Cherokee Nation

Department of Transportation

Highway Infrastructure Safety Plan

FROM ONE FIRE TO A PROUD FUTURE

2016

For Principal Chief

12/13/16
Approval Date

TABLE OF CONTENTS

PREFACE

This document was prepared by the Cherokee Nation Department of Transportation and represents the "highway infrastructure portion" of a Highway Safety Plan for the 14-County Jurisdiction of the Cherokee Nation. The purpose of this document is to comply with highway safety statutes of the Federal Highway Administration (FHWA) for the planning and development of future highway safety projects. It is also intended to build upon existing safety management components employed by the Department's roadway project rating system and to facilitate the inclusion of additional highway safety information into the planning process. This document will serve as a supplement to the Nation's existing *Long-Range Transportation Plan* and, where appropriate, provide further guidance to the Nation's roadway and safety improvement programs.

The opportunity to prepare this highway safety plan is a direct result of recent legislation and subsequent grant funding from the FHWA. Beginning with the enactment of the "Moving Ahead for Progress in the 21st Century" (MAP-21) Act in 2012, Congress established a 2% set aside from the Tribal Transportation Program (TTP) for purposes of addressing highway safety issues in Indian country. Prior to that time, the Highway Safety Program represented the only dedicated source of highway safety funding for tribal governments; a program woefully underfunded and limited to enforcement and occupant safety. In 2015, Congress replaced MAP-21 with the Fixing Americas Surface Transportation (FAST) Act, which retained the tribal 2% set aside but limits the use of safety funding to highway infrastructure projects only.

The development of this highway safety plan is predicated upon the need to establish long-term goals and objectives, improve funding opportunities, and to interact with other highway safety agencies. As such, the primary goal of this document is to reduce highway-related injuries and fatalities within the Cherokee Nation. It is also expected to identify highway safety issues that will justify future safety project applications solicited by the FHWA. At the state level, it is anticipated that the findings and recommendations of this plan will be acknowledged and utilized by the State of Oklahoma in its future highway safety endeavors.

INTRODUCTION

Highway safety planning is the mechanism used by governmental agencies to institute policies and programs that will reduce the number of highway fatalities, vehicle crashes, and exposure to hazardous situations for the traveling public. To address these concerns, the FHWA developed and introduced the following safety initiatives: Engineering, Education, Enforcement, and Emergency Services, better known as the "4E's". These 4E's were implemented prior to the FAST Act, which allowed for the planning and programming of highway safety projects beyond the "engineering" category. The FHWA-funded Highway Safety Program now focuses on the planning and programing of projects that are consistent with highway infrastructure-type improvements in accordance with 23 U.S.C. §148. Therefore, this document has two objectives: 1) to provide the Department of Transportation with a plan for future highway infrastructure safety improvements and, 2) to provide the framework for the remaining 4E's allowing others to develop policies and programs aimed at improving highway safety from a non-infrastructure standpoint.

Active coordination and participation are keys to success. For that reason, the Department of Transportation plans to encourage other departments of the Cherokee Nation to participate in highway safety efforts such as education, enforcement, and emergency services. The availability of information to address concerns like passenger safety, impaired driving, and other behavioral issues will help these departments to participate in the reduction of vehicle injuries and highway related fatalities.

In order to address vehicle injuries and highway related fatalities, this document employs information and expertise from the Oklahoma Department of Transportation and the Oklahoma Highway Safety Office. Together, these agencies work in unison annually to prepare system information and safety reports regarding the status of Oklahoma's highway network. Future safety efforts employed by the Nation will undoubtedly benefit from the utilization of this information.

Finally, the information presented in this document is intended to demonstrate how the Cherokee Nation fits within the highway safety arena from the perspective of location, jurisdiction, and capacity. The Cherokee Nation is large multi-jurisdictional area, which includes a vast array of tribal, local, county, and state agencies. Collectively, these factors will determine the rate at which the Nation is able to impact public policy and ultimately, the ability to improve the safety conditions within the Nation's boundary.

BACKGROUND

The following paragraphs provide information about Cherokee Nation's status as a sovereign, its landscape, population characteristics, and highway statistics that make up the 14-county jurisdiction area. Combined, these data and information will provide the foundation necessary to arrive at the desired outcomes for this highway safety plan.

I. JURISDICTION:

Cherokee Nation is a federally recognized Indian tribe with a territorial jurisdiction consisting of all or portions of 14 counties in northeastern Oklahoma. The counties include: Adair, Cherokee, Craig, Delaware, McIntosh, Mayes, Muskogee, Nowata, Ottawa, Rogers, Sequoyah, Tulsa, Wagoner, and Washington. Together, these counties make up the historic Cherokee Territory finalized by the United States Sales Act of 1893 (see Figure 1). The Curtis Act of 1898 provided for individual allotment of these lands; some of which still exist today; along with lands held in trust by the United States for the Cherokee Nation. In all, there are about 166,000 acres of restricted allotments and trust lands within the Nation's boundary.

Figure 1.

Justice System: The Cherokee Nation Supreme Court, located in Tahlequah, Oklahoma, exercises court jurisdiction over all restricted allotments and trust lands in accordance with 18 U.S.C. through its District and Supreme Courts. The Nation's Marshal Service is responsible for law enforcement of said lands and has 54 cross-deputization agreements to include federal, state, county, and municipal agencies within its jurisdiction. Citations issued on tribal lands proceed to Tribal Court whereas citations issued on fee simple lands proceed to the appropriate County District Court.

Organizational Structure: In addition to the Judicial Branch, Cherokee Nation's Executive and Legislative Branches operate similar to that of the United States Government. The Nation's Executive Branch is responsible for executing treaties, agreements, and contracts. It also administers federal and tribal programs through multiple divisions and departments within; each having jurisdiction over cabinet-level funding sources (e.g. Department of Transportation). The Legislative Branch, formally known as the "Tribal Council", is responsible for adopting resolutions, enacting legislation and appropriations.

II. LAND AREA:

Cherokee Nation is roughly 6,950 square miles in size. The terrain ranges from flat lands to rolling hills on the north and west sides of the Nation to steep mountainous terrain on the south and east sides of the Nation. Agriculture is the primary land use of the territory with hundreds of livestock farms, grazing, and pasturelands dotted throughout the landscape. With exception of the Cherokee Nation and Mid-America the Industrial Parks, commercial and industrial land uses tend to be located in or near municipal areas and along major highways.

Statutory Rights-of-Way: The entire Cherokee territory is strewn with federal, state, county, and locally maintained highways. According to the 1902 Supplemental Agreement between Cherokee Nation and the United States, the statutory rights-of-way for all section-line roads are 33ft. (2 rods). The purpose for a section-line road was to provide access to each Indian allotment located near the corner of each section. Other roadways allowed by this agreement (non-section-line roads) can be found weaving through the valleys, alongside creek beds, or atop ridgelines. Today, all of these roads provide access to the general public.

Tribal Transportation Facility Inventory: Cherokee Nation is the owner of a federally designated Inventory (formerly Indian Reservation Roads system) consisting of approximately 3,000 miles of public roadways spread throughout the Nation's land base. Most of these roadways are maintained by the county commissioners while the rest are either maintained by the state or the tribe itself; primarily tribal roads running through trust lands and tribal facilities. The Nation receives federal funding each fiscal year from the Tribal Transportation Program (TTP) to improve roads on this inventory, which is based on a scoring system of roadway attributes such as population, condition, safety, and a number of other factors.

III. POPULATION CHARACTERISTICS:

Every decade, the Census Bureau gathers information about the population including statistics within Cherokee Nation's Jurisdictional Boundary; also referred to as the Cherokee Oklahoma Tribal Statistical Area (OTSA). As of 2010, over one-half million people reside within the Cherokee OTSA in which 25% are Native American[1] and principally Cherokee (see Table 1). While Tulsa County holds the largest total population, Cherokee County definitely contains the highest total number of Native Americans. Percentagewise, Native Americans in Adair County now constitute a majority of the Total population representing a shift from previous decades.

Table 1.
Total Population

County	Total Population	Percent	Native American	Percent
Adair	22,683	100.0	12,113	53.4
Cherokee	46,987	100.0	20,015	42.6
Craig	15,029	100.0	4,238	28.2
Delaware	38,293	100.0	11,846	30.9
Mayes	40,708	100.0	12,290	30.2
McIntosh	2,838	100.0	597	21.0
Muskogee	23,401	100.0	7,023	30.0
Nowata	10,536	100.0	2,913	27.6
Ottawa	7,068	100.0	1,993	28.2
Rogers	82,796	100.0	16,990	20.5
Sequoyah	42,391	100.0	12,405	29.3
Tulsa	115,454	100.0	13,871	12.0
Wagoner	5,861	100.0	1,394	23.8
Washington	50,976	100.0	7,752	15.2
Cherokee OTSA	505,021	100.0	125,440	24.8

Source: U.S. Census Bureau 2010

Age of Population: A more in-depth look into the population reveals that Native Americans are much younger than the total populace by a margin of almost 10 years (See Table 2). The major difference comes from the "Under 16 years of age category" where only 23% of the Total population reaches this level compared to over 31% for Native Americans. The "Age 16 to 64 years category" is important because it corresponds with the beginning legal driving age and is also where the bulk of the labor force is found prior to retirement. In all, this category represents about 60% of the total and Native American populations

[1] The term "Native American" in this report means American Indian or Alaska Native.

Table 2. Age of Population				
	Total Population	Percent	Native American	Percent
Cherokee OTSA	505,021	100.0	125,440	100.0
Under 16 years of age	115,791	22.9	39,625	31.6
Age 16 to 64 years	315,704	62.5	75,272	60.0
Age 65 and over	73,526	14.6	10,543	8.4
Median age	37.9		28.0	

Source: U.S. Census Bureau 2010

Means of Transportation to Work: Table 3 shows the different modes of transportation that the labor force uses to get to work within the Cherokee OTSA. The labor force is defined as persons 16 years and over who are participating in the workforce whether currently employed or unemployed. The labor force is significant because it produces the highest traffic volumes of the day as workers make the daily commute to and from employment. Workers driving alone make up the largest group of drivers in the Cherokee OTSA by nearly 80% for Total workers and just over 78% for Native American workers. Carpooling to work ranks second albeit the Native American rate is slightly higher because more Native Americans are driving from rural areas compared to the Total.

Table 3. Means of Transportation to Work				
	Total workers 16 years and older	Percent	Native American	Percent
Cherokee OTSA	207,018	100.0	26,641	100.0
Car, truck or van – drove alone	164,688	79.6	20,926	78.5
Car, truck or van – carpooled	27,726	13.4	4,057	15.2
Public transportation	680	0.3	26	0.1
Walked	3,299	1.6	487	1.8
Taxicab, motorcycle, bicycle or other	2,317	1.1	287	1.1
Worked at home	8,308	4.0	858	3.2

Source: U.S. Census Bureau 2010

Urban and Rural Residence: The location of the population is an indicator of where to focus future planning efforts. As such, the Total population by urban and rural residence inside the Cherokee OTSA indicates an almost even split with 49% of the Total occupied housing units located in urban areas and 51% in the rural areas (see Table 4). Occupied Native American housing units indicate a more rural setting with

approximately 40% located in urban areas and 60% in the rural areas. The Census Bureau defines an urban area to be a town or a city with populations of 5,000 or more.

Table 4.
Urban and Rural Residence

	Total Occupied Housing Units	Percent	Native American Occupied Housing Units	Percent
Cherokee OTSA	204,270	100.0	40,483	100.0
Urban	100,040	49.0	15,970	39.4
Rural	104,230	51.0	24,513	60.6

Source: U.S. Census Bureau 2010

IV. ROADWAY SYSTEM:

From the allotment era (early 1900's) to the present day, the state and county-maintained highway system has grown by several thousand miles in the Cherokee Nation. Except for turnpikes (toll facilities) [2], the Oklahoma Department of Transportation (ODOT) is responsible for maintaining the state and federal highway system whereas the county-maintained system is the responsibility of the county commissioners. According to state statute, roadways within municipalities that have populations of 2,500 or less are included in the county-maintained highway system. County maintenance may also occur within municipalities that have populations of 2,500 to 5,000 by agreement between the two entities.

Roadway Conditions: The condition of the surface transportation network is directly related to highway safety. As noted in the Nation's *Transportation Planning Procedures* document, roadways that are paved produce greater skid resistance and higher travel speeds while gravel surfaces have the exact opposite affect. Table 5 shows the latest certified road mileage by surface type for the state and federal highway system and roadways maintained by the county commissioners within the 14-county area of the Nation. As for ODOT, Table 5 reveals the need for maintenance, reconstruction and/or expansion of roadways where necessary to accommodate increasing traffic volumes. For the county commissioners however, these figures show a huge new-construction need, especially in the rural areas.

[2] Turnpikes are highways that are maintained by the Oklahoma Turnpike Authority from user fees.

Table 5. Certified Highway Mileage				
	State and Federal Highways		County-Maintained Highway System	
County	2013 Mileage	Percent Paved	2006 Mileage	Percent Paved
Adair	96.15	100%	771.57	35%
Cherokee	134.05	100%	941.67	38%
Craig	131.58	100%	1,035.58	11%
Delaware*	194.42	100%	1,161.83	35%
McIntosh*	133.06	100%	867.68	20%
Mayes*	177.14	100%	1,125.68	58%
Muskogee*	202.52	100%	1,256.53	28%
Nowata	94.46	100%	694.27	17%
Ottawa*	160.67	100%	827.34	30%
Rogers*	181.93	100%	1,150.24	90%
Sequoyah	187.50	100%	839.00	49%
Tulsa*	207.35	100%	734.01	98%
Wagoner*	103.62	100%	967.88	50%
Washington	71.52	100%	514.65	41%
14-County Total	2,075.97	100%	12,887.93	43%

Source: ODOT and ACCO. * Indicates full county totals (i.e. includes portions outside of the Cherokee Nation Boundary).

Roadway Geometry: Surface widths, shoulders, alignment, sight distances, and appropriate signing can also impact highway safety. Together, these factors play a substantial role in how well the public traverses the roadway system. In the latest edition of ODOT's *Update on Oklahoma Bridges and Highways*, a large portion of the state and federal highway system within Cherokee Nation is occupied by rural 2-lanes with no shoulders; steep hills, and sharp curves (see Figure 2 and 3). Most of these highways started off as farm-to-market roads; built to a narrow standard for lower traffic volumes during the early part of the 20th century. They eventually became a part of the state and federal system for purposes of federal funding eligibility but the state does not receive enough funding to improve them all. The terrain poses another problem for these rural highways. The Cherokee Nation landscape is such that highways tend to meander through the hillsides making visibility difficult for the traveling public. Roadway geometry information for the county-maintained system is not readily available in illustrative or quantitative form except for certain roadway characteristics collected by Cherokee Nation as a part of its federal inventory submission and designation process. Field surveys indicate that over two-thirds of the Nations inventory has severe grade changes, inadequate surface widths, no shoulders, and poor sight distances. Combined, the Nation's roadway characteristics at least parallel that of Oklahoma's state and federal highway system, if not more severe.

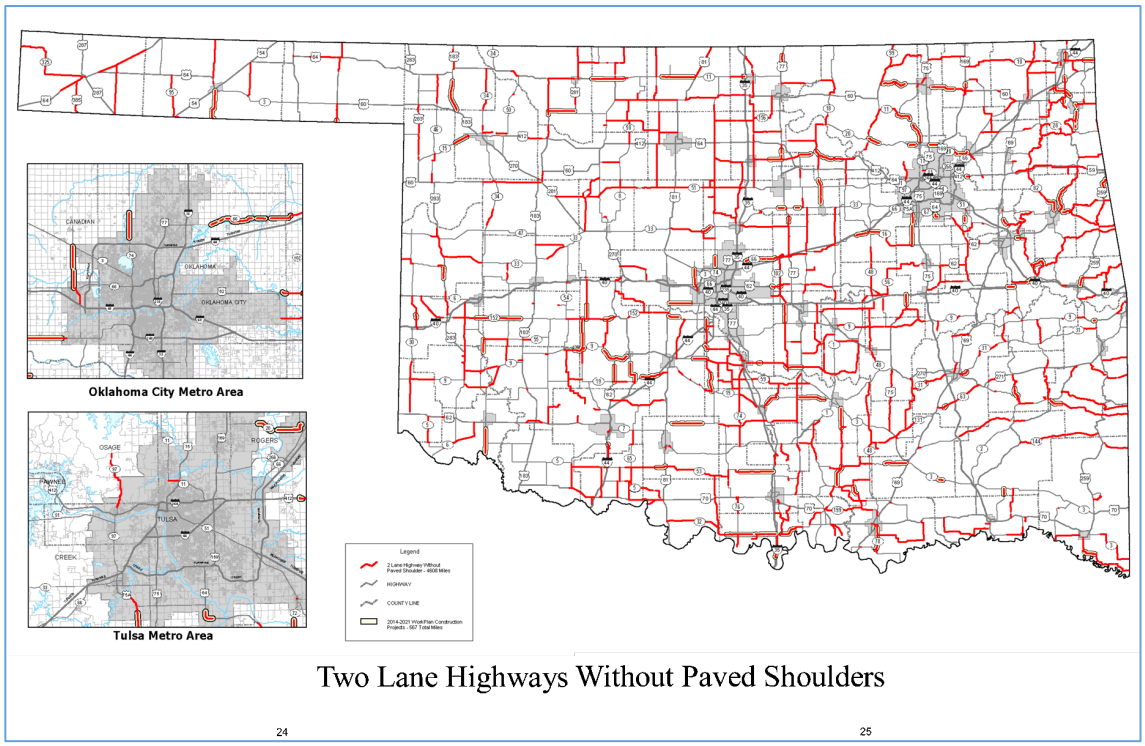


Figure 2.

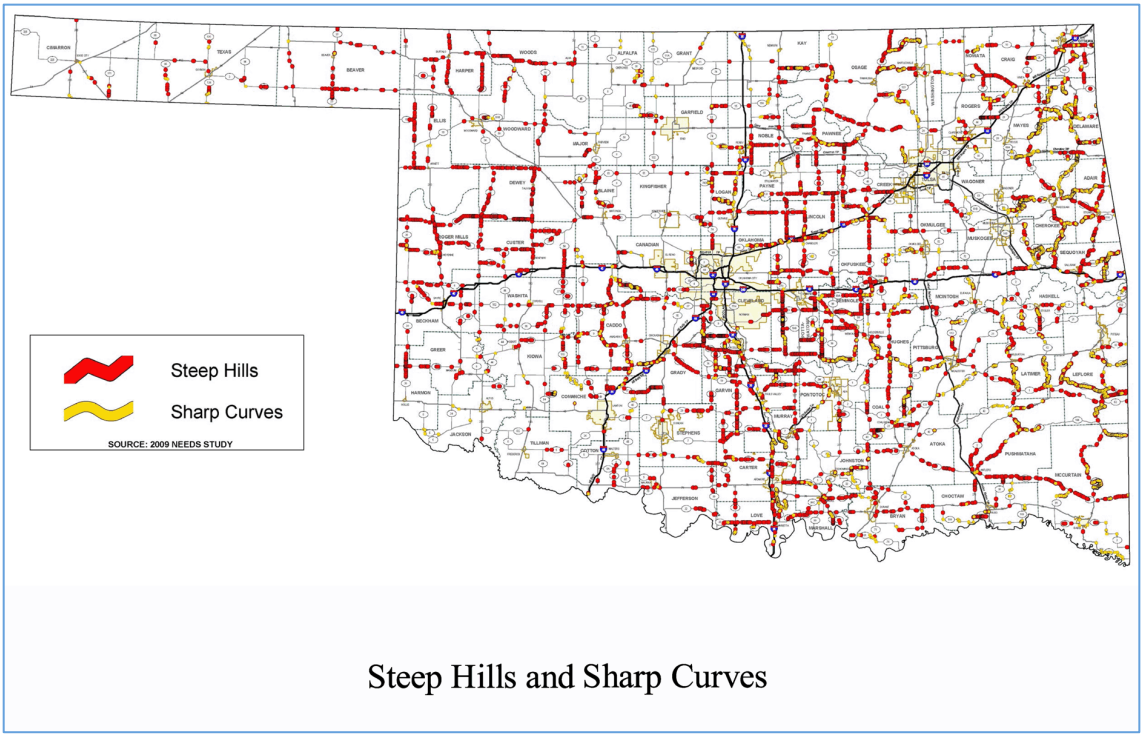


Figure 3.

Trends in Roadway Funding: The ability for ODOT and the county commissioners to build and maintain the roadway system is limited by available resources and is a topic of constant concern. From a federal perspective, Oklahoma used to be a donor state and

therefore did not receive an equal share of federal highway improvement funding compared to other states. And, even though the state's funding situation is better today compared to 10 years ago, state resources were flat-lined for two decades leaving a huge backlog of roadway improvement needs. The state is beginning to make headway though by appropriating additional resources to improve roadway conditions and to reduce the backlog of deficient bridges. Furthermore, the state recently appropriated additional resources to address at-grade rail crossings to reduce the number of accidents at those locations.

V. ACCIDENT INFORMATION:

Each year, the Department of Public Safety (DPS) collects accident reports from law enforcement agencies statewide and assembles the data in a manner suitable for public viewing via ODOT's "SAFE-T" mapping database. From there, the Oklahoma Highway Safety Office (OHSO) analyzes the data for planning purposes and grant opportunities. The use of this information is protected by federal law (23 U.S.C. §409) in which the content of such information cannot be used for discovery or evidence admitted in a state or federal court for purposes of collecting or assigning damages related to such occurrences. Therefore, any collision information noted or displayed herein is being made available for planning purposes only.

Crash Information Updates: The crash data and information displayed in this safety plan is being made available to show general trends. Therefore, it is not necessary to update this plan every year to reflect new safety statistics. Unlike the Census, which updates its population and housing characteristics every 10 years, OSHO gathers crash data on an annual basis. Instead, it is recommended that annual crash data and information be displayed in a separate programming document for purposes of accessing pertinent information specific to the application sought and keep it updated on a regular basis.

General Accident Statistics: After several years of steady decline, statewide accidents are on the rise again in 2015. Over all, the 14-county area resembles the statewide trend except for Ottawa County, which is reflecting a dramatic increase of 60% from 2014 to 2015 (see Table 6 below). Adair County recorded the second highest increase at nearly 20%. Among the 14-county area, Nowata has the lowest number of accidents over the last five years not to mention a 5% decrease from 2014 to 2015. The most notable trend is coming from Cherokee County, which is showing a steady decline in accidents over the last five years. Cherokee County has been the subject of several

State-mandated Highway Safety Corridors due to high accident rates from the impaired driving and unsafe speed categories.

Table 6.
Total Crashes by County – 2011 to 2015

County	2011	2012	2013	2014	2015
Adair	181	213	172	188	224
Cherokee	681	646	599	601	571
Craig	195	225	225	240	235
Delaware*	496	503	500	526	505
McIntosh*	243	255	251	271	295
Mayes*	552	591	546	545	615
Muskogee*	1,401	1,250	1,284	1,185	1,329
Nowata	114	136	111	107	101
Ottawa*	580	541	473	375	601
Rogers*	1,058	1,110	1,107	1,118	1,134
Sequoyah	549	549	611	540	614
Tulsa*	13,359	13,848	12,982	12,733	13,189
Wagoner*	734	738	781	736	749
Washington	888	914	893	836	799
14-County Total*	21,031	21,519	20,535	20,001	20,961

Source: OHSO. * Indicates full county totals (i.e. includes portions outside of the Cherokee Nation Boundary).

Accidents by Highway Classification: Identifying the specific location of accidents provides opportunity to analyze problematic highways, roads, streets, and/or intersections. Accidents by urban and rural highway classification can assist with this task because these highways serve a functional purpose; they can be located on a map, and they are also attributable to urban and rural residence. According to Table 7 below, the greatest number of accidents occurs in the urban areas, mainly in the Cities of Tulsa and Muskogee, which are largely outside of Cherokee Nation's jurisdiction. Once these urban areas are extracted, the numbers reflect a different story. In fact, the number of accidents occurring on rural county-maintained roads parallels the number of accidents occurring on the rural highway system even though the rural highway system carries much more traffic (see county collision maps in the appendix). This instance is of particular concern because the county-maintained system is much larger in size but receives less funding compared to the state and federal highway system. Additional funding for rural roadways could make the system safer from an engineering perspective but part of the problem lies with driver inattentiveness and poor judgment. Ultimately, part of the solution will have to come from other countermeasures of the highway safety spectrum such as education and enforcement.

Table 7. Total Crashes by County and by Highway Class – 2015										
	Highway Class									
County	Turnpike	Interstate Highway	Rural U.S. Highway	Rural State Highway	County Road	Urban U.S. Highway	Urban State Highway	City Street	Not Stated	Total Crashes
Adair	0	0	58	28	66	32	21	15	4	224
Cherokee	0	0	50	115	131	76	18	151	30	571
Craig	42	1	21	26	37	57	20	30	1	235
Delaware*	17	0	68	95	91	143	40	35	16	505
McIntosh*	30	57	34	8	58	72	6	23	7	295
Mayes*	37	0	51	79	139	141	57	102	9	615
Muskogee*	32	25	69	22	64	453	55	603	6	1,329
Nowata	0	0	41	12	29	17	0	2	0	101
Ottawa*	87	3	66	47	82	104	67	128	17	601
Rogers*	82	107	69	141	192	10	318	172	43	1,134
Sequoyah	0	172	50	34	75	136	12	84	51	614
Tulsa*	107	1,280	94	36	211	1,519	943	8,694	305	13,189
Wagoner*	120	0	24	35	75	54	202	216	23	749
Washington	0	0	81	8	69	274	17	348	2	799
14-County Total	554	1,645	776	686	1,319	3,088	1,776	10,603	514	20,961

Source: OHSO. * Indicates full county totals (i.e. includes portions outside of the Cherokee Nation Boundary).

Accident Types: The various kinds and/or the cause of accidents data collected by law enforcement agencies ranges from impaired driving to unsafe speed; failure to yield, and whether the accidents were injury or fatality related. Information involving railroad crossings, work zones, and rollovers are also collected. Collectively, this information is tabulated by OHSO for purposes of determining how accidents happen in order to arrive at measures to reduce such occurrences. Within the 14-County area, about 25% of the fatality-related accidents are due to unsafe speeds while 41% are due to impaired driving.

Fatality Rates: Fatality accidents are the number one safety concern of governmental agencies and the public alike. According to current OHSO figures, the statewide fatality rate is 1.35 per one million vehicle miles traveled (VMT). However, the fatality rate within the 14-county area is much higher at 1.62 per one million VMT. The national rate is 1.12. A further analysis of the data indicates the majority of these fatality accidents occur at night and in rural areas (i.e. rural two-lane state and federal highways and county-maintained roads). Other contributing factors such as alcohol, inattentiveness, poor judgment, or driving on roadways without proper signing, reflectors, and/or stripping are some of the circumstances that can lead to higher fatality rates.

- The latest figures from the Nation Highway Traffic Safety Administration (NHTSA) indicate that 54% of all fatalities nationwide occur in rural areas compared to 46% in urban areas.

Table 8 outlines the different types of fatality accidents that occurred in 2015 within the 14-county area. After looking at the numbers, it is not surprising that Tulsa County has the highest number of fatalities given the amount of traffic within the metropolitan area. However, the numbers of fatalities are noticeably high in Muskogee and Rogers Counties. Some of these numbers can be attributed to urban areas; then again the majority of these counties are rural. While the "failure to yield" and "rollover" information is not yet available for 2015, a significant number of the fatalities in Delaware, Mayes, and Muskogee Counties were alcohol and/or drug related incidences. Over half of Wagoner County's fatalities are due to unsafe speeds while a substantial portion of Ottawa County's fatal accidents involved a large truck.

Table 8.
Fatality Crashes by County – 2015

County	Unsafe Speed	Failure to Yield	Rollover	Large Truck Involved	Work Zone	Not Stated or Combined w/other	Total Fatal Crashes	% Alcohol or Drug Related
Adair	2	N/A	N/A	0	0	1	3	33%
Cherokee	1	N/A	N/A	1	0	4	6	50%
Craig	0	N/A	N/A	0	0	0	0	0%
Delaware*	2	N/A	N/A	1	0	3	6	67%
McIntosh*	1	N/A	N/A	0	0	3	4	25%
Mayes*	1	N/A	N/A	0	0	5	6	67%
Muskogee*	4	N/A	N/A	3	0	4	11	73%
Nowata	1	N/A	N/A	0	0	4	5	20%
Ottawa*	2	N/A	N/A	4	0	3	9	22%
Rogers*	3	N/A	N/A	3	1	13	20	40%
Sequoyah	4	N/A	N/A	0	0	4	8	62%
Tulsa*	15	N/A	N/A	3	2	47	67	31%
Wagoner*	4	N/A	N/A	3	0	0	7	43%
Washington	0	N/A	N/A	0	0	4	4	50%
14-County Total	40	N/A	N/A	18	3	95	156	41%

Source: OHSO. * Indicates full county totals (i.e. includes portions outside of the Cherokee Nation Boundary).

Impaired Driving: According to OHSO, the State of Oklahoma ranks 46th in the Nation in terms of alcohol-related fatality accidents and is currently last in the ability to improve its fatality rate. In fact, 27% of all statewide fatality crashes are due to impaired driving. The latest information is not good news for the Nation either because the percentage of

alcohol-related fatal crashes in the 14-County area is even higher at 41%. Even though the state is showing signs of improvement, the 14-County area continues to rise and is 12% higher than the nationwide rate of 29%[3]. Regardless of instance, the absence of law enforcement, lack of education, and poor judgment contribute to the rates of impaired driving fatalities that exist today.

[3] NHTSA Traffic Safety Facts – August 2016

POLICY AND PROGRAMS INVENTORY

Since the Cherokee Nation is such a large multi-jurisdictional area, the policies and programs of other agencies have a considerable impact on the Nation as a whole. For example, the existence of highway design or safety management standards is a decision that is crucial to public safety whether imposed, self-imposed, or non-existent at all. Secondly, the availability of safety funding plays a part in making agency safety programs more effective. The paragraphs below represent an inventory of policies and programs that are related to highway safety within the Nation's boundary. This inventory generally follows the outline of the "4E's" although information about education, enforcement, and emergency services is being made available primarily for review and use by departments external to the Nation's Department of Transportation.

A. ENGINEERING:

Engineering, through the use of design standards, has been utilized for centuries as a means to bring forth uniform development practices. It was not until the 20th Century that their use in the United States also became utilized as means of compliance for public highways. The Federal-Aid Highway Act of 1921 specified that 3/7ths of the funds authorized would be spent on roads of the "interstate character". From then on, all federal-aid highway projects required the use of either federal or federally approved state highway design standards. Today, federal highway standards incorporate the latest in safety technology making roadways safer when and where federal projects occur. Table 11 shows the design standards that are applicable to the various funding sources within the boundary of the Cherokee Nation.

Table 11.
Comparison of Revenue Sources to Design Standards

Entity	Revenue Source	Design Standard
Cherokee Nation	Tribal Transportation Program (TTP)	Federal
Cherokee Nation	Tribal General Fund	Tribal
Counties	County Improvements to Roads & Bridges Program (CIRB)	State
Counties	County Bridge & Road Improvement Fund (CBRI)	County
Counties	County Revolving Fund	County
ODOT	Federal-Aid Highway Funding	Federal/State
ODOT	State Appropriations	State

Source: Cherokee Nation Department of Transportation

Design Standards vs. Existing Improvements: Urban areas such as Tulsa, Muskogee, Bartlesville and Tahlequah have developed their own design standards for city arterials, collectors, and residential streets. And, to a large extent, the urban street system is improved to acceptable safety standards. Rural design standards have been developed as well although approximately 43% of the county-maintained system remains unimproved. Moreover, a large percentage of the improved rural county-maintained system does not meet acceptable safety standards similar to the rural 2-lane state highways that have no shoulders.

ODOT Safety Improvements: Over the next 8-year period, ODOT plans to improve 567 miles of 2-lane highways with no shoulders throughout the State of Oklahoma. This represents a 12% reduction in the amount of 2-lane highways with no shoulders, totaling over 4,600 miles statewide. Projects like these are important because they help to reduce accidents by providing errant drivers with extra room for recovery. The Department also plans to install an additional 26 miles of cable median barrier and is in the process of addressing at-grade railroad crossings as mentioned earlier.

County-Maintained System Improvements: The county commissioners have similar 8-year roadway and bridge improvement plans in which the counties within Cherokee Nation stand to benefit as well. Most are bridge replacement projects albeit roughly 50 miles of rural roadways are scheduled for improvement through the STP and CIRB Programs. The Cherokee Nation also plans to reconstruct and/or rehabilitate approximately 50 miles of roadways and a few bridge projects with TTP funding over the same time period. Together, these projects represent about 100 miles of improvements that, at minimum, will enhance safety by including appropriate lane widths, shoulders, signing, striping, and guardrail.

TTP Safety Program: The TTP provides a 2% set-aside for tribal governments to apply for safety projects that are consistent with infrastructure-type improvements. The FHWA solicits applications for TTP Safety Funding on an annual basis through the Federal Register. The documentation from this safety plan will help to justify future safety projects albeit the FHWA will accept engineering studies to justify engineering-related projects. In 2013, the Nation was awarded $525,395.00 from the engineering pool to improve the intersection of US-62 and Coffee Hollow Road/Cherokee Street based on engineering studies conducted by ODOT. Now completed, this intersection is much safer for the traveling public compared to the previous configuration.

B. EDUCATION:

Education about highway safety is just as important as the physical improvements and other components of the highway safety spectrum, the purpose of which is to educate the public about the consequences of poor driving habits. Every year, hundreds of accidents occur because of excessive speed, texting while driving, and driving while impaired. Unrestrained motorist is another driving behavior that is problematic. Examples such as these have lead to serious injuries and, in some cases, fatalities. Therefore, the educational component is necessary because it provides another avenue towards reducing the number of accidents.

OHSO: In Oklahoma, the state's agency responsible for educating the public about highway safety is OHSO. The Office oversees and coordinates highway safety projects designed to inform motorist through paid media, advertising, sports marketing, and instructional courses. The present focal point is to reduce the number of fatalities for both impaired drivers and drivers under the age of 21 through examples such as "ENDUI" in the caption above. Additional OSHO projects and the means of instruction include but are not limited to:

- Alive at 25 – Driver education courses
- Drive Sober or Get Pulled Over – Advertising, paid media, and sports marketing
- Motorcycle Safety – Driver education courses
- Operation Lifesaver Railroad Safety - Public service announcements and instructional education
- Occupant Protection – Instructional education including child safety
- OHSO also participates in "Drive Aware OK", the only known statewide effort to combat distracted driving, particularly distraction by electronic device. The use of cell phones while driving is quite popular among the younger age brackets and the Office plans to continue supporting efforts that will effect behavior change regarding this issue. NHTSA estimates that 9% of all drivers use electronic devices while driving.

In all, the *2015 Oklahoma Highway Safety Plan* indicates that the Office plans to spend approximately $3.8 million on highway safety-related educational initiatives. While these numbers vary from year to year, educational initiatives generally make up about

25% of OHSO's budget.

Indian Highway Safety Program: For tribal governments, the Bureau of Indian Affairs receives a set-aside of federal transportation appropriations each year to operate the Indian Highway Safety Program. According to the *FY-2015 Indian Highway Safety Plan*, a small portion of this budget (12%) is devoted to educational initiatives primarily through the "Click-It or Ticket", "Drive Sober or Get Pulled Over", and "Don't Shatter the Dream" mobilization campaigns of NHTSA. Together, these campaigns provide funding for the BIA's Impaired Driving, Occupant Protection, and Safe Communities programs. BIA also encourages tribes to adopt seatbelt restraint laws. It is estimated that less than one-half of all tribes have such laws and the ones that do lack the proper enforcement to make it effective. Cherokee Nation's past participation in BIA's Highway Safety Program has been minimal, primarily in the form of obtaining child safety seats.

Highway Safety Training: The Tribal Technical Assistance and Local Technical Assistance Programs located in Stillwater, Oklahoma, offer a wide variety of safety training courses for tribal governments, many of which are free of charge. These courses include but are not limited to defensive driving, CDL Training, crash data collection, and safety planning. Both programs have access to the ODOT administered Rural Technical Assistance Program, which offer transit agencies a number of workshops that include emergency preparedness for dispatchers and schedulers, passenger service and safety driver certifications, drug and alcohol testing, and defensive driving courses. Access to these programs not only help tribal individual efforts, they promote statewide safety awareness.

Cherokee Nation Communications: The Communications Department is responsible for conveying the tribe's message. The department uses a wide variety of tools to accomplish this task such as social media; news feeds, press releases, and paid advertising. Communications through signing and billboards can be seen along major arteries generally consisting of messages related to healthy life styles (i.e. smoking cessation, honoring traditions, etc.). To date, the department has not engaged in any messages related to highway safety although they are working on a way to communicate tribal facility closures during inclement weather events.

C. ENFORCEMENT:

The enforcement of highway safety laws and related ordinances is the responsibility of law enforcement agencies statewide. Together, these agencies issue citations for

speeding, safety restraint and traffic violations, and perform sobriety tests. While the bulk of funding for these activities comes from the law enforcement agencies themselves, OHSO provides grant funding to a number of agencies and local governments to offset a portion of the costs.

Impaired Driving Enforcement: According to the *2015 Oklahoma Highway Safety Plan*, impaired driving enforcement remains OHSO's number one focus with a large share of funds set aside for the Oklahoma Highway Patrol (OHP) and the Oklahoma City Metropolitan Area. A few agencies within Cherokee Nation were able to obtain smaller grants to assist with this enforcement activity such as the Sheriff's Offices in Cherokee, Tulsa, and Washington Counties, and the police department in the City of Tulsa. OHSO's objective with this program is to reduce the number of impaired driving fatalities through the use of sobriety checkpoints including aggressive enforcement in the state's three highway safety corridors (Pottawatomie, Payne, and Cherokee Counties). Officers will also be looking for other violations such as speeding and unrestrained motorist as a part of this activity, which includes overtime funding for OHP personnel and funding for prosecution and adjudication. The OHP Troop Divisions that serve Cherokee Nation are "B, C, and L" as shown below.

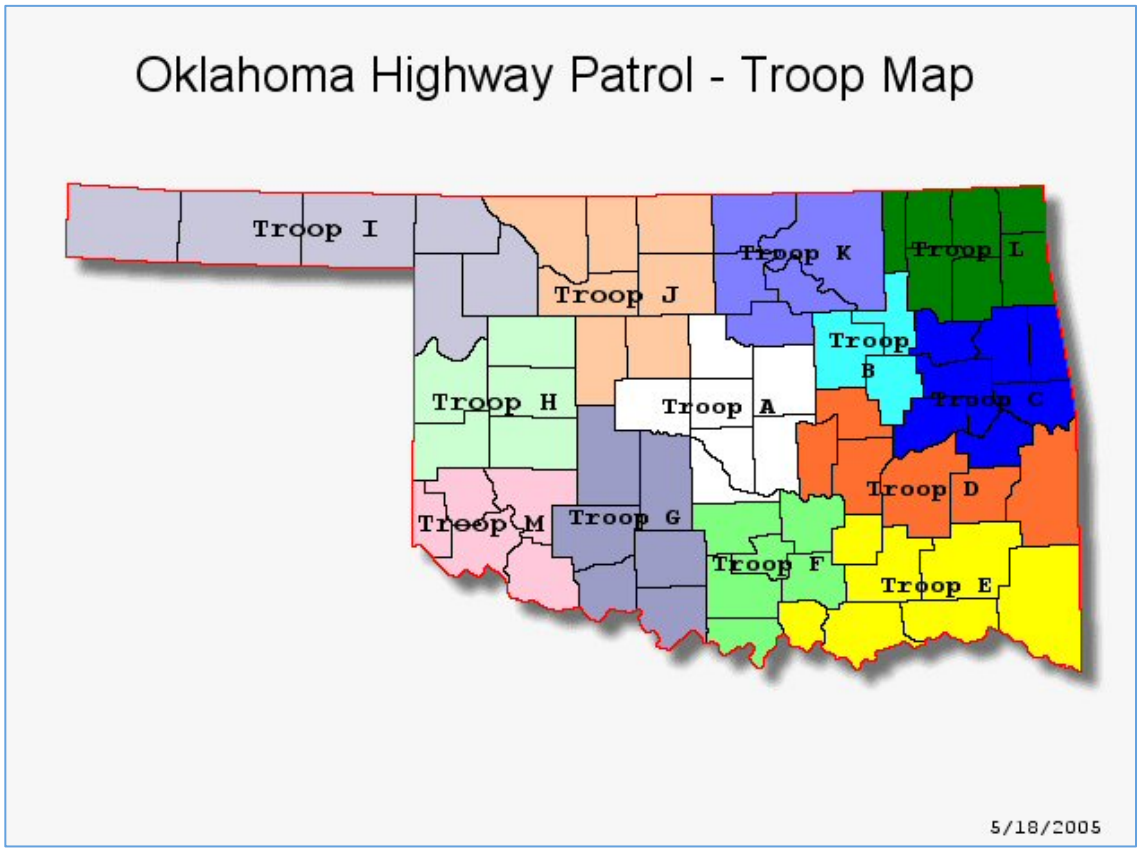


Figure 4.

Speed Enforcement: Every year, excessive speed is responsible for numerous fatalities. In order to combat this issue, OHSO's Police Traffic Service Program offers grant funding to local law enforcement agencies to hire additional officers to patrol roads, streets and highways. OHSO's objective with this program is to reduce the number of speed-related fatalities by increasing the presence of law enforcement. This program also helps with enforcement of drug and alcohol violations, distracted driving, and occupant protection. In 2015, OHSO's Speed Enforcement Project Program funded seven (7) local law enforcement agencies, all outside of the Cherokee Nation.

Occupant Protection Enforcement: In an effort to increase seat belt use rates in Oklahoma, OHSO will provide funding to a number of select communities where seat belt use rates are below the statewide average. The focus for FY-2015 will concentrate on areas with below-average seatbelt use including specific outreach to Oklahoma's Native American population. Law enforcement officers in those communities will enforce occupant protection laws; conduct seat belt checkpoints and seatbelt enforcement zones, including targeting unrestrained nighttime drivers. Of the nineteen (19) agencies receiving awards to assist with this activity, the Catoosa, Owasso, and Tahlequah Police Departments represent the agencies selected inside the Cherokee Nation boundary. Awards typically range from $10,000.00 to $80,000.00 per year.

Indian Highway Safety Enforcement: The two primary forms of enforcement administered by the BIA's Indian Highway Safety Office are impaired driving prevention and police traffic services. Together, these programs make up the majority of the budget (83%) through the use of Breath Alcohol Testing (BAT) mobiles and additional law enforcement personnel (reservation police). As stated in the *FY-2015 Indian Highway Safety Plan*, thirty-six (36) reservations received funding for these activities but only one (1) for an activity in Oklahoma; a BAT mobile was stationed in Muskogee. The BIA's FY-15 program goal is to reduce the instances of impaired driving and speed-related fatalities on Indian reservations by 10%.

Cherokee Nation Highway Safety Enforcement: Because of the multi-jurisdictional issues surrounding the public road system, the Nation's Marshal Service serves both as a primary and back up unit to state and local law enforcement agencies in the enforcement highway safety laws. The cross deputization agreements allow the first responder to act as the primary on state or tribal lands until the matter is closed and sent to the appropriate jurisdiction. Many counties welcome the additional assistance that the Cherokee Nation Marshals can provide. The Marshal Service verified these methods of enforcement through a highway safety questionnaire found in the appendix.

D. EMERGENCY MEDICAL SERVICES:

First responders within Cherokee Nation's jurisdictional boundary are a cooperative effort among police, fire, and emergency medical service (EMS) agencies. Together, these agencies respond to the scene of highway accidents within their respective service districts. In addition to police and fire, the Oklahoma State Department of Health (OSDH) indicates that there are approximately thirty-five (35) EMS stations located within the Nation's boundary including the one owned and operated by Cherokee Nation in Tahlequah, Oklahoma. The majority of EMS stations are funded through city and county sales taxes and to varying degrees. Some are understaffed and underequipped but respond to the emergencies that come their way. All thirty-five (35) EMS stations are situated within Oklahoma EMS District's 2, 4, and 7 (aka Homeland Security Regions) as shown below.

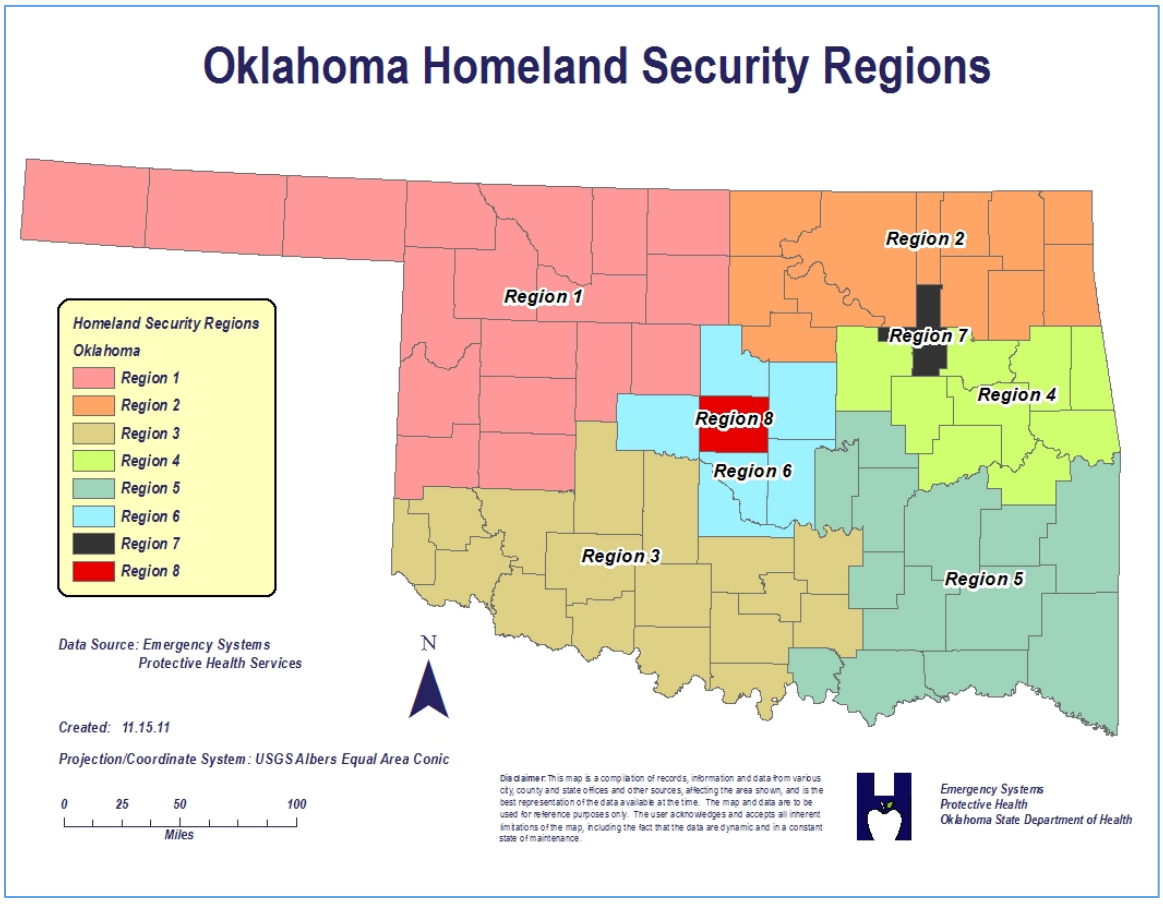
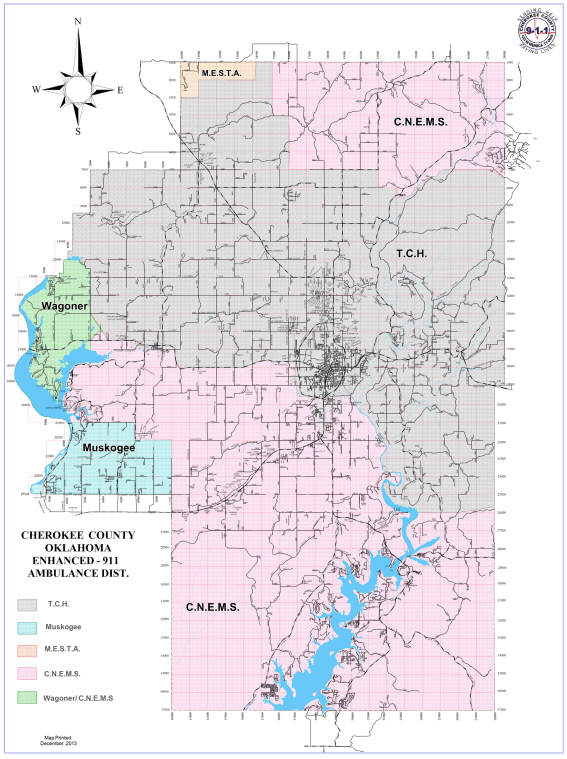


Figure 5.

EMS Response Capacity: The ability to provide adequate EMS coverage within the Cherokee Nation lies in part with the location of each EMS station. Detailed information

reflects a number of rural areas without adequate coverage where time and distance could be a factor in response times. This particular situation is common for the northern parts of Craig, Nowata, and Sequoyah Counties, and the southern portion of Delaware County. In these areas, police and fire are most likely to be first responders because EMS teams/vehicles appear to be overextended. A study conducted by OSDH from 2009 to 2011 confirms this finding, which indicates that half of the counties in the 14-county area show response times at 9 to 11 minutes while the other half recorded response times from 6 to 8 minutes. From a regional standpoint, both EMS Regions 2 and 4 are above the state average response time of 7.6 minutes.

EMS Statistics: In 2011, EMS Regions 2 and 4 received 100,835 service calls and of that amount, almost 80% fall into the rural and super-rural category. Nearly all of the 85,000 service calls in EMS Region 7 were of the urban category. The Cities of Tulsa, Muskogee, Owasso, Tahlequah, and Claremore are among the top cities receiving EMS calls in Oklahoma. While the statewide rate for Native American calls is nearly 5%, the same calls for Region's 2 and 4 are 6.3% and 9.2% respectively. Additionally, highway accidents make up a significant portion of total calls in these regions, 19.4% in Region 2 and 17.4% in Region 4.



Cherokee Nation EMS: The Cherokee Nation EMS (CNEMS) is located at the tribal headquarters in Tahlequah, Oklahoma, and is an integral part of Cherokee County's Enhanced 911 Ambulance System. CNEMS is the primary responder for emergency calls in Cherokee County and is routinely called in as a secondary responder in southern Delaware, western Adair, and in northern Sequoyah Counties. CNEMS currently has fifty employees and ten emergency vehicles but sees the need to expand as call volumes and service request continue to grow. Cherokee Nation became the first Indian tribe in the United States to achieve EMS accreditation through the Commission on Accreditation of Ambulance Services; meaning CNEMS meets the highest national standards for the medical support industry. This level of achievement is held by only one other agency in Cherokee Nation, the EMSA service in Tulsa. The

CNEMS Training Program offers numerous certified courses ranging from basic first aid to advanced life support and promotional health seminars for the surrounding communities. CNEMS also provides support staff for the Cherokee County 911 Communications Center located in Tahlequah, Oklahoma.

Emergency 911 Systems: To date, twelve out of fourteen counties within the Cherokee Nation have established enhanced 911 systems for responding to emergencies. The only two counties without enhanced 911 systems are Adair and Nowata. Some counties have dedicated 911 dispatch centers while others use police and/or sheriffs offices as the point of contact. All counties except for Adair, Nowata, and McIntosh have 911 addressing systems in place. Information provided by "39° North" indicates that Washington County does not have a 911 addressing system for its residents albeit a quick-reference system may be in place similar to Tulsa County. Even so, counties without enhance 911 call systems and/or addressing capabilities can pose a risk to emergency responders, especially in life threatening situations.

ISSUES AND OPPORTUNITIES

The highway and transportation safety data collected and discussed thus far provides a basis for Cherokee Nation to identify and explain various issues and opportunities that have emerged as a result of this planning process. These issues and opportunities, whether stated or implied, give credence to the development of a highway and transportation safety plan.

1. The Cherokee Nation exists within the boundary of the State of Oklahoma but has separate and distinct jurisdiction over Indians and Indian lands.

2. Highway safety activities such as education, enforcement, and emergency services fall outside the funding responsibility and administrative jurisdiction of the Nation's Department of Transportation.

3. The Nation's Tribal Transportation Facility Inventory is principally a rural roadway network.

4. A high percentage of Cherokees live in remote rural areas or towns and cities with populations of 5,000 or less.

5. Population statistics indicate that Cherokees are younger in age than the rest of the population meaning a greater number of entry-level Cherokee drivers are coming aboard.

6. While a car, truck, or van is the primary means for accessing jobs, a greater percentage of Cherokees either carpool or use public transportation compared to other races.

7. Cherokees accessing jobs, healthcare, and basic necessities have to travel great distances where road conditions tend to be the worst.

8. The rural two-lane is the principle highway used by Cherokees many of which have no shoulders.

9. There is not enough funding to build the entire highway system to desired safety standards.

10. The amount of funding spent on highway safety educational activities is far lower than highway enforcement spending.

11. State applications and awards for law enforcement assistance appear to be low in counties of the Cherokee Nation.

12. The percentage of alcohol and speed-related fatalities occurs in rural areas of the Cherokee Nation where law enforcement is at its weakest point.

13. Adair and Nowata Counties do not have 911 addressing systems.

14. Advance notice of tribal facility closures during inclement weather generally occur the date of the event.

HIGHWAY SAFETY PLAN

The following paragraphs describe the components of the Plan that will guide the development of highway and transportation safety systems for Cherokee Nation. Where applicable, these components address issues and opportunities previously identified. Taken together they constitute the Cherokee Nation's policy for safety coordination, planning, development, and programming of infrastructure improvements.

1. Utilize funding from the TTP Safety Program and other available resources to improve the safety conditions for the following facilities:

    a) Rural roadways
    b) Bridges
    c) Highways
    d) Intersections
    e) Railroad crossings, and
    f) Pedestrian and bicycle safety where appropriate

2. Incorporate and utilize OSHO and DPS safety statistics into the transportation planning process.

3. Encourage the state to focus on improving rural 2-lane highways with no shoulders throughout the Cherokee Nation.

4. Encourage the state to offer safety statistics by race and jurisdiction, specifically that for Native Americans.

5. Establish a coordinated communications system for tribal facility closures and transit system operations for inclement weather events.

6. Encourage departments within the Nation that have jurisdiction over highway safety programs such as education, enforcement, and emergency services to utilize available funding sources to participate in the following safety activities:

    a) Reduce Impaired driving
    b) Reduce distracted driving
    c) Enforce highway safety laws
    d) Increase seat belt usage

e) Encourage defensive driving for the Cherokee youth
f) Promote safety awareness
g) Enhance 911 systems
h) Update and expand emergency equipment/services

APPENDICIES

HIGHWAY SAFETY QUESTIONNAIRE

The Roads Department is in the process of developing a highway safety plan because our federal funding source (Tribal Transportation Program) now has a 2% set-aside to fund highway safety activities in addition to the existing Indian Highway Safety Program. We would like to have your input into the planning process because the highway safety program addresses more than just road improvements; it covers activities such as law enforcement. We have developed a list of questions for you to answer below so that we can properly address these activities in the plan. Please take time to answer them because your department may be eligible to apply for future grant funding. Thank you.

1. How many law enforcement agencies does the Cherokee Nation Marshal Service have cross-deputization agreements with and what are the types of agreements in place?

   Cherokee Nation Marshal Service has fifty-four (54) active cross deputation agreements with Federal, State and municipal agencies.

2. Does the Cherokee Nation Marshal Service conduct highway enforcement activities on fee lands or is it limited to tribal trust and restricted Indian land?

   Yes, through the cross deputation agreements many of the counties welcome highway enforcement. No it is not limited to tribal trust and restricted Indian land.

3. Is the Cherokee Nation Marshal Service a primary or backup responder to traffic violations such as speeding, impaired driving, and unrestrained motorists within the Cherokee Nation boundary?

   Backup if the incident is on state land and primary on tribal land. However, if we respond first we will be primary due to the cross deputation and visa versa with the county or municipal that is on scene first.

4. Are citations and fines for traffic violations issued by the Cherokee Nation Marshal Service and if so what are the types issued?

   Yes, all state traffic laws are issued.

5. If the Cherokee Nation Marshal Service issues a citation or fine for a traffic violation, does the subject proceed to the tribal court system or another jurisdiction?

   Depending on the location. If the citation is on fee simple land it will process through that district court. If the citation is on trust or restriction land goes through the Cherokee Nation Tribal Court.

HIGHWAY SAFETY QUESTIONNAIRE

The Roads Department is in the process of developing a highway safety plan because our federal funding source (Tribal Transportation Program) now has a 2% set-aside to fund highway safety activities in addition to the existing Indian Highway Safety Program. We would like to have your input into the planning process because the highway safety program addresses more than just road improvements; it covers activities such as EMS. We have developed a list of questions for you to answer below so that we can properly address these activities in the plan. Please take time to answer them because your department may be eligible to apply for future grant funding. Thank you.

1. How many employees/vehicles does Cherokee Nation EMS have? Do you see the need to expand?

   EMS currently has 50 employees, this includes full time & part time staff. Vehicles; 8 ambulances and 2 support vehicles. 9 are GSA and 1 Tribal ambulance. We do see the need to expand as our call volume and service request continue to grow.

2. Please describe the Cherokee Nation EMS service area. Is it limited or do you go outside of your service for emergency calls?

   Our service area is well over 1,000 sq miles. Providing services to Cherokee, southern Delaware, northern Sequoyah and western Adair counties. We routinely go outside our coverage area on emergency calls as well as providing mutual aid.

3. Are you a primary or secondary responder in your service area? What about outside your service area?

   We are a primary responder in our service area. Outside of our service area depends on the situation, sometimes we can be the primary or secondary response unit.

4. Do you have any suggestions about how to reduce response times or are they adequate? What about total time (i.e. any barriers)?

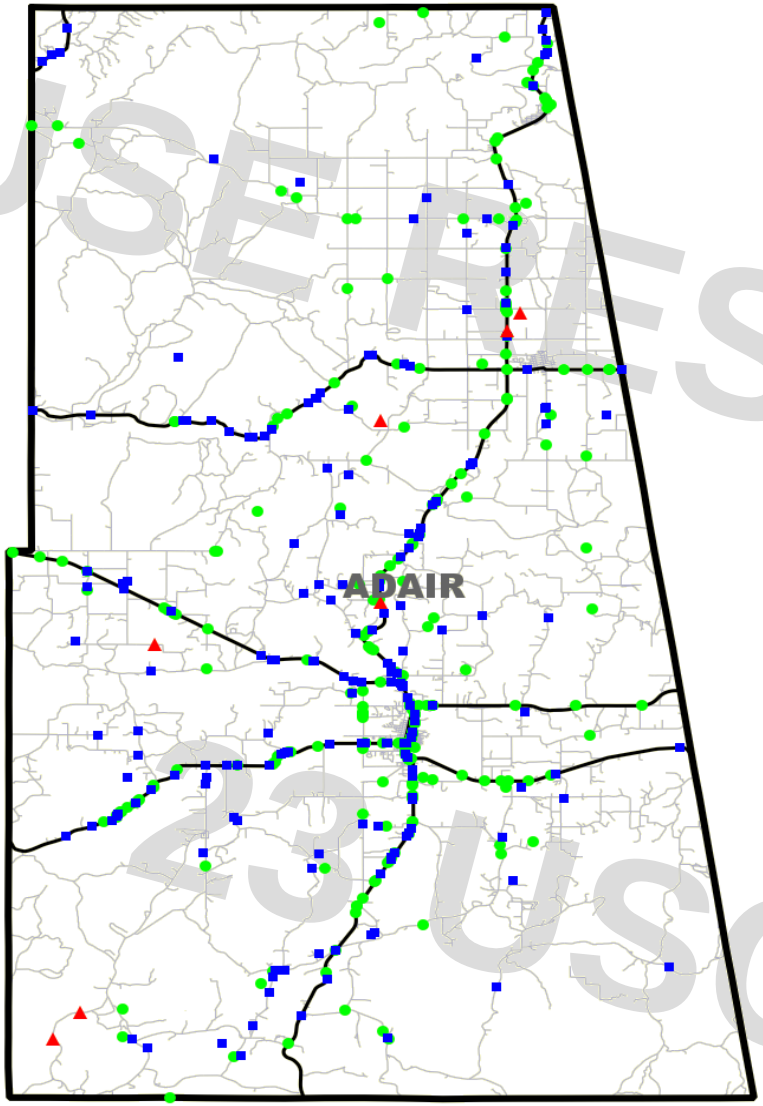
   Because our service area is very large, we covers the city as well as sections of several counties. The response time can vary greatly based on the location of the call. Currently our average response time for all calls is 12 minutes 39 seconds. This can be a very long response time in an emergency situation but is also a norm when talking about rural EMS. Obviously more resources throughout our service area could reduce response times.

5. What are your biggest challenges (e.g. equipment, personnel, budget, other, etc.)?

   With our call volume growing annually our biggest challenge is meeting that demand and assuring we have units available to respond. The Health field is ever changing and the expense to maintain up to date equipment and experienced personnel is always challenging.

6. Are you collecting any data and information related to your operation and are you working on any projects to improve your system?

   We track a number of items each month as part of our Quality Improvement efforts to improve our service. Just to name a few; patient care reports are reviewed, protocol adherence, peer reviews, response times, call volume, and success rates of skills for all emergency services personnel. We are currently seeking grants to purchase power load systems for our ambulances and High Fidelity Mannequins for our training program.



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

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Remarks:

3-YEAR ACCIDENT HISTORY

ADAIR COUNTY

41 NONMAPPABLE COLLISIONS **

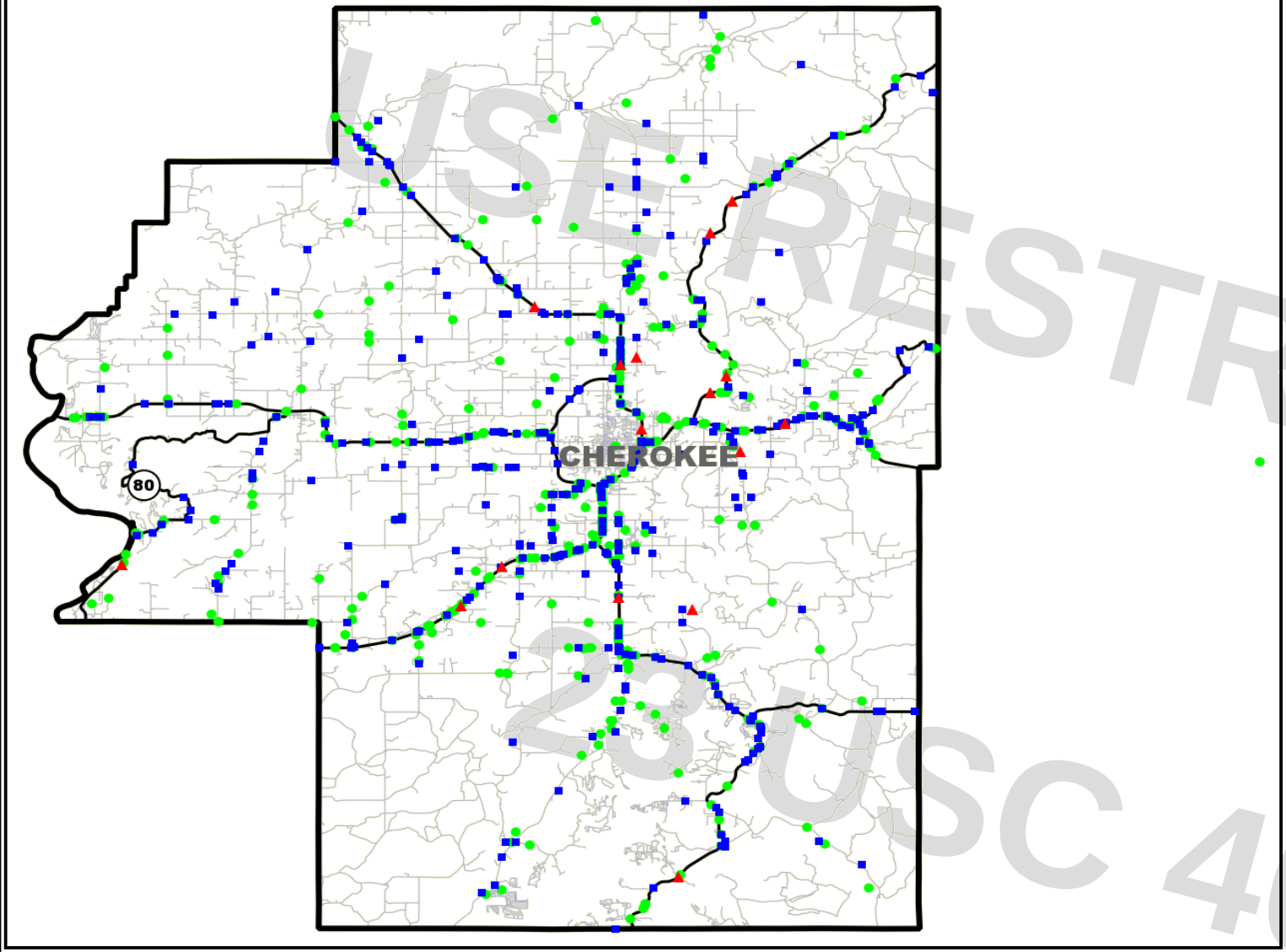
Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	3	10	37	17	121	188	2	19	49	28	125	223	2	7	30	16	52	107
Persons	3	15	51	30		99	2	29	72	37		140	2	5	39	25		71

*** DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.**

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	7	36	116	61	298	518
Persons	7	49	162	92		310

**** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.**



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

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Remarks:

3-YEAR ACCIDENT HISTORY

CHEROKEE COUNTY

464 NONMAPPABLE COLLISIONS **

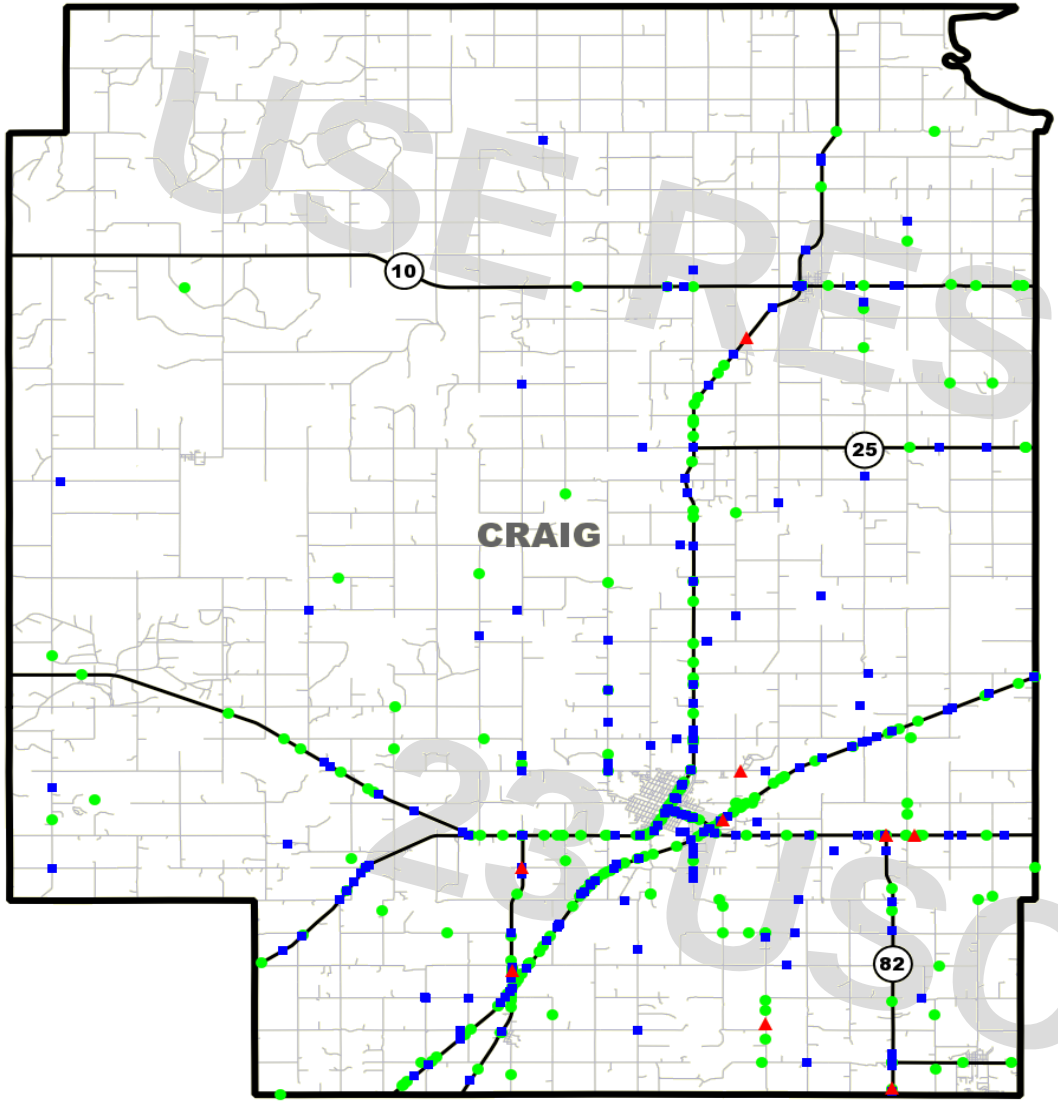
Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	7	22	118	65	388	600	6	34	88	83	360	571	4	11	44	42	251	352
Persons	7	28	171	110		316	7	41	131	119		298	6	11	55	57		129

*** DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.**

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	17	67	250	190	999	1523
Persons	20	80	357	286		743

**** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.**



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N W E S

Remarks:

3-YEAR ACCIDENT HISTORY

CRAIG COUNTY

86 NONMAPPABLE COLLISIONS **

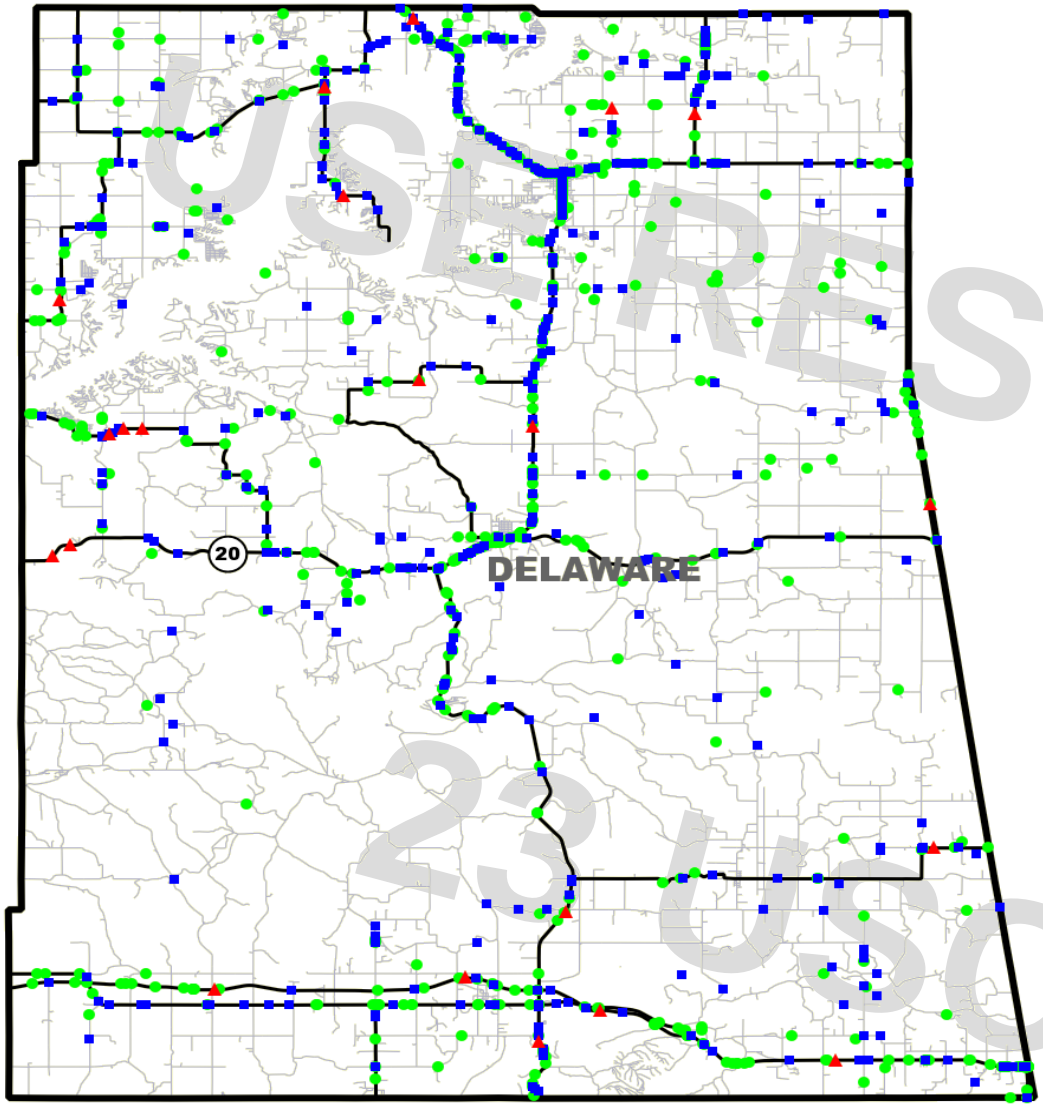
Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	7	8	26	40	159	240		12	25	46	154	237	3	2	16	37	88	146
Persons	7	9	38	67		121		14	34	70		118	4	3	25	46		78

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	10	22	67	123	401	623
Persons	11	26	97	183		317

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.



Program Provided by:
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Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

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W E
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Remarks:

3-YEAR ACCIDENT HISTORY

DELAWARE COUNTY

119 NONMAPPABLE COLLISIONS **

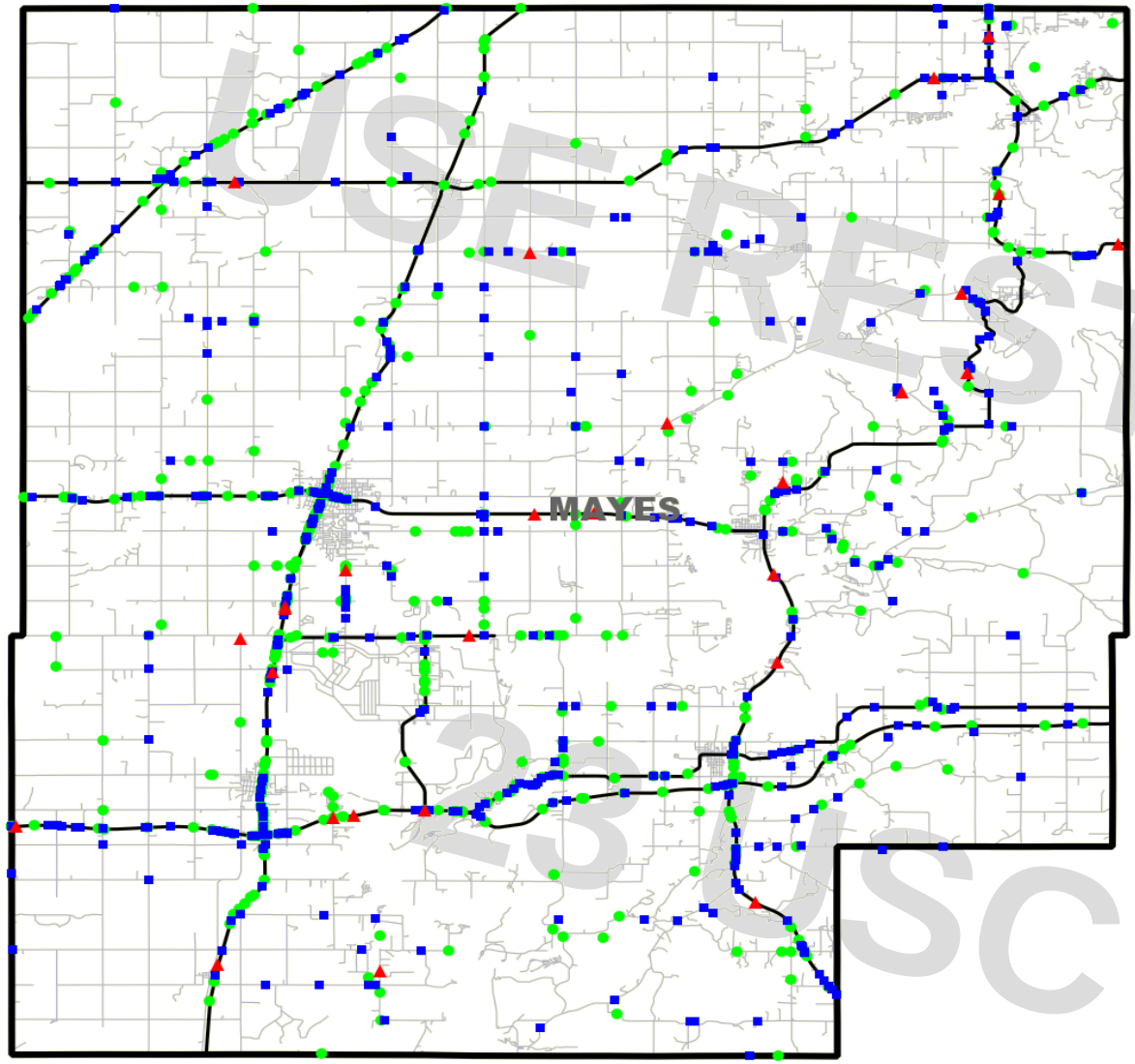
Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	10	21	100	80	315	526	6	28	86	80	303	503	6	19	45	56	206	332
Persons	11	23	135	118		287	7	33	125	123		288	7	20	55	80		162

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	22	68	231	216	824	1361
Persons	25	76	315	321		737

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.



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Collision Analysis and Safety Branch
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Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
S

Remarks:

3-YEAR ACCIDENT HISTORY

MAYES COUNTY

247 NONMAPPABLE COLLISIONS **

Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	14	34	90	99	310	547	6	33	92	103	379	613	11	15	60	66	164	316
Persons	15	46	142	155		358	7	45	124	167		343	16	21	67	81		185

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	31	82	242	268	853	1476
Persons	38	112	333	403		886

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.

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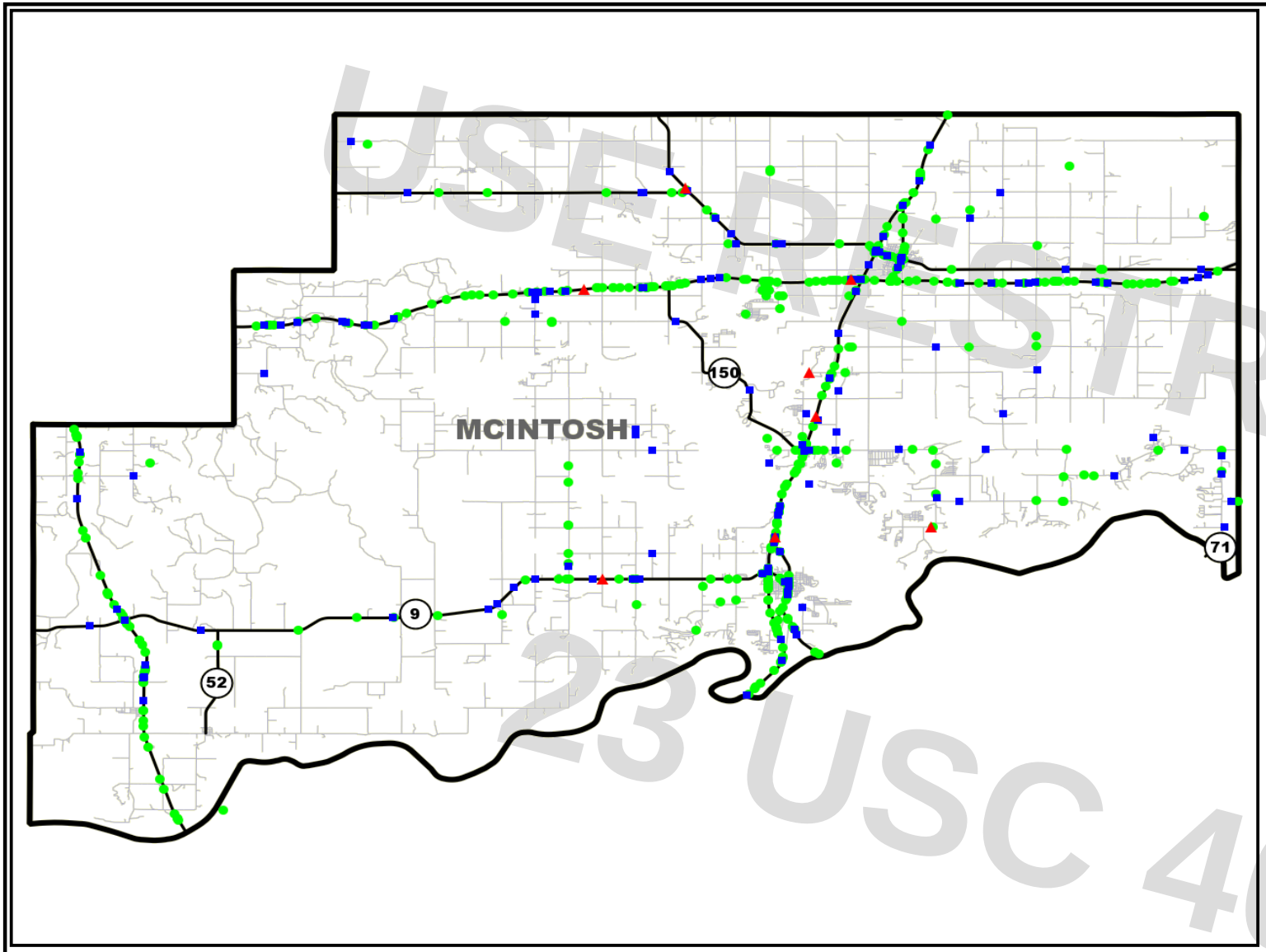
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/21/2016
by Robert Endicott

Study Map & Totals



Legend

- Fatality
- Injury
- Property Damage

N
W E
S

Remarks:

3-YEAR ACCIDENT HISTORY

MCINTOSH COUNTY

88 NONMAPPABLE COLLISIONS **

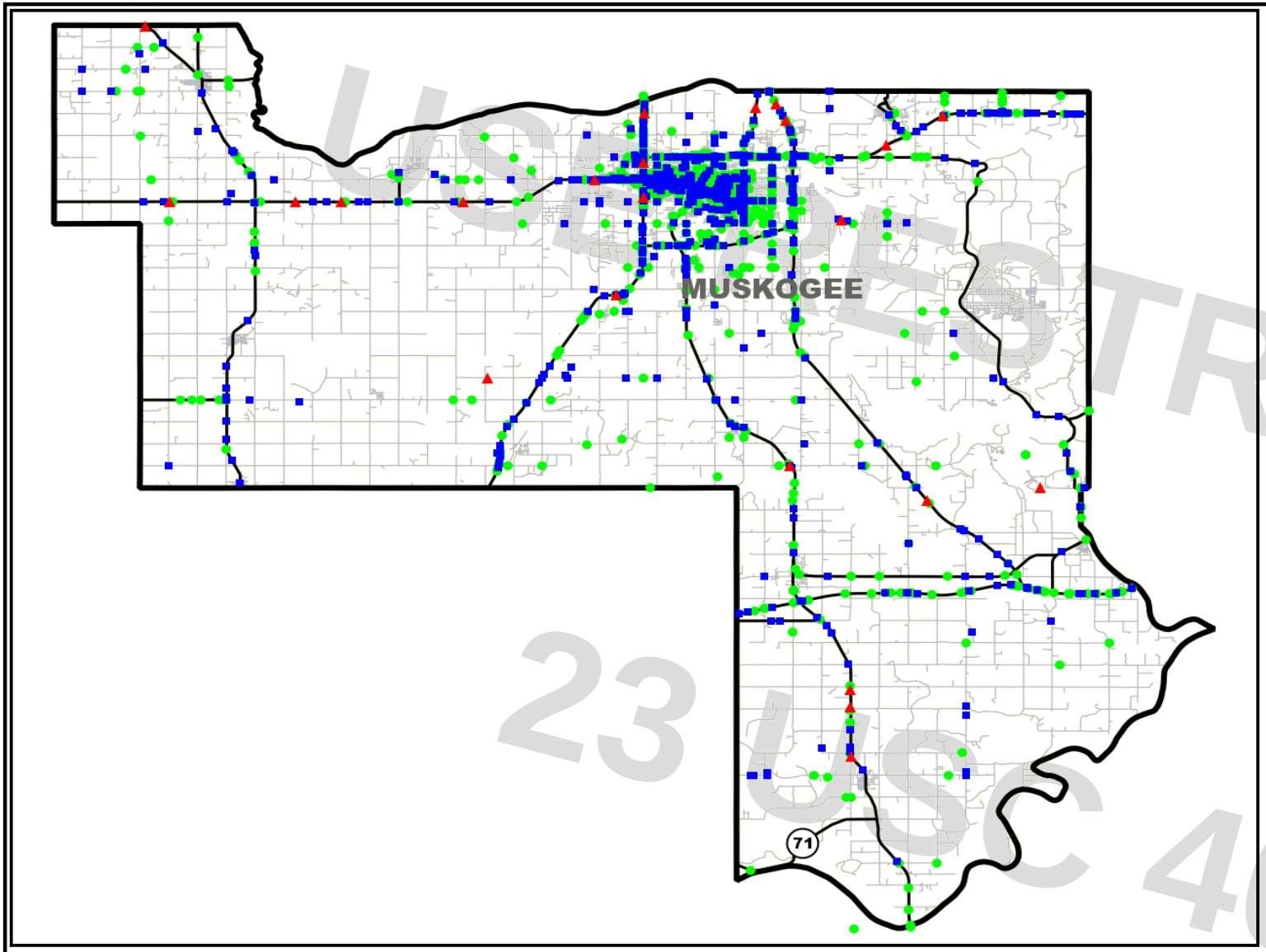
Date Range: 01-01-2014 thru 12-21-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	3	6	21	25	216	271	4	7	15	42	226	294	3	12	17	29	118	179
Persons	3	10	23	44		80	5	12	21	58		96	4	7	15	29		55

*** DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.**

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	10	25	53	96	560	744
Persons	12	29	59	131		231

**** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.**



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/21/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
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Remarks:

3-YEAR ACCIDENT HISTORY

MUSKOGEE COUNTY

231 NONMAPPABLE COLLISIONS **

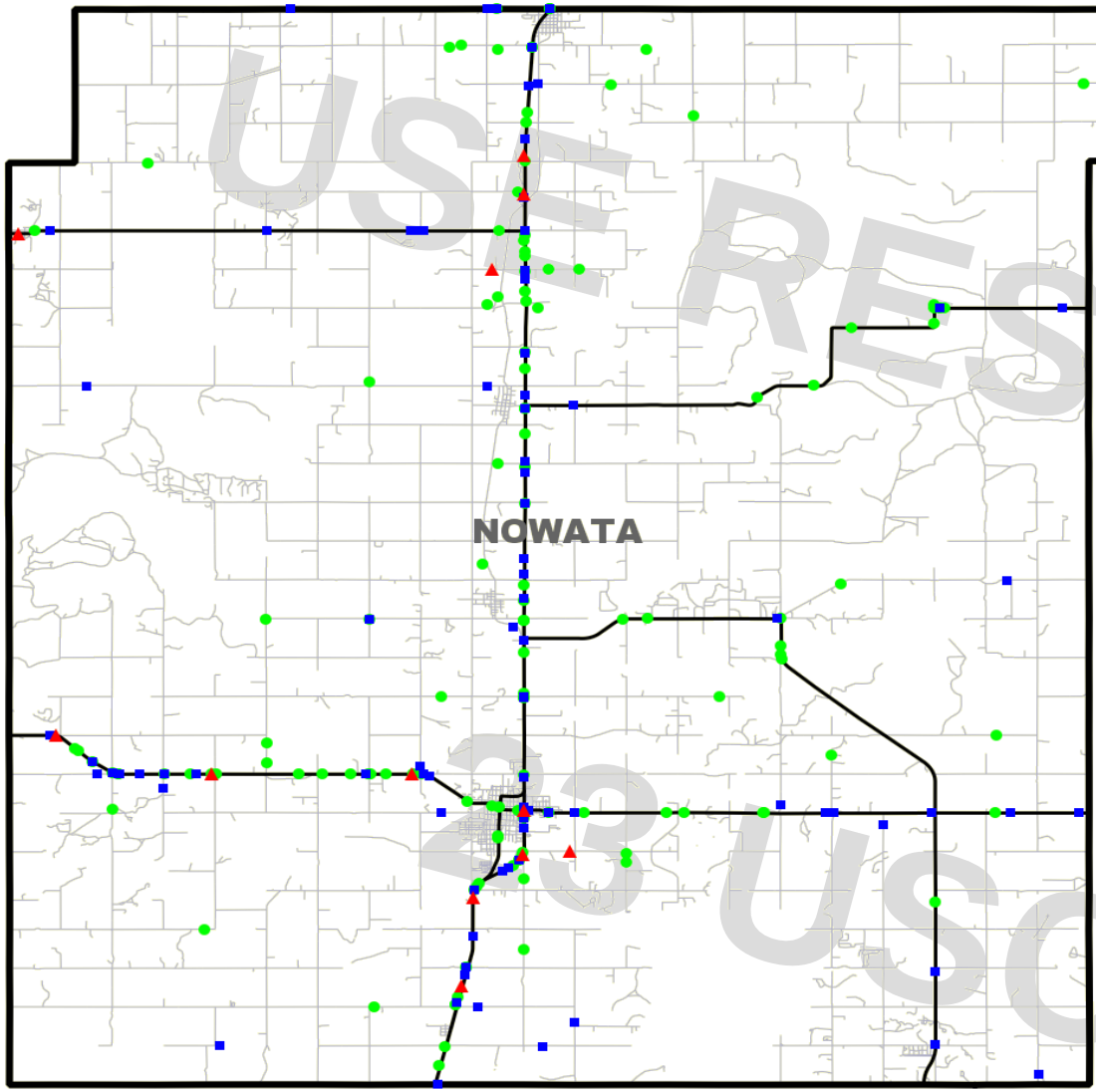
Date Range: 01-01-2014 thru 12-21-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	10	64	127	208	776	1185	10	42	151	235	890	1328	3	23	93	105	397	621
Persons	11	83	199	316		609	12	59	200	370		641	3	20	113	153		289

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	23	129	371	548	2063	3134
Persons	26	162	512	839		1539

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
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Remarks:

3-YEAR ACCIDENT HISTORY

NOWATA COUNTY

16 NONMAPPABLE COLLISIONS **

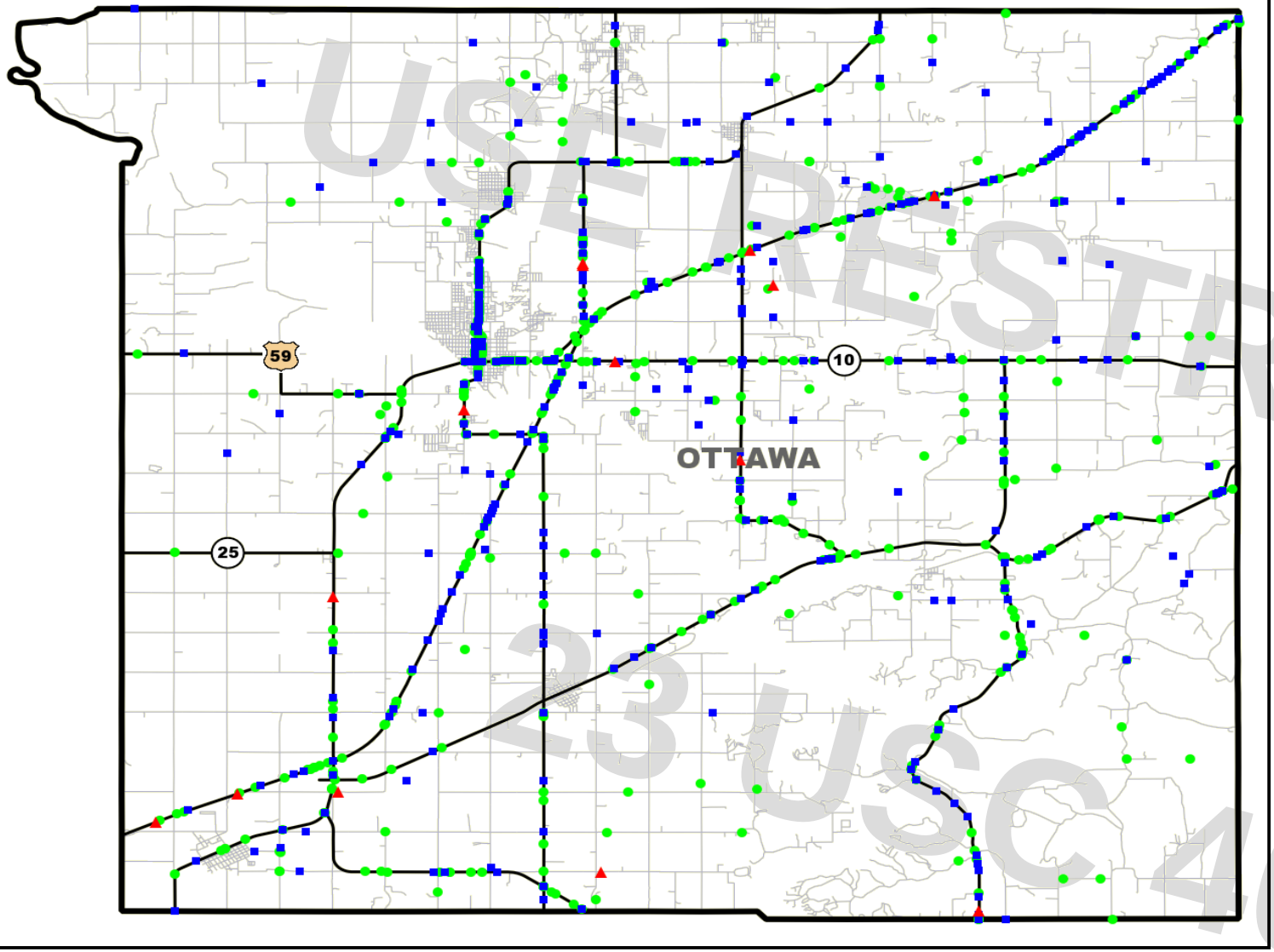
Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	6	7	17	20	59	109	5	2	15	16	63	101	1	6	8	4	25	44
Persons	10	12	27	31		80	6	3	23	21		53	1	4	10	9		24

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	12	15	40	40	147	254
Persons	17	19	60	61		157

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
S

Remarks:

3-YEAR ACCIDENT HISTORY

OTTAWA COUNTY

249 NONMAPPABLE COLLISIONS **

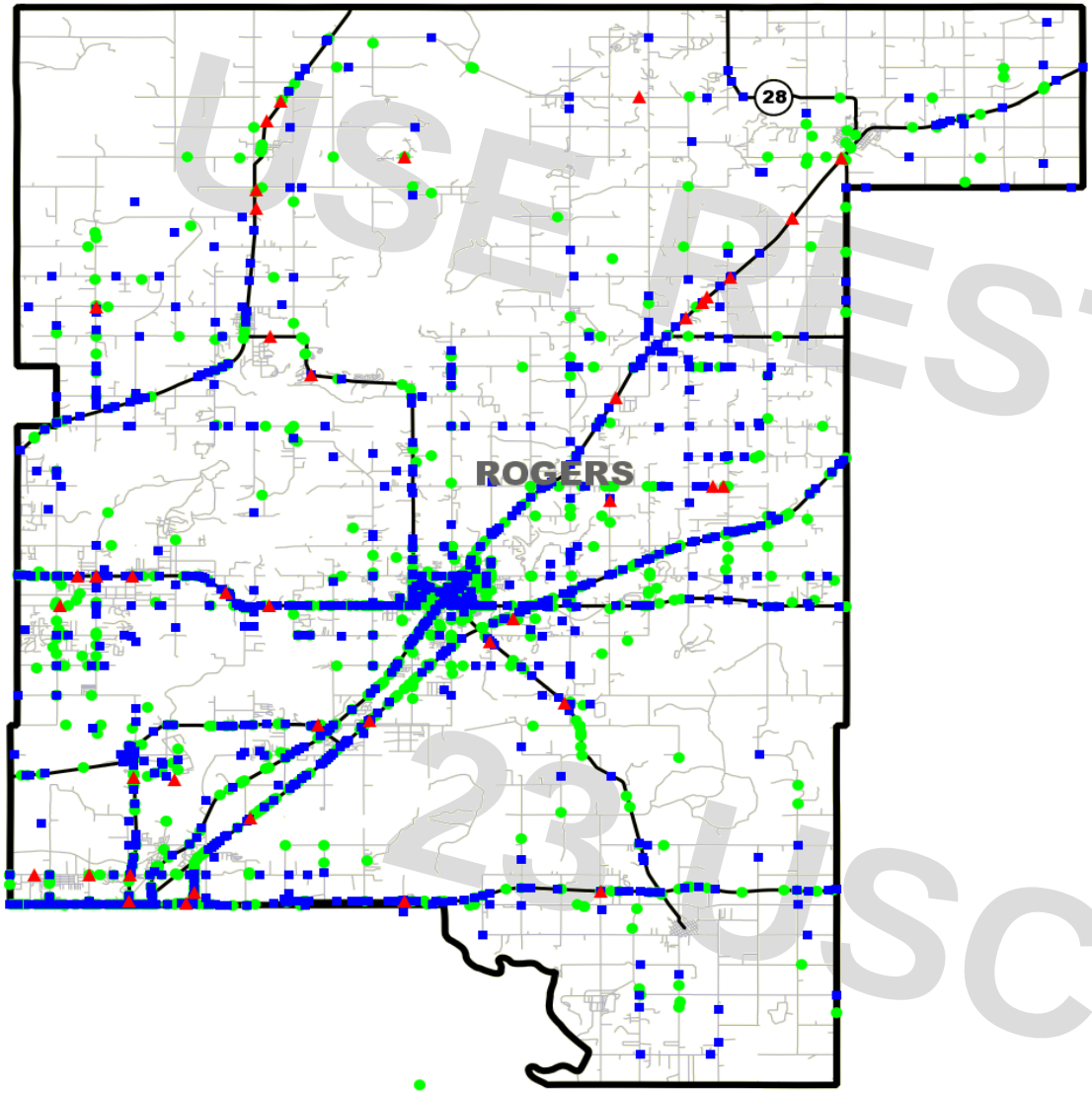
Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	4	12	47	74	239	376	8	21	73	122	366	590	2	14	37	57	176	286
Persons	4	16	67	108		195	10	28	98	169		305	3	18	50	78		149

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	14	47	157	253	781	1252
Persons	17	62	215	355		649

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
S

Remarks:

3-YEAR ACCIDENT HISTORY

ROGERS COUNTY

187 NONMAPPABLE COLLISIONS **

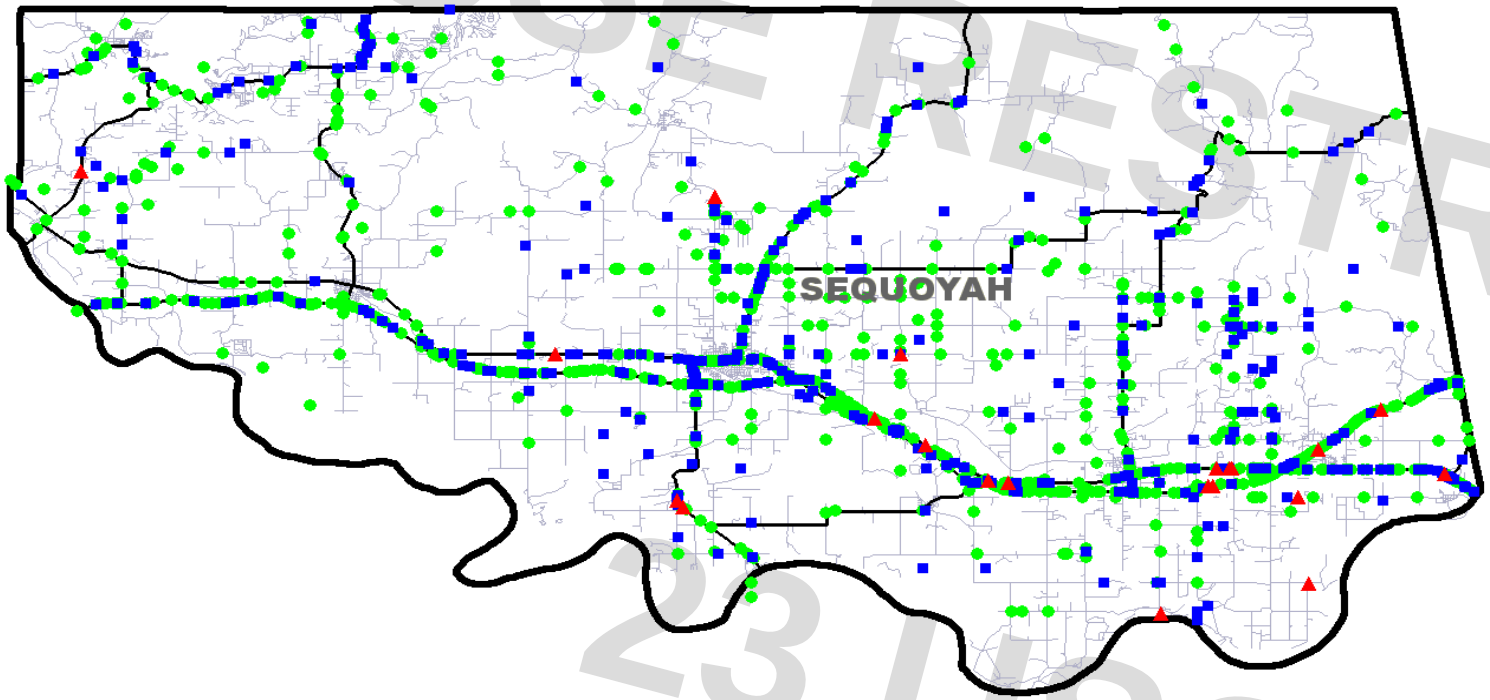
Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	12	82	193	179	719	1185	22	76	196	198	733	1225	9	50	102	130	390	681
Persons	13	99	279	290		681	24	98	315	327		764	9	61	123	200		393

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	43	208	491	507	1842	3091
Persons	46	258	717	817		1838

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.



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(405) 522-0985
Created: 03/17/2015 by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
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Remarks:

3-YEAR ACCIDENT HISTORY

SEQUOYAH COUNTY

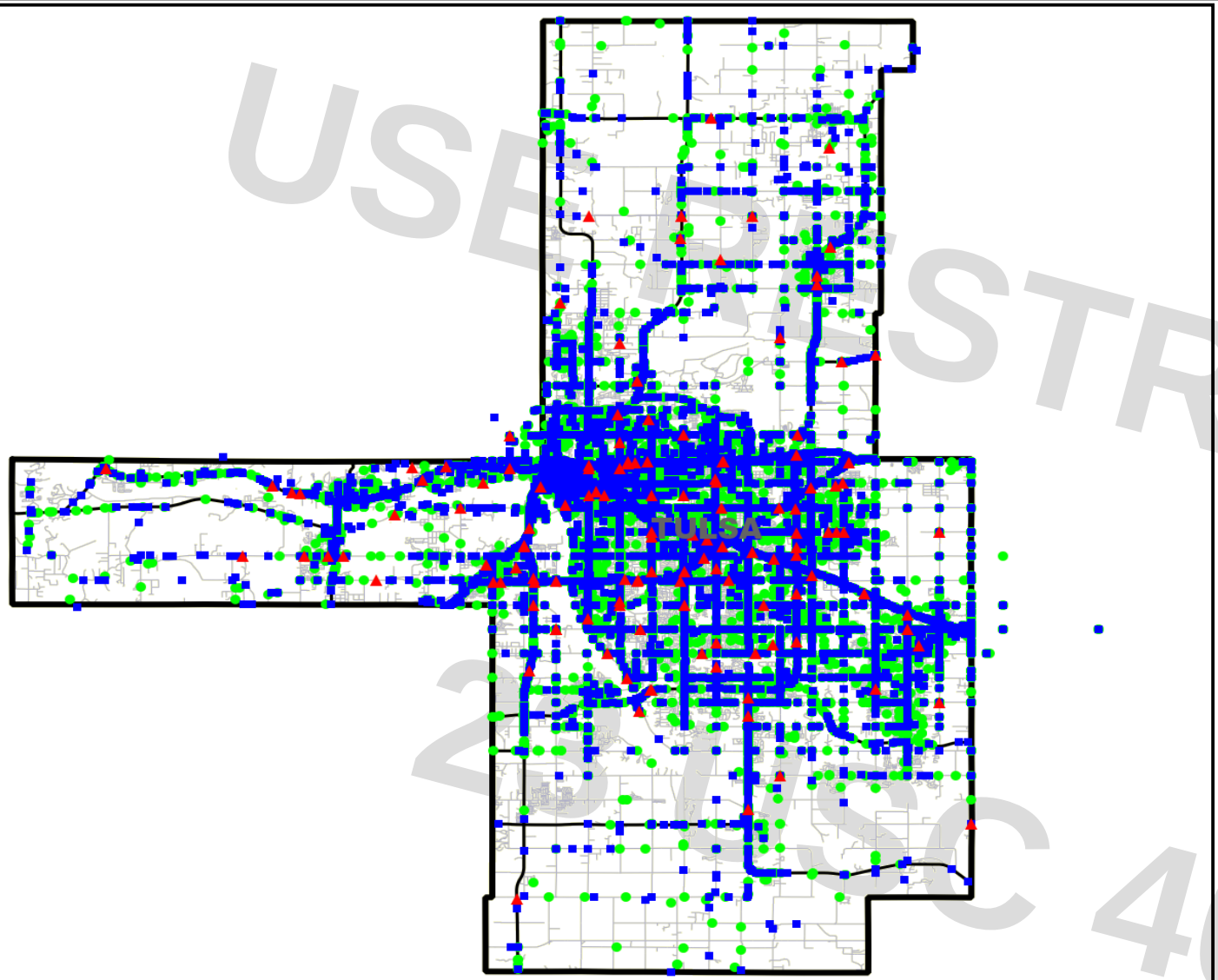
208 NONMAPPABLE COLLISIONS.

Date Range: 01-01-2012 thru 12-31-2014

	2012						2013						2014*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	8	35	47	72	435	597	5	33	59	75	441	613	8	26	55	57	393	539
Persons	8	40	62	103		213	6	44	77	111		238	9	34	68	86		197

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	21	94	161	204	1269	1749
Persons	23	118	207	300		648



Program Provided by:
Traffic Engineering Division
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/21/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
S

Remarks:

3-YEAR ACCIDENT HISTORY

TULSA COUNTY

2104 NONMAPPABLE COLLISIONS **

Date Range: 01-01-2014 thru 12-21-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	55	439	2171	2551	7851	13067	58	383	2013	2746	8177	13377	29	131	777	1101	3397	5435
Persons	57	534	2998	4152		7741	63	463	2797	4456		7779	32	127	917	1487		2563

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	142	953	4961	6398	19425	31879
Persons	152	1124	6712	10095		18083

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.

Program Provided by:
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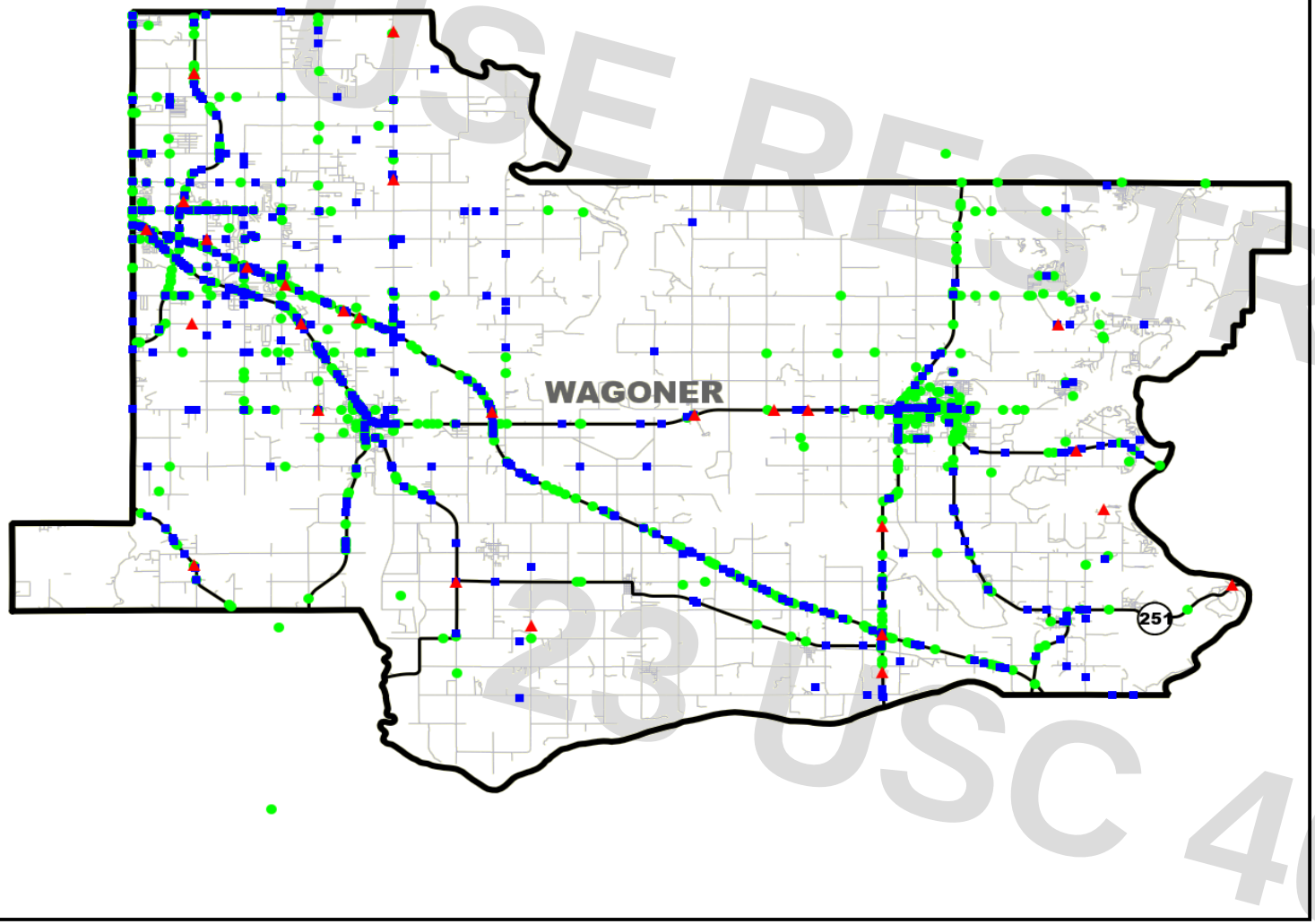
Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals



Legend

- Fatality
- Injury
- Property Damage

N
W E
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Remarks:

3-YEAR ACCIDENT HISTORY

WAGONER COUNTY

206 NONMAPPABLE COLLISIONS **

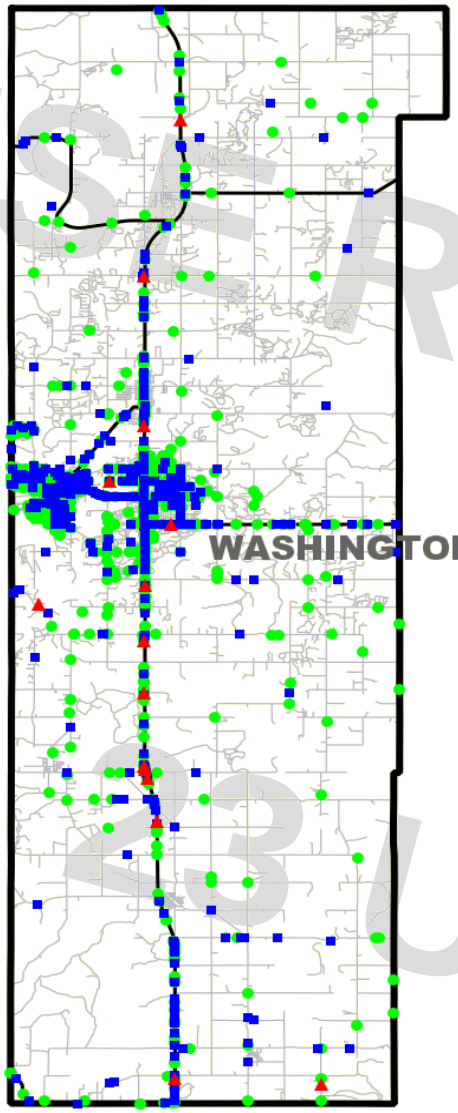
Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	15	32	99	105	488	739	6	41	119	113	470	749	7	19	77	57	303	463
Persons	15	44	158	178		395	6	47	170	176		399	7	18	97	84		206

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	28	92	295	275	1261	1951
Persons	28	109	425	438		1000

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.



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Collision Analysis and Safety Branch
(405) 522-0985
Created: 12/02/2016
by Robert Endicott

Study Map & Totals

Legend

- Fatality
- Injury
- Property Damage

N
W E
S

Remarks:

3-YEAR ACCIDENT HISTORY

WASHINGTON COUNTY

111 NONMAPPABLE COLLISIONS **

Date Range: 01-01-2014 thru 12-02-2016

	2014						2015						2016*					
	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot	Fat	Incap Inj	Non-Incap Inj	Poss Inj	PD	Tot
Collisions	6	12	91	145	606	860	5	18	80	138	560	801	5	15	41	64	284	409
Persons	6	18	132	227		383	7	23	106	224		360	5	18	44	80		147

* DENOTES A YEAR FOR WHICH DATA MAY BE INCOMPLETE.

	Study Total					
	Fatality	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	Property Damage	Total
Collisions	16	45	212	347	1450	2070
Persons	18	59	282	531		890

** NONMAPPABLE COLLISIONS ARE NOT PLOTTED ON THE MAP DUE TO INSUFFICIENT LOCATION INFORMATION.