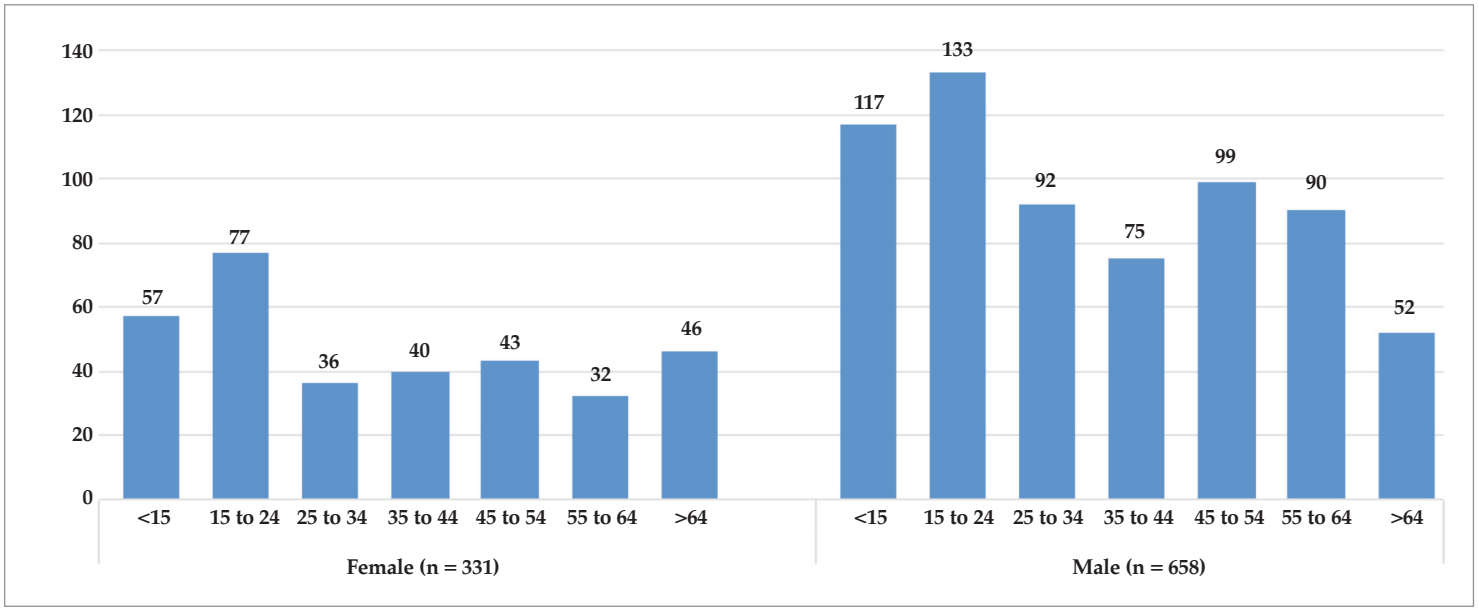
Figure 2. Non-motorists involved in Indiana collisions and fatal and incapacitating injury rate, by age, 2015



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

Note: The most recent ARIES upgrade added a clarification to reporting officers on the definition of *incapacitating* injuries criteria to include "transported from scene for treatment"; therefore, 2015 increases in incapacitating injuries reflect a definitional change and should be interpreted with caution.

Figure 3. Non-motorist fatal and incapacitating injuries in collisions, by gender and age group, 2015

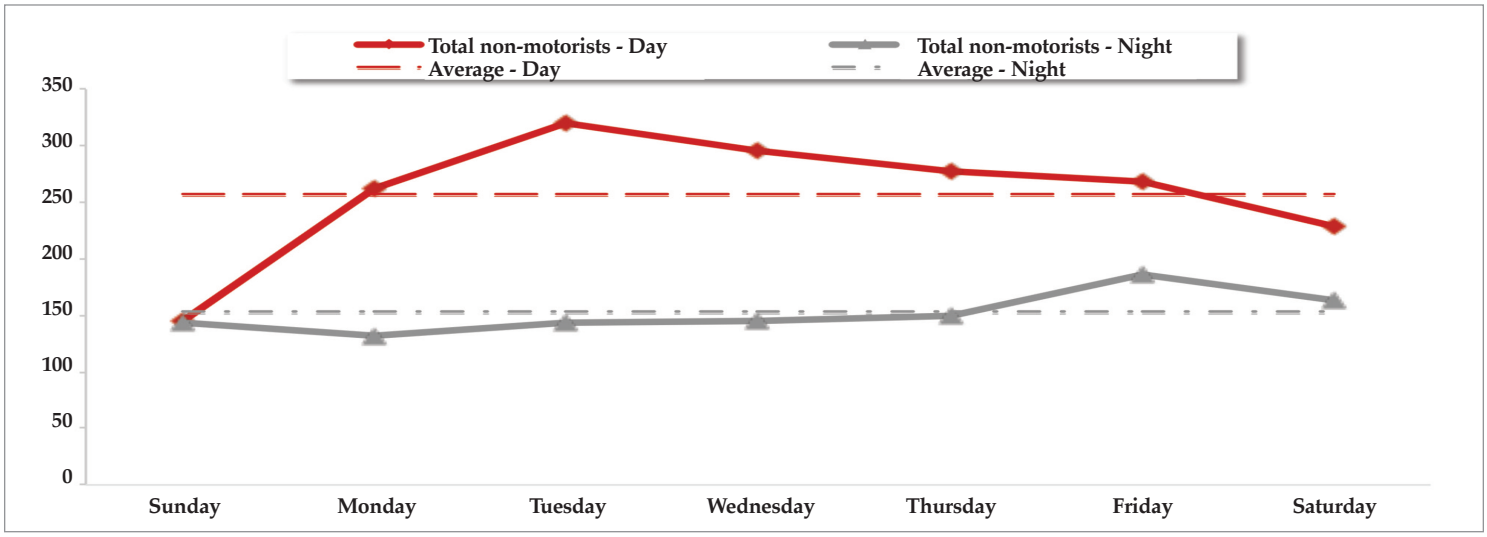


Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17,2016

TIME OF DAY, DAY OF WEEK, AND MONTH

Figure 4 shows the number of non-motorists involved in 2015 collisions by daytime versus nighttime and by day of the week. The average daily number of non-motorists involved in daytime collisions was 257 in 2015, while the average in nighttime collisions was 152. Among non-motorists involved in daytime collisions, the count was highest on weekdays with the highest number of non-motorists in daytime collisions occurring on Tuesdays (320). The opposite is true for non-motorists involved in nighttime collisions where the count of non-motorists involved in crashes was highest on the weekend days of Friday (186) and Saturday (164). Table 2 shows that most non-motorists were involved in collisions during weekdays between 3pm and 7pm.

Figure 4. Non-motorists in Indiana collisions, by day of week and day/night, 2015



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

Note: Day is defined as 6am - 5:59pm. Night is defined as 6pm - 5:59am.

Table 2. Non-motorists involved in Indiana collisions, by time of day and day of week, 2015

Row Labels	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total by hour	% by hour
12am-	5	3	4	4	2	8	11	37	1.3%
1am-	10	1	3	3	1	2	6	26	0.9%
2am-	7	3	4	1	5	2	9	31	1.1%
3am-	13	1	2	3	1	2	6	28	1.0%
4am-	3	3	3	4	4	6	2	25	0.9%
5am-	1	4	4	2	6	7	3	27	0.9%
6am-	4	10	13	17	19	5	4	72	2.5%
7am-	3	24	36	26	28	21	3	141	4.9%
8am-	1	15	21	16	24	18	6	101	3.5%
9am-	5	5	16	12	7	14	11	70	2.4%
10am-	12	21	16	14	14	15	21	113	3.9%
11am-	10	15	22	21	17	19	13	117	4.1%
12am-	13	23	28	21	14	20	27	146	5.1%
1pm-	14	20	18	22	27	24	18	143	5.0%
2pm-	21	20	30	30	32	22	43	198	6.9%
3pm-	26	35	39	33	31	37	32	233	8.1%
4pm-	18	33	33	41	29	29	19	202	7.1%
5pm-	18	41	48	43	36	44	32	262	9.2%
6pm-	28	34	34	43	49	39	24	251	8.8%
7pm-	19	28	34	35	22	36	23	197	6.9%
8pm-	22	19	27	17	26	17	27	155	5.4%
9pm-	14	16	13	16	20	24	20	123	4.3%
10pm-	10	11	9	9	9	22	18	88	3.1%
11pm-	12	9	7	8	5	21	15	77	2.7%
Total	**289**	**394**	**464**	**441**	**428**	**454**	**393**	**2863**	**100%**
% by day	**10%**	**14%**	**16%**	**15%**	**15%**	**16%**	**14%**	**100%**	

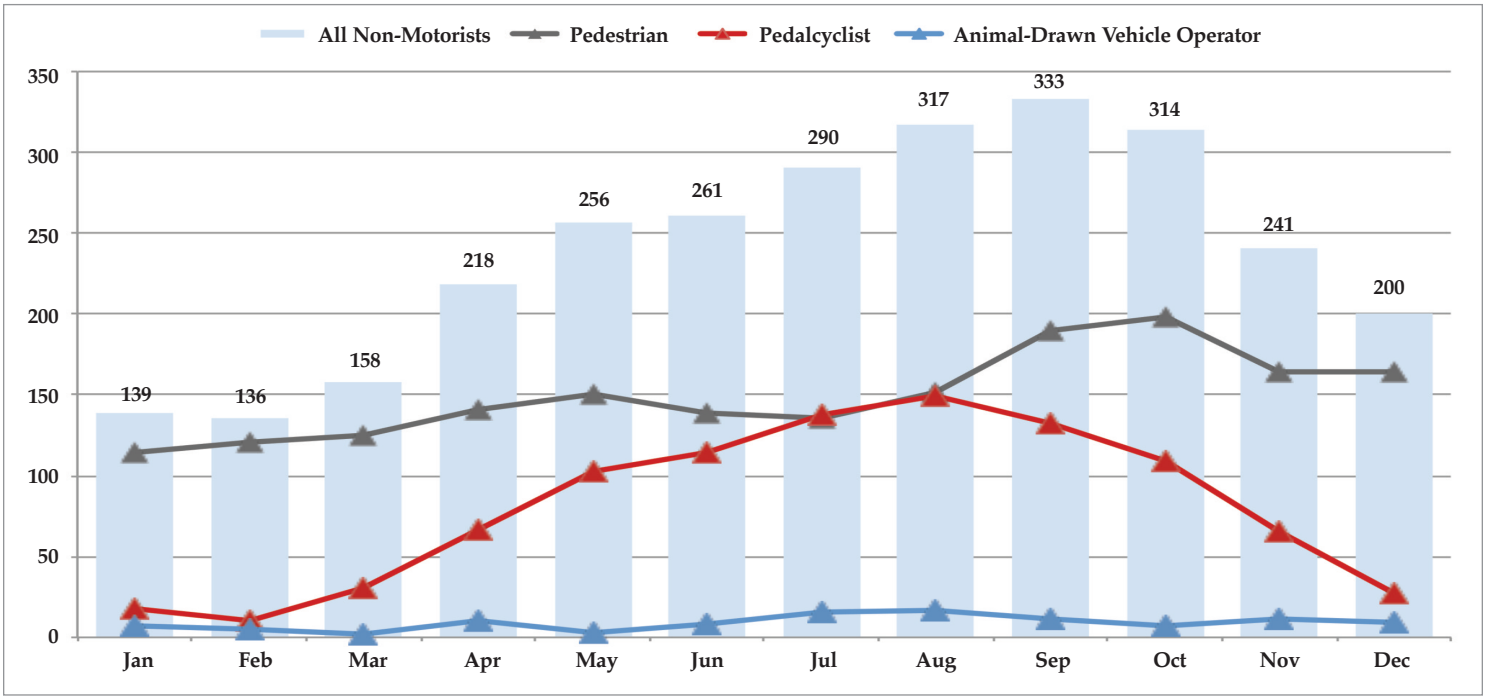
Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

Lower rate — Higher rate

Note: Coloring indicates the highest and lowest numbers for the entire week. For example, the 6pm hour onThursday had 49 pedestrains and pedalcyclists involved in collisions, which was the highest number for any hour during the week.

Figure 5 shows the number of non-motorists involved in Indiana collisions by month during 2015. Considerably more non-motorists were involved in traffic collisions between May and November. That increase coincides with the larger number of pedalcyclists involved in crashes between May and October and the increase in pedestrians involved in crashes during the months of September and October. The number of animal-drawn vehicle operators involved in collisions also peaked in summer months.

Figure 5. Non-motorists involved in collisions, by month and person type, 2015



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

LOCALE

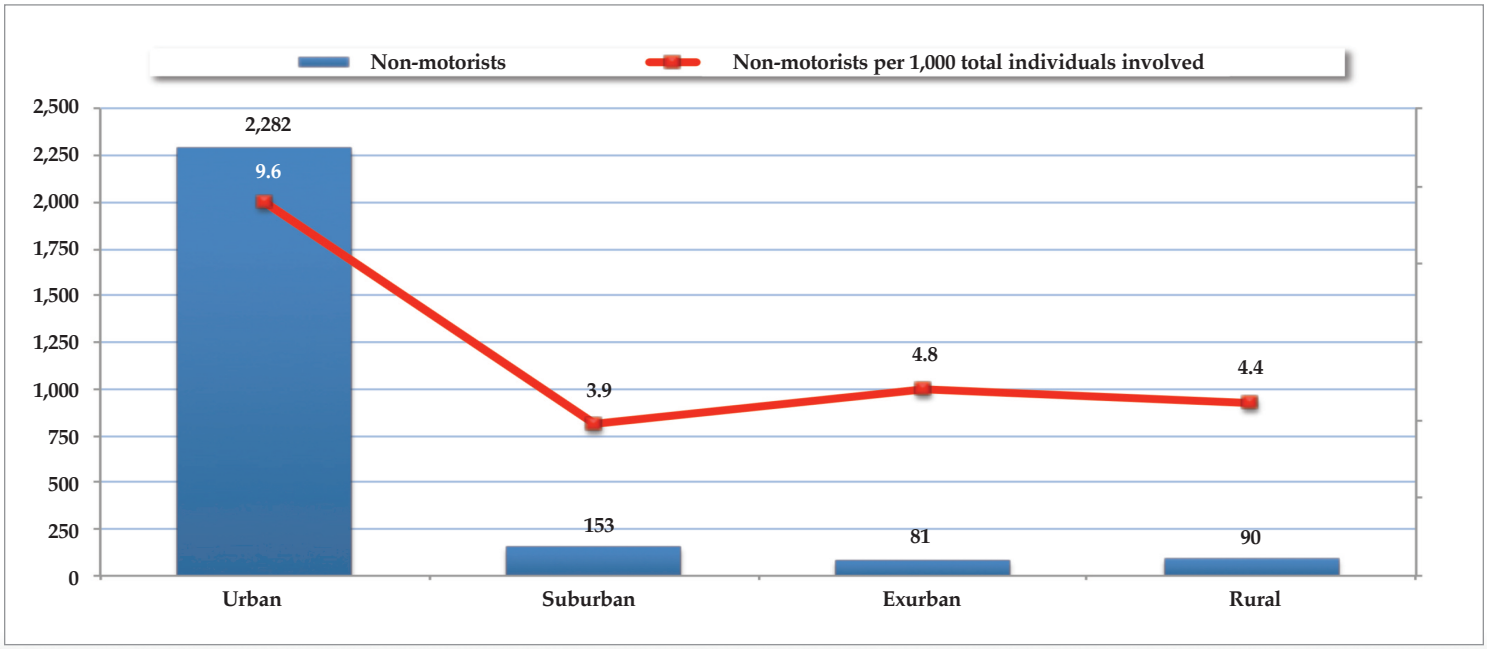
Table 3 shows the distribution of all injured people and injured non-motorists involved in crashes by locale (i.e., *urban, suburban, exurban,* and *rural* areas). Among non-motorists injured in Indiana collisions, 88 percent were injured in *urban* areas, compared to 67 percent among all individuals involved. Figure 6 depicts the number and rate of non-motorists involved in Indiana traffic collisions by locale. Non-motorists were most likely to be involved in crashes occurring in *urban* areas. The rate of non-motorists per 1,000 individuals involved in *urban* collisions during 2015 was 9.6, compared to 3.9 and 4.4 in suburban and rural areas, respectively (Figure 6). High population density as well as higher rates of walking and bicycling as a mode of transportation in *urban* areas likely contributed to the relatively large number of pedestrians and pedalcyclists involved in *urban* collisions.

Table 3. Percentage of individuals injured in collisions, by locale, person type, and injury status, 2011-2015

	2011	2012	2013	2014	2015
All injured individuals	**47,977**	**49,937**	**48,318**	**49,305**	**52,240**
Urban	67%	67%	67%	67%	62%
Suburban	16%	15%	16%	16%	14%
Exurban	7%	7%	8%	7%	6%
Rural	8%	8%	9%	8%	7%
Unknown	2%	2%	1%	2%	10%
All injured non-motorists	**2,494**	**2,503**	**2,366**	**2,321**	**2,321**
Urban	87%	88%	89%	88%	81%
Suburban	6%	5%	5%	5%	5%
Exurban	3%	2%	2%	2%	3%
Rural	3%	3%	3%	3%	2%
Unknown	1%	2%	0%	2%	9%
Non-motorist fatal injuries	**81**	**79**	**87**	**92**	**102**
Urban	70%	67%	67%	79%	73%
Suburban	11%	19%	21%	10%	11%
Exurban	11%	1%	7%	2%	3%
Rural	5%	11%	6%	8%	5%
Unknown	2%	1%	0%	1%	9%
Non-motorist non-fatal injuries	**2,413**	**2,424**	**2,279**	**2,229**	**2,219**
Urban	88%	89%	90%	89%	81%
Suburban	6%	5%	5%	5%	5%
Exurban	3%	2%	2%	2%	3%
Rural	3%	2%	3%	3%	2%
Unknown	1%	2%	0%	2%	9%

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

Figure 6. Non-motorists involved in Indiana collisions, by locale, 2015



Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

CONTRIBUTING FACTORS AND ROAD TYPE

The most common actions of non-motorists involved and injured in Indiana collisions during 2015 were related to crossing or moving along roadways (Tables 4 and 5). Table 4 shows that most pedestrians and pedalcyclists were involved in collisions while crossing at intersection. Most injuries for pedestrians occurred by *crossing not at intersection* (Table 5). Most pedalcylist injuries resulted from *crossing at intersection.*

Table 4. Percentage of non-motorists involved in collisions, by person type and contributing factor , 2015

	Pedestrian	Pedalcyclist	Animal-drawn vehicle operator
Crossing at intersection	19.9%	32.6%	17.0%
On roadway	12.9%	14.4%	24.5%
Crossing not at intersection	16.8%	7.3%	1.9%
Other	11.1%	5.8%	10.4%
Moving	7.0%	9.9%	34.0%
Not in Roadway	7.3%	4.3%	0.0%
With traffic	2.5%	5.8%	4.7%
Against traffic	2.6%	5.5%	0.9%
Standing	4.8%	0.2%	0.0%
On shoulder	2.3%	2.8%	2.8%
On designated non-motorist lane	1.3%	2.8%	0.9%
Getting in or out of vehicle	1.8%	0.0%	0.0%
Working	1.3%	0.0%	0.0%
Getting off or on school bus	0.2%	0.0%	0.0%
Unknown	8.3%	8.7%	2.8%
Total (count)	**1,793**	**964**	**106**

Table 5. Percentage of non-motorists injured in collisions, by person type and contributing factor , 2015

	Pedestrian	Pedalcyclist	Animal-drawn vehicle operator
Crossing at intersection	17.5%	33.1%	7.7%
On roadway	13.3%	10.6%	15.4%
Crossing not at intersection	20.6%	12.5%	0.0%
Other	12.3%	6.1%	15.4%
Moving	5.2%	11.4%	46.2%
Not in Roadway	5.8%	2.3%	0.0%
With traffic	3.2%	6.5%	15.4%
Against traffic	3.8%	3.8%	0.0%
Standing	4.2%	0.4%	0.0%
On shoulder	2.1%	4.2%	0.0%
On designated non-motorist lane	0.4%	1.5%	0.0%
Getting in or out of vehicle	2.8%	0.0%	0.0%
Working	1.3%	0.0%	0.0%
Getting off or on school bus	0.1%	0.0%	0.0%
Unknown	7.3%	7.6%	0.0%
Total (count)	**713**	**263**	**13**

Lower rate **Higher rate**

Source: Indiana State Police Automated Reporting Information Exchange System, as of March 17, 2016

Note: *Injured* includes *fatal, incapacitating, non-incapacitating, possible, not reported, unknown,* and *refused* (treatment) injury categories.

Table 6 combines all non-motorist actions in collisions by roadway type in 2015. Two-thirds of all non-motorists were involved in collisions on *local/city roads* (calculated from Table 6). One-third of non-motorists in collisions on *local/city roads* were crossing at intersection. Another 32 percent were involved *on roadway* and *crossing not at intersection* on *local/city roads.*

Table 6. Number of non-motorists involved in collisions, by contributing factor and road type, 2015

Contributing factor	Interstate	US route	State road	Local/city road	County road	Unknown	Total (count)	Percent by contributing factor
Crossing at intersection	0	36	55	566	14	18	689	24%
On roadway	2	17	33	283	43	19	397	14%
Crossing not at intersection	2	25	36	269	11	31	374	13%
Other	10	8	12	125	19	92	266	9%
Moving	0	12	23	101	31	89	256	9%
Not in Roadway	1	10	9	70	5	76	171	6%
With traffic	0	6	11	80	3	5	105	4%
Against traffic	0	12	6	75	6	1	100	3%
Standing	0	4	5	34	1	44	88	3%
On shoulder	3	10	9	36	7	6	71	2%
On designated non-motorist lane	0	0	2	37	1	11	51	2%
Getting in or out of vehicle	0	1	2	19	0	10	32	1%
Working	1	1	1	12	1	8	24	1%
Getting off or on school bus	0	0	0	3	1	0	4	0%
Total (count)	**19**	**142**	**204**	**1,710**	**143**	**410**	**2,628**	**100%**
Percent by road type	**1%**	**5%**	**8%**	**65%**	**5%**	**16%**	**100%**	

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

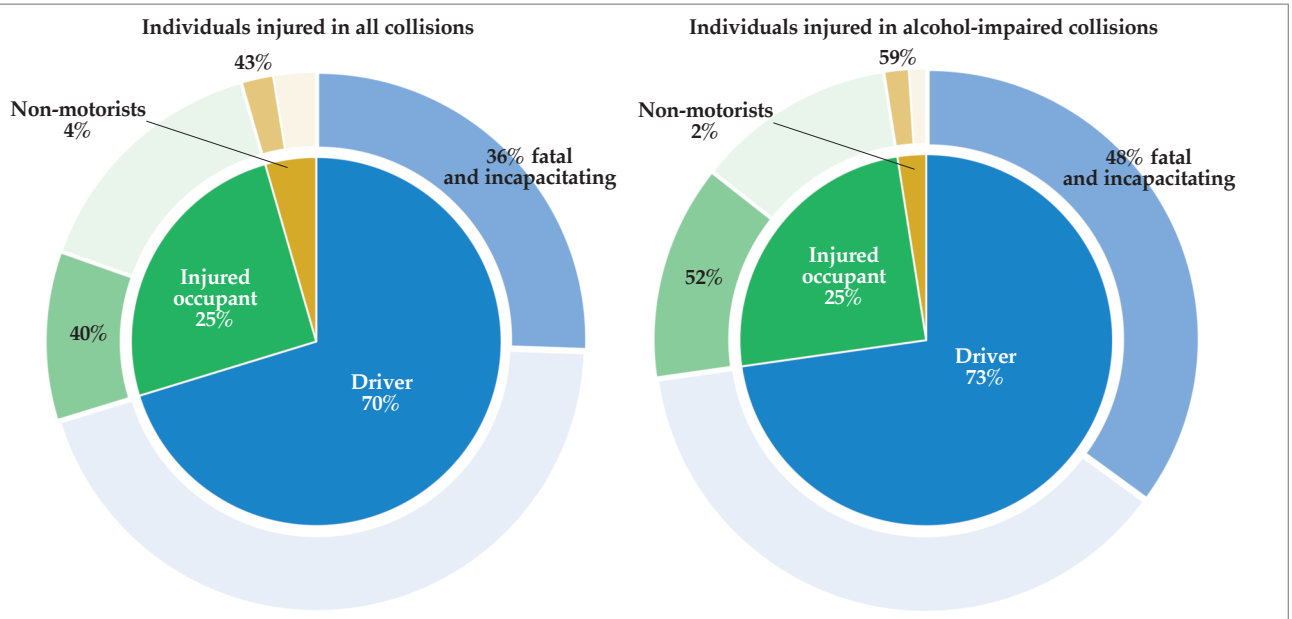
Note: Excludes non-motorists with NULL values for contributing factor.

Lower rate **Higher rate**

ALCOHOL IMPAIRMENT

Figure 7 compares individuals injured or killed in all collisions to individuals injured or killed in *alcohol-impaired* collisions. The inner pie of Figure 7 shows that non-motorists represented 2 percent of individuals involved in *alcohol-impaired* collisions and 4 percent of individuals involved in all collisions. The outer ring illustrates that, across all person types, individuals in *alcohol-impaired* collisions were more likely to suffer fatal and incapacitating injuries than individuals involved in all collisions. The percentage of non-motorist fatal and incapacitating injuries in *impaired driving* collisions, for example, was 16 percentage points higher than non-motorist fatal and incapacitating injuries in all collisions. While 43 percent of non-motorists involved in all crashes suffered fatal and injuries, 59 percent of non-motorists involved in alcohol-impaired crashes suffered fatal and incapacitating injuries.

Figure 7. Individuals injured in Indiana collisions, by person type, injury status, and alcohol involvement, 2015



Inner pie: **Person type as % of all injured in collisions**

Outer ring: **Fatal and incapacitating injuries as % of persons injured (for each person type)**

Source: Indiana State Police Automated Reporting Information Exchange System (ARIES), as of March 17, 2016

Notes:
1) ***Non-motorists*** **include** ***pedestrians, pedalcyclists*****, and** ***animal-drawn vehicle operators.***
2) Excludes individuals who were ***not injured*** **or with a NULL value in the injury status field.**
3) ***Injured*** **includes** ***fatal, incapacitating, non-incapacitating, possible, not reported, unknown,*** **and** ***refused*** **(treatment) injury categories.**

DEFINITIONS

- ***Alcohol-impaired*** - A driver or operator is classified as *alcohol-impaired* when the driver has a blood alcohol content (BAC) test result at or above 0.08 g/dL.
- ***Annual rate of change (ARC)*** – The rate that a beginning value must increase/decrease each period (e.g. month, quarter, year) in a time series to arrive at the ending value in the time series. ARC is a "smoothed" rate of change because it measures change in a variable as if the change occurred at a steady rate each period with compounding. For example, to measure change in a variable from 2010 to 2014, it is calculated as $(\text{Value in 2015}/\text{Value in 2011})^{1/4} - 1$.
- ***Census locale*** – *Urban* is defined as Census 2010 Urban Areas, *suburban* as areas within 2.5 miles of urban boundaries, *exurban* as areas within 2.5 miles of suburban boundaries, and *rural* as areas beyond exurban boundaries (i.e., everything else).
- ***Not injured*** status includes individuals involved in collisions reported as *null* values in the injury status code field. While reporting officers are instructed to enter all drivers in ARIES, passengers are only to be entered in the crash report if an injury occurs; therefore, not injured counts should be interpreted with caution.
- ***Non-motorists*** include *animal-drawn vehicle operators, pedalcyclists,* and *pedestrians*.
- ***Non-incapacitating*** injuries include those injuries reported as *non-incapacitating* or *possible*.
- ***Non-fatal*** injury includes *incapacitating, non-incapacitating, possible, not reported, unknown,* and *refused (treatment)* injury categories.

DATA SOURCES

Indiana State Police Automated Reporting Information Exchange System (ARIES), current as of March 17, 2016.

This publication was prepared on behalf of the Indiana Criminal Justice Institute (ICJI) by the Indiana University Public Policy Institute (PPI). Please direct any questions concerning data in this document to ICJI at 317-232-1233.

This publication is one of a series of publications that form the analytical foundation of traffic safety program planning and design in the state of Indiana. Funding for these publications is provided by ICJI and the National Highway Traffic Safety Administration.

An electronic copy of this document can be accessed via the PPI website (www.policyinstitute.iu.edu), the ICJI website (www.in.gov/cji/), or you may contact the PPI at 317-261-3000.

Traffic Safety Project

Designing and implementing effective traffic safety policies requires data-driven analysis of traffic collisions. To help in the policy-making process, the Indiana University Public Policy Institute collaborates each year with the Indiana Criminal Justice Institute to analyze vehicle crash data from the Automated Reporting Information Exchange System (ARIES), maintained by the Indiana State Police. This marks the tenth year of this partnership. Research findings are summarized in a series of publications on various aspects of traffic collisions, including alcohol-related crashes, commercial vehicles, dangerous driving, child passenger safety, motorcycles, occupant protection, and drivers. An additional publication provides detailed information on county and municipality data. These publications serve as the analytical foundation of traffic safety program planning and design in Indiana.

Indiana collision data are obtained from Indiana Crash Reports, as completed by law enforcement officers. Crash reports for all Indiana collisions are entered electronically through ARIES. Collisions trends as reported in these publications incorporate the effects of changes to data elements on the Crash Report, agency-specific enforcement policy changes, re-engineered roadways, driver safety education programs, and other unspecified effects. A collision produces three levels of data: collision, unit (vehicles), and individual. For this reason, readers should pay particular attention to the wording of statements about the data to avoid misinterpretations. If you have questions regarding trends or unexpected results, please contact the Indiana Criminal Justice Institute, Traffic Safety Division for more information.

The Indiana Criminal Justice Institute

Guided by a Board of Trustees representing all components of Indiana's criminal and juvenile justice systems, the Indiana Criminal Justice Institute serves as the state's planning agency for criminal justice, juvenile justice, traffic safety, and victim services. ICJI develops long-range strategies for the effective administration of Indiana's criminal and juvenile justice systems and administers federal and state funds to carry out these strategies.

The Governor's Council on Impaired & Dangerous Driving

The Governor's Council on Impaired & Dangerous Driving, a division of the Indiana Criminal Justice Institute, serves as the public opinion catalyst and the implementing body for statewide action to reduce death and injury on Indiana roadways. The Council provides grant funding, training, coordination, and ongoing support to state and local traffic safety advocates.

Indiana University Public Policy Institute

The IU Public Policy Institute delivers unbiased research and data-driven, objective, expert analysis to help public, private and nonprofit sectors make important decisions that directly impact quality of life in Indiana. Using the knowledge and expertise of our staff and faculty, we provide research and analysis that is free of political and ideological bias. A multidisciplinary institute within the Indiana University School of Public and Environmental Affairs (SPEA), our efforts also support the Indiana Advisory Commission on Intergovernmental Relations (IACIR).

The National Highway Traffic Safety Administration (NHTSA)

NHTSA provides leadership to the motor vehicle and highway safety community through the development of innovative approaches to reducing motor vehicle crashes and injuries. The mission of NHTSA is to save lives, prevent injuries and reduce economic costs due to road traffic crashes, through education, research, safety standards and enforcement activity.

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