



# TRAFFIC SAFETY FACTS

## YOUNG DRIVERS, 2012

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### SUMMARY

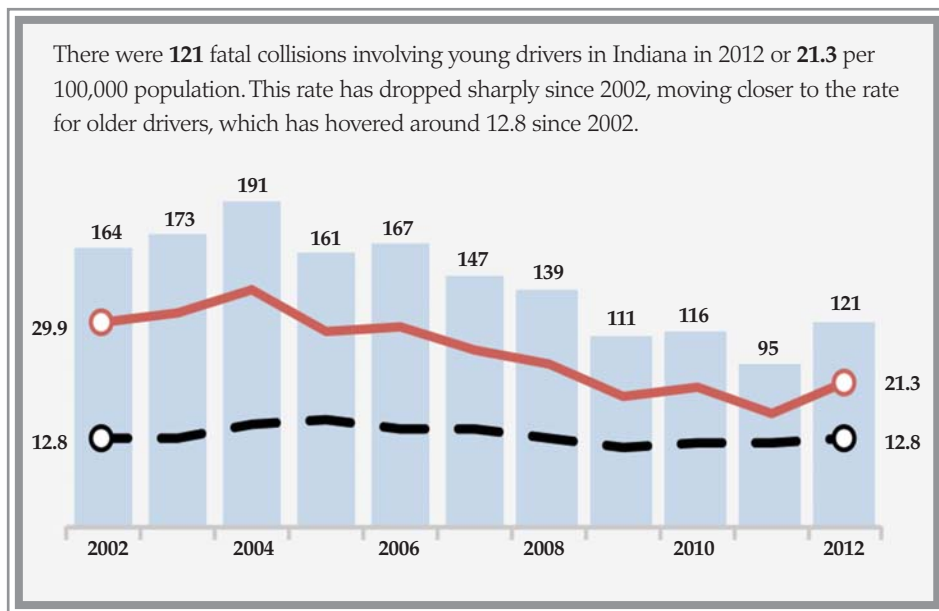
Motor vehicle accidents are the leading cause of death for teenagers (Centers for Disease Control, 2010). Nationwide in 2010 (most recent data available), 10 percent of drivers in fatal crashes were ages 15 to 20; nearly 2,000 of these young drivers were killed (NHTSA, 2012). Per mile driven, young drivers are three times more likely than older drivers to be involved in fatal crashes, a result of less driving experience, lower seat belt use rates, alcohol use, speeding, and passenger distractions (NHTSA, 2006; McCartt, Mayhew, Braitman, Ferguson, & Simpson, 2009).

By most measures, young driver (ages 15 to 20) involvement in motor vehicle collisions in Indiana has improved. There were 50,928 young drivers involved in 46,347 collisions in Indiana in 2008. By 2012, there were 40,417 young drivers involved in 37,325 collisions, a 5.6 percent annual decline in young drivers and 5.3 percent annual decline in young driver collisions. Comparatively, the number of older drivers (ages 21+) in collisions decreased 0.8 percent annually (see last page for definition of 'annual rate of change').<sup>1</sup> The decline in young driver involvement in collisions outpaced declines in the 15 to 20 population and licensed drivers, which fell only 0.2 and one percent, respectively, from 2008 to 2012.

The downward trend in young driver involvement appears to be at least partially linked to the changes to Indiana's Graduated Driver Licensing (GDL) system, which were implemented in two phases in 2009 and 2010 and focused primarily on teen drivers between the ages of 15 and 17. Since implementation of phase I in 2009, the number of teen drivers in collisions has dropped from a quarterly average of nearly 5,000 to just over 3,500, a 29 percent decrease. Conversely, the average number of older drivers (ages 18+) dropped only 2 percent.

This fact sheet uses data from several sources (see last page for complete list of data sources). Indiana crash data come from the Indiana State Police Automated Reporting Information Exchange System (ARIES), current as of April 9, 2013.

*Indiana crash data show that those drivers who took driver education were slightly less likely to have engaged in unsafe driving actions (e.g., following too closely, speeding, etc.) but there was not a significant difference in the risk of losing control of the vehicle.*





## INDIANA COMPARED TO REGION 5 AND THE UNITED STATES

Historically, Indiana has experienced higher rates of fatal collisions (per 100,000 population) involving young drivers than Region V (Indiana, Illinois, Michigan, Minnesota, Ohio, Wisconsin) and the United States

overall (Table 1). Rates have decreased for all areas, but the rate of decline for Indiana (-6.3 percent from 2002 to 2011) has been slightly slower than Region V and nationally (-7.4 percent each). For all areas, rates of fatal collisions involving young drivers have been nearly double those of fatal collisions involving older drivers. In 2011, 10 percent (54 of 524) of all drivers killed in Indiana collisions were young drivers, down from 17 percent in 2002 (Table 2).

**Table 1. Fatal crashes, by young driver involvement, 2002-2011**

Geography	Count of fatal crashes										Annual rate of change		
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-11	2007-11	2010-11
<b>Involving young drivers (ages 15 to 20)</b>													
Indiana	164	173	191	161	167	147	139	111	116	95	-5.9%	-10.3%	-18.1%
Region 5	1,286	1,246	1,163	1,054	1,022	1,022	784	684	698	644	-7.4%	-10.9%	-7.7%
United States	7,968	7,585	7,599	7,161	7,180	6,711	5,651	4,962	4,423	4,211	-6.8%	-11.0%	-4.8%
<b>Not involving young drivers (ages 21+)</b>													
Indiana	548	576	661	689	649	653	586	519	582	578	0.6%	-3.0%	-0.7%
Region 5	4,438	4,462	4,344	4,459	4,186	4,172	3,872	3,394	3,592	3,484	-2.7%	-4.4%	-3.0%
United States	30,277	30,636	30,595	31,877	31,292	30,526	28,360	25,737	25,623	25,398	-1.9%	-4.5%	-0.9%
<b>Fatal crashes per 100,000 population (ages 15 to 20)</b>													
Indiana	29.9	31.6	34.8	28.8	29.6	25.8	24.2	19.3	20.3	16.7	-6.3%	-10.3%	-17.7%
Region 5	29.1	28.2	26.2	23.5	22.7	22.6	17.3	15.2	15.7	14.6	-7.4%	-10.4%	-6.9%
United States	32.2	30.4	30.1	27.8	27.6	25.5	21.3	18.7	16.7	16.0	-7.4%	-10.9%	-3.8%
<b>Fatal crashes per 100,000 population (ages 21+)</b>													
Indiana	12.8	13.3	15.1	15.6	14.6	14.6	13.0	11.4	12.7	12.5	-0.2%	-3.7%	-1.5%
Region 5	12.5	12.5	12.1	12.4	11.5	11.4	10.6	9.2	9.7	9.3	-3.2%	-4.9%	-3.6%
United States	15.0	15.0	14.8	15.2	14.8	14.2	13.1	11.7	11.6	11.3	-3.0%	-5.6%	-2.0%

Sources: Fatality Analysis Reporting System (2002-11); U.S. Census Bureau

Note: Region 5 defined by the National Highway Traffic Safety Administration (NHTSA) and includes Indiana, Illinois, Michigan, Minnesota, Ohio, and Wisconsin.

**Table 2. Young drivers killed in fatal collisions, 2002-2011**

Geography	Count of fatalities										Annual rate of change		
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2002-11	2007-11	2010-11
<b>Young drivers killed (ages 15 to 20)</b>													
Indiana	92	84	98	82	89	70	78	47	56	54	-5.7%	-6.3%	-3.6%
Region 5	629	591	555	516	499	497	390	313	303	306	-7.7%	-11.4%	1.0%
United States	3,838	3,675	3,634	3,474	3,490	3,190	2,742	2,343	1,963	1,987	-7.1%	-11.2%	1.2%
<b>Total drivers killed</b>													
Indiana	546	549	639	661	612	621	556	492	522	524	-0.5%	-4.2%	0.4%
Region 5	4,162	4,118	3,986	4,045	3,833	3,843	3,379	2,971	3,132	2,994	-3.6%	-6.1%	-4.4%
United States	26,562	26,667	26,755	27,413	27,284	26,503	24,197	21,767	20,970	20,701	-2.7%	-6.0%	-1.3%
<b>Young drivers as % total</b>													
Indiana	16.8%	15.3%	15.3%	12.4%	14.5%	11.3%	14.0%	9.6%	10.7%	10.3%	-5.3%	-2.2%	-3.9%
Region 5	15.1%	14.4%	13.9%	12.8%	13.0%	12.9%	11.5%	10.5%	9.7%	10.2%	-4.3%	-5.7%	5.6%
United States	14.4%	13.8%	13.6%	12.7%	12.8%	12.0%	11.3%	10.8%	9.4%	9.6%	-4.4%	-5.5%	2.5%

Source: Fatality Analysis Reporting System (2002-11)

Note: Region 5 defined by the National Highway Traffic Safety Administration (NHTSA) and includes Indiana, Illinois, Michigan, Minnesota, Ohio, and Wisconsin.

## AGE OF DRIVERS IN COLLISIONS

The number and proportion of drivers between the ages of 15 and 20 in collisions continues to decline at a faster rate than all other age groups, and faster than the number of licensed drivers and population between the ages of 15 and 20. Since 2008, the number of young drivers in collisions has dropped 5.6 percent annually (Table 3), substantially more than older drivers (0.8 percent annual decrease). The greatest decrease (-10.3

percent annually) occurred for drivers 15 to 17 years of age. Based on an analysis of Indiana population and licensing counts (not shown), these declines are not necessarily explained by similar declines in young driver "exposure" to collisions as the 15 to 20 population and licensed drivers fell only 0.2 and one percent, respectively, from 2008 to 2012. In 2008, 16.5 percent of all drivers in collisions were 15 to 20 years of age and 6.3 percent were 15 to 17. By 2012, these proportions had dropped to 14 and 4.3 percent, respectively.

**Table 3. Drivers in Indiana crashes, 2008-2012**

Driver age	Count of drivers					Annual rate of change	
	2008	2009	2010	2011	2012	2008-12	2011-12
<b>Total drivers</b>	<b>308,412</b>	<b>287,738</b>	<b>294,023</b>	<b>287,274</b>	<b>289,281</b>	<b>-1.6%</b>	<b>0.7%</b>
<b>Young (15-20)</b>	<b>50,928</b>	<b>48,015</b>	<b>45,376</b>	<b>40,537</b>	<b>40,417</b>	<b>-5.6%</b>	<b>-0.3%</b>
15-17	19,420	17,531	15,472	12,471	12,570	-10.3%	0.8%
18-20	31,508	30,484	29,904	28,066	27,847	-3.0%	-0.8%
<b>Older (21+)</b>	<b>257,484</b>	<b>239,723</b>	<b>248,647</b>	<b>246,737</b>	<b>248,864</b>	<b>-0.8%</b>	<b>0.9%</b>
21-24	32,276	30,205	31,171	31,041	31,672	-0.5%	2.0%
25-44	114,663	104,314	107,155	105,510	105,236	-2.1%	-0.3%
45-64	83,967	78,723	82,613	82,627	82,793	-0.4%	0.2%
65+	26,578	26,481	27,708	27,559	29,163	2.3%	5.8%
<b>% of all drivers</b>							
<b>Total drivers</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Young (15-20)</b>	<b>16.5%</b>	<b>16.7%</b>	<b>15.4%</b>	<b>14.1%</b>	<b>14.0%</b>	<b>-4.1%</b>	<b>-1.0%</b>
15-17	6.3%	6.1%	5.3%	4.3%	4.3%	-8.9%	0.1%
18-20	10.2%	10.6%	10.2%	9.8%	9.6%	-1.5%	-1.5%
<b>Older (21+)</b>	<b>83.5%</b>	<b>83.3%</b>	<b>84.6%</b>	<b>85.9%</b>	<b>86.0%</b>	<b>0.8%</b>	<b>0.2%</b>
21-24	10.5%	10.5%	10.6%	10.8%	10.9%	1.1%	1.3%
25-44	37.2%	36.3%	36.4%	36.7%	36.4%	-0.5%	-1.0%
45-64	27.2%	27.4%	28.1%	28.8%	28.6%	1.3%	-0.5%
65+	8.6%	9.2%	9.4%	9.6%	10.1%	4.0%	5.1%

Source: Indiana State Police



## INJURIES IN YOUNG DRIVER COLLISIONS

As the number of young drivers in collisions has decreased, so too has the number of injuries to people (occupants of young driver vehicles, occupants of other vehicles, or non-motorists) in crashes involving young drivers. In 2008, there were 13,535 injuries (156 fatal, 808 incapacitating, 12,571 non-incapacitating) in collisions involving young drivers, 62 per-

cent of which were suffered by young drivers and occupants riding with young drivers (calculated from Table 4). By 2012, total injuries had dropped to 11,434 (4 percent annually), with 59 percent sustained by young drivers and their occupants. Most of this decrease (59 percent) is explained by fewer injuries to occupants in vehicles driven by persons 15 to 17 years of age, which fell from 3,334 in 2008 to 2,101 in 2012 or 11 percent annually (Table 5). Further, most of these declines (53 percent) occurred from 2010 to 2011, the year after implementation of Phase II GDL changes.

**Table 4. Injuries to people in crashes involving a young driver, by location of person, person type, and injury severity, 2008-2012**

Location	Person type	Injury severity	Count of occupant and non-motorist injuries					Annual rate of change	
			2008	2009	2010	2011	2012	2008-12	2011-12
All	All	Fatal	156	129	128	112	128	-4.8%	14.3%
		Incapacitating	808	757	779	682	792	-0.5%	16.1%
		Non-incapacitating	12,571	12,757	12,177	10,542	10,514	-4.4%	-0.3%
In young driver vehicle	Young drivers	Fatal	75	48	56	55	54	-7.9%	-1.8%
		Incapacitating	339	311	289	263	329	-0.7%	25.1%
		Non-incapacitating	5,320	5,197	4,911	4,161	4,281	-5.3%	2.9%
	Injured occupants	Fatal	44	40	36	22	28	-10.7%	27.3%
		Incapacitating	165	152	168	140	169	0.6%	20.7%
		Non-incapacitating	2,440	2,424	2,279	1,938	1,922	-5.8%	-0.8%
Not in young driver vehicle	Other drivers	Fatal	27	33	25	22	31	3.5%	40.9%
		Incapacitating	215	193	204	184	196	-2.3%	6.5%
		Non-incapacitating	3,211	3,415	3,328	2,947	2,874	-2.7%	-2.5%
	Injured occupants	Fatal	4	5	8	5	2	-15.9%	-60.0%
		Incapacitating	58	64	77	55	61	1.3%	10.9%
		Non-incapacitating	1,351	1,464	1,402	1,264	1,269	-1.6%	0.4%
	Non-motorists	Fatal	6	3	3	8	13	21.3%	62.5%
		Incapacitating	31	37	41	40	37	4.5%	-7.5%
		Non-incapacitating	249	257	257	232	168	-9.4%	-27.6%
% In young driver vehicle	All	Fatal	76.3%	68.2%	71.9%	68.8%	64.1%	-4.3%	-6.8%
		Incapacitating	62.4%	61.2%	58.7%	59.1%	62.9%	0.2%	6.4%
		Non-incapacitating	61.7%	59.7%	59.0%	57.9%	59.0%	-1.1%	2.0%

Source: Indiana State Police

**Table 5. Injuries to people in crashes involving a young driver, by age of person driving vehicle and injury severity, 2008-2012**

Age of person driving vehicle	Injury severity	Count of occupant injuries					Annual rate of change	
		2008	2009	2010	2011	2012	2008-12	2011-12
15-17	Fatal	37	27	21	17	21	-13.2%	23.5%
	Incapacitating	194	169	168	136	138	-8.2%	1.5%
	Non-incapacitating	3,103	2,957	2,611	1,997	1,942	-11.1%	-2.8%
	Total	3,334	3,153	2,800	2,150	2,101	-10.9%	-2.3%
18-20	Fatal	82	61	71	60	61	-7.1%	1.7%
	Incapacitating	310	294	289	267	360	3.8%	34.8%
	Non-incapacitating	4,657	4,664	4,579	4,102	4,261	-2.2%	3.9%
	Total	5,049	5,019	4,939	4,429	4,682	-1.9%	5.7%
21+	Fatal	31	38	33	27	33	1.6%	22.2%
	Incapacitating	273	257	281	239	257	-1.5%	7.5%
	Non-incapacitating	4,562	4,879	4,730	4,211	4,143	-2.4%	-1.6%
	Total	4,866	5,174	5,044	4,477	4,433	-2.3%	-1.0%

Source: Indiana State Police

# INDIANA GDL: IMPACT ON YOUNG DRIVERS

One factor that likely contributed to the sharp decline in young driver involvement in collisions from 2008 to 2012 is the series of changes to Indiana's graduate driver licensing system (GDL) implemented in two phases in 2009 (Phase I) and 2010 (Phase II) (see text box for summary of GDL changes). The GDL changes effectively reduced teen driver exposure to the opportunity for involvement in a collision, as many teen drivers that previously qualified for permits and licenses no longer do, and many who do now face restrictions that limit their driving time and activities while driving.

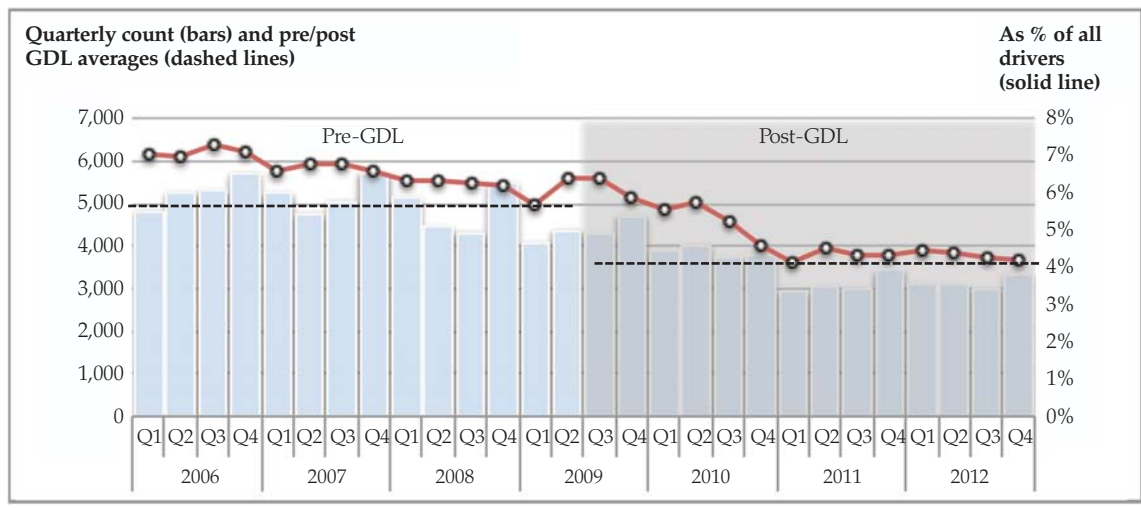
An impact evaluation has not been completed to systematically measure the effects of the changes to Indiana's GDL system on crash outcomes. However, as shown in Figure 1, comparing the three-and-a-half year period (January 2006 – June 2009) before Phase I GDL implementation to the three-and-a-half year period (July 2009 – December 2012) after GDL implementation suggests favorable changes in teen driver (ages 15 to 17) involvement in collisions. Prior to implementation, there were around 5,000 teen drivers involved in collisions on average each quarter (6.6 percent of all drivers in collisions). After implementation, the average dropped to just over 3,500 (4.9 percent of all drivers), a 29 percent decrease in the average number. Comparatively, the average for older drivers (ages 18+) dropped only 2 percent.

Indiana graduated driver licensing system				
	Existing law		GDL law	
Applies to probationary license issued:				
	Before 7/1/2009	After 6/30/2009	After 6/30/2010	Net GDL impact
<b>Stage 1: Learner Permit</b>				
Minimum age				
With Driver Ed	15 years		15 years, 180 days	+ 180 days
Without Driver Ed	16 years --			
Minimum holding period	60 days		180 days	+ 120 days
<b>Stage 2: Probationary license</b>				
Minimum age				
With Driver Ed	16 years, 30 days		16 years, 180 days	+ 150 days
Without Driver Ed	16 years, 180 days		16 years, 270 days	+ 90 days
Minimum holding period	60 days		180 days	+ 120 days
Supervised driving	None required		50 hours (10 nighttime)	+ 50 hours
Cell phone use while driving	No restrictions	Prohibited		Total prohibition
Nighttime driving restrictions	Su-Th 11pm-5am	First 180 days: 10pm-5am		More restrictive for first six months
	Sa-Su 1am-5am	After first 180 days: Su-Th 11pm-5am, Sa-Su 1am-5am		
Passengers (see note below for exceptions)	First 90 days: No passengers unless a licensed adult	First 180 days: Prohibited unless licensed adult		+ 90 days
		After first 180 days: None		
<b>Stage 3: Unrestricted license</b>				
Minimum age	18 years			--

Sources: IC 9-24-3, IC 9-24-11, IC 31-37-3

Note: Exceptions for passenger restrictions include transporting children, siblings, spouses and for work, school, or religious functions.

**Figure 1. Drivers under age 18 involved in Indiana crashes, 2006-2012**



Source: Indiana State Police



## INDIANA GDL: IMPACT ON YOUNG DRIVERS *(Continued)*

Similarly, as shown in Table 6, the number of teen drivers in collisions declined at a quarterly rate of 0.7 percent before GDL implementation, but accelerated to a 1.9 percent rate of decline after implementation. Comparatively, the number of older drivers (21+) in collisions *grew* at a quarterly rate of 1.6 percent post-GDL. When grouped by ages corre-

sponding to GDL provisions, it is clear that much of the decline in teen driver involvement in collisions came from drivers aged 16 to 16.5 years, a group formerly eligible for a probationary license (if the teen took a driver education course) but not eligible after implementation of Phase II (Jul. 2010) of the GDL statute. There was an average of 708 drivers aged 16 to 16.5 years in collisions each quarter before GDL implementation, but only 267 after (Table 6). This group experienced the greatest quarterly rate of decline post-GDL, 15.1 percent.

**Table 6. Drivers involved in Indiana crashes by age, 2006-2012**

Year	Quarter	15 years, 1-5 months	15 years, 6-11 months	16 years, 1-5 months	16 years, 6-11 months	17 years	Under 18 total	18-20 years	21 years +
2006	Q1	37	47	716	1,367	2,663	4,830	7,086	56,503
	Q2	65	92	763	1,434	2,917	5,271	8,052	61,861
	Q3	62	106	846	1,472	2,832	5,318	7,656	59,883
	Q4	39	67	861	1,670	3,091	5,728	8,159	66,258
2007	Q1	25	73	726	1,475	2,961	5,260	8,417	66,014
	Q2	63	86	723	1,239	2,667	4,778	7,455	58,297
	Q3	57	100	751	1,369	2,795	5,072	7,577	61,861
	Q4	41	63	806	1,550	3,275	5,735	8,730	72,213
2008	Q1	27	44	661	1,358	3,054	5,144	8,481	67,370
	Q2	52	78	575	1,219	2,532	4,456	7,379	58,341
	Q3	56	73	654	1,121	2,432	4,336	6,872	57,778
	Q4	39	61	693	1,482	3,209	5,484	8,776	73,995
2009	Q1	19	67	527	1,068	2,409	4,090	7,449	60,012
	Q2	50	75	607	1,172	2,486	4,390	7,489	56,666
	Q3 - Phase I GDL	54	96	671	1,100	2,397	4,318	7,310	55,602
	Q4	29	60	715	1,255	2,674	4,733	8,236	67,443
2010	Q1	29	44	500	1,035	2,325	3,933	7,186	59,723
	Q2	44	74	584	1,117	2,211	4,030	7,444	58,321
	Q3 - Phase II GDL	38	57	454	986	2,185	3,720	6,978	59,911
	Q4	18	43	133	1,012	2,583	3,789	8,296	70,692
2011	Q1	11	31	54	730	2,110	2,936	6,859	60,944
	Q2	23	64	95	831	2,048	3,061	6,790	57,540
	Q3	31	64	101	786	2,048	3,030	6,960	59,707
	Q4	13	35	77	897	2,422	3,444	7,457	68,546
2012	Q1	19	46	83	781	2,191	3,120	6,868	59,697
	Q2	41	74	112	757	2,109	3,093	6,822	60,059
	Q3	31	76	85	753	2,066	3,011	6,729	60,428
	Q4	16	41	80	788	2,421	3,346	7,428	68,667
<b>Quarterly average</b>									
Pre-GDL (Q1 2006 - Q2 2009)		45	74	708	1,357	2,809	4,992	7,827	62,647
Post-GDL (Q3 2009 - Q4 2012)		28	58	267	916	2,271	3,540	7,240	61,949
<b>Quarterly rate of change</b>									
Pre-GDL (Q1 2006 - Q2 2009)		2.3%	3.7%	-1.3%	-1.2%	-0.5%	-0.7%	0.4%	0.0%
Post-GDL (Q3 2009 - Q4 2012)		-8.9%	-6.3%	-15.1%	-2.5%	0.1%	-1.9%	0.1%	1.6%

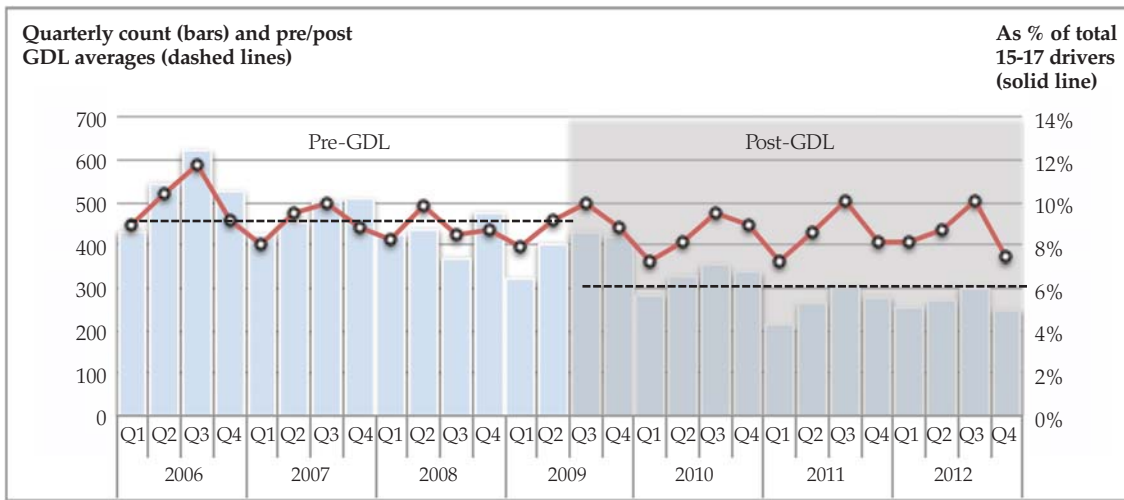
Source: Indiana State Police

# INDIANA GDL: IMPACT ON YOUNG DRIVERS *(Continued)*

The Phase I GDL provisions restricting teen driving at night (10pm-5am) and with passengers appear to have contributed to fewer teen drivers in collisions with these circumstances. On average, there were 461 teen drivers in collisions during restricted hours each quarter before GDL

implementation and 307 after, a 33 percent decrease (Figure 2). Additionally, the quarterly rate of decline was nearly eight times faster post-GDL (4.1 versus 0.5 percent decrease). The average number of teen drivers in collisions with passengers (ages 13 to 20) also declined from 211 before GDL implementation to 136 after, a 36 percent decrease (Figure 3). The quarterly rate of decline was more than four times faster post-GDL (5 versus 1.1 percent decrease).

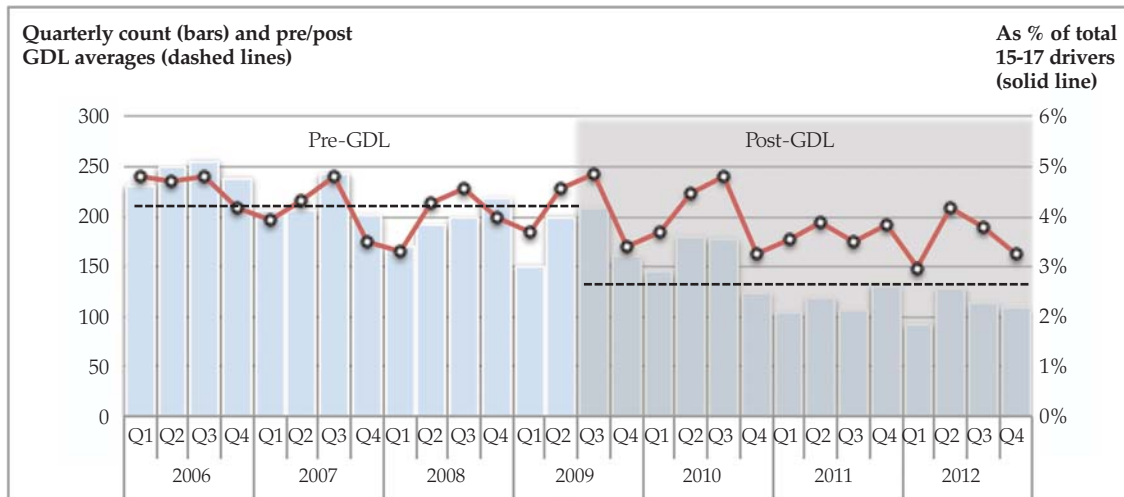
**Figure 2. Drivers under age 18 in Indiana crashes between 10pm and 5am, 2006-2012**



Source: Indiana State Police

Notes: Excludes invalid times  
Effective July 1, 2009, drivers with probationary licenses are restricted from driving between 10pm and 5am (see summary of GDL changes).

**Figure 3. Drivers under age 18 with passengers (ages 13-20) in Indiana crashes, 2006-2012**



Source: Indiana State Police

Note: Effective July 1, 2009, drivers with probationary licenses are restricted from driving with passengers (see summary of GDL changes).

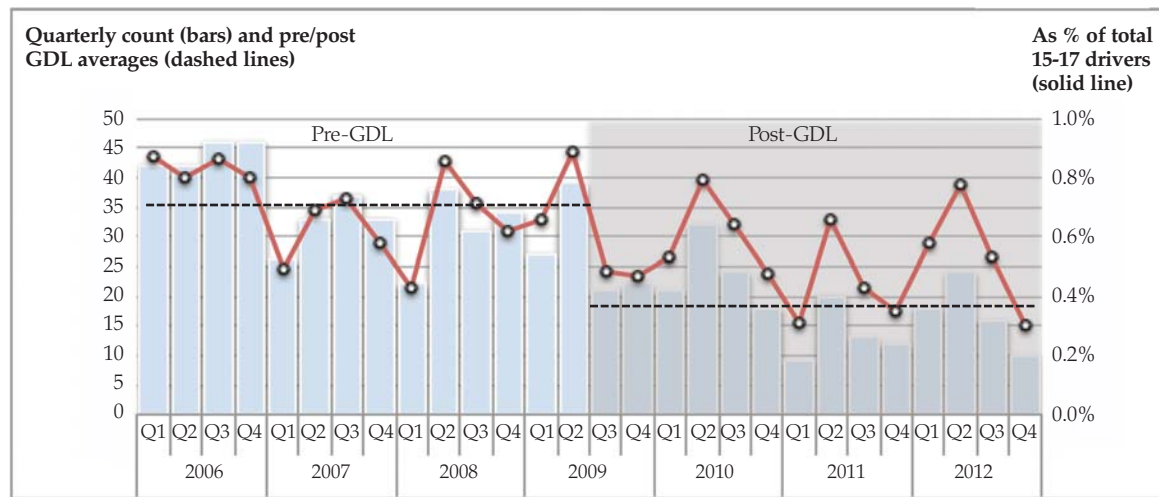
## INDIANA GDL: IMPACT ON YOUNG DRIVERS *(Continued)*

The Phase I provision prohibiting cell phone use for teen drivers also appears to have had a favorable impact. On average, there were 35 teen drivers in collisions using cell phones each quarter before GDL implementation and 19 after, a 48 percent decrease (Figure 4). Further, the quarterly rate of decline was nearly ten times faster post-GDL (5.5 versus 0.6 percent decrease).

The changes to Indiana's GDL system are intended to increase driving experience and reduce risky driving behaviors among teen drivers. If effective, the teen driver rate of re-involvement in collisions might be expected to decrease as their driving improves. Comparing collision

involvement during a 30-month period for two different groups of drivers of the same age—one tracked before GDL changes, the other after—shows favorable differences in crash re-involvement rates. Of the 4,845 15 to 17 year old drivers in group 1 (tracked pre-GDL), 30.2 percent were involved in multiple collisions during the 30-month period before GDL implementation (Table 7). Conversely, only 27.5 percent of the 3,962 15 to 17 year old drivers in group 2 (tracked post-GDL) were involved in multiple collisions during an equivalent 30-month period after GDL implementation. Notably, rates of re-involvement were also lower for older drivers (18 to 20 and 21+) in group 2 compared to older drivers in group 1. For each age group, the decline in the rate of multiple collision re-involvement was statistically significant ( $p < 0.05$ ). In addition, considering both groups, rates of multiple collision involvement were highest for 15 to 17 year old drivers.

**Figure 4. Drivers under age 18 in Indiana crashes who were using a cell phone, 2006-2012**



Source: Indiana State Police

Effective July 1, 2009, drivers under 18 are prohibited from using a cell phone while driving (see summary of GDL changes).

**Table 7. Young driver crash re-involvement rates before and after changes to Indiana's graduated driver licensing (GDL) system**

Group	Collision tracking period	Driver age	Count of drivers, by number of times in a collision during tracking period						Number of times in a collision, as % of total				
			TOTAL	In one	In two	In three	In four or more	In multiple (2+)	In one	In two	In three	In four or more	In multiple (2+)
#1: Drivers in collisions Jan 2007 - Mar 2007	Pre-GDL: Jan 2007 - Jun 2009 (30 months)	15-17	4,845	3,382	1,110	289	64	1,463	69.8%	22.9%	6.0%	1.3%	30.2%
		18-20	7,287	5,415	1,498	309	65	1,872	74.3%	20.6%	4.2%	0.9%	25.7%
		21+	55,783	46,088	8,208	1,218	269	9,695	82.6%	14.7%	2.2%	0.5%	17.4%
#2: Drivers in collisions Jul 2009 - Sep 2009	Post-GDL: Jul 2009 - Dec 2011 (30 months)	15-17	3,962	2,871	891	161	39	1,091	72.5%	22.5%	4.1%	1.0%	27.5%
		18-20	6,148	4,719	1,174	216	39	1,429	76.8%	19.1%	3.5%	0.6%	23.2%
		21+	45,886	38,619	6,185	875	207	7,267	84.2%	13.5%	1.9%	0.5%	15.8%

Source: Indiana State Police

Notes: Includes drivers in collisions with valid Indiana licenses.

Driver age represents the minimum age at which a driver was first involved in a collision during the three-month selection period (age groups are mutually exclusive).

Groups are mutually exclusive; drivers in Group 1 are not in Group 2.

Differences in the proportions of multiple collision involvement by age group between cohort 1 and 2 (e.g., for 15-17 years, from 30.2 percent to 27.5 percent) are statistically significant ( $p < 0.05$ ).



# GENERAL RISK FACTORS – ALCOHOL USE, SPEEDING, AND RESTRAINT USE

Alcohol use and speeding increase the risk of collisions and improper restraint use increases the risk of injury if a collision occurs. Despite a minimum drinking age of 21, 10 percent of 15 to 17 year old drivers and 15 percent of 18 to 20 year old drivers in fatal collisions in 2012 tested positive for alcohol (Table 8). Rates have climbed for 15 to 17 year old drivers since 2009 while decreasing for 18 to 20 year old drivers. Although only a small percentage of young drivers in non-fatal collisions were tested for alcohol in 2012, 36 percent of 15 to 17 year old drivers who were tested returned positive results. The proportion of (tested) drivers (in non-fatal collisions) who have tested positive for alcohol has generally climbed since 2008.

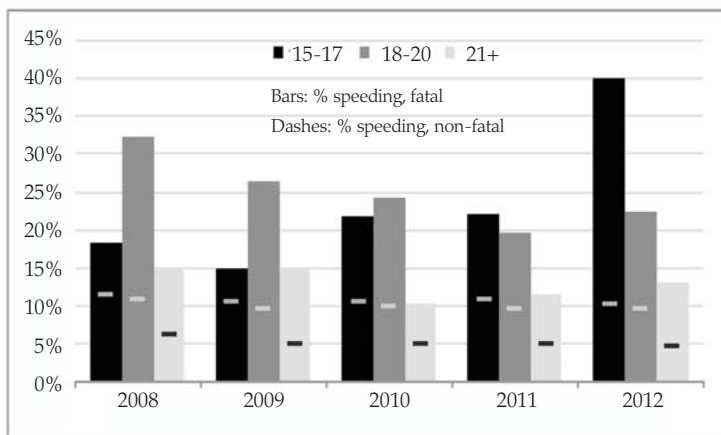
A greater share of 15 to 17 year old drivers in fatal collisions have also been speeding, increasing from 18 percent in 2008 to 40 percent in 2012; in contrast, the share of older drivers who were speeding in fatal collisions has generally decreased (Figure 5). Restraint use rates are 25 to 30 percentage points higher for drivers in collisions who suffer less serious injuries, stabilizing around 98 percent for all age groups since 2008 (Figure 6). Restraint use rates among drivers suffering serious injuries have historically been highest for those 15 to 17 years of age. However, since 2008 rates for these younger drivers have declined—from 74 percent in 2008 to 69 percent in 2012—while stabilizing for 18 to 20 year olds and increasing slightly for those 21 and older.

**Table 8. Alcohol use among drivers in Indiana crashes, by crash severity and driver age, 2008-2012**

Crash severity	Driver age	2008	2009	2010	2011	2012
<b>Percent tested for alcohol</b>						
Fatal	15-17	79.6%	75.0%	75.0%	61.1%	80.0%
	18-20	78.5%	78.9%	69.2%	78.0%	79.6%
	21+	71.7%	61.7%	69.5%	72.7%	69.8%
Non-fatal	15-17	1.5%	1.5%	1.5%	1.5%	1.7%
	18-20	3.2%	3.1%	2.8%	3.0%	3.3%
	21+	3.6%	3.7%	3.5%	3.8%	3.9%
<b>Positive results as % total tested</b>						
Fatal	15-17	15.4%	6.7%	8.3%	9.1%	10.0%
	18-20	23.3%	20.0%	11.1%	17.2%	14.6%
	21+	23.7%	25.4%	21.5%	21.3%	23.4%
Non-fatal	15-17	27.0%	35.6%	39.8%	41.5%	36.2%
	18-20	40.4%	47.6%	53.2%	53.4%	46.9%
	21+	41.1%	50.6%	58.6%	54.5%	54.9%

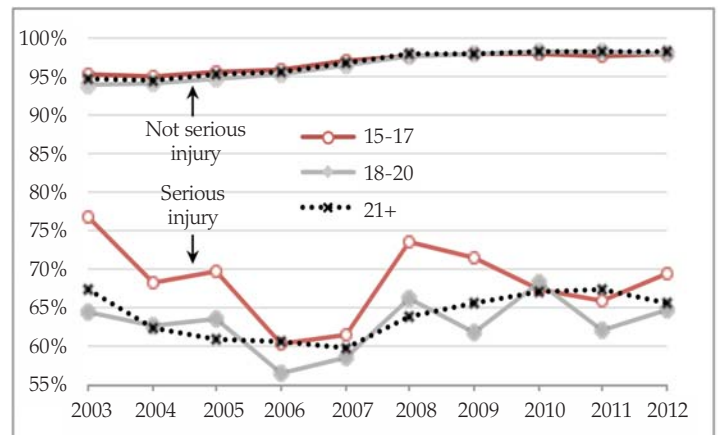
Source: Indiana State Police

**Figure 5. Percent of drivers speeding in fatal and non-fatal Indiana crashes, by driver age, 2008-2012**



Source: Indiana State Police

**Figure 6. Restraint use rates among drivers with and without serious injuries in Indiana crashes, by age, 2003-2012**



Source: Indiana State Police

Note: Excludes drivers where restraint use was unknown.



## DRIVER EDUCATION

Though not required by state law, teens who take a driver education course are eligible to receive their probationary license earlier than those teens who do not (IC 9-24-3, IC 9-24-11, IC 31-37-3). In 2012, 56 percent of drivers ages 16 to 20 that were involved in Indiana crashes had taken a

driver education course (Table 9). Indiana crash data show that those drivers who took driver education were slightly less likely to have engaged in unsafe driving actions (e.g., following too closely, speeding, etc.) but there was not a significant difference in the risk of losing control of the vehicle (Table 10).

**Table 9. Indiana resident young drivers in crashes who completed a driver education course, 2012**

Driver age	Crash severity	Took driver education course	Total involved	% Took driver education course
16	Fatal	3	5	60.0%
	Non-fatal	457	671	68.1%
	Property damage	2,030	2,681	75.7%
	Subtotal	2,490	3,357	74.2%
17	Fatal	14	20	70.0%
	Non-fatal	978	1,685	58.0%
	Property damage	4,591	6,918	66.4%
	Subtotal	5,583	8,623	64.7%
18-20	Fatal	52	99	52.5%
	Non-fatal	2,583	5,481	47.1%
	Property damage	10,662	20,651	51.6%
	Subtotal	13,297	26,231	50.7%
16-20	Fatal	69	124	55.6%
	Non-fatal	4,018	7,837	51.3%
	Property damage	17,283	30,250	57.1%
	Total	21,370	38,211	55.9%

Sources: Indiana State Police; Indiana Bureau of Motor Vehicles

**Table 10. Risk of driving actions associated with driver education for young drivers in Indiana crashes, 2012**

Took driver education?	Unsafe driving actions?			% Unsafe	Relative risk	95% Conf. interval
	Yes	No	Total			
Yes	10,515	10,855	21,370	49.2%	0.93	0.92 - 0.95
No	8,879	7,962	16,841	52.7%		
Total	19,394	18,817	38,211	50.8%		
Took driver education?	Lost control of vehicle?			% Lost control	Relative risk	95% Conf. interval
	Yes	No	Total			
Yes	2,386	18,984	21,370	11.2%	0.97	0.92 - 1.03
No	1,934	14,907	16,841	11.5%		
Total	4,320	33,891	38,211	11.3%		

Sources: Indiana State Police; Indiana Bureau of Motor Vehicles

Notes: *Unsafe driving actions* includes speeding, following too closely, disregarding signal, failure to yield right of way, improper road usage, and wrong way on one way.

*Lost control of vehicle* includes overcorrecting, ran off road right, ran off road left.

*Relative risk* is the ratio of % driving action for drivers who took driver education versus those that did not. Values over 1 indicate that driver education increases risk of action; values under 1 indicate a reduction in risk.

*Relative risk* of unsafe driving actions is significant (p<0.05).

# THE GEOGRAPHY OF TEEN DRIVER INVOLVEMENT IN COLLISIONS

Consistent with broader downward trends discussed above, the rate of young driver involvement in collisions per 1,000 licensed is trending downward, particularly for 15 to 17 year old drivers and more so for certain Indiana counties. Statewide from 2007 to 2009, there was an average

of 137.4 15 to 17 year old drivers in collisions per 1,000 licensed each year. After full implementation of GDL, the average dropped 21 percent to 108.6 per 1,000 licensed; comparatively, the average for older drivers (ages 21 and over) decreased only 9 percent. At the county level, the average rate of involvement declined for all but six counties: Newton, Sullivan, Benton, Dubois, Clinton, and Vanderburgh (Map 1). The largest decreases occurred in Union (48 percent), Rush (45 percent), Pulaski (41 percent), Fayette (40 percent) and Spencer (37 percent) counties.

**Map 1. Teen drivers (ages 15-17) in collisions per 1,000 licensed**  
Percent change in average rate 2007-2009 (before GDL) to 2010-2012 (after GDL)

### State averages:

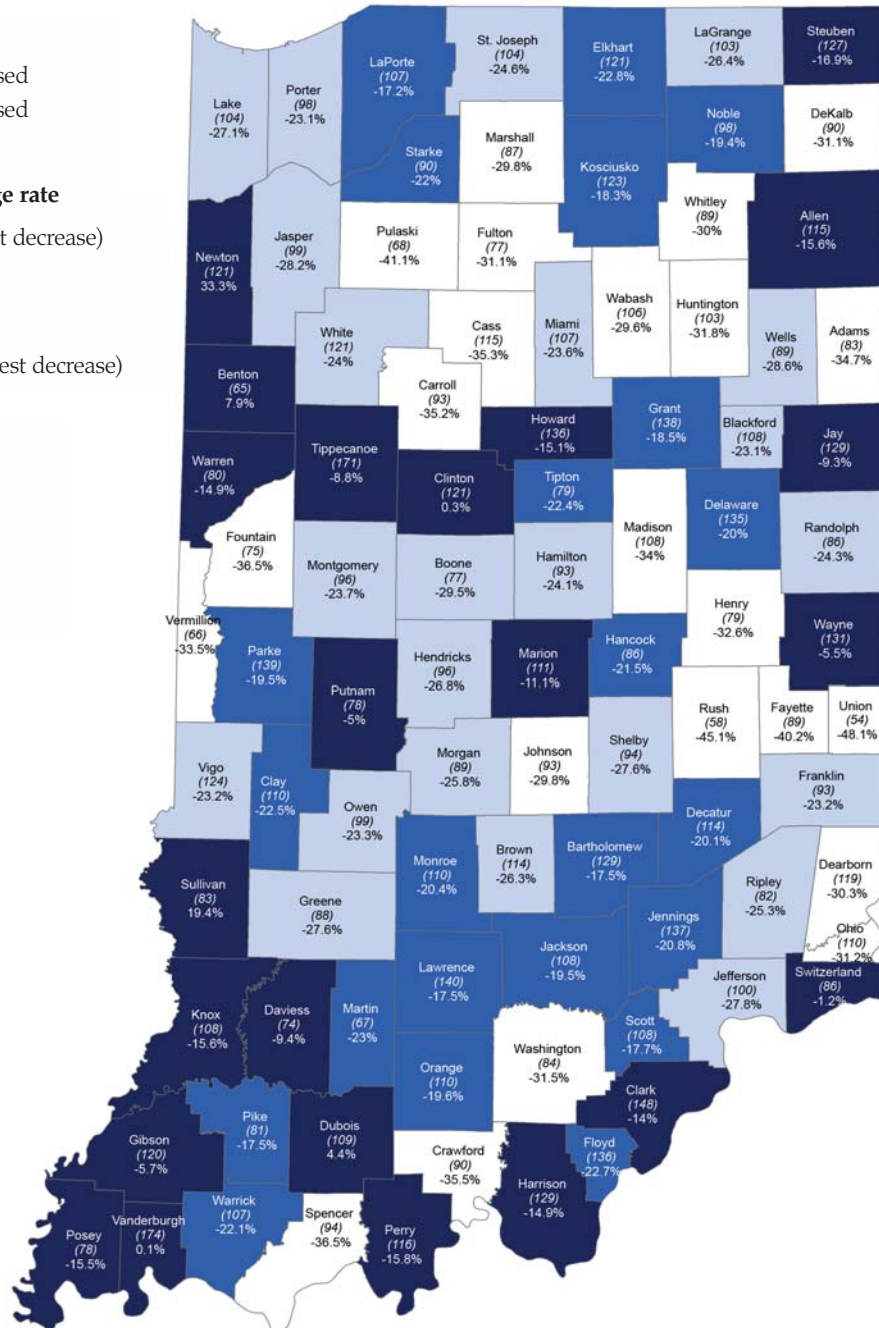
2007-2009 = 137.4 per 1,000 licensed  
2010-2012 = 108.6 per 1,000 licensed  
% Change in average = 20.9%

### Quantities: % Change in average rate



### County labels:

County name  
(Average rate 2010-12)  
Percent change in avg. rate



Sources: Indiana State Police; Indiana Bureau of Motor Vehicles.

Notes: The 2007-2009 average rate includes the last six months of 2009 after implementation of Phase I of GDL. The 2010-2012 average rate includes the first six months of 2010 before implementation of Phase II of GDL.



## END NOTES

<sup>1</sup>Data presented in this fact sheet are limited to drivers between the ages of 15 and 109.

## DEFINITIONS

**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 2008 to 2012, it is calculated as  $(\text{Value in 2012} / \text{Value in 2008})^{1/4} - 1$ .

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## DATA SOURCES

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# TRAFFIC SAFETY FACTS

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

This publication is one of a series of fact sheets that, along with the annual Indiana Crash Fact Book, 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 CCJR website ([www.ccjr.iupui.edu](http://www.ccjr.iupui.edu)), the ICJI website ([www.in.gov/cji/](http://www.in.gov/cji/)), or you may contact the Center for Criminal Justice Research at 317-261-3000.



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## Traffic Safety Project

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.

Designing and implementing effective traffic safety policies requires data-driven analysis of traffic collisions. To help in the policy-making process, the Indiana University Center for Criminal Justice Research is collaborating with the Indiana Criminal Justice Institute to analyze 2012 vehicle crash data from the Automated Reporting Information Exchange System (ARIES), maintained by the Indiana State Police. This marks the seventh year of this partnership. Research findings are summarized in a series of fact sheets on various aspects of traffic collisions, including alcohol-related crashes, trucks, dangerous driving, children, motorcycles, occupant protection, and drivers. An additional publication provides information on county and municipality data, and the final publication produced is the annual Indiana Crash Fact Book. 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. As of December 31, 2012, approximately 99 percent of all collisions are entered electronically through ARIES. Trends in collisions incidence 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. 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 Indiana University Public Policy Institute (PPI) is a collaborative, multidisciplinary research institute within the Indiana University School of Public and Environmental Affairs (SPEA), Indianapolis. PPI serves as an umbrella organization for research centers affiliated with SPEA, including the Center for Urban Policy and the Environment and the Center for Criminal Justice Research. PPI also supports the Indiana Advisory Commission on Intergovernmental Relations (IACIR).

## The Center for Criminal Justice Research

The Center for Criminal Justice Research (CCJR), one of two applied research centers currently affiliated with the Indiana University Public Policy Institute, works with public safety agencies and social services organizations to provide impartial applied research on criminal justice and public safety issues. CCJR provides analysis, evaluation, and assistance to criminal justice agencies; and community information and education on public safety questions. CCJR research topics include traffic safety, crime prevention, criminal justice systems, drugs and alcohol, policing, violence and victimization, and youth.

## 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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