Illinois Department of Transportation

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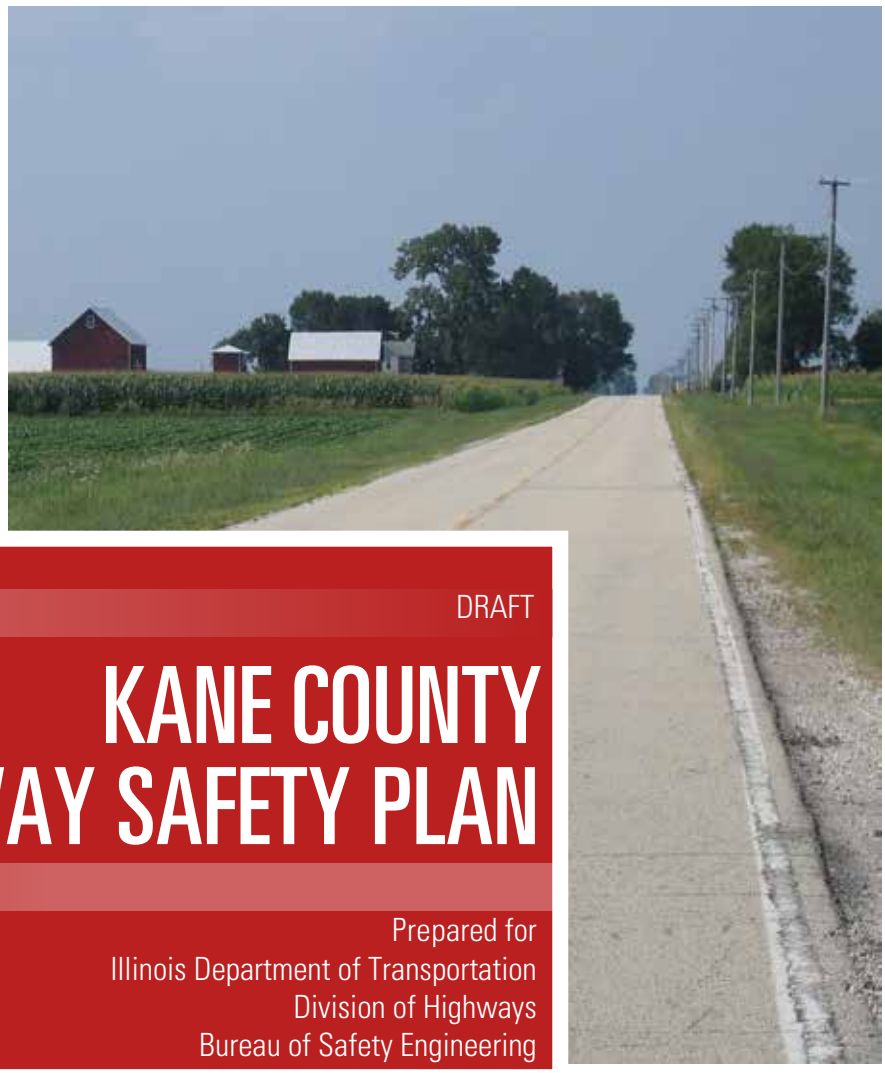

DRAFT

KANE COUNTY STRATEGIC HIGHWAY SAFETY PLAN

Prepared for
Illinois Department of Transportation
Division of Highways
Bureau of Safety Engineering

Driving Zero Fatalities to a Reality
Partnering for Illinois

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Acronyms and Abbreviations

4 E's	engineering, education, enforcement, and emergency medical services
AASHTO	American Association of State Highway and Transportation Officials
BSE	Bureau of Safety Engineering
DWI	Driving While Intoxicated
FHWA	Federal Highway Administration
HMVMT	hundred million vehicle miles traveled
HSIP	Highway Safety Improvement Program
ICHSP	Illinois Comprehensive Highway Safety Plan
IDOT	Illinois Department of Transportation
ISHSP	Illinois Strategic Highway Safety Plan
KAB	Fatal, A-injury, and B-Injury Combined
MAP-21	Moving Ahead for Progress in the 21st Century Act
MPO	Metropolitan Planning Organization
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
Plan	Strategic Highway Safety Plan for Kane County
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act
SHSP	Strategic Highway Safety Plan
TRB	Transportation Research Board of the National Academies
TZD	Toward Zero Deaths: A National Strategy on Highway Safety
UN	United Nations
USDOT	United States Department of Transportation
VMT	vehicle mile(s) traveled

Executive Summary

In an effort to achieve zero fatalities on roadways in Illinois, the Illinois Department of Transportation (IDOT) initiated a process to develop county Strategic Highway Safety Plans (SHSPs). This Strategic Highway Safety Plan for Kane County (Plan) was prepared as part of the Illinois statewide highway safety planning process. The Plan was data-driven, with a goal to reduce severe crashes (those involving fatalities and serious injuries) by documenting at-risk locations, identifying effective safety improvement strategies, and better positioning the county to compete for available safety funds. The Plan includes a description of the connection to safety planning efforts at the national level, state level (through the *Illinois Strategic Highway Safety Plan* [ISHSP] and the Highway Safety Improvement Program [HSIP]), and Metropolitan Planning Organization (MPO) level.

Specifically, this Kane County Safety Plan includes:

- Background information
- A description of the Safety Emphasis Areas
- Data analysis of each of the emphasis areas
- Identification of a short list of high priority, low-cost Safety Strategies

The information in this Plan is consistent with best practices in safety planning as presented in guidance prepared by the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO) and the National Cooperative Highway Research Program (NCHRP). In addition to these primary sources, a comprehensive list of agencies and organizations whose guidance documents were referenced to complete this Plan is included in Section 5. To supplement previous efforts and follow new SHSP processes this information is provided to Kane County to reduce the number of severe crashes on their highway system, and it is understood that the final decision to implement any of the suggested projects resides with the Kane County Engineer. It should also be noted that the emphasis areas are identified for Kane County based on a comparison to the statewide system. The emphasis areas suggest a general priority, and it is understood that actual project development decisions will be made by County staff based on consideration of economic, social, and political issues and coordination with other projects already in the County's Capital Improvement Program. The County is encouraged to coordinate with IDOT in order to pursue any countermeasure implementation on the state's right-of-way. This Plan does NOT set requirements or mandates, is NOT a standard, and is neither intended to be, nor does it establish a legal standard of care. In an effort to help reduce the potential exposure to claims of negligence associated with motor vehicle crashes on Kane County's highway system, key points should be considered:

> Federal law (23 *United States Code* Section 409) established that information generated as part of the statewide safety planning process is considered privileged and unavailable to the public. The privileged status includes crash data, where value/detail has been added by analysts during the safety planning process (for example: computation of crash rates, disaggregation of crashes by type or severity, documentation of contributing factors, and so forth), the lists of at-risk locations, and information supporting the development and evaluation of potential safety projects. The federal law and the privileged status of the safety information was upheld by the U. S. Supreme Court in the case of Pierce County (Washington) v. Guillen.

A final point to note relates to the expected life of this Plan. As with any transportation plan, the expected shelf life of this document is not infinite—the distribution of crashes can change over time as well as roadway and traffic conditions that can contribute to the occurrence of crashes. As a result, Kane County is encouraged to consider periodically updating this Plan when they have run out of safety projects to develop or after approximately 5 years.

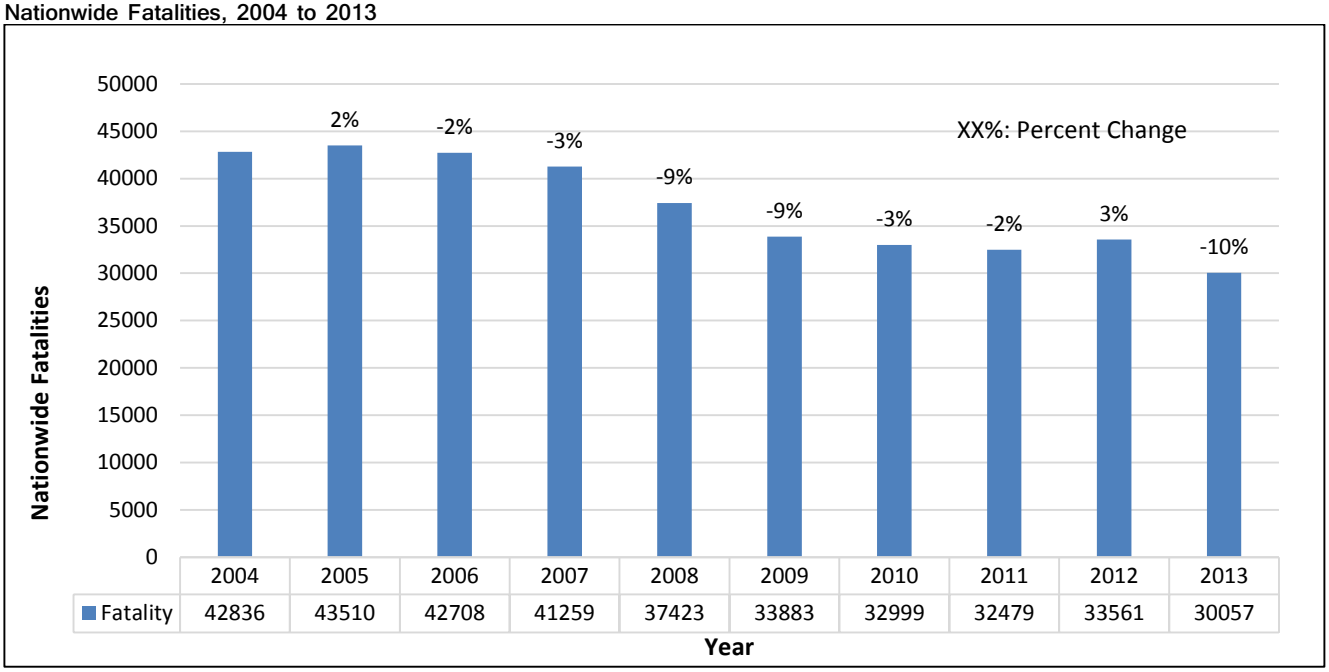
Section 1 Background

1.1 National

Recognizing nearly 1.24 million people die and between 20 million and 50 million more are injured in roadway crashes annually on a global level, the United Nations (UN) has instituted the Decade of Action for Road Safety. On May 10, 2010, a resolution to the UN General Assembly proclaimed the period 2011 to 2020 as the Decade of Action for Road Safety, with a goal to stabilize and then reduce the forecast level of road traffic fatalities around the world by increasing safety initiatives around the world.

The United States Department of Transportation (USDOT) Federal Highway Administration (FHWA) initiated Toward Zero Deaths (TZD): A National Strategy on Highway Safety. TZD was created to contribute to the UN Decade of Action, because over 30,000 fatalities occur on the nation's highways each year and there is no singular strategy that unites these common efforts aimed at reduction of fatal crashes (Figure 1-1). The National Strategy is a data-driven effort focusing on identifying and creating opportunities for changing American culture to improve highway safety through engineering, education, enforcement, and emergency medical services (4 E's).

FIGURE 1-1
Nationwide Fatalities, 2004 to 2013



On July 6, 2012, President Obama signed into law P.L. 112-141, the Moving Ahead for Progress in the 21st Century Act (MAP-21). MAP-21 builds on the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) by continuing to support the Highway Safety Improvement Program (HSIP) along with the development and implementation of the Strategic Highway Safety Plan (SHSP). MAP-21 ensures ongoing progress toward achieving safety targets by requiring regular plan updates, and the SHSP remains a statewide coordinated plan developed in cooperation with a broad range of multidisciplinary stakeholders. MAP-21 includes certain contingencies such as:

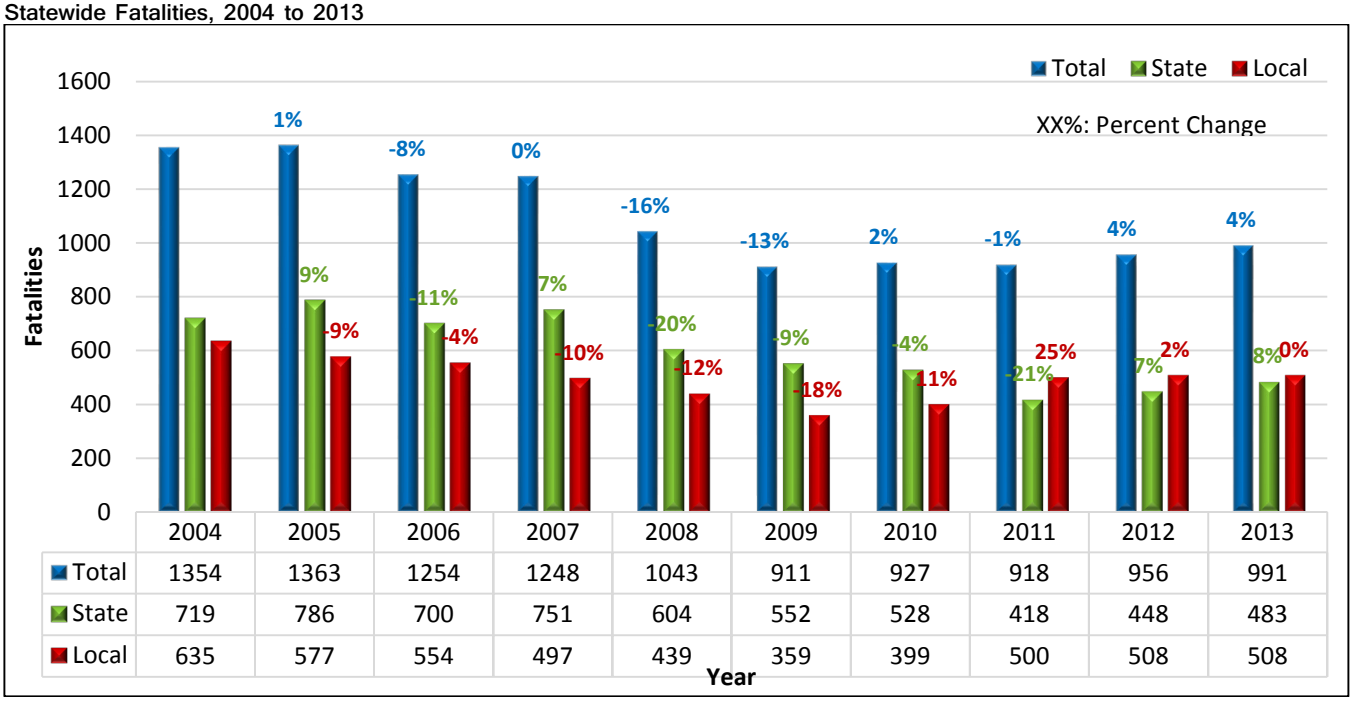
- States will set targets for the number of serious injuries and fatalities and the number per vehicle mile of travel. If a state fails to make progress toward its safety targets, it will have to devote a certain portion of its formula obligation limitation to the safety program and submit an annual implementation plan on how the state will make progress to meet performance targets.

- Although MAP-21 eliminates the requirement for every state to set aside funds for High Risk Rural Roads, a state is required to obligate funds for this purpose if the fatality rate on such roads increases.
- States are required to incorporate strategies focused on older drivers and pedestrians if fatalities and injuries per capita for those groups increase.

1.2 Illinois

Similar to the national trends, Illinois has experienced a significant reduction in traffic fatalities and the fatal crash rate and has experienced the lowest number of fatalities since 1921. Since the year 2004, the number of statewide traffic fatalities has dropped by approximately 27 percent, while the number of statewide A-type injuries has dropped by approximately 34 percent. This shows an average reduction of approximately 3 percent per year for fatalities and 4 percent for A-type injuries from 2004 to 2013. The largest yearly reduction occurred in 2008 where the total of fatalities and A-type injuries has decreased by 16 percent (Figures 1-2 and 1-5). For the purpose of this report, a fatality is defined as a death that resulted from a traffic crash, and an A-type injury (A-injury or serious injury) is defined as any other injury which prevents the injured person from walking, driving, or continuing the normal activities they were capable of performing before the injury occurred.

FIGURE 1-2
Statewide Fatalities, 2004 to 2013

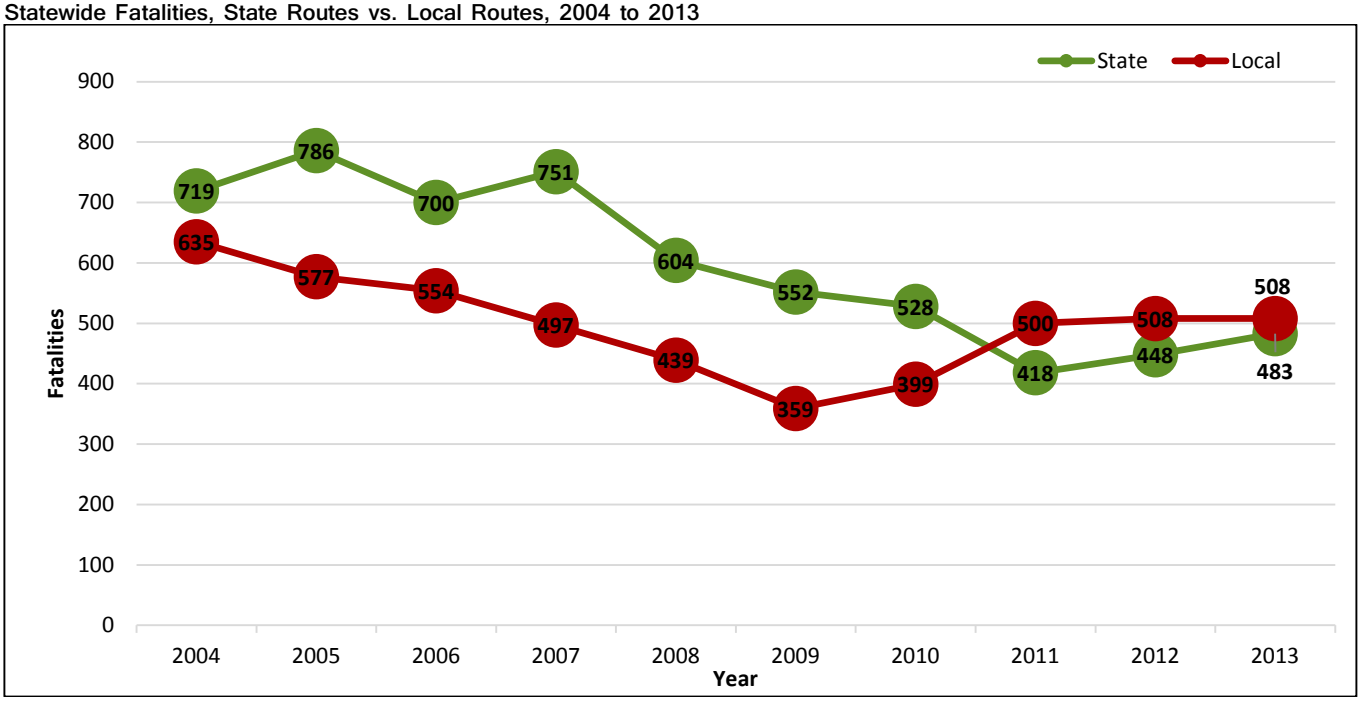


	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	1354	1363	1254	1248	1043	911	927	918	956	991
State	719	786	700	751	604	552	528	418	448	483
Local	635	577	554	497	439	359	399	500	508	508

Statewide fatalities have steadily declined on both state and local routes since 2004 (Figure 1-3). State routes have seen an average reduction of 4 percent per year while local routes had an average reduction of 2 percent per year. On statewide facilities the split between fatalities on state versus local routes has been roughly equal with approximately 55 percent occurring on state routes and 45 percent occurring on local routes from 2004 to 2013. The split also shows that starting with year 2011, opposed to prior years, state routes started having less fatality occurrences (47 percent) than local routes (53 percent) as shown in Figure 1-3. A crash was defined as occurring on the local or state system by using the “Class of

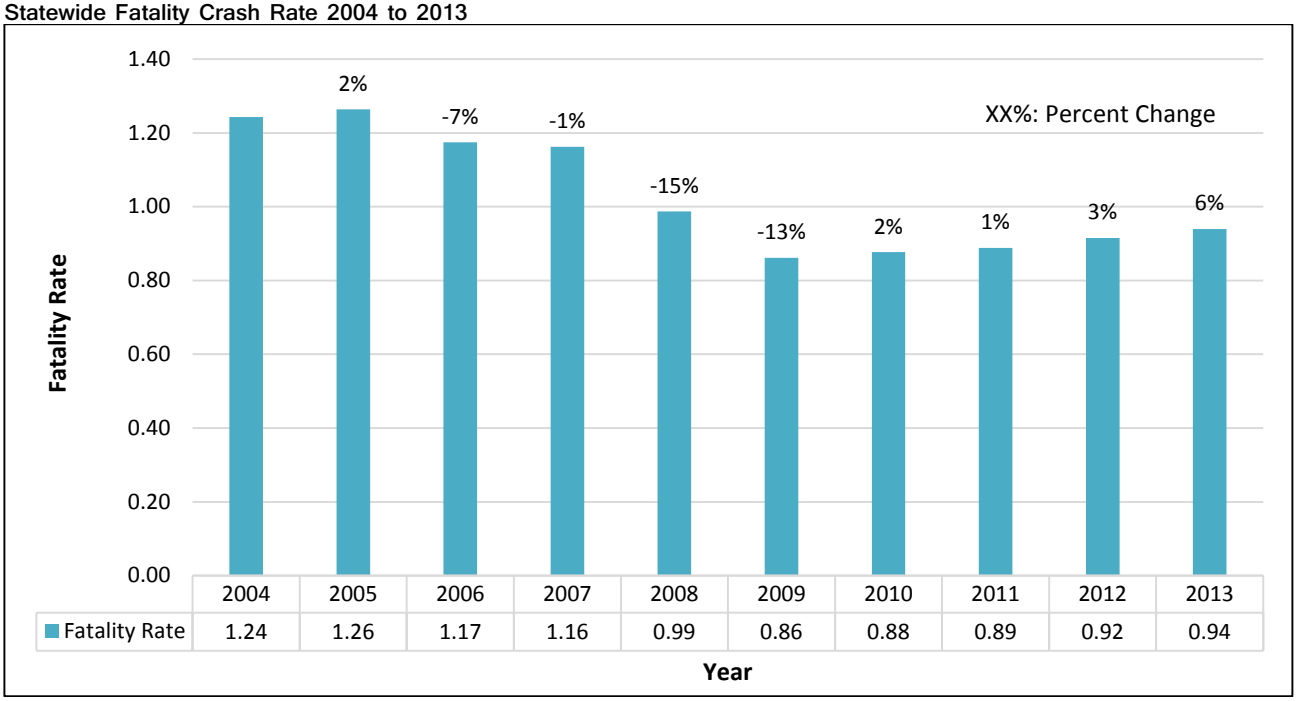
Trafficway" field found in the IDOT Crash Extract. The crash was identified as local if its Class of Trafficway was identified as "County and Local Roads Urban" or "City Streets Urban." All other Class of Trafficway entries were defined as occurring on the state system.

FIGURE-1-3
Statewide Fatalities, State Routes vs. Local Routes, 2004 to 2013



Since the year 2004, the statewide average annual vehicle miles traveled has been approximately 106.2 billion. The statewide fatality crash rate has dropped by approximately 24 percent since 2004, which is an average reduction of 3 percent per year. The fatality crash rate has been below 1.00 since the year 2008 and has had an average of 0.90 since 2009. The largest reduction occurred in the year 2008 where the fatality crash rate decreased by 15 percent, as shown in Figure 1-4.

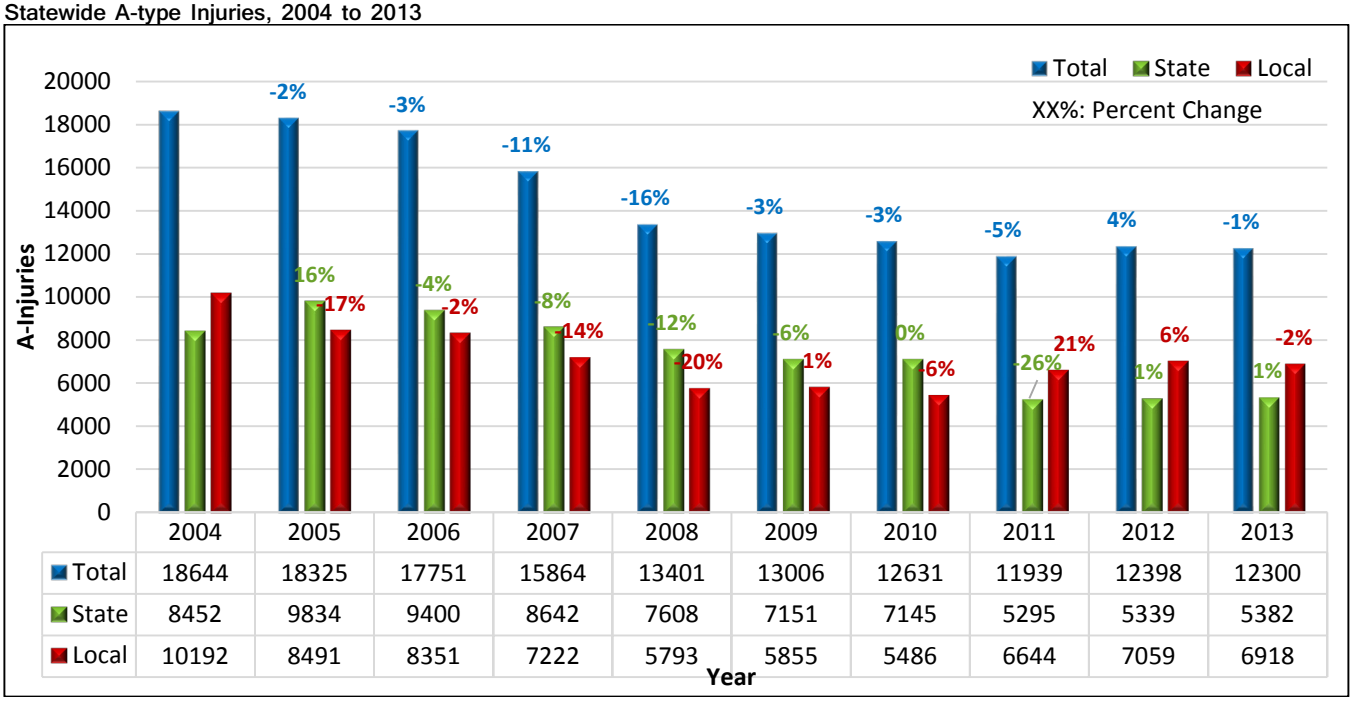
FIGURE 1-4
Statewide Fatality Crash Rate 2004 to 2013



Note: Fatality rate calculated based on HMVMT (hundred million vehicle miles traveled)

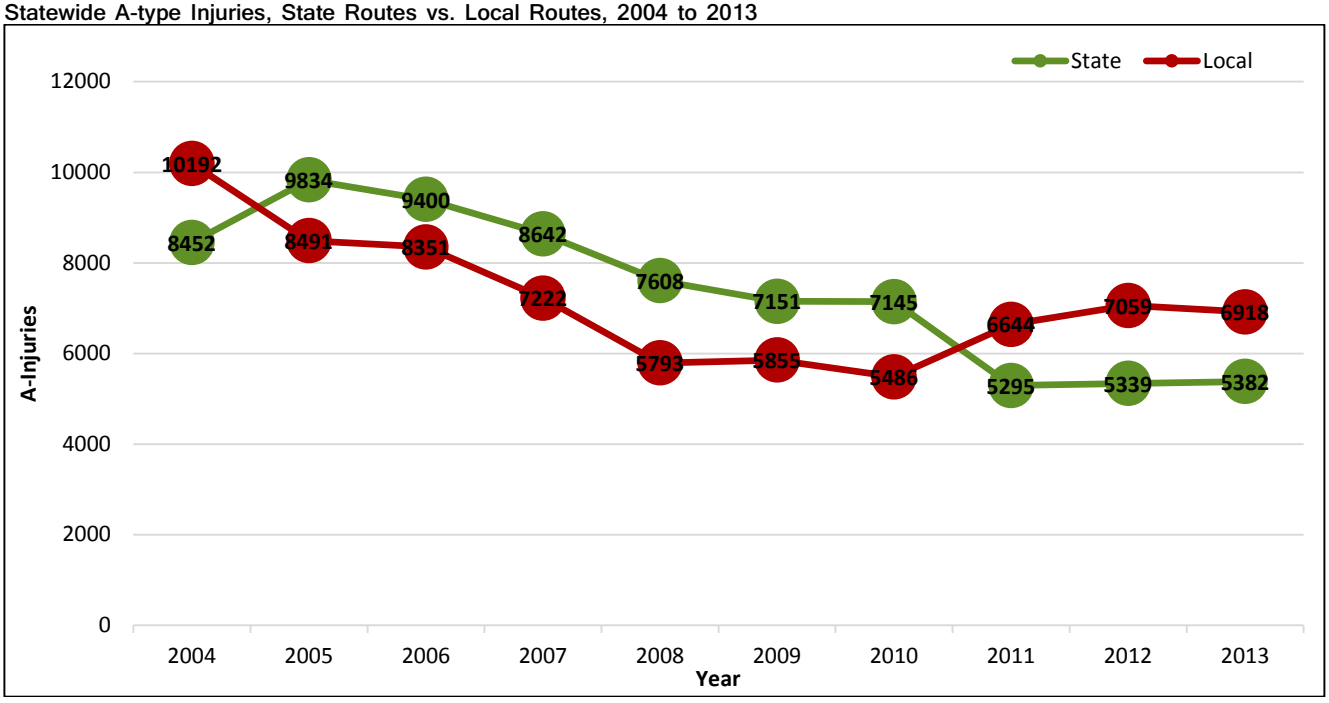
Statewide A-type injuries have seen an average reduction of 4 percent per year on state routes and 4 percent per year on local routes (Figure 1-5). Also, the total dropped from 18,644 to 12,300 or approximately 34 percent from 2004 to 2013. The split between A-type injuries on state and local routes has been roughly equal with approximately 51 percent occurring on state routes and 49 percent occurring on local routes (Figure 1-6). The split also shows that starting with year 2011, opposed to the prior years, less number of A-type injuries occurred on state routes (44%) than local routes (56%) as shown in Figure 1-6.

FIGURE 1-5
Statewide A-type Injuries, 2004 to 2013



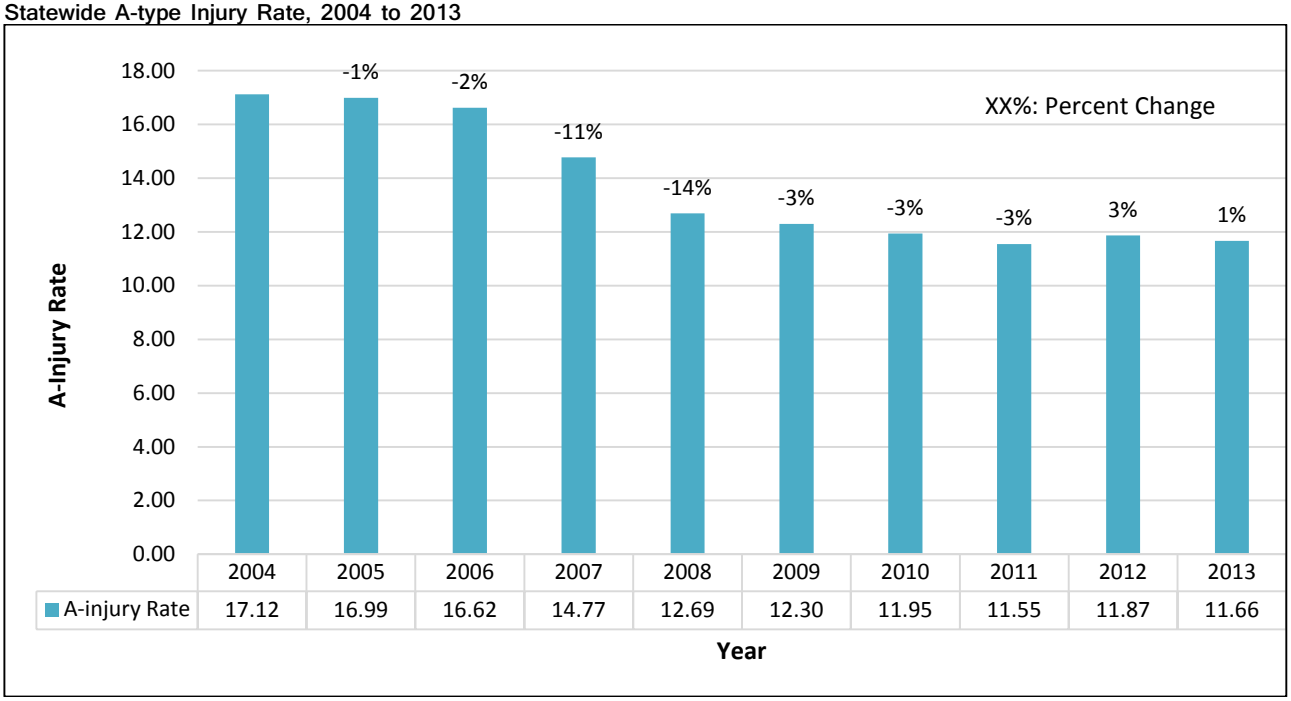
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	18644	18325	17751	15864	13401	13006	12631	11939	12398	12300
State	8452	9834	9400	8642	7608	7151	7145	5295	5339	5382
Local	10192	8491	8351	7222	5793	5855	5486	6644	7059	6918

FIGURE 1-6
Statewide A-type Injuries, State Routes vs. Local Routes, 2004 to 2013



The statewide A-type injury crash rate has dropped by approximately 32 percent since the year 2004, which is an average reduction of 4 percent per year. The greatest decrease occurred in 2008 when the A-type injury crash rate declined by 14 percent (Figure 1-7).

FIGURE 1-7
Statewide A-type Injury Rate, 2004 to 2013

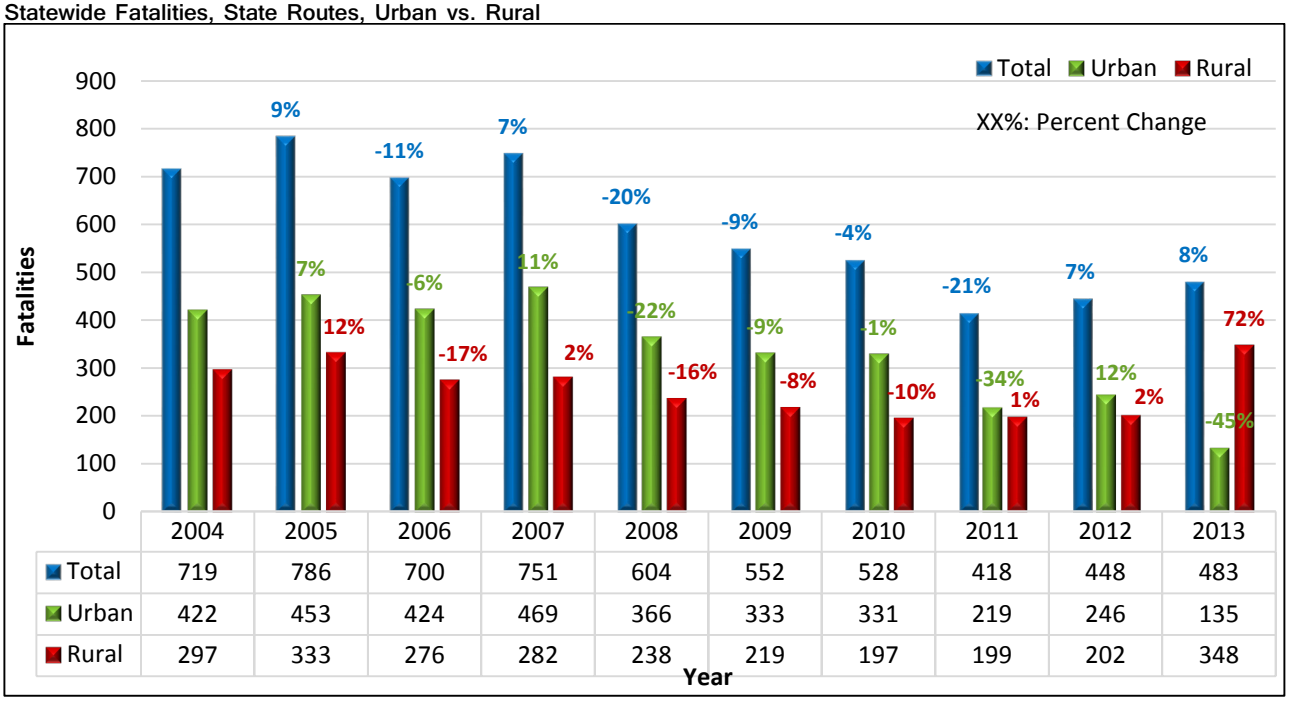


	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
A-injury Rate	17.12	16.99	16.62	14.77	12.69	12.30	11.95	11.55	11.87	11.66

Note: Fatality rate calculated based on HMVMT (hundred million vehicle miles traveled)

The split between state route fatalities in urban versus rural areas is slightly skewed toward urban areas with approximately 57 percent of state route fatalities occurring in urban areas and 43 percent of state route fatalities occurring in rural areas (Figure 1-8). The same figure 1-8 shows how on state routes alone, the occurrence of fatalities has dropped 68 percent in urban areas from 2004 to 2013, a much faster reduction compared to rural areas reduction of 17 percent.

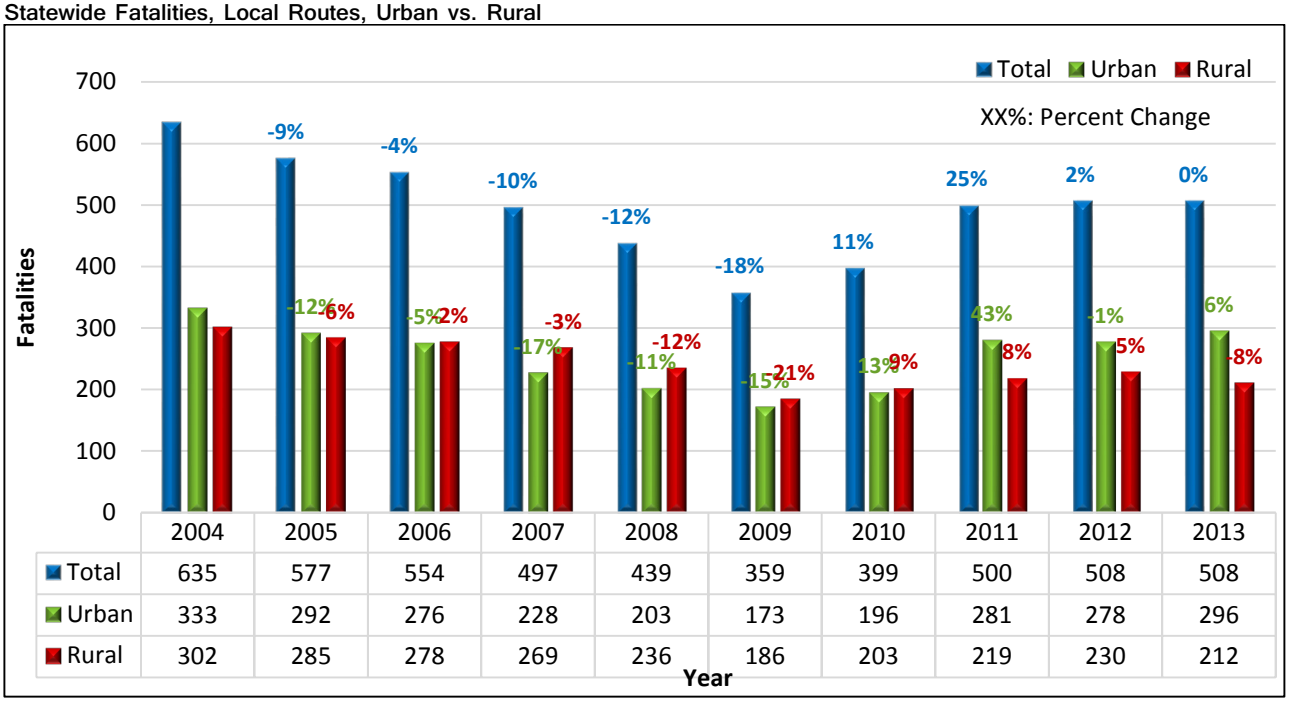
FIGURE 1-8
Statewide Fatalities, State Routes, Urban vs. Rural



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	719	786	700	751	604	552	528	418	448	483
Urban	422	453	424	469	366	333	331	219	246	135
Rural	297	333	276	282	238	219	197	199	202	348

The split between local route fatalities is nearly equal with approximately 51 percent occurring in urban areas and 49 percent occurring in rural areas (Figure 1-9).

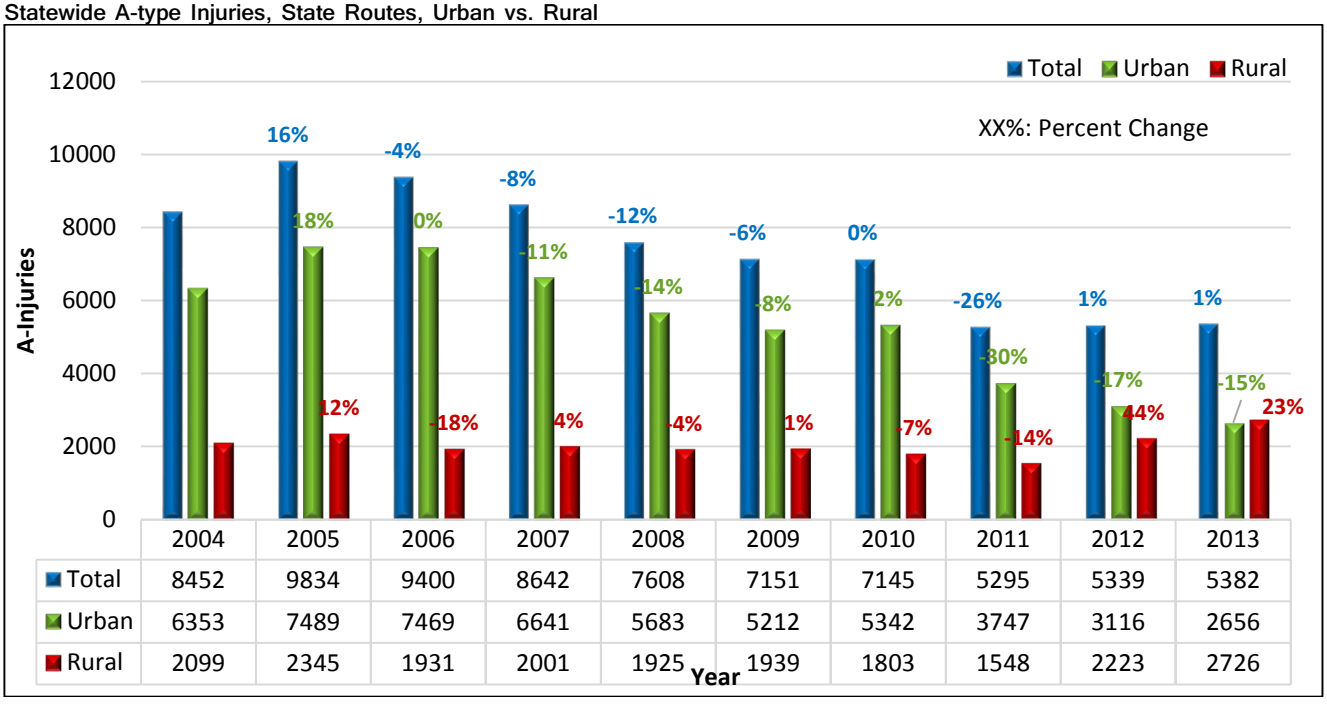
FIGURE 1-9
Statewide Fatalities, Local Routes, Urban vs. Rural



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	635	577	554	497	439	359	399	500	508	508
Urban	333	292	276	228	203	173	196	281	278	296
Rural	302	285	278	269	236	186	203	219	230	212

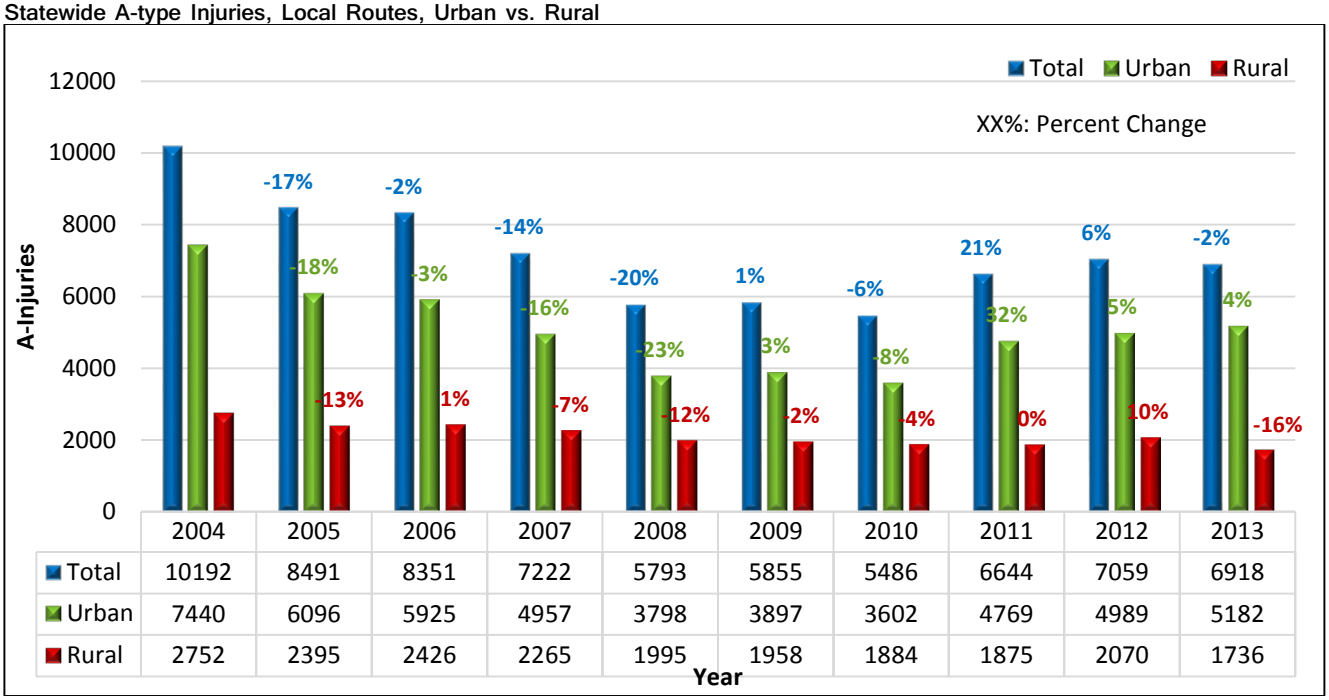
A-type injuries were more likely to occur in urban areas for both state and local routes. The split between urban versus rural for state routes is approximately 72 percent for urban areas and 28 percent for rural areas On state routes alone, the occurrence of A-type injuries has dropped 58 percent in urban areas, almost a double of rural areas reduction of 30 percent (Figure 1-10). Also, the total dropped from 8,452 to 5,382 or approximately 36 percent from 2004 to 2013. Similarly, the split for local routes is approximately 70 percent for urban areas and 30 percent for rural areas (Figure 1-11).

FIGURE 1-10
Statewide A-type Injuries, State Routes, Urban vs. Rural



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	8452	9834	9400	8642	7608	7151	7145	5295	5339	5382
Urban	6353	7489	7469	6641	5683	5212	5342	3747	3116	2656
Rural	2099	2345	1931	2001	1925	1939	1803	1548	2223	2726

FIGURE 1-11
Statewide A-type Injuries, Local Routes, Urban vs. Rural



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	10192	8491	8351	7222	5793	5855	5486	6644	7059	6918
Urban	7440	6096	5925	4957	3798	3897	3602	4769	4989	5182
Rural	2752	2395	2426	2265	1995	1958	1884	1875	2070	1736

The *Illinois Comprehensive Highway Safety Plan* (ICHSP) was developed in 2005 to meet the requirements of SAFETEA-LU. The ICHSP identified the following:

- A goal to reduce the number of traffic-related deaths from 1,454 in 2003 to 1,000 or fewer by 2008, a rate of 1.0 fatality per 100 million vehicle miles traveled (VMT)
- A unified approach for addressing traffic fatalities in Illinois
- Key crash types to target (also referred to as Critical Emphasis Areas)
- High priority strategies intended to form the focus of future programs and projects (also referred to as Critical Strategies)

The safety goals in the ICHSP were achieved, and the *Illinois Strategic Highway Safety Plan* (ISHSP) set a new goal of zero fatalities in 2009. Although recent years have been the safest, far too many people are still being killed on Illinois roadways. With that in mind, the highway safety program is targeting an aggressive new goal of "Zero Fatalities," which envisions reducing fatalities on Illinois roads to zero in the long term. Through integrating the efforts and resources of multidisciplinary safety stakeholders, the ISHSP defines a system, organization, and process for managing the attributes of the road, driver, and vehicle to achieve the highest level of highway safety. To further advance safety in Illinois, the Illinois Department of Transportation (IDOT) has initiated a program to develop county SHSPs. This development process has included data analysis and safety workshops to involve the safety partners in the challenge of reducing highway-related fatalities and life-altering injuries. Data were provided to the stakeholders who discussed the challenges and identified strategies for addressing safety concerns.

1.3 Illinois County Safety Initiative

Illinois embarked on a county safety initiative to focus safety efforts on specific counties in Illinois with a significant number of fatalities and A-type injuries. Table 1-1 shows the ranking of the fatalities and A-type injuries by county based on 2009-2013 data. Kane County is ranked 4th and is the focus of this Plan.

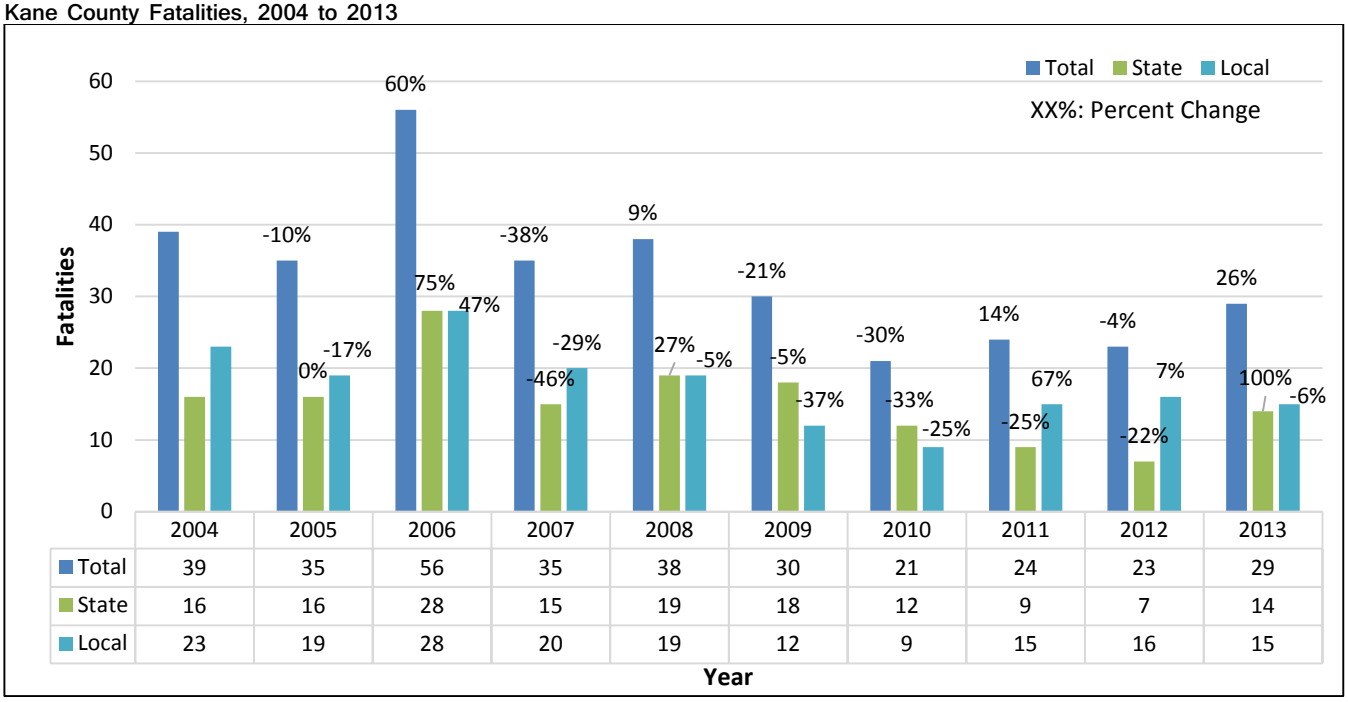
TABLE 1-1
County Ranking for Fatalities and A-type Injuries on All Roadway Networks, State and Local

Number	Code	County	Fatalities (K)	A-injuries	K+A	Tier
1	16	Cook	1254	20361	21615	1
2	22	DuPage	139	3632	3771	1
3	99	Will	215	2743	2958	1
4	45	Kane	127	2262	2389	1
5	49	Lake	137	2218	2355	1
6	60	Madison	144	1683	1827	1
7	82	St. Clair	161	1584	1745	1
8	84	Sangamon	107	1411	1518	1
9	101	Winnebago	143	1201	1344	1
10	10	Champaign	73	1192	1265	1
11	56	McHenry	85	1142	1227	1
12	72	Peoria	76	948	1024	1
13	50	LaSalle	73	950	1023	1
14	57	McLean	61	948	1009	1
15	90	Tazewell	42	888	930	1
16	46	Kankakee	66	817	883	2
17	58	Macon	43	770	813	2
18	100	Williamson	45	725	770	2
19	81	Rock Island	29	643	672	2
20	41	Jefferson	47	561	608	2
21	39	Jackson	31	571	602	2
22	92	Vermilion	51	546	597	2
23	19	DeKalb	38	551	589	2
24	28	Franklin	38	529	567	2
25	98	Whiteside	28	484	512	2
26	25	Effingham	43	423	466	2
27	47	Kendall	39	423	462	2
28	15	Coles	49	409	458	2
29	32	Grundy	37	366	403	2
30	4	Boone	36	336	372	2
31	89	Stephenson	23	347	370	2
32	68	Montgomery	28	328	356	2
33	38	Iroquois	51	303	354	2
34	61	Marion	24	318	342	2
35	71	Ogle	45	293	338	2

1.4 Kane County

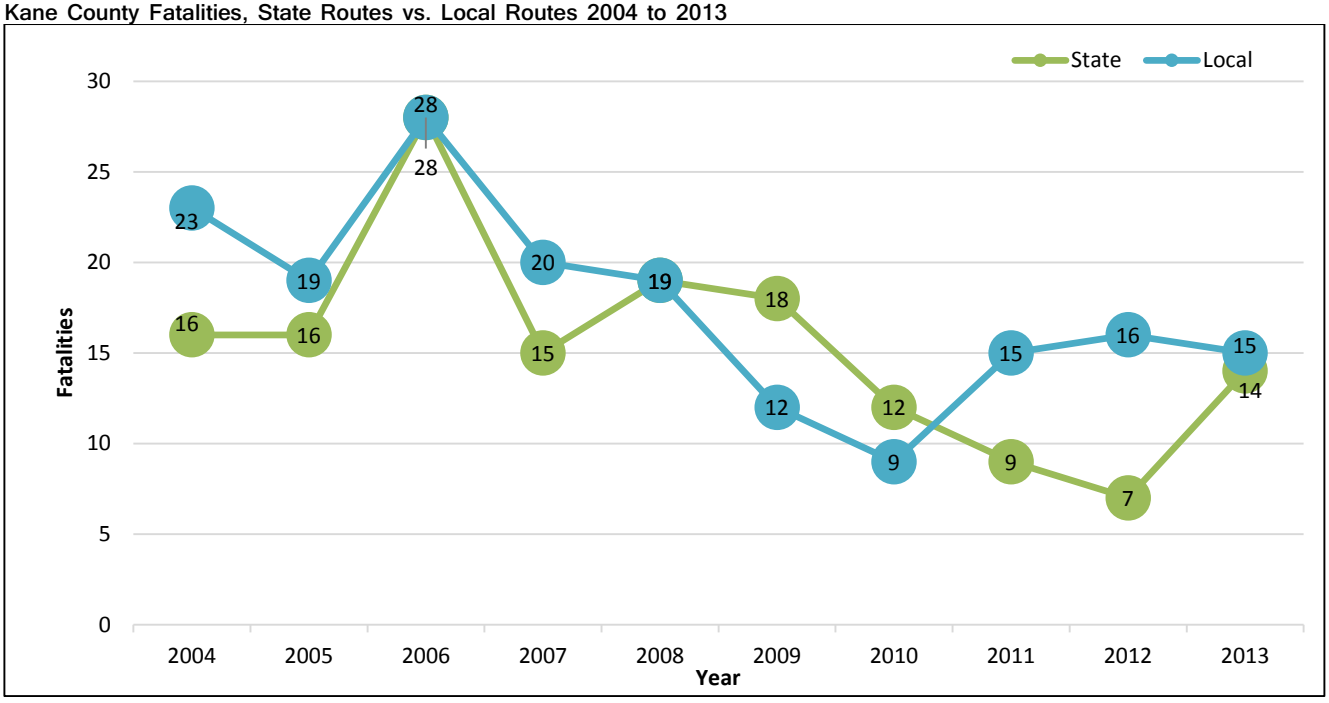
While there have been some declines, the number of traffic fatalities in Kane County have been sporadic with an average reduction in fatalities of 3 percent per year as shown in Figure 1-12. Also, the total dropped from 39 to 29 or approximately 26 percent from 2004 to 2013. Over the years the split between fatalities on state and local routes has been roughly equal with approximately 47 percent occurring on state routes and 53 percent occurring on local routes (Figure 1-13).

FIGURE 1-12
Kane County Fatalities, 2004 to 2013



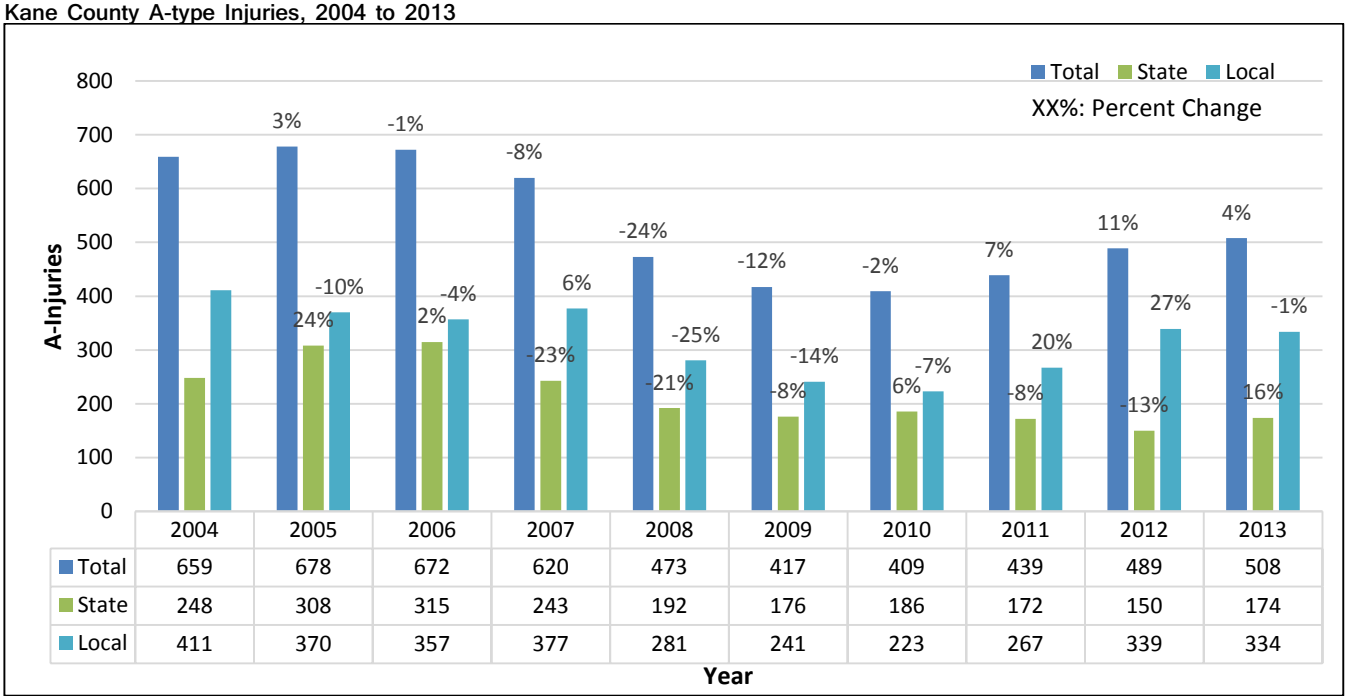
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	39	35	56	35	38	30	21	24	23	29
State	16	16	28	15	19	18	12	9	7	14
Local	23	19	28	20	19	12	9	15	16	15

FIGURE 1-13
Kane County Fatalities, State Routes vs. Local Routes 2004 to 2013



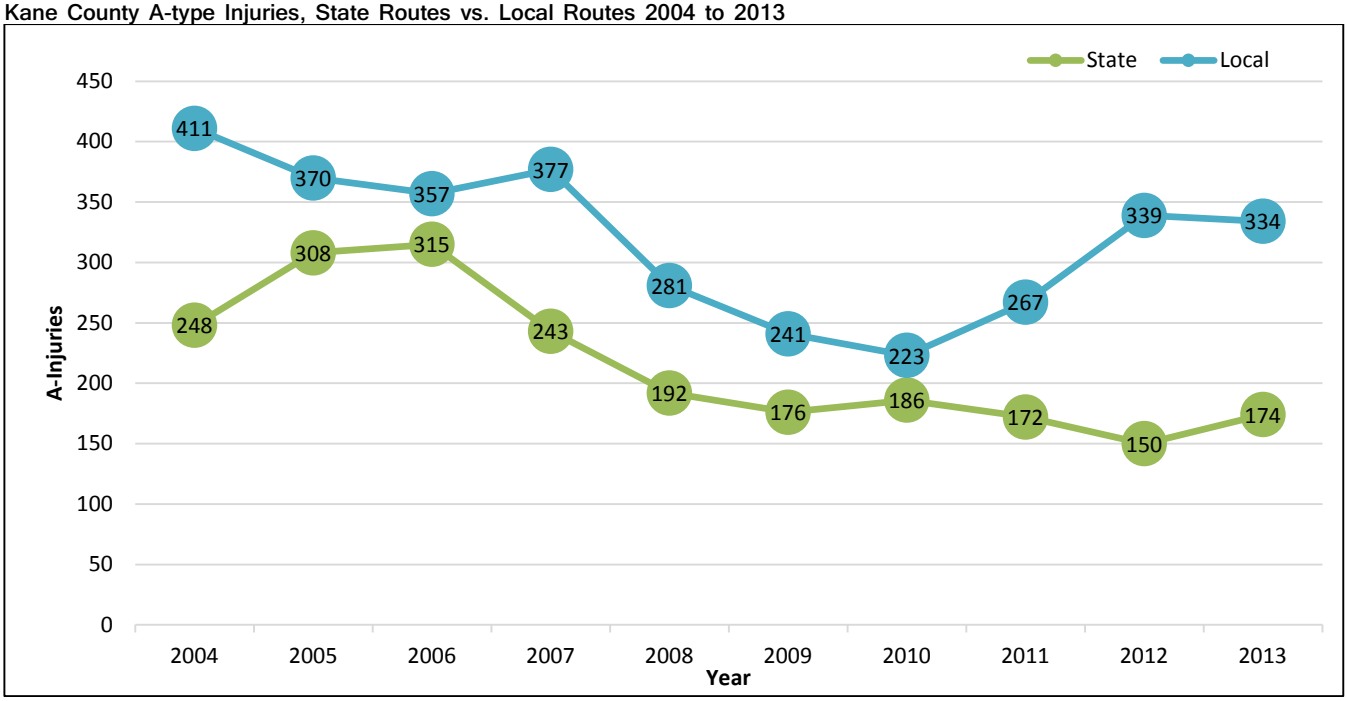
Since the year 2004, there has been a 23 percent reduction of A-type injuries in Kane County from 659 to 508, which is an average decrease of 3 percent per year (Figure 1-14). A-type injuries on state routes have decreased at an average of 3 percent per year, and A-type injuries on local routes have decreased at an average of 2 percent per year. The split between A-type injuries over the years on state and local routes is slightly skewed toward local routes with approximately 40 percent occurring on state routes and 60 percent occurring on local routes, as shown in Figure 1-15.

FIGURE 1-14
Kane County A-type Injuries, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	659	678	672	620	473	417	409	439	489	508
State	248	308	315	243	192	176	186	172	150	174
Local	411	370	357	377	281	241	223	267	339	334

FIGURE 1-15
Kane County A-type Injuries, State Routes vs. Local Routes 2004 to 2013



The national SHSP and the ISHSP were developed through coordination with a variety of stakeholders from public and private agencies. In Illinois, the processes for the ISHSP and this county-specific Plan involve working with stakeholders outside of the traditional safety planning process—including planning organizations, counties, cities, or tribal units of government—when developing countermeasures to address county-specific safety issues. Individuals representing the 4 E's were invited to participate in the SHSP process. Those representing other modes of transportation—such as bicycle, pedestrian, commercial vehicles, and motorcycles—were also encouraged to participate.

A county safety workshop was held on June 14, 2012, under the direction of IDOT Bureau of Safety Engineering. Stakeholders were invited to participate with the goal of providing them with an overview of the County crash data analysis results, developing strategies, and discussing shortlist and strategies prioritization. Workshop handouts are provided in Appendix A.

An important part of the Plan process has been the identification of road safety partners already in place in the community. These partners provided substantial input to the identification and prioritization of road safety issues and solutions for this Plan. Key agencies involved in the development of this Plan include:

- Illinois State Police Department
- FHWA
- IDOT

Kane County's SHSP was prepared as part of the Illinois statewide highway safety planning process. Specifically, this Plan includes:

- A description of the Safety Emphasis Areas (Section 2)
- Data analysis of each of the emphasis areas (Section 2)
- Identification of a short list of high priority, low-cost Safety Strategies (Section 2)
- A Location-specific Analysis of Emphasis Areas (Section 3)

This Plan is meant to serve as a guiding document to identify emphasis areas and high payoff strategies to reduce fatalities and serious injuries in Kane County. Goals and measurable objectives should be developed to gauge progress and the effectiveness of current countermeasure strategies. Before and After Studies can be performed as more historical safety data become available to identify proven countermeasures that address the key emphasis areas. This Plan should be updated regularly as more countermeasures are implemented and safety data improve, so that analysis techniques can be modified and refined toward making more informed decisions in the future.

1.5 Goals

Waiting to include County's goals here.

IDOT BSE has provided historical fatalities, serious injury, fatality rate, and serious injury rate data to be used for goal setting for Kane County. A goal setting spreadsheet has been developed with the provided data shown in Table 1-2. This table uses a "set" annual reduction rate of 8.0% in Kane County for crash reduction objectives

TABLE 1-2
Kane County Performance Measures Goal Setting

Performance Measures*	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of fatalities (Total)	39	35	56	35	38	30	21	24	23	29
Number of fatalities (State Routes)	16	16	28	15	19	18	12	9	7	14
Number of fatalities (Local Routes)	23	19	28	20	19	12	9	15	16	15
Number of serious injuries (Total)	659	678	672	620	473	417	409	439	489	508
Number of serious injuries (State Routes)	248	308	315	243	192	176	186	172	150	174
Number of serious injuries (Local Routes)	411	370	357	377	281	241	223	267	339	334
Fatality rate (per HMVMT)	1.1	1.0	1.6	1.0	1.0	0.8	0.6	0.7	0.6	0.8
Serious injury rate (per HMVMT)	18.8	19.3	18.7	17.0	13.0	11.7	11.5	12.4	13.0	13.3
i. 5 Yr Rolling Avg Number of fatalities	Cannot calculate 5-year rolling averages for these years.				41	39	36	30	27	25
ii. 5 Yr Rolling Avg Number of serious injuries (A only)					620	572	518	472	445	452
iii. 5 Yr Rolling Avg Fatality rate (per HMVMT)					1.1	1.1	1.0	0.8	0.8	0.7
iv. 5 Yr Rolling Avg Serious injury rate (per HMVMT)					17.4	15.9	14.4	13.1	12.3	12.4

Source: IDOT Crash Extracts, Total Killed and A-Injuries; Illinois travel statistics

*States should use a 5-year rolling average to present the performance measures

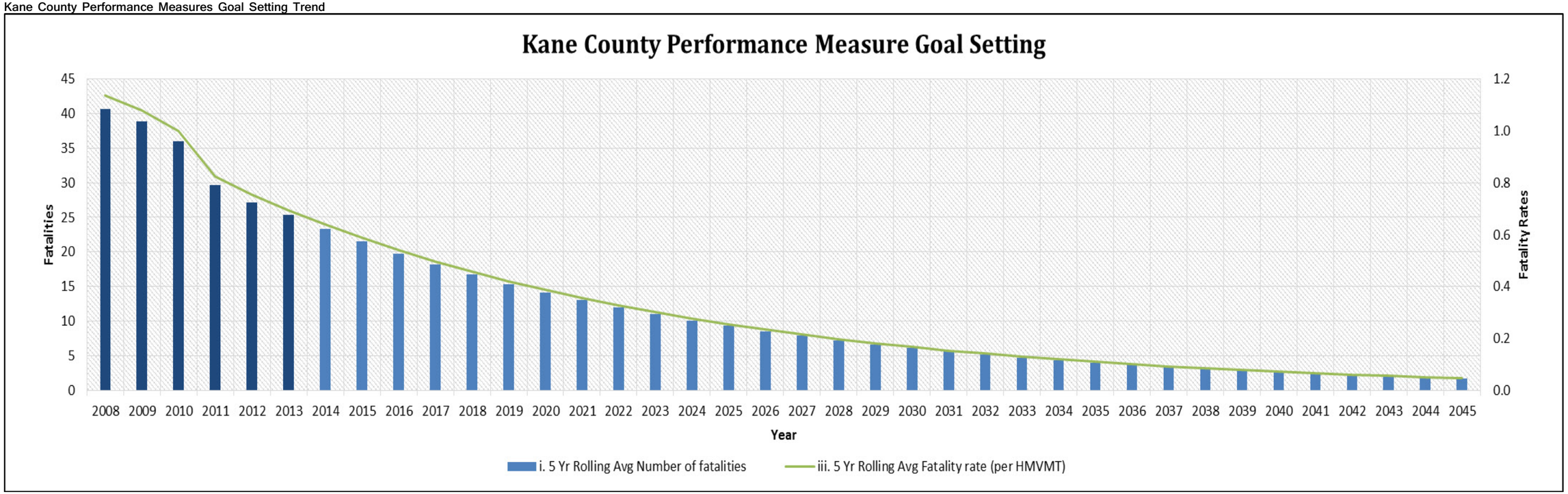
These used for calculations; raw numbers for each year.
These are the numbers that should be QC'ed and used in the reporting table.

Decreasing rate: **8.00%**

* Projections are based on a 0.08 decrease per year and reflect the 5-year rolling average decrease.

	Average Rate	2008	2009	2010	2011	2012	2013 (set rate)
i	-9.11%	-4.43%	-7.22%	-17.78%	-8.11%	-6.62%	-8.00%
ii	-7.95%	-7.80%	-9.41%	-8.99%	-5.56%	1.57%	-8.00%
iii	-9.30%	-4.86%	-7.48%	-17.65%	-8.48%	-7.70%	-8.00%
iv	-8.19%	-8.27%	-9.75%	-8.79%	-6.13%	0.39%	-8.00%
Avg.	-8.64%						

FIGURE 1-16
Kane County Performance Measures Goal Setting Trend



Section 2 Prioritizing Emphasis Areas

Emphasis areas were chosen based on the greatest frequency of fatalities and A-type injuries and those showing an overrepresentation when compared to the statewide system. The Kane County Emphasis Area Table (Table 2-1) shows the frequency and percentage of severe crashes per emphasis area for Kane County and the Illinois statewide system. The unrestrained, pedestrian, and pedalcyclist categories only include severe crashes of persons fitting these descriptions, while the remaining categories include all severe crashes inflicted by the category's description. The emphasis area categories are not mutually exclusive, and thus severe crashes may be included in multiple categories. The data definitions for the emphasis areas can be found in Appendix C. In total, 13 emphasis areas were selected: Younger Driver, Older Driver, Speeding and Aggressive Driving, Impaired Driver, Unrestrained Driver, Pedestrian, Pedalcyclist, Motorcycle, Heavy Vehicle, Roadway Departure, Intersection, Work Zone, and Distracted/Fatigued/Drowsy Driver.

The majority of the state system, severe crashes in urban areas were classified as road departure for non-intersection locations and turning at signalized intersections. The most frequent collision type in rural areas of state system was road departure for non-intersection locations. The most common collision type on the local system was roadway departure for non-intersection locations and turning for signalized intersections and angle for unsignalized intersections. The majority of severe crashes on both state and local routes occurred in urban areas where the most frequent collision types were road departure for non-intersection locations and turning for signalized intersections.

Throughout the rest of this section, each emphasis area's subsection ends with a list of strategies. More strategies are shown in Appendix D. Also, Appendix E expands on the details of some countermeasures, showing their effectiveness and impact.

2.1 Data Trees

Data Trees are used to identify the jurisdiction, location, and various other factors pertaining to crashes to support and guide local safety planning efforts. The data tree shows a 5-year frequency and percentage for all crash severity types and severe crash types only. A 5-year period is used to give an overall understanding of the crashes, rather than looking at random crashes for each year. It is important to ensure that other potential locations where severe crashes have occurred are considered for safety improvements, to reduce fatal or severe crashes in the near future. Data trees are highly beneficial in determining which jurisdiction of roadways should be the primary concern focus area. Appendix F explains how to read Data Trees in more detail.

Kane County Crash Data Trees are illustrated in six figures and are divided into state and local systems. Figures 2-1 through 2-6 indicate that 32 percent (600 out of 1,853) of severe crashes occurred on state routes, and 64 percent (1,181 out of 1,853) of severe crashes occurred on local routes. Figure 2-1 on the state system, 52 percent (314 out of 1,181) occurred on principal arterial routes, where 97 percent occurred (305 out of 314) in urban areas and 3 percent (9 out of 314) occurred in rural areas. On the local routes, the majority (31 percent) of the severe crashes occurred on principal arterial routes, where 91 percent (278 out of 305) occurred in urban areas and 9 percent (27 out of 305) in rural areas (see Figure 2-6).

TABLE 2-1

Kane County Emphasis Areas

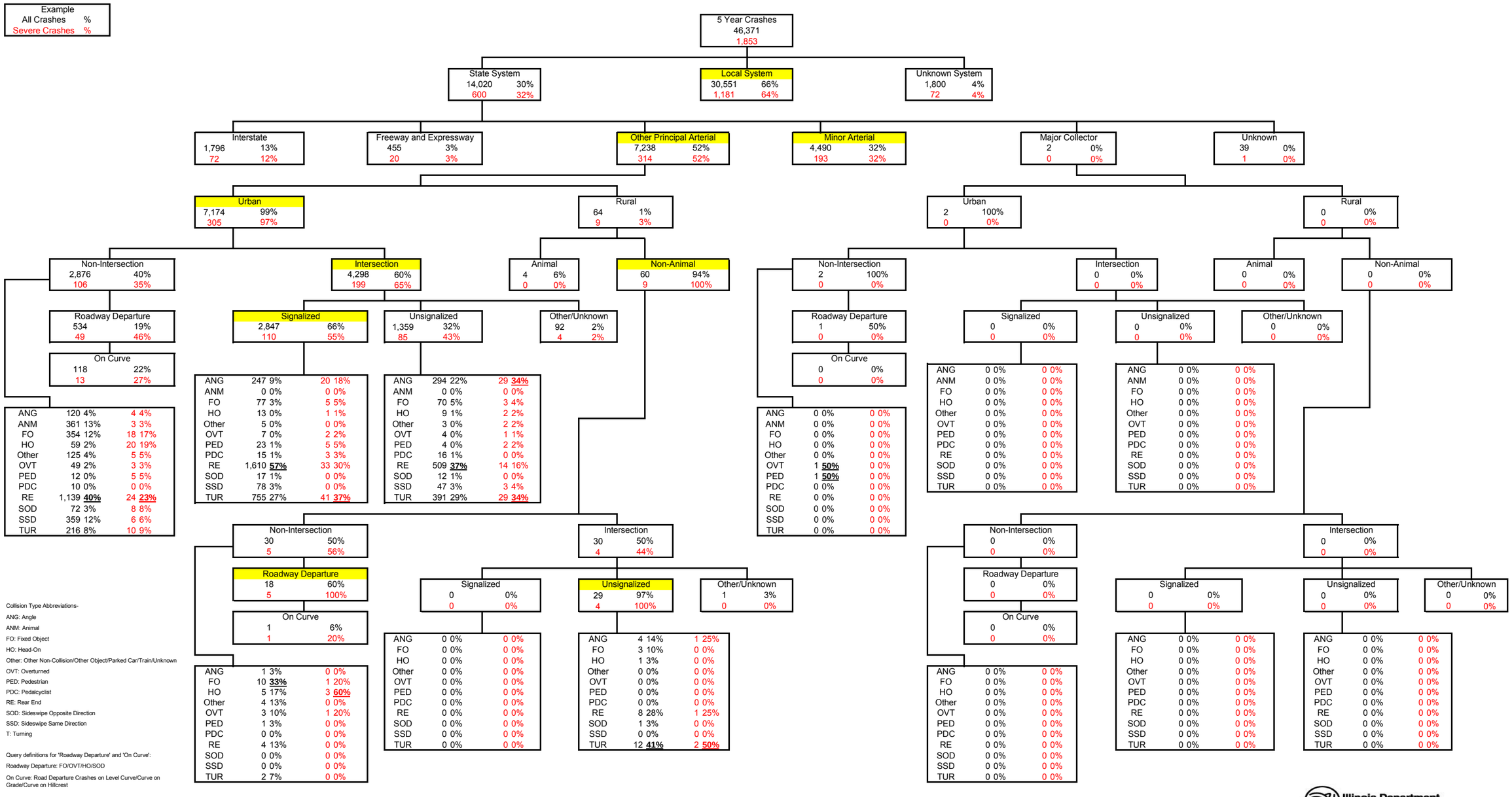
Statewide Comparison (2009 to 2013 Fatalities and A-Injuries)

Emphasis Areas (14 areas)	Illinois Statewide				Kane County			
	State Routes		Local Routes		State Routes		Local Routes	
	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency
Total Fatalities and A-Injuries		32741		34236		918		1471
Younger Driver (16-20)	19.2%	6271	21.4%	7310	22.9%	210	24.8%	365
Older Driver (65+)	17.4%	5688	13.7%	4685	14.6%	134	14.3%	211
Unsafe Driver Behavior	46.1%	15101	43.9%	15024	44.7%	410	43.0%	632
Speeding and Aggressive Driver	22.1%	7238	20.2%	6930	25.3%	232	24.1%	354
Impaired Driver	16.0%	5243	16.8%	5753	17.6%	162	14.2%	209
Unrestrained Occupants	20.5%	6712	21.9%	7482	14.2%	130	13.8%	203
Pedestrian	5.6%	1832	10.8%	3683	3.9%	36	7.0%	103
Pedalcyclist	1.8%	573	4.8%	1649	1.2%	11	3.2%	47
Motorcycle	9.0%	2945	10.0%	3407	8.5%	78	8.8%	130
Heavy Vehicle	10.5%	3450	4.5%	1551	9.0%	83	3.8%	56
Train	0.0%	10	0.2%	82	0.0%	0	0.1%	2
Road Departure	31.4%	10267	35.6%	12176	29.2%	268	26.2%	385
Intersection Related	42.6%	13947	42.1%	14427	48.9%	449	51.5%	758
Work Zone	2.6%	862	1.0%	358	2.4%	22	1.3%	19
Distracted/Fatigued/Drowsy Driver	5.4%	1766	4.6%	1572	6.6%	61	5.2%	77

DISCLAIMER: Results of the analyses shown in this table are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Figure 2-1
Kane County, Illinois
2009 to 2013 Crash Data Overview
State System - Other Principal Arterial & Major Collector Roadways

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)



Collision Type Abbreviations-
ANG: Angle
ANM: Animal
FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
OVT: Overturned
PED: Pedestrian
PDC: Pedalcyclist
RE: Rear End
SOD: Sideswipe Opposite Direction
SSD: Sideswipe Same Direction
T: Turning

Query definitions for 'Roadway Departure' and 'On Curve':
Roadway Departure: FO/OVT/HO/SOD
On Curve: Road Departure Crashes on Level Curve/Curve on Grade/Curve on Hillcrest

Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

Intersection crashes are defined as crashes coded as intersection related by the reporting police officer. Traffic control devices are considered 'Signalized' if the code is equal to '3 - Traffic Signal'. 'Non-Signalized' codes is equal to '1 - No Controls', '2 - Stop Sign/Flasher' or '4 - Yield'. 'Other/Unknown' traffic control codes are the remaining inputs.

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Figure 2-2
Kane County, Illinois
2009 to 2013 Crash Data Overview
State System - Interstate & Freeway and Expressway Roadways

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

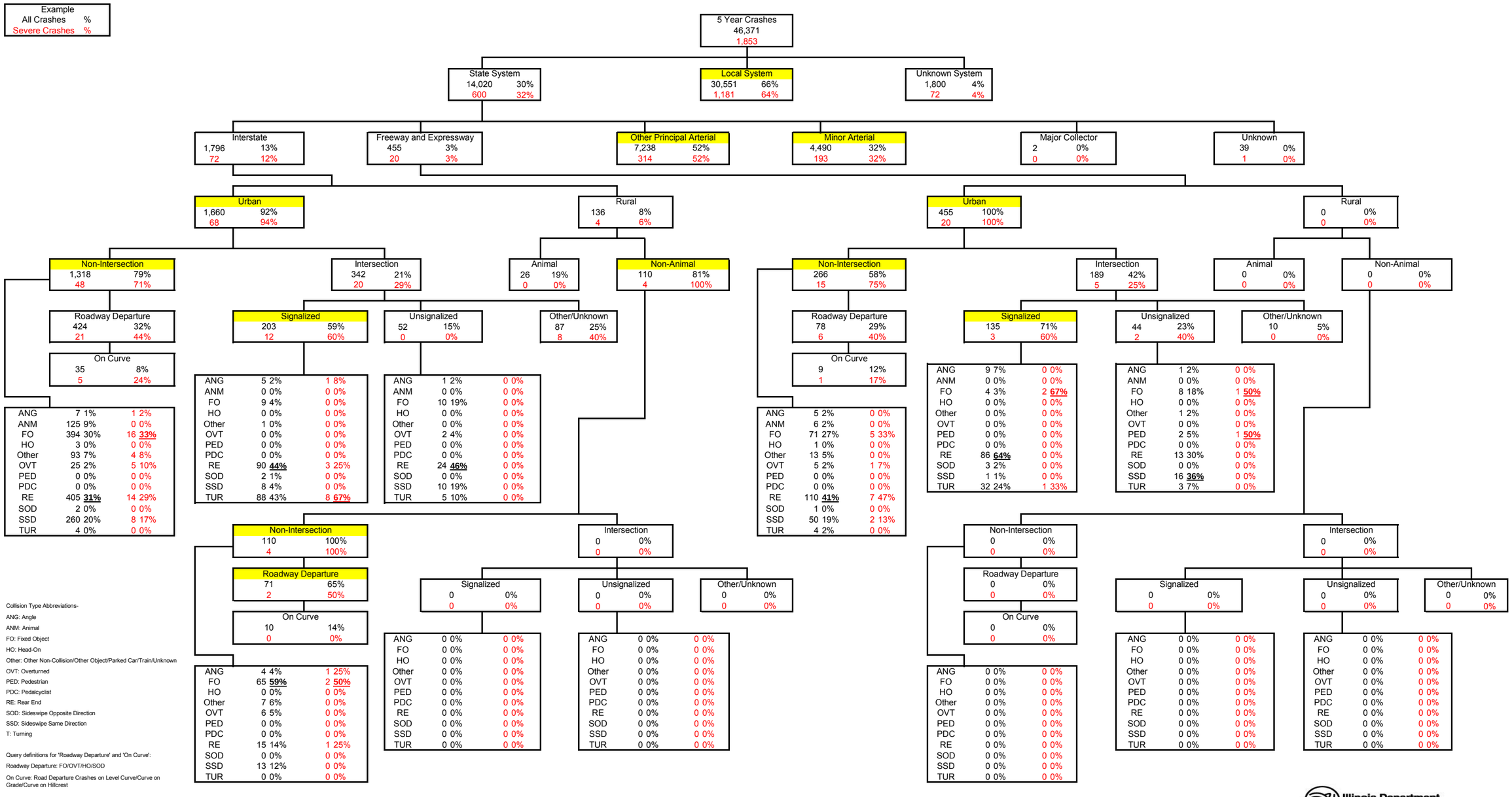

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Figure 2-3
Kane County, Illinois
2009 to 2013 Crash Data Overview
State System - Minor Arterial Roadways

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

Example	
All Crashes	%
Severe Crashes	%

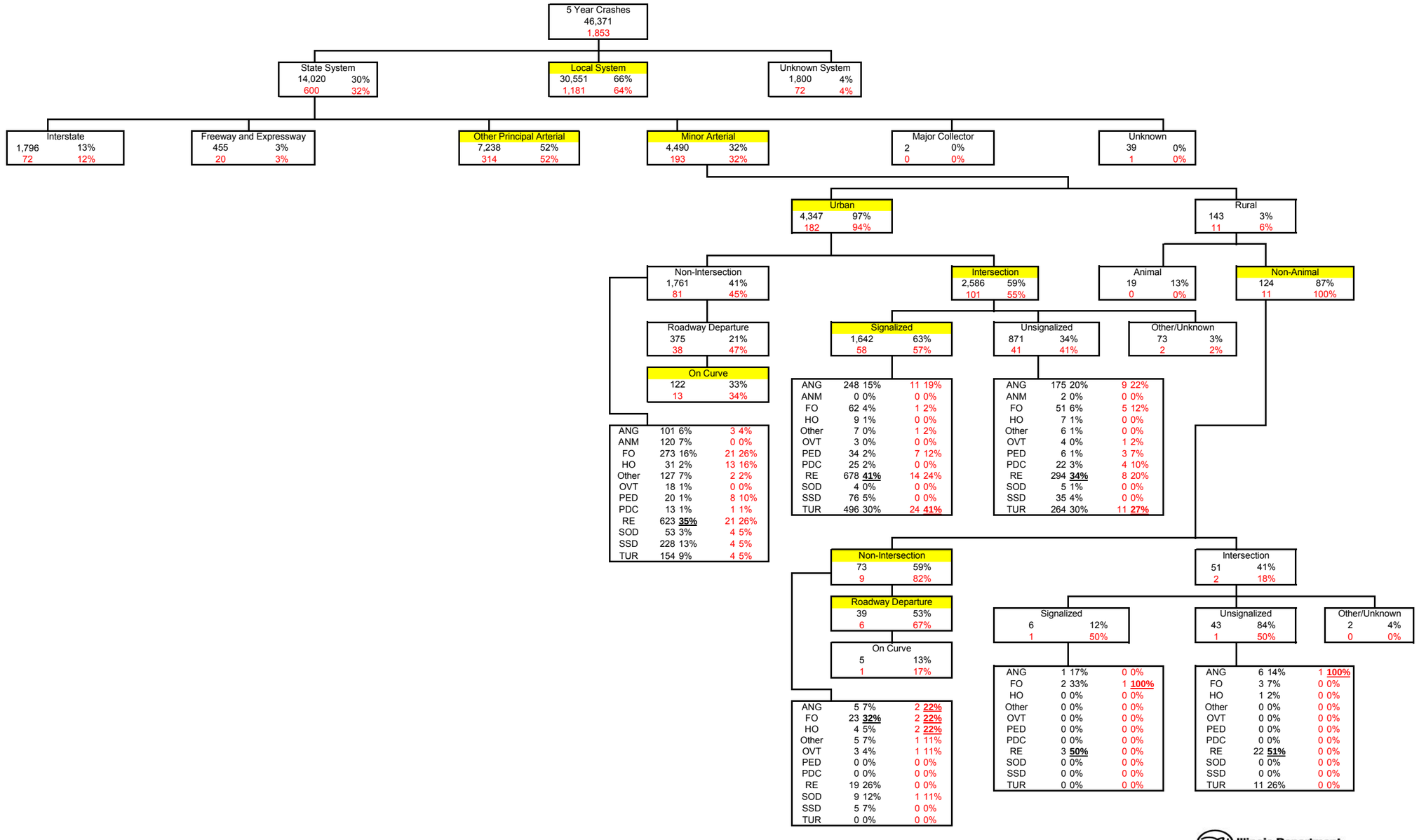

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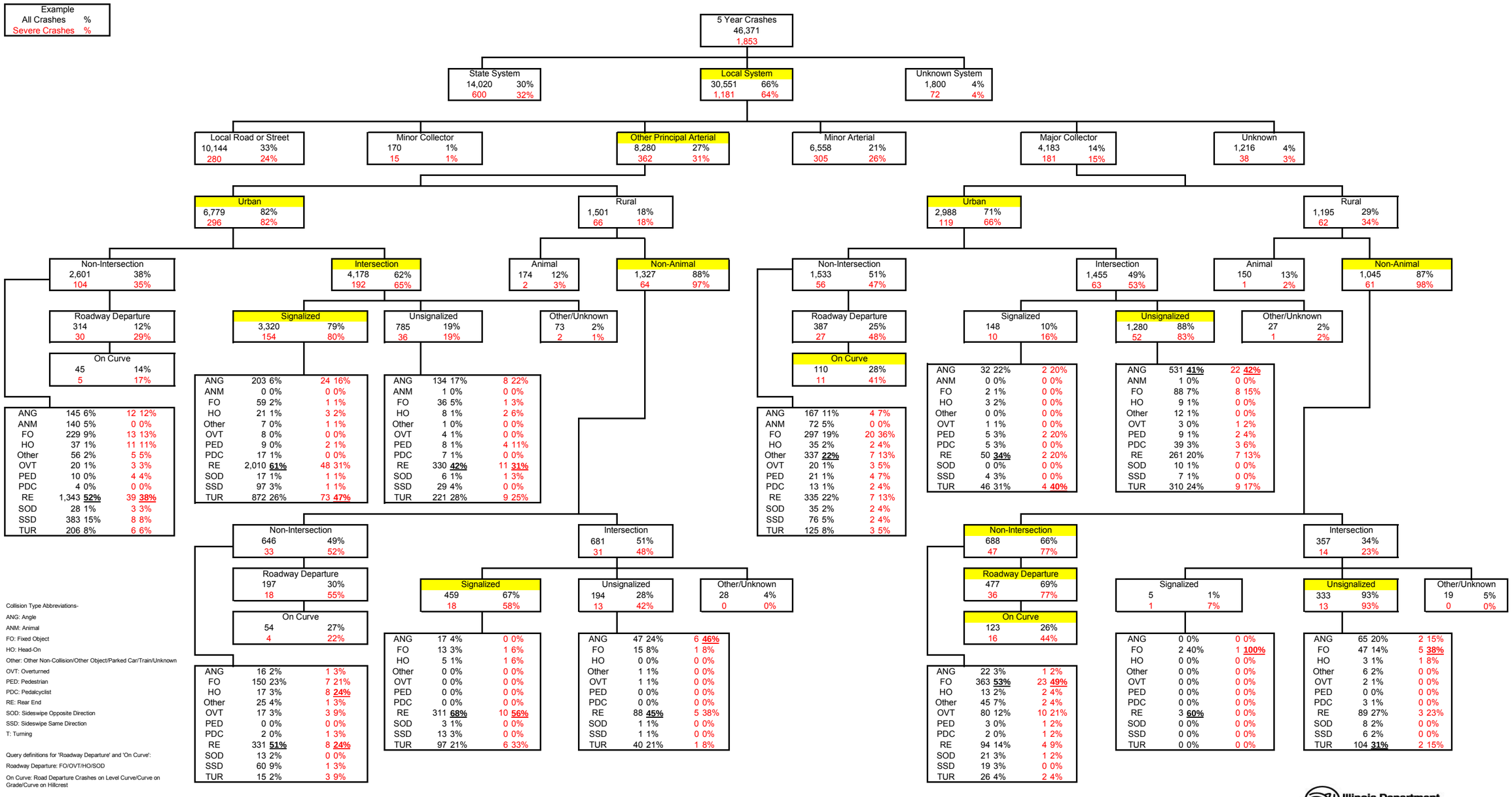
Figure 2-4
Kane County, Illinois
2009 to 2013 Crash Data Overview
Local System - Other Principal Arterial & Major Collector Roadways

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)



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Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

Intersection crashes are defined as crashes coded as intersection related by the reporting police officer. Traffic control devices are considered 'Signalized' if the code is equal to '3 - Traffic Signal'. 'Non-Signalized' codes is equal to '1 - No Controls', '2 - Stop Sign/Flasher' or '4 - Yield'. 'Other/Unknown' traffic control codes are the remaining inputs.

State System/Local System/Unknown System is defined by the Class of Trafficway code in the Illinois Roadway Inventory System. Crashes are considered 'Local' if the Class of Trafficway code is equal to '3 - County and Local Roads Rural' or '8 - City Streets Urban'. 'Unknown Systems' are equal to '0 - Unknown Urban/Rural'. All other entries are 'State System'.

Results of the analyses are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for years 2009 to 2012 was received from IDOT on November 26, 2013, and crash data for 2013 was received from IDOT on December 4, 2014. The data was used "as is" for analysis purposes and should be interpreted accordingly.

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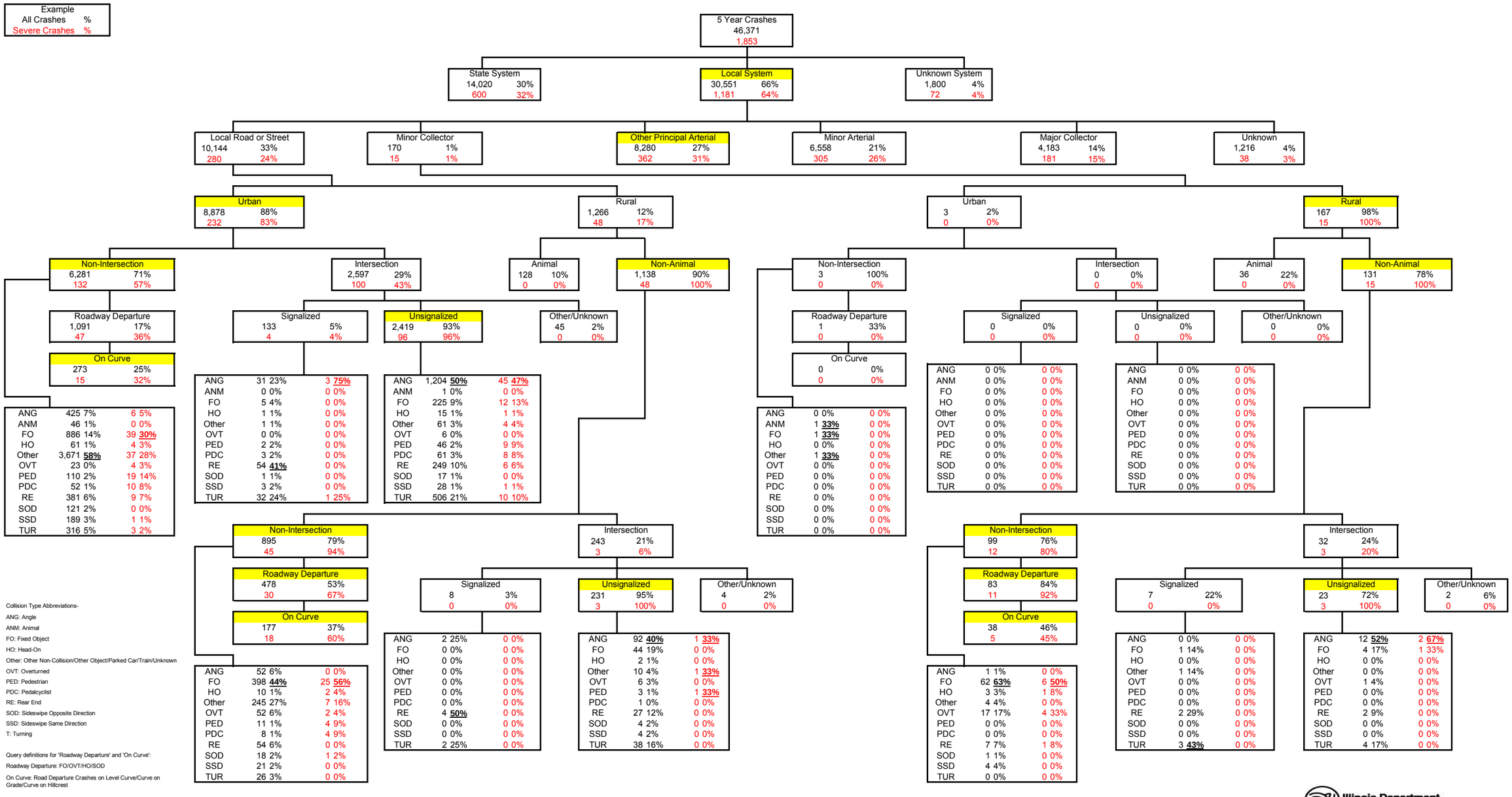
Figure 2-5
Kane County, Illinois
2009 to 2013 Crash Data Overview
Local System - Local Road or Street & Minor Collector Roadways

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)



Collision Type Abbreviations-
ANG: Angle
ANM: Animal
FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
OVT: Overturned
PED: Pedestrian
PDC: Pedalcyclist
RE: Rear End
SOD: Sideswipe Opposite Direction
SSD: Sideswipe Same Direction
T: Turning

Query definitions for 'Roadway Departure' and 'On Curve':
Roadway Departure: FO/OVT/HO/SOD
On Curve: Road Departure Crashes on Level Curve/Curve on Grade/Curve on Hillcrest

Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

Intersection crashes are defined as crashes coded as intersection related by the reporting police officer. Traffic control devices are considered 'Signalized' if the code is equal to '3 - Traffic Signal'. 'Non-Signalized' codes is equal to '1 - No Controls', '2 - Stop Sign/Flasher' or '4 - Yield'. 'Other/Unknown' traffic control codes are the remaining inputs.

State System/Local System/Unknown System is defined by the Class of Trafficway code in the Illinois Roadway Inventory System. Crashes are considered 'Local' if the Class of Trafficway code is equal to '3 - County and Local Roads Rural' or '8 - City Streets Urban'. 'Unknown Systems' are equal to '0 - Unknown Urban/Rural'. All other entries are 'State System'.

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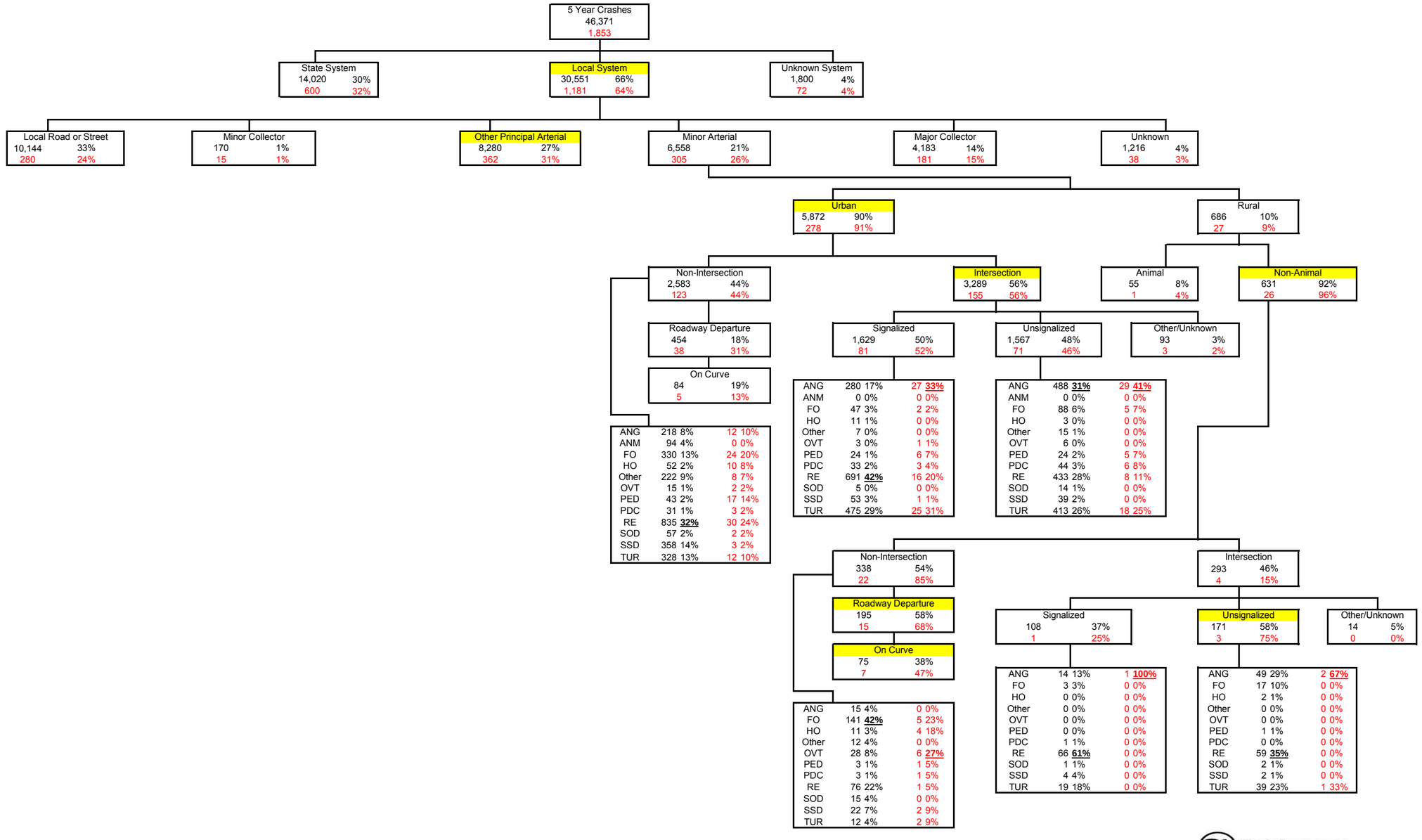
Figure 2-6
Kane County, Illinois
2009 to 2013 Crash Data Overview Local System - Minor Arterial Roadways

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

Example	
All Crashes	%
Severe Crashes	%



Collision Type Abbreviations-
ANG: Angle
ANM: Animal
FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
OVT: Overturned
PED: Pedestrian
PDC: Pedalcyclist
RE: Rear End
SOD: Sideswipe Opposite Direction
SSD: Sideswipe Same Direction
T: Turning

Query definitions for 'Roadway Departure' and 'On Curve':

Roadway Departure: FO/OVT/HO/SOD

On Curve: Road Departure Crashes on Level Curve/Curve on Grade/Curve on Hillcrest

Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

Intersection crashes are defined as crashes coded as intersection related by the reporting police officer. Traffic control devices are considered 'Signalized' if the code is equal to '3 - Traffic Signal'. 'Non-Signalized' codes is equal to '1 - No Controls', '2 - Stop Sign/Flasher' or '4 - Yield'. 'Other/Unknown' traffic control codes are the remaining inputs.

State System/Local System/Unknown System is defined by the Class of Trafficway code in the Illinois Roadway Inventory System. Crashes are considered 'Local' if the Class of Trafficway code is equal to '3 - County and Local Roads Rural' or '8 - City Streets Urban'. 'Unknown Systems' are equal to '0 - Unknown Urban/Rural'. All other entries are 'State System'.

Results of the analyses are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for years 2009 to 2012 was received from IDOT on November 26, 2013, and crash data for 2013 was received from IDOT on December 4, 2014. The data was used "as is" for analysis purposes and should be interpreted accordingly.

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2.2 Age Related

Age related fatalities and A-type injuries consist of both younger drivers age 16 to 20 (Figure 2-7) and older drivers age 65 and older (Figure 2-8). These categories represent a subset of the driving population that deserves special attention. Younger drivers are more likely to be involved in a motor vehicle crash than any other age group. Young drivers are less experienced with complex driving tasks and are more likely to engage in risky driving behaviors. Older drivers frequently experience diminished reflexes, flexibility, visual acuity, memory, and the ability to focus due to normal aging or medical problems. Older drivers are also more vulnerable to injury once in a crash.

FIGURE 2-7
Younger Driver (16 to 20) Fatalities and A-type Injuries 2009 to 2013

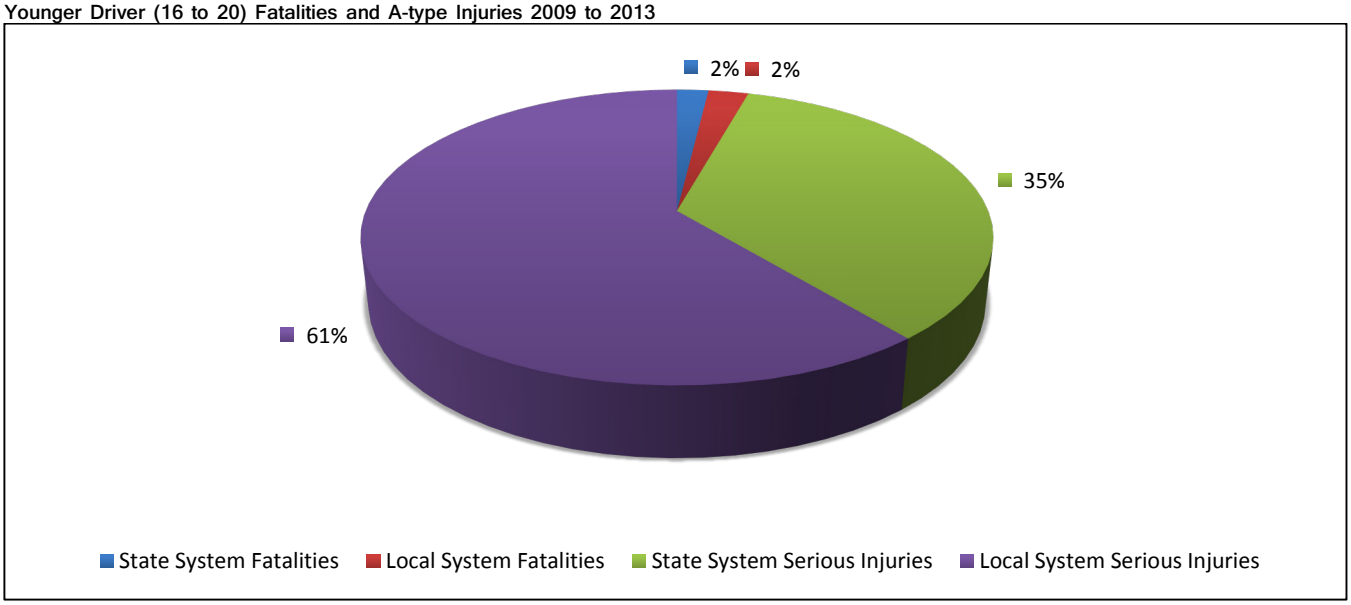
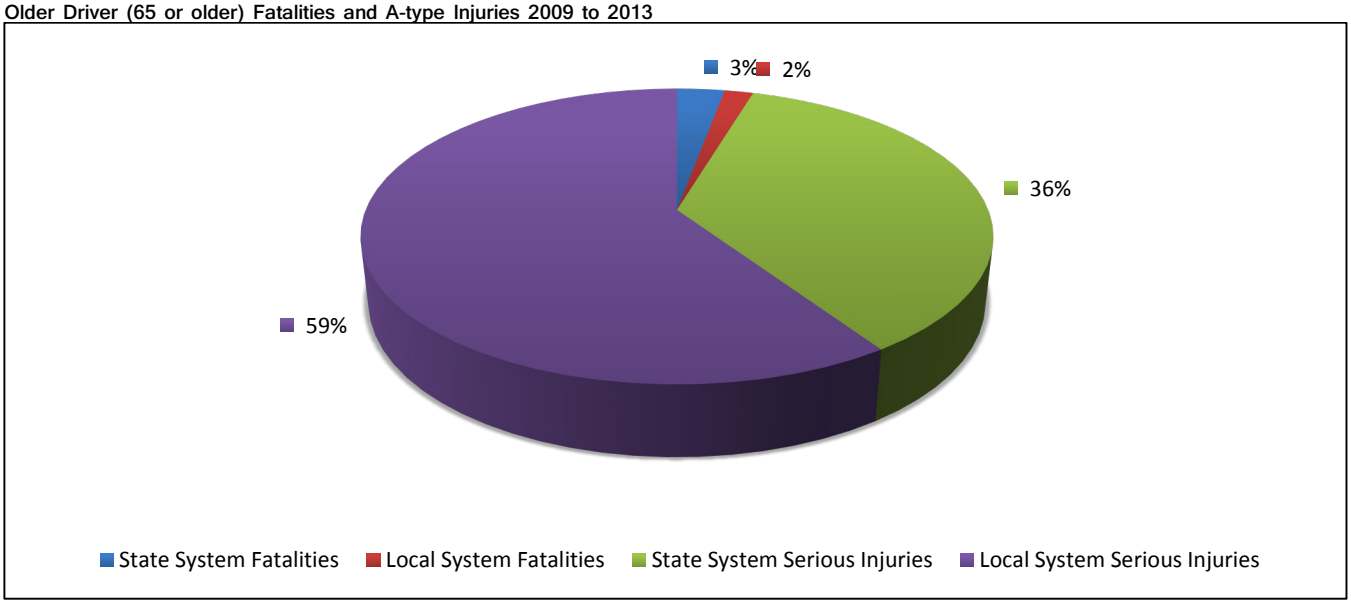


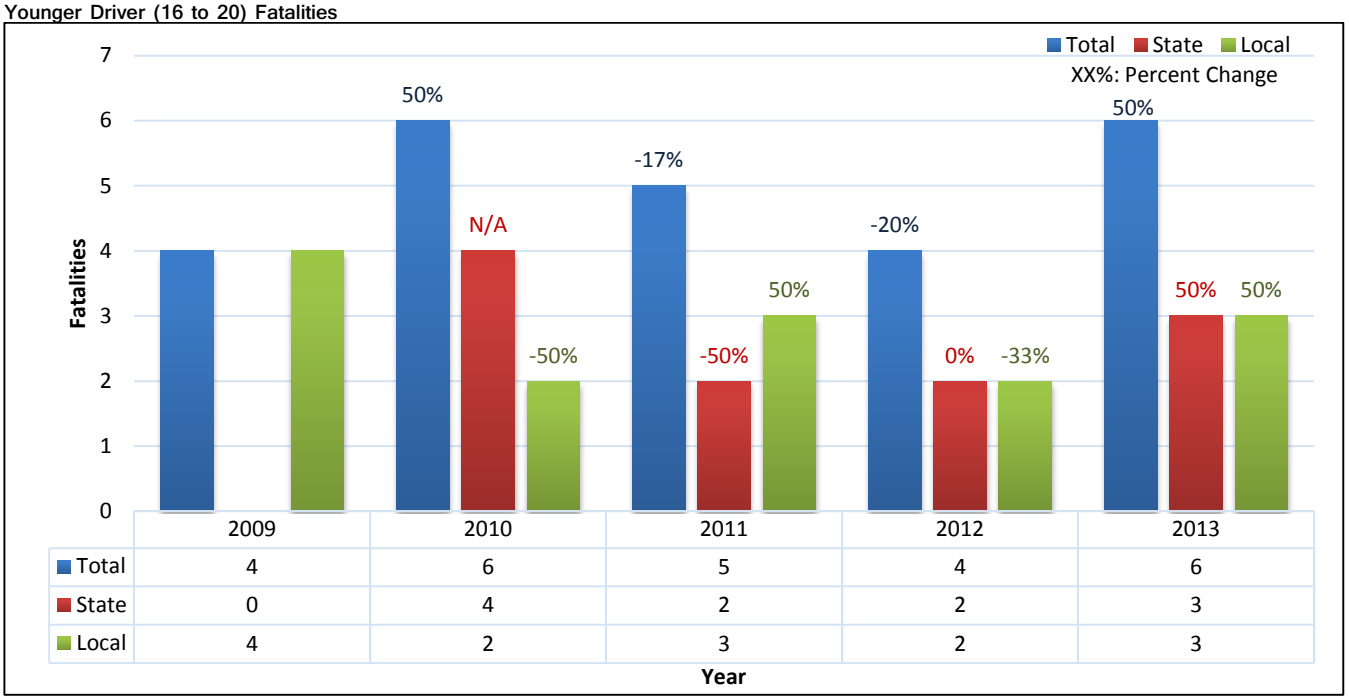
FIGURE 2-8
Older Driver (65 or older) Fatalities and A-type Injuries 2009 to 2013



2.2.1 Younger Driver Related

From 2009 to 2013, there were a total of 575 younger driver fatalities and A-type injuries in Kane County, as shown in Figure 2-9 and Figure 2-10. For this Plan, younger drivers are defined as 16 to 20 years of age. A total of 14 fatalities and 351 A-type injuries occurred on the local system, while 11 fatalities and 199 A-type injuries occurred on the state system. The Kane County younger driver fatalities chart indicates an increase of 2 fatalities by year 2013 equivalent to an average of 13 percent per year. Figure 2-10 showing A-type injuries indicates an increase from 112 to 132 over the 5-year span. The state system had a constant A-type injury change, and the local system had an average increase of 8 percent per year. The Kane County Heat Maps (Section 3) can be used to further identify younger driver improvement areas.

FIGURE 2-9
Younger Driver (16 to 20) Fatalities

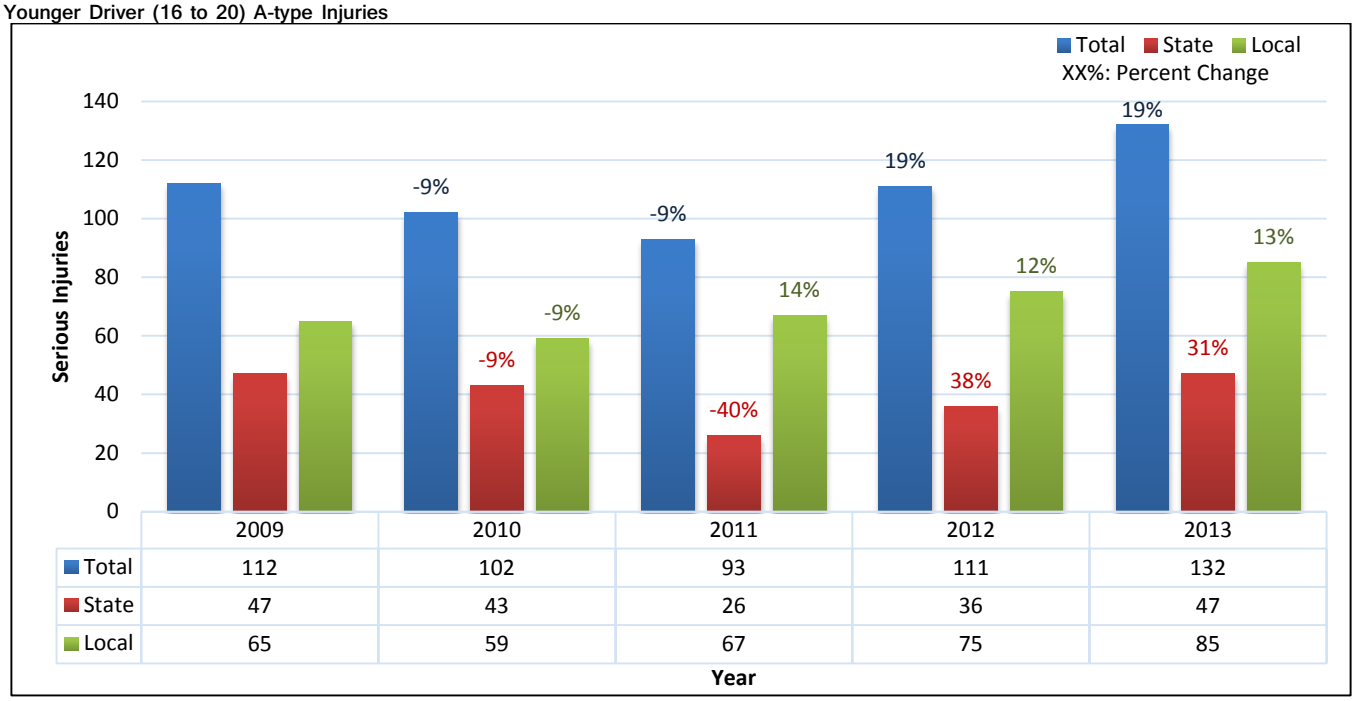


	2009	2010	2011	2012	2013
Total	4	6	5	4	6
State	0	4	2	2	3
Local	4	2	3	2	3

a

[a] DISCLAIMER: Results of the analyses shown in this table are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

FIGURE 2-10
Younger Driver (16 to 20) A-type Injuries



Potential countermeasures to reduce Younger Driver fatalities and A-type injuries are listed as follows:

- Publicize and conduct high visibility enforcement of Graduate License Program restrictions, cellular and texting laws, underage drinking and driving, and seatbelt laws[1]
- Engage parents through outreach programs designed to educate parents about teen driving risks and driving tips for their teens, facilitate parental supervision and management of young drivers and encourage selection of safer vehicles, with safety as a priority over convenience[1]

Current accomplishments:

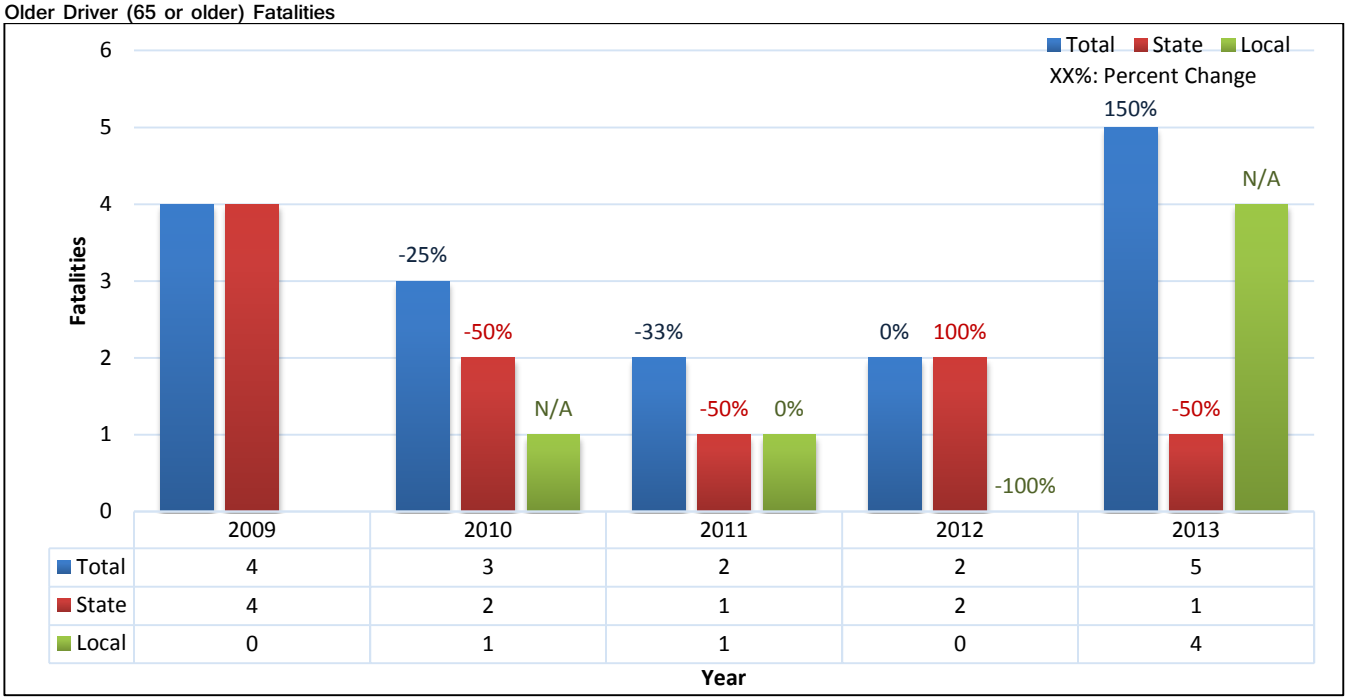
List if any

[1] This plan contains many references. See Section 5 for complete list of references.

2.2.2 Older Driver Related

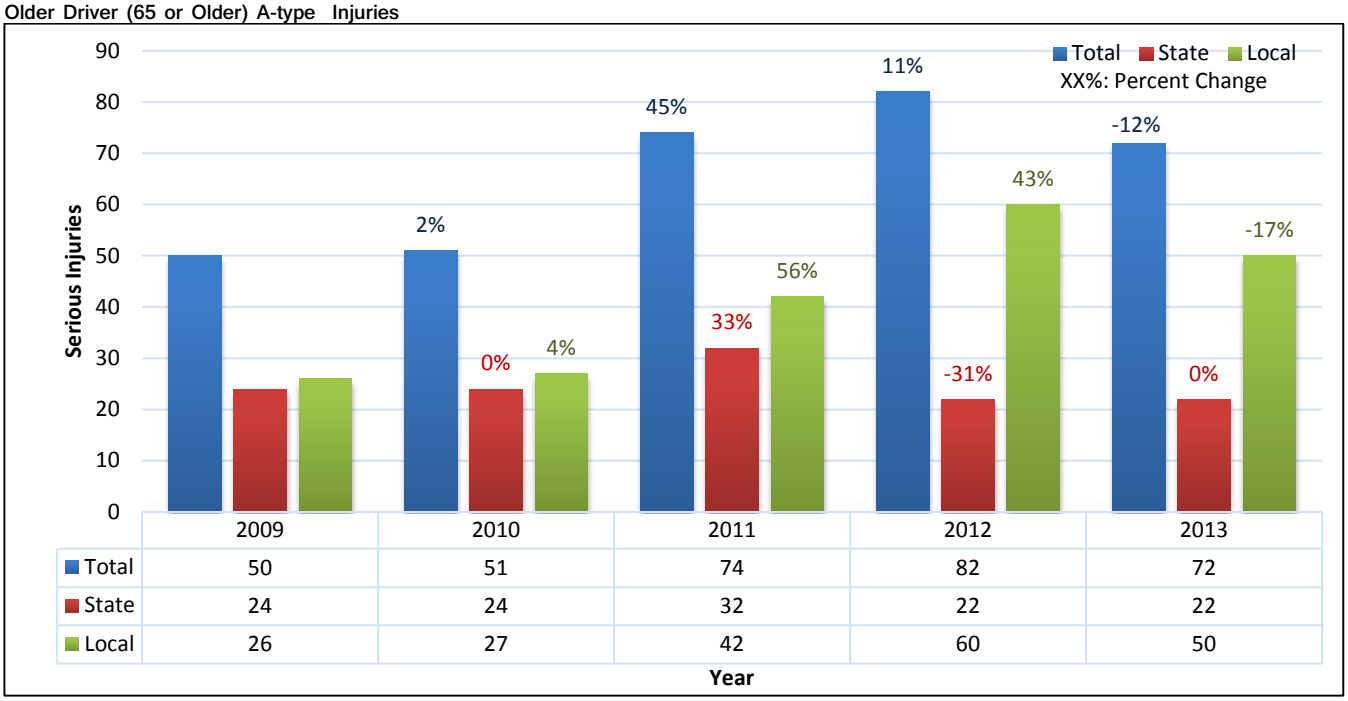
From 2009 to 2013, there were a total of 345 older driver related fatalities and A-type injuries in Kane County, as shown in Figure 2-11 and Figure 2-12. For this Plan, older drivers are those aged 65 years or older. A total of 6 fatalities and 205 A-type injuries occurred on the local system, while 10 fatalities and 124 A-type injuries took place on the state system. The Kane older driver fatalities chart indicate a decreasing trend from 2009 to 2012, and a spike increase in 2013. The A-type injuries chart (Figure 2-12) had an increasing trend from 2009 to 2012 averaging 21 percent increase per year, however, 2013 has a 12 percent decrease. The Kane County Heat Maps (Section 3) can be used to further identify older driver related improvement areas.

FIGURE 2-11
Older Driver (65 or older) Fatalities



	2009	2010	2011	2012	2013
Total	4	3	2	2	5
State	4	2	1	2	1
Local	0	1	1	0	4

FIGURE 2-12
Older Driver (65 or Older) A-type Injuries



	2009	2010	2011	2012	2013
Total	50	51	74	82	72
State	24	24	32	22	22
Local	26	27	42	60	50

Potential countermeasures to reduce older driver related fatal and A-type injury crashes are listed as follows:

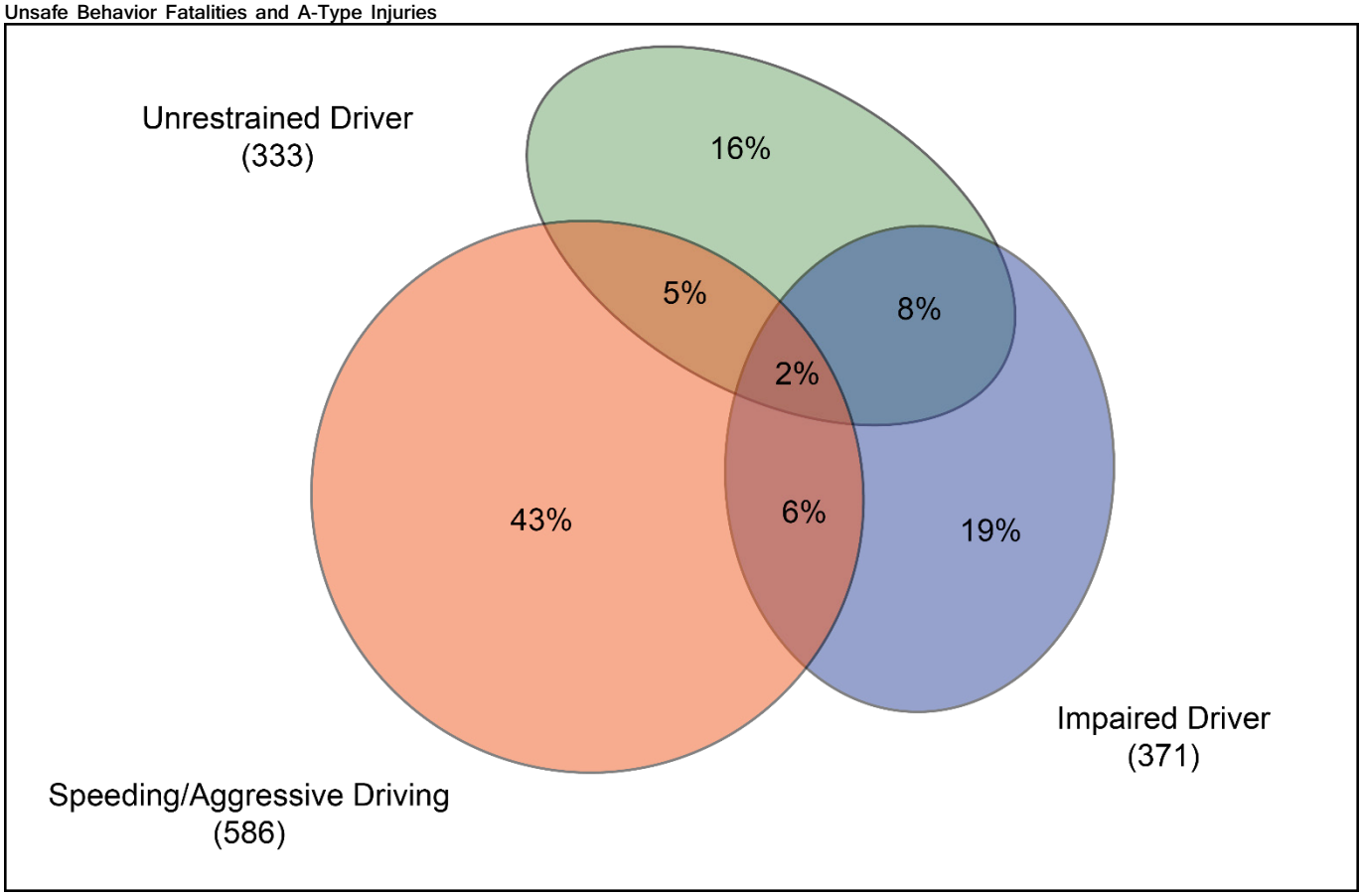
- Establish a broad-based coalition to plan to address older adults' transportation needs[2]
- Provide advance warning signs[2]
- Provide advance-guidance and street name signs[2]
- Provide all-red clearance intervals at signalized intersections[2]
- Provide more protected left turn signal phases at high-volume intersections[2]
- Provide offset left turn lanes at intersections[2]
- Improve lighting at intersections, horizontal curves, and railroad grade crossings[2]
- Improve roadway delineation[2]
- Replace painted channelization with raised channelization[2]
- Reduce intersection skew angle[2]
- Improve traffic control at work zones[2]
- Strengthen the role of medical advisory boards[2]
- Update procedures for assessing medical fitness to drive[2]
- Encourage external reporting of at-risk drivers to licensing authorities[2]
- Provide remedial assistance to help functionally impaired older drivers lower their crash risk[2]
- Establish resource centers within communities to promote safe mobility choices[2]
- Provide educational and training opportunities for the general older driver population[2]
- Increase seatbelt use by older drivers and passengers[2]
- Re-evaluate driving skill[2]

2.3 Unsafe Behavior

Unsafe behavior includes driving while impaired, speeding and aggressive driving, and failure to wear safety restraints, or wearing safety restraints improperly. Impaired driving is a common contributor to motor vehicle crashes and a serious threat to all roadway users. An impaired driver will often experience slower reaction time, impaired judgment and perception, and diminished reasoning ability and memory, which make the driver more likely to cause a motor vehicle crash. Speeding and aggressive driving are serious roadway problems where a driver operates a motor vehicle in a selfish, pushy, or impatient manner. Aggressive drivers often commit a combination of unsafe moving traffic offenses that endanger themselves, their occupants, and other roadway users. Motor vehicle safety restraints are known to save lives and also have significant economic benefits. A severe injury caused by a failure to wear a safety restraint is a tragedy that easily could have been avoided.

Figure 2-13 is a Venn diagram showing all relations between the unsafe behavior subsets. This Venn diagram shows that 223 out of the 1,042 total unsafe behavior fatalities and A-type injuries fell in multiple unsafe behavior categories.

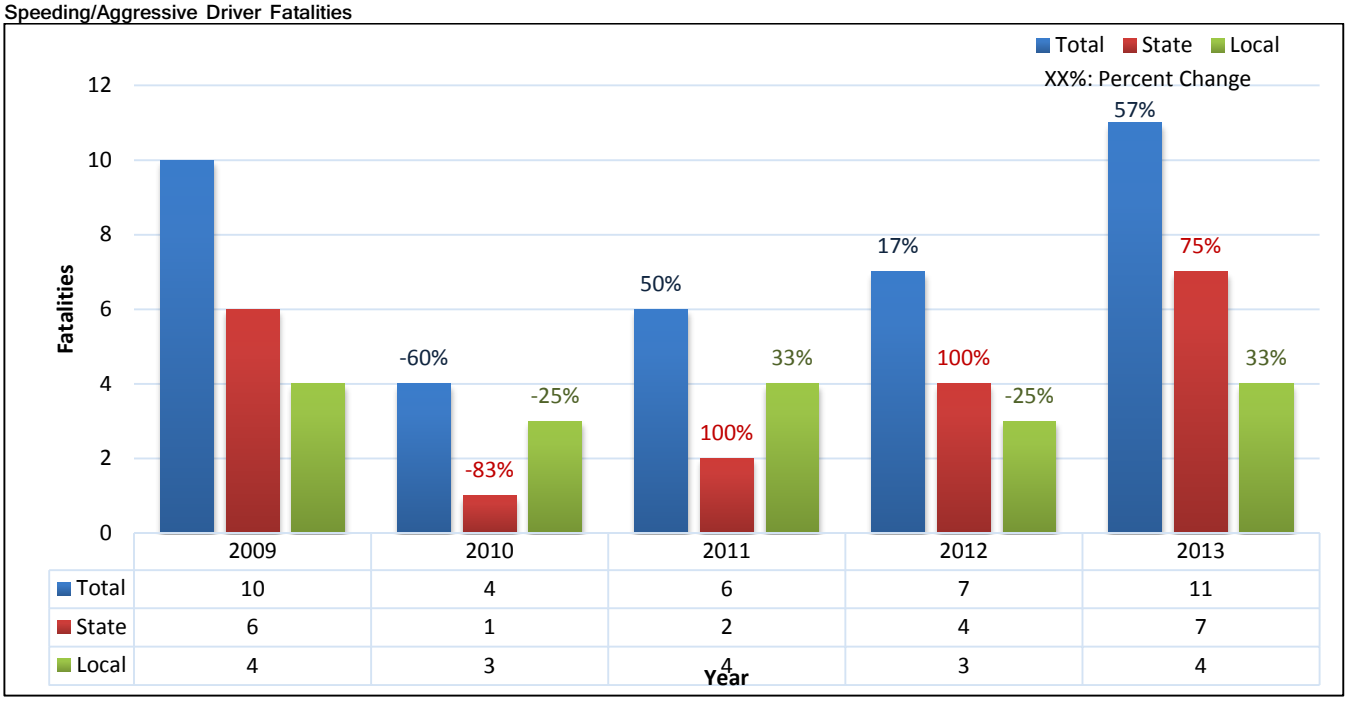
FIGURE 2-13
Unsafe Behavior Fatalities and A-Type Injuries



2.3.1 Speeding/Aggressive Driving

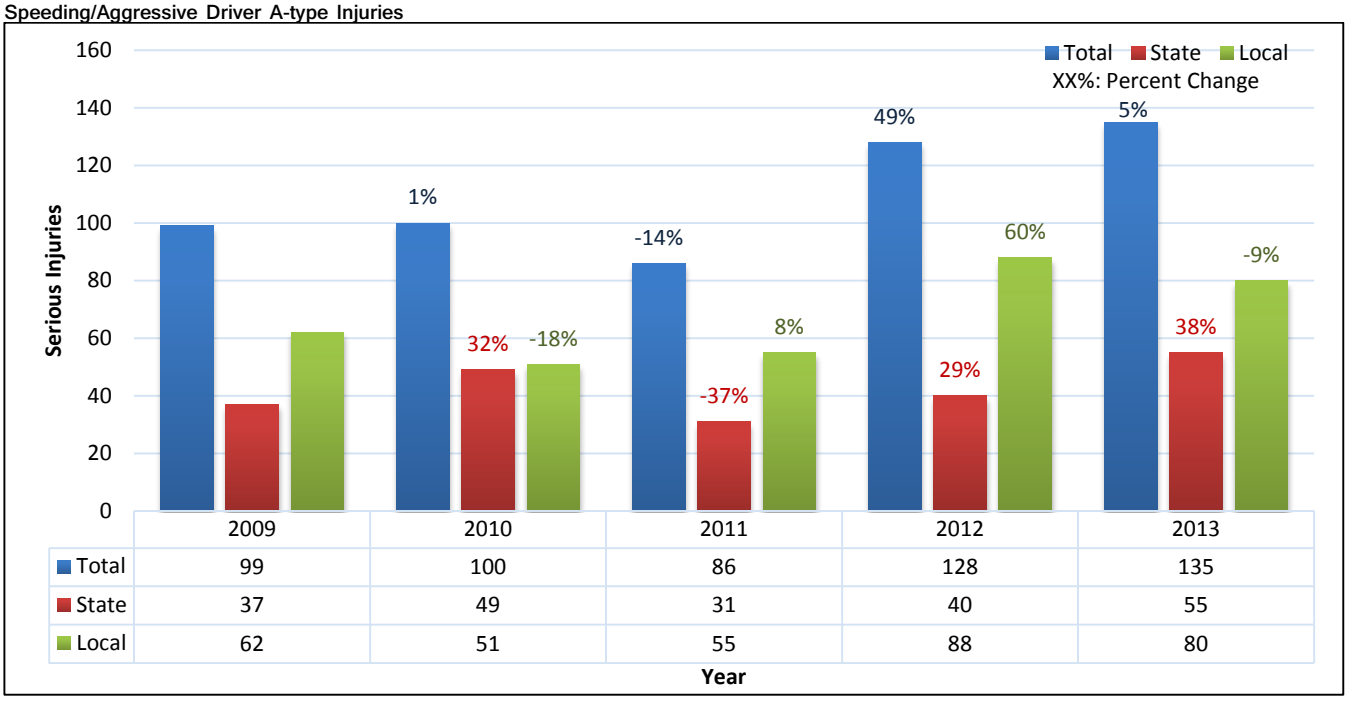
For this Plan, speeding/aggressive driving is identified where the primary cause of the crash involves speeds exceeding the authorized speed limit, exceeding safe speed for conditions, failing to reduce speed to avoid crash, or operating a vehicle in an erratic, reckless, careless, negligent, or aggressive manner. From 2009 to 2013, there were a total of 586 fatalities and A-type injuries related to speeding/aggressive driving in Kane County, as shown in Figures 2-14 and 2-15. A total of 18 fatalities and 336 serious injuries occurred on the local system, and 20 fatalities and 212 A-type injuries occurred on the state system.

FIGURE 2-14
Speeding/Aggressive Driver Fatalities



	2009	2010	2011	2012	2013
Total	10	4	6	7	11
State	6	1	2	4	7
Local	4	3	4	3	4

FIGURE 2-15
Speeding/Aggressive Driver A-type Injuries



	2009	2010	2011	2012	2013
Total	99	100	86	128	135
State	37	49	31	40	55
Local	62	51	55	88	80

Speeding/aggressive driving behavior is difficult to identify because it does not always result in a crash; therefore this information may under represent the speeding/aggressive driving issues in Kane County. The Kane aggressive/speeding driver fatalities chart does not indicate a significant trend, it does show low fatalities in 2010 but it went high again. The same chart indicates however a constant fatalities on local system and increase on state system since 2011. The A-type injuries chart (Figure 2-15) does indicate an increasing trend, for an overall change of 99 to 135, or an average of 9 percent increase per year over the 5-year span.

Potential countermeasures to reduce speeding/aggressive driver fatalities and A-type injuries are listed as follows:

- Target enforcement[3]
- Conduct educational and public information campaigns[3]
- Educate and impose sanctions against repeat offenders[3]
- Change or mitigate the effects of identified elements in the environment[3]
- Reduce nonrecurring delays and provide better information about delays[3]
- Install dynamic speed feedback signs[3]

2.3.2 Impaired Driver

From 2009 to 2013, there were a total of 371 impaired driver related fatalities and A-type injuries in Kane County, as shown in Figures 2-16 and 2-17. For this Plan, impaired drivers are defined as those that are impaired by alcohol, drugs including illegal substances and medications, and also those that had been drinking. A total of 36 fatalities and 173 A-type injuries took place on the local system, while 31 fatalities and 131 A-type injuries occurred on the state system. The fatalities chart does indicate that after having a 70 percent fatalities reduction in 2010, there is an increasing trend from 2011 to 2013 averaging 61 percent increase per year. The A-type injuries chart does not show a significant trend, however, it showed the largest decrease of 44 percent in 2011, but has increased in subsequent years.

FIGURE 2-16
Impaired Driver Fatalities

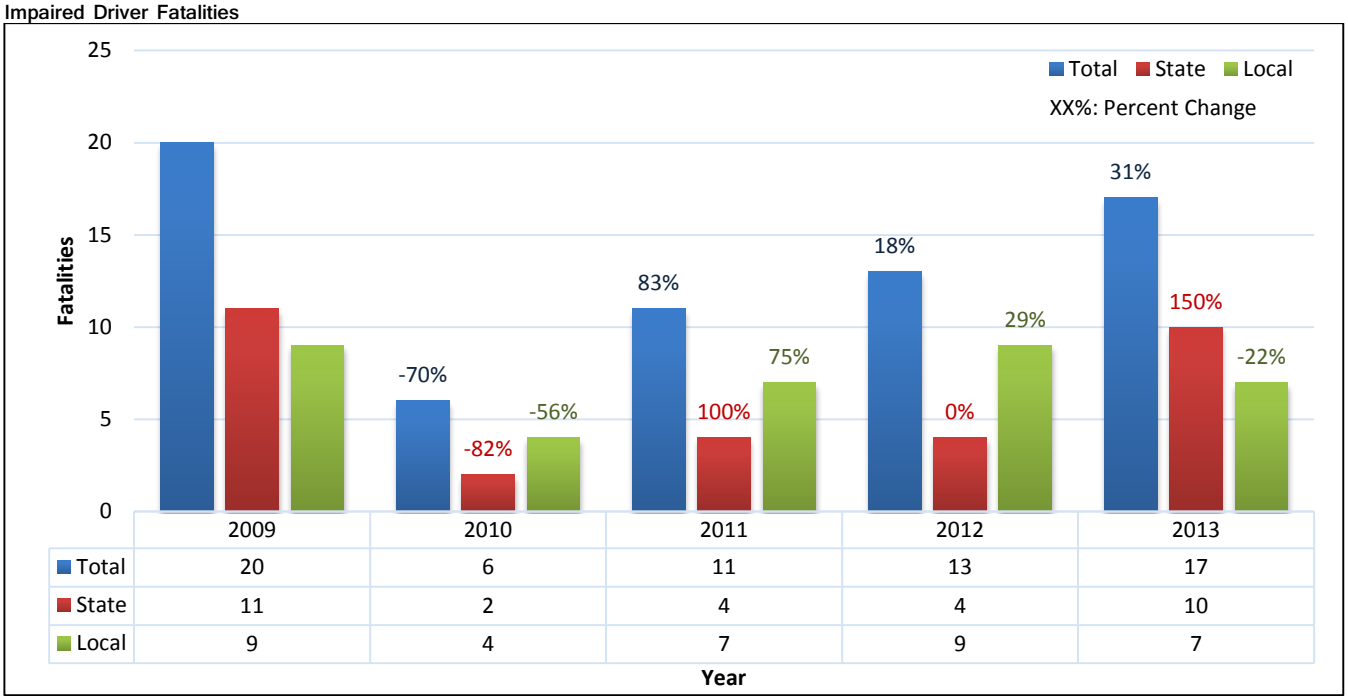
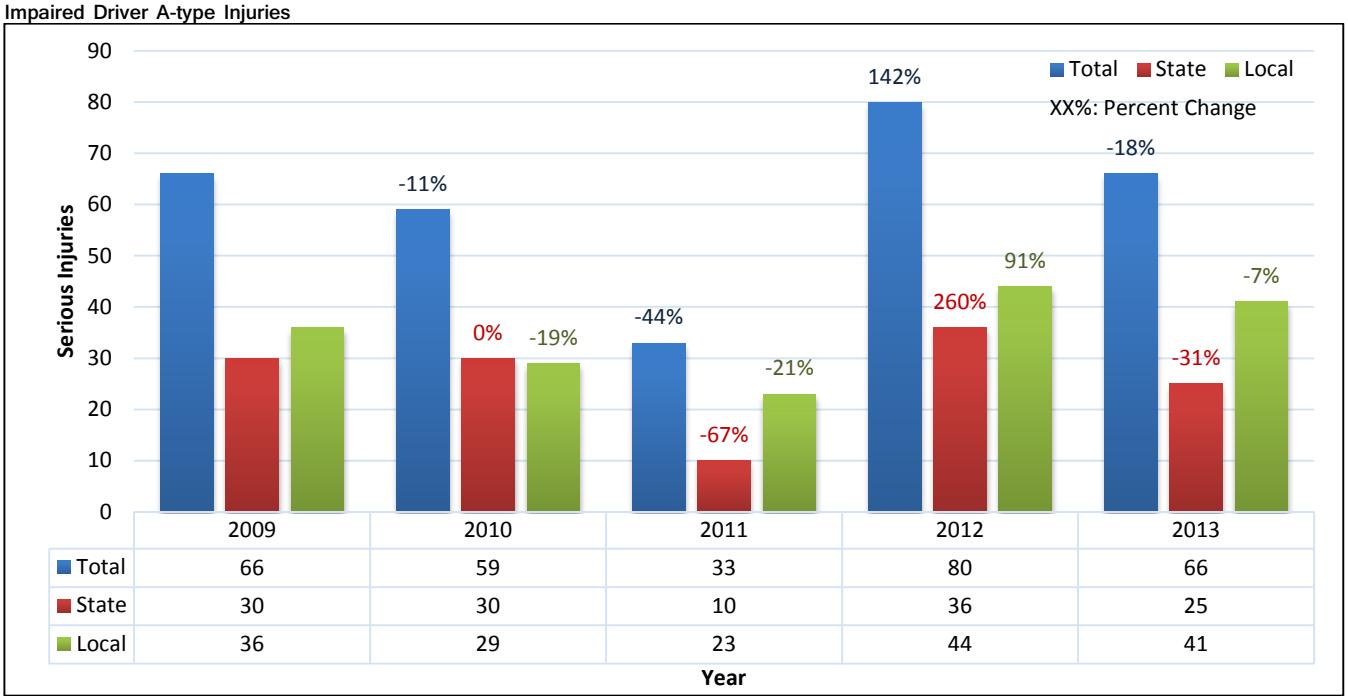


FIGURE 2-17
Impaired Driver A-type Injuries



Potential countermeasures to reduce impaired driver fatalities and A-type injuries are listed as follows:

- Support community programs for alternate transportation[4]
- Conduct well-publicized Driving While Intoxicated (DWI) saturations[4]
- Suspend driver's license upon arrest[4]
- Require ignition interlocks as a condition of license reinstatement[4]
- Monitor convicted DWI offenders closely[4]
- Targeted law enforcement[4f]

2.3.3 Unrestrained

From 2009 to 2013, there were a total of 333 unrestrained related fatalities and A-type injuries in Kane County, as shown in Figures 2-18 and 2-19. For this Plan, unrestrained occupants are defined as those that had no safety equipment present, safety belt not used, helmet not used, child restraint used improperly, or child restraint not used. A total of 30 fatalities and 173 A-type injuries took place on the local system, while 19 fatalities and 111 A-type injuries occurred on the state system. The fatalities chart indicates a significant decreasing trend, dropping from 16 to 5 fatalities between year 2009 and 2013, which is an average of 17 percent decrease per year. The A-type injuries chart does indicate a fairly constant trend over the 5-year period.

FIGURE 2-18

Unrestrained Occupants Fatalities

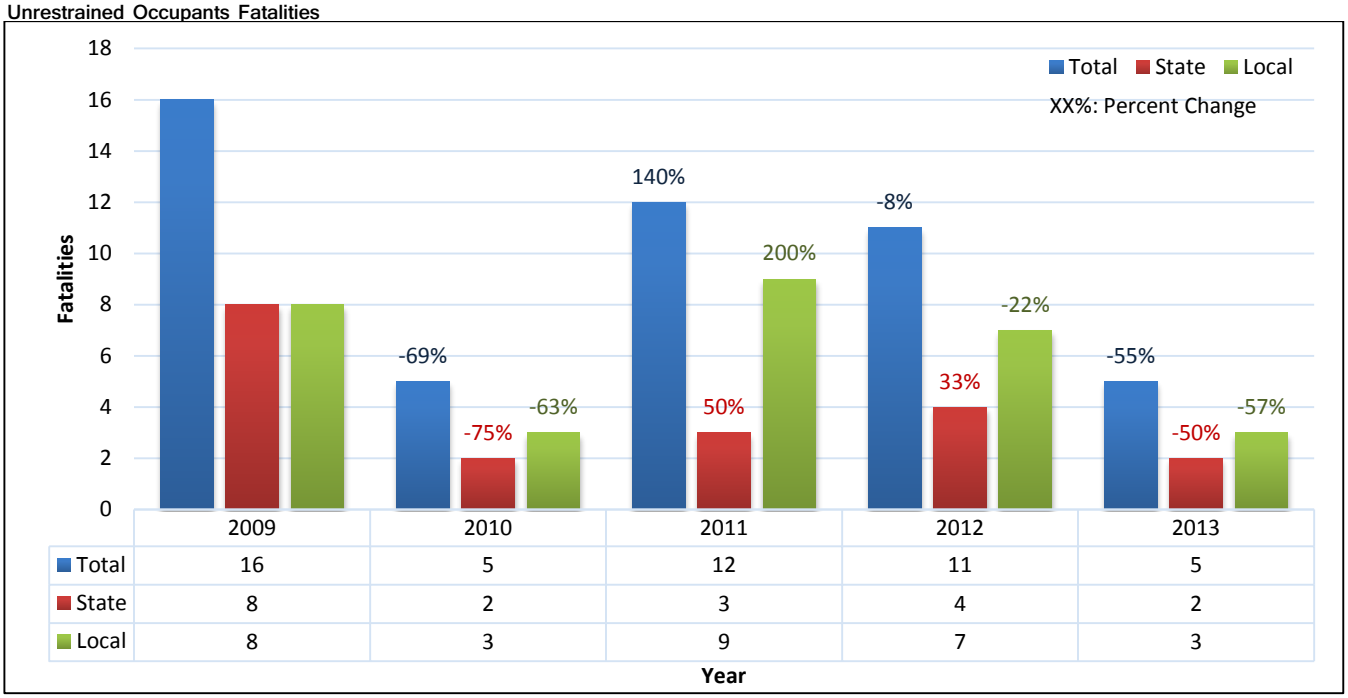
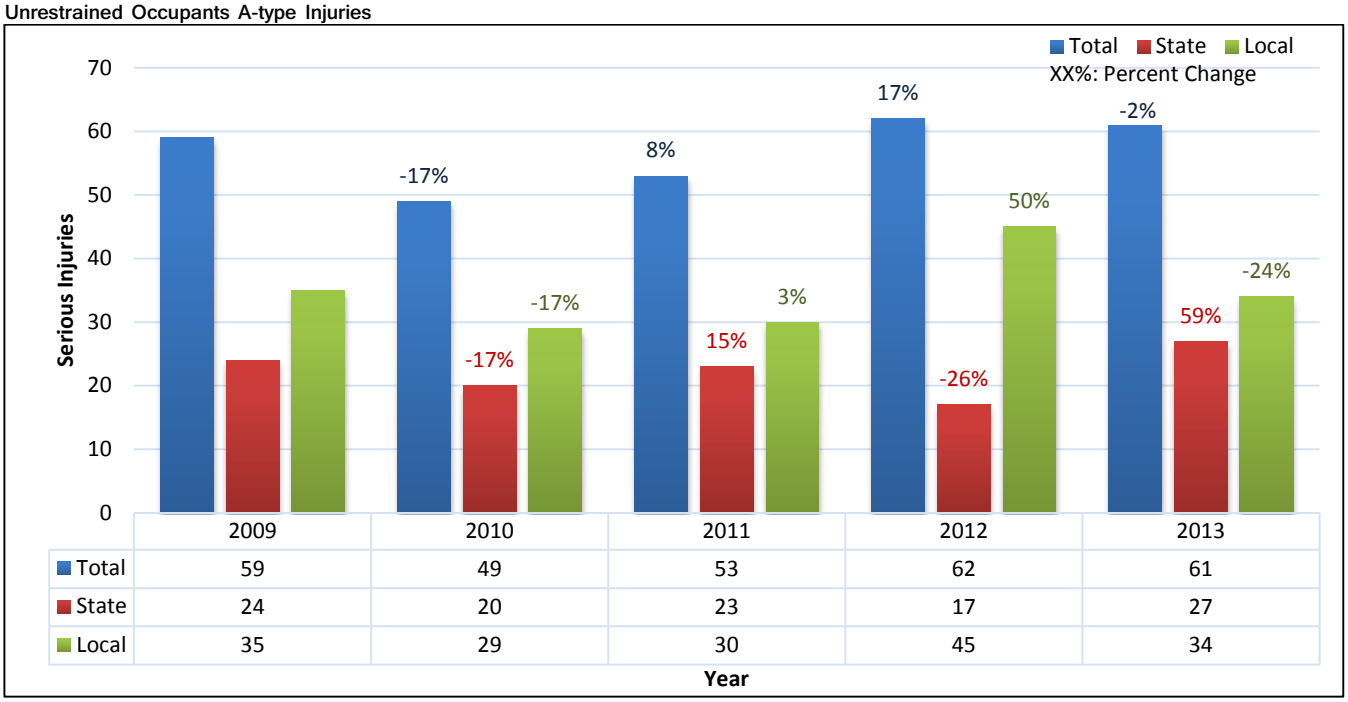


FIGURE 2-19

Unrestrained Occupants A-type Injuries



Potential countermeasures to reduce unrestrained occupants related fatalities and A-type injuries are listed as follows:

- Conduct educational and public information campaigns[5]
- Target enforcement[5]
- Conduct high-profile “child restraint inspection” events[5]
- Train advocates to check for proper child restrain use[5]

Current accomplishments:

List if any

2.4 Vulnerable Users

Although passenger vehicles constitute the majority of roadway users, other users such as pedestrians, pedalcyclists, and motorcyclists are also considered roadway users. Vulnerable users are often overlooked due to their low representation, though their presence requires special attention due to their relatively higher potential to be seriously injured or become a fatality in a crash.

From 2009 to 2013, there were a total of 139 pedestrian fatalities and A-type injuries in Kane County, as shown in Figure 2-23 and 2-24. Figure 2-20 shows the distribution of pedestrian fatalities and A-type injuries in Kane County. Common factors associated with pedestrian related collisions are pre-crash actions and behaviors of both the pedestrian and the driver such as distraction, driver speed, and alcohol use. Other factors include vehicle type and design, pedestrian and vehicle volumes/exposure, and the surrounding environment (such as roadway design and presence of pedestrian facilities and street-crossing facilities) all contribute to pedestrian related crashes.

From 2009 to 2013, there were a total of 58 pedalcyclist fatalities and A-type injuries in Kane County, as shown in Figure 2-25 and 2-26. Figure 2-21 shows the distribution of pedalcyclist fatalities and A-type injuries in Kane County. Pedalcyclists (bicycles) are difficult to characterize because they include users of all ages with various levels of skill, perception, and judgment. Because bicycles have smaller profiles than motorcycles and are typically purchased without headlights and rear active lights, they are less visible to many motorists, especially at night. Bicycles do not provide protection as motor vehicles do. Therefore, many bicyclists avoid high speed, high traffic situations. Bicycle related collisions and pedestrian related collisions exhibit similarities among common contributing factors.

From 2009 to 2013, there were a total of 208 motorcycle fatalities and A-type injuries in Kane County, as shown in Figure 2-27 and 2-28. Figure 2-22 shows the distribution of motorcycle fatalities and A-type injuries in Kane County. Motorcycling has become an increasingly popular mode of transportation in the last few decades. Like bicycles, motorcycles offer riders minimal protection from a crash, making them a vulnerable roadway user. A motorcycle is essentially more difficult to operate compared to a passenger vehicle because it requires more physical ability. The correlation between speed and balance should be a critical consideration when riding a motorcycle; the stability of the motorcycle is relative to speed. A motorcycle becomes more stable the faster it goes; however it also becomes less controllable. At low speeds, the motorcycle rider needs to be balanced. The National Highway Traffic Safety Administration (NHTSA) estimates that per VMT, motorcyclists are about 25 times more likely to die in traffic crashes than passenger car occupants.

FIGURE 2-20
Pedestrian Fatalities and A-type Injuries 2009 to 2013

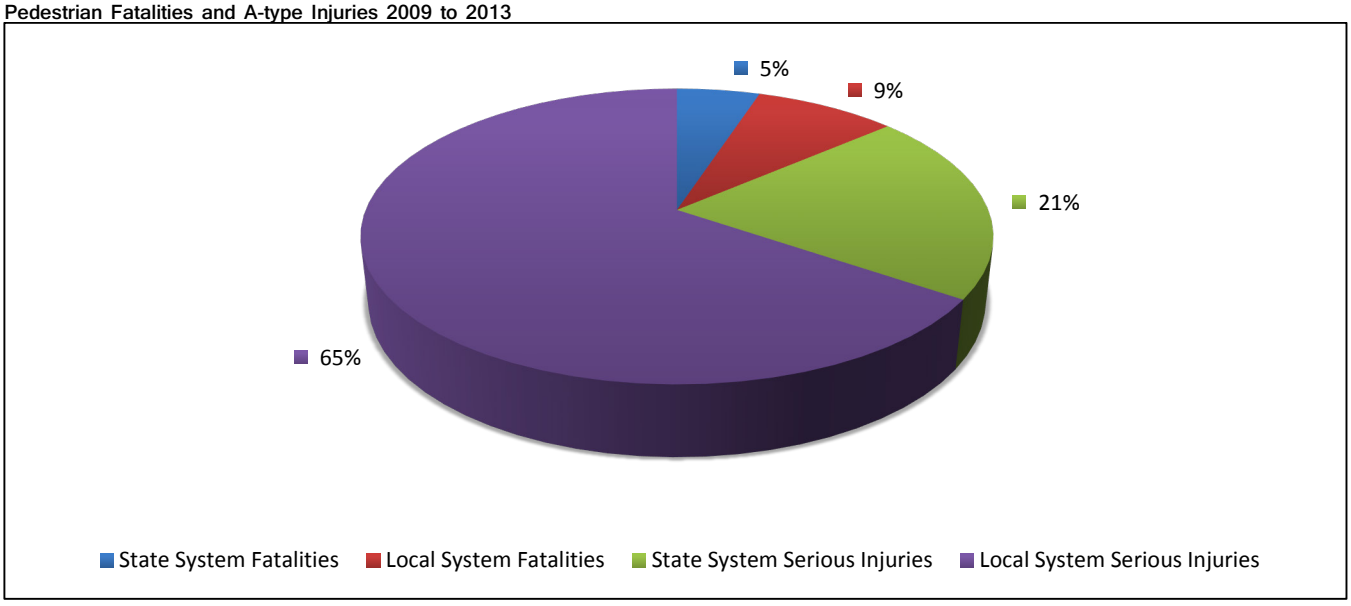


FIGURE 2-21
Pedalcyclist Fatalities and A-type Injuries 2009 to 2013

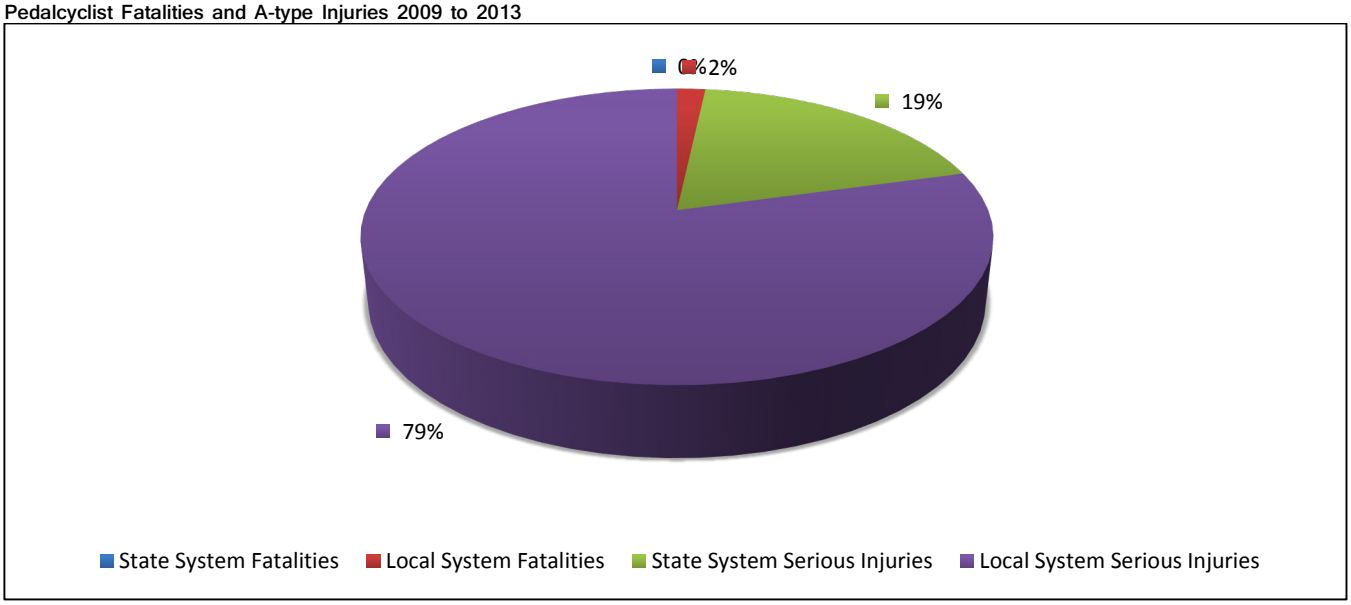
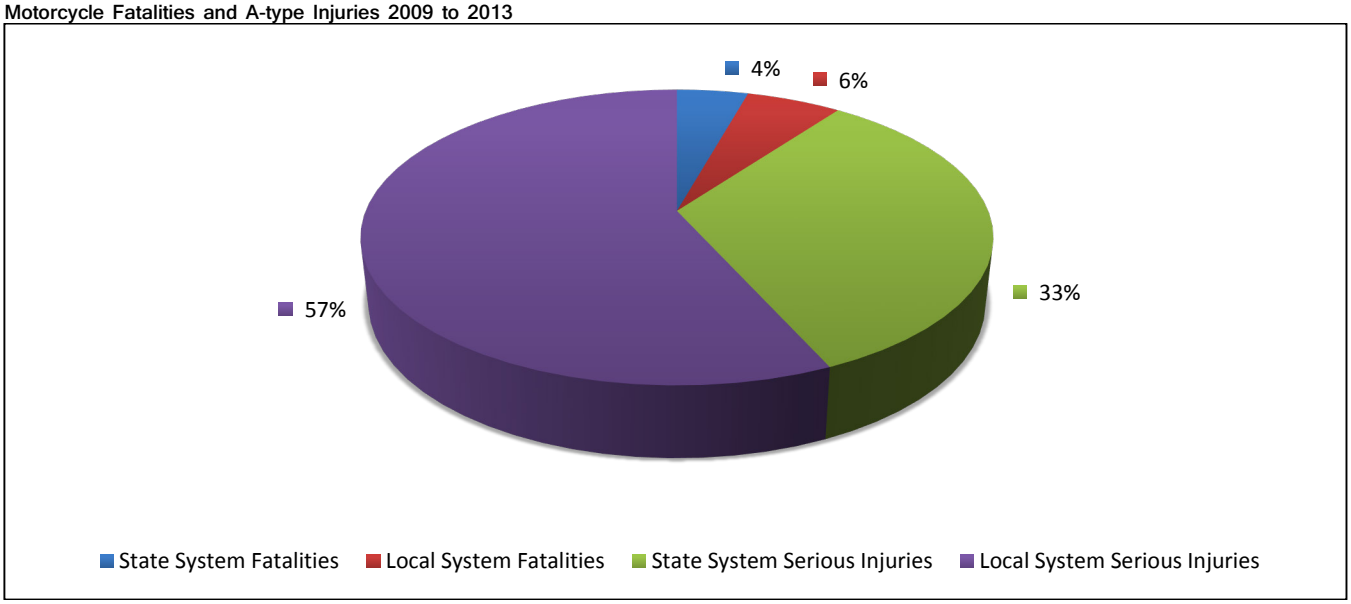


FIGURE 2-22
Motorcycle Fatalities and A-type Injuries 2009 to 2013



2.4.1 Pedestrians

From 2009 to 2013, there were a total of 139 pedestrian fatalities and A-type injuries in Kane County, as shown in Figures 2-23 and 2-24. A total of 12 pedestrian fatalities and 91 pedestrian A-type injuries occurred on the local system, and 7 fatalities and 29 A-type injuries occurred on the state system. The Kane pedestrian fatalities chart indicates a significant increase on local system from 1 to 5 fatalities, and a substantial decrease on state system from 4 to 0 fatalities over the 5-year span. The A-type injury chart does not show any significant trend, however, it shows an average decrease of 4 percent from 2009 to 2013.

FIGURE 2-23
Pedestrian Fatalities

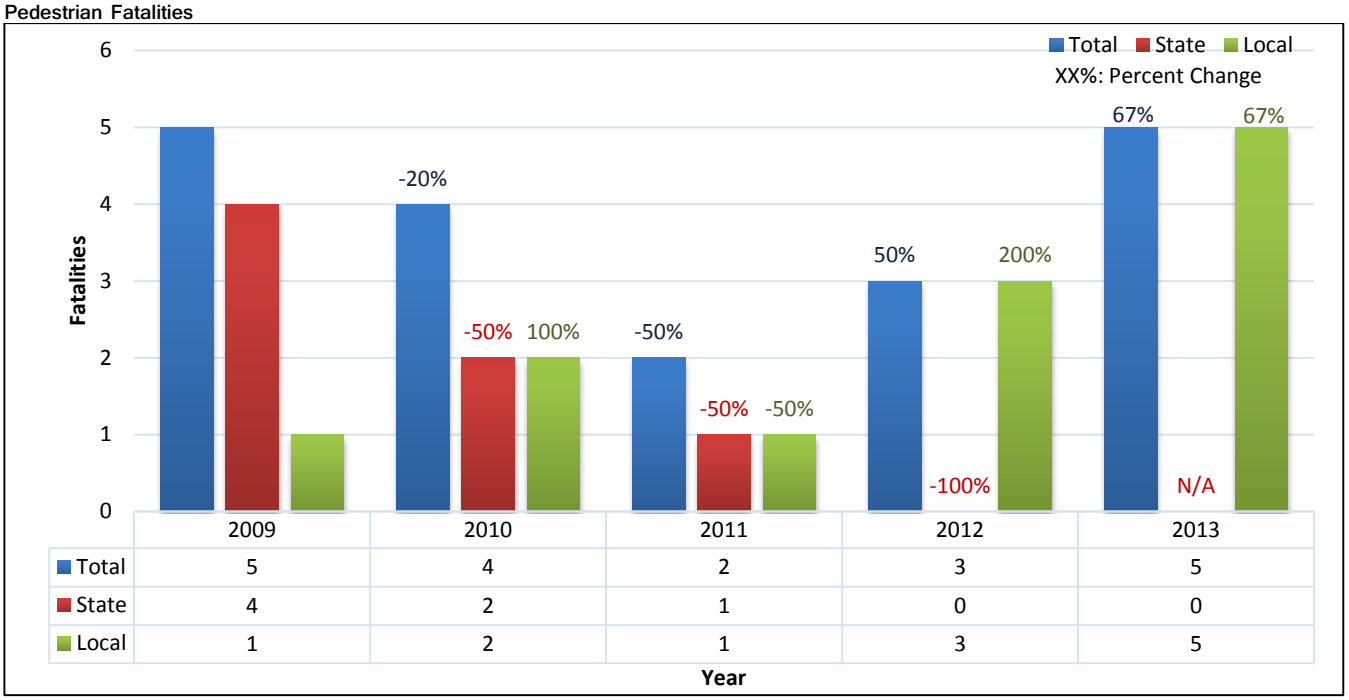
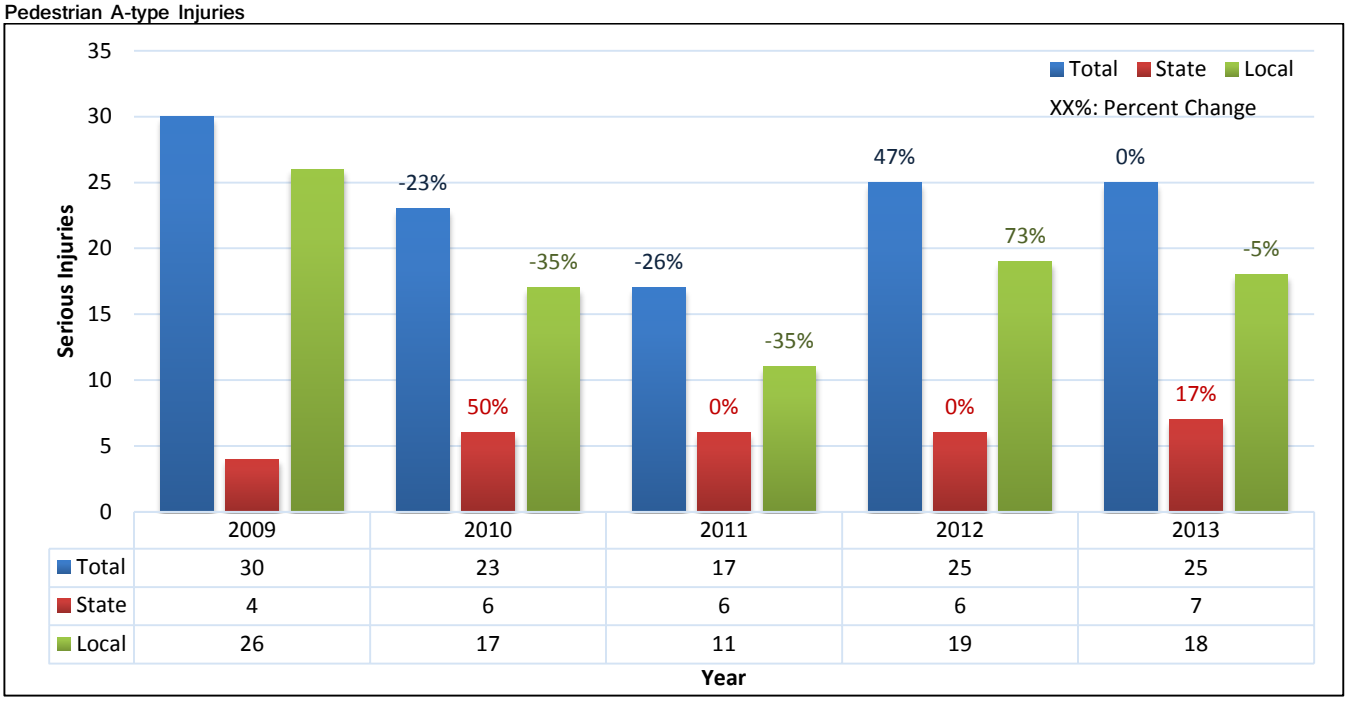


FIGURE 2-24
Pedestrian A-type Injuries



The primary area of concern is identified in the Kane County Data Trees. Figure 2-5 indicates that 14 percent at non-intersection related severe crashes involving pedestrian occurred on the urban local streets on local system.

Potential countermeasures to reduce pedestrian fatal and serious injury crashes are listed as follows:

- Provide median and pedestrian refuge areas[6]
- Install lighting at pedestrian/bicycle paths and intersections[6]
- Convert from yield signal control to signalized control[6]
- Install high visibility yellow, continental type crosswalks[6]
- Install speed restriction devices[6]
- Educate parents and users on bicycle/pedestrian laws[6]
- Create outreach program for non-English speaking population[6]
- Provide full/partial diverters and street closure[6]
- Curb extensions and sidewalks[6]

Current accomplishments:

List if any

2.4.2 Pedalcyclists

From 2009 to 2013, there were a total of 58 pedalcyclist fatalities and A-type injuries in Kane County as shown in Figures 2-25 and 2-26. A total of 1 pedalcyclist fatality and 46 pedalcyclist serious injuries occurred on the local system, and 11 A-type injuries occurred on the state system. The Kane pedalcyclist fatality chart illustrates 1 pedalcyclist fatality in 2013, which was the first pedalcyclist fatality since 2008. The A-type injuries chart shows rather constant numbers over the 5-year period, except the spike in 2011 and 2012.

FIGURE 2-25
Pedalcyclist Fatalities

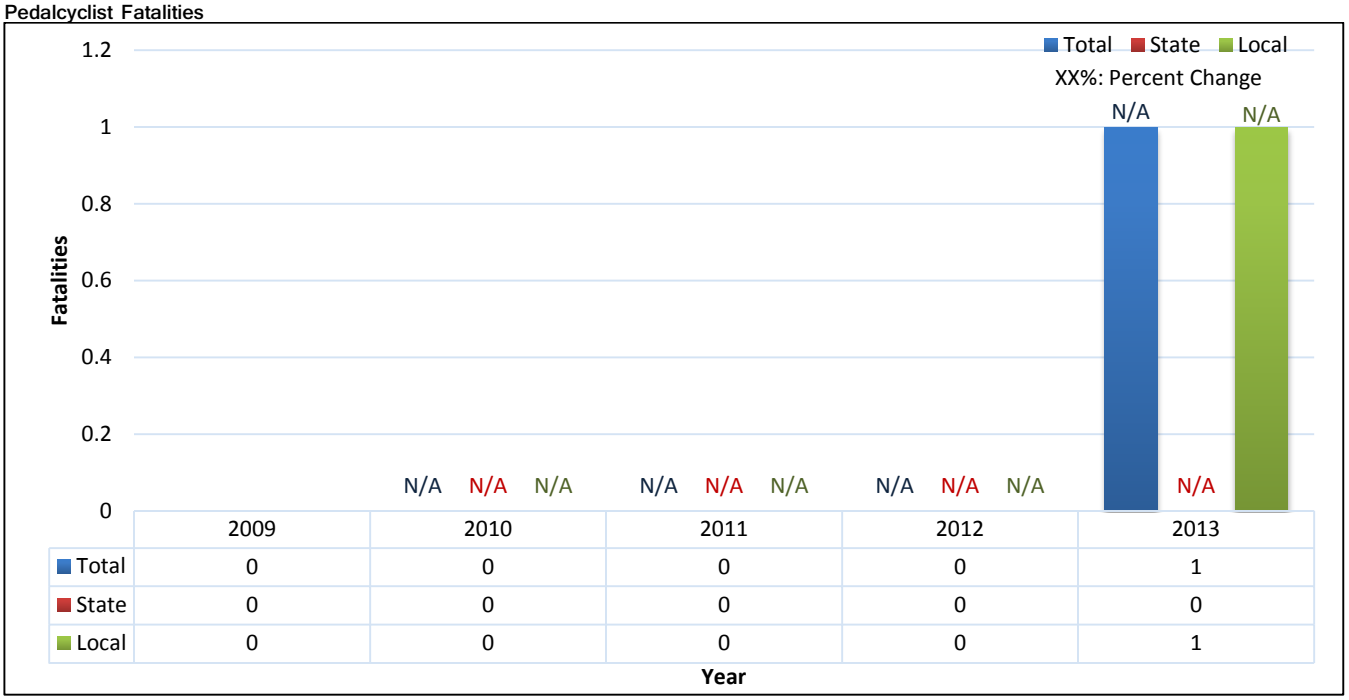
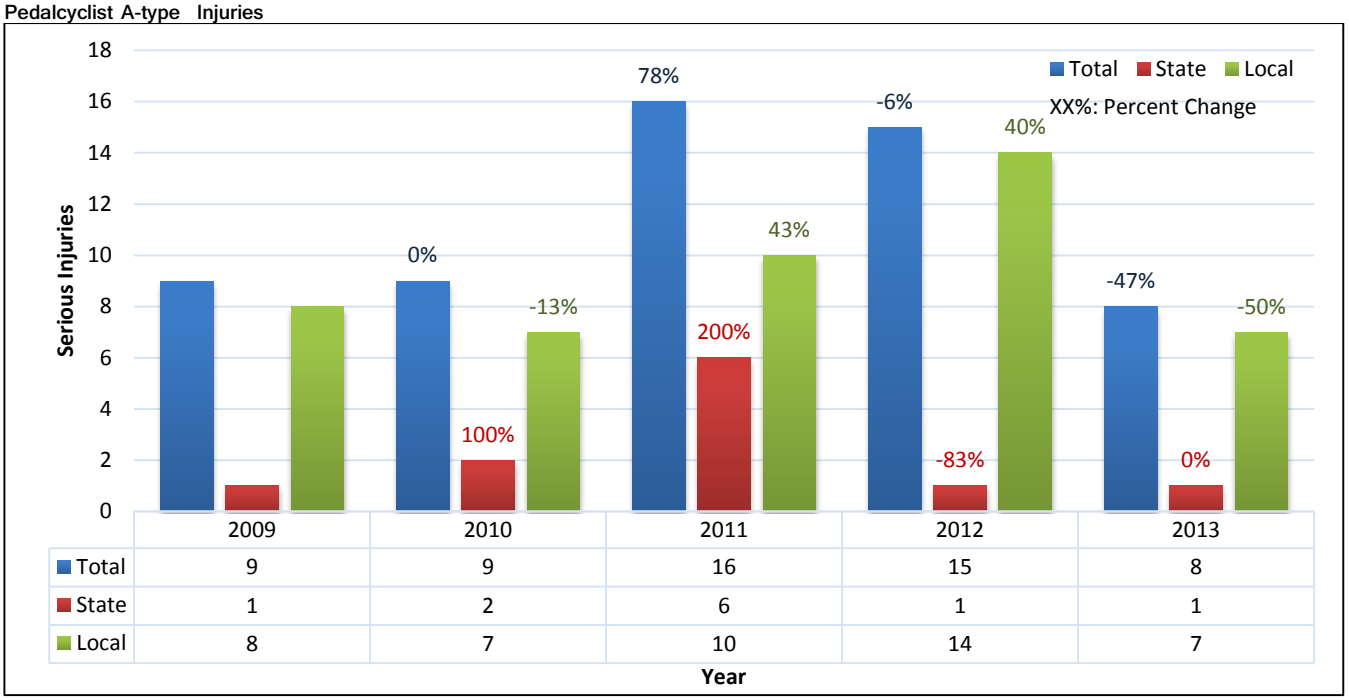


FIGURE 2-26
Pedalcyclist A-type Injuries



The primary area of concern is identified in the Kane County Data Trees. Figure 2-5 indicates that 8 percent at non-intersection related severe crashes involving pedalcyclist occurred on the urban local streets on local system.

Potential countermeasures to reduce pedalcyclist fatalities and A-type injuries are listed as follows:

- Install lighting at pedestrian/bicycle paths and intersections[7]
- Install speed restriction devices[7]
- Provide bike lanes[7]
- Increase bicycle helmet usage, enhance enforcement of bicycle laws, and publicize issues[7]
- Make bike path maps readily available to public[7]
- Educate parents and users on bicycle/pedestrian laws[7]
- Create outreach program for non-English speaking population[7]
- Addition of bike boxes[7]

Current accomplishments:

List if any

2.4.3 Motorcycles

From 2009 to 2013, there were a total of 208 motorcyclist related fatalities and A-type injuries in Kane County, as shown in Figures 2-27 and Figure 2-28. A total of 12 fatalities and 118 A-type injuries occurred on the local system, while 9 fatalities and 69 A-type injuries took place on the state system in Kane County. Figure 2-27, Kane County fatality chart does not show a significant trend, however it shows an average reduction of 18 percent per year; inconsistent trends occur between year 2009 and 2013. The motorcycle A-type injury chart reveals an increasing trend since 2010, which averages a 10 percent annual increase.

FIGURE 2-27
Motorcycle Fatalities

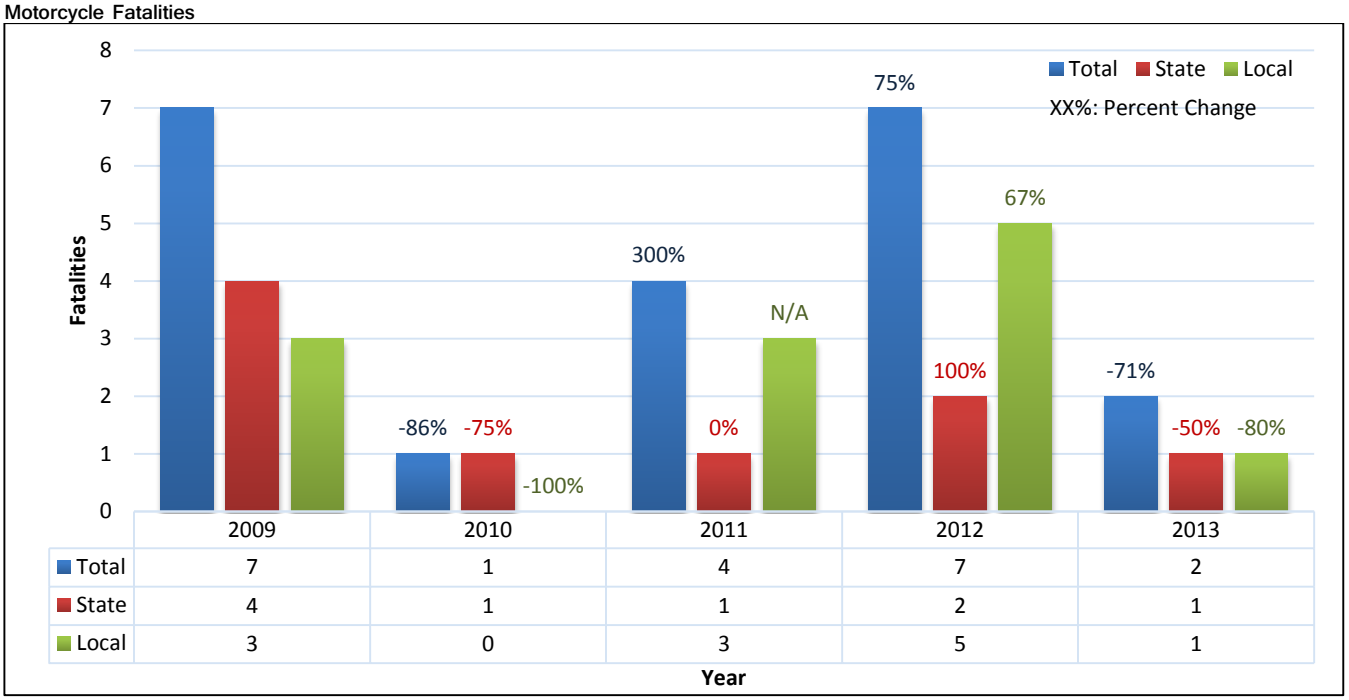
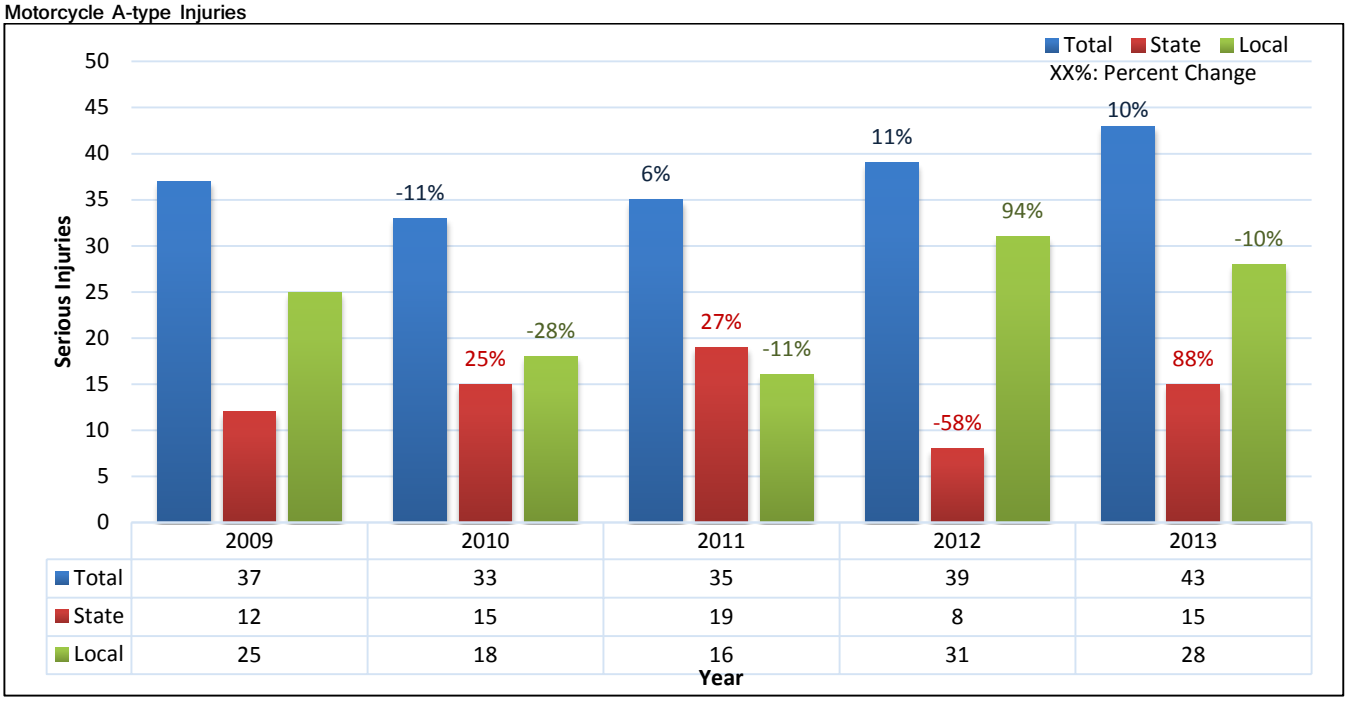


FIGURE 2-28
Motorcycle A-type Injuries



Potential countermeasures to reduce motorcycle fatalities and A-type injuries are listed as follows:

- Incorporate motorcycle-friendly roadway design, traffic control, construction, and maintenance policies and practices[8]
- Reduce the number of motorcycle crashes due to rider impairment[8]
- Reduce the number of motorcycle crashes due to unlicensed or untrained motorcycle riders[8]
- Increase the visibility of motorcyclists[8]
- Reduce the severity of motorcycle crashes[8]
- Increase motorcycle rider safety awareness[8]
- Increase safety enhancements for motorcyclists[8]
- Improve motorcycle safety research, data, and analysis[8]
- Helmet law enforcement[8]

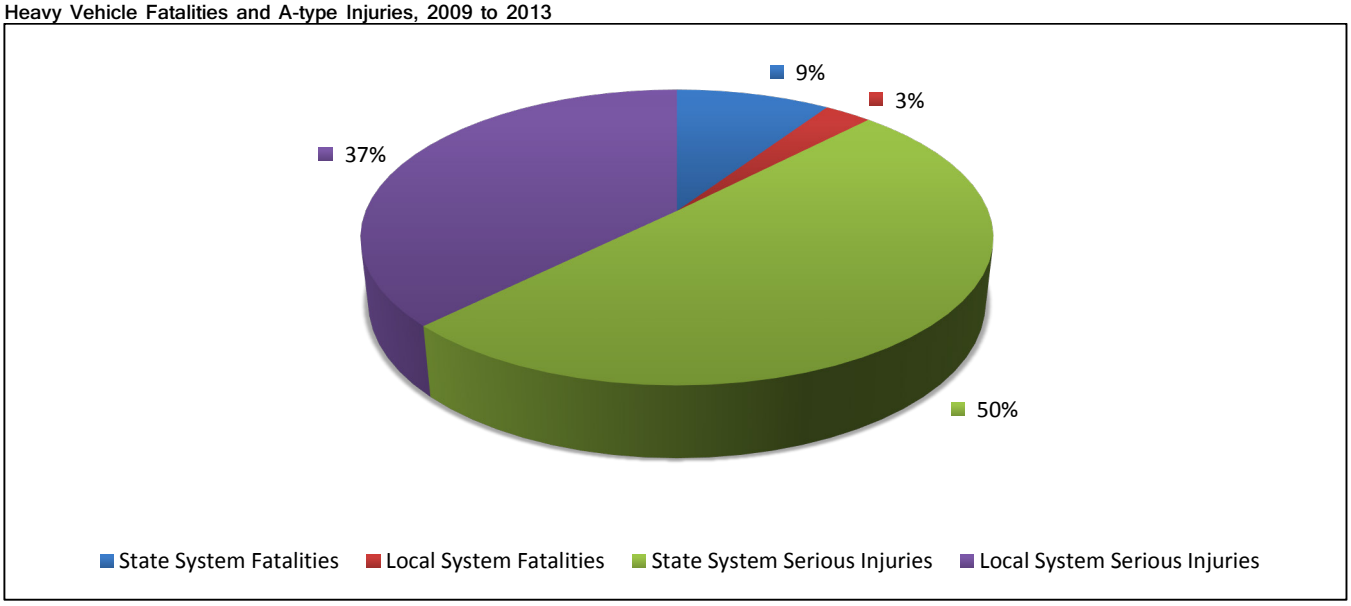
2.5 Heavy Vehicles

Heavy vehicle crashes are unique in a few different ways. These types of vehicles have distinct characteristics that pose potential threats. Buses can carry upwards of 50 people, and any major collision is likely to result in many significant injuries, especially in the case of rollover collisions. Trucks with semi-trailers carry many types of cargo. If cargo breaks loose from the semi-trailer during a collision, drivers may have to dodge the cargo, possibly causing other collisions.

Figure 2-29 shows heavy vehicle A-type injuries in Kane County for 2009 to 2013. Occurrences on the state system outpace the local system, 50 percent to 37 percent.

All of the vehicle types identified as a heavy vehicle have two major things in common: large size and weight. These two factors combine to increase the likelihood that a collision will have a high injury severity, typically to the non-heavy vehicle.

FIGURE 2-29
Heavy Vehicle Fatalities and A-type Injuries, 2009 to 2013



2.5.1 Heavy Vehicle Related

For this Plan, heavy vehicles are identified as buses up to 15 passengers, buses over 15 passengers, truck-single unit, truck with semi-trailer, and truck without semi-trailer. From 2009 to 2013, there were a total of 17 fatalities and 122 A-type injuries related to heavy vehicles in Kane County, as shown in Figures 2-30 and 2-31 respectively. Of these heavy vehicle crashes, a total of 13 fatalities and 70 A-type injuries occurred on the state system, while 4 fatalities and 52 A-type injuries occurred on the local system. The Kane County heavy vehicle fatalities chart shows a low count of fatalities occurring between 2009 and 2013, with spikes in 2010 and 2013. Kane County's heavy vehicle A-type injury chart shows a reduction from 29 to 24, or an average of 17 percent over the 5-year period.

FIGURE 2-30
Heavy Vehicle Fatalities

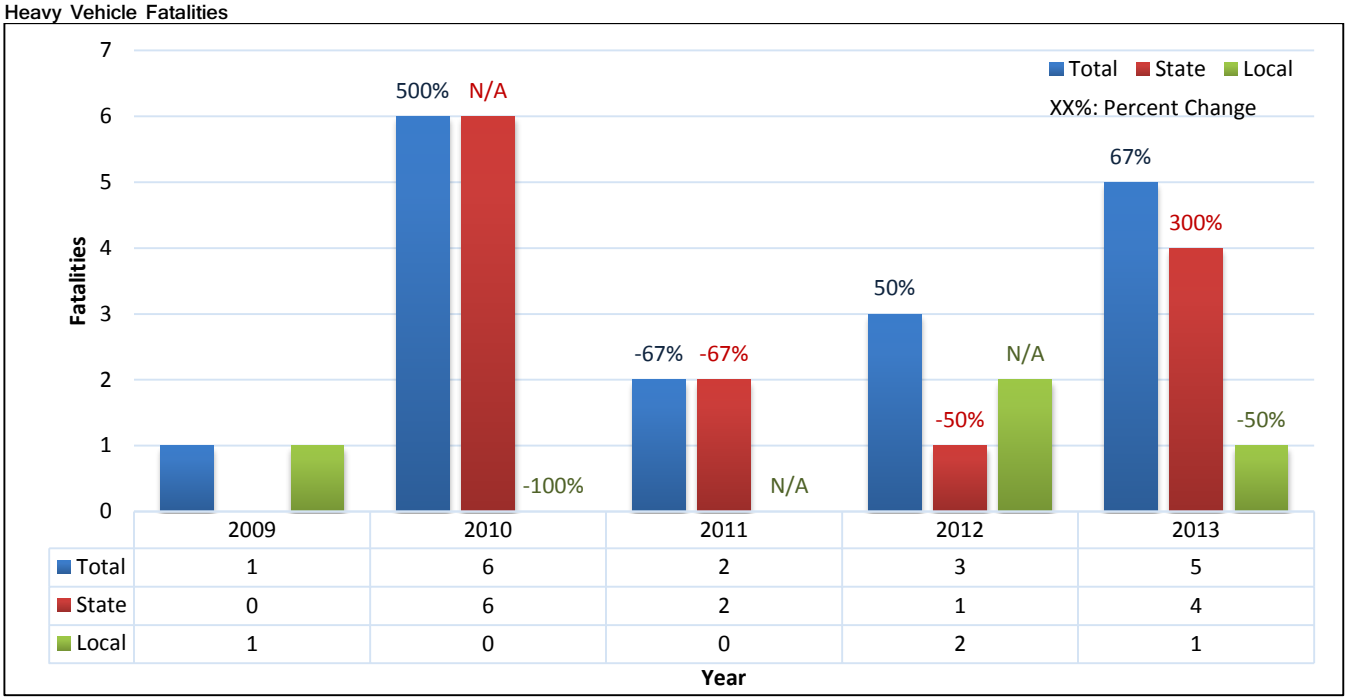
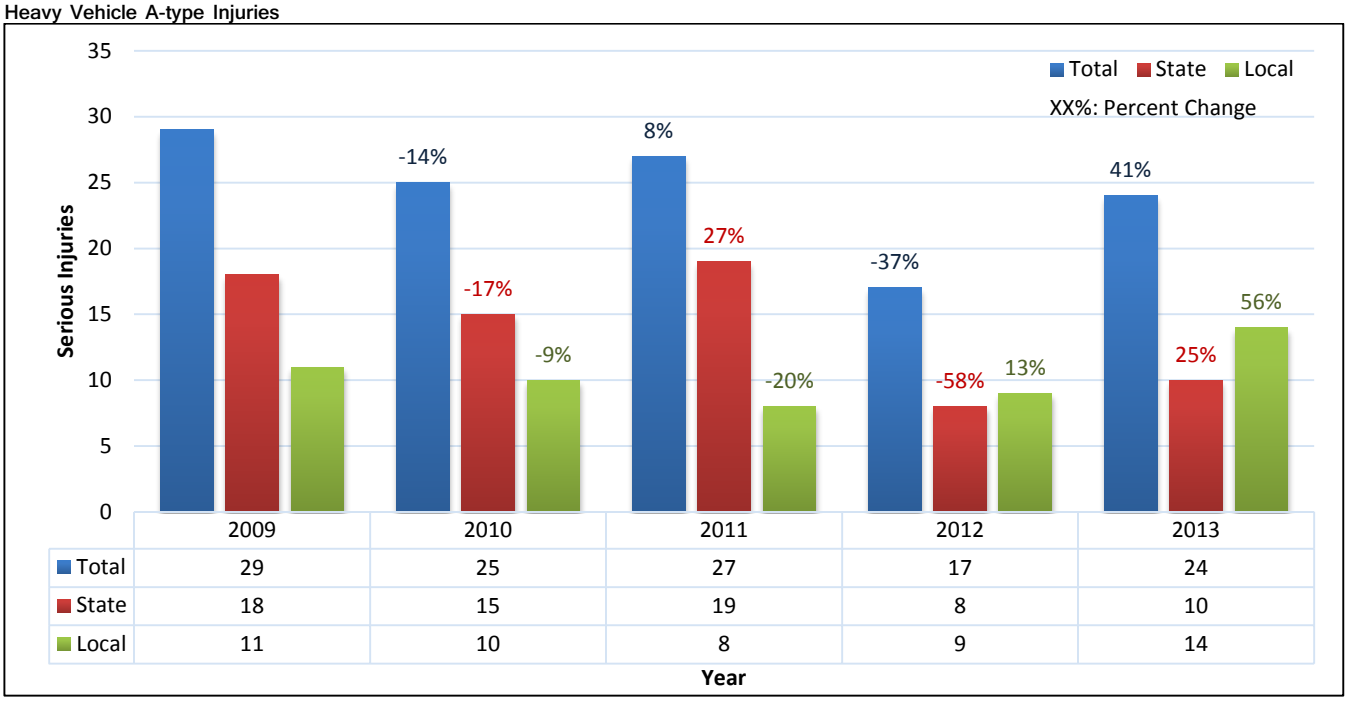


FIGURE 2-31
Heavy Vehicle A-type Injuries



Potential countermeasures to reduce heavy vehicle fatalities and A-type injuries are listed as follows:

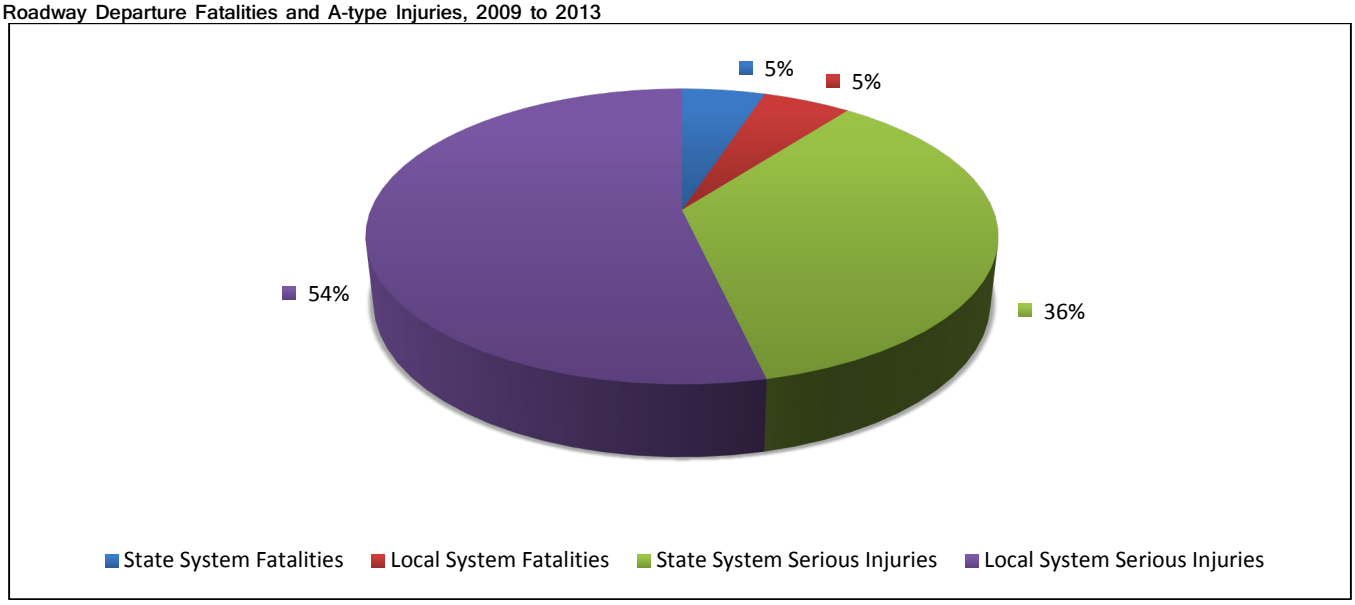
- Reducing truck driver fatigue[9]
- Strengthening commercial driver's license (CDL) requirements and enforcement[9]
- Increasing public knowledge about sharing the road[9]
- Improving maintenance of heavy trucks[9]
- Identifying and correcting unsafe roadway and operational characteristics[9]
- Improving and enhancing truck safety data[9]
- Promoting industry safety initiatives[9]

2.6 Roadway Departure

A roadway departure collision is defined as a collision that is head-on, opposite direction sideswipe, struck a fixed object, or the vehicle overturned, regardless of whether the collision involved single or multiple vehicles. Head-on and fixed-object collisions have a tendency to be severe injury collisions and are unforgiving. Head-on crashes occur when a driver leaves their lane and encroaches into the oncoming traffic's lane, directly striking another vehicle. Even at low speeds, these collisions can result in severe injuries; as speeds increase, the injury severity is likely to follow. Fixed objects include trees, utility poles, telephone poles, and signing supports to name a few. These are typically joined very securely to the ground and do not "give" much, ending with an abrupt change of speed for the vehicle.

Figure 2-32 shows that nearly 59 percent of all roadway departure fatalities and A-type injuries in Kane County occur on the local system. The best approach to reducing roadway departures is to make an attempt to eliminate the frequency of drivers leaving their lane. A list of countermeasures is shown at the end of Section 2.6.

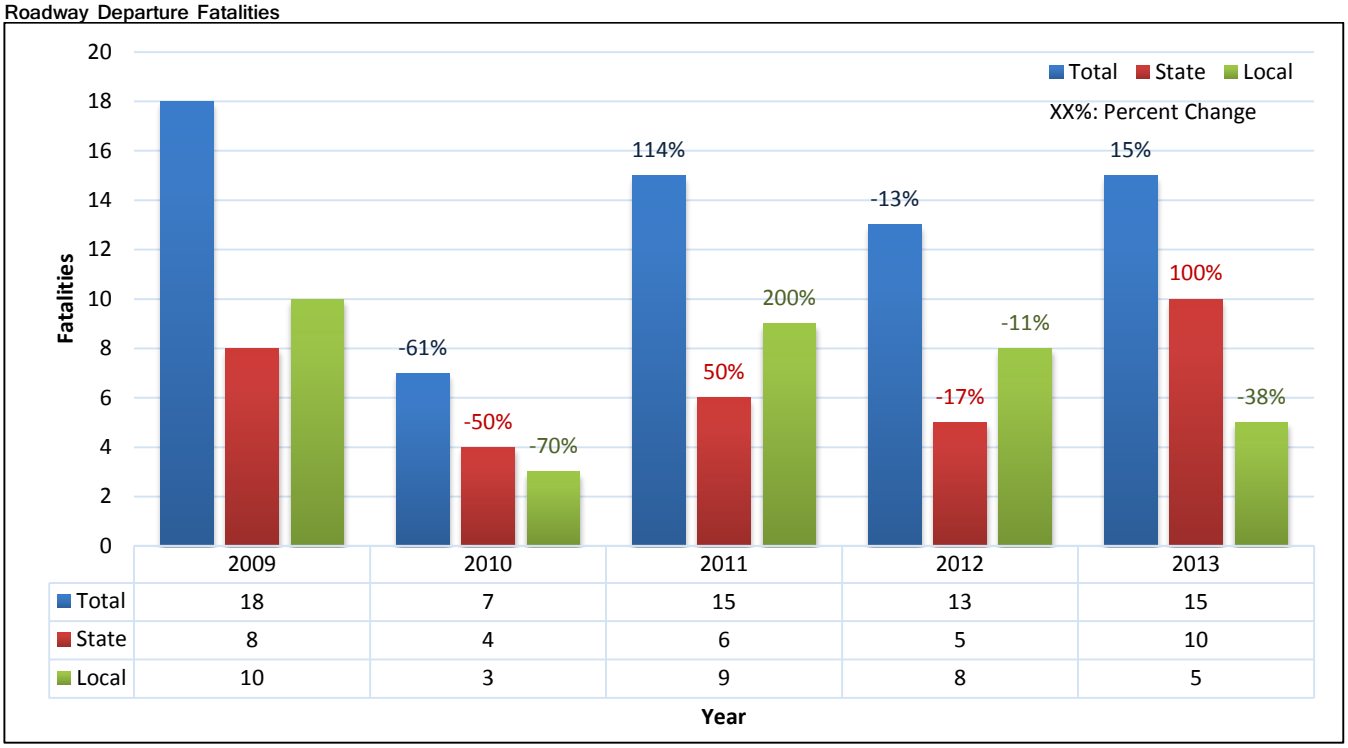
FIGURE 2-32
Roadway Departure Fatalities and A-type Injuries, 2009 to 2013



2.6.1 Roadway Departure Related

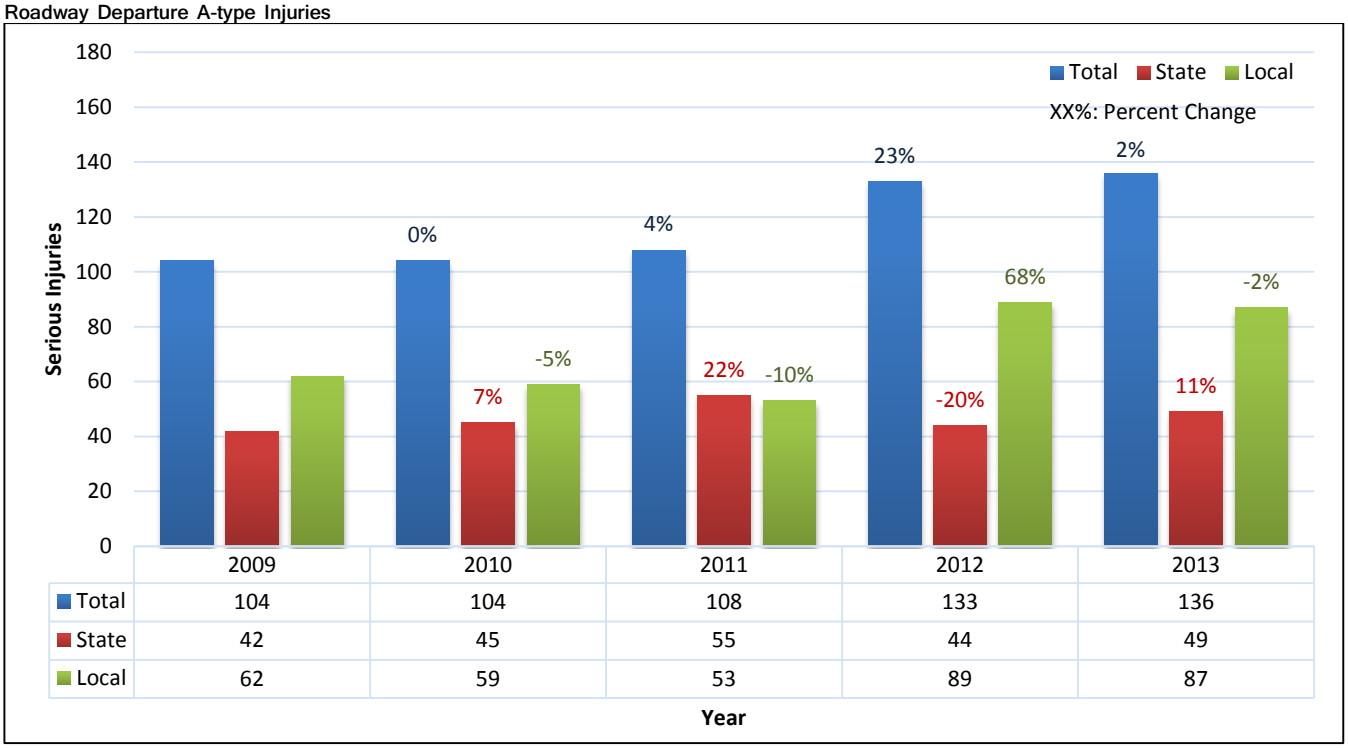
From 2009 to 2013, there were a total of 653 roadway departure related fatalities and A-type injuries in Kane County as shown in Figures 2-33 and 2-34. A total of 385 of those occurred on the local system, where 35 were fatalities and the remaining 350 were A-type injuries. The remaining 268 occurred on the state system, where 33 were fatalities and 235 were A-type injuries. The Kane County road departure fatalities chart does not indicate a significant trend, but the A-type injury chart does indicate an increase from 104 to 136 over the 5-year span, which is an average increase of 8 percent per year.

FIGURE 2-33
Roadway Departure Fatalities



	2009	2010	2011	2012	2013
Total	18	7	15	13	15
State	8	4	6	5	10
Local	10	3	9	8	5

FIGURE 2-34
Roadway Departure A-type Injuries



	2009	2010	2011	2012	2013
Total	104	104	108	133	136
State	42	45	55	44	49
Local	62	59	53	89	87

The primary area of concern is identified in the Kane County Data Trees. Figure 2-1 indicates that 46 percent of non-intersection severe crashes are roadway departure crashes, occurring on urban-principal arterial on the state system. Of the total roadway departure crash types, 27 percent of those occurred on a curve.

Potential infrastructure countermeasures to reduce fatal and serious injury roadway departure crashes are listed as follows:

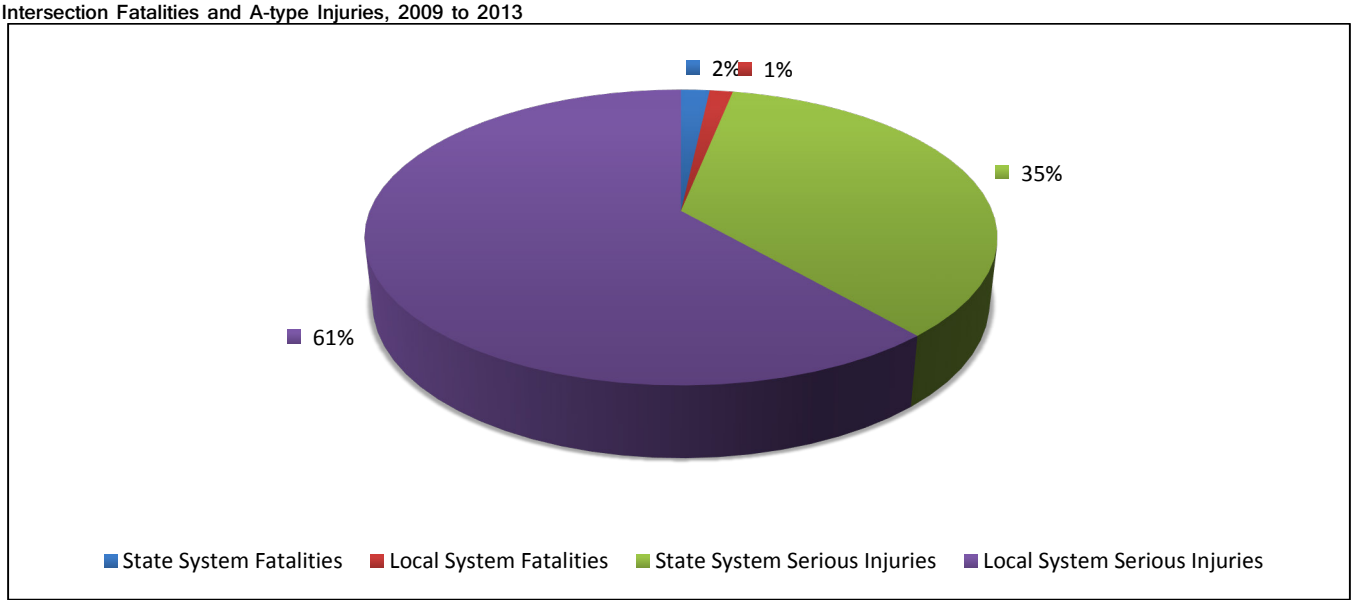
- Change barrier along embankment to less rigid type[10]
- Install guardrails along embankment[10]
- Install edgeline (at curve/tangent)[10]
- Install edgeline, centerline, and/or shoulder rumble strips[10]
- Install chevrons at horizontal curves[10]
- Install fluorescent curve signs or upgrade them to fluorescent sheeting[10]
- Install safety edge[10]
- Flatten sideslopes[10]
- Install raised pavement markers and transverse rumble strips[10]
- Straighten out curves[10]
- Remove/relocate objects in hazardous locations[10]

2.7 Intersection

Intersection collisions range from all types and all severities. Yet, depending on which type of intersection is in consideration, some collision types and severities may be more frequent than others. Figure 2-35 indicates that 62 percent of intersection fatalities and A-type injuries occur on the local system. These numbers are broken down even further in Figures 2-36 and 2-37.

Intersections create a unique situation for users because there are many different types, which include rural, urban, signalized, unsignalized, and skewed approaches, among others. These different intersection types create an abundance of conflict points, possibly confusing the driver and causing a collision. Reducing the number of conflict points can help reduce the number of collisions. Many countermeasures are listed at the end of Section 2.7; they are listed separately for signalized and unsignalized intersections.

FIGURE 2-35
Intersection Fatalities and A-type Injuries, 2009 to 2013



2.7.1 Intersection Related

From 2009 to 2013, there were a total of 1207 intersection related fatalities and A-type injuries in Kane County, as shown in Figures 2-36 and 2-37. A total of 758 of those occurred on the local system, where 17 were fatalities and the remaining 741 were A-type injuries. The remaining 449 took place on the state system, where 21 were fatalities and 428 were A-type injuries. The Kane County intersection fatality chart indicates an average reduction of 5 percent per year over the 5-year span. Meanwhile, the Kane County intersection A-type injury chart shows an overall increase from 233 to 243, for a total increase of 4 percent over the 5-year period.

FIGURE 2-36
Intersection Related Fatalities

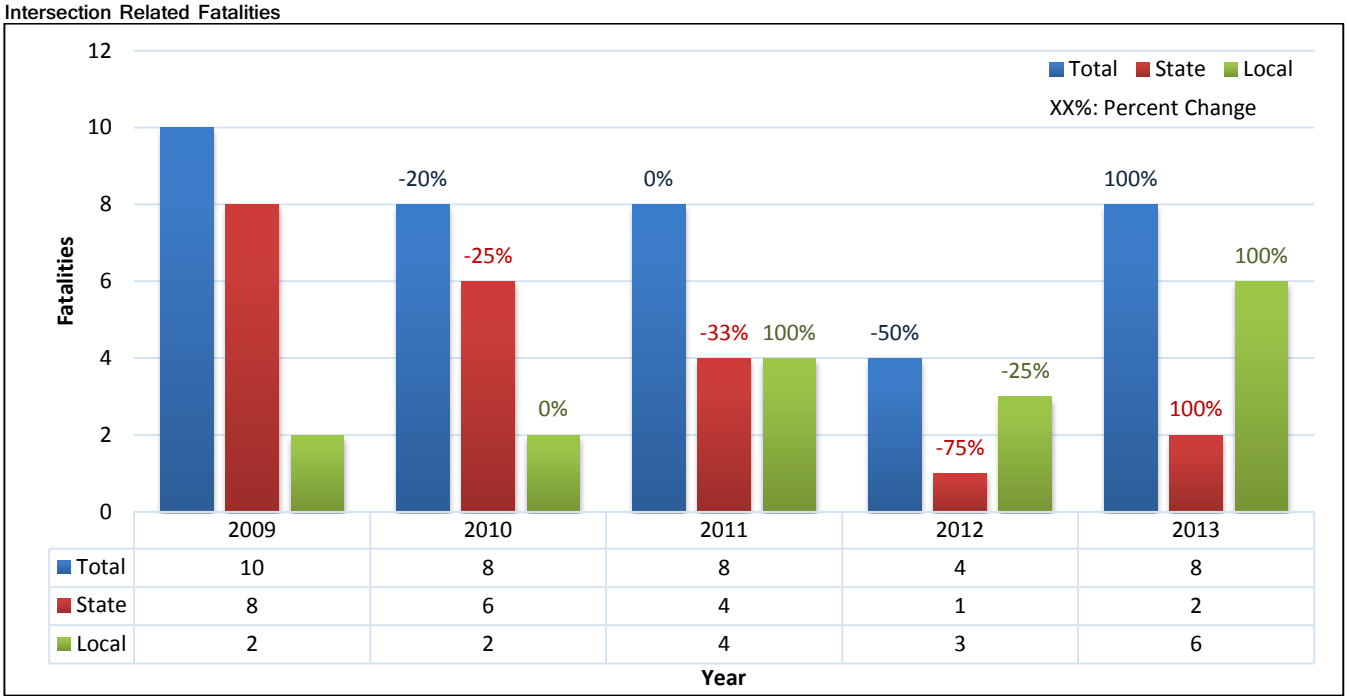
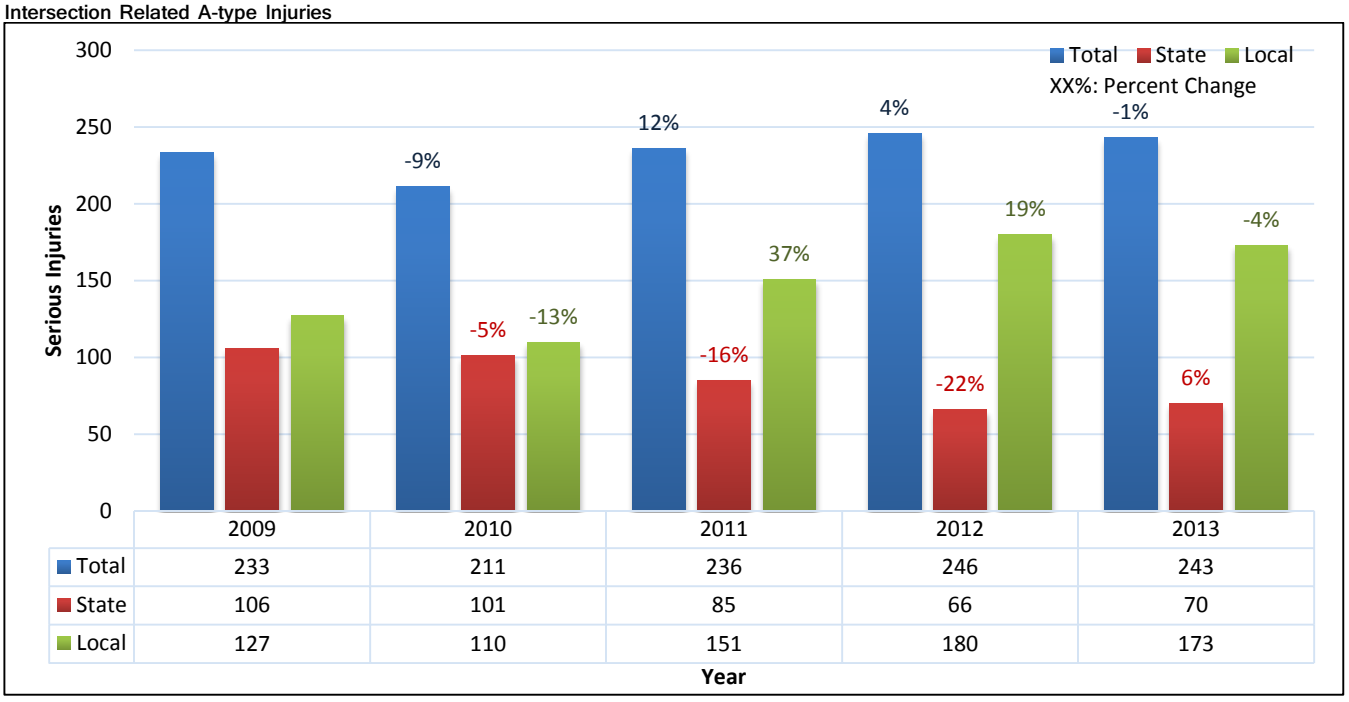


FIGURE 2-37
Intersection Related A-type Injuries



The primary area of concern is identified in the Kane County Data Trees. Figure 2-1 indicates that 65 percent of intersection severe crashes are occurring on urban principal arterial on the state system. Of those intersection related severe crashes, 55 percent were at signalized intersections.

Potential infrastructure countermeasures to reduce fatal and serious injury intersection crashes are listed as follows:

- Call attention to the intersection by installing rumble strips on intersection approaches[11]
- Provide dashed markings for major-road continuity across the median opening at divided highway[11]
- Provide supplementary stop signs mounted over the roadway[11]
- Provide pavement markings with supplementary messages, such as STOP AHEAD[11]
- Provide improved maintenance of stop signs[11]
- Install flashing beacons at stop-controlled intersections[11]
- Avoid signalizing through roads[11]
- Provide all-way stop control at appropriate intersections[11]
- Provide roundabouts at appropriate locations[11]
- Provide targeted enforcement to reduce stop sign violations[11]
- Provide targeted public information and education on safety problems at specific intersections[11]
- Provide targeted speed enforcement[11]
- Provide traffic calming on intersection approaches through a combination of geometrics and traffic control devices[11]
- Post appropriate speed limit on intersection approaches[11]
- Provide turn path markings[11]
- Provide a double yellow centerline on the median opening of a divided highway at intersections[11]
- Provide lane assignment signing or marking at complex intersections[11]
- Presence of right turning lane on arterial with signal coordination[12]
- Add centerline and STOP bar, replace 24-inch with 30-inch stop signs[12]
- Add signal (additional primary head)[12]
- Convert stop-control to signal[12]
- Provide flashing beacons at four-leg stop-controlled intersections on two-lane roads[12]
- Install advance warning signs (positive guidance)[12]
- Convert from yield signal control to signalized control[12]
- Introduce painted left-turn channelization[12]
- Convert signal from pedestal-mounted to mast arm[12]
- Install flashing beacons as advance warning[12]
- Provide increased pavement friction[12]
- Introduce stop ahead pavement markings[12]
- Resurface pavement[12]
- Advance street name signs[12]

- Advanced signing and delineation[12]
- Improve visibility of unsignalized intersections by providing lighting[12]

Current accomplishments:

List is any

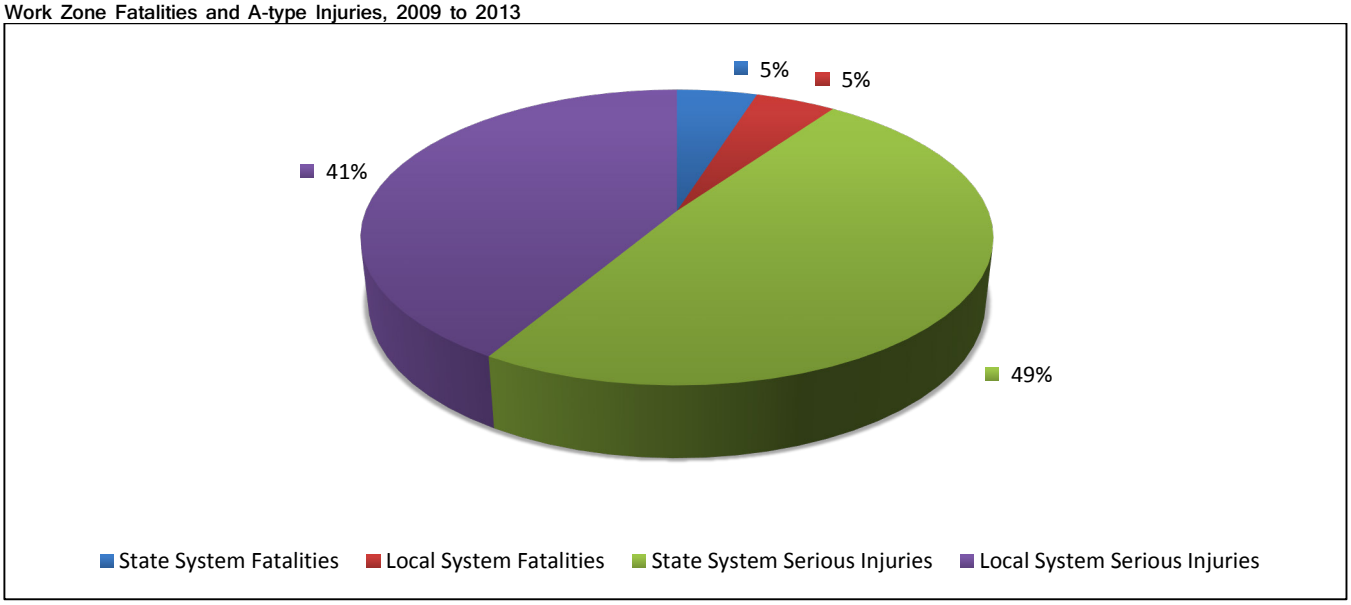
2.8 Work Zone

Driving conditions of work zones are different than normal driving conditions. Drivers are placed in special situations that may result in violation of driver expectations. These can lead to erratic maneuvers, and consequently crashes. Lack of awareness of work zones, failure to obey work zone traffic laws, among others, are also factors that influence work zone safety.

In Illinois, the majority of work zone fatalities occur on the interstate system and involves heavy vehicles. Figure 2-38 shows that in Cook County, between years 2009 and 2013, 54 percent of fatalities and A-type injury crashes occurred on the state system.

To mitigate the number of work zone fatalities and A-type injuries, increased communication, coordination, and cooperation among stakeholders is necessary. A list of strategies to address work zone collisions is included at the end of this section.

FIGURE 2-38
Work Zone Fatalities and A-type Injuries, 2009 to 2013

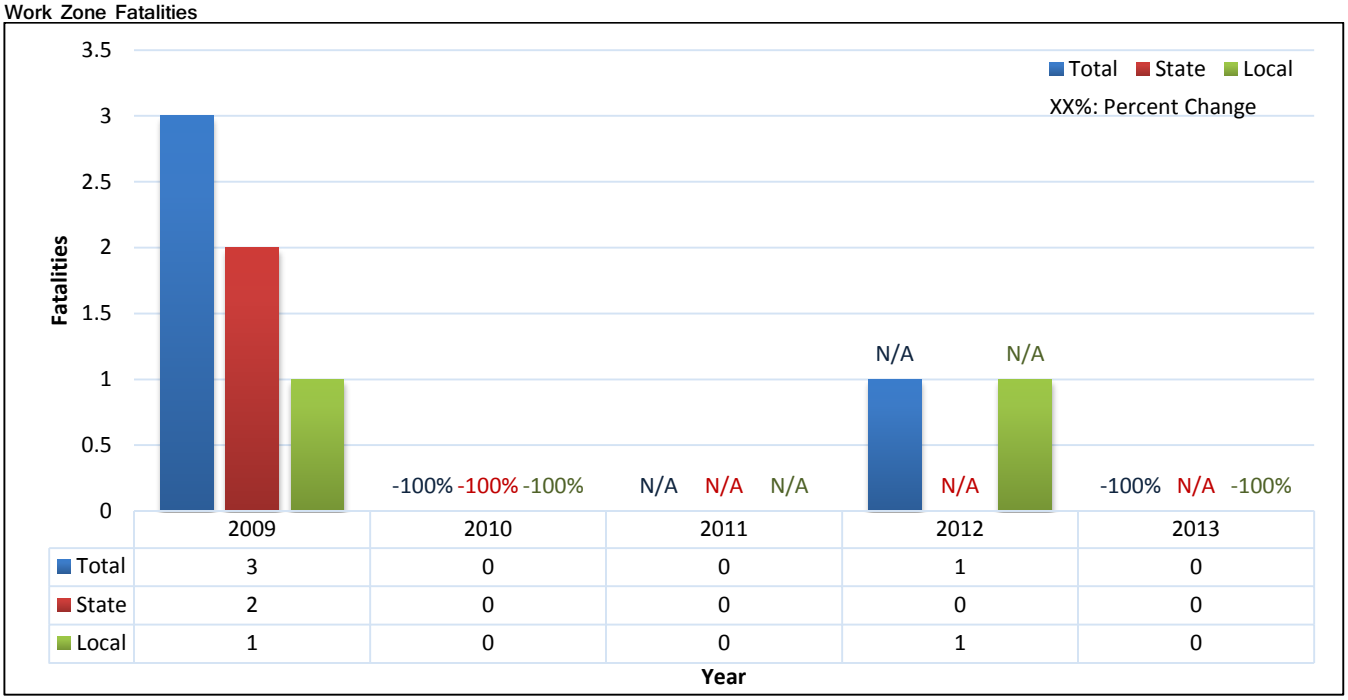


2.8.1 Work Zone Related

From 2009 to 2013, there were a total of 41 work zone related fatalities and A-type injuries in Cook County, as shown in Figures 2-39 and 2-40. Of these, 2 fatalities and 20 A-type injury crashes occurred on the state system, and 2 fatality and 17 A-type injury crashes occurred on the local system.

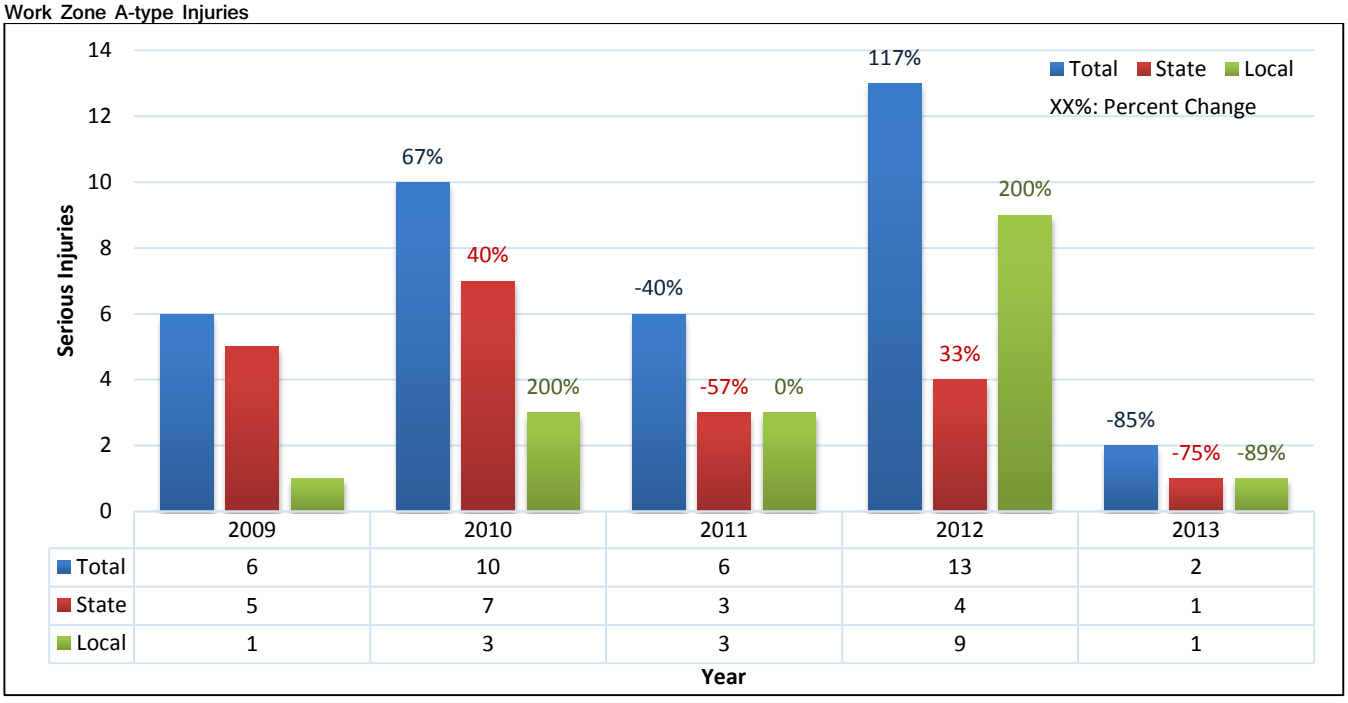
The Cook County work zone fatality chart does not indicates any significant change except for a spike in 2009 over 5-year period. Likewise, the A-type injury chart, does not indicates any significant trend, however, it shows the average reduction of 17 percent per year from 2009 to 2013.

FIGURE 2-39
Work Zone Fatalities



	2009	2010	2011	2012	2013
Total	3	0	0	1	0
State	2	0	0	0	0
Local	1	0	0	1	0

FIGURE 2-40
Work Zone A-type Injuries



	2009	2010	2011	2012	2013
Total	6	10	6	13	2
State	5	7	3	4	1
Local	1	3	3	9	1

Potential infrastructure countermeasures to reduce work zone fatalities and A-type injuries are listed as follows:

- Enhanced use of stationary and portable changeable message signs in and near work zones
- Provide real-time work zone information to the traveling public with frequent updates
- Provide improved signage and lighting in work zone areas
- Design enforcement “pull over” areas into roadway construction projects
- Implement ITS strategies to improve safety [13]
- Increase inside shoulder width inside the work zone

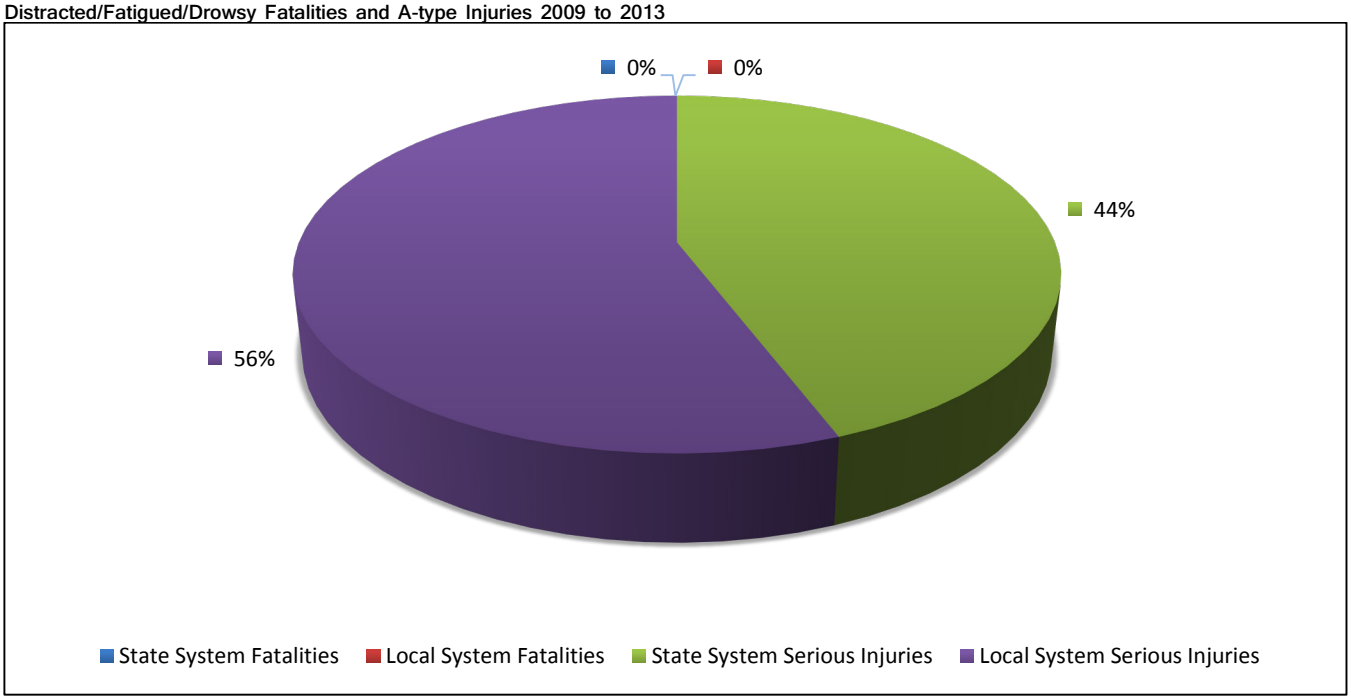
2.9 Distracted/Fatigued/Drowsy

A distracted/fatigued/drowsy driver-involved crash is defined as a crash where at least one of the drivers involved was reported to have performed one or both of the following behaviors:

- **Fatigued/drowsy driving—**the driver's apparent condition is fatigued, asleep/fainted, or illness/fainted.
- **Distracted driving—**the driver is distracted from inside or outside the vehicle or by any electronic communication device, such as a navigation device or DVD player, or using a cell phone for texting or other uses.

Between 2009 and 2013, a total of 123 fatalities and 3,170 A-injuries related to distracted/fatigued/drowsy crashes occurred in Illinois. Figure 2-41 illustrates that the majority of all distracted/fatigued/drowsy A-injuries in Kane County occurred on the local system. The best approach to reducing distracted/fatigued/drowsy driving is to make an attempt to make drivers aware of their distractions through roadway enhancements, service stopping areas, education, and enforcement programs.

FIGURE 2-41
Distracted/Fatigued/Drowsy Fatalities and A-type Injuries 2009 to 2013



2.9.1 Distracted/Fatigued/Drowsy Driver

From 2009 to 2013, there were a total of 0 distracted/fatigued/drowsy driver fatalities and 138 distracted/fatigued/drowsy driver A-type injuries in Kane County, as shown in Figures 2-42 and 2-43. A total of 77 A-injuries occurred on the local system, and the remaining 61 A-injuries took place on the state system. The Kane County distracted/fatigued/drowsy fatality chart has consistently remained at 0 fatalities from 2009 to 2013. Meanwhile, the A-type injury chart shows a slightly increasing trend, with an annual increase of 17 percent over the 5 years.

FIGURE 2-42
Distracted/Fatigued/Drowsy Related Fatalities

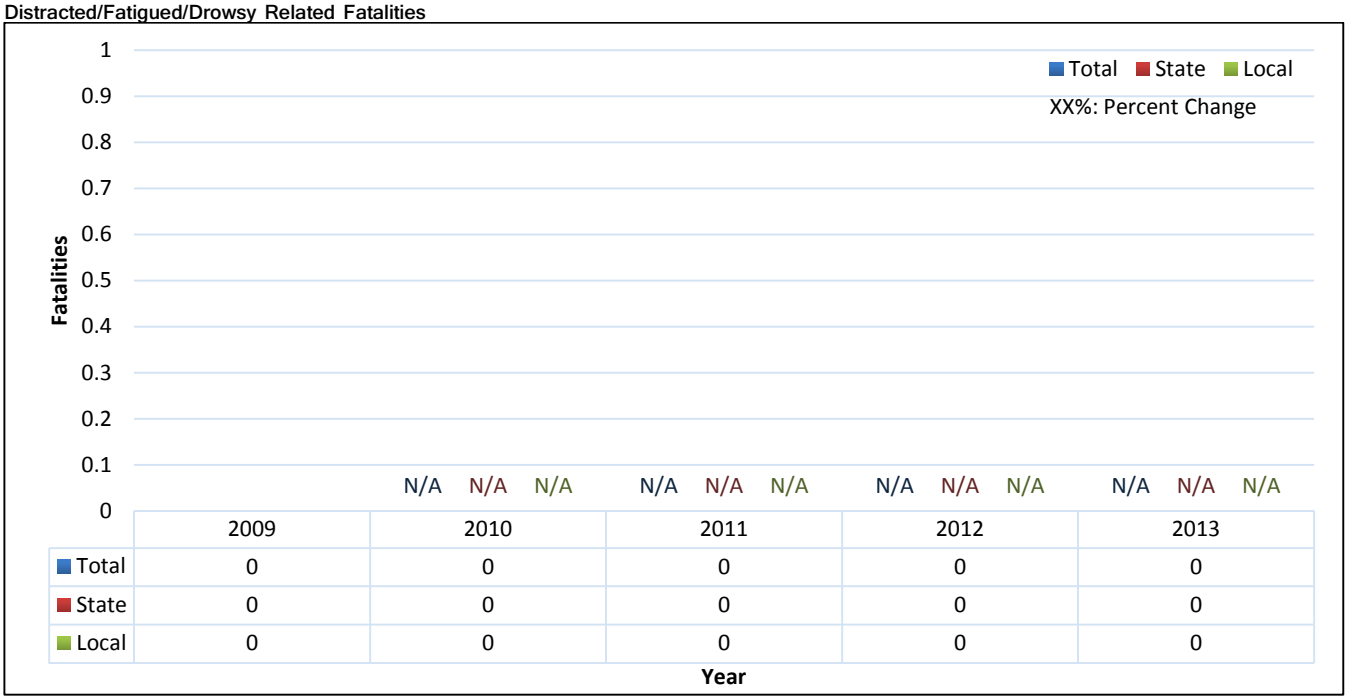
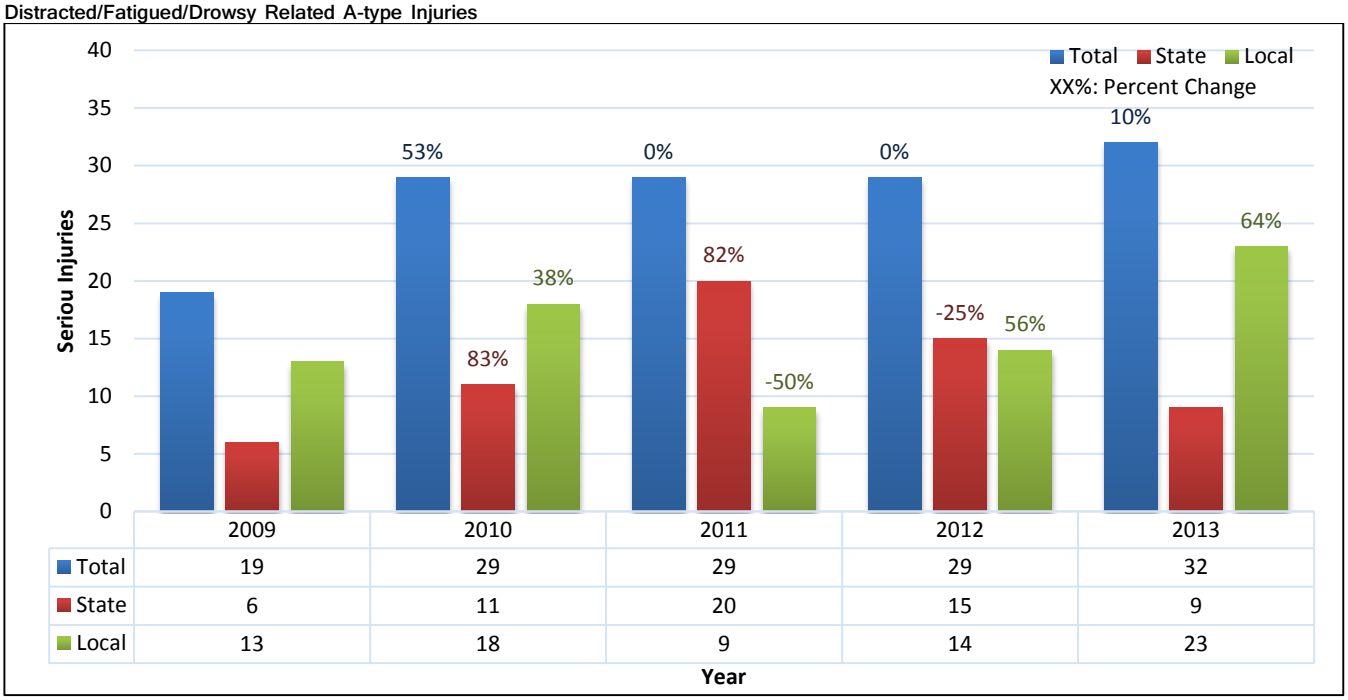


FIGURE 2-43
Distracted/Fatigued/Drowsy Related A-type Injuries



Potential countermeasures to reduce distracted/fatigued/drowsy driver fatalities and A-type injuries include the following:

- Make roadways safer for distracted drivers[14]
  - Install shoulder and/or centerline rumble strips
  - Implement other roadway improvements to reduce the likelihood and severity of run-off-road and/or head-on collisions
- Provide safe stopping and resting areas[14]
  - Improve access to safe stopping and resting areas
  - Improve rest area security and services
- Increase driver awareness of the risks of distracted driving and promote driver focus[14]
  - Conduct education and awareness campaigns targeting the general driving public
  - Visibly enforce existing statutes to deter distracted driving
- Implement programs that target populations at increased risk of distracted driving crashes[14]
  - Strengthen graduated driver licensing requirements for young novice drivers
  - Incorporate information on distracted and fatigued driving into education programs and materials for young drivers
  - Encourage trucking companies and other fleet operators to implement fatigue management programs
  - Implement targeted interventions for other high-risk populations

Section 3 Countywide, City, and Location-Specific Analysis

The purpose of this section is to identify crash data trends spatially in Kane County. In the previous section, crash data were analyzed and summarized in Emphasis Area table (Table 2-1) and Data Trees (Figure 2-1 to 2-6) to identify any system wide trends within the county.

3.1 Map Series

With the emphasis areas prioritized in Section 2, a series of county-level heat maps is used to identify specific locations where crash patterns continually occur for each of the selected areas. A zoomed-in detailed map is then provided to specify the exact blocks and streets where crashes of that emphasis area are most concentrated in Kane County.

Besides these emphasis area heat maps and the detailed map series at the county level, additional maps can be provided for specific city areas (per the County's request), which can include total fatal, A-type injury, and B-type injury crashes (KAB crashes) heat maps at city levels along with zoomed-in detailed maps, which are symbolized based on collision type.

If any trends and locations are identified through development of these maps, a selection of the most effective safety strategies for reducing fatal, A-type injury, and B-type injury crashes can be identified and implemented within the county and specified cities.

3.1.1 Heat Maps

Heat maps are produced to identify specific locations where crash patterns continually occur. County Data Trees and Emphasis Area tables were originally used to establish which crash types and emphasis areas were predominant in Kane County on a certain roadway type or among a certain person type. Once a specific emphasis area is observed as being problematic, heat maps help to find where these crashes are occurring within the county. These maps summarize the frequency of crashes within a given geographical area. For this effort, section lines (1 square mile) were mapped with a range of colors identifying the "hot spots." Identifications of clusters where there are many hot spots indicate locations where safety programs may be most effective. This map series analysis was performed summarizing fatal, A-type injury, and B-type injury crashes to minimize the effects of a small sample size. As the number of people in each vehicle is random and not stable, the crash is counted as a whole; and KAB crash frequencies will serve as the measurement of crash distribution rather than the fatalities and serious injuries number.

3.1.2 Detailed Maps

In addition to the heat maps, detailed maps are developed focusing on the specific location of the crashes in each emphasis area. The objective of this map series is to find locations that exhibit unusually high crash frequencies and identify the exact location of each crash. The base crash data are analyzed, and problem locations are identified, prioritized, and ranked based on infrastructure countermeasures which can be applied. This methodology typically considers fatal, A-type injury, and B-type injury crashes account for a small percentage of the total crashes), because these crashes are relatively random, widely distributed geographically, and have less chances to occur, making it hard to identify specific problematic locations. These detailed maps are anticipated to assist local officials in identifying the accurate block and streets where KAB crashes tend to concentrate over the analysis period (2009 to 2013). Though it is still a 1-square-mile area, it is significantly more detailed compared to the larger-scale countywide heat map. Thus, the detailed maps allow analysts to focus on specific streets and intersections for enforcement, education, or media campaigns and infrastructure improvement.

3.2 Identification of Countywide Trends

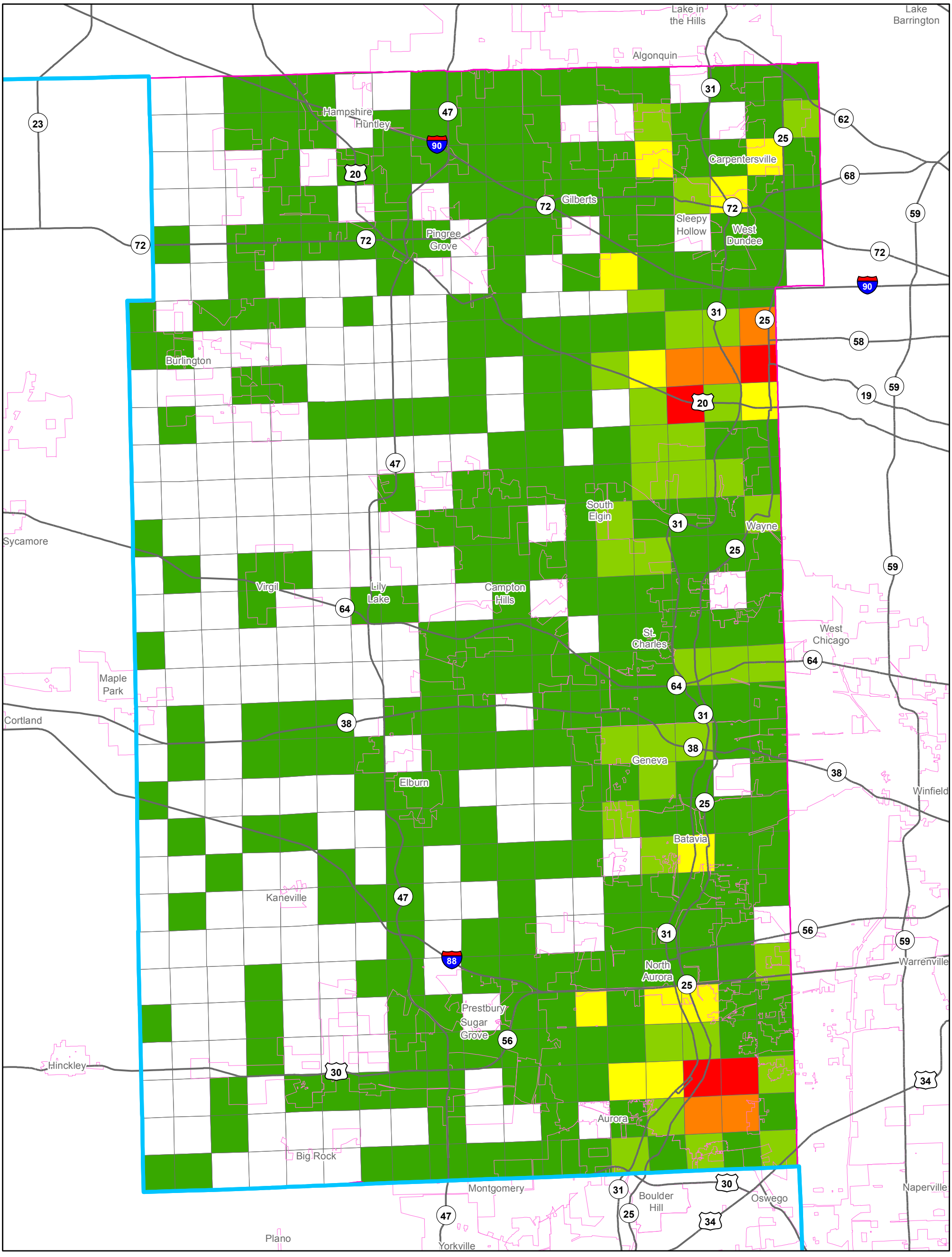
These map series are being used by enforcement agencies and engineers to address major issues. Since many different types of heat maps can be made, they can be compared to each other to see which specific maps have higher crash frequencies. This allows the ability to focus on a few certain crash types, behavioral issues, or roadway types.

Enforcement agencies could use the map series geared toward behavioral issues to isolate areas that need more police presence. If the existence of police can influence driver behaviors in these areas, it is hoped that the frequency of crashes can be brought down. Engineers can use the map series to locate areas that might have geometric issues or signage problems. If a specific area is continually having roadway departure crashes, engineers can locate roads that have curves and suggest countermeasures to help address the crashes. Some agencies had multiple squares that were red, indicating an issue in the area, and the agency could apply the detailed map to see a “zoom-in” of that area. The detailed maps would provide detailed street by street views of exactly where these crashes are taking place.

3.2.1 Younger Driver

Figure 3-1, Figure 3-2A, and Figure 3-2B show the frequency of younger driver related KAB crashes per square mile in Kane County using color-coded sections of 1 square mile each. Younger drivers are defined as drivers between the age of 16 and 20. As noted in the legend of the map, the white sections are locations where there were zero KAB crashes (fatal, A-type, and B-type injury crashes) involving younger drivers. The sections with shades of green identify locations with 1 to 16 younger driver related crashes. Locations exceeding 16 are identified in shades of yellow to red. These are the high priority locations that should be considered for additional enforcement, education, and media campaigns to address younger driver related driving.

The highest prevalence of young driver related crashes in Kane County is occurring in 4 square miles in the proximity of downtown Aurora and downtown Elgin, exceeding 32 younger driver KAB crashes per square mile between year 2009 and 2013.



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Younger Driver Crashes Per Section Square

- 0
- 1 - 8
- 9 - 16
- 17 - 24
- 25 - 32
- 33 - 40

*Legend intervals are based on KAB younger driver crashes that occurred in this county.

0 1.5 3 Miles

N

FIGURE 3-1
KANE COUNTY

KAB Younger Driver Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

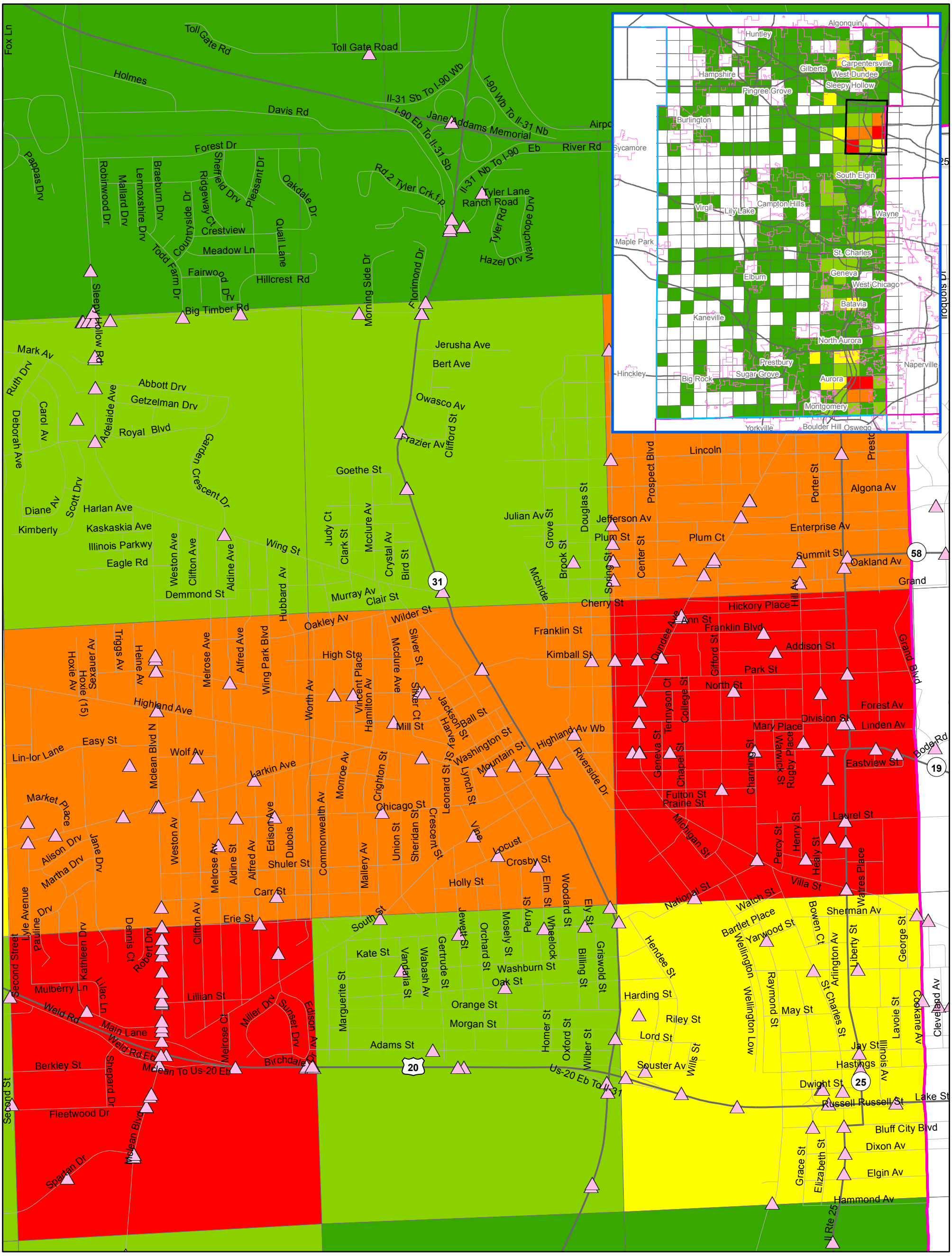
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/19/2015



Legend

- KAB Younger Driver Crashes
- City Boundary
- County Boundary

KAB Younger Driver Crashes Per Section Square

- 0
- 1 - 8
- 9 - 16
- 17 - 24
- 25 - 32
- 33 - 40

*Legend intervals are based on KAB younger driver crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-2A
KANE COUNTY

KAB Younger Driver Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

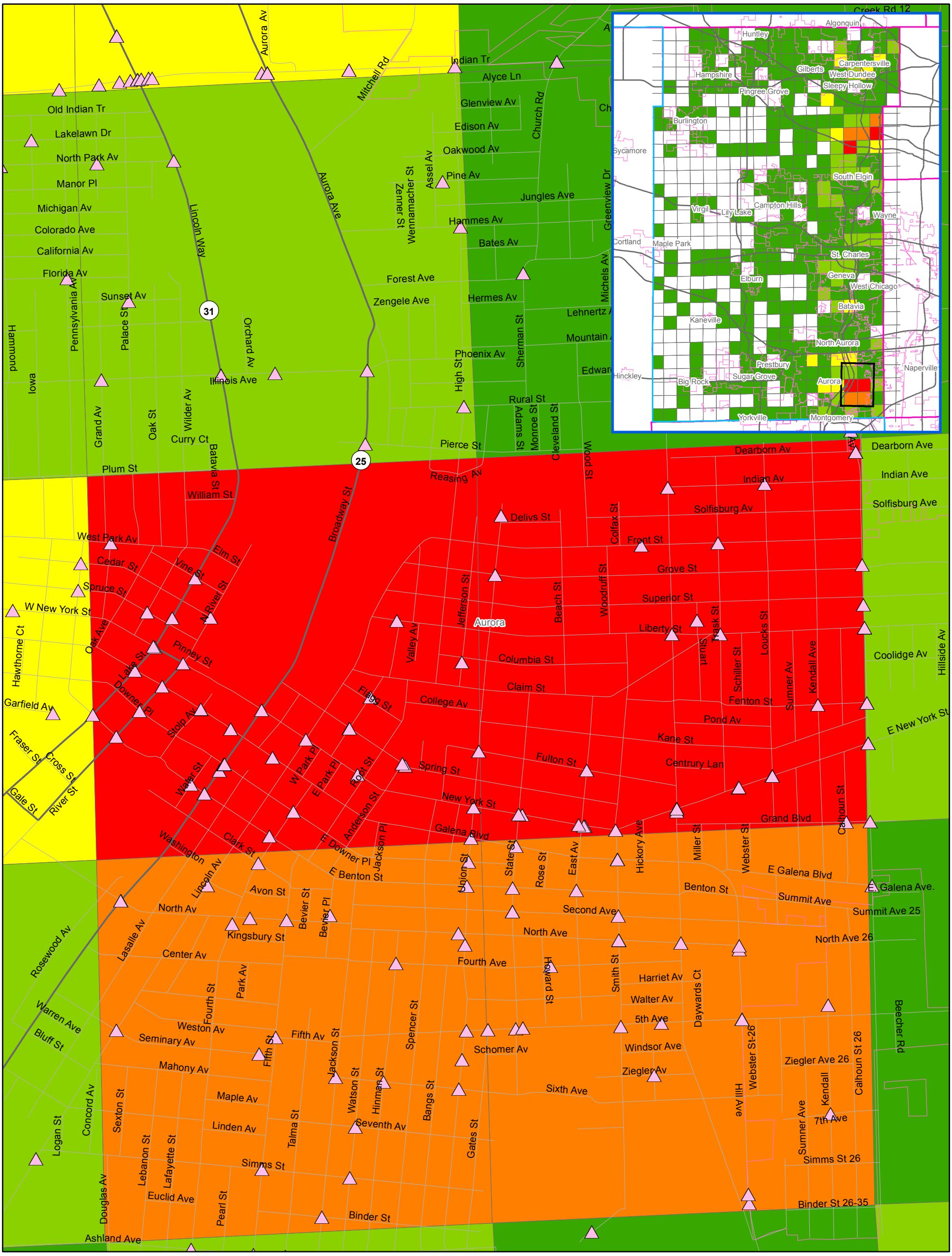
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 4/16/2015



Legend

- KAB Younger Driver Crashes
- City Boundary
- County Boundary

KAB Younger Driver Crashes Per Section Square

- 0
- 1 - 8
- 9 - 16
- 17 - 24
- 25 - 32
- 33 - 40

*Legend intervals are based on KAB younger driver crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-2B
KANE COUNTY

KAB Younger Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 4/16/2015

3.2.2 Older Driver

Figure 3-3 and Figure 3-4 illustrate the frequency of older driver KAB crashes per square mile in Kane County. Older drivers are those who are equal or older than 65 years old. These maps illustrate that the older driver KAB crashes are occurring in the proximity of Larkin High School in the Elgin area, where 24 older driver related KAB crashes per square mile occurred from the year 2009 to 2013.

3.2.3 Speeding/Aggressive Driver

Figure 3-5 and Figure 3-6 illustrate the frequency of speeding/aggressive driving KAB crashes per square mile in Kane County. These maps show that the highest frequencies of speeding/aggressive driving related KAB crashes are occurring in 1-square mile within the urban area of Aurora, where more than 38 speeding/aggressive driving KAB crashes per square mile occurred from the year 2009 to 2013.

3.2.4 Impaired Driver

Figure 3-7 and Figure 3-8 illustrate the frequency of impaired driver KAB crashes per square mile in Kane County. Impaired drivers are drivers who are impaired by drugs or alcohol, or had been drinking alcohol. The maps show a high frequency area in downtown Aurora, in the proximity of Paramount Theatre with greater than 20 impaired driver KAB crashes per square mile from the year 2009 to 2013.

3.2.5 Unrestrained

Figure 3-9 and Figure 3-10 illustrate the frequency of unrestrained occupants KAB crashes. Unrestrained driver and occupants refer to the drivers and passengers with no safety equipment or no safety belt/helmet used, or child restraint used improperly/not used. As illustrated on the maps, a high frequency of unrestrained crashes take place in the downtown area of Aurora with greater than 20 unrestrained occupants KAB crashes per square mile from the year 2009 to 2013.

3.2.6 Pedestrian and Pedalcyclist

Figures 3-11 through 3-14B illustrate the frequency of pedestrian and pedalcyclist KAB crashes per square mile in Kane County. These maps show that a high frequency of pedestrian KAB crashes are occurring in urbanized areas of Aurora, and a high frequency of pedalcyclist KAB crashes are occurring in the downtown areas of Aurora and Elgin. In the highest concentration areas, frequency of greater than 30 pedestrian related and greater than 13 pedalcyclist KAB crashes occurred per square mile from the year 2009 to 2013.

3.2.7 Motorcycle

Figure 3-15 and Figure 3-16 illustrate the frequency of motorcycle KAB crashes per square mile in Kane County. These figures show that the high concentration of motorcycle KAB crashes are occurring in the Aurora downtown area, with greater than 10 motorcycle KAB crashes per square mile occurring from the year 2009 to 2013.

3.2.8 Heavy Vehicle

Figure 3-17 through Figure 3-18B illustrate the frequency of heavy vehicle KAB crashes per square mile in Kane County. These figures show that the high concentration of heavy vehicle KAB crashes are occurring along the interstates and on the street network. From the detailed maps, high frequency areas are primarily along the corridors of I-90, US-20, and IL-25 in Elgin area; and along I-88, IL-31, and New York Street in Aurora. High concentration of crashes of greater than 6 KAB crashes per square mile occurred from the year 2009 to 2013. This includes five types of vehicles: bus up to 15 passengers, bus over 15 passengers, single unit truck, tractor with semi-trailer, and tractor without semi-trailer.

3.2.9 Roadway Departure

Figure 3-19, Figure 3-20A, and Figure 3-20B illustrate the frequency of roadway departure KAB crashes per square mile in Kane County. Roadway departure KAB crashes include the collision types of fixed object, sideswipe opposite direction, head on, and overturned. There are two high concentration areas in Aurora and Elgin. The highest frequency areas are greater than 24 crashes per square mile occurred between year 2009 and 2013.

3.2.10 Intersection

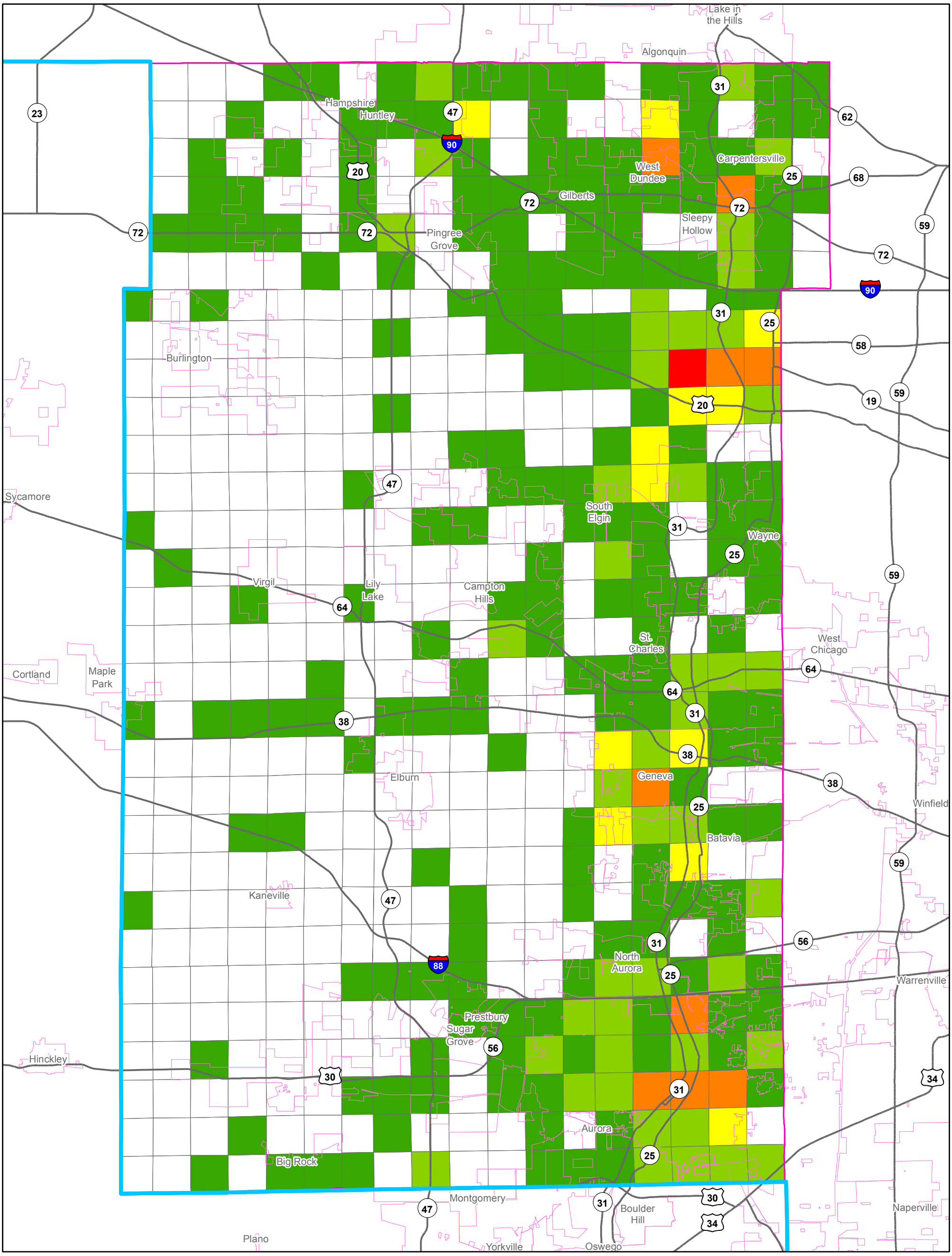
Figure 3-21 and Figure 3-22 illustrate the frequency of intersection related KAB crashes per square mile in Kane County. The highest concentration of intersection related KAB crashes is within the urbanized areas of Aurora. The highest frequency of crashes greater than 104 occurred per square mile from year 2009 to 2013.

3.2.11 Work Zone

Figure 3-23 and Figure 3-24 depict the work zone KAB crashes per section square mile in Kane County. The highest concentration of KAB crashes are located in the vicinity of I-90 and IL-47 Interchange. High frequency crashes of greater than 5 occurred at this location from the year 2009 to 2013.

3.2.1 Distracted/Fatigued/Drowsy Driver

Figure 3-25 and Figure 3-26 illustrate the frequency of distracted driver KAB crashes per square mile in Kane County. The highest concentration of these crashes are primarily occurring in the urban sections of the County and on non-freeways and non-interstate systems. At these locations, 6 to 8 distracted driver related KAB crashes per square mile have occurred in the period from 2009 to 2013.



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Older Driver Crashes Per Section Square

- 0
- 1 - 4
- 5 - 8
- 9 - 12
- 13 - 18
- 19 - 24

*Legend intervals are based on KAB older driver crashes that occurred in this county.

0 1.5 3 Miles

N

FIGURE 3-3
KANE COUNTY

KAB Older Driver Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

Illinois Department of Transportation

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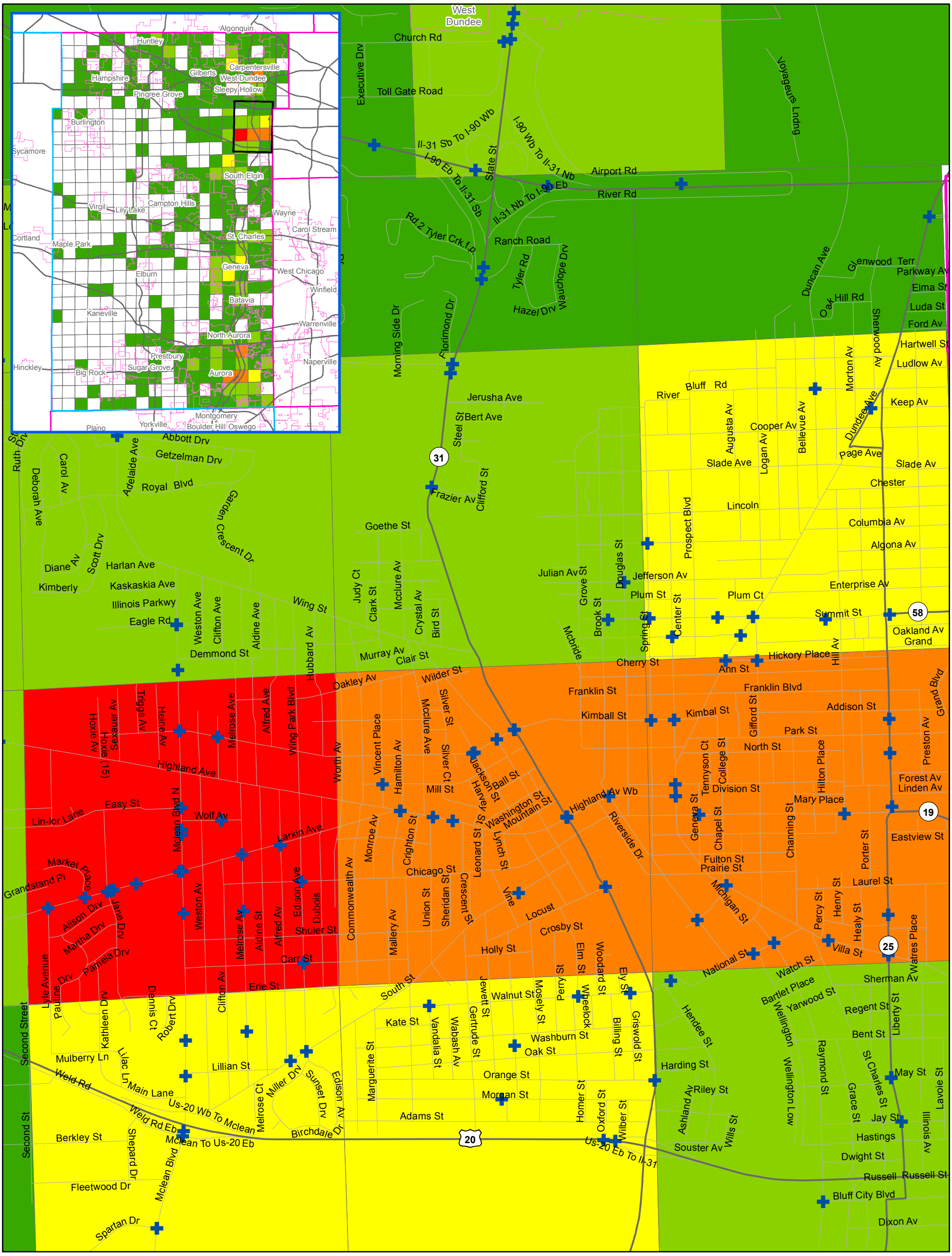
Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/19/2015



Legend

- KAB Older Driver Crashes
- City Boundary
- County Boundary

KAB Older Driver Crashes Per Section Square

- 0
- 1 - 4
- 5 - 8
- 9 - 12
- 13 - 18
- 19 - 24

*Legend intervals are based on KAB older driver crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-4
KANE COUNTY

KAB Older Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

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Illinois Department of Transportation

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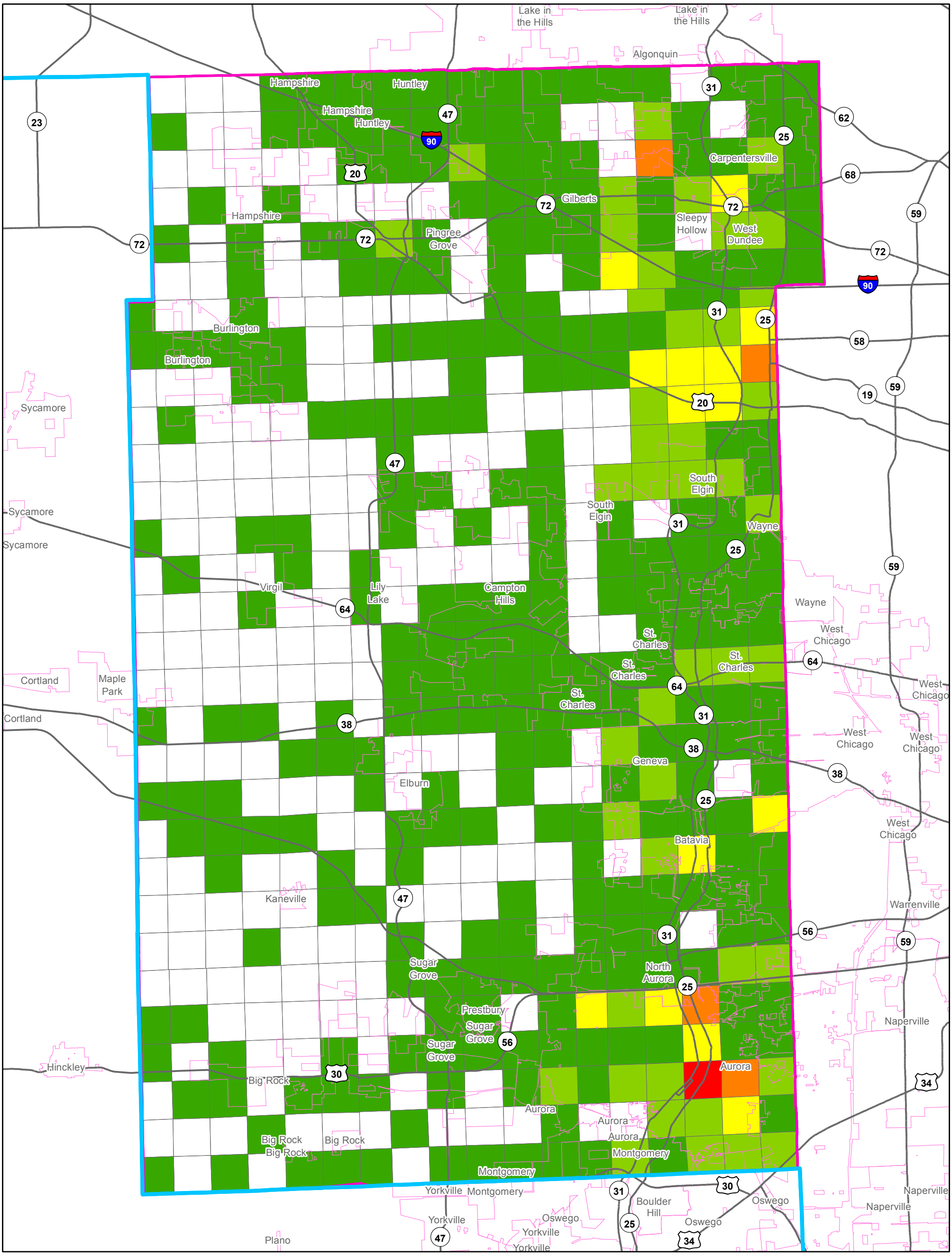
Date: 3/20/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Speeding/Aggressive Driver Crashes Per Section Square

- 0
- 1 - 9
- 10 - 18
- 19 - 27
- 28 - 38
- 39 - 49

*Legend intervals are based on KAB speeding/aggressive driver crashes that occurred in this county.

0 1.5 3 Miles

N

Illinois Department of Transportation

CH2MHILL

FIGURE 3-5
KANE COUNTY

KAB Speeding/Aggressive Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

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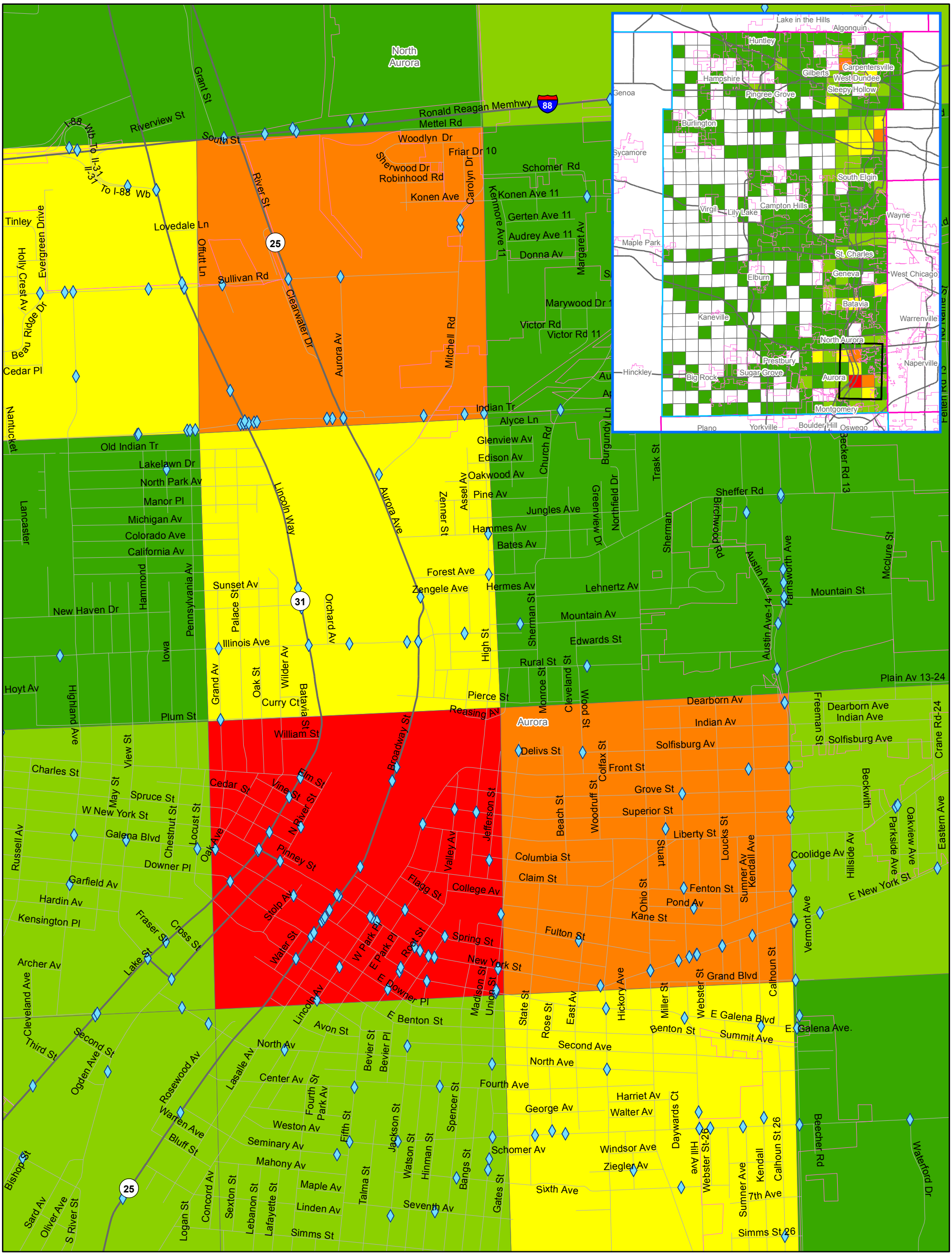
Date: 3/20/2015



Legend

- KAB Speeding/Aggressive Driver Crashes
- City Boundary
- County Boundary

KAB Speeding/Aggressive Driver Crashes Per Section Square

- 0
- 1 - 9
- 10 - 18
- 19 - 27
- 28 - 38
- 39 - 49

*Legend intervals are based on KAB speeding/aggressive driver crashes that occurred in this county.

0 0.2 0.4 Miles

N

FIGURE 3-6
KANE COUNTY

KAB Speeding/Aggressive Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

Illinois Department of Transportation

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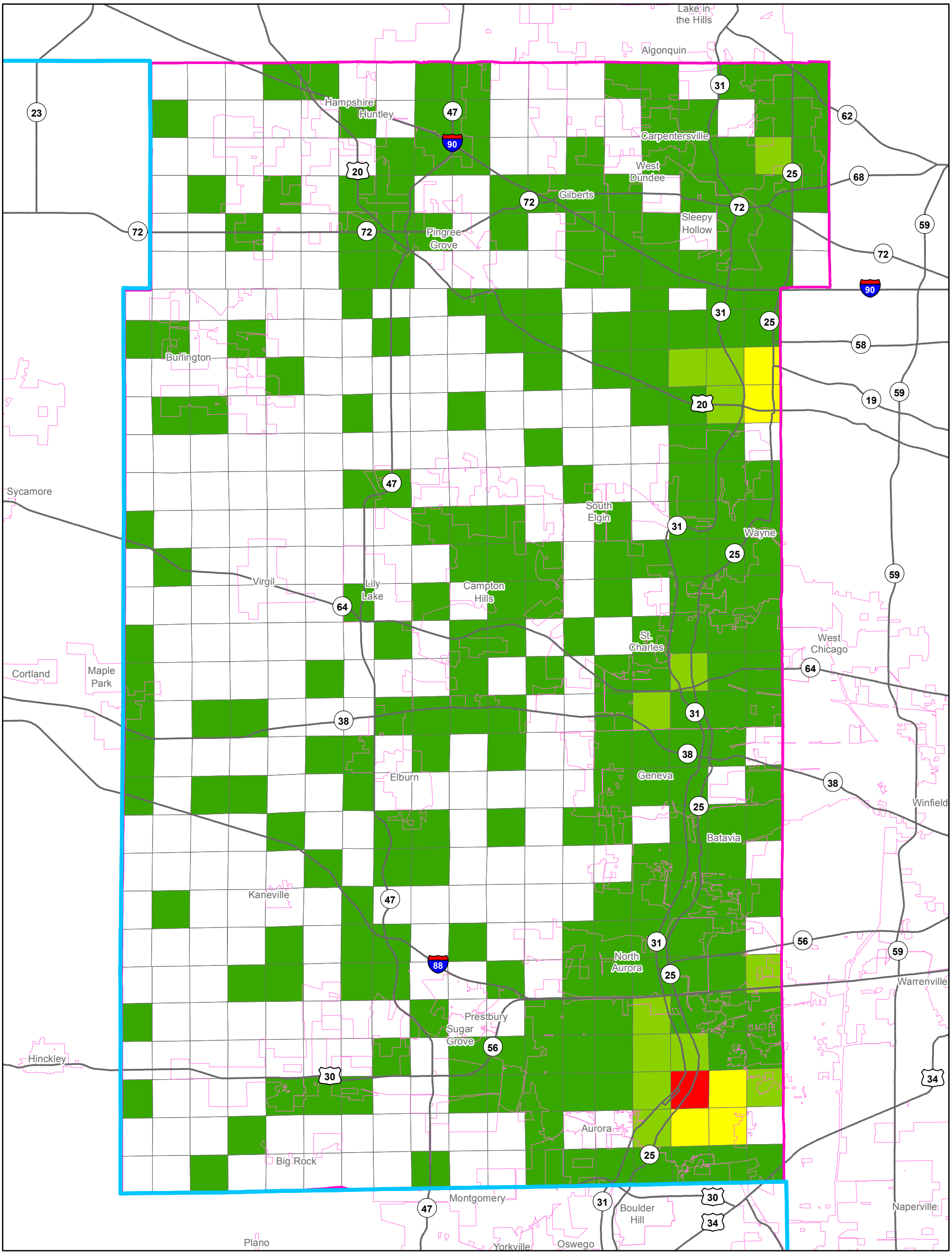
DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 4/16/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Impaired Driver Crashes Per Section Square

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 26

*Legend intervals are based on KAB impaired driver crashes that occurred in this County.

0 1.5 3 Miles

N

FIGURE 3-7
KANE COUNTY

KAB Impaired Driver Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

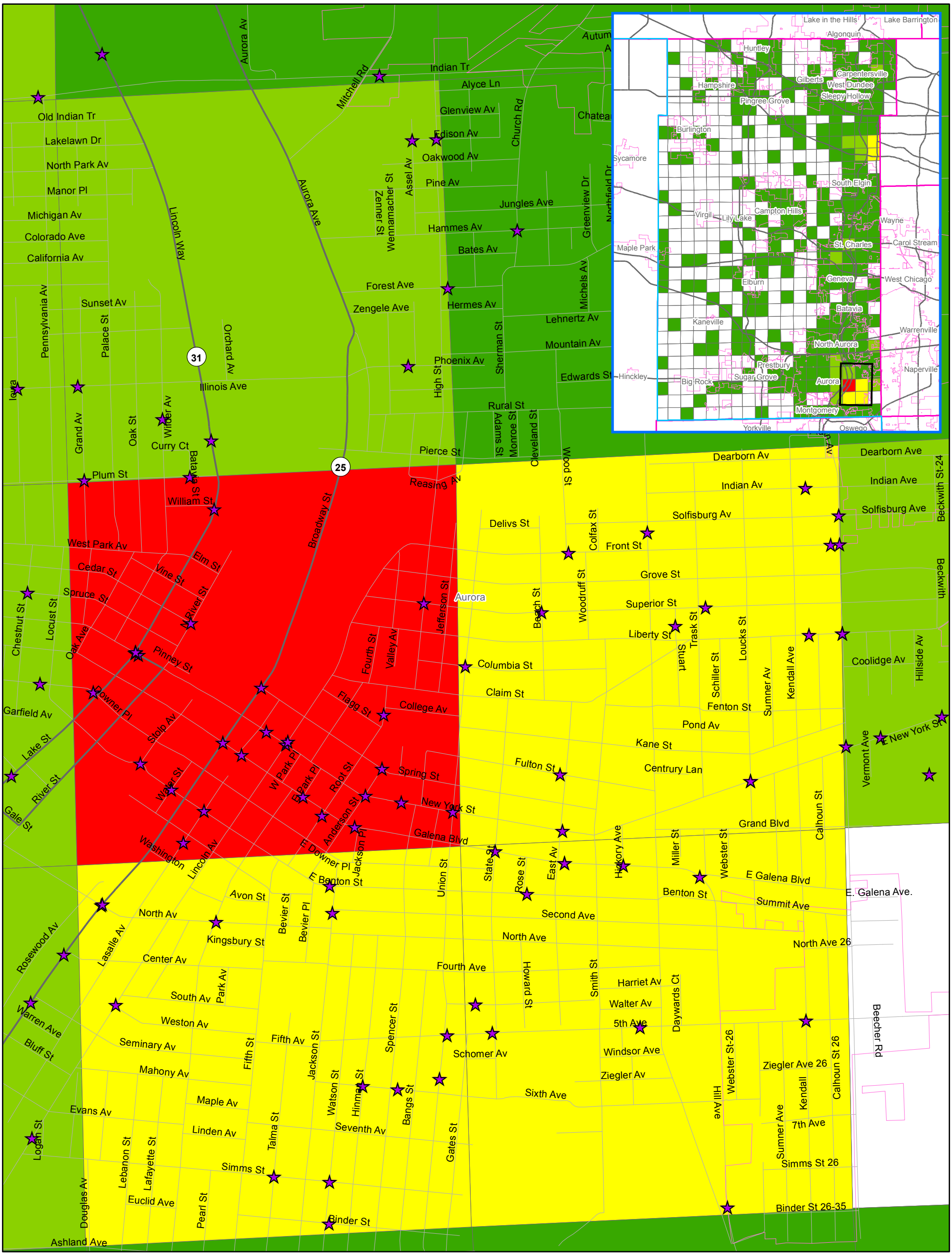
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Save Date: 2/24/2015



Legend

- KAB Impaired Driver Crashes
- City Boundary
- County Boundary

KAB Impaired Driver Crashes Per Section Square

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 26

*Legend intervals are based on KAB impaired driver crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-8
KANE COUNTY

KAB Impaired Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

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Date: 3/9/2015

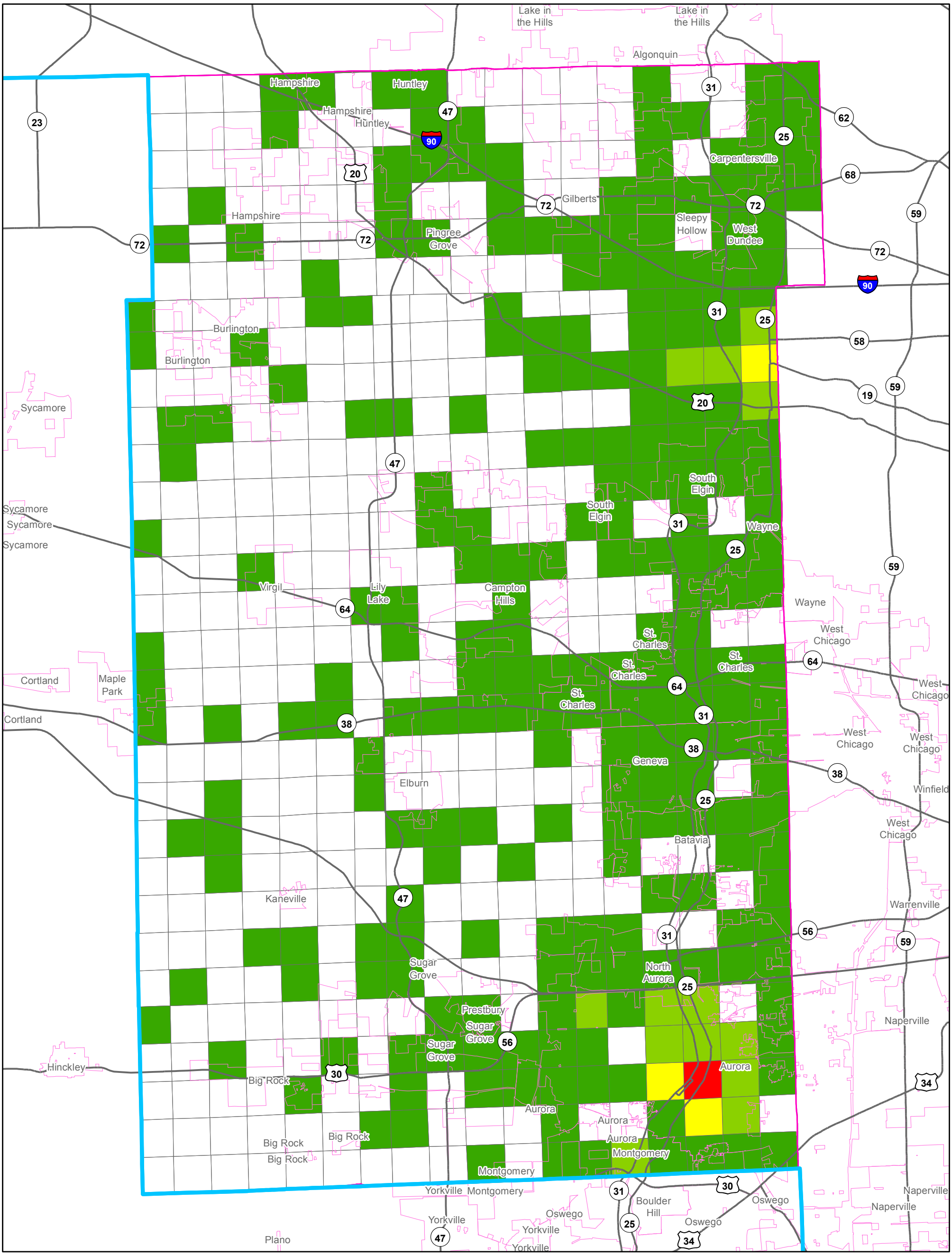


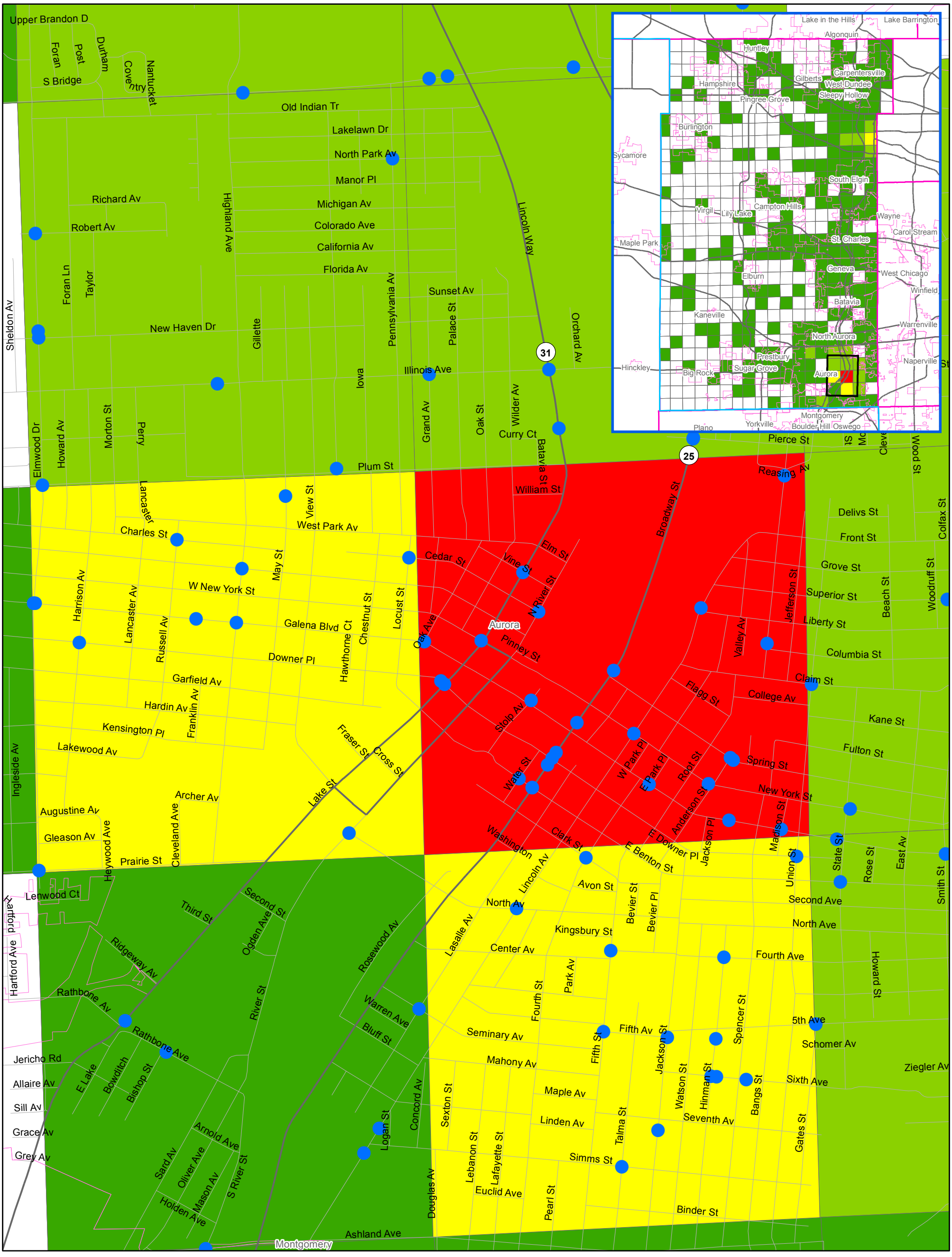
FIGURE 3-9
KANE COUNTY

KAB Unrestrained Occupants Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/18/2015



Legend

- KAB Unrestrained Occupants Crashes
- City Boundary
- County Boundary

KAB Unrestrained Occupants Crashes Per Section Square

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25

*Legend intervals are based on KAB unrestrained occupants crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-10
KANE COUNTY

KAB Unrestrained Occupants Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

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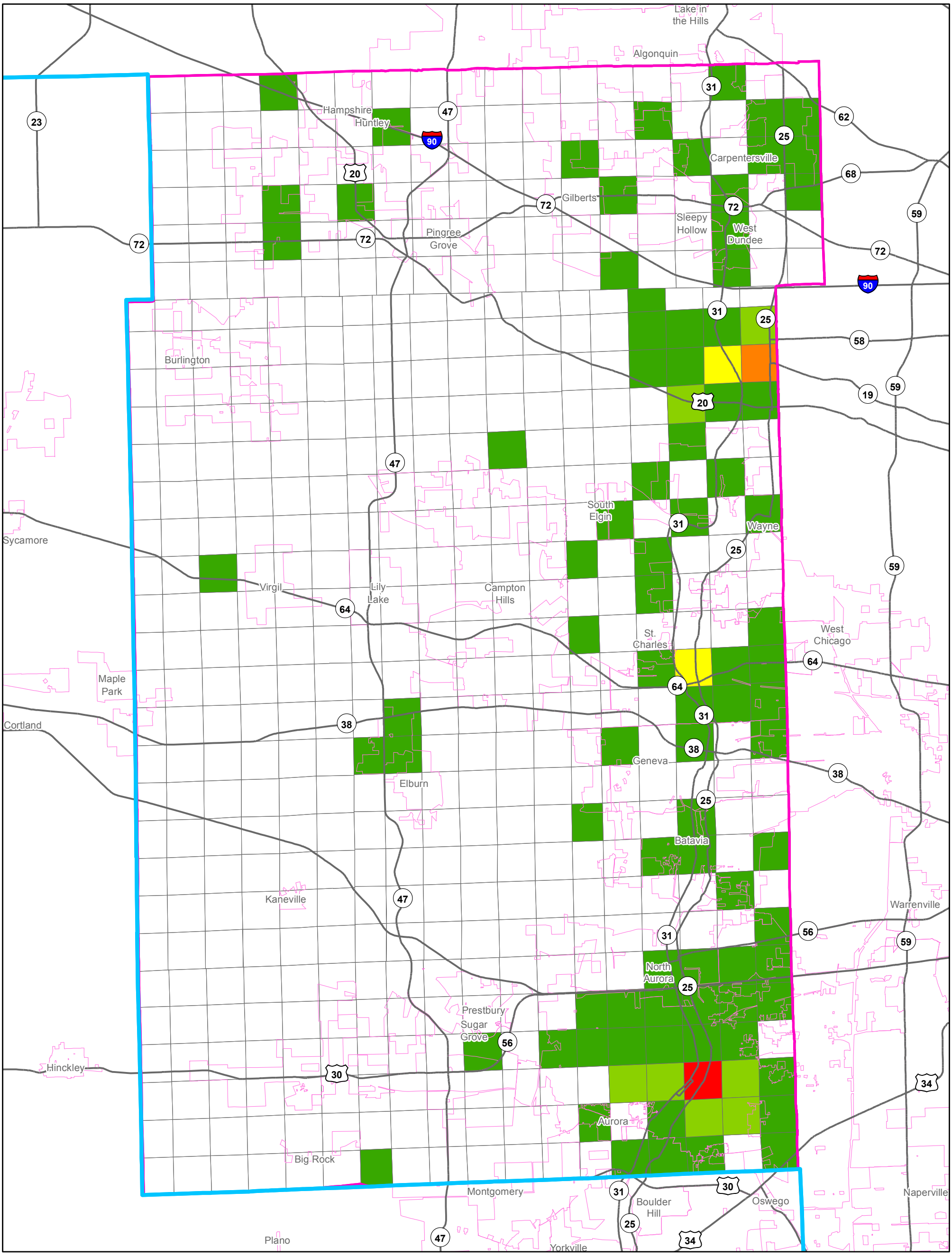
Date: 3/9/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Pedestrian Crashes Per Section Square

- 0
- 1 - 7
- 8 - 14
- 15 - 21
- 22 - 30
- 31 - 39

*Legend intervals are based on KAB pedestrian crashes that occurred in this county.

0 1.5 3 Miles

N

FIGURE 3-11
KANE COUNTY

KAB Pedestrian Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

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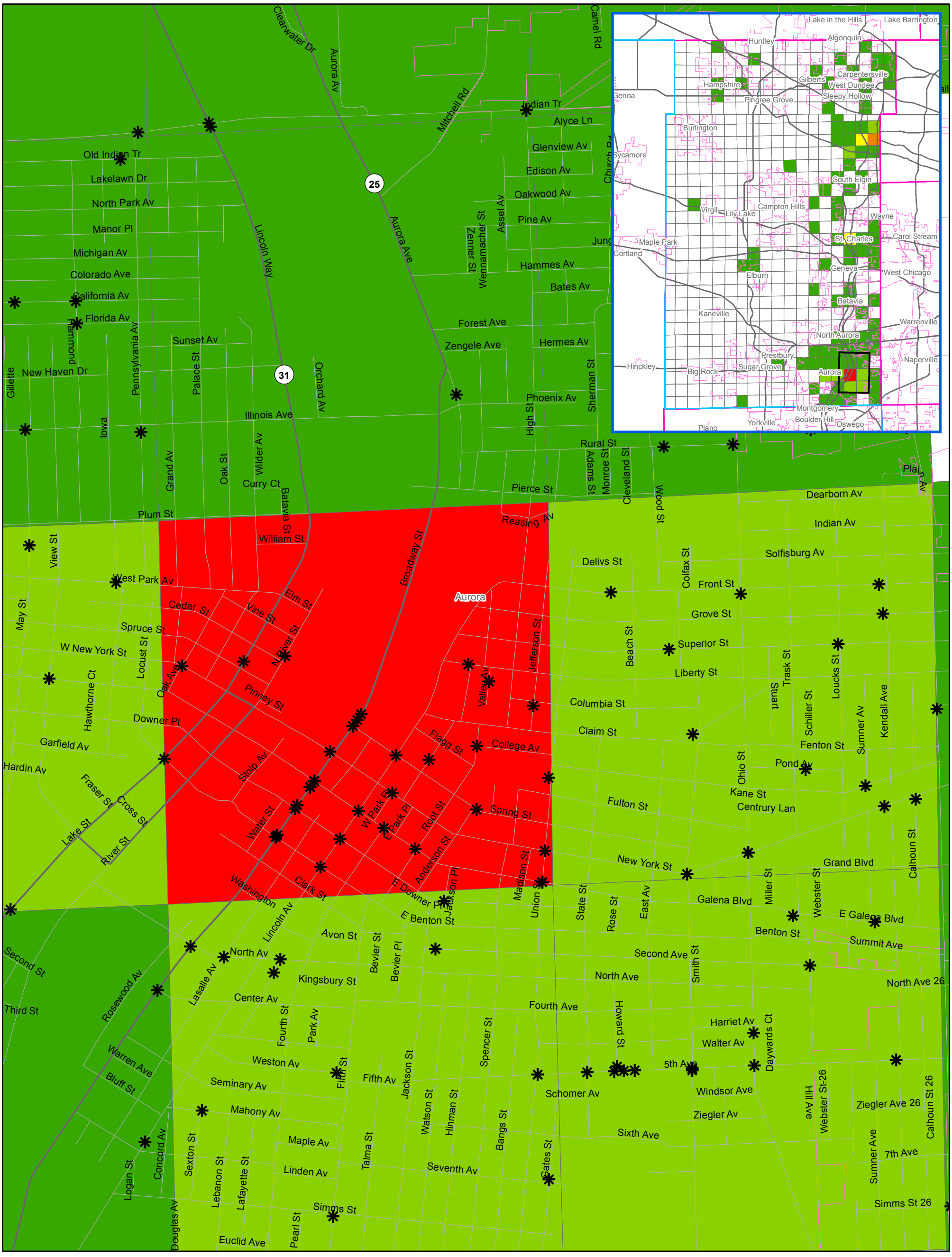
Date: 3/19/2015



Legend

- KAB Pedestrian Crashes
- City Boundary
- County Boundary

KAB Pedestrian Crashes Per Section Square

- 0
- 1 - 7
- 8 - 14
- 15 - 21
- 22 - 30
- 31 - 39

*Legend intervals are based on KAB pedestrian crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-12
KANE COUNTY

KAB Pedestrian Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

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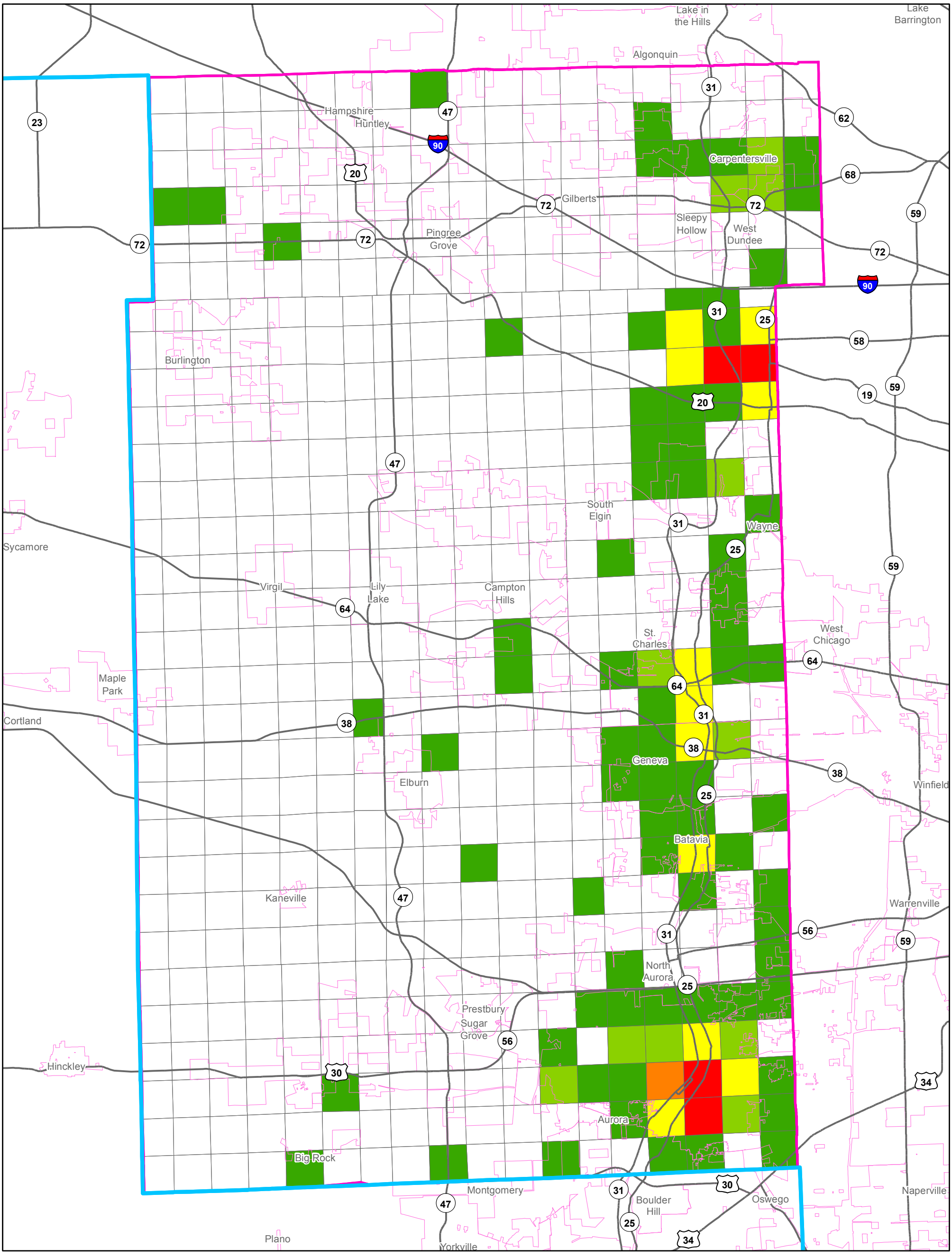
Date: 3/17/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Pedalcyclist Crashes Per Section Square

- 0
- 1 - 3
- 4 - 6
- 7 - 9
- 10 - 13
- 14 - 18

*Legend intervals are based on KAB pedalcyclist crashes that occurred in this county.

0 1.5 3 Miles

N

FIGURE 3-13
KANE COUNTY

KAB Pedalcyclist Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

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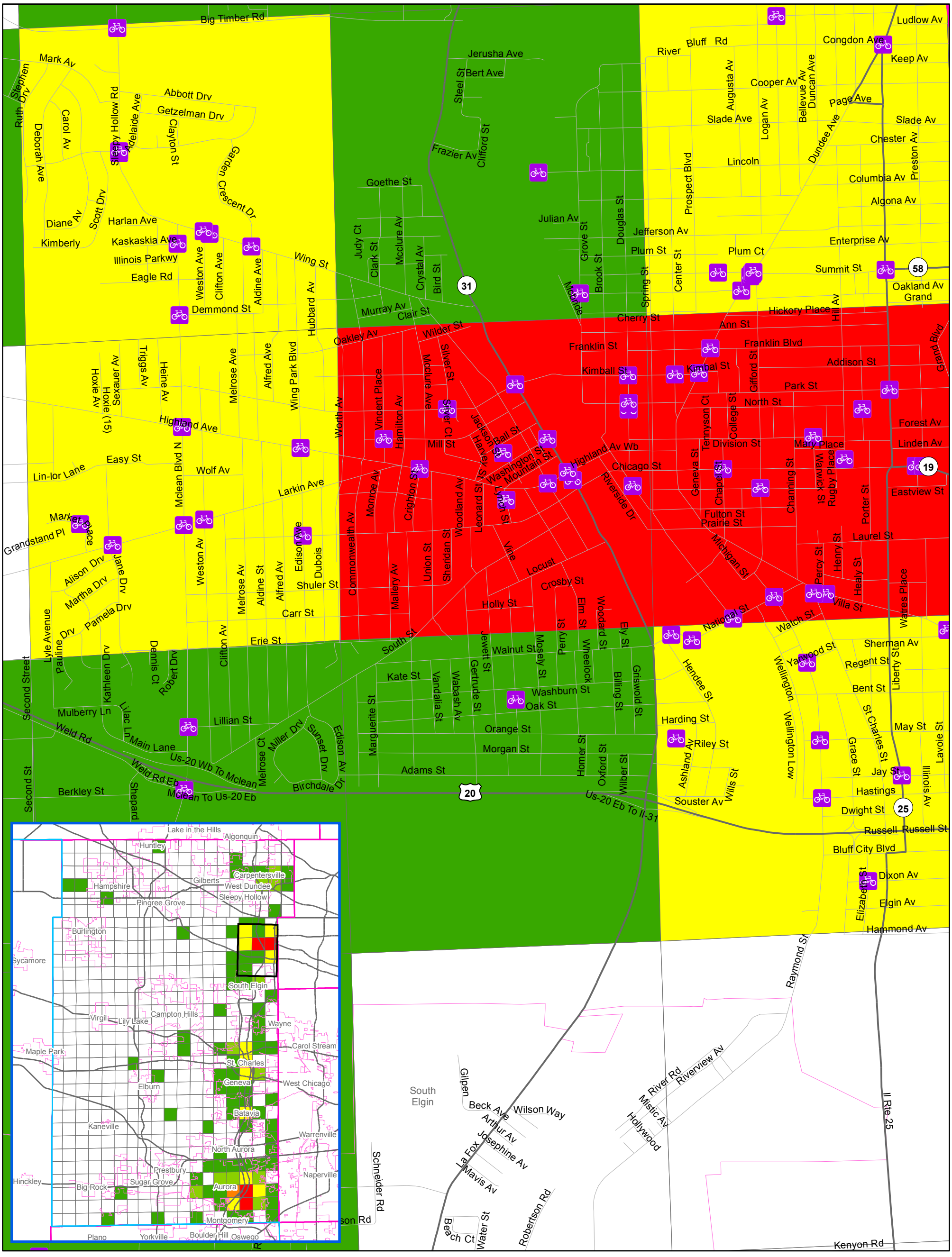
Date: 2/23/2015



Legend

- KAB Pedalcyclist Crashes
- City Boundary
- County Boundary

KAB Pedalcyclist Crashes Per Section Square

- 0
- 1 - 3
- 4 - 6
- 7 - 9
- 10 - 13
- 14 - 18

*Legend intervals are based on KAB pedalcyclist crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-14A
KANE COUNTY

KAB Pedalcyclist Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

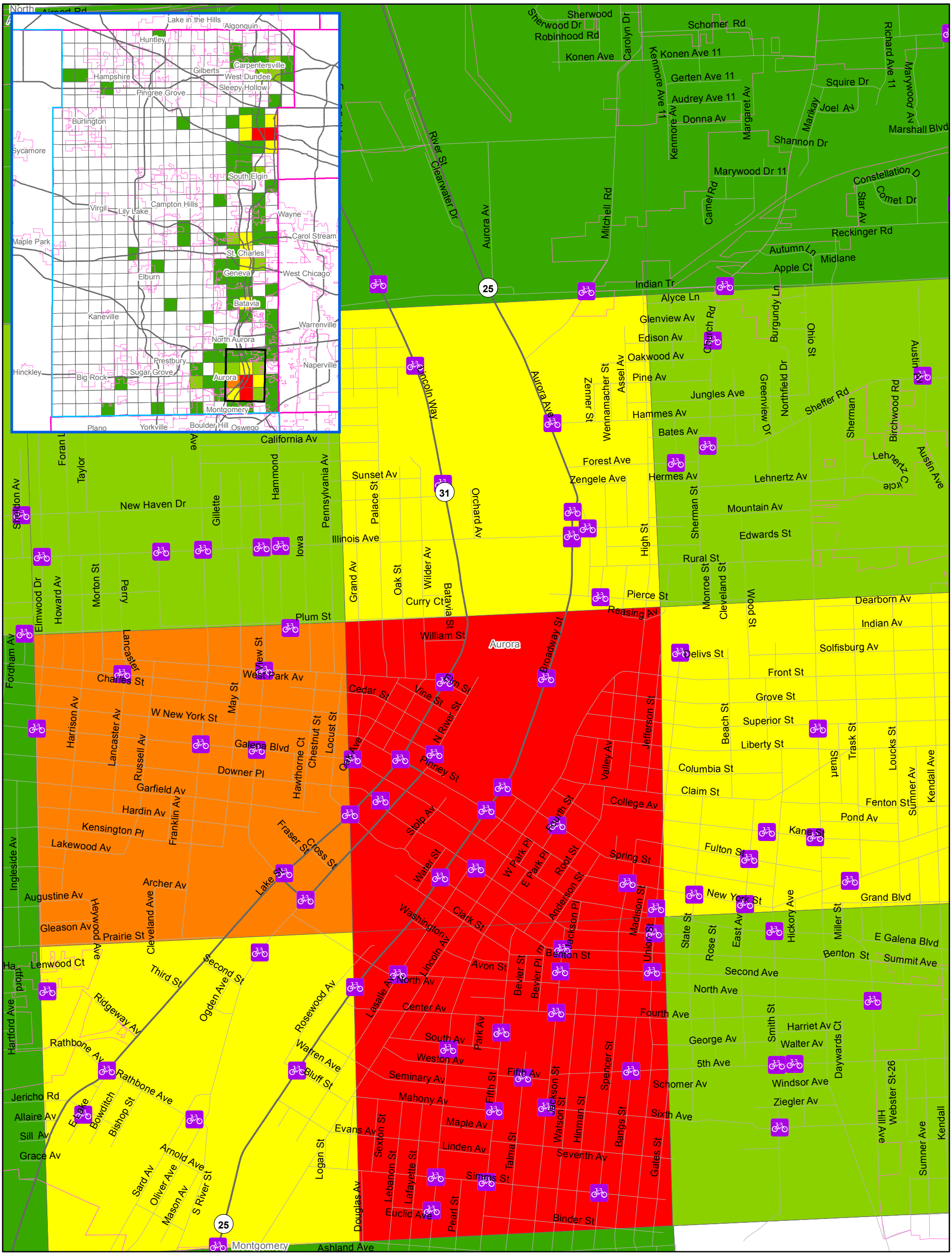
Note: On average, section squares have an area of approximately 1 square mile.

Illinois Department of Transportation

CH2MHILL

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/17/2015



Legend

- KAB Pedalcyclist Crashes
- City Boundary
- County Boundary

KAB Pedalcyclist Crashes Per Section Square

- 0
- 1 - 3
- 4 - 6
- 7 - 9
- 10 - 13
- 14 - 18

*Legend intervals are based on KAB pedalcyclist crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-14B
KANE COUNTY

KAB Pedalcyclist Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

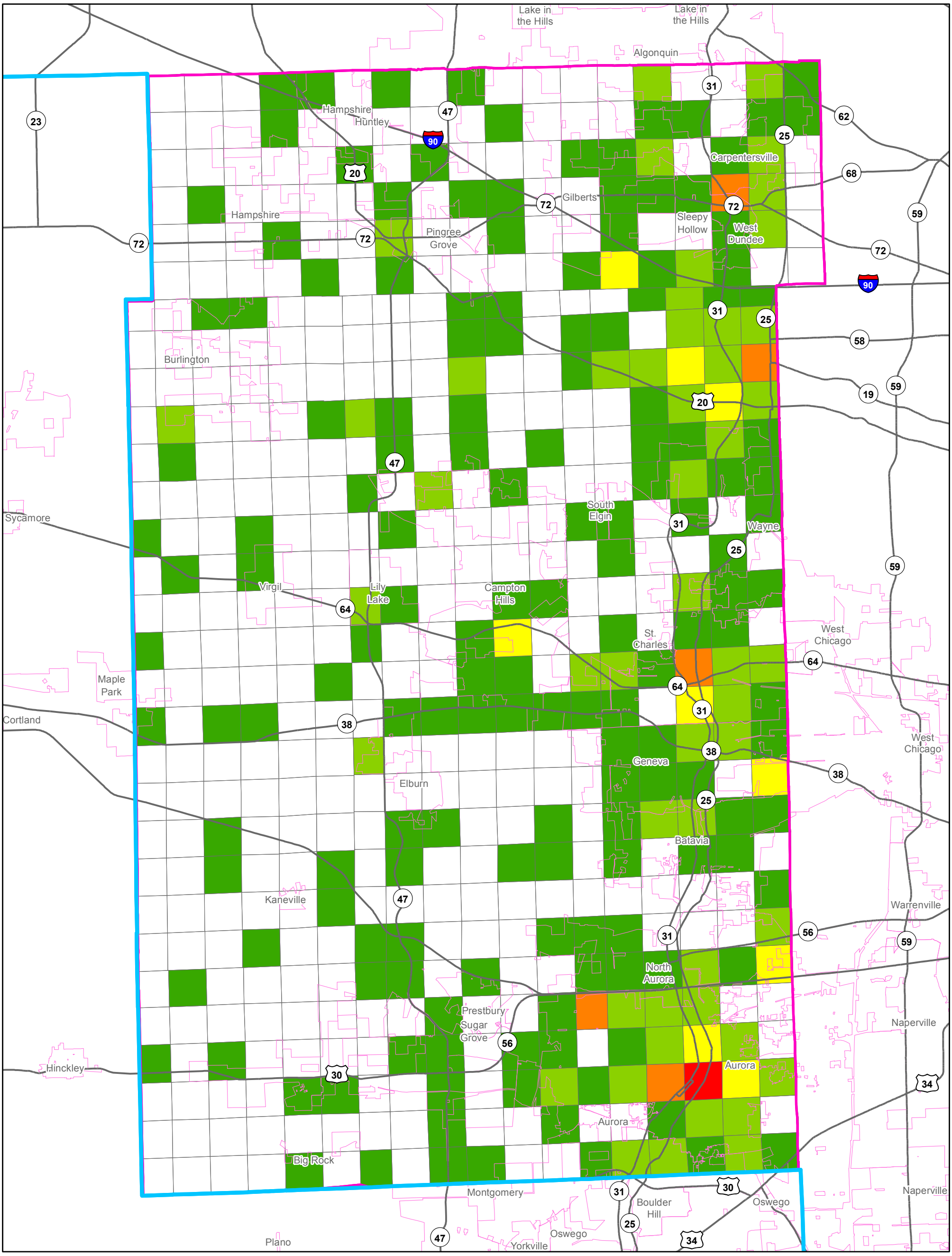
Note: On average, section squares have an area of approximately 1 square mile.

Illinois Department of Transportation

CH2MHILL

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/13/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Motorcycle Crashes Per Section Square

- 0
- 1 - 2
- 3 - 4
- 5 - 6
- 7 - 10
- 11 - 14

*Legend intervals are based on KAB motorcycle crashes that occurred in this county.

0 1.5 3 Miles

N

FIGURE 3-15
KANE COUNTY

KAB Motorcycle Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

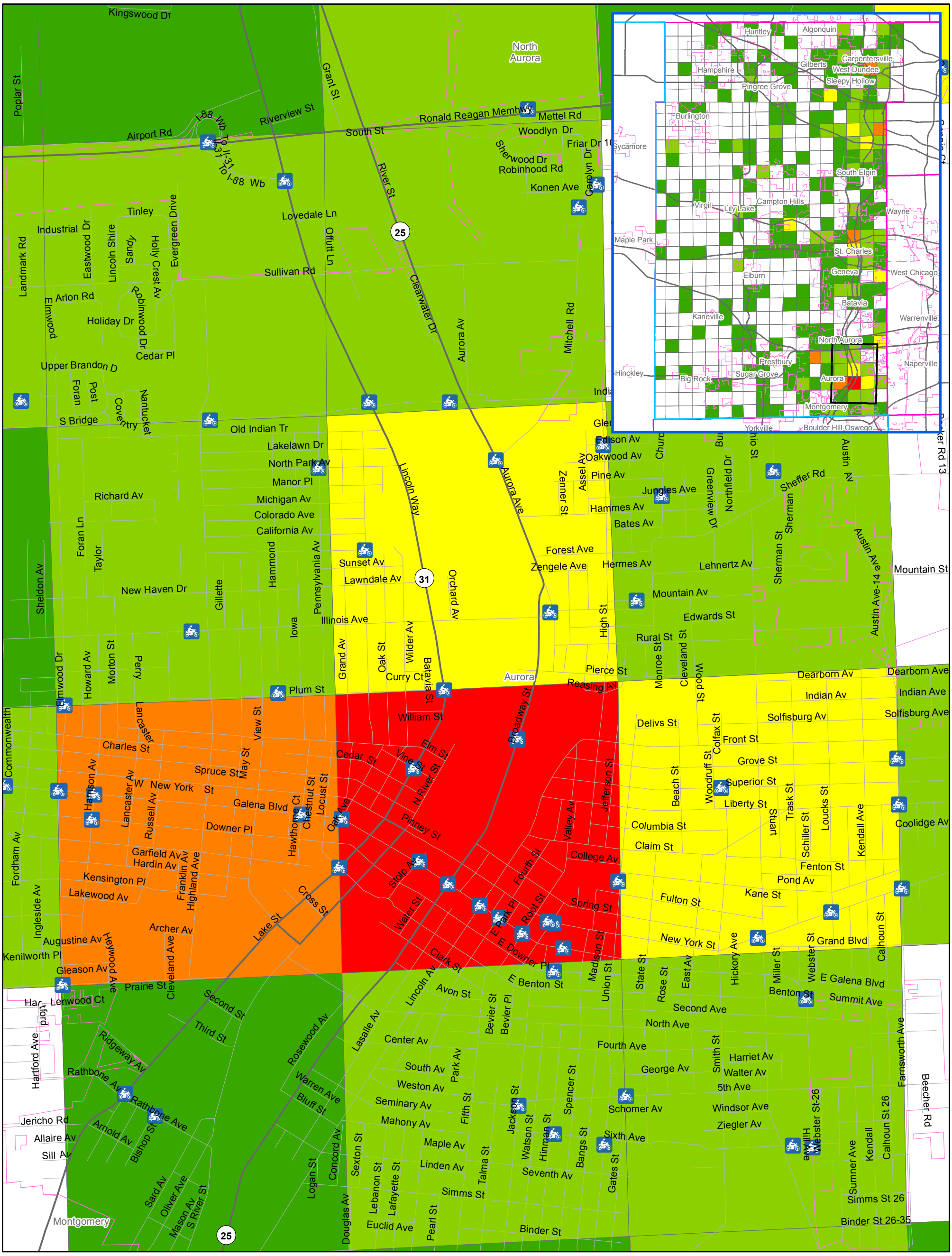
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 2/20/2015



Legend

- KAB Motorcycle Crashes
- City Boundary
- County Boundary

KAB Motorcycle Crashes Per Section Square

- 0
- 1 - 2
- 3 - 4
- 5 - 6
- 7 - 10
- 11 - 14

*Legend intervals are based on KAB motorcycle crashes that occurred in this county.

0 0.2 0.4 Miles

N

FIGURE 3-16
KANE COUNTY

KAB Motorcycle Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

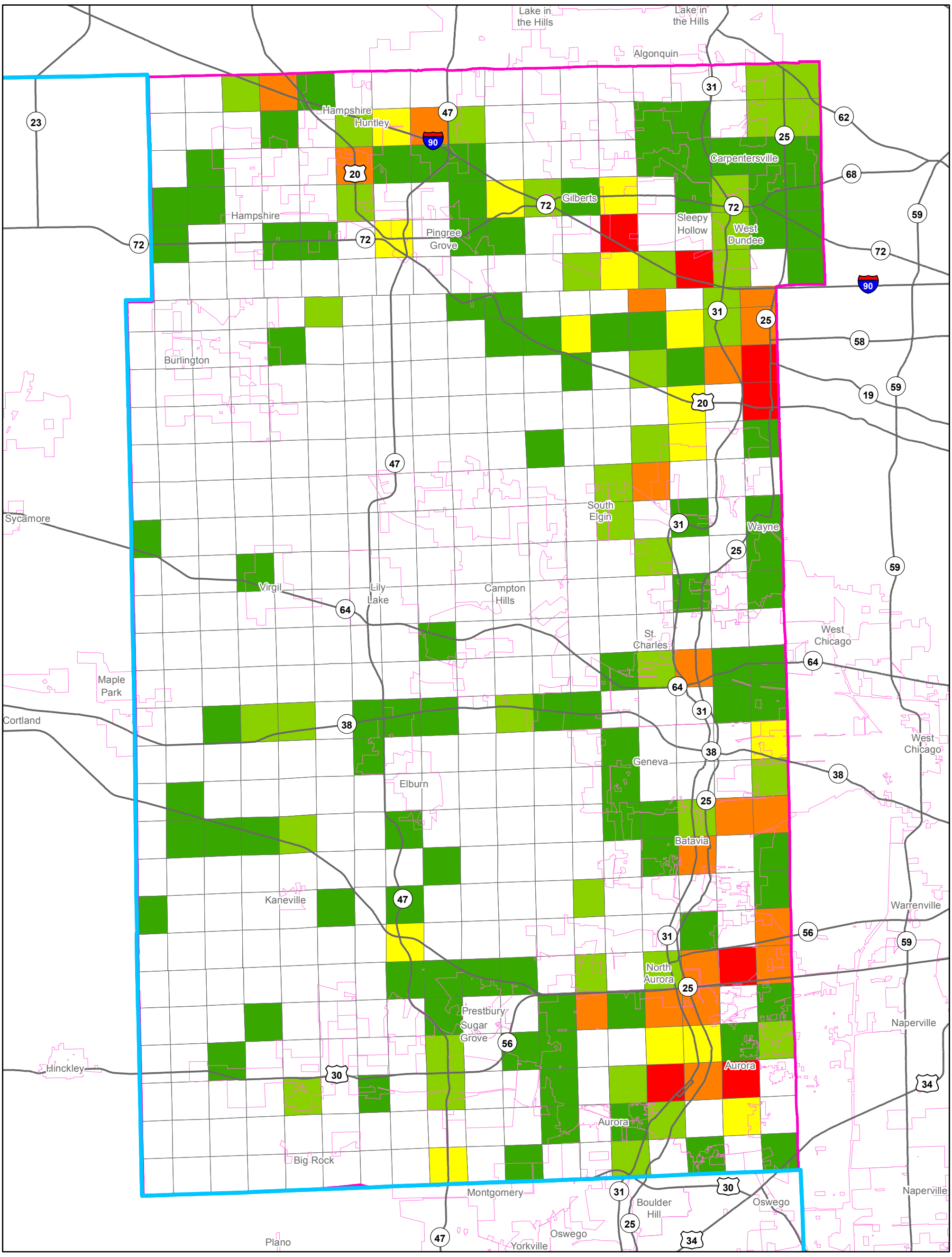
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/11/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Heavy Vehicle Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 6
- 7 - 9

*Legend intervals are based on KAB heavy vehicle crashes that occurred in this county.

0 1.5 3 Miles

N

FIGURE 3-17
KANE COUNTY

KAB Heavy Vehicle Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 2/23/2015

FIGURE 3-18A
KANE COUNTY

KAB Heavy Vehicle Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

Legend

- KAB Heavy Vehicle Crashes
- City Boundary
- County Boundary

KAB Heavy Vehicle Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 6
- 7 - 9

*Legend intervals are based on KAB heavy vehicle crashes that occurred in this county.

0 0.3 0.6 Miles

N

Illinois Department of Transportation

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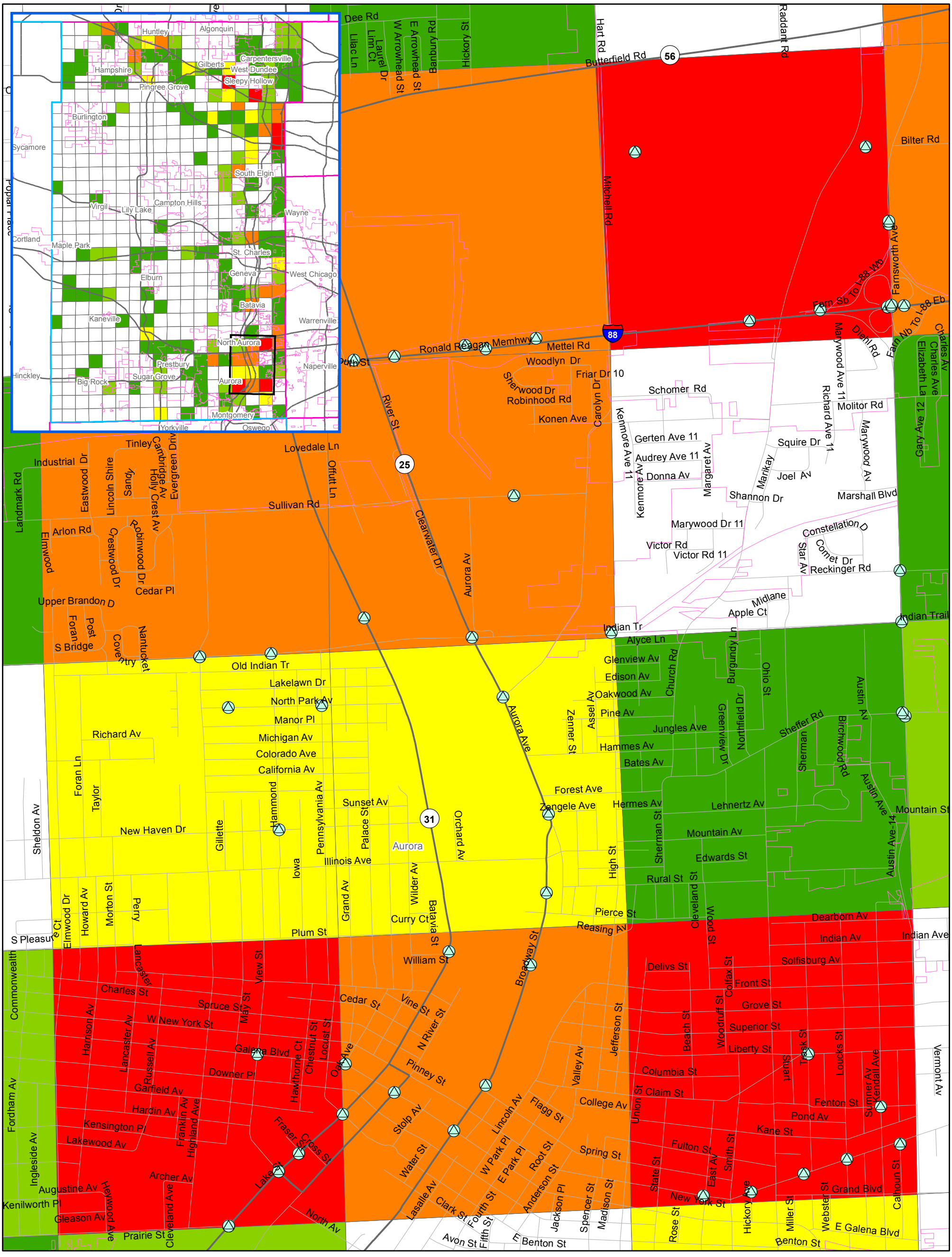
Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 4/21/2015



Legend

- KAB Heavy Vehicle Crashes
- City Boundary
- County Boundary

KAB Heavy Vehicle Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 6
- 7 - 9

*Legend intervals are based on KAB heavy vehicle crashes that occurred in this county.

0 0.2 0.4 Miles

N

FIGURE 3-18B
KANE COUNTY

KAB Heavy Vehicle Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

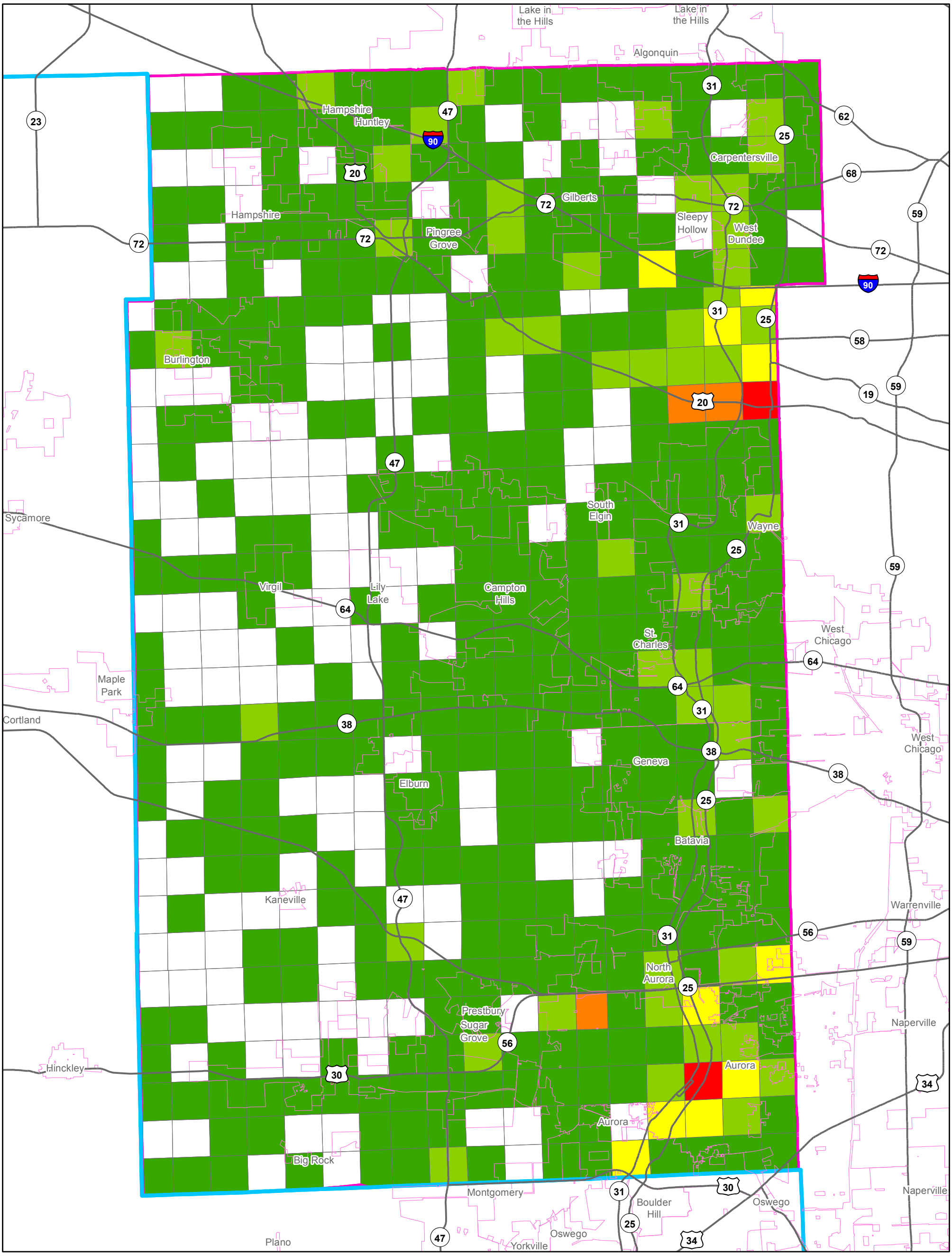
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/11/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Roadway Departure Crashes Per Section Square

*Legend intervals are based on KAB roadway departure crashes that occurred in this county.

- 0
- 1 - 6
- 7 - 12
- 13 - 18
- 19 - 24
- 25 - 30

0 1.5 3 Miles

N

FIGURE 3-19
KANE COUNTY

KAB Roadway Departure Crashes Per Section Square (All Routes Included)
Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/4/2015

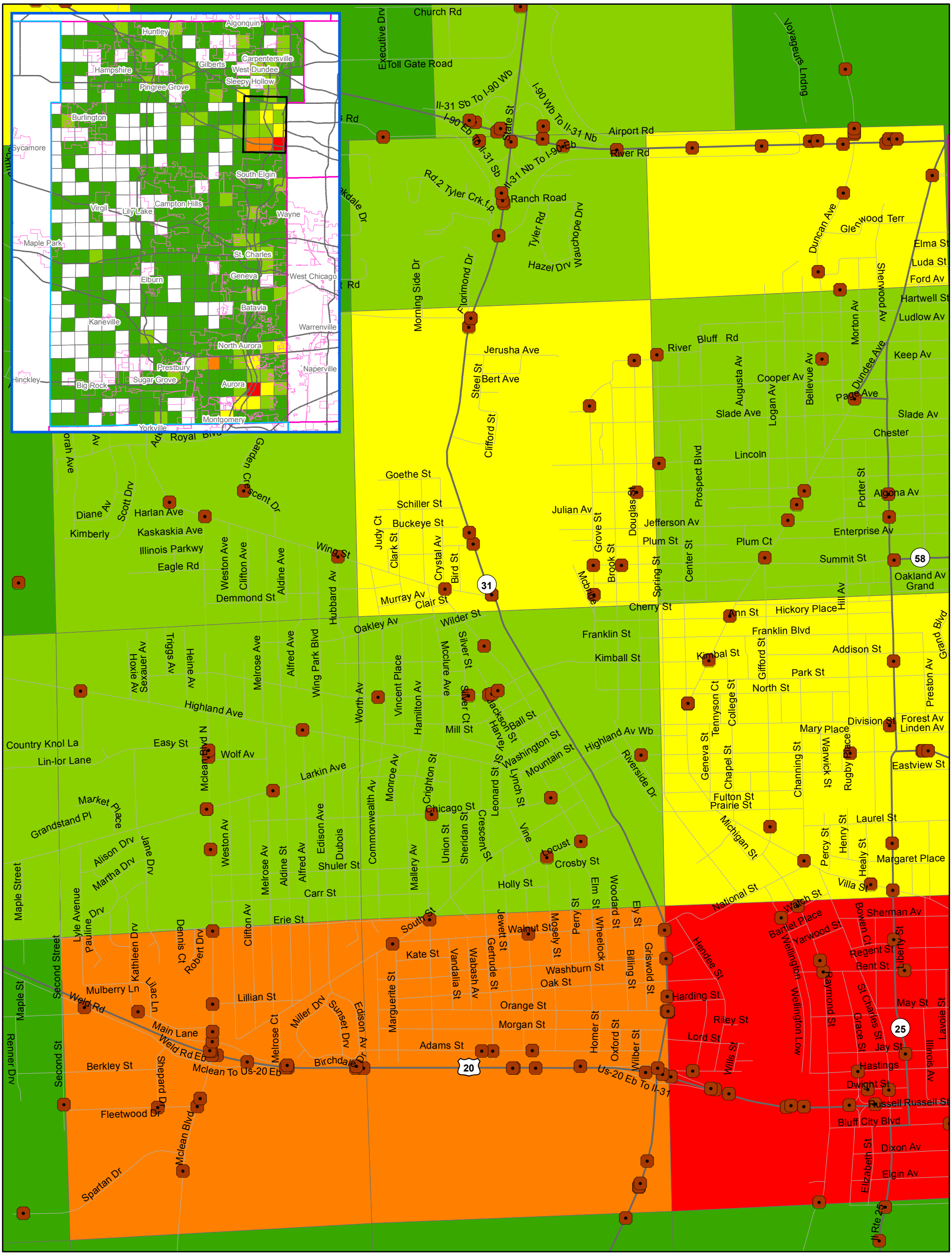


FIGURE 3-20A
KANE COUNTY

KAB Roadway Departure Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/17/2015

Legend

- KAB Roadway Departure Crashes
- City Boundary
- County Boundary

KAB Roadway Departure Crashes Per Section Square

0
1 - 6
7 - 12
13 - 18
19 - 24
25 - 30

*Legend intervals are based on KAB roadway departure crashes that occurred in this county.

0 0.15 0.3 Miles

N

FIGURE 3-20B
KANE COUNTY

KAB Roadway Departure Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

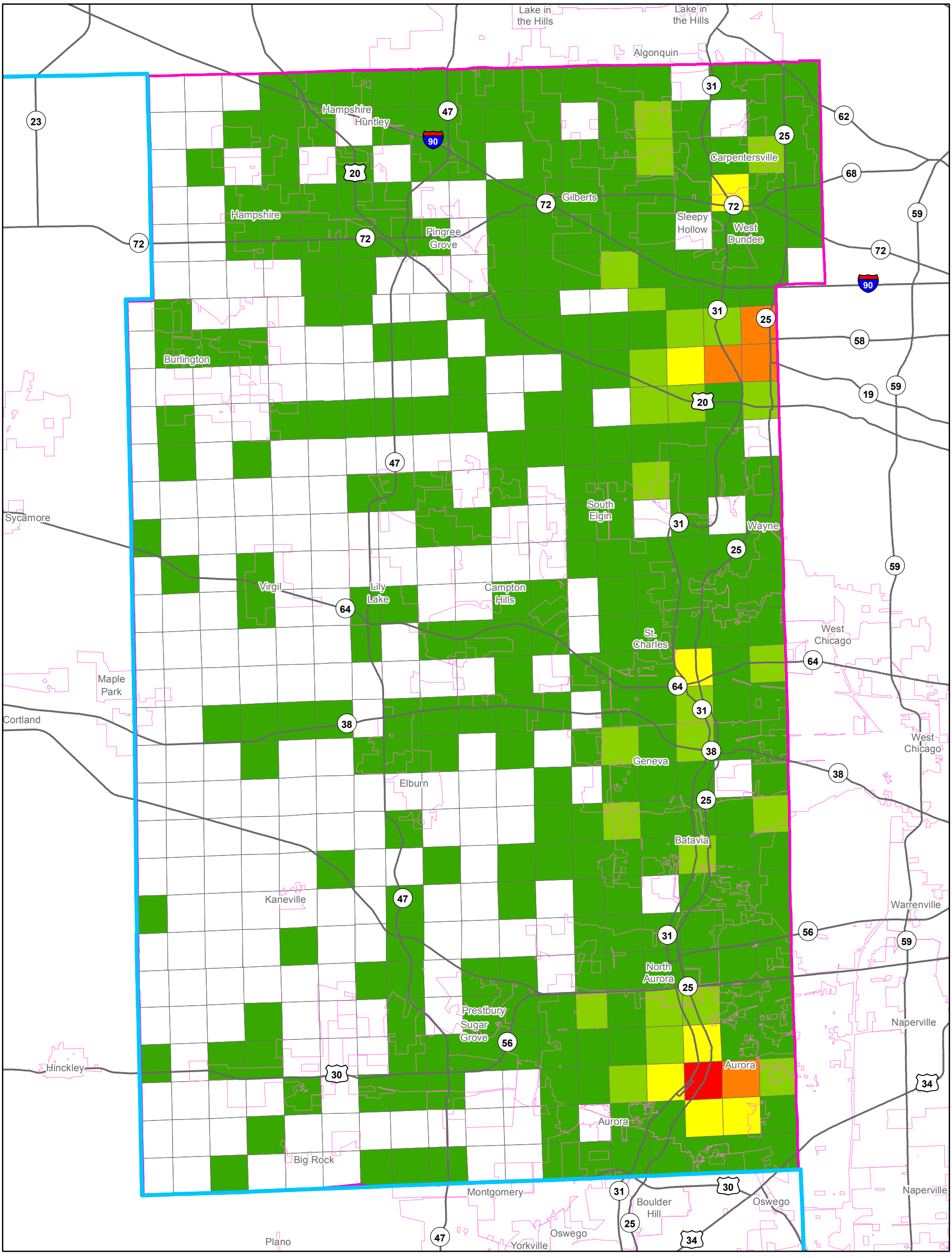
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/12/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Intersection Related Crashes Per Section Square

- 0
- 1 - 26
- 27 - 52
- 53 - 78
- 79 - 104
- 105 - 130

*Legend intervals are based on KAB intersection related crashes that occurred in this county.

0 1.5 3 Miles

N

FIGURE 3-21
KANE COUNTY

KAB Intersection Related Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

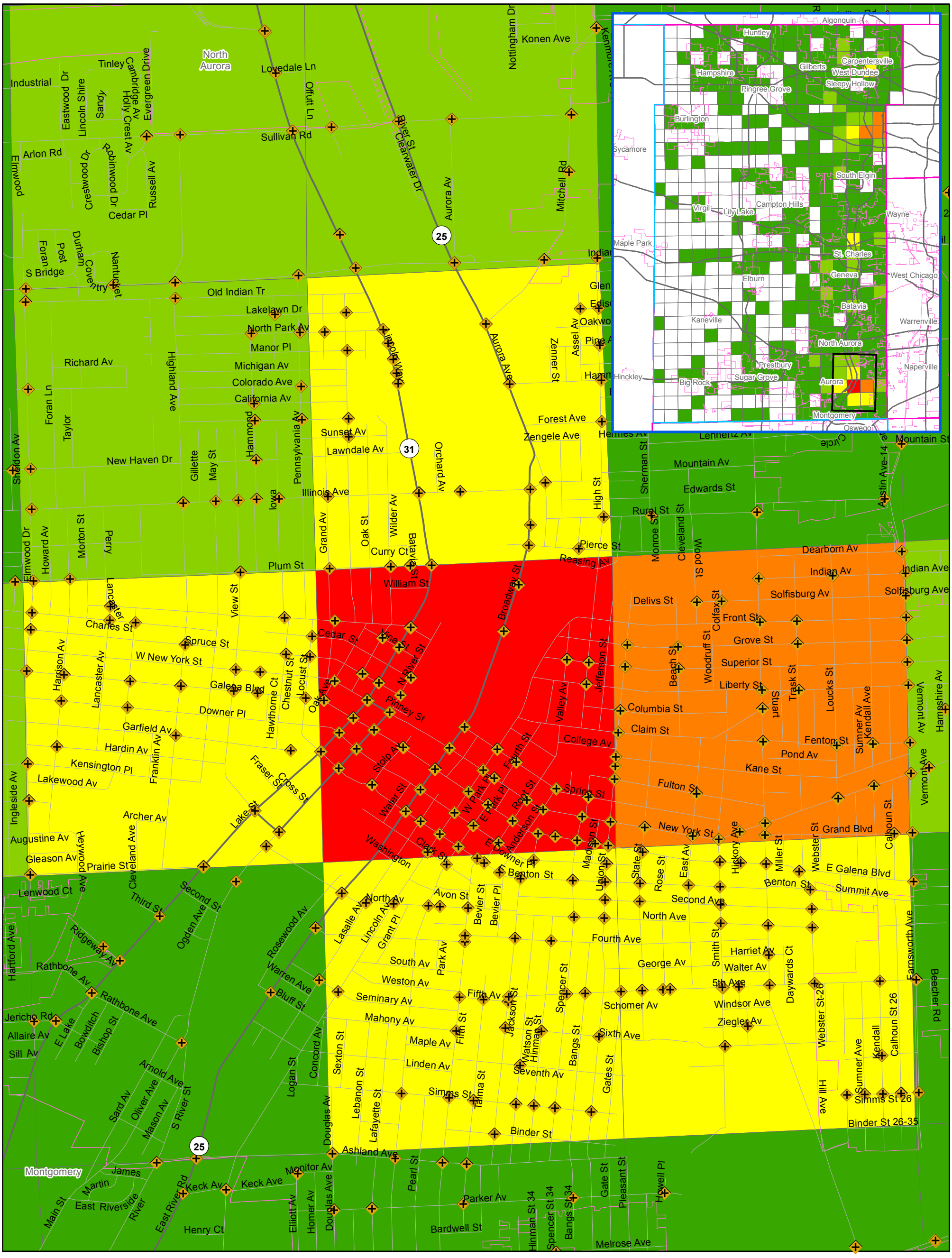
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 2/19/2015



Legend

- KAB Intersection Related Crashes
- City Boundary
- County Boundary

KAB Intersection Related Crashes Per Section Square

- 0
- 1 - 26
- 27 - 52
- 53 - 78
- 79 - 104
- 105 - 130

*Legend intervals are based on KAB intersection related crashes that occurred in this county.

0 0.2 0.4 Miles

N

FIGURE 3-22
KANE COUNTY

KAB Intersection Related Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

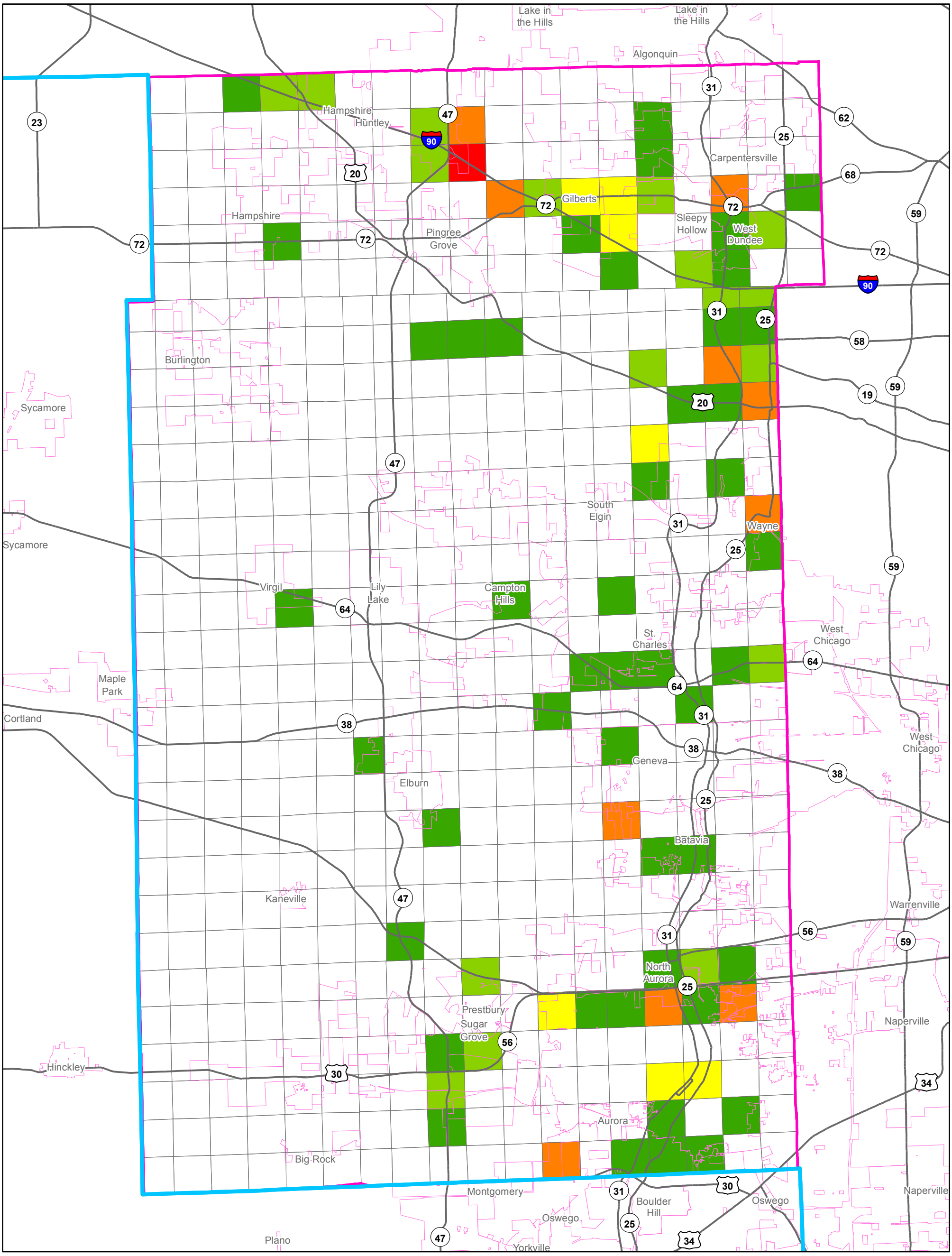
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/13/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Work Zone Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 5
- 6 - 7

*Legend intervals are based on KAB work zone crashes that occurred in this county.

0 1.5 3 Miles

N

FIGURE 3-23
KANE COUNTY

KAB Work Zone Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

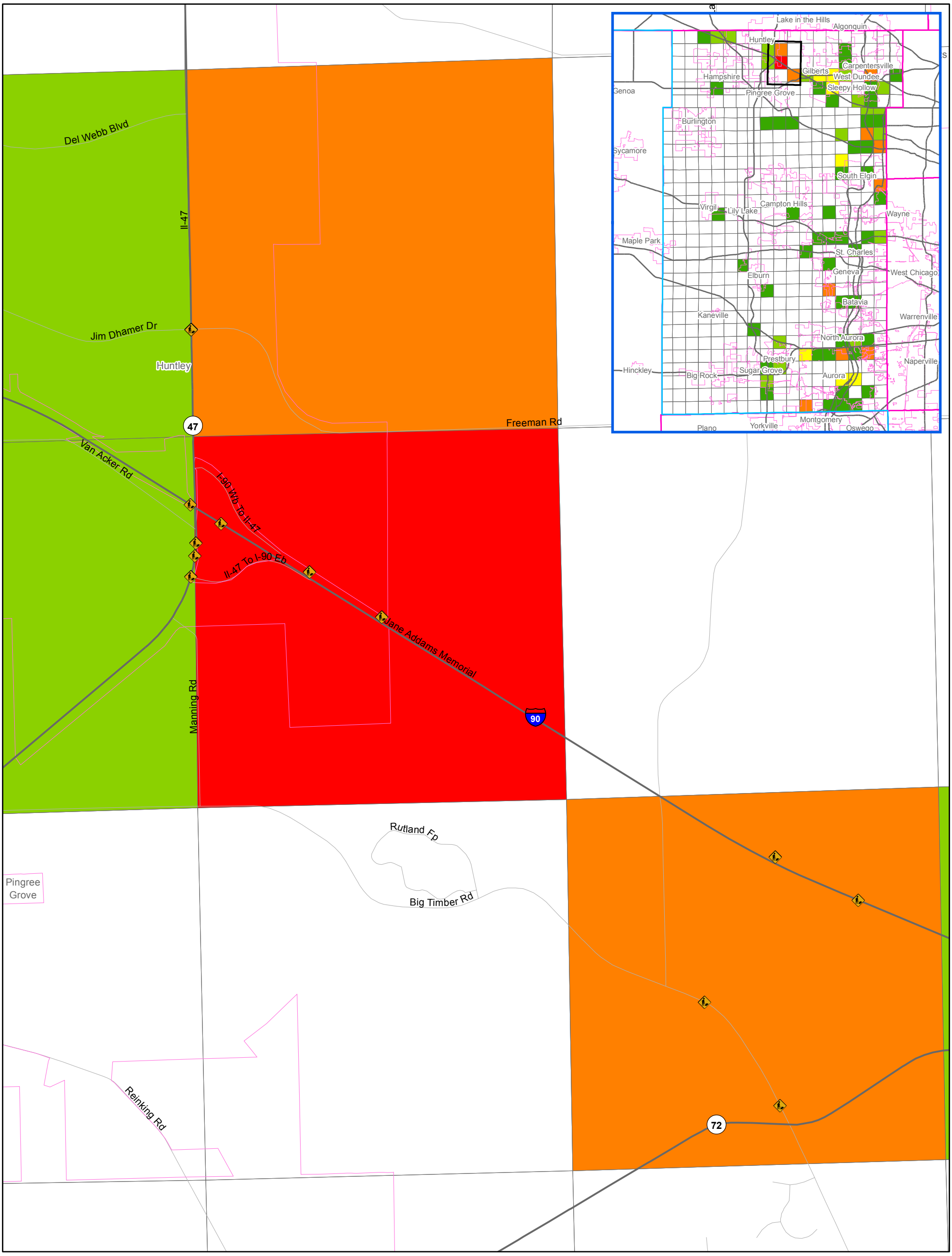
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 2/19/2015



Legend

- KAB Work Zone Crashes
- City Boundary
- County Boundary

KAB Work Zone Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 5
- 6 - 7

*Legend intervals are based on KAB work zone crashes that occurred in this county.

0 0.15 0.3 Miles

N

Illinois Department of Transportation

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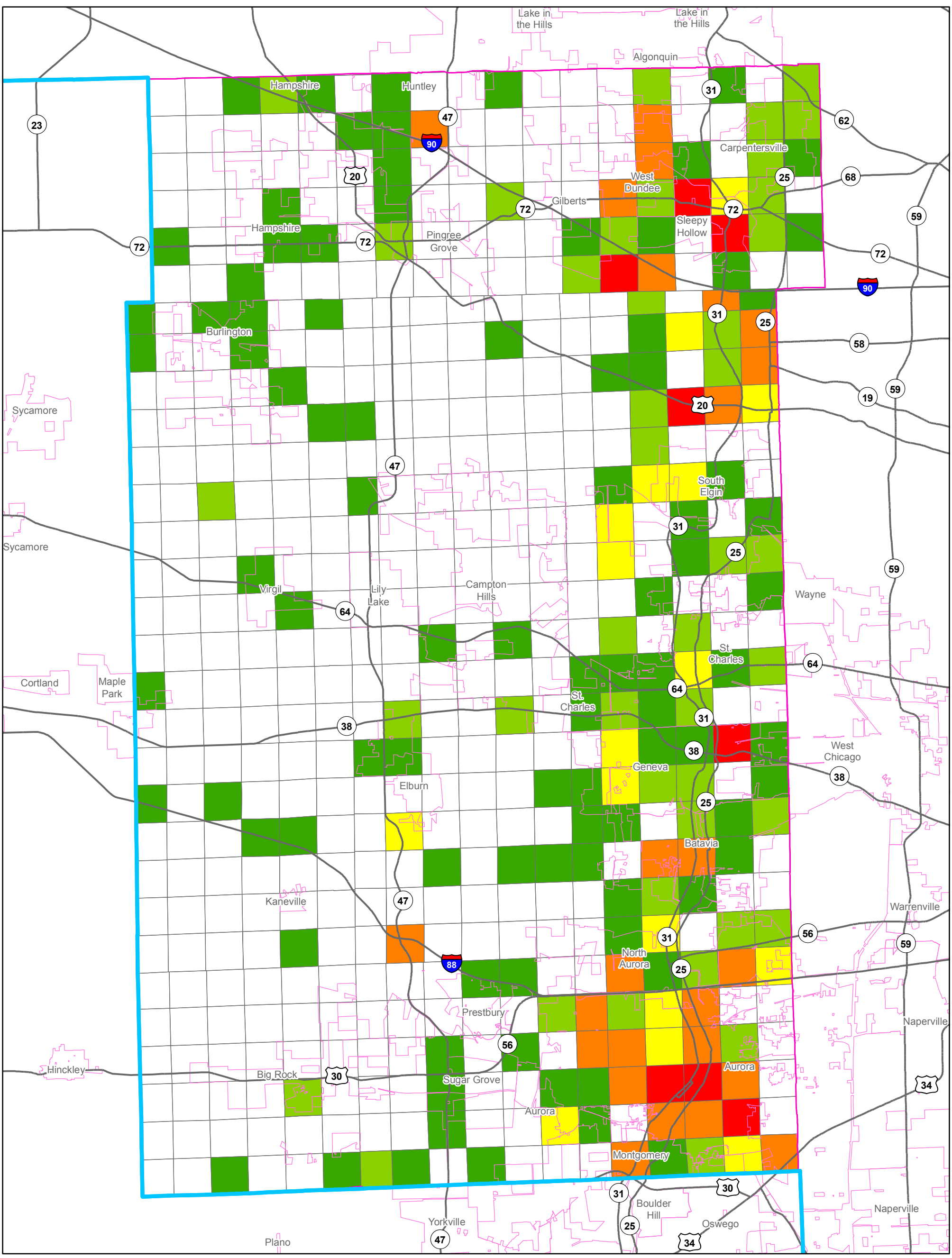
FIGURE 3-24
KANE COUNTY

KAB Work Zone Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 3/13/2015



Legend

- City Boundary
- County Boundary
- District Boundary

KAB Distracted/Drowsy/Fatigued Driver Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 5
- 6 - 8

*Legend intervals are based on KAB Distracted/Drowsy/Fatigued driver crashes that occurred in this county.

0 1.5 3 Miles

N

Illinois Department of Transportation

CH2MHILL

FIGURE 3-25
KANE COUNTY

KAB Distracted/Drowsy/Fatigued Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 4/1/2015

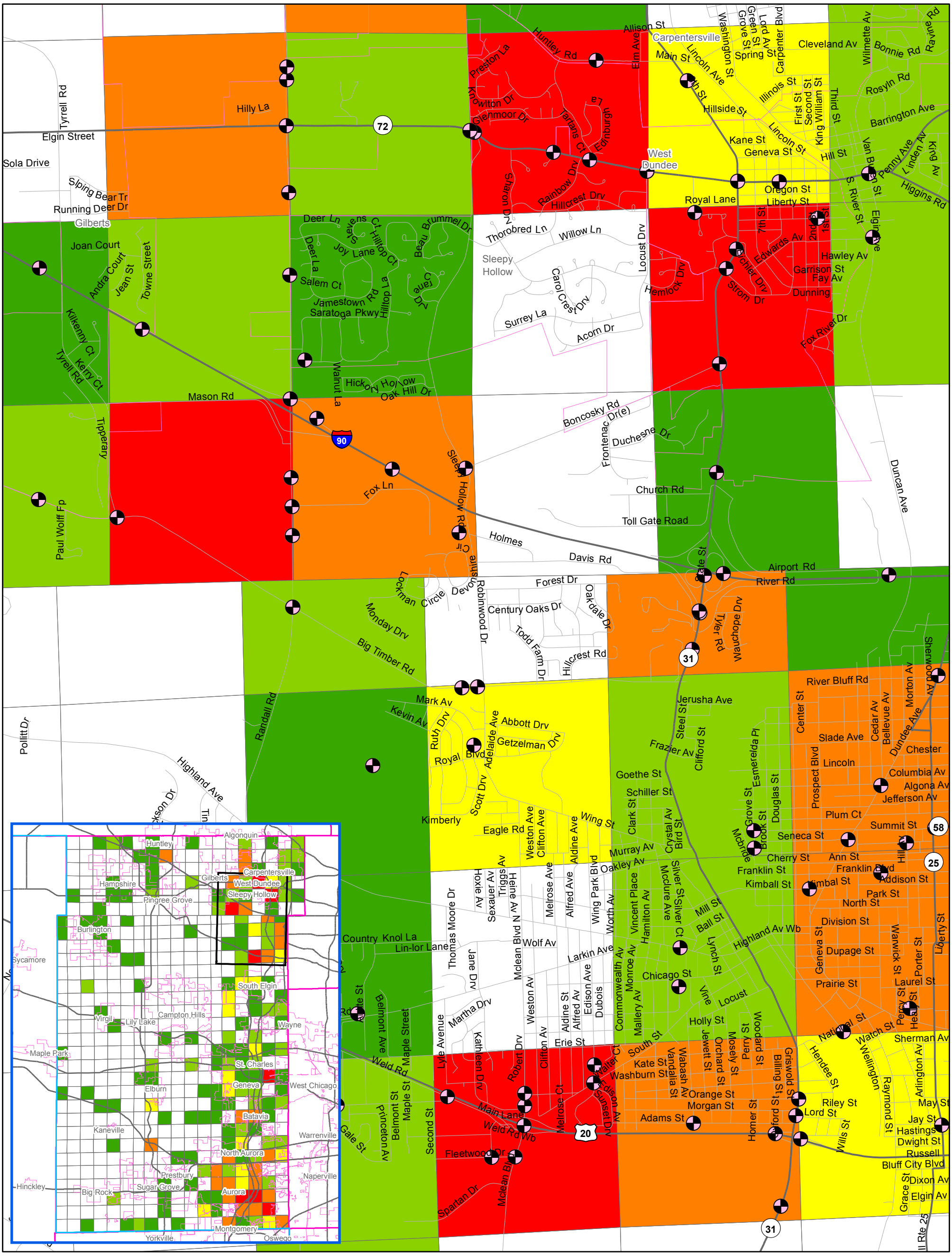


FIGURE 3-26A
KANE COUNTY

KAB Distracted/Fatigued/Drowsy Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Legend

- KAB Distracted/Fatigued/Drowsy Driver Crashes
- City Boundary
- County Boundary

KAB Distracted/Fatigued/Drowsy Driver Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 5
- 6 - 8

*Legend intervals are based on KAB distracted/fatigued/drowsy driver crashes that occurred in this county.

0 0.3 0.6 Miles

N

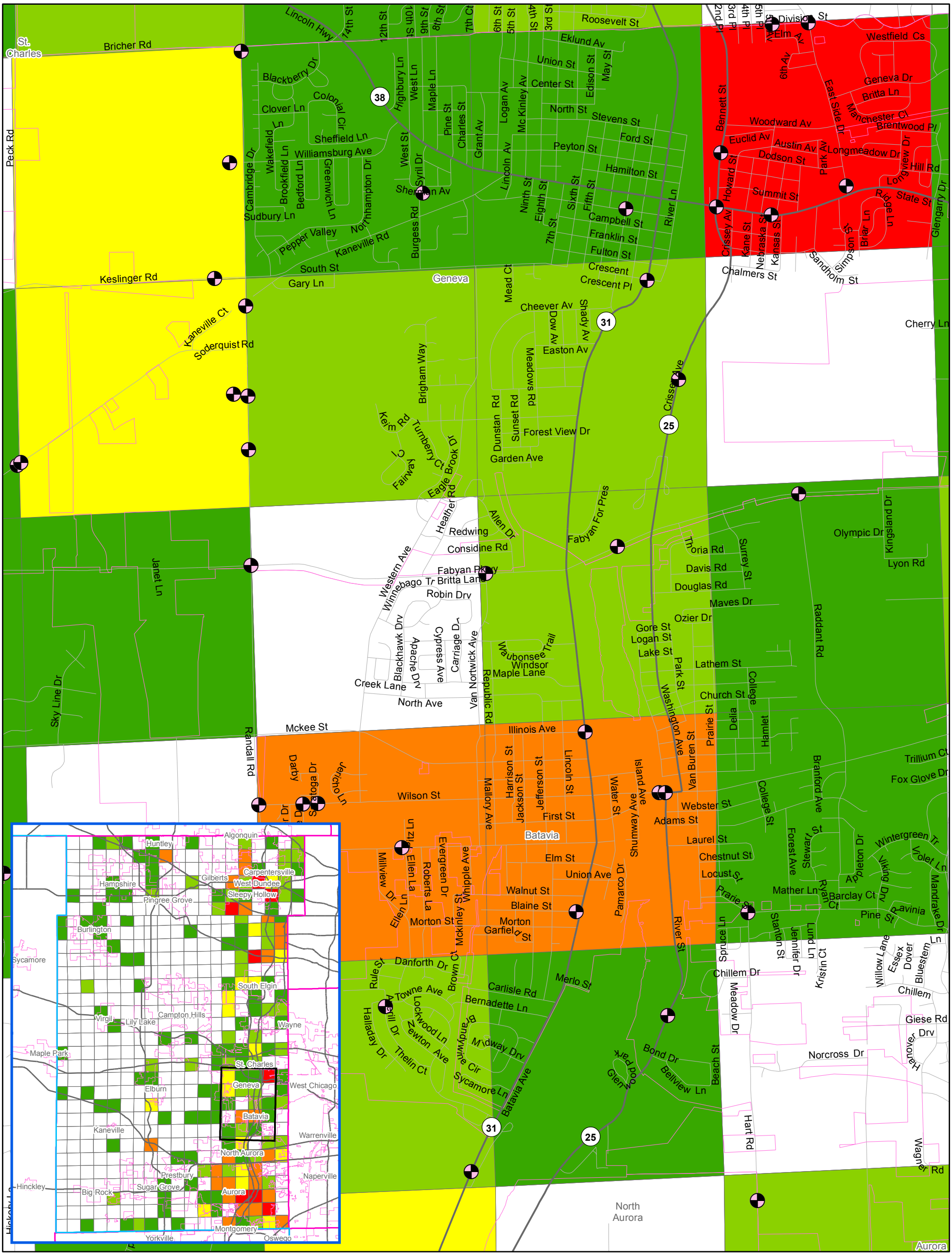
Illinois Department of Transportation

CH2MHILL

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 4/16/2015



Legend

- KAB Distracted/Fatigued/Drowsy Driver Crashes
- City Boundary
- County Boundary

KAB Distracted/Fatigued/Drowsy Driver Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 5
- 6 - 8

*Legend intervals are based on KAB distracted/fatigued/drowsy driver crashes that occurred in this county.

0 0.25 0.5 Miles

N

Illinois Department of Transportation

CH2MHILL

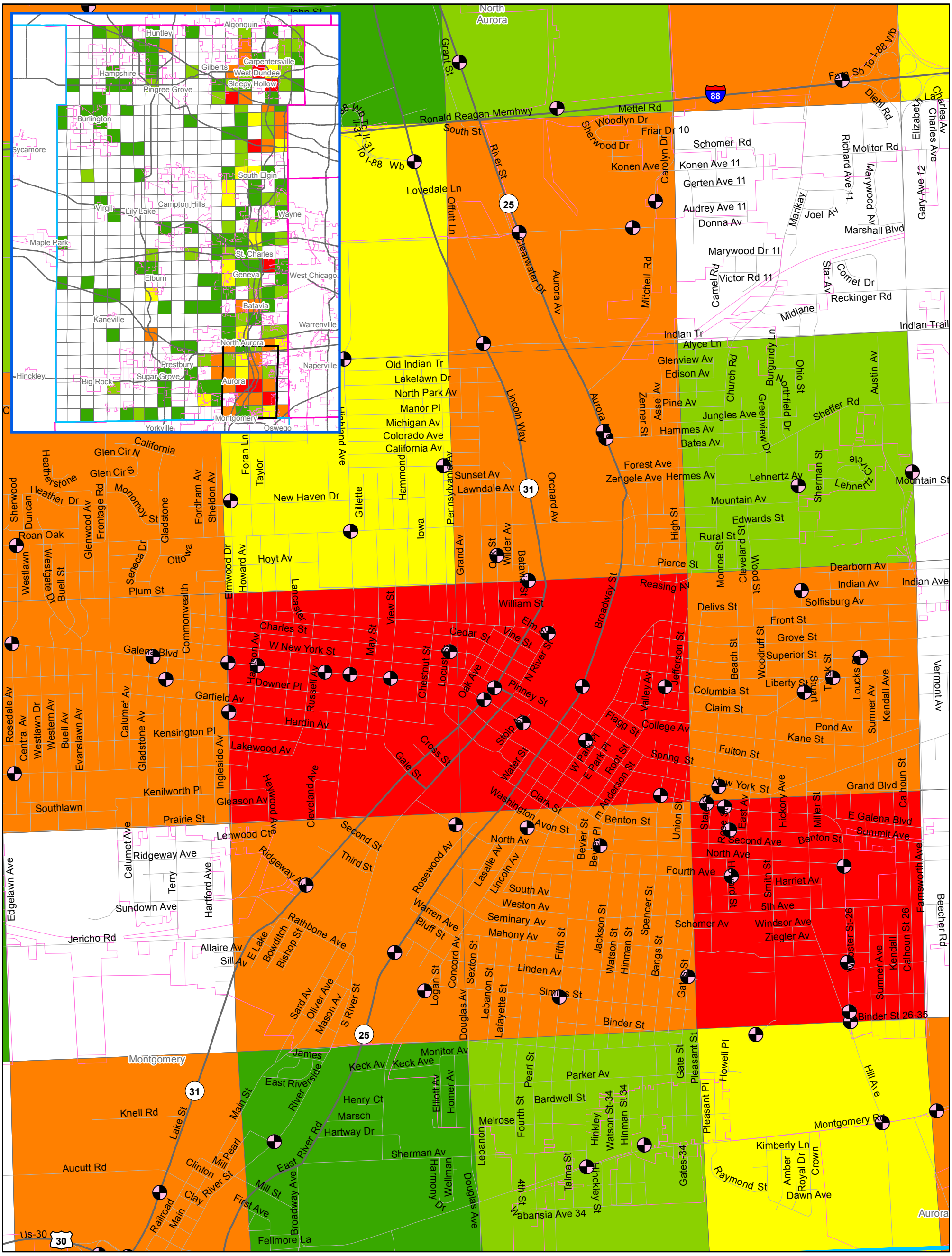
FIGURE 3-26B
KANE COUNTY

KAB Distracted/Fatigued/Drowsy Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 4/16/2015



Legend

- KAB Distracted/Fatigued/Drowsy Driver Crashes
- City Boundary
- County Boundary

KAB Distracted/Fatigued/Drowsy Driver Crashes Per Section Square

- 0
- 1
- 2
- 3
- 4 - 5
- 6 - 8

*Legend intervals are based on KAB distracted/fatigued/drowsy driver crashes that occurred in this county.

0 0.25 0.5 Miles

N

FIGURE 3-26C
KANE COUNTY

KAB Distracted/Fatigued/Drowsy Driver Crashes Per Section Square (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

Illinois Department of Transportation

CH2MHILL

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 4/16/2015

3.3 City Maps Evaluation

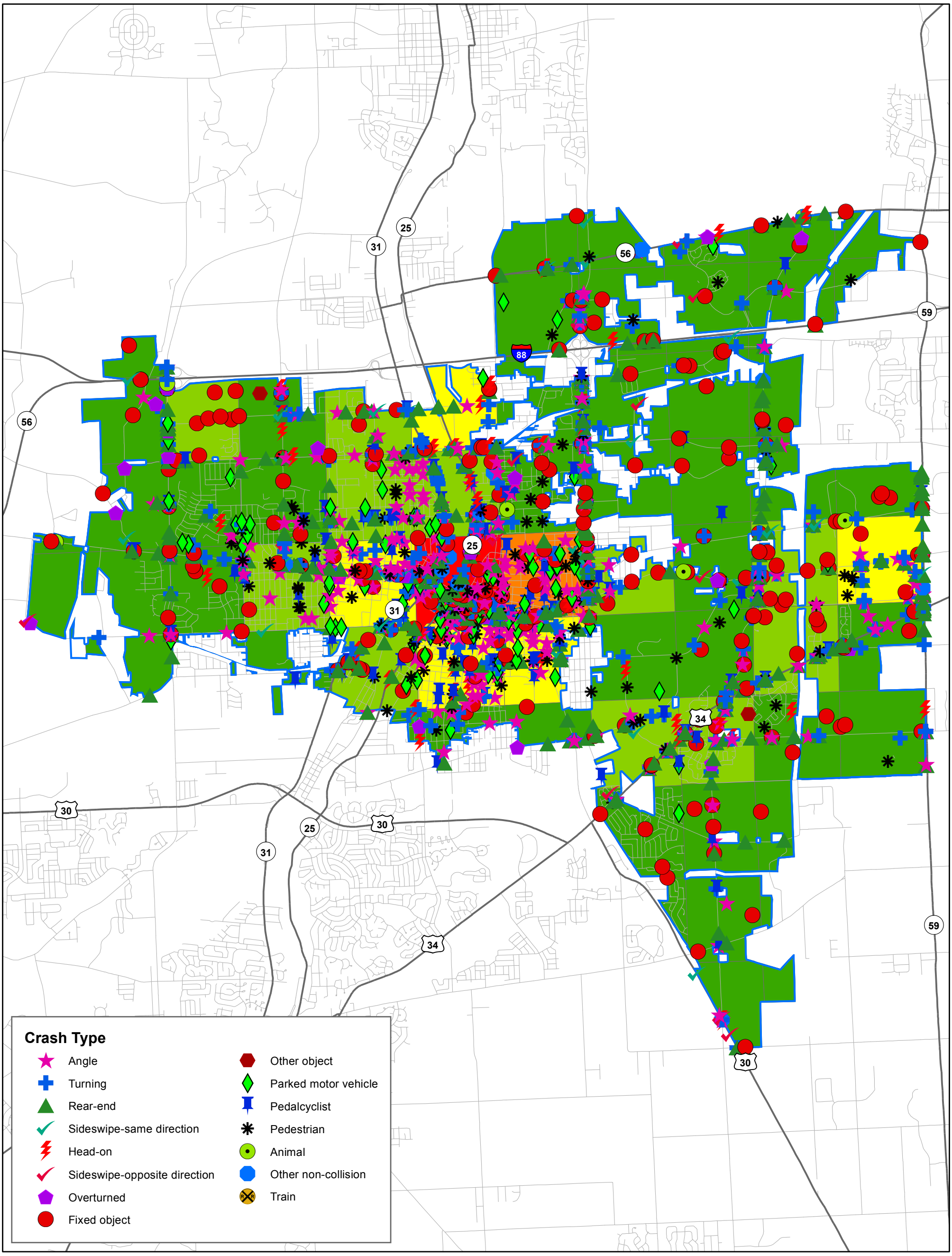
Using the most recent crash data (2009 to 2013), maps were created to identify specific locations and types of KAB crashes in urban areas of Kane County. Cities were chosen for map analysis based on Census population, Census driving commuters, and the presence of a Metropolitan Planning Organization (MPO).

The purpose of the maps is to identify any trends within urban areas; the trends are mostly related to roadway infrastructure and environment. Typical trends identified with the maps include, but are not limited to:

- Clusters of rear-end, turning, and angle collision at intersections
- Run-off road collisions along rural two-lane segments
- Collisions on curves
- Head-on and/or sideswipe collisions along undivided segments
- Pedestrian and pedalcyclist issues

The MPOs, counties, and other planning agencies could use the city maps to identify locations with different crash types and recommend strategies, such as increased enforcement or improved roadway engineering, to mitigate the issues and ultimately achieve the safety targets.

In Kane County, city analyses are performed for the City of Aurora (Figure 3-27 and 3-28).



Legend

All Routes
Major Roadway
City Boundary

KAB Crashes Per Section Square

0	
2 - 43	
44 - 86	
87 - 129	
130 - 173	
174 - 217	

*Legend intervals are based on KAB crashes that occurred in the city of Aurora.

0 0.65 1.3 Miles

N

Illinois Department of Transportation

CH2MHILL

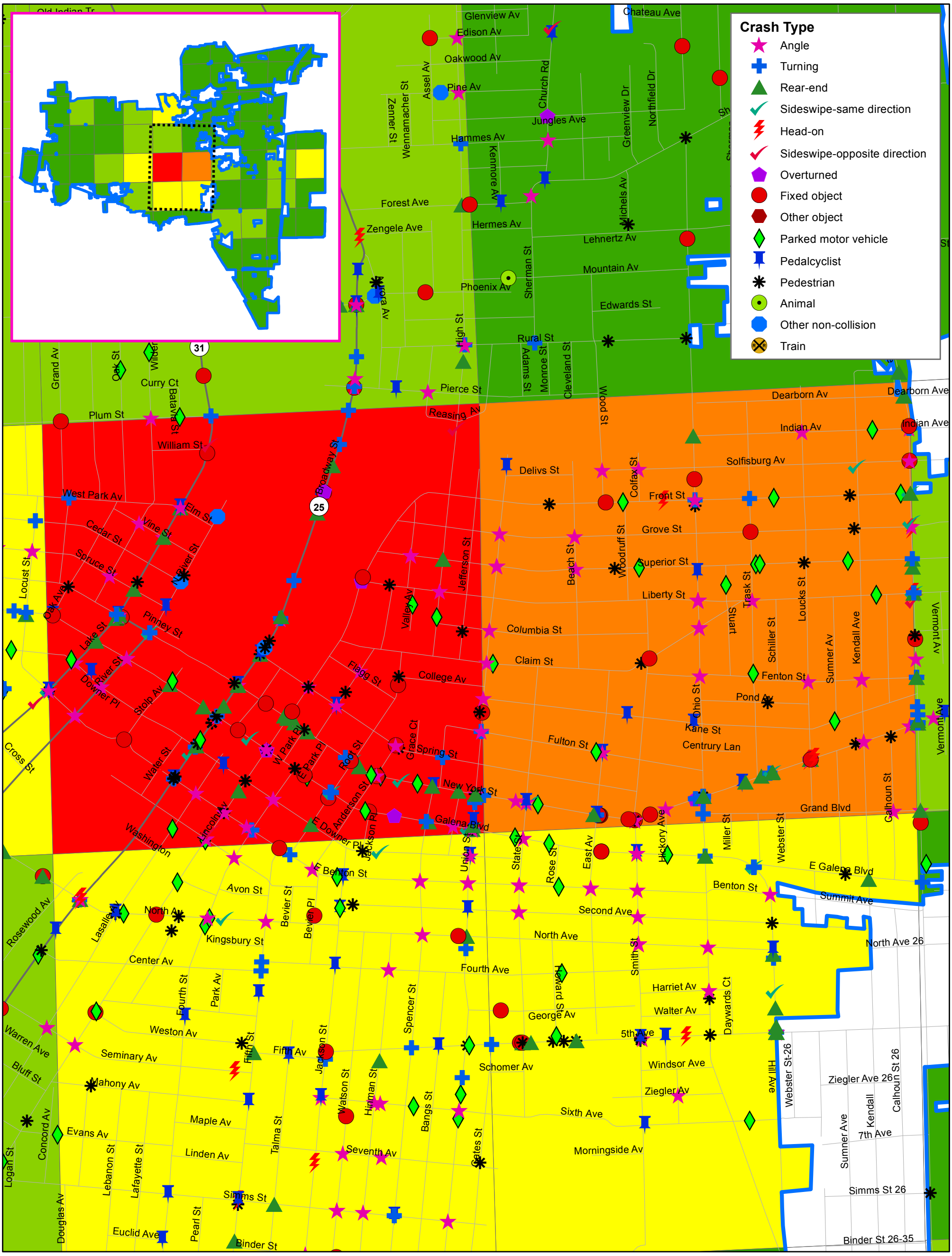
FIGURE 3-27
CITY OF AURORA

KAB Crashes Per Section Square Within City Boundary (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 5/11/2015



Legend

- All Routes
- Major Roadway
- City Boundary

KAB Crashes Per Section Square

- 0
- 2 - 43
- 44 - 86
- 87 - 129
- 130 - 173
- 174 - 217

*Legend intervals are based on KAB crashes that occurred in the city of Aurora.

0 0.1 0.2 Miles

N

FIGURE 3-28
CITY OF AURORA (Zoom-in)

KAB Crashes Per Section Square Within City Boundary (All Routes Included) Analysis Period: 2009-2013

Note: On average, section squares have an area of approximately 1 square mile.

Illinois Department of Transportation

CH2MHILL

DISCLAIMER: Results of the analyses shown in this map are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for 2009 to 2012 was received from IDOT on November 26, 2013. Crash data for 2013 was received from IDOT on December 4, 2014. The roadway and intersection data was developed by IDOT and represents the end of the 2011 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Date: 5/8/2015

Section 4 Summary

The following provides a summary of critical strategies that have been identified for each emphasis area and further identifies low-cost strategies that can be implemented with a limited budget for projects. The discussion also includes resources that will be useful in providing additional background toward making informed decisions with regard to project programming in the future, or carefully scrutinizing critical locations for infrastructure improvements to improve the potential for safety.

4.1 County Safety Projects

One of the key objectives of Kane County's safety planning effort involved identifying low cost safety-related projects that are focused on the County's documented Safety Emphasis Areas. These Safety Emphasis Areas contain the greatest number of severe crashes occurring along the County's system of highways. Deploying mitigations for the factors contributing to these crashes represent the best opportunity to move Kane County Toward Zero Deaths. The need for low cost projects can be widely deployed across the County's system of highways.

The effort to develop low cost safety projects is based on the application of high priority strategies for the most overrepresented emphasis areas that were identified for Kane County. Some of the high priority safety strategies identified basically consist of the following types of improvements:

- Improvements to the edges of rural highways and enhanced delineation of horizontal curves in rural areas
- Upgrading the signs and pavement markings, installing street lights at rural stop-controlled intersections
- Improve sight distance at unsignalized intersections
- Conduct behavioral campaigns to increase seatbelt compliance, reduce impaired driving, increase motorcycle helmet usage, decrease speeding (aggressive driving), and support the graduated driver license law.

The actual implementation of individual projects will be a function of securing funding from the state's HSIP. This Plan, prepared for Kane County, is consistent with the ISHSP, and the high priority safety strategies are among those recommended for local systems.

More to be added once goals are received from County

This Plan should be updated regularly to modify, improve, and expand upon implementation strategies to reflect lessons learned. As more countermeasures are implemented, collection of safety data improves, and more historical data are available, analyses techniques can be modified and refined toward making more and more informed decisions in the future.

Section 5 References

Illinois Department of Transportation (IDOT), Division of Highways, Bureau of Safety Engineering. 2009. *Illinois Strategic Highway Safety Plan.*

Illinois Department of Transportation (IDOT). 2005. *Illinois Comprehensive Highway Safety Plan.*

National Highway Traffic Safety Administration. 2013. *Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices, Seventh Edition.*

[3]Transportation Research Board of the National Academies (TRB). 2003a. *NCHRP 500 Series, Volume 1: A Guide for Addressing Aggressive-Driving Collisions.*

[11]Transportation Research Board of the National Academies (TRB). 2003c. *NCHRP 500 Series, Volume 5: A Guide for Addressing Unsignalized Intersection Collisions.*

[10]Transportation Research Board of the National Academies (TRB). 2003b. *NCHRP 500 Series, Volume 6: A Guide for Addressing Run-Off-Road Collisions.*

[2]Transportation Research Board of the National Academies (TRB). 2004a. *NCHRP 500 Series, Volume 9: A Guide for Reducing Collisions Involving Older Drivers.*

[6]Transportation Research Board of the National Academies (TRB). 2004c. *NCHRP 500 Series, Volume 10: A Guide for Reducing Collisions Involving Pedestrians.*

[5]Transportation Research Board of the National Academies (TRB). 2004b. *NCHRP 500 Series, Volume 11: A Guide for Increasing Seatbelt Use*

[12]Transportation Research Board of the National Academies (TRB). 2004e. *NCHRP 500 Series, Volume 12: A Guide for Reducing Collisions at Signalized Intersections.*

[9]Transportation Research Board of the National Academies (TRB). 2004d. *NCHRP 500 Series, Volume 13: A Guide for Reducing Collisions Involving Heavy Trucks.*

[14]Transportation Research Board of the National Academies (TRB). 2006. *NCHRP 500 Series, Volume 14: A Guide for Reducing Crashes Involving Drowsy and Distracted Drivers.*

[4]Transportation Research Board of the National Academies (TRB). 2005. *NCHRP 500 Series, Volume 16: A Guide for Reducing Alcohol-Related Collisions.*

[13]Transportation Research Board of the National Academies (TRB). 2005. *NCHRP 500 Series, Volume 17: A Guide for Reducing Work Zone Collisions.*

[7]Transportation Research Board of the National Academies (TRB). 2008. *NCHRP 500 Series, Volume 18: A Guide for Reducing Collisions Involving Bicycles.*

[1]Transportation Research Board of the National Academies (TRB). 2007. *NCHRP 500 Series, Volume 19: A Guide for Reducing Collisions Involving Younger Drivers.*

[8]Transportation Research Board of the National Academies (TRB). 2009. *NCHRP 500 Series, Volume 22: A Guide for Addressing Collisions Involving Motorcycles.*

World Health Organization (WHO). 2013. *Global Status Report on Road Safety 2013: Supporting a Decade of Action*.

Appendix A
County Workshops

Appendix A Contents

Workshop 1

- Workshop Handouts, June 14, 2012
  - Kane County, Illinois 2007 to 2011 Crash Data Overview
    - County and Municipal Roadway System
    - Township Roadway System
  - State and Private/Toll Roadway System
  - Data Tree Summary
  - Kane County Heat Maps
    - KAB Crashes per Section Line
    - KAB Impaired Driver Related Crashes per Section Line
    - KAB Unrestrained/Occupant Drive Related Crashes per Section Line
    - KAB Older Driver Related Crashes per Section Line
    - KAB Younger Driver Related Crashes per Section Line

Source: IDOT Safety Analyst 2007 - 2011 Crash Data
All crashes include fatal, all injury and property damage only crashes
Severe crashes include fatal and serious injury crashes only (K + A)

Kane County, Illinois: 2007 to 2011 Crash Data Overview
County and Municipality Roadway Systems

Example		
All Crashes	-	%
Severe Crashes	-	%

5 Year Crashes
54993
1912

State	18747	34%
	741	39%
Toll/Private	2732	5%
	74	4%
County	10865	20%
	420	22%
Township	2711	5%
	100	5%
Municipality	19938	36%
	577	30%

County

Urban	10279	95%
	384	91%
Rural	586	5%
	36	9%

County - Urban

Non Intersection	4348	42%
	168	44%
Intersection	5931	58%
	216	56%

County - Urban - Non Intersection

Roadway Departure	1105	25%
	85	51%
On Curve	270	24%
	32	38%

AG	127(3%)	6(4%)
AN	621(14%)	3(2%)
Other	143(3%)	7(4%)
PDC	10(0%)	4(2%)
PD	12(0%)	3(2%)
RE/SSD	2139(49%)	54(32%)
T	191(4%)	6(4%)

County - Urban - Intersection

Signalized	4235	71%
	152	70%
Unsignalized	1526	26%
	61	28%
Other/Unknown	170	3%
	3	1%

AG	189(4%)	17(11%)
AN	1(0%)	0(0%)
FO/OVT	97(2%)	2(1%)
HO/SOD	47(1%)	4(3%)
Other	16(0%)	1(1%)
PDC	19(0%)	0(0%)
PD	10(0%)	2(1%)
RE/SSD	2724(64%)	53(35%)
T	1132(27%)	73(48%)

AG	254(17%)	14(23%)
AN	5(0%)	0(0%)
FO/OVT	117(8%)	7(11%)
HO/SOD	29(2%)	4(7%)
Other	16(1%)	0(0%)
PDC	18(1%)	0(0%)
PD	7(0%)	2(3%)
RE/SSD	676(44%)	22(36%)
T	404(26%)	12(20%)

County - Rural

Animal	82	14%
	1	3%
Not Animal	504	86%
	35	97%

County - Rural - Not Animal

Non Intersection	392	78%
	28	80%
Intersection	112	22%
	7	20%

County - Rural - Not Animal - Non Intersection

Roadway Departure	282	72%
	21	75%
On Curve	68	24%
	9	43%

AG	11(3%)	0(0%)
Other	28(7%)	3(11%)
PDC	2(1%)	1(4%)
PD	1(0%)	1(4%)
RE/SSD	50(13%)	1(4%)
T	18(5%)	1(4%)

County - Rural - Not Animal - Intersection

Signalized	1	1%
	0	0%
Unsignalized	102	91%
	7	100%
Other/Unknown	9	8%
	0	0%

AG	0(0%)	0(0%)
FO/OVT	0(0%)	0(0%)
HO/SOD	0(0%)	0(0%)
Other	0(0%)	0(0%)
PDC	0(0%)	0(0%)
PD	0(0%)	0(0%)
RE/SSD	1(100%)	0(0%)
T	0(0%)	0(0%)

AG	36(35%)	3(43%)
FO/OVT	19(19%)	1(14%)
HO/SOD	3(3%)	1(14%)
Other	1(1%)	0(0%)
PDC	1(1%)	0(0%)
PD	0(0%)	0(0%)
RE/SSD	21(21%)	0(0%)
T	21(21%)	2(29%)

Township

Non Intersection	11980	60%
	311	54%
Roadway Departure	2279	19%
	123	40%
On Curve	580	25%
	40	33%

AG	971(8%)	19(6%)
AN	170(1%)	1(0%)
Other	5083(42%)	51(16%)
PDC	101(1%)	18(6%)
PD	188(2%)	50(16%)
RE/SSD	2230(19%)	34(11%)
T	958(8%)	15(5%)

Municipality

Intersection	7958	40%
	266	46%

Municipality - Intersection

Signalized	1846	23%
	69	26%
Unsignalized	5915	74%
	188	71%
Other/Unknown	197	2%
	9	3%

AG	299(16%)	15(22%)
AN	1(0%)	0(0%)
FO/OVT	62(3%)	2(3%)
HO/SOD	22(1%)	2(3%)
Other	12(1%)	0(0%)
PDC	28(2%)	3(4%)
PD	29(2%)	7(10%)
RE/SSD	797(43%)	9(13%)
T	596(32%)	31(45%)

AG	2355(40%)	85(45%)
AN	4(0%)	0(0%)
FO/OVT	528(9%)	14(7%)
HO/SOD	71(1%)	0(0%)
Other	154(3%)	5(3%)
PDC	136(2%)	17(9%)
PD	79(1%)	16(9%)
RE/SSD	1171(20%)	15(8%)
T	1417(24%)	36(19%)

Notes: Collision Type Abbreviations
AG: Angle
AN: Animal
FO/OVT: Fixed Object and Overturned
HO/SOD: Head-On and Sideswipe Opposite Direction
Other: Other Non-Collision, Other Object, Parked Car, Train, and Unknown
PDC: Pedalcyclist
PD: Pedestrian
RE/SSD: Rear End and Sideswipe Same Direction
T: Turning

Query Assumptions for Roadway Departure and On-Curve
Roadway Departure: Fixed Object, Overturned, Head-On, and Sideswipe Opposite Direction
On-Curve: Road Departure Crashes on Level Curve, Curve on Grade, and Curve on Hillcrest

Urban and Rural designations are defined by the Urban Area code in the Illinois Roadway Inventory System

Intersection crashes are defined as crashes located within 250 feet of a rural intersection or 150 feet of a urban intersection and also coded as intersection related by the reporting police officer

Intersection crashes are counted only once and are represented by only one jurisdiction using the following hierarchy.
S: State, C: County, T: Township, M: Municipality, T/P: Toll/Private

Results of the analyses shown in this table are based on data that was received from the Illinois Department of Transportation on May 23, 2012. Crash data represents years 2007 to 2011 and the roadway data represents the end of the 2009 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly

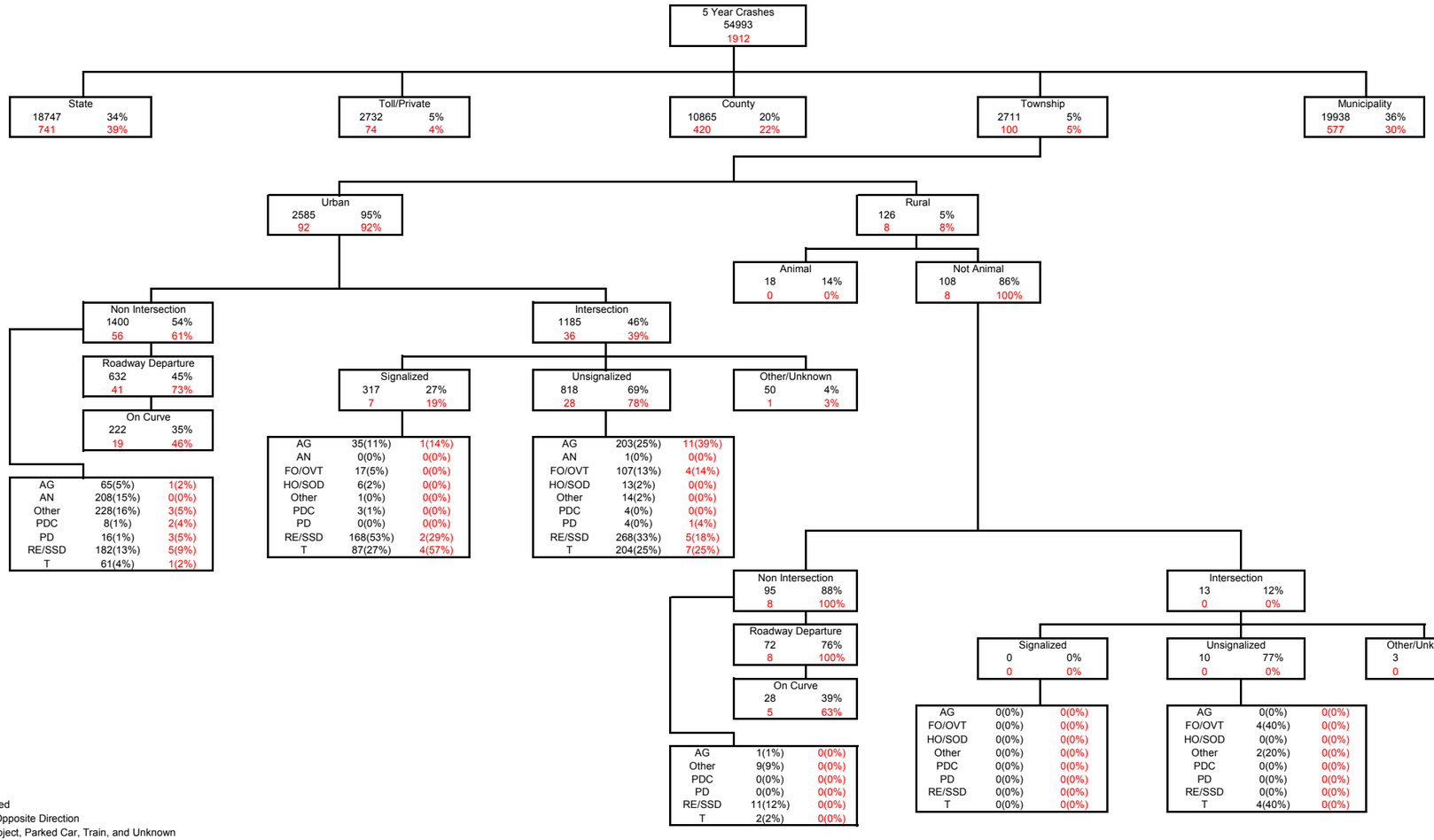
Intersection Crashes by Cross Street Jurisdiction		
County		
County-County	1186(20%)	60(27%)
County-Township	1129(19%)	45(20%)
County-Municipal	3575(59%)	116(52%)
County-Toll/Private	154(3%)	2(1%)
Municipality		
Municipal-Municipal	7900(99%)	266(100%)
Municipal-Toll/Private	58(1%)	0(0%)

Illinois Department of Transportation
CH2MHILL
June 2012

Source: IDOT Safety Analyst 2007 - 2011 Crash Data
All crashes include fatal, all injury and property damage only crashes
Severe crashes include fatal and serious injury crashes only (K + A)

Kane County, Illinois: 2007 to 2011 Crash Data Overview
Township Roadway System

Example		
All Crashes	-	%
Severe Crashes	-	%



Notes: Collision Type Abbreviations
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Intersection Crashes by Cross Street Jurisdiction		
Township		
Township-Township	494(41%)	15(42%)
Township-Municipal	704(59%)	21(58%)
Township-Toll/Private	0(0%)	0(0%)

Illinois Department of Transportation
CH2MHILL
June 2012

Source: IDOT Safety Analyst 2007 - 2011 Crash Data
All crashes include fatal, all injury and property damage only crashes
Severe crashes include fatal and serious injury crashes only (K + A)

Kane County, Illinois: 2007 to 2011 Crash Data Overview
State and Private/Toll Roadway Systems

Example	
All Crashes	- %
Severe Crashes	- %

5 Year Crashes
54993
1912

State
18747 34%
741 39%

Toll/Private
2732 5%
74 4%

County
10865 20%
420 22%

Township
2711 5%
100 5%

Municipality
19938 36%
577 30%

State

Urban
18298 98%
710 96%

Rural
449 2%
31 4%

Urban

Non Intersection
7393 40%
291 41%

Intersection
10905 60%
419 59%

Roadway Departure
1647 22%
139 48%

On Curve
431 26%
37 27%

AG	356(5%)	11(4%)
AN	722(10%)	4(1%)
Other	393(5%)	3(1%)
PDC	29(0%)	5(2%)
PD	54(1%)	19(7%)
RE/SSD	3513(48%)	87(30%)
T	679(9%)	23(8%)

Signalized
7154 66%
249 59%

Unsignalized
3424 31%
158 38%

Other/Unknown
327 3%
12 3%

AG	632(9%)	44(18%)
AN	1(0%)	0(0%)
FO/OVT	248(3%)	11(4%)
HO/SOD	80(1%)	3(1%)
Other	30(0%)	0(0%)
PDC	45(1%)	6(2%)
PD	53(1%)	13(5%)
RE/SSD	4091(57%)	78(31%)
T	1974(28%)	94(38%)

AG	599(17%)	40(25%)
AN	9(0%)	0(0%)
FO/OVT	204(6%)	15(9%)
HO/SOD	43(1%)	3(2%)
Other	33(1%)	3(2%)
PDC	43(1%)	8(5%)
PD	23(1%)	9(6%)
RE/SSD	1473(43%)	32(20%)
T	997(29%)	48(30%)

Rural

Animal
63 14%
0 0%

Not Animal
386 86%
31 100%

Non Intersection
216 56%
20 65%

Intersection
170 44%
11 35%

Roadway Departure
134 62%
16 80%

On Curve
19 14%
3 19%

AG	10(5%)	2(10%)
Other	18(8%)	2(10%)
PDC	0(0%)	0(0%)
PD	1(0%)	0(0%)
RE/SSD	49(23%)	0(0%)
T	4(2%)	0(0%)

Signalized
10 6%
1 9%

Unsignalized
145 85%
9 82%

Other/Unknown
15 9%
1 9%

AG	2(20%)	0(0%)
FO/OVT	1(10%)	1(100%)
HO/SOD	0(0%)	0(0%)
Other	0(0%)	0(0%)
PDC	0(0%)	0(0%)
PD	0(0%)	0(0%)
RE/SSD	6(60%)	0(0%)
T	1(10%)	0(0%)

AG	45(31%)	6(67%)
FO/OVT	9(6%)	0(0%)
HO/SOD	6(4%)	1(11%)
Other	1(1%)	0(0%)
PDC	1(1%)	0(0%)
PD	0(0%)	0(0%)
RE/SSD	49(34%)	1(11%)
T	34(23%)	1(11%)

Non Intersection

Non Intersection
2732 100%
74 100%

Roadway Departure
947 35%
36 49%

On Curve
124 13%
9 25%

AG	26(1%)	4(5%)
AN	248(9%)	1(1%)
Other	163(6%)	4(5%)
PDC	0(0%)	0(0%)
PD	1(0%)	1(1%)
RE/SSD	1319(48%)	28(38%)
T	28(1%)	0(0%)

Intersection

Intersection
0 0%
0 0%

Signalized
0 0%
0 0%

Unsignalized
0 0%
0 0%

Other/Unknown
0 0%
0 0%

AG	0(0%)	0(0%)
AN	0(0%)	0(0%)
FO/OVT	0(0%)	0(0%)
HO/SOD	0(0%)	0(0%)
Other	0(0%)	0(0%)
PDC	0(0%)	0(0%)
PD	0(0%)	0(0%)
RE/SSD	0(0%)	0(0%)
T	0(0%)	0(0%)

AG	0(0%)	0(0%)
AN	0(0%)	0(0%)
FO/OVT	0(0%)	0(0%)
HO/SOD	0(0%)	0(0%)
Other	0(0%)	0(0%)
PDC	0(0%)	0(0%)
PD	0(0%)	0(0%)
RE/SSD	0(0%)	0(0%)
T	0(0%)	0(0%)

Notes: Collision Type Abbreviations
AG: Angle
AN: Animal
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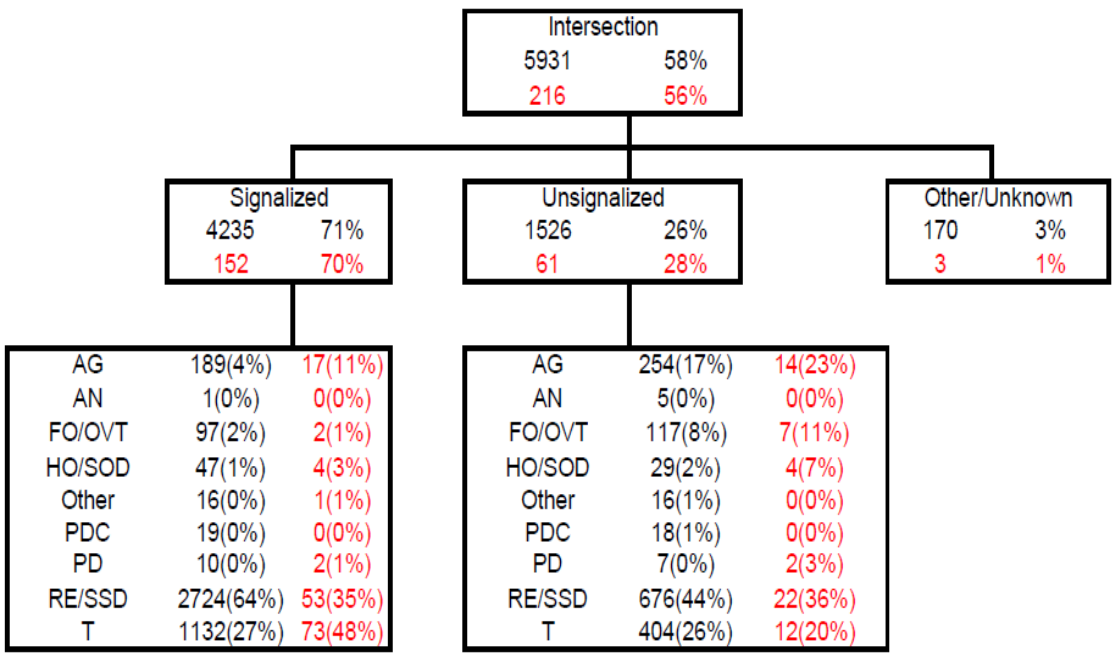
Intersection Crashes by Cross Street Jurisdiction		
County		
State-State	1082(10%)	34(8%)
State-County	2508(23%)	78(18%)
State-Township	597(5%)	35(8%)
State-Municipal	6851(62%)	283(66%)
State-Toll/Private	37(0%)	0(0%)
Toll/Private		
Toll/Private-Toll/Private	0(0%)	0(0%)

Illinois Department of Transportation
CH2MHILL
June 2012

Kane County Routes - Urban Intersections



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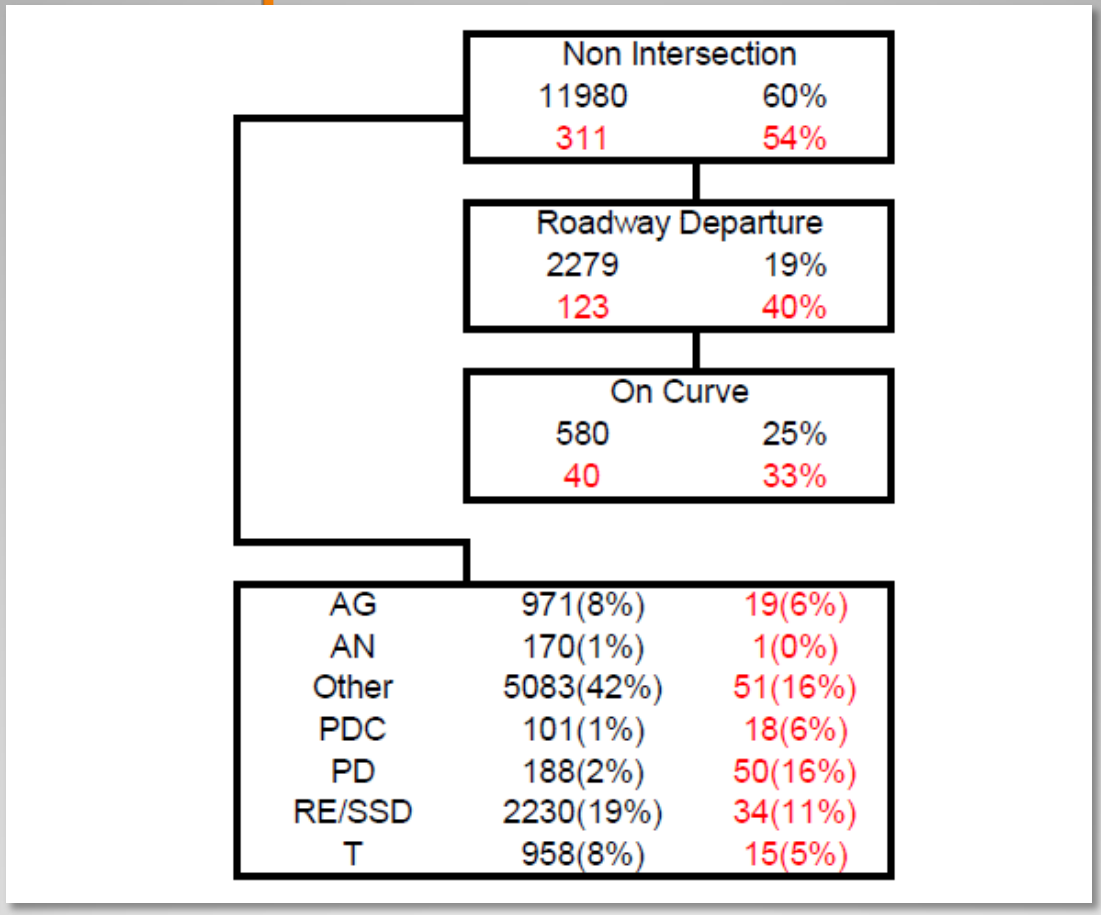
AN: Animal
FO/OVT: Fixed Object and Overturned
HO/SOD: Head-On and Sideswipe Opposite Direction
Other: Other Non-Collision, Other Object, Parked Car, Train, and Unknown
PDC: Pedalcyclist
PD: Pedestrian
RE/SSD: Rear End and Sideswipe Same Direction
T: Turning

- **91%** of severe collisions on the County System took place on the Urban system.
- **56%** of severe collisions occurring on the Urban County Roadway System were intersection collisions.
- Of the severe collisions occurring on the Urban County Roadway System that were signalized intersection collisions, **35**% of them were RE/SSD.
- Of the severe collisions occurring on the Urban County Roadway System that were signalized intersection collisions, **48**% of them were Turning.
- Of the severe collisions occurring on the Urban County Roadway System that were unsignalized intersection collisions, 36% of them were RE/SSD.

*Results of the analyses shown in this table are based on data that was received from the Illinois Department of Transportation on May 23, 2012. Collision data represents years 2007 to 2011 and the roadway data represents the end of the 2009 year conditions. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Kane Municipal Routes - Non-Intersections



- **54%** of severe collisions on the Municipal System took place on the non-intersection system.
- **40%** of severe collisions occurring on the non-intersection system were roadway departure.
- **16%** of severe collisions occurring on the non-intersection system were pedestrian collisions.

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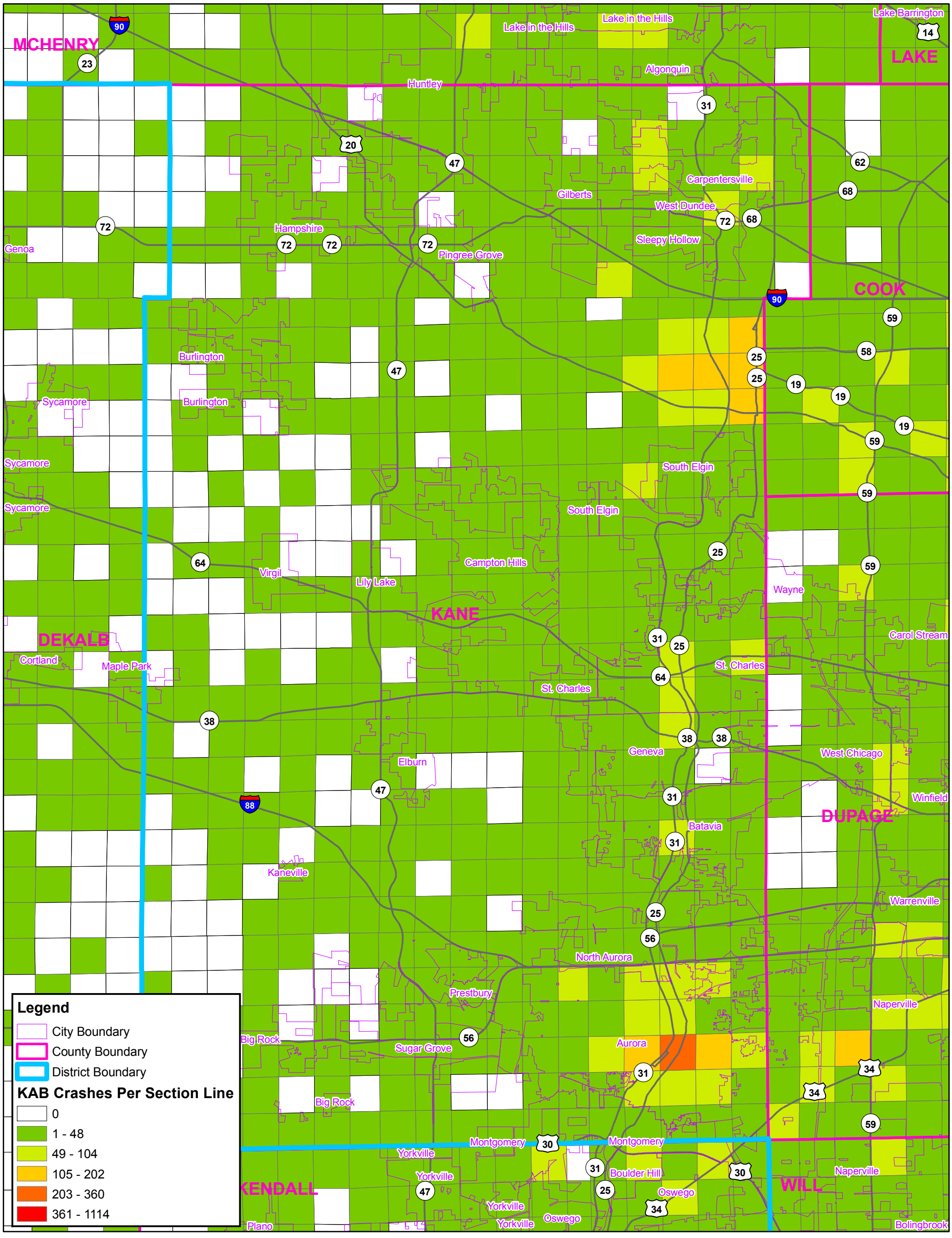


Legend

- City Boundary
- County Boundary
- District Boundary

KAB Crashes Per Section Line

- 0
- 1 - 48
- 49 - 104
- 105 - 202
- 203 - 360
- 361 - 1114

Note: On average, section lines are approximately 1 square mile

AVERAGE KAB CRASHES PER SECTION:
STATEWIDE COUNTY AVERAGE: 2.89
KANE COUNTY AVERAGE: 13.32

N

0 3 6 Miles

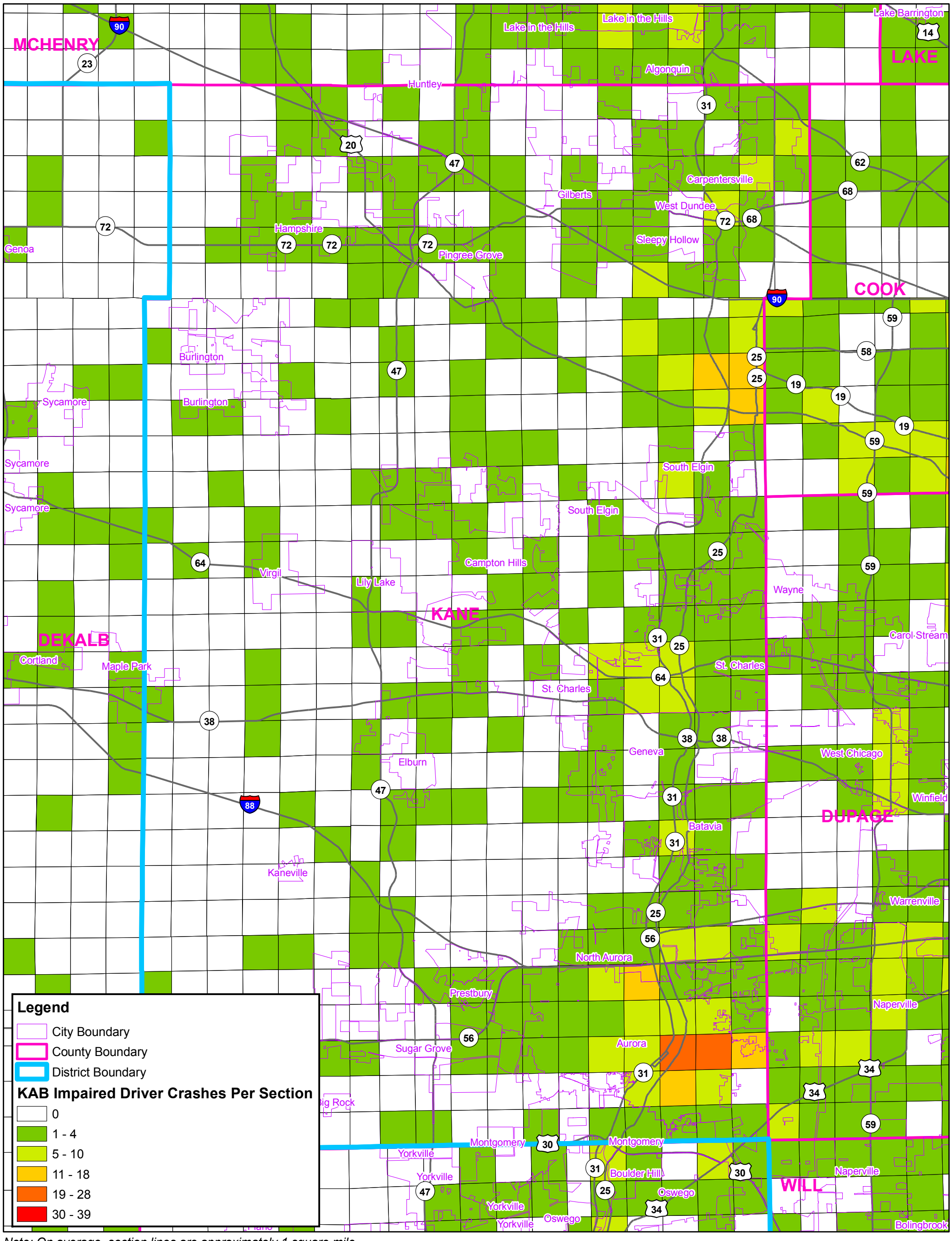
KANE COUNTY

KAB Crashes Per Section Line
(All Routes Included)
Analysis Period: 2007-2011

CH2MHILL

Results of the analyses shown in this presentation are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2007 to 2011 and was obtained from the state police and other enforcement agencies.The 2007 crash data was received from IDOT on March 24, 2009. The 2008 crash data was received from IDOT on October 6, 2009, and the 2009 data was received from IDOT on September 10, 2010. The 2010 crash data was received from IDOT on September 12, 2011 and the 2011 was received from IDOT on May 30, 2012. The data was used "as is" for analysis purposes and should be interpreted accordingly.

June 12, 2012



Note: On average, section lines are approximately 1 square mile

AVERAGE IMPAIRED DRIVER KAB CRASHES PER SECTION:
STATEWIDE COUNTY AVERAGE: 0.31
KANE COUNTY AVERAGE: 1.25

N

0 3 6 Miles

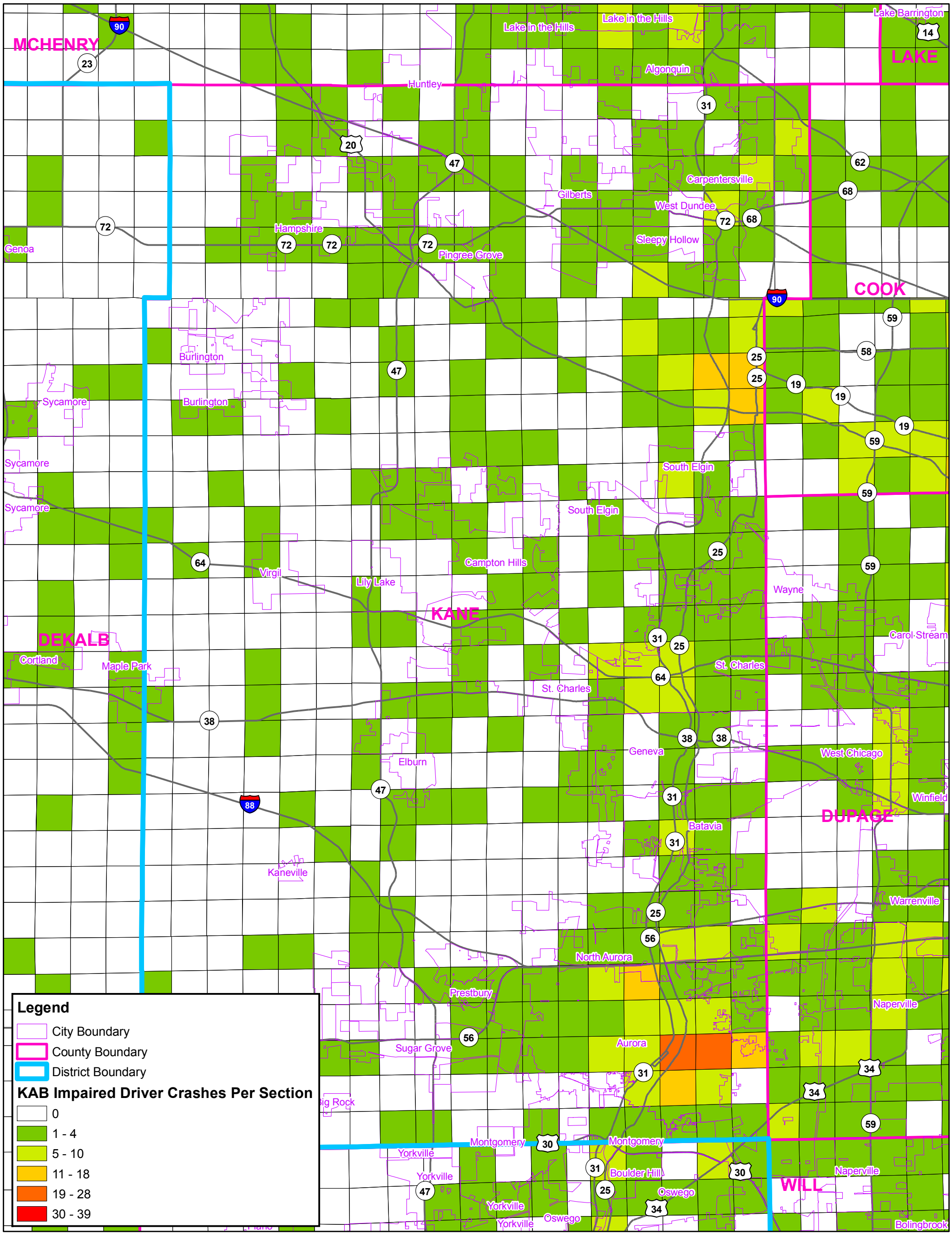
KANE COUNTY

KAB Impaired Driver Related Crashes Per Section Line (All Routes Included)

Analysis Period: 2007-2011

CH2MHILL

Results of the analyses shown in this presentation are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2007 to 2011 and was obtained from the state police and other enforcement agencies.The 2007 crash data was received from IDOT on March 24, 2009. The 2008 crash data was received from IDOT on October 6, 2009, and the 2009 data was received from IDOT on September 10, 2010. The 2010 crash data was received from IDOT on September 12, 2011 and the 2011 was received from IDOT on May 30, 2012. The data was used "as is" for analysis purposes and should be interpreted accordingly.



Note: On average, section lines are approximately 1 square mile

AVERAGE UNRESTRAINED DRIVER/OCCUPANT KAB CRASHES PER SECTION:
STATEWIDE COUNTY AVERAGE: 0.38
KANE COUNTY AVERAGE: 1.35

N

0 3 6 Miles

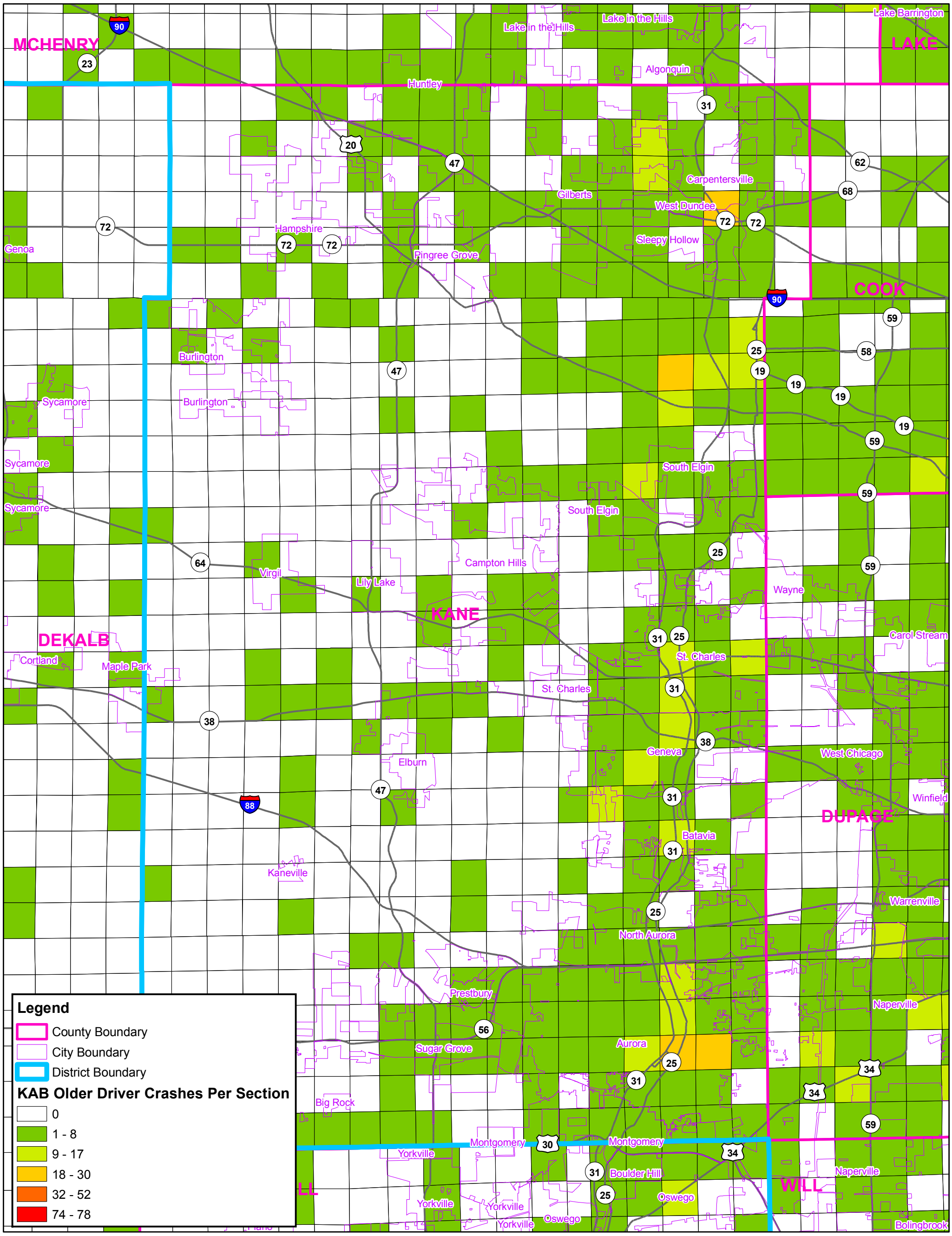
KANE COUNTY

KAB Unrestrained Driver/Occupant Related Crashes Per Section Line (All Routes Included)

Analysis Period: 2007-2011

CH2MHILL

Results of the analyses shown in this presentation are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2007 to 2011 and was obtained from the state police and other enforcement agencies.The 2007 crash data was received from IDOT on March 24, 2009. The 2008 crash data was received from IDOT on October 6, 2009, and the 2009 data was received from IDOT on September 10, 2010. The 2010 crash data was received from IDOT on September 12, 2011 and the 2011 was received from IDOT on May 30, 2012. The data was used "as is" for analysis purposes and should be interpreted accordingly.



Note: On average, section lines are approximately 1 square mile

AVERAGE OLDER DRIVER KAB CRASHES PER SECTION:
STATEWIDE COUNTY AVERAGE: 0.39
KANE COUNTY AVERAGE: 1.57

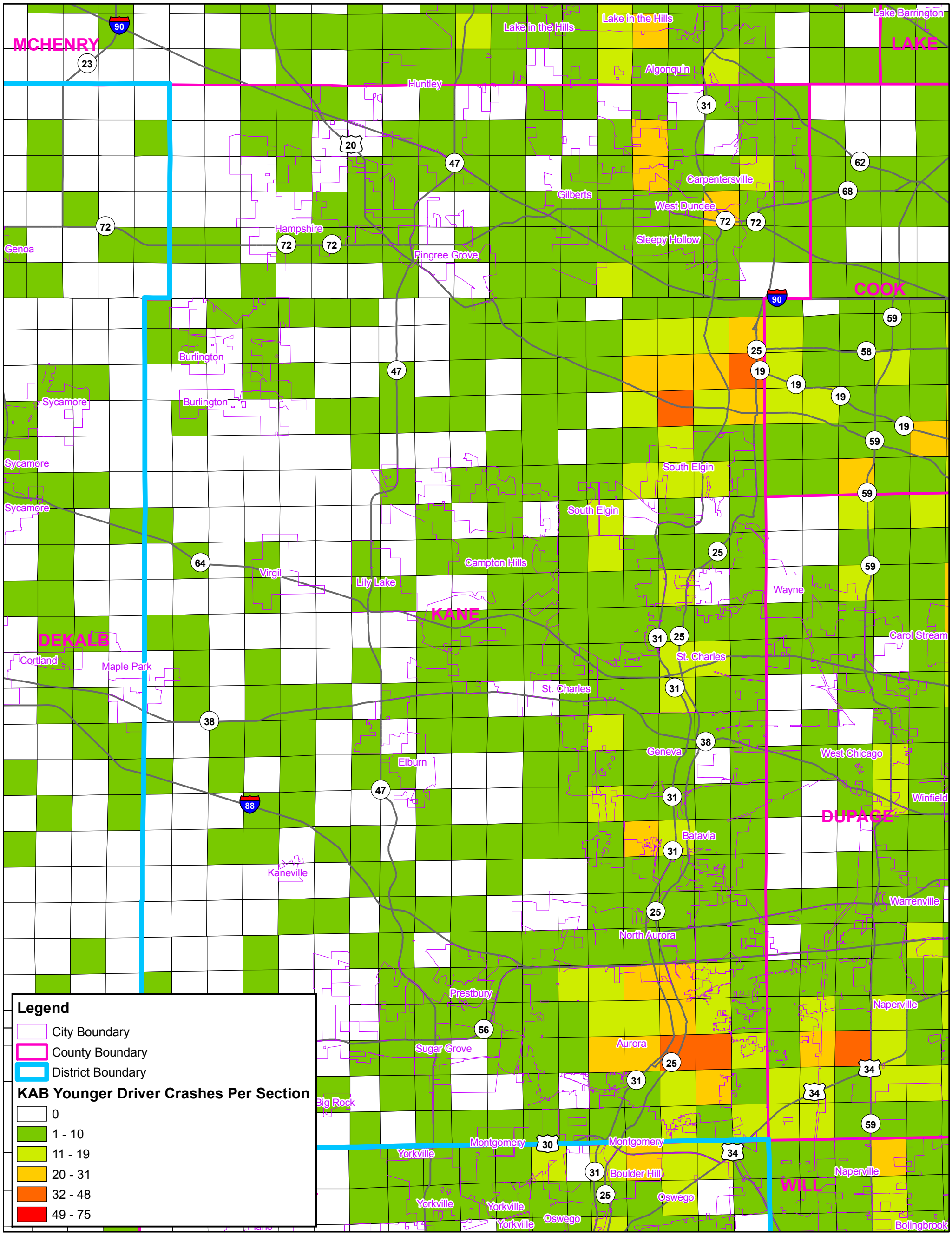
KANE COUNTY

KAB Older Driver Related Crashes Per Section Line (All Routes Included)

Analysis Period: 2007-2011

CH2MHILL

Results of the analyses shown in this presentation are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2007 to 2011 and was obtained from the state police and other enforcement agencies.The 2007 crash data was received from IDOT on March 24, 2009. The 2008 crash data was received from IDOT on October 6, 2009, and the 2009 data was received from IDOT on September 10, 2010. The 2010 crash data was received from IDOT on September 12, 2011 and the 2011 was received from IDOT on May 30, 2012. The data was used "as is" for analysis purposes and should be interpreted accordingly.



Note: On average, section lines are approximately 1 square mile

AVERAGE YOUNGER DRIVER KAB CRASHES PER SECTION:
STATEWIDE COUNTY AVERAGE: 0.66
KANE COUNTY AVERAGE: 3.42

KANE COUNTY

KAB Younger Driver Related Crashes Per Section Line (All Routes Included)

Analysis Period: 2007-2011

CH2MHILL

Results of the analyses shown in this presentation are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2007 to 2011 and was obtained from the state police and other enforcement agencies.The 2007 crash data was received from IDOT on March 24, 2009. The 2008 crash data was received from IDOT on October 6, 2009, and the 2009 data was received from IDOT on September 10, 2010. The 2010 crash data was received from IDOT on September 12, 2011 and the 2011 was received from IDOT on May 30, 2012. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Appendix B
County Safety Project

Appendix B Contents

Name of County Projects

Appendix C
Emphasis Area Definitions and Terminology

Appendix C Contents

Emphasis Area Definitions
Terminology

Appendix C - Emphasis Area Definitions and Terminology

Definitions

Young Driver (16-20)

Definition: At least one of the drivers was between the ages 16 to 20.

- Crash Extract
    a. Count Fatalities
    b. Count A-Type Injuries
- Person Extract
    a. Where Person Type = 1 (Driver)
    b. Where Age= 16 to 20

Old Driver

Definition: At least one of the drivers was over the age of 65. Excludes the age "99" (unknown).

- Crash Extract
    a. Count Fatalities
    b. Count A-Type Injuries
- Person Extract
    a. Where Person Type = 1 (Driver)
    b. Where Age= 65 or greater [Excluding 99]

Speeding/Aggressive

Definition: Crash where the first cause was exceeding authorized speed limit, exceeding safe speed for conditions, failing to reduce speed to avoid crash, or operating vehicle in a erratic, reckless, careless, negligent, or aggressive manner.

- Crash Extract
    a. Count Fatalities
    b. Count A-Type Injuries
    c. Cause 1 Code = 1 (Exceeding authorized speed limit) or 27 (Exceeding safe speed for conditions) or 28 (Failing to reduce speed to avoid crash) or 50 (Operating vehicle in an erratic, reckless, careless, negligent or aggressive manner)

Impaired

Definition: At least one of the drivers was impaired by alcohol, impaired by drugs, medicated, or had been drinking.

- Crash Extract
    a. Count Fatalities
    b. Count A-Type Injuries
- Person Extract
    a. Where Person Type = 1 (Driver)
    b. Where Driver Condition = 2 (Impaired – alcohol) or 3 (Impaired – drugs) or 6 (Medicated) or 7 (Had been drinking)

Unrestrained

Definition: A fatality or A-type injury where the person (driver or passenger) injured had no safety equipment present, safety belt not used, helmet not used, child restraint used improperly, or child restraint not used.

- Person Extract
    a. Count Persons
    b. Person Type = 1 (Driver) or 7 (Passenger)
    c. Safety Equipment = 1 (None present) or 3 (Safety belt not used) or 5 (Helmet not used) or 7 (Child restrain used improperly) or 8 (Child restraint not used)

Fatigue

Definition: At least one driver involved in the crash is listed as fatigued (for 2003-2012 data only).

- Person Extract
    a. Where Person Type = 1 (Driver)
    b. Where DRAC (Driver Apparent Condition) = 8 (Fatigued)

Drowsy

Definition: At least one driver involved in the crash is listed as drowsy (for 2003-2012 data only).

- Person Extract
    a. Where Person Type = 1 (Driver)
    b. Where DRAC (Driver Apparent Condition) = 5 (Asleep/Fainted)

Distracted

Definition: Crash that involved a driver that was distracted.

- Crash Extract
    a) 2003-2012 Crash Extracts
        a. Where Cause 1 = 40 (Distraction – from outside vehicle) or 41 (Distraction – from inside vehicle) or 42 (Distraction – electronic communication device) or 43 Distraction (Other electronic device: navigation device, DVD player, etc.)
    b) 2013 Crash Extract
        a. Where Cause 1 = 40 (Distraction – from outside vehicle) or 41 (Distraction – from inside vehicle) or = 44 (Texting) or 45 (Cell phone other than texting)

Pedestrian

Definition: A fatality or A-Type injury where the person injured was a pedestrian.

- Person Extract
    a. Count Persons
    b. Injury Severity = 4 (Fatality) or 3 (A-Type Injury)
    c. Person Type = 2 (Pedestrian)

Pedalcyclist

Definition: A fatality or A-Type injury where the person injured was a pedalcyclist.

- Person Extract
    a. Count Persons
    b. Injury Severity = 4 (Fatality) or 3 (A-Type Injury)

c. Person Type = 3 (Pedalcyclist)

Motorcycle

Definition: Crash that involved at least one motorcycle (over 150cc) or motor driven cycle.

- Crash Extract
  a. Count Fatalities
  b. Count A-Type Injuries
- Vehicle Extract
  a. VEHT = 10 [Motorcycle (over 150 cc)] or 11 (Motor driven cycle)

Heavy Vehicle

Definition: At least one of the vehicles was a bus up to 15 passengers, bus over 15 passengers, trunk single-unit, tractor with semi-trailer, or tractor without semi-trailer.

- Crash Extract
  a. Count Fatalities
  b. Count A-Type Injuries
- Vehicle Extract
  a. Where VEHT = 4 (Bus up to 15 passengers) or 5 (Bus over 15 passengers) or 6 (Truck – single unit) or 7 (Tractor w/semi-trailer) or 8 (Tractor w/o semi-trailer)

Roadway Departure

Definition: Crash where the collision type was overturned, fixed object, sideswipe-opposite direction, or head-on.

- Crash Extract
  a. Count Fatalities
  b. Count A-Type Injuries
  c. Where Collision Type Code = 5 (Overturned) or 6 (Fixed Object) or 13 (Sideswipe-opposite direction) or 14 (Head on)

Intersection

Definition: Crash that was intersection related.

- Crash Extract
  a. Count Fatalities
  b. Count A-Type Injuries
  c. Intersection related=”Y”

Work Zone

Definition: Crash that took place in a construction zone, maintenance zone, utility work zone, or work zone-unknown.

- Crash Extract
  a. Count Fatalities
  b. Count A-Type Injuries
  c. Where Road Defect Code = 2 (Construction Zone) or 3 (Maintenance Zone) or 4 (Utility Work Zone) or 5 (Work Zone- unknown)

Terminology

Abbreviation	*Crash (number of crashes)*	*Person (number of people)*
K	Fatal crashes	Fatalities
A	A-type injury crashes OR A-injury crashes OR serious injury crashes	A-type injuries OR A-Injuries OR serious injuries
KA	Fatal and A-type injury crashes OR fatal and A-injury crashes OR severe crashes	Fatalities and A-type injuries OR Fatalities and A-injuries OR fatalities and serious injuries

Appendix D
Strategies for Kane County Emphasis Areas

Appendix D Contents

Emphasis Area Photos

- Younger Driver (16-20)
- Older Driver (65+)
- Speeding/Aggressive Driver
- Impaired Driver
- Unrestrained Driver
- Pedestrian
- Pedalcyclist
- Motorcycle
- Heavy Vehicle
- Roadway Departure
- Intersection
- Work Zone

Younger Driver

Engage parents through outreach programs designed to educate parents.

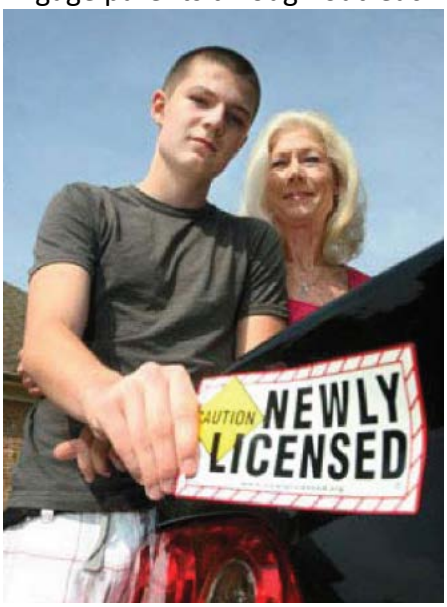
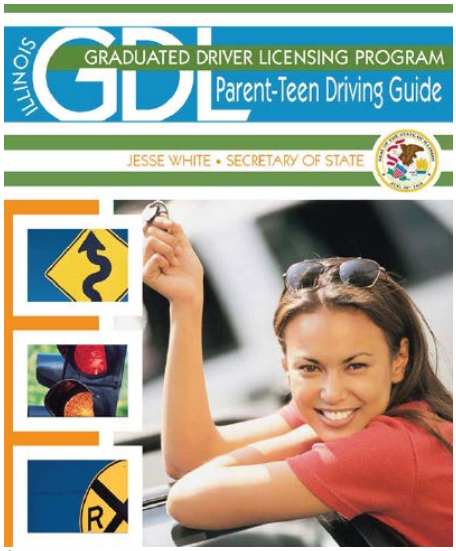


Photo courtesy of www.ajc.com

Publicize and conduct high visibility enforcement of GDL restrictions, underage drinking and driving and seatbelt laws.



Guide is available at www.cyberdriveillinois.com/departments/drivers/teen_driver_safety/gdl.html

Older Driver

Re-evaluate driving skills.

Photo courtesy of www.wmfd.com

Speeding/Aggressive Driver

Install Dynamic Speed Feedback Sign.

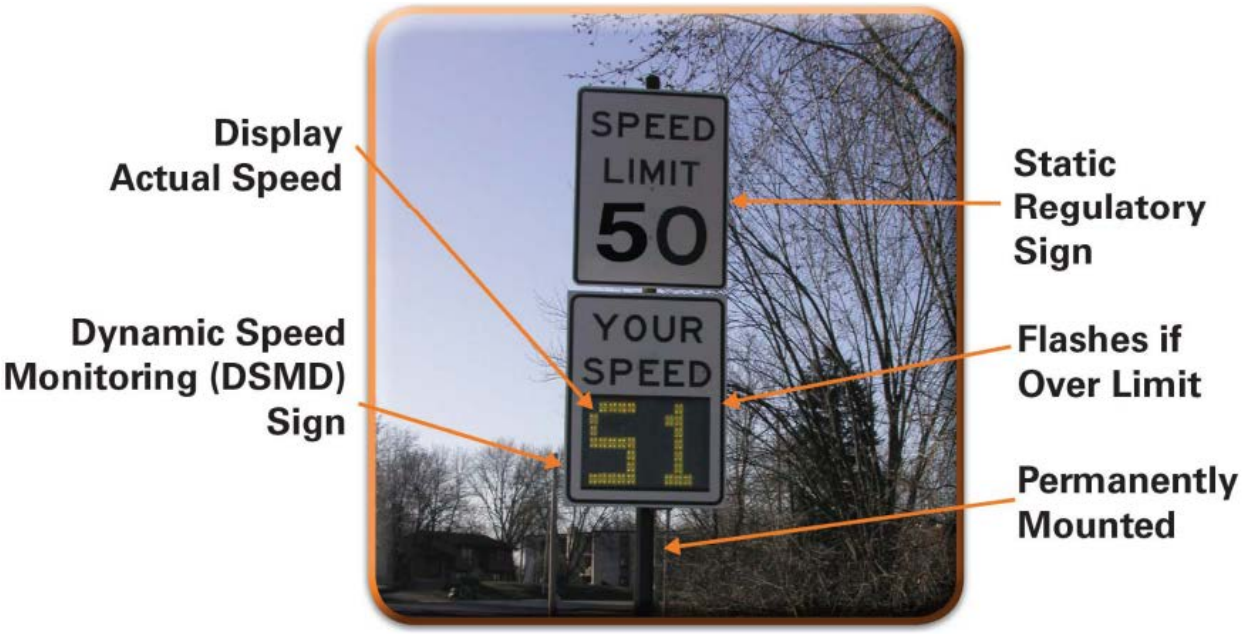


Photo courtesy of Missouri Department of Transportation

Publicize and conduct high visibility targeted enforcement of speeding and aggressive driving; impose sanctions against repeat offenders.

Photo courtesy of www.northescambia.com

Impaired Driver

Law enforcement checkpoints

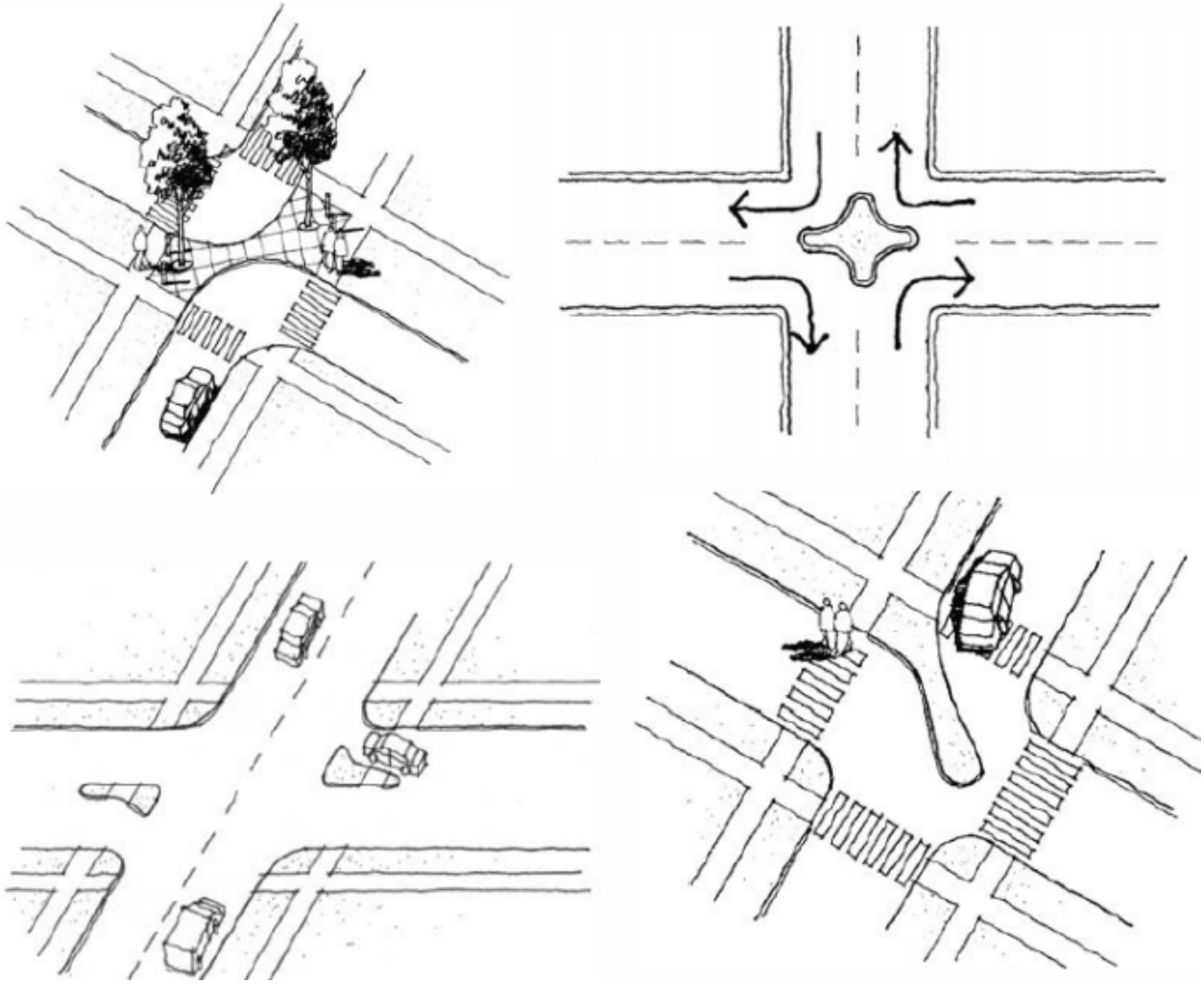
Photo courtesy of www.badboysbailbondutah.com

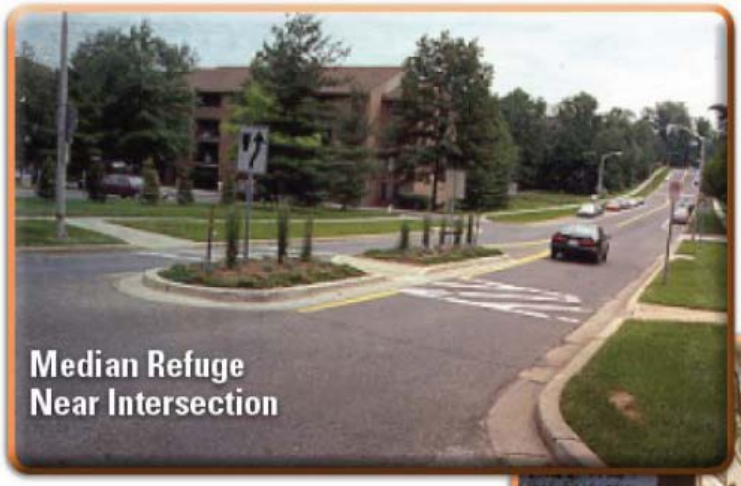
Unrestrained

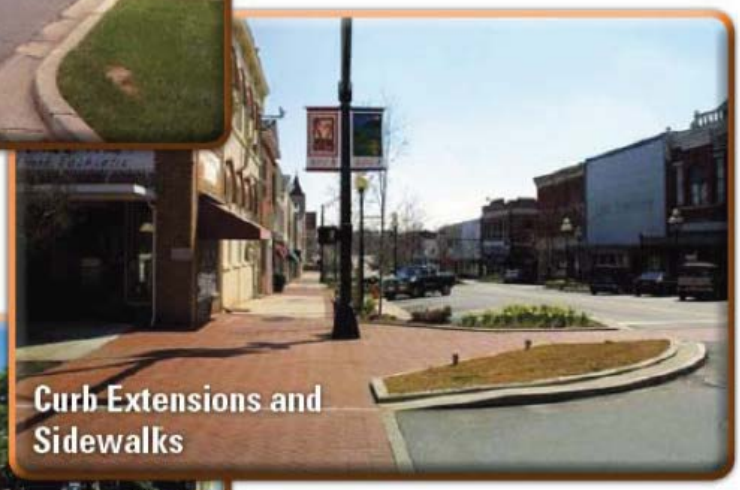
Conduct high-profile “child restraint inspection” events at multiple community locations

Pedestrians

Provide full/partial diverters and street closure. Below are four examples of several types of diverters.




Median Refuge
Near Intersection


Curb Extensions and
Sidewalks

Bicycle

Addition of bike boxes

Photo courtesy of www.treehugger.com

Motorcycle

Complete proper training

Photo courtesy of http://www.saddleupva.com/

Signs for public awareness of motorcycles sharing the roads with passenger vehicles

Photo courtesy of http://www.startseeingmotorcycles.org

Heavy Vehicles

Complete proper training

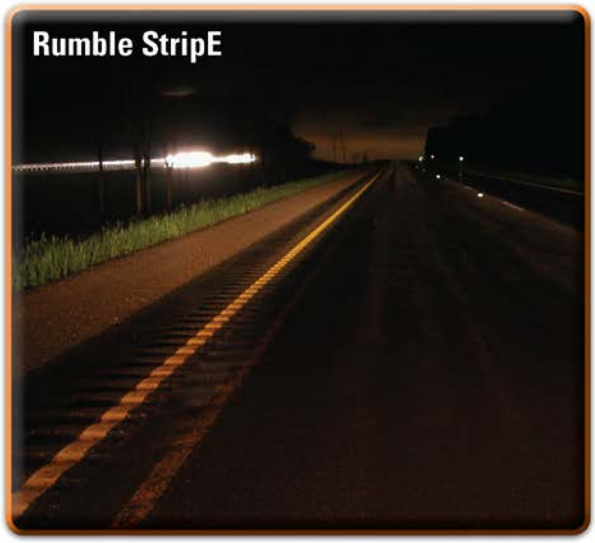
Photo courtesy of http://prairiestate.edu/cdl/

Better maintenance for heavy vehicles

Photo courtesy of http://www.alextech.edu/en/Students/Programs/Transportation/TruckDriving/ProgramFocus.aspx

Roadway Departure

Edge Treatments



Roadside Safety Strategies (2 of 6)

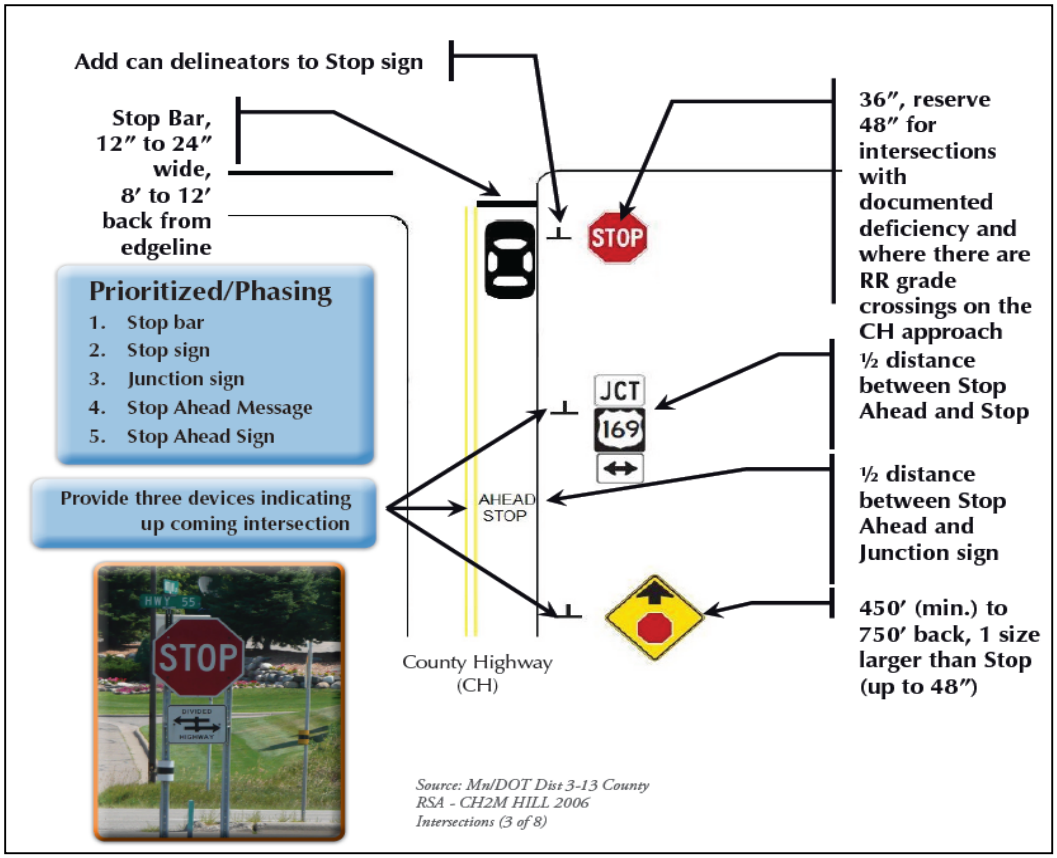
Provide advanced delineation for sharp curves

Photo courtesy of www.fhwa.gov

Photo courtesy of www.ctre.iastate.edu

Intersection

Enhanced Signing and Delineation



Improve visibility of unsignalized intersections by providing lighting

Images courtesy of Missouri Department of Transportation

Work Zones

Enhanced use of stationary and portable changeable message signs in and near work zones

Photo courtesy of www.protectionservices.com

Provide real time work zone information to the traveling public with frequent updates.

Photo courtesy of www.pdpassociates.com

Appendix E
Behavioral and Infrastructure Strategies

Appendix E Contents

Driver Behavior Based Strategies
Infrastructure Based Safety Strategies

DRIVER BEHAVIOR BASED STRATEGIES

Impaired Driving Strategies

Objectives	Strategies	Effectiveness	*Programs and Tactics	*Impact	Have Seen and Like	Haven't Seen but Like	Don't Like
*5.1 A- Eliminate Drinking and Driving	5.1 A2-Require Responsible Beverage Service Policies for Alcohol Servers and Retailers	Proven	Advocate for Server Training and strong management support	Medium			
	5.1 A4-Employ Screening and Brief Interventions	Tried	These do not need to be in health care settings. A screening and brief intervention could be very effective after a DWI arrest (traumatic event)	Medium			
	*5.1 A5- Support Community Programs for Alternative Transportation	Tried	Safe Cab is a partnership between beer distributors, bar owners and community program in Isanti County.	Medium			
5.1 B-Enforce DWI Laws	*5.1 B1-Conduct Regular Well-Publicized DWI Saturations	Proven	A Saturation is a multi-agency, multi-squad car enforcement effort. These agencies and cars enforce the same community or roadway with the number of squad cars proportionate to the community size.	High			
	*5.1 B3-Conduct education and awareness campaign of the targeted enforcement of Zero Tolerance Laws for Drivers Under Age 21	Proven	Publicizing is best done through community events for the local media and a public education campaign in the community about the enforcement. High visibility enforcement is when multiple jurisdictions and/or multiple squads are out at the same time patrolling in brightly colored vests and signage about the enforcement.	Low			
5.1 C- Prosecute, Impose Sanctions on, and Treat DWI Offenders	5.1 C1-Suspend Driver's License Administratively Upon Arrest	Proven	Minnesota revokes driving privileges 7 days after alcohol test failure of 0.08 or above or test refusal.	High			
	5.1 C3—Eliminate Diversion Programs and Plea Bargains	Tried		High			
5.1 D—Control High-BAC and Repeat Offenders	5.1 D2—Require Ignition Interlocks as a Condition for License Reinstatement	Proven	Encourage the criminal justice system to use ignition interlock for monitoring DWI offenders. Multiple alcohol violations on ignition interlock reports are predictive of re-offense and further assessment of the offender's chemical use is needed.	High			
	5.1 D3—Monitor Convicted DWI Offenders Closely	Proven	DWI courts or Intensive Supervision Programs	Low			

Seatbelt Usage Strategies

Objectives	Strategies	Effectiveness	*Programs and Tactics	*Impact	Have Seen and Like	Haven't Seen but Like	Don't Like
8.1 A- Maximize use of occupant restraints by all vehicle occupants	*8.1 A1- Conduct highly publicized enforcement campaigns to maximize restraint use. Specifically, night time belt enforcement saturation.	Proven	Publicizing is best done through community events for the local media and a public education campaign in the community about the enforcement. High visibility enforcement is when multiple jurisdictions and/or multiple squads are out at the same time patrolling in brightly colored vests and signage about the enforcement. Methods for night time enforcement include having multi-agency and multiple squad cars in well lit areas where slow moving vehicles are passing and conducting for a limited time slot.	High			
	6.1 D3—Encourage employers to 1) offer education programs to employees and to 2) enact traffic safety policies with clear consequences for failure to comply.	Proven	Utilize materials and policy statements designed for employers by Network of Employers for Traffic Safety				
8.1 B- Insure that restraints, especially child and infant restraints, are properly used	8.1 B2- Conduct high-profile "child restraint inspection" events at multiple community locations.	Proven		Low			
	8.1 B3- Train advocates to check for proper child restraint use.	Tried		Low			

DRIVER BEHAVIOR BASED STRATEGIES

Distracted Driving Strategies

Objectives	Strategies	Effectiveness	*Programs and Tactics	*Impact	Have Seen and Like	Haven't Seen but Like	Don't Like
Objective 6.1 C—Increase driver awareness of the risks of drowsy and distracted driving and promote driver focus	*6.1 C2—Conduct high visibility enforcement for existing statutes to deter distracted and drowsy driving	Experimental	Publicizing is best done through community events for the local media and a public education campaign in the community about the enforcement. High visibility enforcement is when multiple jurisdictions and/or multiple squads are out at the same time patrolling in brightly colored vests and signage about the enforcement.	High			
	6.1 D3—Encourage employers to 1) offer fatigue management programs to employees working nighttime or rotating shifts and to 2) enact traffic safety policies with clear consequences for failure to comply.	Proven	Utilize materials and policy statements designed for employers by Network of Employers for Traffic Safety	Medium			

Motorcycle Safety Strategies

Objectives	Strategies	Effectiveness	*Programs and Tactics	*Impact	Have Seen and Like	Haven't Seen but Like	Don't Like
11.1 B Reduce the number of motorcycle crashes due to rider impairment	*Publicize and conduct a high visibility enforcement of all laws pertaining to motorcycle riding.	Proven	Publicizing is best done through community events for the local media and a public education campaign in the community about the enforcement. High visibility enforcement is when multiple jurisdictions and/or multiple squads are out at the same time patrolling in brightly colored vests and signage about the enforcement. Methods for night time enforcement include having multi-agency and multiple squad cars in well lit areas where slow moving vehicles are passing and conducting for a limited time slot.	High			
	*11.1 B3-Target law enforcement to specific motorcycle rider impairment behaviors that have been shown to contribute to crashes.	Proven	Motorcycle DWI Detection Guide or Detection of DWI Motorcyclists	Medium			
11.1 C Reduce the number of motorcycle crashes due to unlicensed or untrained motorcycle riders	11.1 C2 Ensure that licensing and rider training programs adequately teach and measure skills and behaviors required for crash avoidance.	Tried	*Training courses provided around the state at Motorcycle Safety Center training sites.	Low			
	11.1 C3 Identify and remove barriers to obtaining a motorcycle endorsement.	Tried	*Licensing laws: Motorcycle Skills Testing Program- From our own survey of participants, we found that approximately 1/3 would not have bothered to obtain their endorsement if it wasn't for this program.	Medium			
11.1 D Increase visibility of riders	11.1 D1 Increase the awareness of the benefit of high-visibility clothing *Rider conspicuity: NHTSA's guidelines for motorcycle safety programs recommend that states educate riders on how to be more conspicuous to other drivers, and we have good resources via www.highviz.org .	Experimental	Publicizing is best done through the local media and a public education campaign in the community.	Low			
11.1 E Reduce the severity of motorcycle crashes	11.1 E1 Increase the use of FMVSS 218 compliant helmets.	Proven	Pass statewide legislation requiring helmets for all riders.	High			

DRIVER BEHAVIOR BASED STRATEGIES

Aggressive Driving Strategies

Objectives	Strategies	Effectiveness	*Programs and Tactics	*Impact	Have Seen and Like	Haven't Seen but Like	Don't Like
4.1 A- Deter aggressive driving in specific populations, including those with a history of such behavior, and at specific locations	4.1 A1- Publicize and conduct high visibility targeted enforcement of speeding and aggressive driving	Tried	Publicizing is best done through community events for the local media and a public education campaign in the community about the enforcement. High visibility enforcement is when multiple jurisdictions and/or multiple squads are out at the same time patrolling in brightly colored vests and signage about the enforcement.	High			
	4.1 A3- Impose sanctions against repeat offenders	Experimental		unknown			

Young Driver Strategies

Objectives	Strategies	Effectiveness	*Programs and Tactics	*Impact	Have Seen and Like	Haven't Seen but Like	Don't Like
1.1B Publicize, enforce, and adjudicate laws pertaining to young drivers	1B -- Publicize and conduct a high visibility enforcement GDL restrictions, cell and texting laws, underage drinking and driving and seatbelt laws	Proven	Publicizing is best done through community events for the local media and a public education campaign in the community about the applicable laws, parental involvement and the enforcement. High visibility enforcement is when multiple jurisdictions and/or multiple squads are out at the same time patrolling in areas frequented by teen drivers in brightly colored vests and signage about the enforcement.	High			
1.1C Assist parents in managing their teens' driving	1C.1-- Engage parents through outreach programs designed to educate parents about teen driving risks, driving tips for their teens, facilitate parental supervision and management of young drivers, encourage selection of safer vehicles for young drivers, with safety as a priority over convenience.	Tried		Medium			

Road Departure Strategies

Objectives	Strategies	Cost to Implement and Operate	Effectiveness	Timeframe for Implementation	Have Seen and Like	Haven't Seen but Like	Don't Like
15.1 A -- Keep vehicles from encroaching on the roadside	15.1 A1 -- Install shoulder rumble strips	Low	Proven*	Short			
	15.1 A2 -- Install enhanced pavement markings, edgeline rumble strips or modified shoulder rumble strips on section with narrow or no paved shoulders	Low	Experimental/ Tried	Short			
	15.1 A3 -- Install centerline rumble strips	Low	Proven*	Short			
	15.1 A4 -- Provide enhanced shoulder or delineation and marking for sharp curves	Low	Tried / Proven	Short			
	15.1 A5 -- Provide improved highway geometry for horizontal curves	High*	Proven	Long			
	15.1 A8 -- Apply shoulder treatments *Eliminate shoulder drop-offs *Safety edge *Widen and/or pave shoulders	Moderate*	Experimental/ Proven	Medium			
	18.1 A1—Install centerline rumble strips for two-lane roads	Low	Tried	Short			
15.1 B -- Minimize the likelihood of crashing into an object or overturning if the vehicle travels off the shoulder	15.1 B1 -- Design safer slopes and ditches to prevent rollovers	Moderate to High*	Proven	Medium			
	15.1 B2 -- Remove/relocate objects in hazardous locations	Moderate to High	Proven	Medium			

Unsignalized Intersection Strategies

Objectives	Strategies	Cost to Implement and Operate	Effectiveness	Timeframe for Implementation	Have Seen and Like	Haven't Seen but Like	Don't Like
17.1 A -- Improve management of access near unsignalized intersections	17.1 A1 -- Implement driveway closure/relocations	Moderate	Tried	Medium			
	17.1 A2 -- Implement driveway turn restrictions	Low	Tried	Short			
17.1 B -- Reduce the frequency and severity of intersection conflicts through geometric design improvements	17.1 B12 -- Restrict or eliminate turning maneuvers by providing channelization or closing median openings	Low	Tried	Short			
	17.1 B13 -- Close or relocate "high-risk" intersections	High	Tried	Long			
	17.1 B16 -- Realign intersection approaches to reduce or eliminate intersection skew	High	Proven	Medium			
	17.1 B17 -- Use indirect left-turn treatments to minimize conflicts at divided highway intersections	Moderate	Tried	Medium			
17.1 C -- Improve sight distance at unsignalized intersections	17.1 C1 -- Clear sight triangle on approaches and in medians by clearing grub, eliminating parking, etc	Low	Tried	Short			
17.1 D -- Improve availability of gaps in traffic and assist drivers in judging gap sizes at unsignalized intersections	17.1 D1 -- Provide an automated real-time system to inform drivers of crossing conflicts and the suitability of available gaps for making turning and crossing maneuvers	Low to Moderate*	Experimental	Medium			
17.1 E -- Improve driver awareness of intersections as viewed from the intersection approach	17.1 E1 -- Improve visibility of intersections by providing enhanced signing and delineation (stop bar, larger regulatory signs, LED stop signs, etc)	Low	Tried	Short			
	17.1 E2 -- Improve visibility of intersections by providing lighting	Low to Moderate*	Proven	Medium			
	17.1 E3 -- Install splitter islands on the minor-road approach to an intersection	Low to Moderate*	Tried	Medium			
	17.1 E6 -- Call attention to the intersection by installing rumble strips on intersection approaches	Low	Tried	Short			

Unsignalized Intersection Strategies

17.1 F -- Choose appropriate intersection traffic control to minimize crash frequency and severity	17.1 F3 -- Provide roundabouts at appropriate locations	High	Proven	Long			
17.1 H -- Reduce operating speeds on specific intersection approaches	17.1 H1 -- Install dynamic speed feedback signs*	Low	Proven	Short			
	17.1 H2 -- Provide traffic calming on intersection approaches through a combination of geometrics and traffic control devices	Moderate	Proven	Medium			

Signalized Intersection Strategies

Objectives	Strategies	Cost to Implement and Operate	Effectiveness	Timeframe for Implementation	Have Seen and Like	Haven't Seen but Like	Don't Like
17.2 A -- Reduce frequency and severity of intersection conflicts through traffic control and operational improvements	17.2 A1 -- Optimize signal operation (phasing/timing, etc)	Low	Tried / Proven	Short			
	17.2 A2 -- Optimize clearance intervals	Low	Proven	Short			
	17.2 A4 -- Employ signal coordination along a corridor or route	Low*	Proven	Medium			
	17.2 A6 -- Improve operation of pedestrian and bicycle facilities at signalized intersections	Low	Tried / Proven	Short			
	17.2 A7 -- Remove unwarranted/unnecessary signal	Low	Proven	Short			
17.2 D -- Improve driver awareness of intersections and signal control	17.2 D2 -- Improve visibility of signals and signs at intersections	Low	Tried	Short			
17.2 E -- Improve driver compliance with traffic control devices	17.2 E2 -- Supplement conventional enforcement of red-light running with Enforcement lights	Low	Tried	Short			
17.2 F -- Improve access management near signalized intersections	17.2 F1 -- Restrict access to properties using driveway closures or turn restrictions	Low	Tried	Short			
	17.2 F2 -- Restrict cross-median access near intersections	Low	Tried	Short			
17.2 G -- Improve safety through other infrastructure treatments	17.2 G5 -- Restrict or eliminate parking on intersection approaches	Low	Proven	Short			

Source: NCHRP 500 Series (2004)

Short (<1 year)
Medium (1-2 years)
Long (>2 years)

Low (<$100,000/intersection)
Moderate ($100,000-$500,000/intersection)
High (>$500,000/intersection)

*Updated by CH2M HILL

Pedestrian Safety Strategies

Objectives	Strategies	Cost to Implement and Operate	Effectiveness	Timeframe for Implementation	Have Seen and Like	Haven't Seen but Like	Don't Like
9.1 A -- Reduce Pedestrian Exposure to Vehicular Traffic	9.1 A1 -- Provide Sidewalks/Walkways and Curb Ramps	Moderate to High	Proven	Long			
	9.1 A2 -- Install or Upgrade Traffic and Pedestrian Signals	Moderate to High	Varies	Medium			
	9.1 A3 -- Construct Pedestrian Refuge Islands and Raised Medians	Moderate to High	Proven	Medium			
	9.1 A4 -- Provide Full/Partial Diverters & Street Closure	Moderate to High	Proven	Medium			
	9.1 A5 -- Install Overpasses/Underpasses	Moderate to High	Proven	Long			
	9.1 A6 -- Install Countdown Timers	Low	Tried	Medium			
	9.1 A7 -- Install Advance Walk Interval	Low	Tried	Short			
9.1 B -- Improve Sight Distance and/or Visibility Between Motor Vehicles and Pedestrians	9.1 B1 -- Provide Crosswalk Enhancements	Low	Varies	Short			
	9.1 B2 -- Implement Lighting/Crosswalk Illumination Measures	Moderate to High	Proven	Medium			
	9.1 B3 -- Eliminate Screening by Physical Objects	Low	Tried	Short			
	9.1 B4 -- Signals to Alert Motorists That Pedestrians are crossing -- HAWK Signal	Moderate	Tried/Experimental	Medium			
	9.1 B5 -- Construct Curb Extensions	Moderate	Tried	Medium to Long			
9.1 C -- Improve Pedestrian and Motorist Safety Awareness and Behavior	9.1 C1 -- Provide Education, Outreach and Training	Moderate	Proven	Short			
	9.1 C2 -- Implement Enforcement Campaigns	Moderate	Tried	Short			

Source: NCHRP 500 Series (2004)

Short (<1 year)
Medium (1-2 years)
Long (>2 years)

Low (<$100,000/intersection)
Moderate ($100,000-$500,000/intersection)
High (>$500,000/intersection)

*Updated by CH2M HILL

Comprehensive List of Bicycle Safety Strategies

Objectives	Strategies	Cost to Implement and Operate	Effectiveness	Timeframe for Implementation	Priority (H, M, L)	Have Seen and Like	Haven't Seen but Like	Don't Like
A -- Reduce bicycle crashes at intersections	A1 -- Improve visibility at intersections	Moderate / High	Tried	Long				
	A2 -- Improve signal timing and detection	Low / Moderate	Tried	Short	High			
	A3 -- Improve signing	Low	Tried	Short				
	A4 -- Improve pavement markings at intersections	Low	Tried	Short				
	A5 -- Improve intersections geometry	High	Tried	Long	Low			
	A6 -- Restrict right turn on red (RTOR) movements	Low	Experiimental	Short	Medium			
	A7 -- Provide an overpass or underpass	High	Tried	Long	High			
	A8 -- Addition of Bike Boxes	Low	Tried	Short	High			
B -- Reduce bicycle crashes along roadways	B1 -- Provide safe bicycle facilites for parallel travel -- On/Off Road Facilities, Shoulders, Dedicated	High	Tried	Long	High			
C -- Reduce motor vehicle speeds	C1 -- Implement traffic calming techniques	High	Proven	Long	Low			
	C2 -- Implement speed enforcement	Low	Tried	Short	Low			
D -- Improve safety awareness and behavior	D1 -- Provide bicyclist skill education	Moderate	Tried	Medium	Medium			
	D2 -- Improve enforcement of bicycle-related laws	Low	Tried	Short	Low			
E -- Increase use of bicycle safety equipment	E1 -- Increase use of bicycle helmets	Low / Moderate	Proven	Medium	Low			
	E2 -- Increase rider and bicycle conspicuity	Low / Moderate	Tried	Medium	Low			
Ensuring Safer Bicycle Travel	10D -- Increase bicycle helmet usage, enhanced enforcement of bicycle laws, and publicize issues.		Advocate for policy change		Low			

Comprehensive List of Segment Safety Strategies -- Rear End Crashes

Objectives	Strategies	Cost to Implement and Operate	Effectiveness	Timeframe for Implement ation	Priority (H, M, L)	Have Seen and Like	Haven't Seen but Like	Don't Like
17.1 A -- Improve management of access near unsignalized intersections	17.1 A1 -- Implement driveway closure/relocations	Moderate	Tried	Medium				
	17.1 A2 -- Implement driveway turn restrictions	Low	Tried	Short				
17.1 B -- Reduce the frequency and severity of intersection conflicts through geometric design improvements	17.1 B1 -- Provide left-turn lanes	Moderate	Proven	Medium	High			
	17.1 B2 -- Provide acceleration lanes	Moderate	Tried	Medium				
	17.1 B3 -- Provide right-turn lanes	Moderate	Proven	Medium				
	17.1 B4 -- 4-lane to TWLT conversion	Moderate	Proven	Medium	High			
	17.1 B5 -- Reduce speed along segment -- Dynamic Speed Feedback Sign	Low	Tried	Short	Medium			

Appendix F
How to Read Data Trees

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

Example
All Crashes %
Severe Crashes %

Step 1: Identify which of the three systems on this branch represents a higher percentage of crashes; 'All Crashes' are shown in black and 'Severe Crashes' are shown in red.

Step 2: Since the Local System (highlighted in yellow) has the majority of crashes, skip to page 4 where the Local System is detailed.

Winnebago County, Illinois
2009 to 2013 Crash Data Overview
State System - Other Principal Arterial & Major Collector Roadways

Note: Cells highlighted in yellow help indicate to the reader that a specific system is experiencing over-representation of both KABCO and K+A crashes. Underlined and bolded crash types are the highest frequency crash type in its respective branch.
The orange lines and boxes that start at the top '5 Year Crashes' box is shown on pages 1, 4 and 6; these are not included on all data trees. It is only shown on this example to help the reader absorb the thought process needed to gain value from the data trees.

Highlighting Criteria:
-State/Local/Unknown System Branch: highlighted if ≥ 55%
-Functional Class Branch: highlighted if ≥ 25%
-Urban/Rural Branch: highlighted if ≥ 55%
-Intersection/Non-Intersection Branch: highlighted if ≥ 55%
-Animal/Non-Animal: highlighted if ≥ 55%
-Roadway Departure Branch: highlighted if ≥ 40%
-On Curve Branch: highlighted if ≥ 25%

5 Year Crashes: 31,232 / 1,065

State System: 9,576 (31%) / 371 (35%)
Local System: 20,681 (66%) / 656 (62%)
Unknown System: 975 (3%) / 38 (4%)

Interstate: 948 (10%) / 28 (8%)
Freeway and Expressway: 350 (4%) / 11 (3%)
Other Principal Arterial: 7,651 (80%) / 294 (79%)
Minor Arterial: 485 (5%) / 28 (8%)
Major Collector: 117 (1%) / 9 (2%)
Unknown: 25 (0%) / 1 (3%)

Urban: 7,457 (97%) / 279 (95%)
Rural: 194 (3%) / 15 (5%)

Non-Intersection: 2,436 (33%) / 105 (38%)
Intersection: 5,021 (67%) / 174 (62%)
Animal: 69 (36%) / 0 (0%)
Non-Animal: 125 (64%) / 15 (100%)

Roadway Departure: 432 (18%) / 51 (49%)
Signalized: 3,283 (65%) / 113 (65%)
Unsignalized: 1,674 (33%) / 58 (33%)
Other/Unknown: 64 (1%) / 3 (2%)

On Curve: 92 (21%) / 12 (24%)

ANG	86 4%	3 3%
ANM	117 5%	1 1%
FO	317 13%	28 **27%**
HO	33 1%	10 10%
Other	160 7%	4 4%
OVT	48 2%	12 11%
PED	44 2%	20 19%
PDC	15 1%	2 2%
RE	959 **39%**	16 15%
SOD	34 1%	1 1%
SSD	389 16%	3 3%
TUR	234 10%	5 5%

ANG	674 21%	39 35%
ANM	0 0%	0 0%
FO	86 3%	6 5%
HO	11 0%	3 3%
Other	25 1%	1 1%
OVT	7 0%	3 3%
PED	29 1%	3 3%
PDC	17 1%	3 3%
RE	1,173 36%	13 12%
SOD	10 0%	0 0%
SSD	57 2%	0 0%
TUR	1,194 **36%**	42 **37%**

ANG	227 14%	15 26%
ANM	1 0%	0 0%
FO	66 4%	5 9%
HO	9 1%	0 0%
Other	10 1%	0 0%
OVT	5 0%	1 2%
PED	17 1%	3 5%
PDC	24 1%	3 5%
RE	791 **47%**	18 **31%**
SOD	12 1%	0 0%
SSD	69 4%	1 2%
TUR	443 26%	12 21%

Non-Intersection: 84 (67%) / 10 (67%)
Roadway Departure: 44 (52%) / 5 (50%)
On Curve: 11 (25%) / 2 (40%)

ANG	0 0%	0 0%
FO	28 **33%**	2 **20%**
HO	2 2%	1 10%
Other	10 12%	1 10%
OVT	11 13%	2 **20%**
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	15 18%	2 **20%**
SOD	3 4%	0 0%
SSD	13 15%	1 10%
TUR	2 2%	1 10%

Intersection: 41 (33%) / 5 (33%)
Signalized: 16 (39%) / 1 (20%)
Unsignalized: 24 (59%) / 4 (80%)
Other/Unknown: 1 (2%) / 0 (0%)

ANG	2 13%	1 **100%**
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	12 **75%**	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	2 13%	0 0%

ANG	7 **29%**	4 **100%**
FO	5 21%	0 0%
HO	0 0%	0 0%
Other	1 4%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	6 25%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	5 21%	0 0%

Urban: 41 (35%) / 2 (22%)
Rural: 76 (65%) / 7 (78%)

Non-Intersection: 25 (61%) / 0 (0%)
Intersection: 16 (39%) / 2 (100%)
Animal: 26 (34%) / 0 (0%)
Non-Animal: 50 (66%) / 7 (100%)

Roadway Departure: 6 (24%) / 0 (0%)
Signalized: 2 (13%) / 0 (0%)
Unsignalized: 14 (88%) / 2 (100%)
Other/Unknown: 0 (0%) / 0 (0%)

On Curve: 3 (50%) / 0 (0%)

ANG	1 **50%**	0 0%
ANM	0 0%	0 0%
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	0 0%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	1 **50%**	0 0%

ANG	6 **43%**	1 **50%**
ANM	0 0%	0 0%
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	1 7%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	4 29%	1 **50%**
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	3 21%	0 0%

ANG	1 4%	0 0%
ANM	14 **56%**	0 0%
FO	5 20%	0 0%
HO	0 0%	0 0%
Other	1 4%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	2 8%	0 0%
SOD	1 4%	0 0%
SSD	0 0%	0 0%
TUR	1 4%	0 0%

Non-Intersection: 30 (60%) / 6 (86%)
Roadway Departure: 23 (77%) / 5 (83%)
On Curve: 10 (43%) / 2 (40%)

ANG	0 0%	0 0%
FO	14 **47%**	2 **33%**
HO	1 3%	0 0%
Other	2 7%	1 17%
OVT	6 20%	2 **33%**
PED	1 3%	0 0%
PDC	0 0%	0 0%
RE	3 10%	0 0%
SOD	2 7%	1 17%
SSD	1 3%	0 0%
TUR	0 0%	0 0%

Intersection: 20 (40%) / 1 (14%)
Signalized: 0 (0%) / 0 (0%)
Unsignalized: 20 (100%) / 1 (100%)
Other/Unknown: 0 (0%) / 0 (0%)

ANG	0 0%	0 0%
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	0 0%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	0 0%	0 0%

ANG	7 **35%**	1 **100%**
FO	2 10%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	1 5%	0 0%
RE	4 20%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	6 30%	0 0%

Collision Type Abbreviations-
ANG: Angle
ANM: Animal
FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
OVT: Overturned
PED: Pedestrian
PDC: Pedalcyclist
RE: Rear End
SOD: Sideswipe Opposite Direction
SSD: Sideswipe Same Direction
T: Turning

Query definitions for 'Roadway Departure' and 'On Curve':
Roadway Departure: FO/OVT/HO/SOD
On Curve: Road Departure Crashes on Level Curve/Curve on Grade/Curve on Hillcrest

Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

Intersection crashes are defined as crashes coded as intersection related by the reporting police officer. Traffic control devices are considered 'Signalized' if the code is equal to '3 - Traffic Signal'. 'Non-Signalized' codes is equal to '1 - No Controls', '2 - Stop Sign/Flasher' or '4 - Yield'. 'Other/Unknown' traffic control codes are the remaining inputs.

State System/Local System/Unknown System is defined by the Class of Trafficway code in the Illinois Roadway Inventory System. Crashes are considered 'Local' if the Class of Trafficway code is equal to '3 - County and Local Roads Rural' or '8 - City Streets Urban'. 'Unknown Systems' are equal to '0 - Unknown Urban/Rural'. All other entries are 'State System'.

Results of the analyses are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for years 2009 to 2012 was received from IDOT on November 26, 2013, and crash data for 2013 was received from IDOT on December 4, 2014. The data was used "as is" for analysis purposes and should be interpreted accordingly.

Illinois Department of Transportation
CH2MHILL
Draft - March 2015

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

Winnebago County, Illinois
2009 to 2013 Crash Data Overview
State System - Interstate & Freeway and Expressway Roadways

Example
All Crashes %
Severe Crashes %

5 Year Crashes
31,232
1,065

State System
9,576 31%
371 35%

Local System
20,681 66%
656 62%

Unknown System
975 3%
38 4%

Interstate
948 10%
28 8%

Freeway and Expressway
350 4%
11 3%

Other Principal Arterial
7,651 80%
294 79%

Minor Arterial
485 5%
28 8%

Major Collector
117 1%
9 2%

Unknown
25 0%
1 0%

Urban
914 96%
26 93%

Rural
34 4%
2 7%

Urban
350 100%
11 100%

Rural
0 0%
0 0%

Non-Intersection
697 76%
16 62%

Intersection
217 24%
10 38%

Animal
8 24%
0 0%

Non-Animal
26 76%
2 100%

Non-Intersection
286 82%
10 91%

Intersection
64 18%
1 9%

Animal
0 0%
0 0%

Non-Animal
0 0%
0 0%

Roadway Departure
225 32%
7 44%

Signalized
95 44%
8 80%

Unsignalized
103 47%
1 10%

Other/Unknown
19 9%
1 10%

Roadway Departure
115 40%
7 70%

Signalized
14 22%
0 0%

Unsignalized
49 77%
1 100%

Other/Unknown
1 2%
0 0%

On Curve
50 22%
2 29%

On Curve
29 25%
1 14%

ANG	2 0%	0 0%
ANM	55 8%	0 0%
FO	204 **29%**	3 19%
HO	5 1%	2 13%
Other	54 8%	0 0%
OVT	16 2%	2 13%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	160 23%	4 25%
SOD	0 0%	0 0%
SSD	199 29%	5 **31%**
TUR	2 0%	0 0%

ANG	8 8%	1 13%
ANM	0 0%	0 0%
FO	2 2%	0 0%
HO	0 0%	0 0%
Other	1 1%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	27 28%	1 13%
SOD	1 1%	0 0%
SSD	2 2%	0 0%
TUR	54 **57%**	6 **75%**

ANG	4 4%	0 0%
ANM	0 0%	0 0%
FO	16 16%	0 0%
HO	1 1%	0 0%
Other	2 2%	0 0%
OVT	1 1%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	36 **35%**	0 0%
SOD	0 0%	0 0%
SSD	34 33%	1 **100%**
TUR	9 9%	0 0%

ANG	2 1%	0 0%
ANM	58 20%	0 0%
FO	85 **30%**	2 20%
HO	1 0%	1 10%
Other	29 10%	1 10%
OVT	28 10%	4 40%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	49 17%	1 10%
SOD	1 0%	0 0%
SSD	32 11%	1 10%
TUR	1 0%	0 0%

ANG	0 0%	0 0%
ANM	0 0%	0 0%
FO	1 7%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	4 29%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	9 **64%**	0 0%

ANG	0 0%	0 0%
ANM	0 0%	0 0%
FO	9 18%	0 0%
HO	1 2%	0 0%
Other	5 10%	0 0%
OVT	1 2%	1 **100%**
PED	0 0%	0 0%
PDC	1 2%	0 0%
RE	20 **41%**	0 0%
SOD	0 0%	0 0%
SSD	7 14%	0 0%
TUR	5 10%	0 0%

Non-Intersection
24 92%
2 100%

Intersection
2 8%
0 0%

Roadway Departure
2 8%
0 0%

Signalized
0 0%
0 0%

Unsignalized
2 100%
0 0%

Other/Unknown
0 0%
0 0%

On Curve
0 0%
0 0%

ANG	0 0%	0 0%
FO	2 8%	0 0%
HO	0 0%	0 0%
Other	4 17%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	9 **38%**	1 **50%**
SOD	0 0%	0 0%
SSD	9 **38%**	1 **50%**
TUR	0 0%	0 0%

ANG	0 0%	0 0%
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	0 0%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	0 0%	0 0%

ANG	0 0%	0 0%
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	1 **50%**	0 0%
SOD	0 0%	0 0%
SSD	1 **50%**	0 0%
TUR	0 0%	0 0%

Non-Intersection
0 0%
0 0%

Roadway Departure
0 0%
0 0%

On Curve
0 0%
0 0%

ANG	0 0%	0 0%
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	0 0%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	0 0%	0 0%

Intersection
0 0%
0 0%

Signalized
0 0%
0 0%

Unsignalized
0 0%
0 0%

Other/Unknown
0 0%
0 0%

ANG	0 0%	0 0%
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	0 0%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	0 0%	0 0%

Collision Type Abbreviations-
ANG: Angle
ANM: Animal
FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
OVT: Overturned
PED: Pedestrian
PDC: Pedalcyclist
RE: Rear End
SOD: Sideswipe Opposite Direction
SSD: Sideswipe Same Direction
T: Turning

Query definitions for 'Roadway Departure' and 'On Curve':
Roadway Departure: FO/OVT/HO/SOD
On Curve: Road Departure Crashes on Level Curve/Curve on Grade/Curve on Hillcrest

Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

Intersection crashes are defined as crashes coded as intersection related by the reporting police officer. Traffic control devices are considered 'Signalized' if the code is equal to '3 - Traffic Signal'. 'Non-Signalized' codes is equal to '1 - No Controls', '2 - Stop Sign/Flasher' or '4 - Yield'. 'Other/Unknown' traffic control codes are the remaining inputs.

State System/Local System/Unknown System is defined by the Class of Trafficway code in the Illinois Roadway Inventory System. Crashes are considered 'Local' if the Class of Trafficway code is equal to '3 - County and Local Roads Rural' or '8 - City Streets Urban'. 'Unknown Systems' are equal to '0 - Unknown Urban/Rural'. All other entries are 'State System'.

Results of the analyses are based on data that was received from the Illinois Department of Transportation. Crash data represents years 2009 to 2013 and was obtained from the state police and other enforcement agencies. Crash data for years 2009 to 2012 was received from IDOT on November 26, 2013, and crash data for 2013 was received from IDOT on December 4, 2014.
The data was used "as is" for analysis purposes and should be interpreted accordingly.

Illinois Department of Transportation

CH2MHILL

Draft - March 2015

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

Example	
All Crashes	%
Severe Crashes	%

Winnebago County, Illinois
2009 to 2013 Crash Data Overview
State System - Minor Arterial Roadways

5 Year Crashes
31,232
1,065

State System
9,576 31%
371 35%

Local System
20,681 66%
656 62%

Unknown System
975 3%
38 4%

Interstate
948 10%
28 8%

Freeway and Expressway
350 4%
11 3%

Other Principal Arterial
7,651 80%
294 79%

Minor Arterial
485 5%
28 8%

Major Collector
117 1%
9 2%

Unknown
25 0%
1 0%

Urban
372 77%
13 46%

Rural
113 23%
15 54%

Non-Intersection
130 35%
5 38%

Intersection
242 65%
8 62%

Animal
29 26%
0 0%

Non-Animal
84 74%
15 100%

Roadway Departure
32 25%
2 40%

Signalized
128 53%
2 25%

Unsignalized
111 46%
6 75%

Other/Unknown
3 1%
0 0%

On Curve
8 25%
0 0%

ANG	4 3%	0 0%
ANM	14 11%	0 0%
FO	27 21%	0 0%
HO	1 1%	1 20%
Other	6 5%	0 0%
OVT	2 2%	1 20%
PED	4 3%	0 0%
PDC	2 2%	0 0%
RE	31 **24%**	2 40%
SOD	2 2%	0 0%
SSD	11 8%	0 0%
TUR	26 20%	1 20%

ANG	19 15%	1 **50%**
ANM	0 0%	0 0%
FO	8 6%	0 0%
HO	2 2%	0 0%
Other	0 0%	0 0%
OVT	1 1%	0 0%
PED	2 2%	0 0%
PDC	0 0%	0 0%
RE	54 **42%**	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	42 33%	1 **50%**

ANG	15 14%	1 17%
ANM	0 0%	0 0%
FO	6 5%	1 17%
HO	0 0%	0 0%
Other	4 4%	0 0%
OVT	1 1%	0 0%
PED	0 0%	0 0%
PDC	5 5%	0 0%
RE	41 **37%**	1 17%
SOD	0 0%	0 0%
SSD	7 6%	0 0%
TUR	32 29%	3 **50%**

Non-Intersection
42 50%
9 60%

Intersection
42 50%
6 40%

Roadway Departure
33 79%
7 78%

Signalized
0 0%
0 0%

Unsignalized
42 100%
6 100%

Other/Unknown
0 0%
0 0%

On Curve
14 42%
5 71%

ANG	0 0%	0 0%
FO	20 **48%**	4 **44%**
HO	2 5%	1 11%
Other	4 10%	1 11%
OVT	8 19%	1 11%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	3 7%	1 11%
SOD	3 7%	1 11%
SSD	0 0%	0 0%
TUR	2 5%	0 0%

ANG	0 0%	0 0%
FO	0 0%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	0 0%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	0 0%	0 0%

ANG	21 **50%**	3 **50%**
FO	8 19%	1 17%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	2 5%	1 17%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	3 7%	0 0%
SOD	0 0%	0 0%
SSD	0 0%	0 0%
TUR	8 19%	1 17%

Collision Type Abbreviations-
ANG: Angle
ANM: Animal
FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
OVT: Overturned
PED: Pedestrian
PDC: Pedalcyclist
RE: Rear End
SOD: Sideswipe Opposite Direction
SSD: Sideswipe Same Direction
T: Turning

Query definitions for 'Roadway Departure' and 'On Curve':

Roadway Departure: FO/OVT/HO/SOD

On Curve: Road Departure Crashes on Level Curve/Curve on Grade/Curve on Hillcrest

Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

Intersection crashes are defined as crashes coded as intersection related by the reporting police officer. Traffic control devices are considered 'Signalized' if the code is equal to '3 - Traffic Signal'. 'Non-Signalized' codes is equal to '1 - No Controls', '2 - Stop Sign/Flasher' or '4 - Yield'. 'Other/Unknown' traffic control codes are the remaining inputs.

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Illinois Department of Transportation

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Draft - March 2015

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

Example
All Crashes %
Severe Crashes %

Winnebago County, Illinois
2009 to 2013 Crash Data Overview
Local System - Other Principal Arterial & Major Collector Roadways

Step 3: Identify which Functional Class system from the Local System branch has the highest percentage of crashes --> Minor Arterial

Since the Minor Arterial branch is of interest, skip to page 6 where this branch is detailed for the Local System.

5 Year Crashes: 31,232 / 1,065

State System: 9,576 (31%) / 371 (35%)

Local System: 20,681 (66%) / 656 (62%)

Unknown System: 975 (3%) / 38 (4%)

Local System:

- Local Road or Street: 5,141 (25%) / 123 (19%)
- Minor Collector: 64 (0%) / 4 (1%)
- Other Principal Arterial: 4,298 (21%) / 141 (21%)
- Minor Arterial: 7,266 (35%) / 239 (36%)
- Major Collector: 3,386 (16%) / 133 (20%)
- Unknown: 526 (3%) / 16 (2%)

Other Principal Arterial

Urban: 3,746 (87%) / 119 (84%)

Rural: 552 (13%) / 22 (16%)

Urban:

- Non-Intersection: 1,332 (36%) / 42 (35%)
  - Roadway Departure: 188 (14%) / 18 (43%)
    - On Curve: 32 (17%) / 3 (17%)

ANG	34 3%	3 7%
ANM	21 2%	0 0%
FO	130 10%	9 **21%**
HO	23 2%	2 5%
Other	55 4%	1 2%
OVT	14 1%	3 7%
PED	13 1%	6 14%
PDC	4 0%	1 2%
RE	693 **52%**	6 14%
SOD	21 2%	4 10%
SSD	201 15%	3 7%
TUR	123 9%	4 10%

- Intersection: 2,414 (64%) / 77 (65%)
  - Signalized: 1,557 (64%) / 55 (71%)

ANG	197 13%	12 22%
ANM	0 0%	0 0%
FO	43 3%	3 5%
HO	2 0%	1 2%
Other	5 0%	0 0%
OVT	0 0%	0 0%
PED	5 0%	2 4%
PDC	8 1%	0 0%
RE	539 35%	11 20%
SOD	8 1%	0 0%
SSD	20 1%	0 0%
TUR	730 **47%**	26 **47%**

  - Unsignalized: 827 (34%) / 18 (23%)

ANG	74 9%	3 17%
ANM	0 0%	0 0%
FO	27 3%	0 0%
HO	6 1%	0 0%
Other	15 2%	1 6%
OVT	2 0%	0 0%
PED	2 0%	1 6%
PDC	4 0%	0 0%
RE	451 **55%**	6 **33%**
SOD	0 0%	0 0%
SSD	27 3%	1 6%
TUR	219 26%	6 **33%**

  - Other/Unknown: 30 (1%) / 4 (5%)

Rural:

- Animal: 10 (2%) / 0 (0%)
- Non-Animal: 542 (98%) / 22 (100%)
  - Non-Intersection: 139 (26%) / 7 (32%)
    - Roadway Departure: 33 (24%) / 2 (29%)
      - On Curve: 4 (12%) / 1 (50%)

ANG	1 1%	1 14%
FO	26 19%	2 29%
HO	0 0%	0 0%
Other	15 11%	3 **43%**
OVT	4 3%	0 0%
PED	1 1%	0 0%
PDC	0 0%	0 0%
RE	61 **44%**	1 14%
SOD	3 2%	0 0%
SSD	20 14%	0 0%
TUR	8 6%	0 0%

  - Intersection: 403 (74%) / 15 (68%)
    - Signalized: 333 (83%) / 10 (67%)

ANG	44 13%	4 **40%**
FO	2 1%	0 0%
HO	0 0%	0 0%
Other	1 0%	0 0%
OVT	1 0%	0 0%
PED	0 0%	0 0%
PDC	2 1%	0 0%
RE	128 38%	2 20%
SOD	3 1%	0 0%
SSD	3 1%	0 0%
TUR	149 **45%**	4 **40%**

    - Unsignalized: 68 (17%) / 5 (33%)

ANG	8 12%	0 0%
FO	7 10%	0 0%
HO	1 1%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	29 **43%**	2 40%
SOD	0 0%	0 0%
SSD	5 7%	0 0%
TUR	18 26%	3 **60%**

    - Other/Unknown: 2 (0%) / 0 (0%)

Minor Arterial

Urban: 2,485 (73%) / 74 (56%)

Rural: 901 (27%) / 59 (44%)

Urban:

- Non-Intersection: 1,366 (55%) / 45 (61%)
  - Roadway Departure: 351 (26%) / 27 (60%)
    - On Curve: 89 (25%) / 13 (48%)

ANG	77 6%	1 2%
ANM	37 3%	0 0%
FO	273 20%	20 44%
HO	23 2%	1 2%
Other	369 **27%**	7 16%
OVT	19 1%	5 11%
PED	27 2%	8 18%
PDC	7 1%	0 0%
RE	263 19%	2 4%
SOD	36 3%	1 2%
SSD	96 7%	0 0%
TUR	139 10%	0 0%

- Intersection: 1,119 (45%) / 29 (39%)
  - Signalized: 169 (15%) / 1 (3%)

ANG	79 **47%**	0 0%
ANM	0 0%	0 0%
FO	3 2%	0 0%
HO	0 0%	0 0%
Other	3 2%	0 0%
OVT	0 0%	0 0%
PED	2 1%	0 0%
PDC	2 1%	0 0%
RE	25 15%	0 0%
SOD	0 0%	0 0%
SSD	1 1%	0 0%
TUR	54 32%	1 **100%**

  - Unsignalized: 940 (84%) / 27 (93%)

ANG	363 **39%**	11 **41%**
ANM	0 0%	0 0%
FO	51 5%	3 11%
HO	3 0%	0 0%
Other	16 2%	0 0%
OVT	4 0%	1 4%
PED	10 1%	2 7%
PDC	20 2%	2 7%
RE	190 20%	2 7%
SOD	4 0%	1 4%
SSD	18 2%	0 0%
TUR	261 28%	5 19%

  - Other/Unknown: 10 (1%) / 1 (3%)

Rural:

- Animal: 225 (25%) / 2 (3%)
- Non-Animal: 676 (75%) / 57 (97%)
  - Non-Intersection: 427 (63%) / 35 (61%)
    - Roadway Departure: 275 (64%) / 21 (60%)
      - On Curve: 69 (25%) / 10 (48%)

ANG	6 1%	0 0%
FO	182 **43%**	11 **31%**
HO	7 2%	0 0%
Other	60 14%	6 17%
OVT	67 16%	7 20%
PED	3 1%	2 6%
PDC	1 0%	0 0%
RE	42 10%	2 6%
SOD	19 4%	3 9%
SSD	10 2%	0 0%
TUR	30 7%	4 11%

  - Intersection: 249 (37%) / 22 (39%)
    - Signalized: 24 (10%) / 0 (0%)

ANG	5 21%	0 0%
FO	1 4%	0 0%
HO	0 0%	0 0%
Other	0 0%	0 0%
OVT	0 0%	0 0%
PED	0 0%	0 0%
PDC	0 0%	0 0%
RE	2 8%	0 0%
SOD	0 0%	0 0%
SSD	1 4%	0 0%
TUR	15 **63%**	0 0%

    - Unsignalized: 222 (89%) / 22 (100%)

ANG	86 **39%**	11 **50%**
FO	35 16%	1 5%
HO	0 0%	0 0%
Other	4 2%	1 5%
OVT	4 2%	2 9%
PED	1 0%	0 0%
PDC	2 1%	1 5%
RE	29 13%	2 9%
SOD	1 0%	0 0%
SSD	4 2%	0 0%
TUR	56 25%	4 18%

    - Other/Unknown: 3 (1%) / 0 (0%)

Collision Type Abbreviations-
ANG: Angle
ANM: Animal
FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
OVT: Overturned
PED: Pedestrian
PDC: Pedalcyclist
RE: Rear End
SOD: Sideswipe Opposite Direction
SSD: Sideswipe Same Direction
T: Turning

Query definitions for 'Roadway Departure' and 'On Curve':
Roadway Departure: FO/OVT/HO/SOD
On Curve: Road Departure Crashes on Level Curve/Curve on Grade/Curve on Hillcrest

Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

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Illinois Department of Transportation

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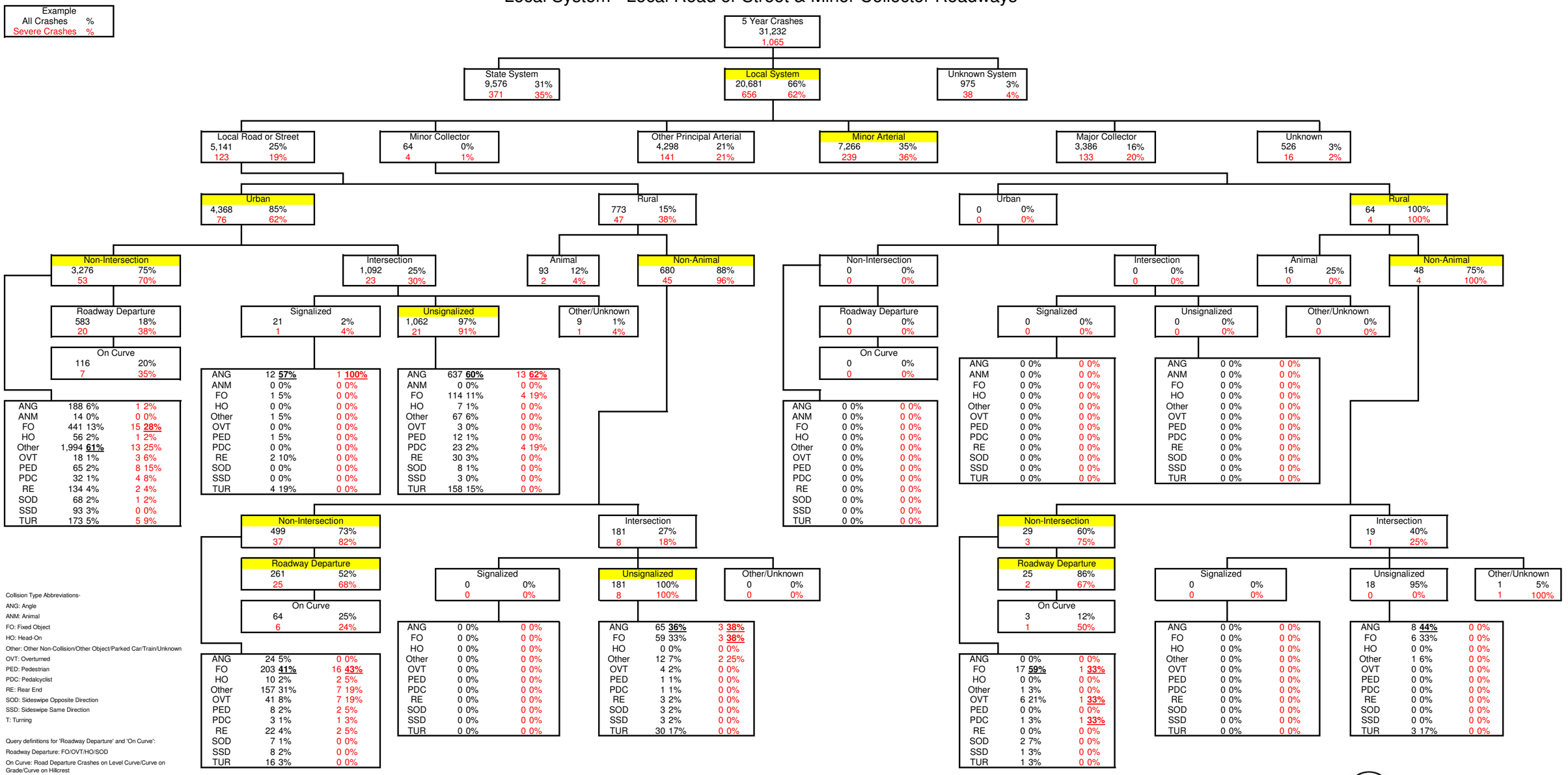
Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

Winnebago County, Illinois
2009 to 2013 Crash Data Overview
Local System - Local Road or Street & Minor Collector Roadways



Collision Type Abbreviations-
ANG: Angle
ANM: Animal
FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
OVT: Overturned
PED: Pedestrian
PDC: Pedalcyclist
RE: Rear End
SOD: Sideswipe Opposite Direction
SSD: Sideswipe Same Direction
T: Turning

Query definitions for 'Roadway Departure' and 'On Curve':
Roadway Departure: FO/OVT/HO/SOD
On Curve: Road Departure Crashes on Level Curve/Curve on Grade/Curve on Hillcrest

Urban and Rural designations are defined by the Class of Trafficway code in the Illinois Roadway Inventory System.

Intersection crashes are defined as crashes coded as intersection related by the reporting police officer. Traffic control devices are considered 'Signalized' if the code is equal to '3 - Traffic Signal'. 'Non-Signalized' codes is equal to '1 - No Controls', '2 - Stop Sign/Flasher' or '4 - Yield'. 'Other/Unknown' traffic control codes are the remaining inputs.

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Winnebago County, Illinois
2009 to 2013 Crash Data Overview
Local System - Minor Arterial Roadways

Source: IDOT Crash Extracts 2009 - 2013 Crash Data
'All crashes' include fatal, all injury and property damage only crashes
'Severe crashes' include fatal and incapacitating injury crashes only (K + A)

Example	
All Crashes	%
Severe Crashes	%

Step 4: Identify if more Local, Minor Arterial system crashes occurred in Urban or Rural areas. In this case, roughly 80 percent of KABCO and K+A crashes occurred in Urban areas.

Step 5: Identify if Local, Minor Arterial, Urban area crashes occurred more frequently at intersections or non-intersection locations.

In this case, it is fairly balanced between KABCO and K+A crashes. Since 97 K+A crashes versus 95 K+A crashes is very stable, one might use the KABCO crashes to determine which branch should be followed next.

Since 55% of KABCO crashes are intersection related, this branch will be followed in Step 6.

Step 6: Identify if Local, Minor Arterial, Urban, Intersection related crashes occurred more frequently at Signalized Intersections or Unsignalized Intersections. In this case, it again appears that KABCO crashes will be the deciding factor of which branch to follow.

Step 7: Identify which crash types are most frequent; abbreviations are defined in the bottom left of every page.

Step 8: Propose/implement countermeasures that are appropriate for the most frequent crash types and the system they are occurring.

5 Year Crashes	
31,232	
1,065	

State System	
9,576	31%
371	35%

Local System	
20,681	66%
656	62%

Unknown System	
975	3%
38	4%

Local Road or Street	
5,141	25%
123	19%

Minor Collector	
64	0%
4	1%

Other Principal Arterial	
4,298	21%
141	21%

Minor Arterial	
7,266	35%
239	36%

Major Collector	
3,386	16%
133	20%

Unknown	
526	3%
16	2%

Urban	
6,044	83%
192	80%

Rural	
1,222	17%
47	20%

Non-Intersection	
2,709	45%
97	51%

Intersection	
3,335	55%
95	49%

Animal		
99	8%	
1	2%	

Non-Animal		
1,123	92%	
46	98%	

Roadway Departure		
574	21%	
46	47%	

Signalized		
1,388	42%	
44	46%	

Unsignalized		
1,894	57%	
46	48%	

Other/Unknown		
53	2%	
5	5%	

On Curve		
117	20%	
15	33%	

ANG	147	5%	5 5%
ANM	36	1%	0 0%
FO	430	16%	28 29%
HO	52	2%	5 5%
Other	364	13%	9 9%
OVT	40	1%	11 11%
PED	50	2%	13 13%
PDC	19	1%	3 3%
RE	942	**35%**	10 10%
SOD	52	2%	2 2%
SSD	311	11%	2 2%
TUR	266	10%	9 9%

ANG	350	25%	16 **36%**
ANM	0	0%	0 0%
FO	40	3%	1 2%
HO	4	0%	0 0%
Other	8	1%	0 0%
OVT	2	0%	0 0%
PED	10	1%	1 2%
PDC	11	1%	2 5%
RE	355	26%	11 25%
SOD	5	0%	0 0%
SSD	32	2%	0 0%
TUR	571	**41%**	13 30%

ANG	504	27%	13 28%
ANM	0	0%	0 0%
FO	96	5%	3 7%
HO	7	0%	0 0%
Other	33	2%	0 0%
OVT	7	0%	0 0%
PED	17	1%	1 2%
PDC	16	1%	4 9%
RE	612	**32%**	5 11%
SOD	8	0%	0 0%
SSD	56	3%	0 0%
TUR	538	28%	20 **43%**

Non-Intersection	
533	47%
25	54%

Intersection	
590	53%
21	46%

Roadway Departure	
202	38%
17	68%

Signalized	
140	24%
4	19%

Unsignalized	
449	76%
17	81%

1	0%	
0	0%	

On Curve	
55	27%
3	18%

ANG	19	4%	1 4%
FO	143	27%	12 **48%**
HO	17	3%	3 12%
Other	60	11%	2 8%
OVT	23	4%	2 8%
PED	2	0%	1 4%
PDC	5	1%	1 4%
RE	177	**33%**	0 0%
SOD	19	4%	0 0%
SSD	24	5%	2 8%
TUR	44	8%	1 4%

ANG	27	19%	1 25%
FO	1	1%	0 0%
HO	1	1%	0 0%
Other	0	0%	0 0%
OVT	0	0%	0 0%
PED	1	1%	1 25%
PDC	1	1%	0 0%
RE	49	35%	0 0%
SOD	0	0%	0 0%
SSD	2	1%	0 0%
TUR	58	**41%**	2 **50%**

ANG	83	18%	7 **41%**
FO	32	7%	1 6%
HO	2	0%	0 0%
Other	14	3%	0 0%
OVT	10	2%	2 12%
PED	2	0%	0 0%
PDC	4	1%	0 0%
RE	159	**35%**	3 18%
SOD	3	1%	0 0%
SSD	9	2%	0 0%
TUR	131	29%	4 24%

Collision Type Abbreviations-
ANG: Angle
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FO: Fixed Object
HO: Head-On
Other: Other Non-Collision/Other Object/Parked Car/Train/Unknown
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PED: Pedestrian
PDC: Pedalcyclist
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