# Move Safe Action Plan





#### RESOLUTION 23-01 A Resolution Adopting the N.A.R.T.P.C. Regional Safety Action Plan

WHEREAS, the Transportation Policy Committee & the Technical Advisory Committee of the Northeast Arkansas Regional Transportation Planning Commission (N.A.R.T.P.C.) is the officially designated MPO for the Jonesboro metropolitan area; and

WHEREAS, pursuant to 23 U.S. Code § 134, the metropolitan planning organizations (MPOs) shall maintain a transportation planning process that is "continuing, cooperative, and comprehensive" (3-C); and

**WHEREAS,** the Policy Committee has reviewed the Regional Safety Action Plan including the regional strategies and recommendations, and found it to be in agreement with federal, state, and local initiatives, and in compliance with the established Public Participation Plan; and

WHEREAS, the N.A.R.T.P.C. has found the Regional Safety Action Plan to be in compliance with the MPO Metropolitan Transportation Plan (Propel 2045), specifically regarding Goal 3 (Attachment A) with recommended strategies that contribute toward the accomplishment of State DOT safety targets; and

**WHEREAS,** the Regional Safety Action Plan serves as a support document for members of the N.A.R.T.P.C. that elect to participate in the outlined strategies and initiatives.

NOW, THEREFORE, BE IT RESOLVED, by the Transportation Policy Committee of the N.A.R.T.P.C.:

The Northeast Arkansas Regional Transportation Planning Commission (N.A.R.T.P.C.) does hereby adopt the Regional Safety Action Plan.

Duly recorded this 8th day of September, 2022.

SIGNED:

John Street Chairperson Council Member, City of Jonesboro

ATTEST

Alan Pillow Secretary MPO Director, N.A.R.T.P.C.

#### Acknowledgements

A Special thanks to the Arkansas Department of Transportation for providing the necessary data for the development of this plan.

#### **Other Partners**

Cities of Bay, Bono, Brookland, and Jonesboro Craighead County

#### **MPO Staff**

Alan Pillow, Director Nadia Hamdani, MPO Planner

Plan Prepared by Northeast Arkansas Regional Transportation Planning Commission (N.A.R.T.P.C.) Staff 2022



NORTHEAST ARKANSAS REGIONAL TRANSPORTATION PLANNING COMMISSION

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This notice is available from the ADA/504/Title VI Coordinator in large print, on audio tape, and in Braille.

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## **Executive Summary**

The need for a quality roadway system is not exclusive to any one part of the United States. With growing population centers and higher demand to move products and people from one place to another, transportation professionals, at every level of government, have been tasked with producing roadways capable of moving vehicles as efficiently as possible. In such attempts, it is common place for roadway designers to lean on the notion of wider roads and faster speed limits. In recent years our country has seen increases in population, roadway capacity, speed limits, and unfortunately, motor vehicle crashes. The state of Arkansas, and specifically Craighead County, has not been immune to this trend. Subsequently, as the rate of motor vehicle crashes has risen nationwide, so has the rate of fatal and serious injury crashes. As the national initiative of Towards Zero Death begins to thrive throughout the states, the Northeast Arkansas Regional Transportation Planning Commission (N.A.R.T.P.C.) presents the Move Safe Action Plan as its commitment to help reduce traffic fatalities and serious injuries within Craighead County, Arkansas.



Craighead Forest Park Image Source: N.A.R.T.P.C. Staff



### Goal of the Move Safe Action Plan

As a means of support for the projects and strategies outlined in current N.A.R.T.P.C. long- and short-term plans as well as the Regional Active Transportation Plan, this document functions as a continuing evaluation of existing traffic and safety data for Craighead County for the identification, and future improvement, of critical crash corridors within the region. The following areas of focus are outlined in this plan:

- Regional Crash Analysis
- Identified Critical Crash Corridors
- Potential Countermeasures

All of the crash data utilized to develop this update of the Move Safe Action Plan was derived from the Arkansas Department of Transportation (A<sub>R</sub>DOT), which is responsible for the implementation of the statewide eCrash database. The eCrash database allows for more accuracy and consistency regarding crash reporting, monitoring, and analysis. In addition, all information regarding fatal crash incidents throughout the state are ultimately submitted to the NHTSA Fatal Analysis Reporting System (FARS)<sup>1</sup>.

<sup>&</sup>lt;sup>1</sup> NHTSA FARS: <u>https://cdan.nhtsa.gov/STSI.htm</u>



# Chapter 1: Introduction



# Introduction

### 1.1 National Framework

As a region grows, it is expected that the need for accessibility and connectivity will advance alongside it, and Craighead County, which has seen a steady pattern of growth in both economic development as well as overall population in recent years, is not an exception. It is apparent that the vast development of

Craighead County over the years has influenced traffic patterns, roadway design, and even driver behavior. With continued progress expected for the region, it is imperative that an emphasis be placed on public safety.

In an attempt to resolve concerns

surrounding public safety, accessibility and connectivity, the federal government passed three significant pieces of legislation. The Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) Act, which was passed in 2012, established a new framework for the use of federal funds allocated towards transportation projects. The act also required MPOs to utilize a performance-based approach to transportation planning<sup>1</sup>. In 2015, the

Fixing America's Surface Transportation (FAST) Act continued performance-based planning delineated by MAP-21 while establishing seven corresponding performance goals. Safety was the first of the seven performance goals to be enacted with a primary objective of achieving a significant reduction in traffic fatalities and serious injuries on all public roads<sup>2</sup>.

The most recent infrastructure bill, titled the Infrastructure Investment and Jobs Act (IIJA), was passed in 2021, and will continue all highway



Image Source: Talk Business & Politics



<sup>&</sup>lt;sup>1</sup> Federal Highway Administration, 2013: <u>https://www.fhwa.dot.gov/map21/factsheets/mp.cfm</u>

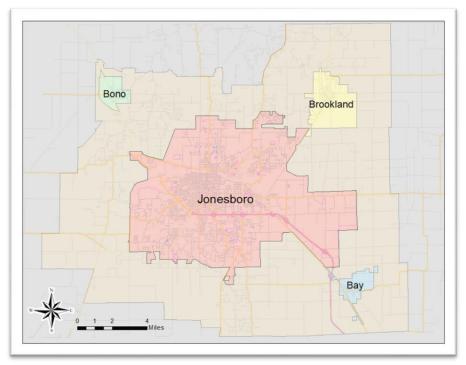
<sup>&</sup>lt;sup>2</sup> Federal Highway Administration, 2012: <u>https://www.fhwa.dot.gov/map21/summaryinfo.cfm</u>



spending programs established by the FAST Act. In addition to the continued highway programs, greater emphasis has been placed on safety through the creation of programs such as the Safe Streets and Roads for All (SS4A) Grant Program. It is through the assessment and establishment of the federal Safety performance measures, statewide performance targets, and newly available funding opportunities that transportation professionals may identify and develop local transportation plans/projects that could help improve the existing surface transportation system within the region.

## 1.2 Local Transportation Planning

Since its inception in 2003, the Northeast Arkansas Regional Transportation Planning Commission (N.A.R.T.P.C.) serves as the designated metropolitan planning organization (MPO) for the cities of Bay, Bono, Brookland, Jonesboro, and some unincorporated portions of Craighead County. As a result, the N.A.R.T.P.C. is tasked with preparing consensus-driven, fiscally-constrained plans for the development of an efficient, affordable, and **safe** regional transportation system. Despite notable consideration for safety during the planning process of the N.A.R.T.P.C., continued increases in both fatal and serious injury crashes have necessitated an increase for further evaluation of the region in order to identify more effective opportunities to improve overall road safety.







### 1.3 Plan Development History

It is the intention of the N.A.R.T.P.C., in collaboration with the Arkansas Department of Transportation (ARDOT) and the local municipalities, to fulfill the federal requirements regarding the Safety performance measures for Craighead County. Since 2017, the N.A.R.T.P.C. has formally agreed to support the Safety performance targets set by ARDOT for the state of Arkansas for the reduction of roadway fatalities and serious injuries. (**See Appendix B**) Additionally, the N.A.R.T.P.C. has agreed to develop (and update biennially) a corresponding action plan to document local planning efforts in the assessment and prioritization of critical corridors that could help reduce the number of fatal and severe injury crashes within the area. Prepared by the N.A.R.T.P.C. with input from ARDOT, member governments and area stakeholders, the Move Safe Action Plan provides an analysis of existing crash data for Craighead County along with project/policy recommendations for potential improvement.

This plan was developed with collaboration from the MPO Citizen Advisory Committee, Technical Advisory Committee, and Policy Committee. Input from local representatives and citizens is critical to ensure that each plan created by the N.A.R.T.P.C. is effective, equitable, and beneficial to the growth and general wellbeing of the region. It is the intention of the MPO staff and Policy Board that the **Move Safe Action Plan** will be a living document subject to periodic review and update in order to provide the most relevant data and guidance.

Per the N.A.R.T.P.C.'s Public Participation Plan, MPO staff garnered public input for the Regional Safety Action Plan by carrying out the following:

- Meetings with the MPO Citizen Advisory Committee on May 18, 2022 and July 20, 2022
- Creation of digital Transportation Safety Survey
  - Flyers created in both English and Spanish
  - QR codes made available via MPO social media accounts
- Physical surveys created
  - Distributed to public locations across the region (county library, city halls, Hispanic center, and community centers)
  - Surveys were presented in English and Spanish
- Released draft plan for 15-day public comment period from August 23, 2022 to September 6, 2022 (15-days)
- Developed a public website (with a dedicated public comment page) to display a complete draft of the plan
- Newspaper advertisement published in the Jonesboro Sun on August 23, 2022



• Mailing and delivering of hard copies of the draft plan to the individual city halls of Bay, Bono, Brookland, and Jonesboro; Additional copies sent to Craighead County Library and Craighead County Courthouse



# Chapter 2: Safety Performance Measures





# Safety Performance Measures

### 2.1 What We Measure?

To help further the national initiative to eliminate roadway fatalities, the Federal Highway Administration (FHWA) outlined **five** Safety performance measures for states to monitor reduction in the annual number of fatalities and serious injuries on all public roads. The five measures are listed as follows<sup>1</sup>:

- 1. Number of fatalities- The total number of persons (per state and/or MPO area) suffering fatal injuries in a motor vehicle crash during a calendar year.
- Rate of fatalities per 100 million Vehicle Miles Traveled (VMT) The ratio of the total number of fatalities to the number of VMT (expressed in 100 Million VMT) in a calendar year.
- 3. Number of serious injuries- The total number of persons (per state and/or MPO area) suffering at least one serious injury in a motor vehicle crash during a calendar year.
- Rate of serious injuries per 100 million VMT- The ratio of total number of serious injuries to the number of VMT (expressed in 100 Million VMT) in a calendar year.
- Number of non-motorized fatalities and serious injuries- The combined total number (per state and/or MPO area) of non-motorized fatalities & non-motorized serious injuries involving a motor vehicle during a calendar year



Image Source: Campus Security & Life Safety

In accordance with the 2015 FAST Act and the subsequent IIJA, all state Departments of Transportations (DOTs) and Metropolitan Planning Organizations (MPOs) are required to establish annual performance targets to address each given Safety measure, and monitor/report annual progress to the FHWA. Additionally, all state DOTs must include the statewide performance

<sup>&</sup>lt;sup>1</sup> Federal Highway Administration, 2020: <u>https://safety.fhwa.dot.gov/hsip/spm/state\_safety\_targets/</u>



targets in the annual Highway Safety Improvement Plan (HSIP) report. Additionally, MPOs have the option to either support the annual safety performance targets established by their state or develop separate targets for their specific jurisdiction. MPOs are also required to incorporate the federal performance measures in their long- and short-term transportation plans, (Metropolitan Transportation Plan and the Transportation Improvement Program)<sup>2</sup>.

## 2.2 How We Measure?

Annual performance targets are developed by determining the five-year average of all motor vehicle crashes for each given Safety measure during a calendar year. The results of those findings, referred to as **rolling averages**, are then used to calculate a single, overall average. This average serves as the target number for each of the five safety measures.

### 2.3 Why We Measure?

Pursuant to 23 USC 148<sup>3</sup>, the Arkansas Department of Transportation ( $A_R$ DOT) established the 2022 Safety performance targets for the state of Arkansas (**See Table 2.1**)<sup>4</sup>.

Despite a modest lowering from 2020 to 2021, the statewide targets for number and rate of fatalities increased significantly in 2022. ARDOT cited various



Image Source: N.A.R.T.P.C. Staff

external factors for the increase, including but not limited to: speed limit increase on rural freeways, sudden decrease in VMT in Arkansas, increase in speeding citations (See Appendix B). These external factors were also used as justification for a modest increase in the target number of Non-motorized Fatalities and Serious Injuries in 2022 after a substantial decrease for 2021. It

<sup>&</sup>lt;sup>2</sup> Federal Highway Administration, 2020: <u>https://safety.fhwa.dot.gov/hsip/spm/state\_safety\_targets/</u>

<sup>&</sup>lt;sup>3</sup> Federal Highway Administration, 2017: <u>https://safety.fhwa.dot.gov/legislationandpolicy/fast/guidance.cfm</u>

<sup>&</sup>lt;sup>4</sup> Federal Highway Administration, 2019: <u>https://safety.fhwa.dot.gov/hsip/reports/pdf/2019/ar.pdf</u>



should be noted that the target number and rate of Serious Injuries has decreased each year since 2020.

On September 28, 2021, the N.A.R.T.P.C. Transportation Policy Committee (TPC) adopted the 2022 Safety performance targets established by  $A_RDOT$  with the agreement to plan and program local transportation projects for the MPO region in order to provide the state with the necessary support to reduce the annual statewide number of roadway fatalities and serious injuries.

Safety Performance Measures	AR 2020 Safety Performance Targets	AR 2021 Safety Performance Targets	AR 2022 Safety Performance Targets	
Number of Fatalities	541.2	536.3	631.5	
Rate of Fatalities per 100 million VMT	1.595	1.560	1.808	
Number of Serious Injuries	3,201.4	3,103.8	2,996.9	
Rate of Serious Injuries per 100 million VMT	9.441	9.043	8.608	
Number of Non-motorized Fatalities & Serious Injuries	300.3	220.3	229.2	

To help advance local planning efforts, particularly regarding safety, the N.A.R.T.P.C. maintained collection and analysis of available crash data from A<sub>R</sub>DOT as well as the National Highway Traffic Safety Administration (NHTSA) Fatal Analysis Reporting System (FARS) for the MPO study area in order to monitor existing crash conditions within the region and make recommendations for safety improvement projects. The FARS data contained in this document reflects statewide crash findings provided from the annual crash reports submitted by local municipalities to the ASP and ARDOT. The most recent available crash data for the MPO region, specifically Craighead County, was compiled and analyzed for this update of the Move Safe Action Plan.

### 2.4 Toward Zero Deaths

In addition to the federally mandated performance measures/targets that the state sets each year, A<sub>R</sub>DOT has adopted a Toward Zero Deaths program. The goal of this program is to eventually reach zero fatalities on all Arkansas roadways. The Arkansas Towards Zero Deaths program website can be found at the following link: <u>https://www.tzdarkansas.org/</u>



The N.A.R.T.P.C. is in support of ARDOT's attempts to reduce roadway fatalities, and it is the goal of the N.A.R.T.P.C. to achieve a steady annual decline in regional fatalities until we reach the goal of zero fatalities as a region and a state.

Action Plan



# Chapter 3: Regional Population Profile



# **Regional Population Profile**

## 3.1 Population Estimates

In Chapter 1, we established that the N.A.R.T.P.C. jurisdiction encompasses the cities of Bay, Bono, Brookland, Jonesboro, and some unincorporated portions of Craighead County. It is evident from the 2020 Census that region has experienced significant population growth over the last 20 years. **(See Table 3.1 below)** 

N.A.R.T.P.C. Planning Area	2000 Population	2010 Population	2020 Population	Percent Change 2000-2020	Average Annual Growth
Bay	1,800	1,801	1,876	4.2%	0.21%
Bono	1,512	2,131	2,409	59.3%	2.97%
Brookland	1,332	1,642	4,064	205.1%	10.26%
Jonesboro	55,515	67,263	78,576	41.5%	2.08%
Craighead County	82,148	96,443	111,231	35.4%	1.77%

With Craighead Forest Park, The Forum Theatre, a thriving downtown area, and a myriad of other local attractions and developments (both established and upcoming), it is anticipated that the population of Craighead County will



continue to rise. Additionally, it

Image Source Arkansas State University

cannot be overstated that Arkansas State University has been a driving force in the development of the region. With nearly 14,000 students enrolled, various



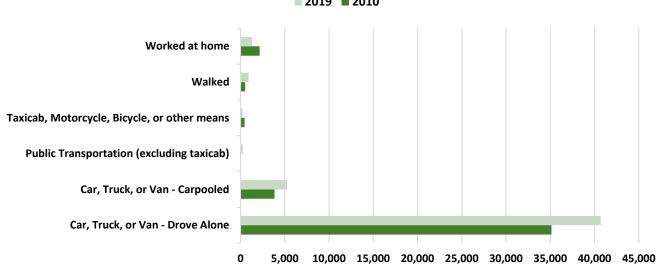
## **Move Safe** Action Plan

high-profile sports programs, and the First National Bank Arena, it is apparent that Arkansas State University will continue fostering growth for years to come<sup>1</sup>

### 3.2 Regional Travel Behavior

According to 2019 census estimates, there were **48,636** workers aged 16 and over residing in Craighead County, the vast majority reported that they work within the county itself. Of the 48,636 workers, living in Craighead County, roughly 86% drive to work alone (car, truck, or van). (See Figure 3.1)

Figure 3.1: U.S. Census Comparison of Workers Aged 16 and Over Mode of Travel to Work - Craighead County



2019 2010

Data Source: U.S. Census Bureau, American Community Survey



Image Source: N.A.R.T.P.C. Staff

Additionally, 2015 census estimates indicate that 9,627 workers commuted from their county of residence to Craighead County. Of note, 2,994 of Greene County's workers and 2,617 of Poinsett County's workers commuted from their county of residence to Craighead County, which comprised 17% of the former's workforce and 29% of the latter's. (See Table 3.2 below) These figures do not even begin to factor in the number of

<sup>&</sup>lt;sup>1</sup> Arkansas State University, 2021: <u>https://www.astate.edu/news/fall-2021-enrollment-shows-gains-in-several-</u> areas-total-of-13-772



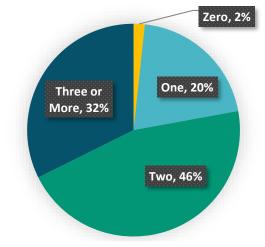
people that visit from outside of the county to enjoy the many leisurely activities available to them in Craighead County.

Resident State	Resident County	Workers Commuting to Craighead County	Margin of Error (+/-)	Number of Workers	Margin of Error (+/-)	% of Respective County's Workforce
AR	Greene County	2,994	403	17,339	616	17%
AR	Poinsett County	2,617	300	8,904	380	<b>29</b> %
AR	Lawrence County	918	169	6,308	337	15%
AR	Randolph County	500	152	6,546	401	8%
AR	Mississippi County	464	146	16,749	645	3%
AR	Jackson County	282	75	5,460	365	5%
AR	Cross County	199	78	6,975	306	3%
мо	Dunklin County	180	80	11,505	444	2%
AR	Clay County	172	78	6,197	257	3%
TN	Shelby County	134	64	418,622	2,987	0%
AR	Pulaski County	122	94	179,620	2,074	0%
AR	St. Francis County	119	94	8,993	464	1%

Such significant growth in the number of people/workers within the metropolitan planning area most certainly contributes to the increase in the daily number of vehicles traveling the region's roadways. In 2019, the U.S. Census Bureau estimated that 75.3% of households with workers aged 16 and over in Craighead County had at least two vehicles available for use. (See Figure 3.2) When considering those vehicles coupled with the number of drivers who commute to and/or visit Craighead County, the daily number of cars on the area's roadways can become staggering, intensifying the demand for safety in the region's transportation planning process.

Data Source: U.S. Census Bureau, American Community Survey

## Figure 3.2: 2020 U.S. Census Estimates Percentage of Household Vehicles - Craighead County



Data Source: U.S. Census Bureau, American Community Survey

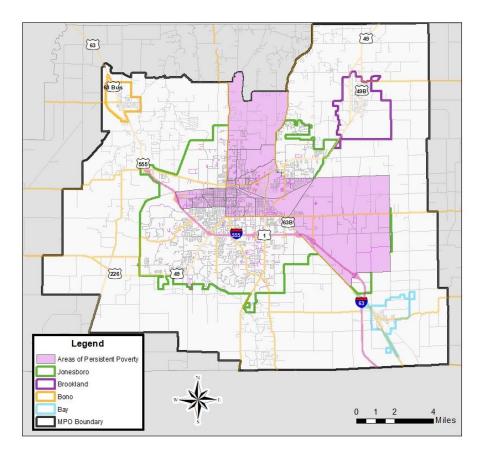


### <u>3.3 Areas of Persistent Poverty and Historically</u> <u>Disadvantaged Communities</u>

In order to ensure and equitable planning process, MPO staff utilized US Department of Transportation (DOT) data to identify census tracts classified as **Areas of Persistent Poverty** or **Historically Disadvantaged Communities**.

### 3.3.1 Areas of Persistent Poverty

According to the definition provided by the US DOT, an area of persistent poverty identifies a census tract that has a poverty rate of at least 20 percent. The classification is derived from 2014-2018 data series from the American Community Survey. Below you will find a map that identifies areas of persistent poverty within the metropolitan planning area.

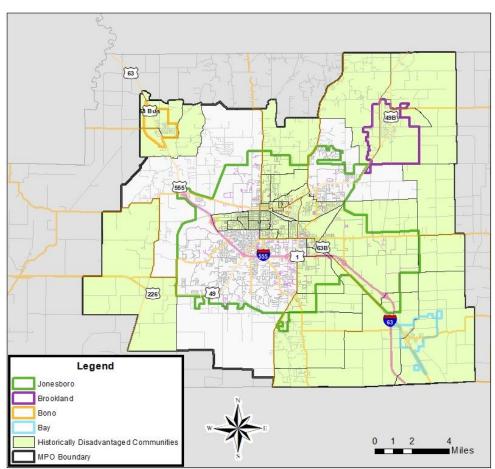


#### Figure 3.3: Areas of Persistent Poverty within Metropolitan Planning Area



### 3.3.2 Historically Disadvantaged Communities

Below you will find a map that displays areas, determined by the DOT, classified as historically disadvantaged communities. Throughout the development of this plan, special consideration was given to areas listed as areas of persistent poverty or historically disadvantaged communities.



# Figure 3.4: Historically Disadvantaged Communities within the Metropolitan Planning Area



# Chapter 4: Regional Crash Analysis



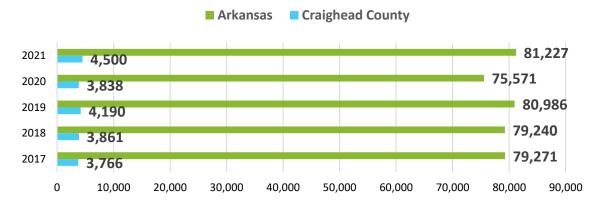
# Regional Crash Analysis

This chapter provides an assessment of existing crash conditions for Craighead County from 2016 to 2021. This five-year comparison, made possible by the N.A.R.T.P.C.'s utilization and review of crash data from A<sub>R</sub>DOT's eCrash system, Jonesboro E-911, and the NHTSA Fatal Accident Reporting System (FARS), facilitates the evaluation of motor vehicle crash factors for the region. Such factors allow for the identification of crash trends and critical focus areas. A preliminary Safety Analysis Report of the presented data was previously developed by N.A.R.T.P.C. staff in preparation for this plan update, and can be reviewed in **Appendix D**. At the time of development for this plan, FARS data only extended to 2020.

### 4.1 Overall Motor Vehicle Crashes

Between 2017 and 2021, Craighead County experienced a **19.5%** increase in the total number of motor vehicle crashes without regard to severity (**See Figure 4.1 below**).<sup>1</sup> Although this increase can be considered significant, it is important to note that a portion of the escalation can be accredited to a consistent increase in overall agency reporting as a result of the implementation of the new statewide eCrash database by A<sub>R</sub>DOT. The eCrash database allows for more accuracy and consistency of crash records logged by various law enforcement agencies throughout the state of Arkansas.

Figure 4.1 2017-2021 Total Motor Vehicle Crashes: Arkansas v. Craighead County



Total Number of All Crashes: Arkansas v. Craighead County Comparison

<sup>1</sup> National Highway Traffic Safety Administration: <u>https://cdan.nhtsa.gov/stsi.htm</u>



### 4.2 Regional Safety Performance

### Craighead County: Number of Crash Fatalities

In addition to the rise in total number of crashes within the MPO region, Craighead County averaged **18 fatalities** per year between 2016 and 2020, all as a result of motor vehicle collisions (**See Table 4.1**).<sup>2</sup> According to the 2014-2018 FARS Traffic Safety Facts for the state of Arkansas, Craighead County ranked #4 in the 2020 Top 10 Listing of Arkansas Counties for Crash Fatalities. However, Craighead County did not rank in the top 10 in regards to fatalities per 100,000 people (**See Appendix C for full report**). The number of fatalities was largely consistent

Table 4.1 2016-2020 Craighead County CrashFatalities Comparison

Year	Arkansas Total Crash Fatalities	Craighead County Total Crash Fatalities
2016	561	18
2017	525	17
2018	520	18
2019	515	18
2020	638	20

for Craighead County with a slight increase from 2019 to 2020. The state actually saw an annual decrease in fatalities until 2020 when the state experienced a one year increase of 23.9%.



Intersection Crash at Harrisburg Rd. & Parker Rd. Image Source: N.A.R.T.P.C. Staff

<sup>&</sup>lt;sup>2</sup> National Highway Traffic Safety Administration: <u>https://cdan.nhtsa.gov/stsi.htm</u>



### Craighead County: Number of Crash Serious Injuries

Table 4.2 2016-2020 Craighead County Serious InjuryCrash Comparison

Year	Craighead County Total Crash Serious Injuries	Craighead County Total Collisions Resulting in Any Injury (Regardless of Severity)
2017	89	934
2018	76	924
2019	129	1078
2020	93	984
2021	90	1062

Between 2017 and 2021, Craighead County was somewhat consistent in the annual number of serious, or incapacitating, injuries as a result of a motor vehicle collision, with an overall average of **95.4** serious injuries per year. In all, **24.7%** of the total motor vehicle collisions that occurred in Craighead County during the given timeframe resulted in some type of injury (whether incapacitating, non-incapacitating, or possible injury).

# Craighead County: Number of Non-Motorized Crash Fatalities & Serious Injuries

Year	Craighead County Total Crash Fatalities	Craighead County Total Non-Motorized Crash Fatalities
2016	12	1
2017	17	2
2018	18	3
2019	17	4
2020	18	3

Table 4.3 2016-2020 Craighead County Non-Motorized Crash Fatality Comparison



### <u>4.3 Manner & Type of Collisions</u>

Between 2017 and 2021, the top 3 manner of vehicle crashes reported for Craighead County, regardless of severity, were classified, in ranking order, as **Rear End Collisions, Angled Collisions, and Single Vehicle Crashes (See Figure 4.2 below)**. Throughout this five year period, there were actually **1,385 more Rear End** crashes in Craighead County than the next highest crash type (**Angled Crashes**). That figure is even more concerning when compared to the **13.7%** increase in **Angled Crashes** that occurred in Craighead County from 2017 to 2021.

### Common Causes of Top Crash Manners:

- Rear-End Collisions: Tailgating, Speeding, Distracted Driving (i.e. eating, texting, grooming, etc.), Drug/Alcohol Impairment, Drowsy Driving, Weather Conditions <sup>3</sup>
- Angled Collisions: Violating a traffic light, Failing to properly yield, Limited Sight Distance 4
- Single Vehicle Crashes: Distracted Driving, Mechanical Failure, Road Departure, Inexperienced Driver, Animal Crossings, Flying Objects<sup>5</sup>

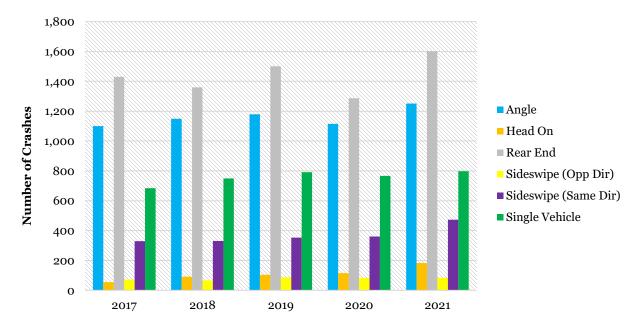


Figure 4.2 2016-2020 Craighead County Crash Manner Comparison (Regardless of Severity)

\*The Federal Highway Administration defines "roadway departure" as a crash which occurs after a vehicle crosses an edge line or a center line, or otherwise leaves the traveled way.

<sup>4</sup> City of Fort Collins, Colorado: <u>https://www.fcgov.com/traffic/rtangle\_crashes.php</u>

<sup>&</sup>lt;sup>3</sup> Hart Law Firm: <u>https://www.thehartlawfirm.com/library/main-reasons-drivers-cause-rear-end-collisions.cfm</u>

<sup>&</sup>lt;sup>5</sup> Trantolo & Trantolo LLC, 2019: <u>https://www.trantololaw.com/law-firm-blog/car-accidents/causes-single-vehicle/</u>

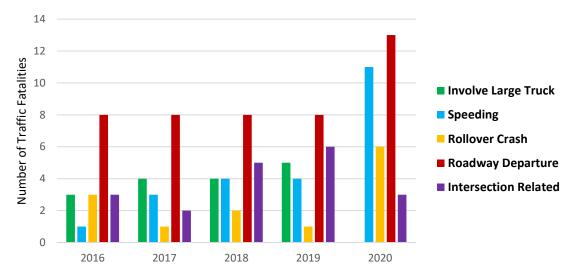


#### **Crash Type & Fatalities**

As a result of the five year analysis of all motor vehicle crash fatalities that occurred in Craighead County between 2016 and 2020, records indicate that **Roadway Departure** and **Intersection Related Crashes** are major contributors to the number of crash fatalities documented for the region. (**See Figure 4.3 below**) For the given timeframe, crash records show that the number of roadway departure crash fatalities in Craighead County were largely consistent aside from the significant increase observed in 2020. In contrast there was significant variability in the number of intersection related crash fatalities from year to year with the lowest being two fatalities (2017) and the highest being six (2019). Additionally, it should be noted that there was a significant increase in the number of fatal crashes for most categories in 2020.

#### Common Causes:

- Roadway Departure: Environment, Human Factors, Road Design, or a combination of several factors<sup>6</sup>
- Intersection-Related Crashes: One or more drivers fail to abide by traffic signals and/or signs



#### Figure 4.3 2016-2020 Craighead County Fatalities per Crash Type

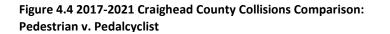
**Note**: While the combined fatality count for all categories listed in Figure 4.3 is relatively high for the region, according to FARS, it is important to mention that a fatality can be classified in more than one reporting category depending on the

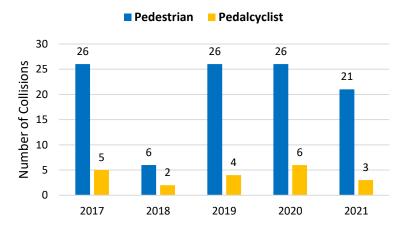
<sup>&</sup>lt;sup>6</sup> FHWA, 2017: <u>https://www.fhwa.dot.gov/publications/publicroads/05jul/03.cfm</u>



circumstances of the collision. Therefore, the sum of the individual categories listed in the graph will not be equal to the overall fatality count of Craighead County due to this double counting.

#### Vehicle Collisions with Pedestrians & Pedalcyclists





Between 2017 and 2021, Craighead County averaged **21** vehicle collisions with a pedestrian and **4** vehicle collisions with a pedalcyclist per year. Despite the significant reduction in collisions involving pedestrians and pedalcyclists in 2018, it is important to note that Craighead County has recorded multiple pedestrian fatalities each year from 2017 to 2021 (**See Appendix C**). This

data continues to indicate a need for improvements to pedestrian safety and education within the region.



Temporary Pedestrian Crossing at State St. and HWY 91 Image Source: N.A.R.T.P.C. Staff



### 4.4 Motorist Behavior

#### Speeding

Table 4.4 2016-2020 Craighead Count Total Crash FatalitiesComparison: Speeding

Year	Craighead County Total Crash Fatalities	Total County Fatalities Involving Speeding	% of Total County Crash Fatalities Involving Speeding
2016	18	1	6%
2017	17	3	18%
2018	18	4	22%
2019	18	4	22%
2020	20	11	55%

According to FARS, from 2016 to 2020 speeding was a significant factor for motor vehicle crash fatalities within Craighead County. During the given timeframe, Craighead County averaged **4.6** crash fatalities per year with speeding as a definitive circumstance of

% of Total

the accident, with a large uptick in speeding related fatalities in 2020. Overall **21%** of the crash fatalities that occurred in Craighead County during the designated period were the result of speeding.

### Alcohol Impairment (Blood Alcohol

Content Equaling .08 or Above) Table 4.5 2016-2020 Craighead Count Total Crash Fatalities Comparison:Alcohol Impaired

Total

According to FARS, from 2016 to 2020, alcohol impairment was a significant factor for crash fatalities within Craighead County. Overall, **28%** of the total

Year	Craighead County Total Crash Fatalities	County Fatalities Involving Alcohol	County Crash Fatalities Involving Alcohol
2016	18	6	33%
2017	17	6	35%
2018	18	2	11%
2019	18	4	22%
2020	20	8	40%

crash fatalities that occurred in Craighead County during the given timeframe reported alcohol impairment, with an average of **5.2** fatalities per year. Much like speeding, alcohol impaired crash fatalities increased in 2020.



### Observed Seatbelt Usage (Unrestrained)

Table 4.6 2016-2020 Craighead Count Total Crash Fatalities

Comparise	on: Seatbelt Restrai	nt Use Total County	% of Total County
Year	Craighead County Total Crash Fatalities	Crash Fatalities w/No Observed Restraint	Crash Fatalities w/No Observed Restraint
2016	18	2	11%
2017	17	1	6%
2018	18	8	44%
2019	18	1	6%
2020	20	7	35%

FARS records for 2016 to 2020 indicate that in **19%** of crash fatalities in Craighead County, the occupant did not apply a restraint. (**See Appendix C**) While Craighead County averaged **4** crash fatalities per year where no restraint was observed, it should be noted that there was a significant amount of variability from year to year.



Single Vehicle Crash at J&M Cakes on E. Matthews Ave. Image Source: KAIT-TV



Single Vehicle Crash at Taco Bell on S. Caraway Rd. Image Source: Jonesboro Police Dept.



Single Vehicle Crash at JET Transfer Station on E. Matthews Ave. Image Source: City of Jonesboro Media Dept.



# Chapter 5: Critical Crash Corridors



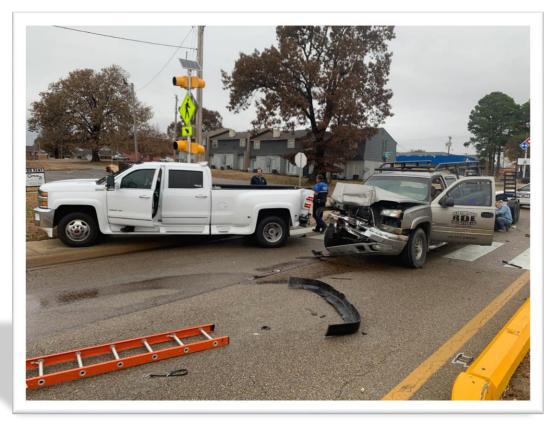


# **Critical Crash Corridors**

### 5.1 Priority Roadways & Corridors

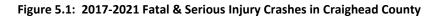
Analysis of available crash data locations provided by the A<sub>R</sub>DOT eCrash database identifies the following overall roadways in Craighead County that have demonstrated a high propensity for motor vehicle crashes, regardless of severity. The roadways are listed as follows (**See Figure 5.1 below**):

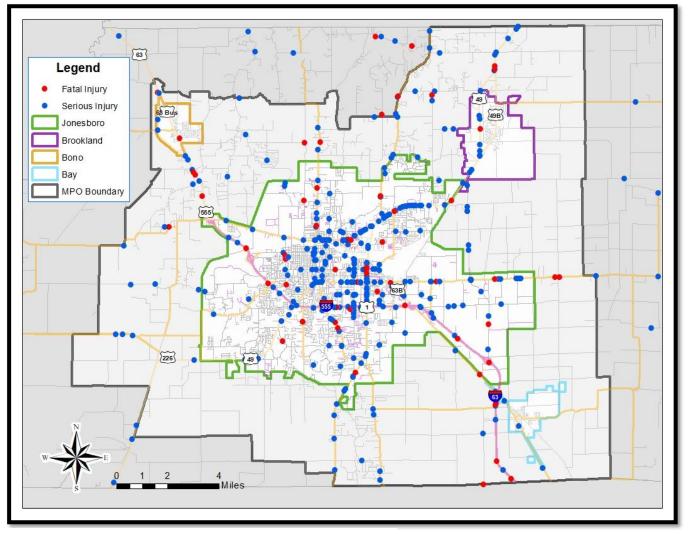
- Johnson Avenue (Highway 91/Highway 49)
- Red Wolf Boulevard (Highway 49)
- East Highland Drive (Highway 18)
- I-555/US 63
- Harrisburg Road (Highway 1B)
- East Nettleton Avenue
- South Main Street/Southwest Drive



Rear End Crash at Temporary Pedestrian Crossing at State St. and HWY 91 Image Source: City of Jonesboro Engineering Dept.







Data Source: ARDOT eCrash system



Further evaluation of crash data from 2017 to 2021 revealed several cluster areas for motor vehicle crashes resulting in fatality and/or serious injury. The following appear to be significant locations for serious traffic collisions (**See Table 5.1 below**):

- Hwy 49 between 351 & Paragould Drive
- E. Johnson Ave. (Hwy 91) Between Main Street and Red Wolf Blvd
- Red Wolf Blvd. (Hwy 49) between Stallings Ln and Highland Dr.
- E. Highland Drive (Hwy 18) Between Main Street and Red Wolf Blvd
- E. Highland Drive (Hwy 18) Between Red Wolf Blvd and Barnhill Road
- Hwy 49 Between CR 706 & CR 906

#### Table 5.1: 2017-2021 Identified Cluster Locations for Serious Injury and Fatal Vehicle Crashes in Craighead County

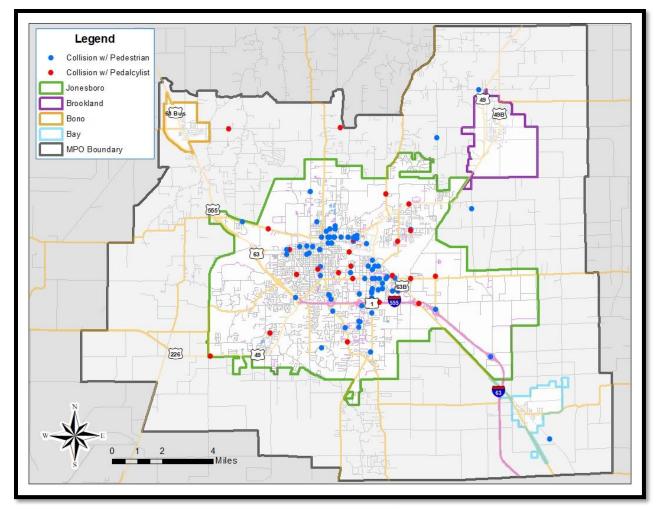
Year	Street Name	Nearest Corridor	# of Crashes
2019	E. Johnson Ave. (Hwy 49)	Hwy 351 & Clinton School Road	11
2021	E. Johnson Ave. (Hwy 91)	Red Wolf Blvd & Main St.	8
2019	E. Johnson Ave. (Hwy 91)	Red Wolf Blvd & Main St.	8
2019	Red Wolf Blvd (Hwy 49)	Stallings Ln & Highland Drive (Hwy 18)	7
2020	E. Johnson Ave (Hwy 91)	Hwy 351 & Clinton School Road	7
2020	E. Highland Drive (Hwy 18)	Dr. Martin Luther King Dr. & Moore Road	6
2019	S. Caraway Road	Mathews St. & Highland Dr.	5
2020	E. Johnson Ave.	Red Wolf Blvd & Main St.	5
2021	E. Nettleton Ave.	S. Church St. (Hwy 141) & Red Wolf Blvd (Hwy 49)	4
2021	E. Highland Dr.	Main St. & Red Wolf Blvd (Hwy 49)	4
2019	E. Highland Dr.	E. Highland Dr. & Browns Ln.	4
2018	E. Johnson Ave. (Hwy 49)	Jewell Dr. & Paragould Dr.	4
2017	Red Wolf Blvd (Hwy 49)	I-555 & E. Highland	4
2020	N. Church St. (Hwy 141)	W. Forrest St. & Bettie Dr.	3
2019	Red Wolf Blvd (US 49)	Red Wolf Blvd (US 49) & E. Johnson Ave. (Hwy 91)	3
2021	Harrisburg Road (Hwy 1)	Lakewood Dr. & Rossland Dr.	3
2021	Race St.	S. Caraway Road & Red Wolf Blvd	3
2020	US 49	CR 706 & CR 762	3
2021	E. Highland Dr. (Hwy 18)	Nestle Way & Barnhill Road	3
2018	Red Wolf Blvd (Hwy 49)	I-555 & E Highland	3
2018	Red Wolf Blvd (Hwy 49)	E. Johnson Ave & E. Nettleton Ave.	3
2018	S. Caraway Road	I-555 & E. Highland	3
2018	E. Highland Drive (Hwy 18)	MLK Dr. & Barnhill Rd.	3
2021	US 49	CR 706 & CR 762	2
2021	US 49	CR 952 & CR 960	2
2019	US 49	CR 706 & CR 762	2

2019	US 49	CR 952 & CR 960	2
2020	E. Nettleton Ave.	E. Nettleton Ave. & Red Wolf Blvd	2
2020	Red Wolf Blvd (US 49)	Red Wolf Blvd & E. Johnson Ave.	2
2019	E. Johnson Ave	Main St. & E. Johnson Ave.	2
2020	Red Wolf Blvd (US 49)	Nettleton Ave. & Red Wolf Blvd (US 49)	2
2020	Red Wolf Blvd (US 49)	Highland Dr. & Red Wolf Blvd	2
2020	I-555	Bay, AR - Ramp	2
2018	Hwy 49	Hwy 351 & Paragould Dr.	2
2018	E. Highland Drive (Hwy 18)	Hillcrest Dr. & Bittle St.	2
2017	E. Johnson Ave. (Hwy 91)	N. Allis St. & N. Patrick St.	2
2018	Red Wolf Blvd. (Hwy 49)	E. Highland Dr. & E. Nettleton Ave.	2
2018	E. Johnson Ave. (Hwy 91)	State St. & Melrose St.	2
2018	S. Main St.	W. Matthews St. & E. Huntington Ave	2
2018	I-555	Harrisburg Rd. & Red Wolf Blvd.	2
2018	E. Highland Dr. (Hwy 18)	S. Main St. & Wofford St.	2
2017	E. Matthews Ave.	E. Matthews & S. Caraway Rd.	2
2017	E. Highland Dr. (Hwy 18)	S. Church St. & Harrisburg Rd.	2
2017	E. Highland Dr. (Hwy 18)	Kathleen St. & Amanda St.	2
2017	E. Washington Ave.	S. Bridge St. & Union St.	2
2020	Red Wolf Blvd (US 49)	Nettleton Ave. & Red Wolf Blvd (US 49)	2
2020	Red Wolf Blvd (US 49)	Highland Dr. & Red Wolf Blvd	2
2020	1-555	Bay, AR - Ramp	2



# 5.2 Priority Bicycle/Pedestrian Corridors

It was established in chapter 4 that there were a significant number of motor vehicle collisions involving pedestrians and pedalcylists across Craighead County between 2017 and 2021. The vast majority of the aforementioned collisions occurred within the center of Jonesboro city limits (See Figure 5.2 below).





Data Source: A<sub>R</sub>DOT eCrash system



A detailed examination of the data has isolated areas with a propensity for fatal or incapacitating crashes involving pedestrians and/or pedalcyclists. The number of serious events that occur along these highlighted corridors suggest that they are likely areas with a higher concentration of people utilizing active transportation. The identified corridors are as follows (**See Table 5.2 Below**):

- E. Johnson Ave (Hwy 91) (Between Main St. and N. Patrick St.)
- Red Wolf Blvd (Hwy 49) (Between Race Street and Stallings Ln.)
- E. Johnson Ave (Hwy 91) (Between State St. and Marion Berry Parkway)
- Union St. (Between W Huntington and W Matthews)
- E. Johnson Ave (Between Hwy 351 and Bridger Road)

Year	Crash Location	Nearest Corridor	Crash Severity	Collision
				Туре
2021	E. Johnson Ave. (Hwy 91)	Marion Berry Parkway	Fatal Injury	Pedestrian
2021	E. Johnson Ave. (Hwy 91)	Melrose St.	Incapacitating Injury	Pedestrian
2021	E. Johnson Ave. (Hwy 91)	State St. & Melrose St.	Incapacitating Injury	Pedestrian
2021	State Street	E. Johnson Ave. & Aggie Road	Incapacitating Injury	Pedestrian
2021	Kitchen St.	E. Nettleton Ave. & E. Matthews Ave	Incapacitating Injury	Pedestrian
2021	W. Nettleton Ave.	Union St. & Haven St.	Incapacitating Injury	Pedestrian
2021	W. Matthews Ave.	S. Gee St. & S. Culberhouse St.	Incapacitating Injury	Pedestrian
2021	I-555	Craighead/Poinsett County Line	Fatal Injury	Pedestrian
2021	US 49	Craighead/Greene County Line	Incapacitating Injury	Pedestrian
2020	E. Johnson Ave.	N. Airport Road & Bridger Road	Incapacitating Injury	Pedestrian
2020	E. Johnson Ave.	N. Airport Road & Bridger Road	Fatal Injury	Pedestrian
2020	Prospect Road	N. Airport Road & Paragould Dr.	Incapacitating Injury	Pedestrian
2020	N. Church St. (Hwy 141)	Forrest St. & Hickory St.	Incapacitating Injury	Pedestrian
2020	Belt St.	Scott St. & N. Patrick St.	Incapacitating Injury	Pedalcyclist
2020	Union St.	E. Matthews Ave. & W. Jefferson Ave.	Incapacitating Injury	Pedestrian
2020	N. Airport Road	Neil Dr.	Incapacitating Injury	Pedestrian
2020	Red Wolf Blvd (Hwy 49)	E. Nettleton Ave.	Incapacitating Injury	Pedestrian
2020	Richardson Dr.	Race St. & I-555 Access	Incapacitating Injury	Pedestrian
2019	US 49	CR 952 & CR 960	Fatal Injury	Pedestrian
2019	Red Wolf Blvd (Hwy 49)	E. Nettleton Ave. & Stallings Ln.	Fatal Injury	Pedestrian
2019	W. Washington Ave.	Union St. & Main St.	Incapacitating Injury	Pedestrian
2019	E. Johnson Ave.	Melrose St.	Incapacitating Injury	Pedestrian
2019	University Loop East	Honors Avenue	Incapacitating Injury	Pedestrian
2019	Red Wolf Blvd (Hwy 49)	King St.	Incapacitating Injury	Pedestrian
2019	E. Nettleton Ave.	Clark St.	Incapacitating Injury	Pedestrian
2018	Red Wolf Blvd. (Hwy 49)	Stallings Ln & E. Nettleton Ave.	Fatal Injury	Pedestrian
2018	E. Johnson Ave. (Hwy 91)	N. Bridge St. & N. Drake St.	Fatal Injury	Pedestrian
2018	Fairview Dr.	Sutton Dr. & Fairfield Dr.	Fatal Injury	Pedestrian
2018	W Washington Ave.	Freeman St. & Meadowbrooke St.	Incapacitating Injury	Pedalcyclist
2017	E Johnson Ave. (Hwy 91)	N. Patrick St. & S. Allis St.	Fatal Injury	Pedestrian
2017	E Johnson Ave. (Hwy 91)	N. Patrick St. & S. Allis St.	Fatal Injury	Pedestrian
2017	E Johnson Ave. (Hwy 91)	Azalea Ln. & State St.	Fatal Injury	Pedestrian

#### Table 5.2: 2017-2021 Identified Locations for Fatal or Serious Injury Crashes with Pedestrians/Pedalcyclists in Craighead County



2017	County Road 905	County Roads 910 & 912	Fatal Injury	Pedestrian
		· · · · · · · · · · · · · · · · · · ·		
2017	E. Johnson Ave. (Hwy 91)	N. Main St. & Labaume St.	Incapacitating Injury	Pedestrian
2017	Union St.	W. Washington Ave.	Incapacitating Injury	Pedestrian
2017	Harrisburg Rd. (Hwy 1B)	Ebbert Dr. Intersection	Incapacitating Injury	Pedestrian
2017	Stadium Blvd (AR1)	Apt Dr. & Harrisburg Rd.	Incapacitating Injury	Pedestrian
2017	Red Wolf Blvd. (Hwy 49)	Race St. Intersection	Incapacitating Injury	Pedestrian
2017	E. Nettleton Ave.	Bittle St. & Larkwood Dr.	Incapacitating Injury	Pedestrian
2017	Paragould Dr.	Jettyl Dr. & Prospect Rd.	Incapacitating Injury	Pedestrian
2017	I-555 Ramp	CW Post Rd. & Farmer Dr.	Incapacitating Injury	Pedestrian

Data Source: ARDOT eCrash system



# Chapter 6: Regional Strategies & Countermeasures



# Regional Strategies & Countermeasures

# 6.1 Prioritization

For the purpose of prioritization, locations of concern have been broken down by crash type and propensity for fatal and serious injury crashes. This will assist us as we tailor potential strategies for each corridor. Additionally, increased consideration was given to locations identified as Areas of Persistent Poverty or Historically Underserved Communities in Chapter 3.

# <u>6.2 Crash Types, Locations, and Potential</u> <u>Countermeasures</u>

There are a number of potential paths that transportation professionals can take to increase the overall safety of roadways, which include (but are not limited to) modification of the overall design of the roadway, adjustment of preexisting speed limits, and increases to lighting and signage. It was established in chapter 4 that the number one cause for traffic fatalities in Craighead County from 2016-2020 was **Roadway Departure**. However, there were multiple crash types that resulted in a significant number of fatalities or serious injuries.

The following chapter will outline crash types as they relate to serious and fatal crashes within the metropolitan planning area. We will highlight the corridors that were most impacted by these crash types as well as a series of strategies and recommendations suggested by the Federal Highway Administration.

# 6.2.1 Roadway Departure Crashes

As the crash type resulting in the most fatalities within Craighead County and the metropolitan planning area, it makes sense to begin with **Roadway Departure Crashes.** Listed below you will find the locations most heavily impacted by roadway departure crashes.



Areas of Highest Concern (Roadway Departure Crashes)
E Johnson Ave. (Main St. to Red Wolf Blvd)
Red Wolf Blvd (Stallings Ln. to Highland Dr.)
CR 905 (CR 928 to Hwy 18)
US 49 (US 49-B to CR 960)
I-555 (Exit Ramp/Bay AR)
Hwy 141 (Bradley St to Center St.)
Harrisburg Rd. (Forrest Hill Rd. to Brownstone Dr.)

The Federal Highway Administration (FHWA) has outlined a three pronged, approach to reduce fatalities as a result of roadway departure, each with their own series of subsequent countermeasures: **Keep Vehicles on the Roadway**, **Provide for Safe Recovery, and Reduce Crash Severity**<sup>1</sup>.

### Potential Countermeasures:

- Keep Vehicles on the <u>Roadway:</u> Pavement Friction, Rumble Strips, Horizontal Curve Safety Signs, Increased Lighting and Visibility
- Provide for Safe Recovery: Safety Edges, Clear Zones

Image Source: FHWA, 2020

COUNTERMEASURES

\* **<u>Reduce Crash Severity</u>**: Barriers, Sign Supports, Work Zone Devices

### 6.2.2 Intersection Related Crashes

Second only to roadway departures, **Intersection Related Crashes** is another leading cause of roadway fatalities in Craighead County. In fact, intersection related crashes accounted for roughly half of all fatal and serious injury crashes from 2017-2021 within the MPA. . Locations of highest concern in regard to intersection related crashes can be found below.

<sup>&</sup>lt;sup>1</sup> FHWA, 2020: <u>https://safety.fhwa.dot.gov/roadway\_dept/</u>



Areas of Highest Concern (Intersection Related Crashes)
Hwy 18 & Dr. Martin Luther King Jr. Dr.
Red Wolf Blvd & E Nettleton Ave.
Red Wolf Blvd & Highland Dr.
E Highland Dr. & Browns Ln.
Red Wolf & Stallings Ln.
Hwy 18 & Rogers Chapel Rd.
S Caraway Rd. & Race St.
E Johnson Ave & Red Wolf Blvd
Red Wolf Blvd & Aggie Rd.

The FHWA has compiled a series of strategies for mitigating the number of crashes that occur at both **Signalized** and **Unsignalized** intersections. An overview of those strategies can be seen below. A breakdown of these strategies can be found in **Appendix E**.

# Potential Countermeasures:

#### Signalized Intersections:

- Traffic Control and Operational Improvements
- Geometric Improvements
- Improve Sight Distance
- Improve Driver Awareness of Intersections and Signal Control
- Improve Driver Compliance with Traffic Control Devices
- Improve Access Management Near Signalized Intersections
- Improve Safety Through Other Infrastructure Treatments

#### Unsignalized Intersections:

- Improve Management of Access
- Reduce Conflicts Through Geometric Design Improvements
- Improve Sight Distance
- Improve Availability of Gaps and Assist Drivers in Judging Gaps
- Improve Driver Awareness
- Choose Appropriate Intersection Traffic Control
- Improve Compliance with Traffic Control Devices and Traffic Laws



- Reduce Operating Costs
- Guide Motorists More Effectively

### 6.2.3 Speeding Related Crashes

The next two categories fall under the umbrella of motorist behavior, and both are responsible for a significant number of fatal and serious injury crashes within the planning area. From 2017 to 2021, approximately 25% of all fatalities within the MPA were speeding related. Listed below you will see areas of highest concern as it pertains to speeding related crashes.

Areas of Highest Concern (Speeding Related Crashes)
E Johnson Ave. (N Caraway Rd to Red Wolf Blvd)
Hwy 141 (Near CR 722)
US 63 (Near Bono)
E Johnson Ave. (Paragould Dr. to Bridger Rd.)
E Nettleton (Near Nettleton Circle)
Southwest Dr. (E Highland Dr. to Hampton Dr.)

# Potential Countermeasures:

- Public Information Campaigns<sup>2</sup>
- Increased Enforcement Targeting Aggressive Driving
- Incorporate Proven Traffic Calming Measures
- Conduct Speed Studies

# 6.2.4 Unrestrained Crashes

As we discussed in the previous chapter, unrestrained crashes accounted for roughly one third of the fatalities in the MPA from 2017-2021. There was not a geographic trend for unrestrained crashes aside from the increased rate along higher trafficked areas. However, there are a few strategies that can be implemented at the state, MPO, and local levels to reduce the number of unrestrained fatalities within the planning area.

<sup>&</sup>lt;sup>2</sup> FHWA: <u>https://safety.fhwa.dot.gov/local\_rural/training/fhwasa14082/behavior.pdf</u>



### Potential Countermeasures:

- Sustained, High Visibility Enforcement Initiatives
- Educational Programs
- Outreach to Teens

### 6.2.5 Non-Motorist Crashes

Chapters 4 and 5 of this plan clearly illustrate that pedestrian/bicyclist safety is a serious concern for Craighead County. Each year, the region experiences multiple crashes involving pedestrians and/or bicyclists, with many of which proven fatal. Areas of highest concern regarding non-motorist crashes can be found below.

<u>Areas of Highest Concern (Non-Motorist Crashes)</u>	
E Johnson Ave (Bridge St. to N Patrick St)	
E Johnson Ave (State St. to Marion Berry Pkwy)	
N Church St. (Bettie Dr. to Ranchette Dr.)	
Union St (West Huntington to W Matthews)	
Red Wolf Blvd & Race St.	
Red Wolf Blvd (Stallings Ln. to E Nettleton Dr.)	

# Potential Countermeasures:

- Increased Lighting
- Bike/Ped Accommodations
- Increased Signage
- Continued Research of Funding Sources for Active Transportation Related Projects
- Community Education/Promotion of Active Transportation

The N.A.R.T.P.C. remains focused on improving multimodal safety, and has displayed this dedication through special projects like the Safe Transportation for Every Pedestrian (STEP) study, which was conducted at two, unsignalized midblock crossing locations in order to identify potential countermeasures to help improve pedestrian safety in those areas. Electronic links to the findings for each study location are located below:



North Church Street (Hwy 141):

https://www.jonesboro.org/DocumentCenter/View/6360/Hwy-141-STEP-Study-Report-122019?bidId=

#### Johnson Avenue (Hwy 91):

https://www.jonesboro.org/DocumentCenter/View/6989/Hwy-91-STEP-Study-Report\_Official-712020



Pedestrian Crossing at State St. and Johnson Ave. Image Source: N.A.R.T.P.C. Staff

Additionally, in 2017, the N.A.R.T.P.C. developed the Regional Active Transportation Plan in order to address existing issues regarding multimodal transportation safety as well as network connectivity/accessibility within the region. Listed plan strategies for improvement include, but are not limited to, the following:

- Road accommodations (sidewalks, crosswalks, bike lanes/sharrows and shared use paths)
- Established land criteria for the incorporation of active transportation in upcoming development projects
- Development and enforcement of bicycle/pedestrian laws, policies and ordinances
- Increased signage and lighting
- Increase transit service/connections



- Increased community education/promotion of active transportation
- Research of funding sources for active transportation projects/implementation

A link to the Regional Active Transportation Plan is provided below:

http://www.jonesboro.org/DocumentCenter/View/4073/Regional-Active-Transportation-Plan-PDF

# 6.3 Project Timeline

Member localities of the N.A.R.T.P.C. have already begun efforts to advocate for funding for safety projects across the region. At present, the N.A.R.T.P.C. does not receive direct funding for safety related projects. It should also be noted that the majority of the fatal and serious injury crashes within the MPA are occurring along state owned highways, and the traditional formula funding programs that would typically fund projects along these routes are not selected by Arkansas based non-TMA MPOs. It is the intent of this organization to continue to advocate for formula spending for safety specific projects, especially for the locations identified above. The N.A.R.T.P.C. will also continue seeking opportunities for available discretionary funding for safety projects. The areas of highest concern identified in this chapter will be addressed as funding becomes available.

# Appendix

# Appendix A

# LIST OF ACRONYMS

3-C	Continuing, Cooperative, Comprehensive
ACS	American Community Survey
ADA	Americans with Disabilities Act
ADH	Arkansas Department of Health
ADT	Average Daily Traffic
ARDOT	Arkansas Department of Transportation
ATC	Active Transportation Committee
ATP	Regional Active Transportation Plan
BAC	Blood Alcohol Content
CAC	Citizen Advisory Committee
C.F.R	Code of Federal Regulations
FARS	Fatal Accident Reporting System
FAST	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	Fiscal Year
HSIP	Highway Safety Improvement Program
JATS	Jonesboro Area Transportation Study
JET	Jonesboro Economical Transportation System
LRTP	Long Range Transportation Plan (synonymous with MTP)
MAP-21	Moving Ahead for Progress in the 21st Century
MPA	Metropolitan Planning Area

MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan (synonymous with LRTP)
NARTPC	Northeast Arkansas Regional Transportation Planning Commission <b>*formerly known as Jonesboro MPO*</b>
NHTSA	National Highway Traffic Safety Administration
PPP	Public Participation Plan
RTP	Regional Transportation Plan
SAFETEALU	Safe, Efficient, Transportation Equity Act: A Legacy for Users
STAR Report	Small Towns and Rural Multimodal Networks
STBGP	Surface Transportation Block Grant Program
TAC	Technical Advisory Committee
TIP	Transportation Improvement Program
TPC	Transportation Policy Committee
TRB	Transportation Research Board
TZD	Towards Zero Deaths
UPWP	Unified Planning Work Program
U.S.C.	United States Code
USDOT	United States Department of Transportation
VMT	Vehicle Miles Travelled

Appendix B

6/14/2021

SAFETY

**TARGET SETTING FOR 2022** 



In accordance with 23 CFR 490.207, the national performance measures for State Departments of Transportation (DOTs) to use in managing the Highway Safety Improvement Program (HSIP) for all public roads are shown below.

Performance Measures	ň.
Number of Fatalities	
Rate of Fatalities (per 100 million vehicle miles traveled)	
Number of Serious Injuries	
Rate of Serious Injuries (per 100 million vehicle miles traveled)	
Number of Non-Motorized Fatalities and Serious Injuries	

#### **DATA SOURCES**

Fatality Data: Fatality Analysis Reporting System (FARS).

Serious Injury Data: State motor vehicle crash database. Updated definition for "Suspected Serious Injury (A)" from the Model Minimum Uniform Crash Criteria (MMUCC) 4th edition was adopted by Arkansas State Police on January 1, 2018.

Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries: FARS and State motor vehicle crash database. Fatalities with attribution codes for pedestrians, bicyclists, other cyclists, and persons on personal conveyance are included. Serious injuries are associated with pedestrians or pedalcyclists as defined in the American National Standard Manual on Classification of Motor Vehicle Traffic Accidents (ANSI D16.1-2007).

Volume Data: State Vehicle Miles Traveled (VMT) data is derived from the Federal Highway Administration (FHWA) and the Arkansas Department of Transportation (ARDOT).

#### TARGET SETTING REQUIREMENTS

#### State DOTs:

- Must establish targets for all public roads.
- Must establish statewide annual targets by June 30<sup>th</sup> of each year and report targets by August 31<sup>st</sup> of each year in the HSIP Report.
- State DOTs shall coordinate with the State Highway Safety Office to set identical targets on three common performance measures (Number of Fatalities, Rate of Fatalities, and Number of Serious Injuries).
- State DOTs shall coordinate with Metropolitan Planning Organizations (MPOs) when establishing targets, to the maximum extent practicable.

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#### 6/14/2021

#### Metropolitan Planning Organizations (MPOs):

- Shall support the relevant State DOT annual target or establish their own targets within 180 days after the State DOT target is established.
- Shall report their established targets to their respective State DOT in a manner that is documented and mutually agreed upon by both parties.
- Shall report baseline condition/performance and progress toward the achievement of their targets in the system performance report in the metropolitan transportation plan.

#### METHODOLOGY

Through extensive coordination with the Arkansas Highway Safety Office, FHWA, the National Highway Traffic Safety Administration (NHTSA), all MPOs, and other stakeholders, a methodology to determine the targets was finalized in 2017.

#### **Description of Methodology**

The target-setting method, similar to previous years, is generally described below:

- 1. Calculate moving averages for the last five years. A moving average "smooths" the variation from year to year. For this target setting, the moving average was calculated for the last five years that crash data is available (2011-2015, 2012-2016, 2013-2017, 2014-2018, and 2015-2019).
- 2. Calculate the average of these five data points.
- 3. Consider external factors to account for uncertainties. Past safety performance alone is not necessarily the best indicator of future performance, given numerous external factors outside of ARDOT's control. For instance, to account for the fact that 2020 crash data is incomplete, an adjustment factor may be considered to account for the uncertainty of what the final numbers will be, rather than attempting to predict exact numbers.
- 4. Apply any adjustment factors as needed based on Step 3 to the averages calculated in Step 2 to determine targets.

#### Step One: Calculate Moving Averages

Calculate the moving average for each of the performance measures for the last five years, as shown in Table 1.

#### Step Two: Calculate the Average

The average of the five data points for each of the performance measures is then calculated, as shown in Table 2.

#### Table 1 – Calculation of Moving Averages

Data					Moving Averages						
Year	Number of Fatalities	Rate of Fatalities	Number of Serious Injuries	Rate of Serious Injuries	Number of Non- Motorized Fatalities and Serious Injuries	Years	Number of Fatalities	Rate of Fatalities	Number of Serious Injuries	Rate of Serious Injuries	Number of Non- Motorized Fatalities and Serious Injuries
2011	551	1.672	3,239	9.829	149						
2012	560	1.671	3,226	9.624	147						
2013	498	1.487	3,066	9.154	149						
2014	470	1.381	3,154	9.270	141				and the second		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
2015	550	1.576	2,888	8.276	112	2011-2015	525.8	1.557	3,114.6	9.231	139.6
2016	561	1.569	3,032	8.480	154	2012-2016	527.8	1.537	3,073.2	8.961	140.6
2017	525	1.443	2,816	7.739	189	2013-2017	520.8	1.491	2,991.2	8.584	149.0
2018 <sup>1</sup>	516	1.407	2,272	6.195	205	2014-2018	524.4	1.475	2,832.4	7.992	160.2
2019²	511	1.377	2,389	6.440	213	2015-2019	532.6	1.474	2,679.4	7.426	174.6
Notes:	Notes:										
	alities are from FARS alities are from Natio	Final onal Safety Council (I	NSC)								

Performance Measure	2011- 2015	2012- 2016	2013- 2017	2014- 2018	2015- 2019	Average
Number of Fatalities	525.8	527.8	520.8	524.4	532.6	526.3
Rate of Fatalities	1.557	1.537	1.491	1.475	1.474	1.507
Number of Serious Injuries	3,114.6	3,073.2	2,991.2	2,832.4	2,679.4	2,938.2
Rate of Serious Injuries	9.231	8.961	8.584	7.992	7.426	8.439
Number of Non-Motorized						
Fatalities and Serious	139.6	140.6	149.0	160.2	174.6	152.8
Injuries						

#### Table 2 – Calculation of the Averages

#### **Step Three: Consider External Factors**

As shown below, several external factors that may have an impact on safety performance were identified through coordination with safety stakeholders mentioned on page 2.

#### Legalization of medical marijuana in Arkansas, and increase of opioid use

There is considerable uncertainty regarding the impact of medical marijuana and opioid use on highway safety. Arkansas State Police have noticed a significant increase in crashes involving drug use in the state over the past couple of years.

#### Speed limit increase on rural freeways in Arkansas in 2020

State Act 784 of 2019 increased the maximum allowable speed limit for motor vehicles on rural freeways to 75 miles per hour (mph) effective July 1, 2020. Due to 2020 crash data being incomplete, we are uncertain how this will impact highway safety.

#### Sudden decrease in vehicle miles traveled in Arkansas

The vehicle miles traveled (VMT) in Arkansas decreased significantly in 2020 due to the Covid-19 pandemic. As shown in Figure 1, the VMT in Arkansas was increasing yearly until 2020. While the total number of crashes decreased in 2020, it is believed that the lack of congestion led to more high-speed collisions which resulted in more severe crashes. We are uncertain if VMT will continue to remain this low in the coming years.

#### Increase in speeding citations

Citations involving a vehicle traveling at speeds greater than 100 miles per hour (mph) increased by seventy-seven percent in 2020 when compared to 2019 (1,292 citations in 2019 and 2,285 citations in 2020).

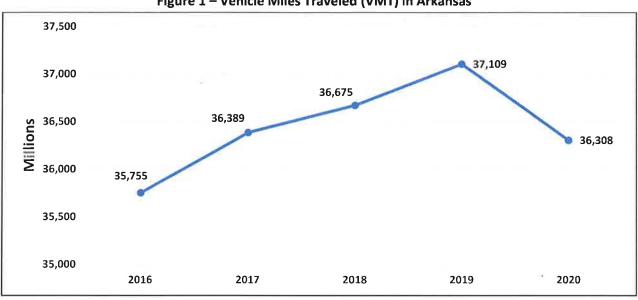


Figure 1 – Vehicle Miles Traveled (VMT) in Arkansas

Data Source: FHWA and ARDOT

#### Continued transition to eCrash system

The eCrash system has made crash reporting more timely and consistent. Since first implemented by Arkansas State Police in 2015, law enforcement agencies throughout Arkansas have been transitioning to the eCrash system. To date, 87 percent of all law enforcement agencies now use eCrash as shown in Figure 2. However, there are still several agencies that have yet to make the transition.

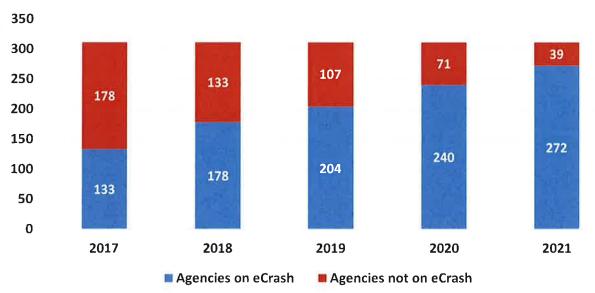


Figure 2 – eCrash Use in Arkansas

There is uncertainty regarding data quality not entered through eCrash, primarily regarding serious injuries. Although Arkansas State Police has an official definition of suspected serious injuries, it has been noted in the past that the definition was not applied consistently. Until all law enforcement agencies begin using eCrash, and proper training on the definition is conducted, there will continue to be much uncertainty regarding data accuracy.

#### Underreported fatal crashes

It had been the general understanding that agencies not reporting their crashes were still reporting fatal crashes; however, in late 2020 ASP discovered that those agencies were also not reporting their fatalities. This underreporting has an impact on both fatality data and non-motorized crash data. As shown in Figure 3, the number of non-motorized fatalities and serious injuries can vary significantly. The variability of the Number of Non-Motorized Fatalities and Serious Injuries performance measures compared to other safety performance measures is illustrated in Attachment A. As shown in this attachment, the coefficient of variation for this performance measure is at 21 percent, which is significantly higher than the other performance measures ranging from 4 to 13 percent.

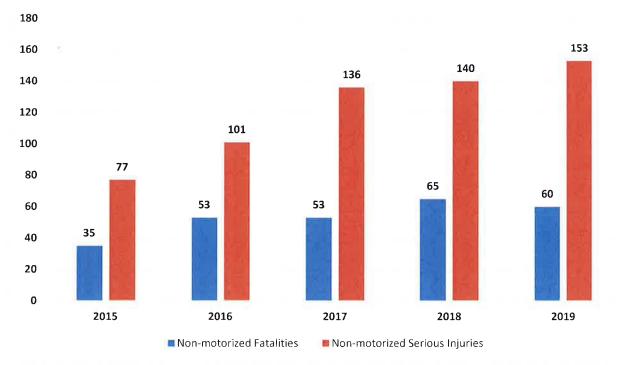


Figure 3 – Number of Non-Motorized Fatalities & Serious Injuries

#### **Step Four: Apply Adjustment Factors**

The various external factors mentioned under Step Three could impact Arkansas' safety performance. However, there is little to no research to justify the application of specific adjustment factors to account for external factors such as medical marijuana. With that said, in consultation with other safety stakeholders, it was determined that a <u>twenty percent adjustment factor</u> can be justifiably applied to the <u>Number of Fatalities</u> and <u>Rate of Fatalities</u> safety performance measures. This adjustment factor is based on the average percent increase of multiple external factors such as the increase in speeding citations (77%), DWI citations (3%), aggressive operation crashes (35%), and agencies reporting crashes (18%).

A higher adjustment factor has been applied to the Number of Non-Motorized Fatalities and Serious Injuries performance measure. The known number of non-motorized fatalities and serious injuries has 6/14/2021

increased in 2019 compared to previous years, as shown in Figure 3. Therefore, it was determined that the 50 percent adjustment factor continue to be applied to the Number of Non-Motorized Fatalities and Serious Injuries performance measure, as it has been in previous years.

It was also mutually agreed upon by safety stakeholders that an adjustment factor of <u>two percent</u> should be applied to the <u>Number of Serious Injuries</u> and <u>Rate of Serious Injuries</u> safety performance measures. This adjustment factor is less than others due to the serious injury definition change in 2018, which caused the total number of serious injuries to decrease significantly.

#### TARGETS

Based on the methodology described, targets for each of the five performance measures are shown below in Table 3, as well as in Attachment B.

Performance Measure	Average <sup>1</sup>	Adjustment Factor <sup>2</sup>	Target
Number of Fatalities	526.3	+20%	631.5
Rate of Fatalities	1.507	+20%	1.808
Number of Serious Injuries	2,938.2	+2%	2,996.9
Rate of Serious Injuries	8.439	+2%	8.608
Number of Non-Motorized Fatalities and Serious Injuries	152.8	+50%	229.2

Table 3 – 2022 Performance Targe	Table	ce Targets
----------------------------------	-------	------------

<sup>1</sup> See Table 2

<sup>2</sup> Description of justification found in Step Four

To gauge how these averages, adjustments, and targets compare to last year's targets, see Table 4.

		2021			2022		
Performance Measure	Average	Adjust.	Target	Average <sup>1</sup>	Adjust	Target	
Number of Fatalities	525.8	+2%	536.3	526.3	+20%	631.5	
Rate of Fatalities	1.529	+2%	1.560	1.507	+20%	1.808	
Number of Serious Injuries	3,042.9	+2%	3,103.8	2,938.2	+2%	2,996.9	
Rate of Serious Injuries	8.886	+2%	9.043	8.439	+2%	8.608	
Number of Non-Motorized Fatalities and Serious Injuries	146.8	+50%	220.3	152.8	+50%	229.2	

Table 4 – Comparisor	n of 2021 & 202	2 Performance Targets
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<sup>1</sup> See Table 2

#### FHWA ASSESSMENT OF 2020 PERFORMANCE TARGETS

FHWA will conduct an assessment to determine whether states have met or made significant progress toward meeting their previous year's targets in December of each year. For 2020, the assessment will be made in December of 2021 by comparing the actual 2016-2020 performance to the 2020 targets and the 2014-2018 baseline performance. At least four of the five targets must either meet (i.e., equal to or less than the target) or be better than the baseline performance to make significant progress. This means that states have two chances to "pass" the test for each performance measure. In some cases, a state may

not be better than the baseline performance for any given measure but may meet the target it set. In such cases, the state would "pass" the test for that measure.

As shown in Table 5, it is predicted that ARDOT will meet all of the targets except for the total number of fatalities. Therefore, FHWA will consider ARDOT as having "made significant progress" and thus avoid the penalty associated with safety performance.

Performance Measure	2016- 2020 Average	2020 Targets	2014- 2018 Baseline	Meets Target?	Better than Baseline?	Met or Made Significant Progress?
Number of Fatalities	550.6 <sup>1</sup>	541.2	524.4	No	No	YES
Rate of Fatalities	1.512 <sup>1</sup>	1.595	1.475	Yes	No	(4 out of 5
Number of Serious Injuries	2,583.4 <sup>2</sup>	3,201.4	2,832.4	Yes	Yes	targets met
Rate of Serious Injuries	7.097 <sup>2</sup>	9.441	7.992	Yes	Yes	or made
Number of Non-Motorized Fatalities and Serious Injuries	199.4²	300.3	160.2	Yes	No	significant progress)
Notes:					I	

#### Table 5 – 2020 Performance Assessment

<sup>1</sup>Value is based on the actual FARS fatality numbers for 2016, 2017 and 2018, NSC numbers for 2019 and 2020. *Example: Number of Fatalities = (561+525+516+511+640)/5=550.6* 

<sup>2</sup>Value is based on the actual serious injury numbers for 2016-2019, and an assumed number for 2020.

If FHWA determines that a state has not "made significant progress" toward meeting its safety targets, the penalty as outlined in 23 USC 148(i) is as follows:

- Use obligation authority equal to the HSIP apportionment for the year prior to the target year, only for HSIP projects.
- Submit an HSIP Implementation Plan that describes actions the state will take to meet or make significant progress toward meeting its targets.

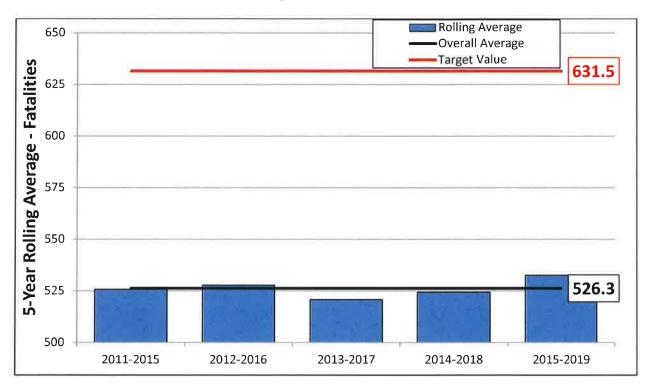
### **ATTACHMENT A**

### **Data Variability Analysis**

2015	550	Mean	532.6
2016	561	Standard Deviation	20
2017	525	Coefficient of Variation	4%
2018	516		
2019	511		
Rate of Fatalities			
2015	1.576	Mean	1.474
2016	1.569	Standard Deviation	0.083
2017	1.443	Coefficient of Variation	6%
2018	1.407		
2019	1.377		
Number of Serious	s Injuries		
2015	2,888	Mean	2679.4
2016	3,032	Standard Deviation	296
2017	2,816	Coefficient of Variation	11%
2018	2,272		
2019	2,389		
Rate of Serious Inj	uries		
2015	8.276	Mean	7.426
2016	8.480	Standard Deviation	1
2017	7.739	Coefficient of Variation	13%
2018	6.195		
2019	6.440		
Number of Non-M	otorized Fatalities ar	nd Serious Injuries	
2015	112	Mean	174.6
2016	154	Standard Deviation	37
2017	189	Coefficient of Variation	21%
2018	205		
2019	213		

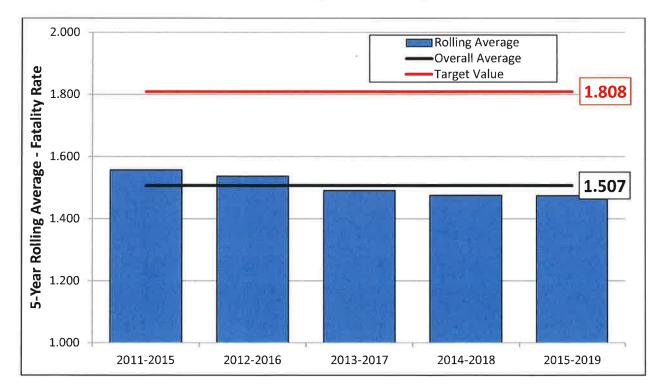
The Coefficient of Variation is a statistical measure of the dispersion of data around the mean. It is a useful statistic for comparing the degree of variation from one data set to another, even if the means are drastically different from one another.

### **ATTACHMENT B**



#### **HSIP 2022 Target – Number of Fatalities**

HSIP 2022 Target – Fatality Rate

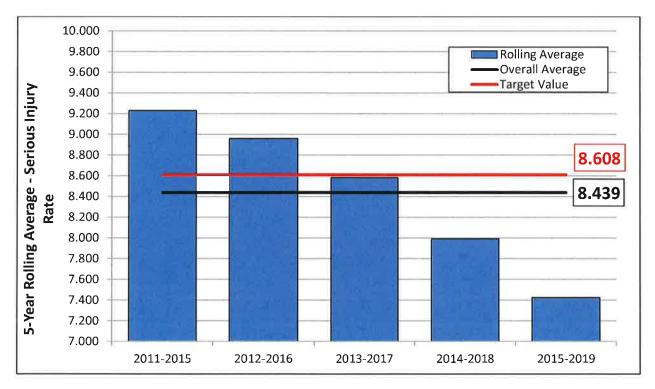


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#### **HSIP 2022 Target – Number of Serious Injuries**

HSIP 2022 Target – Serious Injury Rate





HSIP 2022 Target - Number of Non-Motorized Fatalities and Serious Injuries

Appendix C

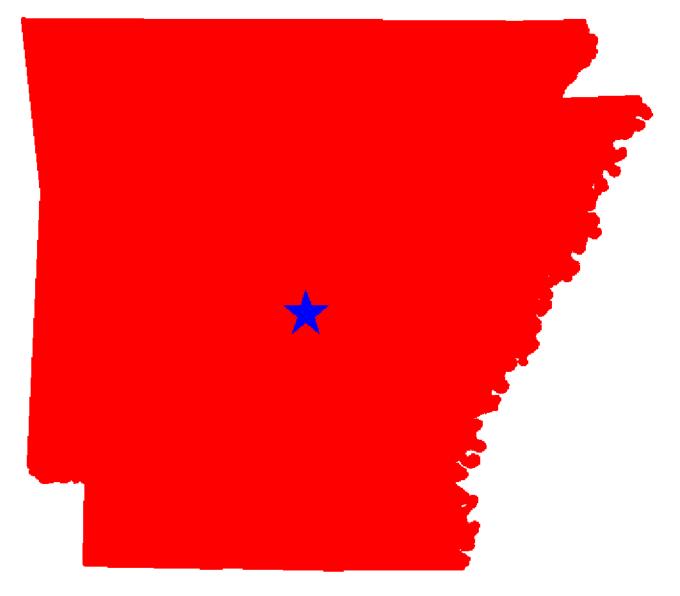




U.S. Department of Transportation

National Highway Traffic Safety Administration

Traffic Safety Facts Arkansas 2016-2020



This Report Contains Data From the Following Sources:

Fatality Data - NCSA Fatality Analysis Reporting System (FARS): 2016-2019 Final File and 2020 Annual Report File (ARF) Observed Safety Belt Data - NCSA National Occupant Protection Use Survey (NOPUS) and the Arkansas State Survey Vehicle Miles of Travel Data and Motorcycle Registrations - Federal Highway Administration (FHWA) Population Data - U.S. Bureau of the Census

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National Highway Traffic Safety Administration





#### National Highway Traffic Safety Administration

						Ye	ar				
Core Outcome Measures		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Traffic Fatalities	Total (C-1)	551	560	498	470	550	561	525	520	511	638
	Rural	426	435	367	357	387	366	339	307	342	445
	Urban	125	125	131	113	163	195	186	213	169	193
	Unknown	0	0	0	0	0	0	0	0	0	0
Fatalities Per 100 Million VMT	Total (C-3)	1.67	1.67	1.49	1.38	1.58	1.57	1.44	1.42	1.38	1.88
	Rural	2.31	2.38	2.28	2.17	2.29	2.12	1.93	1.73	1.91	2.73
	Urban	0.86	0.82	0.75	0.64	0.90	1.05	0.99	1.13	0.88	1.10
Passenger Vehicle Occupant Fatalities (All Seat Positions)	Total	403	402	352	348	389	398	374	352	353	429
	Restrained	151	151	144	151	158	167	166	145	152	178
	Unrestrained (C-4)	220	227	176	167	196	196	180	177	166	204
	Unknown	32	24	32	30	35	35	28	30	35	47
Alcohol-Impaired Driving Fatalities (BAC=.08+)** (C-5)		154	144	121	136	159	130	146	135	131	166
Speeding-Related Fatalities (C-6)		86	76	73	56	92	118	124	132	132	164
Motorcyclist Fatalities	Total (C-7)	64	72	63	61	80	82	69	66	66	80
	Helmeted	23	25	20	24	30	23	30	19	27	38
	Unhelmeted (C-8)	35	42	40	36	48	59	36	45	34	39
	Unknown	6	5	3	1	2	0	3	2	5	3
Drivers Involved in Fatal Crashes	Total	735	745	653	673	757	765	725	734	709	843
	Aged Under 15	2	3	1	1	2	1	1	0	1	8
	Aged 15-20	66	66	62	56	63	73	47	60	61	70
	Aged Under 21 (C-9)	68	69	63	57	65	74	48	60	62	78
	Aged 21 and Over	655	672	589	613	686	681	670	660	636	746
	Unknown Age	12	4	1	3	6	10	7	14	11	19
Pedestrian Fatalities (C-10)		42	47	46	37	44	49	47	62	62	81
Bicyclist and Other Cyclist Fatalities**** (C	5-11)	6	6	4	7	3	3	4	4	3	6
Observed Seat Belt Use*** (B-1)		78.4	71.9	76.7	74.4	77.7	75.1	81.0	78.0	81.9	81.9

#### Traffic Safety Performance (Core Outcome) Measures\* For Arkansas

\*These Performance Measures Were Developed By The National Highway Traffic Safety Administration (NHTSA)

and the Governors Highway Safety Association (GHSA) (See Publication: DOT HS 811 025)

\*\*Based on the BAC of All Involved Drivers and Motorcycle Riders (Operators) Only \*\*\*Arkansas Data: State Survey

\*\*\*\*On March 11th, 2014 GHSA and NHTSA agreed on bike fatalities as a newly required performance core measure

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#### National Highway Traffic Safety Administration

	Year	Fatalities	Total Vehicle Miles Traveled (Millions)	Fatalities Per 100 Million Vehicle Miles Traveled	Total Population	Fatalities Per 100,000 Population
2016	Arkansas	561	35,755	1.57	2,991,815	18.75
	US	37,806	3,173,815	1.19	323,071,755	11.70
	Best State*			0.63		3.93
2017	Arkansas	525	36,389	1.44	3,003,855	17.48
	US	37,473	3,210,248	1.17	325,122,128	11.53
	Best State*			0.55		4.45
2018	Arkansas	520	36,675	1.42	3,012,161	17.26
	US	36,835	3,240,327	1.14	326,838,199	11.27
	Best State*			0.53		4.40
2019	Arkansas	511	37,099	1.38	3,020,985	16.92
	US	36,355	3,261,772	1.11	328,329,953	11.07
	Best State*			0.52		3.25
2020	Arkansas	638	33,919	1.88	3,030,522	21.05
	US	38,824	2,903,622	1.34	329,484,123	11.78
	Best State*			0.63		4.98

#### Fatality Rates: Arkansas, U.S. and Best State

\*State (or States) With Lowest Rates: Lowest VMT and Population Rates Could Be in Different States

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#### National Highway Traffic Safety Administration

Year		Total	Alcohol-Impaired Driving Fatalities (BAC = .08+)				
		Fatalities in all Crashes	Number	Percent	Per 100 Million VMT		
2016	Arkansas	561	130	23	0.36		
	US	37,806	10,967	29	0.35		
	Best State*			19	0.16		
2017	Arkansas	525	146	28	0.40		
	US	37,473	10,880	29	0.34		
	Best State*			19	0.14		
2018	Arkansas	520	135	26	0.37		
	US	36,835	10,710	29	0.33		
	Best State*			19	0.16		
2019	Arkansas	511	131	26	0.35		
	US	36,355	10,196	28	0.31		
	Best State*			15	0.12		
2020	Arkansas	638	166	26	0.49		
	US	38,824	11,654	30	0.40		
	Best State*			21	0.18		

#### Alcohol-Impaired Driving Fatalities\*\*: Arkansas , U.S. and Best State

\*State (or States) With Lowest Percents: Lowest Percents Could Be in Different States \*\*Based on the BAC of All Involved Drivers and Motorcycle Riders (Operators) Only \*\*Percentages are computed based on unrounded estimates

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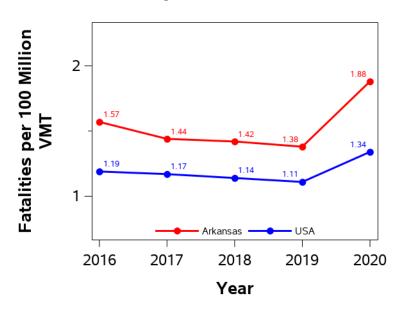
National Highway Traffic Safety Administration





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#### National Highway Traffic Safety Administration

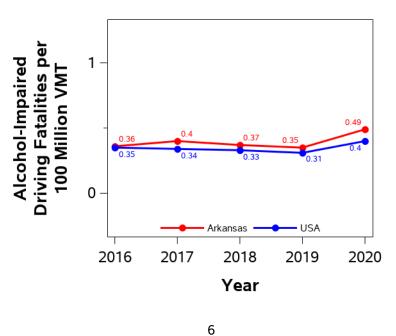


#### Fatalities per 100 Million VMT

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#### Alcohol-Impaired Driving Fatalities per 100 Million VMT





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#### National Highway Traffic Safety Administration

#### Blood Alcohol Concentration (BAC) Reporting Rates For Drivers/Motorcycle Riders (Operators) Involved in Fatal Crashes: Arkansas , U.S. and Best State

		Driv	Surviving ers/Motor Riders		Driv	Killed ers/Motor Riders	cycle	Total D	rivers/Mot Riders	orcycle
	Year		With E Alco Concen (BA Res Repor FA	ohol tration (C) ults ted to		With E Alco Concen (BA Res Repor FA	ohol tration (C) ults ted to		With E Alco Concen (BA Res Repor FA	ohol tration (C) ults ted to
	_	Total	Number	Percent	Total	Number	Percent	Total	Number	Percent
2016	Arkansas	366	240	66	399	290	73	765	530	69
	US	28,684	7,486	26	23,715	16,924	71	52,399	24,410	47
	Best State*			88			96			87
2017	Arkansas	345	233	68	380	299	79	725	532	73
	US	28,995	7,329	25	23,757	17,001	72	52,752	24,330	46
	Best State*			93			94			89
2018	Arkansas	366	243	66	368	277	75	734	520	71
	US	28,860	7,161	25	23,045	15,921	69	51,905	23,082	44
	Best State*			80			93			83
2019	Arkansas	365	241	66	344	273	79	709	514	72
	US	28,555	6,914	24	22,747	15,446	68	51,302	22,360	44
	Best State*			86			93			82
2020	Arkansas	399	276	69	444	335	75	843	611	72
	US	29,103	6,392	22	24,787	14,296	58	53,890	20,688	38
	Best State*			81			98			85

\*State (or States) With Highest Percents: Highest Percents Could Be in Different States

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National Highway Traffic Safety Administration





#### National Highway Traffic Safety Administration

#### Daytime Front Seat (Outboard Only) Passenger Vehicle Occupants, Aged 5 and Over, by Restraint Use: Fatalities and Observed Arkansas, U.S. and Best State

	Veer	Fatalities - Restrained**	Observed - Restrained***
	Year	Percent	Percent
2016	Arkansas	51	75.1
	US	61	90.1
	Best State*	100	97.2
2017	Arkansas	56	81.0
	US	61	89.7
	Best State*	100	97.1
2018	Arkansas	55	78.0
	US	62	89.6
	Best State*	100	97.8
2019	Arkansas	55	81.9
	US	62	90.7
	Best State*	80	97.1
2020	Arkansas	54	81.9
	US	57	90.3
	Best State*	72	97.1

\*State With Highest Percent. Fatal Crash and Observed Percents Can Be Different States \*\*Percent Based Only Where Restraint Use Was Known

\*\*\*USA Data: National Occupant Protection Use Survey. Arkansas Data: State Survey

Note: The Purpose of this Table is to Compare (as closely as possible) the Use of Restraint Systems

by Fatally Injured Occupants with Occupants in all Driving Situations

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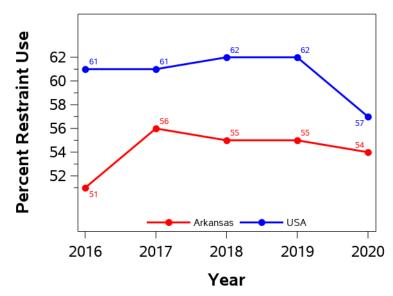
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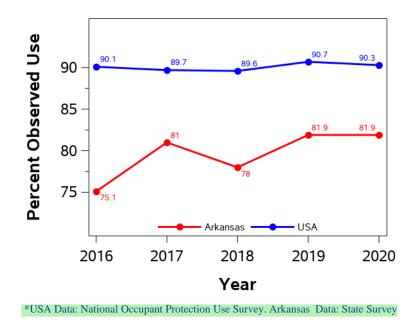
## National Highway Traffic Safety Administration



Daytime Front Seat (Outboard Only) Passenger Vehicle Occupant Fatalities, Aged 5 and Over, by Percent Restraint Use\*

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Daytime Front Seat (Outboard Only) Passenger Vehicle Occupants Observed, Aged 5 and Over, by Percent Restraint Use\*



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<sup>\*</sup>Percent Based Only Where Restraint Use Was Known





## National Highway Traffic Safety Administration

### Arkansas Passenger Vehicle Occupant Fatalities Age 5 and Above by Restraint Use and Lives Saved Estimates

		Fata	alities Age 5 and	d Above		Lives Saved E	Estimates**
Year	Total	Restrained	Unrestrained	Unknown Restraint Use	Percent Known Restrained*	Lives Saved at Current Belt Use	Additional Lives Savable at 100% Belt Usage
2016	396	167	194	35	46	238	98
2017	367	161	179	27	47	214	72
2018	348	144	174	30	45		
2019	348	151	162	35	48		
2020	421	172	202	47	46		

\*Percent Based Only Where Restraint Use Was Known

\*\*Lives Saved Estimates (Sum of columns may not equal other published numbers due to rounding)

\*\*2018 - 2020 Lives Saved Data is Currently Not Available

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## Arkansas Passenger Vehicle Occupant Fatalities Age 4 and Under by Restraint Use and Lives Saved Estimates

		Fat	alities Age 4 and	d Under		Lives Saved Estimates**
Year	Total	Restrained	Unrestrained	Unknown Restraint Use	Percent Known Restrained*	Lives Saved at Current Seat Belt and Child Safety Seat Usage
2016	2	0	2	0	0	0
2017	5	4	1	0	80	7
2018	4	1	3	0	25	
2019	5	1	4	0	20	
2020	7	5	2	0	71	

\*Percent Based Only Where Restraint Use Was Known

\*\*Lives Saved Estimates

\*\*2018 - 2020 Lives Saved Data is Currently Not Available

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National Highway Traffic Safety Administration





## National Highway Traffic Safety Administration

	by Hennet Ose and Lives Saved Estimates												
			Fatalities			Lives Saved Estimates**							
Year	Total Helmeted		Unhelmeted	Unknown Helmet Use	Percent Known Helmeted*	Lives Saved at Current Helmet Use	Additional Lives Savable at 100% Helmet Usage						
2016	82	23	59	0	28	14	22						
2017	69	30	36	3	45	18	13						
2018	66	19	45	2	30								
2019	66	27	34	5	44								
2020	80	38	39	3	49								

## Arkansas Motorcyclist Fatalities by Helmet Use and Lives Saved Estimates

\*Percent Based Only Where Helmet Use Was Known

\*\*Lives Saved Estimates (Sum of columns may not equal other published numbers due to rounding)

\*\*2018 - 2020 Lives Saved Data is Currently Not Available

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## National Highway Traffic Safety Administration

		20	16	20	17	20	18	20	19	20	20
	Person Type	#	%*	#	%*	#	%*	#	%*	#	%*
Occupants	Passenger Car	184	33	174	33	166	32	168	33	198	31
	Light Truck - Pickup	107	19	106	20	102	20	103	20	107	17
	Light Truck - Utility	82	15	75	14	75	14	73	14	110	17
Light Truck - Van		22	4	15	3	5	1	9	2	14	2
	Light Truck - Other	3	1	4	1	4	1	0	0	0	0
	Large Truck	13	2	26	5	26	5	15	3	23	4
	Bus	0	0	0	0	1	0	0	0	0	0
	Other/Unknown Occupants	14	2	4	1	8	2	9	2	18	3
	Total Occupants	425	76	404	77	387	74	377	74	470	74
Motorcyclists	Total Motorcyclists	82	15	69	13	66	13	66	13	80	13
Nonoccupants	Pedestrian	49	9	47	9	62	12	62	12	81	13
	Bicyclist and Other Cyclist	3	1	4	1	4	1	3	1	6	1
	Other/Unknown Nonoccupants	2	0	1	0	1	0	3	1	1	0
	Total Nonoccupants	54	10	52	10	67	13	68	13	88	14
Total	Total	561	100	525	100	520	100	511	100	638	100

## Arkansas Fatalities by Person Type

\*Sum of Percents May Not = 100 Due to Individual Cell Rounding

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## National Highway Traffic Safety Administration

## Arkansas Fatalities by Crash Type

Crash Type	2016	2017	2018	2019	2020
Total Fatalities (All Crashes)*	561	525	520	511	638
- (1) Single Vehicle	313	296	291	291	372
- (2) Involving a Large Truck	76	89	86	83	87
- (3) Involving Speeding	118	124	132	132	164
- (4) Involving a Rollover	182	156	153	130	193
- (5) Involving a Roadway Departure	366	348	342	314	411
- (6) Involving an Intersection (or Intersection Related)	85	53	71	67	91

(1) Crash Involved Only One Coded Vehicle

(2) Crash Involved at Least One Large Truck

(3) Crash Involved at Least One Vehicle Speeding

(4) Crash Involved at Least One Vehicle That Rolled Over

(5) Crash Involved at Least One Vehicle That Departed the Roadway (FHWA Definition)

(6) Crash Occured Within an Intersection or Within the Approach to an Intersection

\*A Fatality Can Be in More Than One Category. Therefore Sum of the Individual Cells Will Not Equal the Total Due to Double Counting

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## National Highway Traffic Safety Administration

Year		Age											
rear	<20	20-29	30-39	40-49	50-59	>59	Unknown	Total					
2016	3	17	14	16	19	12	1	82					
2017	1	9	14	7	20	18	0	69					
2018	2	11	5	10	22	16	0	66					
2019	2	11	14	11	11	17	0	66					
2020	5	8	10	14	22	21	0	80					

## Arkansas Motorcyclist Fatalities by Age

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## Arkansas Motorcyclist Fatalities Per 100,000 Registered Motorcycles

Year	Motorcyclist Fatalities	Total Motorcycle Registrations*	Motorcyclist Fatalities Per 100,000 Motorcycle Registrations		
2016	82	90,838	90.27		
2017	69	89,457	77.13		
2018	66	91,127	72.43		
2019	66	169,796	38.87		
2020	80	169,797	47.12		

\*Data Source: FHWA

\*2020 Motorcycle Registrations are Not Yet Available

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## National Highway Traffic Safety Administration

## Arkansas Fatalities by Person Type and Race/Hispanic Origin<sup>1</sup>

Person Type b	y Race/Hispanic Origin <sup>1</sup>	2016	2017	2018	2019
Occupants (All Vehicle Types)	Hispanic	15	9	11	19
	White Non-Hispanic	421	380	350	341
	Black, Non-Hispanic	63	77	85	78
	American Indian, Non-Hispanic/Unknown	0	2	0	1
	Asian, Non-Hispanic/Unknown	1	0	0	0
	All Other Non-Hispanic or Race	5	2	3	4
	Unknown Race and Unknown Hispanic	2	3	4	0
	Total	507	473	453	443
Non-Occupants (Pedestrians, Pedalcyclists and Other/Unknown NonOccupants)					
	Hispanic	3	0	1	9
	White Non-Hispanic	33	34	42	41
	Black, Non-Hispanic	18	17	23	16
	American Indian, Non-Hispanic/Unknown	0	0	1	1
	Asian, Non-Hispanic/Unknown	0	0	0	0
	All Other Non-Hispanic or Race	0	0	0	1
	Unknown Race and Unknown Hispanic	0	1	0	0
	Total	54	52	67	68
Total		561	525	520	511

<sup>1</sup>2020 Race/Hispanic Origin Data is Not Yet Complete This Data Will Be Updated When the Final File is Released

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## National Highway Traffic Safety Administration

Arkansas Fatalities Per 100,000 Population by Race/Hispanic Origin<sup>1</sup> This table is temporarily not available. We hope to have this table back as soon as possible.

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## National Highway Traffic Safety Administration

Arkansas	Arkansas Counties by 2020		F	atalitie	s		Percent of Total				
	Ranking	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
1	Pulaski County	43	60	70	62	81	8	11	13	12	13
2	Benton County	30	15	18	23	35	5	3	3	5	5
3	Washington County	34	24	18	21	28	6	5	3	4	4
4	Craighead County	18	17	18	18	20	3	3	3	4	3
5	White County	20	10	7	14	20	4	2	1	3	3
6	Garland County	31	13	18	21	18	6	2	3	4	3
7	Independence County	8	6	7	11	17	1	1	1	2	3
8	Jefferson County	11	16	11	14	16	2	3	2	3	3
9	Faulkner County	15	19	21	4	15	3	4	4	1	2
10	Saline County	9	10	7	15	15	2	2	1	3	2
Sub Total 1.*	Top Ten Counties	236	209	225	212	265	42	40	43	41	42
Sub Total 2.**	All Other Counties	325	316	295	299	373	58	60	57	59	58
Total	All Counties	561	525	520	511	638	100	100	100	100	100

## 5 Year Trend For The Top 10 Counties of 2020 - Fatalities

\*This Sub Total is the Total for the Top Ten Counties

\*\*This Sub Total is the Total for all Counties Outside the Top Ten

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## National Highway Traffic Safety Administration

Arkansas	Counties by 2020		F	atalitie	s	Percent Change From Previous Year				
	Ranking	2016	2017	2018	2019	2020	2017	2018	2019	2020
1	Pulaski County	43	60	70	62	81	40	17	-11	31
2	Benton County	30	15	18	23	35	-50	20	28	52
3	Washington County	34	24	18	21	28	-29	-25	17	33
4	Craighead County	18	17	18	18	20	-6	6	0	11
5	White County	20	10	7	14	20	-50	-30	100	43
6	Garland County	31	13	18	21	18	-58	38	17	-14
7	Independence County	8	6	7	11	17	-25	17	57	55
8	Jefferson County	11	16	11	14	16	45	-31	27	14
9	Faulkner County	15	19	21	4	15	27	11	-81	275
10	Saline County	9	10	7	15	15	11	-30	114	0
Sub Total 1.*	Top Ten Counties	236	209	225	212	265	-11	8	-6	25
Sub Total 2.**	All Other Counties	325	316	295	299	373	-3	-7	1	25
Total	All Counties	561	525	520	511	638	-6	-1	-2	25

## 5 Year Trend For The Top 10 Counties of 2020 - Fatalities Year to Year Percent Change

\*This Sub Total is the Total for the Top Ten Counties

\*\*This Sub Total is the Total for all Counties Outside the Top Ten

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## National Highway Traffic Safety Administration

	Counties by 2020	F		s Per 1 pulatio	00,000 on	
ľ	Ranking	2016	2017	2018	2019	2020
1	Bradley County	18.25	9.25	0.00	18.53	122.19
2	Monroe County	111.19	57.05	14.53	89.25	75.94
3	Lawrence County	66.02	24.11	85.10	48.66	73.13
4	Poinsett County	54.18	16.61	25.13	17.02	60.13
5	Fulton County	41.28	24.70	8.10	31.96	56.54
6	Montgomery County	22.35	22.49	33.61	44.21	55.52
7	Jackson County	23.10	35.23	11.92	11.92	54.10
8	Newton County	12.73	25.59	51.41	64.83	52.62
9	Cleburne County	7.95	27.91	23.90	39.97	52.14
10	Searcy County	37.69	12.61	88.63	25.44	51.01
Sub Rate 1.*	Top Ten Counties	54.57	47.75	49.04	49.99	63.55
Sub Rate 2.**	All Other Counties	16.54	15.64	15.40	15.62	19.07
Total Rate	All Counties	18.75	17.48	17.26	16.92	21.05

## 5 Year Trend For The Top 10 Counties of 2020 - Fatality Rates Median Rate for all U.S. Counties: 17.68

\*This Sub Rate is the Rate for the Top Ten Counties \*\*This Sub Rate is the Rate for all Counties Outside the Top Ten

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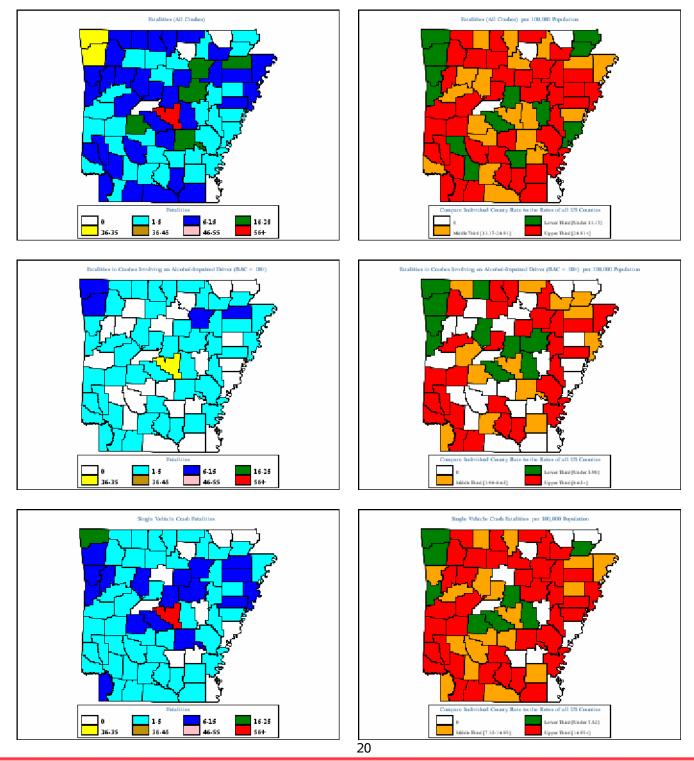
National Highway Traffic Safety Administration





## National Highway Traffic Safety Administration

## Arkansas Motor Vehicle Crash Fatality Maps for 2020



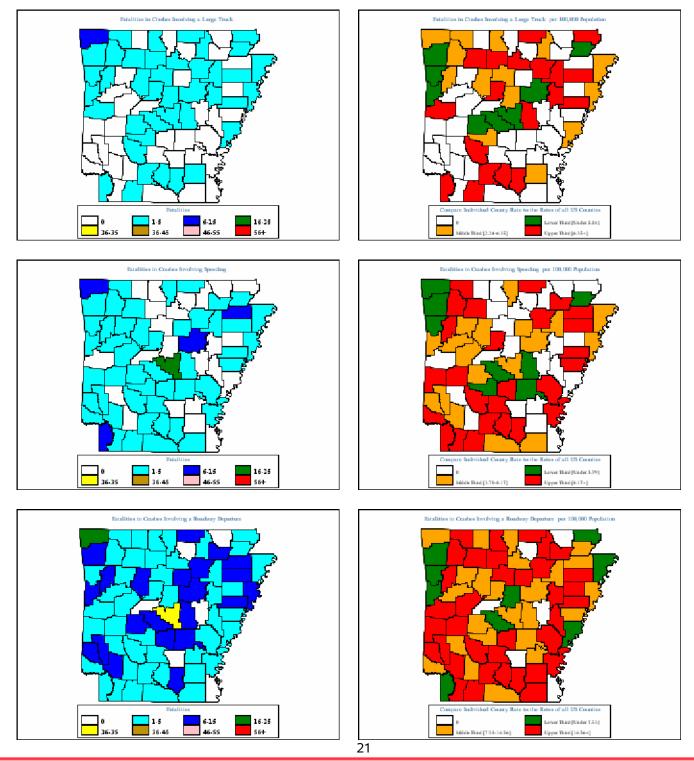






## National Highway Traffic Safety Administration

## Arkansas Motor Vehicle Crash Fatality Maps for 2020



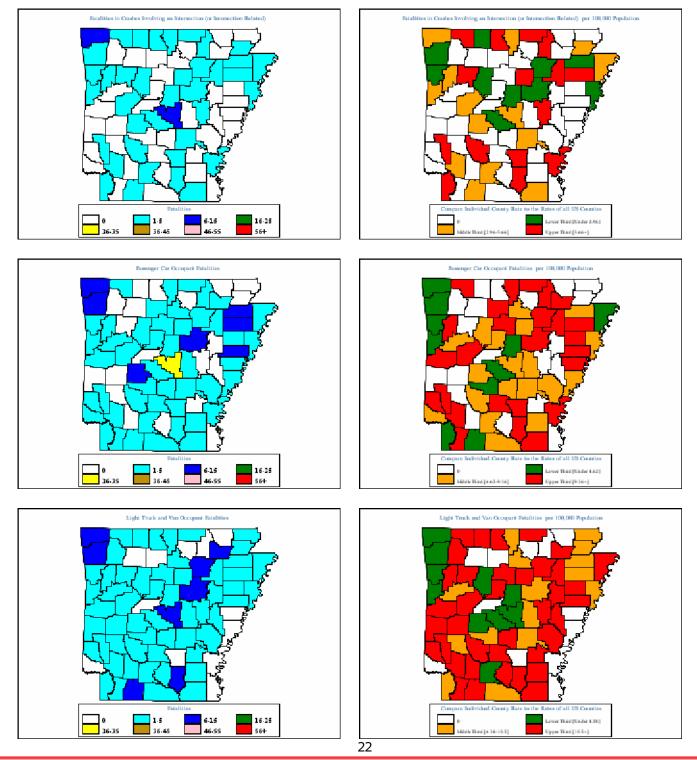






## National Highway Traffic Safety Administration





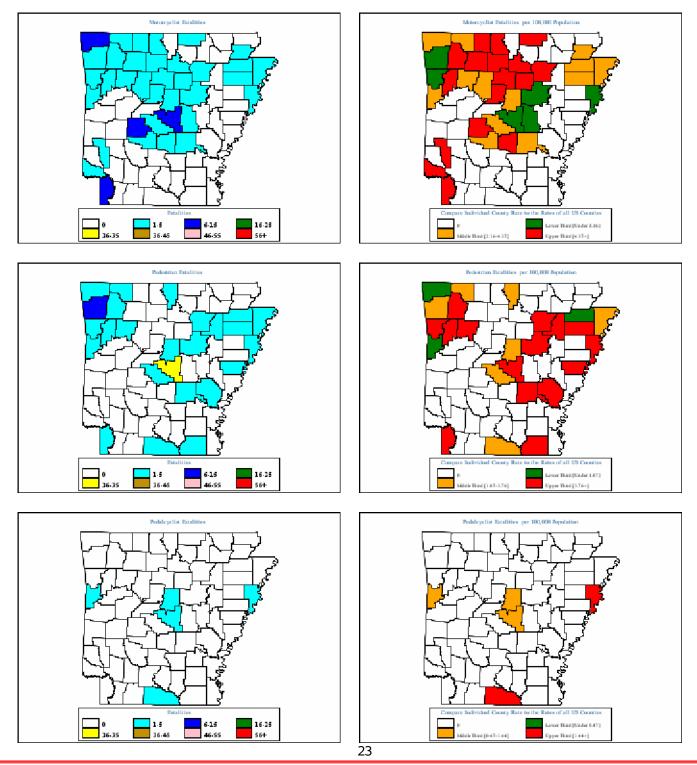






## National Highway Traffic Safety Administration

## Arkansas Motor Vehicle Crash Fatality Maps for 2020



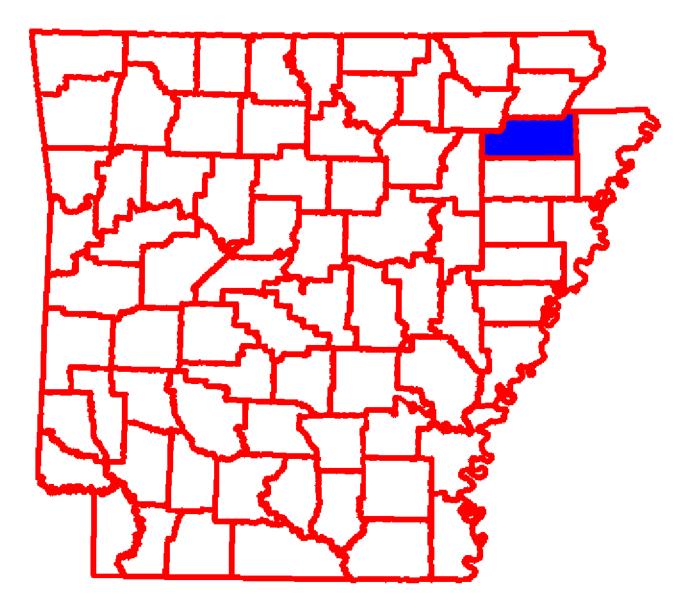






National Highway Traffic Safety Administration





This Report Contains Data From the Following Sources: Fatality Data - NCSA Fatality Analysis Reporting System (FARS): 2016-2019 Final File and 2020 Annual Report File (ARF) Population Data - U.S. Bureau of the Census





## National Highway Traffic Safety Administration

Fatality Type		Fatalities				Fatalities Per 100,000 Population				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Total Fatalities (All Crashes)*	18	17	18	18	20	16.97	15.85	16.50	16.25	17.82
(1) Alcohol-Impaired Driving (BAC=.08+) Fatalities	6	6	3	4	8	5.66	5.59	2.75	3.61	7.13
(2) Single Vehicle Crash Fatalities	10	9	6	8	12	9.43	8.39	5.50	7.22	10.69
(3) Large Truck Involved Crash Fatalities	3	4	4	5	0	2.83	3.73	3.67	4.51	0.00
(4) Speeding Involved Crash Fatalities	1	3	4	4	11	0.94	2.80	3.67	3.61	9.80
(5) Rollover Involved Crash Fatalities	3	1	2	1	6	2.83	0.93	1.83	0.90	5.35
(6) Roadway Departure Involved Crash Fatalities	8	8	8	8	13	7.54	7.46	7.33	7.22	11.58
(7) Intersection (or Intersection Related) Crash Fatalities	3	2	5	6	3	2.83	1.86	4.58	5.42	2.67
Passenger Car Occupant Fatalities	4	5	6	8	10	3.77	4.66	5.50	7.22	8.91
Light Truck Occupant Fatalities	5	3	5	6	5	4.72	2.80	4.58	5.42	4.45
Motorcyclist Fatalities	5	4	3	1	4	4.72	3.73	2.75	0.90	3.56
Pedestrian Fatalities	3	4	3	2	1	2.83	3.73	2.75	1.81	0.89
Bicyclist (or Other Cyclist) Fatalities	1	0	0	0	0	0.94	0.00	0.00	0.00	0.00

(1) Crash Involved at Least One Driver or Motorcycle Rider With a BAC of .08 or Above

(2) Crash Involved Only One Vehicle In Transport

(3) Crash Involved at Least One Large Truck

(4) Crash Involved at Least One Vehicle Speeding

(5) Crash Involved at Least One Vehicle that Rolled Over

(6) Crash Involved at Least One Vehicle that Departed the Roadway (FHWA Definition)

(7) Crash Occured Within an Intersection or Within the Approach to an Intersection

\*A Fatality Can Be in More Than One Category. Therefore Sum of the Individual Cells Will Not Equal the Total Due to Double Counting





## National Highway Traffic Safety Administration

Restraint Use	Fatalities					Fatalities Per 100,000 Population				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Restrained	6	4	3	12	8	5.66	3.73	2.75	10.83	7.13
Unrestrained	2	1	8	1	7	1.89	0.93	7.33	0.90	6.24
Unknown Restraint Use	1	3	0	1	0	0.94	2.80	0.00	0.90	0.00
Total	9	8	11	14	15	8.49	7.46	10.08	12.64	13.36

## Passenger Vehicle Occupant Fatalities by Restraint Use

Motorcyclist Fatalities by Helmet Use

Helmet Use		Fatalities				Fatalities Per 100,000 Population				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Helmet Used	2	3	2	1	2	1.89	2.80	1.83	0.90	1.78
No Helmet Used	3	1	1	0	2	2.83	0.93	0.92	0.00	1.78
Unknown Helmet Use	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00
Total	5	4	3	1	4	4.72	3.73	2.75	0.90	3.56





## National Highway Traffic Safety Administration

Fatalities by Person Type and	d Race/Hispanic Origin
-------------------------------	------------------------

Person Type by Race/Hispanic Origin			2017	2018	2019
Occupants (All Vehicle Types)	Hispanic	1	0	0	0
	White Non-Hispanic	12	9	14	15
	Black, Non-Hispanic	1	3	1	1
	Unknown Race and Unknown Hispanic	0	1	0	0
	Total	14	13	15	16
Non-Occupants (Pedestrians, Pedalcyclists and Other/Unknown Non-Occupants)					
	Hispanic	0	0	0	0
	White Non-Hispanic	2	2	1	2
	Black, Non-Hispanic	2	2	2	0
	Unknown Race and Unknown Hispanic	0	0	0	0
	Total	4	4	3	2
Total					
	Hispanic	1	0	0	0
	White Non-Hispanic	14	11	15	17
	Black, Non-Hispanic	3	5	3	1
	Unknown Race and Unknown Hispanic	0	1	0	0
	Total	18	17	18	18

2020 Race/Hispanic Origin Data is Not Yet Complete



# Safety Analysis Report

## Craighead County, Arkansas

## Purpose:

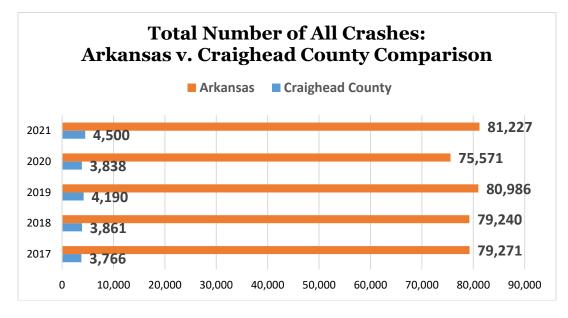
The N.A.R.T.P.C. has collected and reviewed available crash data and reports for state routes within Craighead County Between the years 2017 and 2021. The following information reflects a brief analysis of the overall results of those findings, which can be used to help identify and prioritize regional safety improvement projects that support the safety performance targets set by the state of Arkansas.

## Methodology:

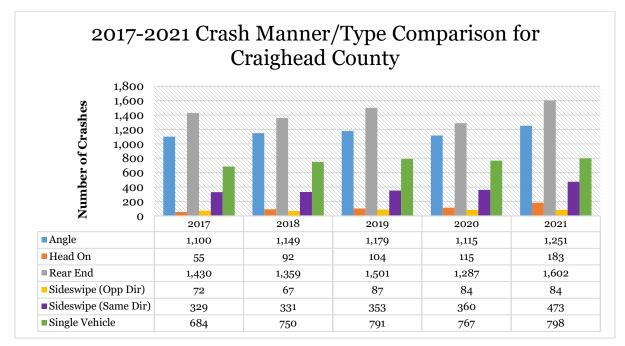
The crash data used for this report was derived from the Arkansas Department of Transportation (A<sub>R</sub>DOT), which is responsible for the implementations of the new statewide eCrash database. The eCrash database allows for more accuracy and consistency regarding crash reporting, monitoring, and analysis. Additionally, all information regarding fatal crash incidents throughout the state are ultimately submitted to the NHTSA Fatal Analysis Reporting System (FARS).

\*\*\*While data was available from the eCrash system for 2021, FARS data was only available through the year 2020 at the time of this report. In order to provide a complete 5-year comparison of traffic safety for the region, the dates observed in this report will periodically switch from 2016-2020 to 2017-2021 depending on the source of the data.

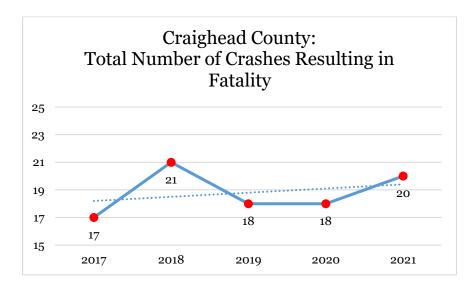
## Analysis:



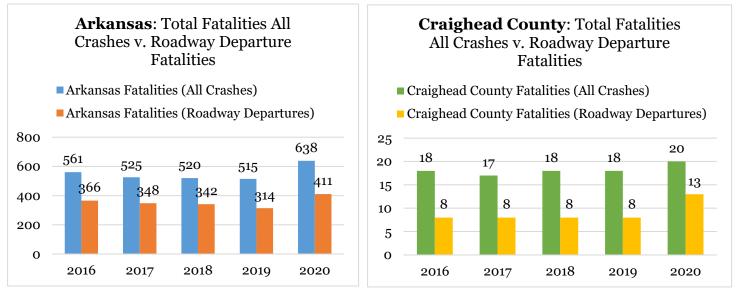
**Did you know?** Between 2017 and 2021 there were 1,385 more **Rear End** crashes than the next highest crash type (Angled Crashes).



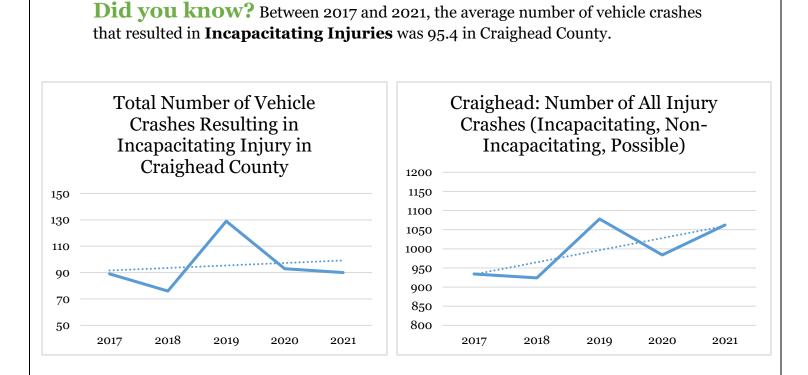
**Did you know?** Between 2017 and 2021 Craighead County averaged **18.8 Fatal Vehicle Crashes** per year.



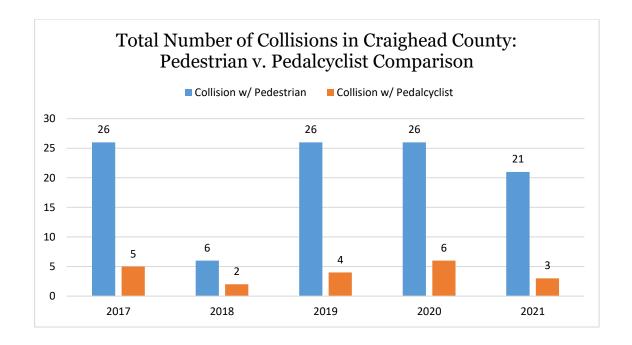
**Did you know?** The first four years of our comparison saw a consistent 8 roadway departure fatalities, and the state actually saw a steady reduction during that time. Then, in 2020 there was a significant increase in fatalities for both the county and the state.



To access the NHTSA Fatal Analysis Reporting System (FARS) Report Tables, please visit: <u>https://cdan.nhtsa.gov/TSFTables/TSFAR.htm</u>



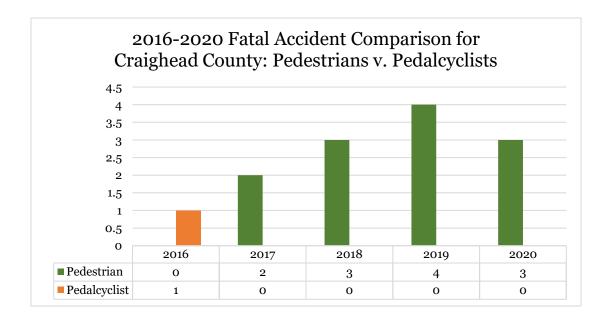
**Did you know?** Between 2017 and 2021, Craighead County averaged **21** vehicle collisions with a **pedestrian** and averaged **4** vehicle collisions with a **pedalcyclist** per year.



83

**Did you know?** Craighead County experienced at least **2 pedestrian deaths** as a result of a vehicle crash every year since 2017.

To access the NHTSA Fatal Analysis Reporting System (FARS) Report Tables, please visit: <u>https://cdan.nhtsa.gov/TSFTables/TSFAR.htm</u>



## \*\*Statewide eCrash data provided from *A*<sub>R</sub>DOT were used to identify the listed locations in this section.

- The chart on the next page reflects fatal and serious injury location data for 2017-2021 vehicle collisions with pedestrians and pedalcyclists. Select locations were identified below as critical corridors for bicycle/pedestrian safety based on the data from the given chart on the next page.
  - E. Johnson Ave (Hwy 91) (Between Main St. and N. Patrick St.)
  - Red Wolf Blvd (Hwy 49) (Between Race Street and Stallings Ln.)
  - E. Johnson Ave (Hwy 91) (Between State St. and Marion Berry Parkway)
  - Union St. (Between W Huntington and W Matthews)
  - E. Johnson Ave (Between Hwy 351 and Bridger Road)

Year	Crash Location	Nearest Corridor	Crash Severity	Collision Type
2021	E. Johnson Ave. (Hwy 91)	Marion Berry Parkway	Fatal Injury	Pedestrian
2021	E. Johnson Ave. (Hwy 91)	Melrose St.	Incapacitating Injury	Pedestrian
2021	E. Johnson Ave. (Hwy 91)	State St. & Melrose St.	Incapacitating Injury	Pedestrian
2021	State Street	E. Johnson Ave. & Aggie Road	Incapacitating Injury	Pedestrian
2021	Kitchen St.	E. Nettleton Ave. & E. Matthews Ave	Incapacitating Injury	Pedestrian
2021	W. Nettleton Ave.	Union St. & Haven St.	Incapacitating Injury	Pedestrian
2021	W. Matthews Ave.	S. Gee St. & S. Culberhouse St.	Incapacitating Injury	Pedestrian
2021	I-555	Craighead/Poinsett County Line	Fatal Injury	Pedestrian
2021	US 49	Craighead/Greene County Line	Incapacitating Injury	Pedestrian
2020	E. Johnson Ave.	N. Airport Road & Bridger Road	Incapacitating Injury	Pedestrian
2020	E. Johnson Ave.	N. Airport Road & Bridger Road	Fatal Injury	Pedestrian
2020	Prospect Road	N. Airport Road & Paragould Dr.	Incapacitating Injury	Pedestrian
2020	N. Church St. (Hwy 141)	Forrest St. & Hickory St.	Incapacitating Injury	Pedestrian
2020	Belt St.	Scott St. & N. Patrick St.	Incapacitating Injury	Pedalcyclist
2020	Union St.	E. Matthews Ave. & W. Jefferson Ave.	Incapacitating Injury	Pedestrian
2020	N. Airport Road	Neil Dr.	Incapacitating Injury	Pedestrian
2020	Red Wolf Blvd (Hwy 49)	E. Nettleton Ave.	Incapacitating Injury	Pedestrian
2020	Richardson Dr.	Race St. & I-555 Access	Incapacitating Injury	Pedestrian
2019	US 49	CR 952 & CR 960	Fatal Injury	Pedestrian
2019	Red Wolf Blvd (Hwy 49)	E. Nettleton Ave. & Stallings Ln.	Fatal Injury	Pedestrian
2019	W. Washington Ave.	Union St. & Main St.	Incapacitating Injury	Pedestrian
2019	E. Johnson Ave.	Melrose St.	Incapacitating Injury	Pedestrian
2019	University Loop East	Honors Avenue	Incapacitating Injury	Pedestrian
2019	Red Wolf Blvd (Hwy 49)	King St.	Incapacitating Injury	Pedestrian
2019	E. Nettleton Ave.	Clark St.	Incapacitating Injury	Pedestrian
2018	Red Wolf Blvd. (Hwy 49)	Stallings Ln & E. Nettleton Ave.	Fatal Injury	Pedestrian
2018	E. Johnson Ave. (Hwy 91)	N. Bridge St. & N. Drake St.	Fatal Injury	Pedestrian
2018	Fairview Dr.	Sutton Dr. & Fairfield Dr.	Fatal Injury	Pedestrian
2018	W Washington Ave.	Freeman St. & Meadowbrooke St.	Incapacitating Injury	Pedalcyclist
2017	E Johnson Ave. (Hwy 91)	N. Patrick St. & S. Allis St.	Fatal Injury	Pedestrian
2017	E Johnson Ave. (Hwy 91)	N. Patrick St. & S. Allis St.	Fatal Injury	Pedestrian
2017	E Johnson Ave. (Hwy 91)	Azalea Ln. & State St.	Fatal Injury	Pedestrian
2017	County Road 905	County Roads 910 & 912	Fatal Injury	Pedestrian
2017	E. Johnson Ave. (Hwy 91)	N. Main St. & Labaume St.	Incapacitating Injury	Pedestrian
2017	Union St.	W. Washington Ave.	Incapacitating Injury	Pedestrian
2017	Harrisburg Rd. (Hwy 1B)	Ebbert Dr. Intersection	Incapacitating Injury	Pedestrian
2017	Stadium Blvd (AR1)	Apt Dr. & Harrisburg Rd.	Incapacitating Injury	Pedestrian
2017	Red Wolf Blvd. (Hwy 49)	Race St. Intersection	Incapacitating Injury	Pedestrian
		Bittle St. & Larkwood Dr.	Incapacitating Injury	Pedestrian
2017	E. Nettleton Ave.	Dittle St. & Larkwood D1.	incapacitating injury	1 cucoti iun
2017 2017	Paragould Dr.	Jettyl Dr. & Prospect Rd.	Incapacitating Injury	Pedestrian

- The below chart ranks locations according to the number of fatal and incapacitating injury vehicle collisions that have occurred at that particular corridor between 2017 & 2021. The selected locations below appear to be major corridors for serious traffic collisions.
  - E. Johnson Ave. (Hwy 49) between 351 & Paragould Drive
  - E. Johnson Ave. (Hwy 91) Between Main Street and Red Wolf Blvd
  - Red Wolf Blvd. (Hwy 49) between Stallings Ln and Highland Dr.
  - o E. Highland Drive (Hwy 18) Between Main Street and Red Wolf Blvd
  - E. Highland Drive (Hwy 18) Between Red Wolf Blvd and Barnhill Road
  - Hwy 49 Between CR 706 & CR 906

Year	Street Name	Nearest Corridor	# of Crashes
2019	E. Johnson Ave. (Hwy 49)	Hwy 351 & Clinton School Road	11
2021	E. Johnson Ave. (Hwy 91)	Red Wolf Blvd & Main St.	8
2019	E. Johnson Ave. (Hwy 91)	Red Wolf Blvd & Main St.	8
2019	Red Wolf Blvd (Hwy 49)	Stallings Ln & Highland Drive (Hwy 18)	7
2020	E. Johnson Ave (Hwy 91)	Hwy 351 & Clinton School Road	7
2020	E. Highland Drive (Hwy 18)	Dr. Martin Luther King Dr. & Moore Road	6
2019	S. Caraway Road	Mathews St. & Highland Dr.	5
2020	E. Johnson Ave.	Red Wolf Blvd & Main St.	5
2021	E. Nettleton Ave.	S. Church St. (Hwy 141) & Red Wolf Blvd (Hwy 49)	4
2021	E. Highland Dr.	Main St. & Red Wolf Blvd (Hwy 49)	4
2019	E. Highland Dr.	E. Highland Dr. & Browns Ln.	4
2018	E. Johnson Ave. (Hwy 49)	Jewell Dr. & Paragould Dr.	4
2017	Red Wolf Blvd (Hwy 49)	I-555 & E. Highland	4
2020	N. Church St. (Hwy 141)	W. Forrest St. & Bettie Dr.	3
2019	Red Wolf Blvd (US 49)	Red Wolf Blvd (US 49) & E. Johnson Ave. (Hwy 91)	3
2021	Harrisburg Road (Hwy 1)	Lakewood Dr. & Rossland Dr.	3
2021	Race St.	S. Caraway Road & Red Wolf Blvd	3
2020	US 49	CR 706 & CR 762	3
2021	E. Highland Dr. (Hwy 18)	Nestle Way & Barnhill Road	3
2018	Red Wolf Blvd (Hwy 49)	I-555 & E Highland	3
2018	Red Wolf Blvd (Hwy 49)	E. Johnson Ave & E. Nettleton Ave.	3
2018	S. Caraway Road	I-555 & E. Highland	3
2018	E. Highland Drive (Hwy 18)	MLK Dr. & Barnhill Rd.	3
2021	US 49	CR 706 & CR 762	2
2021	US 49	CR 952 & CR 960	2
2019	US 49	CR 706 & CR 762	2
2019	US 49	CR 952 & CR 960	2
2020	E. Nettleton Ave.	E. Nettleton Ave. & Red Wolf Blvd	2
2020	Red Wolf Blvd (US 49)	Red Wolf Blvd & E. Johnson Ave.	2
2019	E. Johnson Ave	Main St. & E. Johnson Ave.	2
2020	Red Wolf Blvd (US 49)	Nettleton Ave. & Red Wolf Blvd (US 49)	2
2020	Red Wolf Blvd (US 49)	Highland Dr. & Red Wolf Blvd	2
2020	US 63	Bay, AR - Ramp	2
2018	E. Johnson Ave. (Hwy 49)	Hwy 351 & Paragould Dr.	2
2018	E. Highland Drive (Hwy 18)	Hillcrest Dr. & Bittle St.	2
2017	E. Johnson Ave. (Hwy 91)	N. Allis St. & N. Patrick St.	2

2018	Red Wolf Blvd. (Hwy 49)	E. Highland Dr. & E. Nettleton Ave.	2
2018	E. Johnson Ave. (Hwy 91)	State St. & Melrose St.	2
2018	S. Main St.	W. Matthews St. & E. Huntington Ave	2
2018	I-555	Harrisburg Rd. & Red Wolf Blvd.	2
2018	E. Highland Dr. (Hwy 18)	S. Main St. & Wofford St.	2
2017	E. Matthews Ave.	E. Matthews & S. Caraway Rd.	2
2017	E. Highland Dr. (Hwy 18)	S. Church St. & Harrisburg Rd.	2
2017	E. Highland Dr. (Hwy 18)	Kathleen St. & Amanda St.	2
2017	E. Washington Ave.	S. Bridge St. & Union St.	2
2020	Red Wolf Blvd (US 49)	Nettleton Ave. & Red Wolf Blvd (US 49)	2
2020	Red Wolf Blvd (US 49)	Highland Dr. & Red Wolf Blvd	2
2020	US 63	Bay, AR - Ramp	2

Listed below is crash data for the Metropolitan Planning Area sorted by crash type and includes areas of concern based on that information. The information was pulled from the Arkansas Crash Analytics Tool and spans the years 2017 to 2021.

<u>Prevalent Crash Types</u>	<u>Fatal</u>	<u>SSI</u>
Roadway Departure	49	178
Intersection Related	32	211
Speed Related	18	44
Unrestrained	23	70
Non-Motorists	12	34

## Roadway Departure Crashes

49 Fatal Crashes	~68% of All Fatal Crashes
171 SSI Crashes	~43% of All SSI Crashes

## Areas of Concern (Roadway Departure Crashes)

E Johnson Ave. (Main St. to Red Wolf Blvd) Red Wolf Blvd (Stallings Ln. to Highland Dr.) CR 905 (CR 928 to Hwy 18) US 49 (US 49-B to CR 960) I-555 (Exit Ramp/Bay AR) Hwy 141 (Bradley St to Center St.) Harrisburg Rd. (Forrest Hill Rd. to Brownstone Dr.)

## Intersection Related Crashes

32 Fatal Crashes	~44% of All Fatal Crashes
211 SSI Crashes	~51% of All SSI Crashes

Areas of Concern (Intersection Related Crashes) Hwy 18 & Dr. Martin Luther King Jr. Dr. Red Wolf Blvd & E Nettleton Ave. Red Wolf Blvd & Highland Dr. E Highland Dr. & Browns Ln. Red Wolf & Stallings Ln. Hwy 18 & Rogers Chapel Rd. S Caraway Rd. & Race St. E Johnson Ave & Red Wolf Blvd Red Wolf Blvd & Aggie Rd.

#### Speeding Related Crashes

18 Fatal Crashes~25% of All Fatal Crashes44 SSI Crashes~11% of All SSI Crashes

<u>Areas of Concern (Speeding Related Crashes)</u> E Johnson Ave. (N Caraway Rd to Red Wolf Blvd) Hwy 141 (Near CR 722) US 63 (Near Bono) E Johnson Ave. (Paragould Dr. to Bridger Rd.) E Nettleton (Near Nettleton Circle) Southwest Dr. (E Highland Dr. to Hampton Dr.)

**Unrestrained Crashes** 

23 Fatal Crashes	~32% of All Fatal Crashes
70 SSI Crashes	~17% of All SSI Crashes

#### Non-Motorist Crashes

12 Fatal Crashes	~17% of All Fatal Crashes
34 SSI Crashes	~8% of All SSI Crashes

<u>Areas of Concern (Non-Motorist Crashes)</u> E Johnson Ave (Bridge St. to N Patrick St) E Johnson Ave (State St. to Marion Berry Pkwy) N Church St. (Bettie Dr. to Ranchette Dr.) Union St (West Huntington to W Matthews) Red Wolf Blvd & Race St. Red Wolf Blvd (Stallings Ln. to E Nettleton Dr.) General Corridors of Concern E Johnson Ave. (Bridge St. to N Patrick St.) E Johnson Ave. (State St. to Marion Berry Pkwy) Red Wolf Blvd (Stallings Ln. to E Highland Dr.) Hwy 18 (Nestle Way to Barnhill Rd.) US 49 (Farville Curve to CR 762) US 49 (US 49-B to Craighead County Line) E Johnson Ave. (Hwy 351 to Bridger Rd.) I-555 (Exit Ramp/Bay, AR) Harrisburg Rd. (Forrest Hill Rd. to Brownstone Dr.)

## SIGNALIZED INTERSECTION SAFETY STRATEGIES

#### CATEGORY A: REDUCE FREQUENCY AND SEVERITY OF INTERSECTION CONFLICTS THROUGH TRAFFIC CONTROL AND OPERATIONAL IMPROVEMENTS

#### A1 – Replace permissive left turns with protected left turns

Where to use - Signalized intersections with a high frequency of angle crashes involving left turning and opposing through vehicles. A properly timed protected leftturn phase can also help reduce rear-end and sideswipe crashes between left-turning vehicles and the through vehicles behind them. Keywords: protected, permissive, signal phasing SIG

#### A2 – Optimize change and clearance intervals

Where to use - Signalized intersections with a high frequency of crashes related to change interval lengths that are possibly too short. These crashes include angle crashes between vehicles continuing through the intersection after one phase has ended and the vehicles entering the intersection on the following phase. Rear-end crashes may also be a symptom of short change intervals. SIG Keywords: change interval, signal phasing, signal timing

#### A3 – Restrict or eliminate turning maneuvers

Where to use - Signalized intersections with a high frequency of crashes related to turning maneuvers. For right turn on red (RTOR), the target of this strategy is rightturning vehicles that are involved in rear-end or angle crashes with cross-street vehicles approaching from the left or vehicles turning left from the opposing approach, and crashes involving pedestrians. PED SIG Keywords: right turn on red

#### A4 – Employ signal coordination

Where to use - Signalized intersections with a high frequency of crashes involving major street left-turning and minor street right-turning vehicles where adequate safe gaps in opposing traffic are not available. Major road rear-end crashes associated with speed changes can also be reduced by re-timing signals to promote platooning Keywords: signal coordination, signal timing, cycles PED

#### A5 – Employ emergency vehicle preemption

Where to use - Signalized intersections where normal traffic operations impede emergency vehicles and where traffic conditions create a potential for conflicts between emergency and non-emergency vehicles.

#### A6 – Remove unwarranted signal

Where to use - Signalized intersections where the traffic volumes and safety record do not warrant a traffic signal. Keywords: unwarranted, remove signal

#### A7 – Change green signal to flashing yellow arrow for permissive left turns Where to use - Signalized intersections with high frequency of angle crashes involving left-turning and opposing through vehicles. The flashing yellow arrow (FYA) can be used in place of the simple circular green light and other signals to help convey the

message that left-turning drivers need to yield to on-coming traffic. Keywords: FYA, flashing yellow arrow, phasing, left turn, protected, permissive

#### A8 – Install/implement pedestrian signal improvements

Where to use - Signalized intersections with conflicts between vehicles and pedestrians crossing at the intersection, high volume of crossing pedestrians or bicyclists, vehicles not yielding to pedestrians in crosswalk, and high pedestrian delay due to few available gaps in traffic. Measures can include increasing pedestrian clearance intervals (or increasing the cycle length for pedestrian crossing), implementing leading pedestrian interval and installing pedestrian pushbuttons and pedestrian countdown signals

Keywords: pedestrian, crossing, cycle length, signal phasing, pedestrian interval, countdown

#### A9 – Install bicycle signal

Where to use - Signalized intersections with conflicts between vehicles and bicycles crossing at the intersection, high volume of bicyclists, vehicles not yielding to bicyclists

#### **CATEGORY B:** REDUCE INTERSECTION CONFLICTS THROUGH GEOMETRIC **IMPROVEMENTS**

#### B1 – Provide/improve turn lane channelization

Where to use - Signalized intersections with a high frequency of rear-end collisions

resulting from conflicts between: (1) vehicles turning and following vehicles; and (2) vehicles from downstream intersection crossing traffic lanes to enter turn lane. The

#### CATEGORY D: IMPROVE DRIVER AWARENESS OF INTERSECTIONS AND SIGNAL CONTROL D1 – Improve visibility of intersections

on approach(es) Where to use - Signalized intersections with a high frequency of crashes attributed to drivers being unaware of the presence of the

## D2 – Improve visibility of signals and signs at intersections

Where to use -Signalized intersections with a high frequency of right-angle and rear-end crashes occurring because drivers are unable to see traffic signals and signs sufficiently in advance to safely negotiate the intersection being approached. SIG Keywords: signal visibility

#### D3 – Install/add one signal head per lane

intersection

Where to use - Signalized intersections with a high frequency of crashes caused by driver indecision in lane assignment. SIG Keywords: add signal, signal head

#### D4 – Install larger 12" signal heads

Where to use - Signalized intersections with a crash history or observed conflicts involving lack of awareness of the intersection or traffic control and observed speeding on approaches to the intersection. SIG Keywords: signal lense, signal head

#### D5 – Install signal backplate/retroreflective backplates

Where to use - Signalized intersections with poor visibility of the intersection from approaches, a crash history or observed conflicts involving lack of awareness of the intersection or traffic control, and observed speeding on approaches to the intersection.

#### Keywords: retroreflective, backplate

#### D6 – Install intersection warning devices

Where to use - Signalized intersections with poor visibility of the intersection from approaches, conflicts involving lack of awareness of the intersection or traffic control, and observed speeding on approaches to the intersection. Intersection warning devices can include warning signs, beacons, and transverse rumble strip: **Keywords:** *advance warning sign*, *positive guidance* BIKE PED

#### D7 – Convert pole mounted to overhead signals

Where to use - Signalized intersections with poor visibility of the intersection from approaches, a crash history or observed conflicts involving lack of awareness of the intersection or traffic control, and observed speeding on approaches to the intersection

Keywords: convert signal, pedestal mounted, mast arm

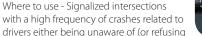
#### **D8** – Install supplemental pole-mounted signal on near-side approach

Where to use - Signalized intersections with poor visibility of the intersection from approaches, a crash history or observed conflicts involving lack of awareness of the intersection or traffic control, and observed speeding on approaches to the intersection. SIG

**CATEGORY E: IMPROVE** 







to obey) traffic laws and regulations that impact traffic safety (especially red-light running, speeding, and not yielding to pedestrians). BIKE PED

E2 – Provide targeted conventional enforcement of traffic laws

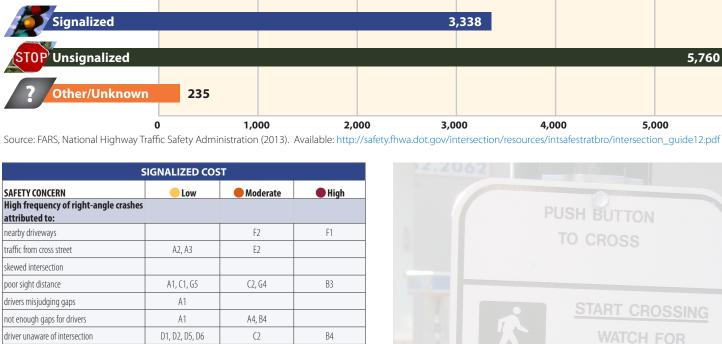
Where to use -Signalized intersections with a high frequency of crashes related to drivers either being unaware of (or refusing to obey) traffic laws and regulations that



#### E3 – Post reasonable, safe, and consistent speed limits on intersection approaches

Where to use - Signalized intersections with a high frequency of crashes attributed to drivers who intentionally disobey posted approach speed limits. **Keywords:** Speed, speed management





1





## **2013 INTERSECTION FATALITIES**



5,760

5.000

6,000







BIKE



Keywords: add signal, signal head

channelization can also provide a pedestrian refuge area and reduce pedestrian crossing distance PED

#### Keywords: channelization, right turn, left turn, turn lane, raised curb

#### B2 – Improve geometry of pedestrian and bicycle facilities

Where to use - Signalized intersections with high frequencies of pedestrian and/or bicycle crashes and on routes serving schools or other generators of pedestrian and bicycle traffic. Measures can include curb radius reduction, curb extension, pedestrian refuge/raised median, and raised intersections. SIG BIKE PED P

**Keywords:** pedestrian, widen sidewalk at intersection, raised intersection

#### B3 – Utilize innovative intersection geometry

Where to use - Signalized intersections with high levels of crashes on a leg where other low-cost strategies have not been successful or are not considered PE appropriate.

#### B4 – Corridor access management - implement median closures

Where to use - Signalized intersections with patterns of crashes related to particular turning maneuvers where drivers have difficulties finding an acceptable gap in traffic. Keywords: access points, access management SIG P

#### B5 – Provide right-turn lanes at intersections

Where to use - Signalized intersections with conflicts between right-turning vehicles and following vehicles, and significant right-turn volume along major road. Keywords: access points SIG P

#### **CATEGORY C:** IMPROVE SIGHT DISTANCE AT SIGNALIZED INTERSECTIONS

#### C1 – Clear sight triangles

Where to use - Signalized intersections where there is a high frequency of crashes between vehicles turning right on red from one street and through vehicles on the other street or

crashes involving left turning traffic where landscaped medians are present **Keywords:** triangle sight distance SIG BIKE PED

#### C2 – Increase positive turn lane offset

Where to use - Signalized intersections where there is a high number of crashes due to turning vehicles limiting the sight distance. Left-turning vehicles can limit the sight distance of left turning vehicles and opposing through vehicles. Right-turning vehicles can limit the sight distance of right-turning cross street traffic

Keywords: turn lane, offset, positive offset, left-turn lane, right-turn lane



intersection are the greatest concern. Keywords: relocation, driveway, closure

#### F2 – Corridor access management - implement median closures

Where to use - Approaches to signalized intersections with a high frequency of crashes involving drivers making turns across medians. P Keywords: open median, closed median



## **INFRASTRUCTURE TREATMENTS**

#### G1 – Improve drainage in intersection and on approaches 18 8 8 8 8 8 Where to use - Signalized intersections with a high frequency of crashes that are related to wet pavement from poor drainage

Such crashes involve vehicles that hydroplane and, hence, are not able to stop when required.

#### G2 – Provide high friction surface treatment in intersection and on approaches

Where to use - Signalized intersection approaches where skidding is determined to be a problem, especially in wet conditions. Keywords: pavement, friction, condition, skid resistance SIG

#### G3 – Coordinate closely spaced signals near at-grade railroad crossings

Where to use - Signalized intersections in close proximity to at-grade railroad crossings with a high frequency of crashes. This situation presents a significant potential for vehicle-train crashes, but vehicle-vehicle crashes could also occur if drivers try to speed through an intersection to avoid waiting in a queue near the railroad crossing. PED

#### G4 – Relocate signal hardware out of clear zone

Where to use - Signalized intersections where signal hardware is located within the clear zone or is a sight obstruction (particularly on high-speed approaches). **Keywords:** fixed objects, clear zone

#### G5 – Restrict or eliminate parking on intersection approaches

Where to use - Signalized intersections with permitted parking on the approaches that may present a safety hazard either by blocking sight distance or due to parking maneuvers.



Costs will also vary considerably and are affected by local conditions. Costs are ranked

as: low, moderate, moderate to high, and high. The scale is meant to reflect costs

relative to the other strategies described in the category (signalized or unsignalized).

D1, D2, D5

A3, C1, G5

A1

A3

D1, D2, D5

D1, D2, D5

A2, A3

A1, A3, A7, C1

D1, D2, D5

A1

A8

A1, A3

E1

A6

A6

iahttime conditions

attributed to:

P

right turning vehicles hit from side

left turning vehicles hit from behind

left opposing vehicles hit from behind

right turning vehicles hit from behind

vehicles unable to stop safely (skidding)

High frequency of left-turn crashes

High frequency of sideswipe crashes

High frequency of pedestrian/bicycle

on school routes or near generators of ped/

vehicle/bicycle sideswipes on approaches

Address overall safety issues:

ntersection near railroad crossing

ntersection near fire station

sobedience of traffic signal

Key to the Brochure

excessive delay

Costs:

left turn vehicles hit by opposing traffic

standing water on roadway

driver unaware of intersection

speed differentials of vehicles

nighttime conditions

dden stops

attributed to:

iahttime conditions

ehicles within intersection

ith left turning vehicles

violation of traffic laws

attributed to:

crashes

bike traffic

High frequency of rear-end crashes

#### **P** FHWA Proven Safety Countermeasure:

More information about EHWA Proven Safety Countermeasures can be found at: http://safety.fhwa.dot.gov/provencountermeasures/

#### **E** FHWA Everyday Counts:

Every Day Counts (EDC) is an effort led by FHWA in cooperation with American Association of State and Highway and Transportation Officials (AASHTO) to identify and rapidly deploy proven but underutilized innovations to shorten the project delivery process, enhance roadway safety, reduce congestion and improve environmental sustainability. See http://www.fhwa.dot.gov/everydaycounts/ for additional information.

#### **Keywords:**

P

Keywords have been provided for those countermeasures with a crash modification factor in the CMF Clearinghouse (http://www.cmfclearinghouse.org/). Some countermeasures may be found using a variety of search terms and the keywords provided are examples of those terms. For those countermeasures without keywords listed, their effectiveness may not have been studied or submitted to the CMF clearinghouse.



UNSIG

Unsignalized Intersection Improvement Guide (NCHRP 03-104)

ety.fhwa.dot.gov/intersection/signalized/13027/fhwasa13027.pdf



PEDSAFE 2013- Pedestrian Safety Guide and Countermeasure Selection PED ttp://pedbikesafe.org/PEDSAFE/guide\_background.cfm

The original version of this brochure (FHWA-SA-08-008) was originally produced as a guick reference to all the strategies listed in NCHRP Report 500, Volume 5 (Unsignalized) and Volume 12 (Signalized). This second edition has been revised and updated to reflect more timely information and experience available through the Crash Modification Factor (CMF) Clearinghouse.

## For more information, please visit: http://safety.fhwa.dot.gov



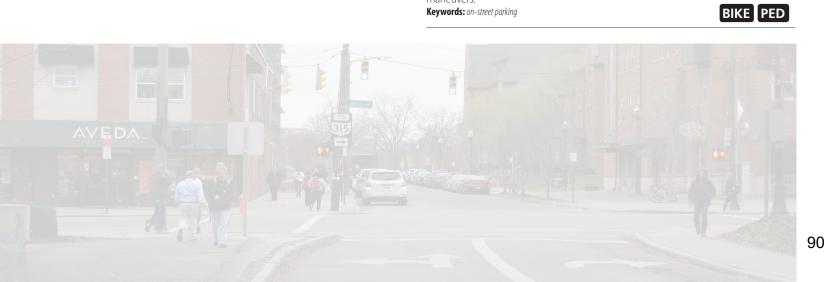
Safe Roads for a Safer Future ient in roadway safety saves lives



## **Intersection Safety Strategies**

Second Edition

U.S. Department of Transportation **Federal Highway Administration** 











SIG BIKE PED







## UNSIGNALIZED INTERSECTION SAFETY STRATEGIES

## **CATEGORY A: IMPROVE**

## MANAGEMENT OF ACCESS

#### A1 – Corridor access management -

reduce driveway conflicts Where to use - Unsignalized intersections with high crash frequencies related to

driveways adjacent to the intersection. Generally, driveways within 250 feet of the

intersection are the greatest concern

Keywords: driveway closure, driveway relocation, access management, reduce driveways

#### A2 – Corridor access management - modify driveway access

Where to use - Driveways located near unsignalized intersections that experience high crash frequencies but that cannot practically be closed or relocated. **Keywords:** access management, turn prohibitions, prohibit left-turns P

#### A3 – Corridor access management - reduce number of intersections

Where to use - Corridors with many intersections in close proximity and a high number of intersection related crashes. Reducing the number of intersections reduces the number of conflict points and can improve traffic flow along the corridor. P Keywords: intersection spacing, access management, change number of legs

#### A4 – Corridor access management - implement median closures

Where to use - Unsignalized intersections that have observed conflicts with left-turning vehicles from the major or minor road, finding acceptable gaps from minor road, and where driveway access causes delay and/or collisions. ( P Keywords: closed median, convert open medians

#### **CATEGORY B:** REDUCE CONFLICTS THROUGH GEOMETRIC DESIGN IMPROVEMENTS

#### B1 – Provide left-turn lanes at

intersections Where to use - Unsignalized intersections with a high frequency of crashes resulting from the conflict between (1) vehicles turning left and following vehicles and (2) vehicles turning left and opposing through vehicles. Keywords: provide left turn lane P

## offset left-turn lanes at intersections

vehicles turning left and opposing through vehicles, as well as rear-end crashes between through vehicles on the opposing approach. Also at intersections on divided highways with medians wide enough to provide the appropriate offset but can be implemented on approaches without medians if sufficient width exists. Keywords: positive offset turn lane

Where to use - At three-legged unsignalized intersections on two-lane highways with

Where to use - Unsignalized intersections with conflicts due to speed differential between entering vehicles and through vehicles, high left-turn volumes onto highspeed major roads, and significant delay for left-turning vehicles waiting for a suitable gap on the major road.

resulting from conflicts between (1) vehicles turning right and following vehicles and Keywords: provide right turn lane

Where to use - Unsignalized intersections with a high frequency of crashes between vehicles on the minor road that are turning left, turning right, or proceeding straight through, and vehicles on the major road. Keywords: offset right turn lane (P)

#### B7 – Provide full-width paved shoulders in intersection areas

Where to use - Unsignalized intersections on divided highways with no shoulder or shoulder widths less than 8 feet that experience a high proportion of run-off-road crashes as a result of avoidance maneuvers or a high proportion of rear-end crashes that could have been avoided had a full-width paved shoulder been provided.



Where to use - Unsignalized intersections with a crash history involving vehicles

P

entering or crossing the major road, difficulty among drivers in determining appropriate gaps in traffic, and awareness of the intersection is lacking. Keywords: install dynamic advance intersection warning system UNSIG

#### D2 – Re-time adjacent signals to create gaps at stop-controlled

intersections Where to use - Unsignalized intersections (between signalized intersections) with a high frequency of right-angle or turning related crashes due to a lack of sufficient gaps in through traffic on the major road.

**CATEGORY E:** IMPROVE DRIVER AWARENESS E1 – Improve visibility of intersections by providing enhanced signing and delineation Where to use - Unsignalized intersections that are not clearly visible to approaching



motorists on the major road. The strategy is particularly appropriate for intersections with patterns of rear-end, right-angle, or turning crashes related to lack of driver awareness of the presence of the intersection. Measures can include installing larger or supplementary regulatory and warning signs at intersections or providing dashed markings (extended left edge-lines) for major-road continuity across the median opening at divided highway intersection.

#### E2 – Improve visibility of the intersection by providing lighting

Where to use - Unsignalized, unlit intersections with substantial patterns of nighttime crashes. In particular, patterns of rear-end, right-angle, or turning crashes on the majorroad approaches to an unsignalized intersection may indicate that approaching drivers are unaware of the presence of the intersection. PED

#### E3 – Install splitter islands on the minor-road approach to an intersection Where to use - Minor road approaches to unsignalized intersections where the

presence of the intersection or the stop sign is not readily visible to approaching motorists. The strategy is particularly appropriate for intersections where the speeds on the minor road are high

Keywords: channelizing separator islands, splitter island

#### E4 – Provide a stop line on minor-road approaches

Where to use - Approaches to unsignalized intersections having traffic control devices that are not currently being recognized by some approaching motorists. Locations should be identified by patterns of crashes related to lack of driver recognition of the traffic control device (e.g., right-angle crashes related to stop sign violations). Keywords: centerline, stop bar, stop sign

### E5 – Install transverse rumble strips on intersection approaches

Where to use - Approaches to unsignalized intersections with traffic control devices that are not currently being recognized by some approaching motorists. Locations should be identified by patterns of crashes related to lack of driver recognition of the traffic control device (e.g., right-angle crashes related to stop sign violations). Rumble strips should be considered after an adequate trial of less intrusive treatments. Keywords: traverse rumble strips, stop controlled approach

#### E6 – Provide supplementary stop signs mounted over the roadway

Where to use - Unsignalized intersections with patterns of right-angle crashes related to lack of driver awareness of the presence of the intersection. In particular, it might be appropriate to use this strategy at the first stop-controlled approach (possibly of a series) located on a long stretch of highway without any required stops, or at an intersection located after a sharp horizontal curve.

#### **E7** – Provide pavement markings with supplementary messages, such as STOP AHEAD

Where to use - Unsignalized intersections with patterns of rear-end, right-angle, or turning crashes related to lack of driver awareness of the presence of the intersection. Keywords: STOP AHEAD, pavement marking

**E8** – Provide improved maintenance and retroreflectivity of stop signs Where to use - All stop-controlled intersections

E9 – Install flashing beacons at stop-controlled intersections

Keywords: retroreflectivity, stop sign

#### CATEGORY F: CHOOSE APPROPRIATE INTERSECTION TRAFFIC CONTROL

F1 – Provide all-way stop-control at appropriate intersections Where to use - Unsignalized intersections with patterns of right-angle and turning crashes and moderate and relatively

balanced volumes on the intersection approaches. Keywords: stop control, all-way stop

#### F2 – Provide roundabouts at appropriate locations

Where to use - Unsignalized intersections that are experiencing right-angle, rearend, and turning crashes. Roundabouts are appropriate at most intersections, and at intersections with large traffic delays roundabouts are oftentimes a superior alternative to all-way stop or signalization. Roundabouts can also be very effective at intersections with complex geometry (e.g., more than four approach roads) and intersections with frequent left-turn movements.



#### F3 – Provide pedestrian hybrid beacon

Keywords: roundabout, unsignalized

Where to use - Unsignalized intersections with conflicts between vehicles and nonmotorists crossing at the intersection, high volume of crossing pedestrians or bicyclists, vehicles not yielding to pedestrians in crosswalk, and high pedestrian delay due to few available gaps in traffic PED BIKE P

**Keywords:** high intensity activated crosswalk, pedestrian activated beacon

#### F4 – Provide rectangular rapid flashing beacon

Where to use - Unsignalized intersections with conflicts between vehicles and nonmotorists crossing at the intersection, high volume of crossing pedestrians or bicyclists, vehicles not yielding to pedestrians in crosswalk, and high pedestrian delay due to few available gaps in traffic. PED BIKE

#### • F5 – Convert a unsignalized intersection to an unsignalized restricted crossing U-turn (also known as a J-turn)

Where to use - Unsignalized intersections with conflicts involving left-turning vehicles or vehicles attempting to continue on the minor road by crossing the major road, insufficient gaps in major road traffic for left-turn or through movements from minor road, and conflicts involving vehicles in the median. Р

Keywords: super-street, j-turn, rcut

**CATEGORY G:** IMPROVE COMPLIANCE WITH TRAFFIC CONTROL DEVICES AND TRAFFIC LAWS G1 – Provide targeted enforcement

to reduce stop sign violations Where to use - Unsignalized intersections

where stop sign violations and patterns of crashes related to stop sign violations have been observed. Crash types potentially

## related to stop sign violations include right-angle and turning collision

#### G2 – Provide targeted public information and education on safety problems at specific intersections

Where to use - Jurisdictions that have experienced a large number of safety problems at unsignalized intersections.



## H1 – Provide targeted speed

enforcement Where to use - Unsignalized intersections where speed violations and patterns of crashes related to speed violations are observed. Crash types potentially related to

speed violations include right-angle, rear-end, and turning crashes.

#### H2 – Provide traffic calming on intersection approaches through a combination of geometric and traffic control devices

Where to use - Specific approaches to unsignalized intersections that are experiencing crash types potentially related to speed violations, specifically right-angle, rear-end, and turning collisions PED

#### H3 – Post reasonable, safe, and consistent speed limits on intersection approaches

Where to use - Unsignalized intersections experiencing a high frequency of speed related violations or crashes

D2, E4         B6           3, H3	I, B6, B8	A3, F2 B11, C2, F2 C2, F2 F2, F5 B9, F2, F5 F2 F2 F2 F2 F2 F2 F2 F2 F2 F2 F2 F2
D2, E4         B6           3, H3	5, 88, D1       D1       A4, D1       A4       E3       E2       G1       H, H1, H2	B11, C2, F2 C2, F2 F2, F5 B9, F2, F5 F2 F2 F2 F2 F2 F2 F2
3, H3 H6 / F1 4, E16, E17 8 4, E20 H6 A4	D1 A4, D1 A4 B3 E2 G1 C1 L, H1, H2 L, B2, B3 B2	B11, C2, F2 C2, F2 F2, F5 B9, F2, F5 F2 F2 F2 F2 F2 F2 F2
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H6 A4	I, H1, H2	F2 F2 F2
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3 B1	B2	F2
3 B1	B2	E2
3 B1	B2	F2
	B4	F2
	B4	F2
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#### Key to the Brochure

Costs: Costs will also vary considerably and are affected by local conditions. Costs are ranked as: low, moderate, moderate to high, and high. The scale is meant to reflect costs relative to the other strategies described in the category (signalized or unsignalized).

● Low Cost Measure ● Moderate Cost Measure ● High Cost Measure

More information about FHWA Proven Safety Countermeasures can be found at:



http://safety.fhwa.dot.gov/provencountermeasures/

Keywords: illumination, lighting

## B2 – Provide provide zero or positive

Where to use - Unsignalized intersections with a high frequency of crashes between

B3 – Provide left or right-turn bypass lanes on shoulders at T-intersections

moderate through and turning volumes, especially intersections that have a pattern of rear-end collisions involving vehicles waiting to turn left from the highway. Keywords: by-pass lane

#### B4 – Provide left-turn acceleration lanes in median at divided highway high speed intersections

Keywords: provide right turn lane

### **B5** – Provide right-turn lanes at intersections

Where to use - Unsignalized intersections with a high frequency of rear-end crashes (2) vehicles turning right and through vehicles coming from the left on the cross street. P

#### B6 – Provide offset right-turn lanes at intersections

#### B8 – Modify allowed turning maneuvers through geometric improvements

Where to use - Unsignalized intersections with patterns of crashes related to particular turning maneuvers where it is impractical to reduce that pattern of crashes by improving sight distance or providing a left-turn or shoulder bypass lane. Also, at locations where it is possible to restrict or eliminate turning maneuvers by providing channelization or by closing the median opening (Replace direct left-turn with rightturn/U-turn)

Keywords: replace direct left with right turn / u turn

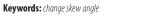
#### B9 – Convert four-legged intersections to offset T-intersections

Where to use - Unsignalized four-legged intersections with very low through volumes on the cross street. **Keywords:** *convert four-leg to two three-leg* 

B10 – Convert offset T-intersections to four-legged intersections Where to use - Unsignalized offset T-intersections where through volumes on the cross street are very high.

#### B11- Realign intersection approaches to reduce or eliminate intersection skew

Where to use - Unsignalized intersections with a high frequency of crashes resulting from insufficient intersection sight distance and awkward sight lines at a skewed intersection



#### B12 – Reduce or extend curb radius

Where to use - Unsignalized intersections with observed vehicles making right-turn movements at high speeds, high pedestrian traffic, poor visibility of on-coming traffic for pedestrians waiting to cross the road, and a crash history or observed conflicts between bicyclists and/or pedestrians and right-turning vehicles. PED BIKE Keywords: widen sidewalk

#### B13 – Install medians and pedestrian crossing islands

Where to use - Unsignalized intersections with crossings that span multiple lanes and observed difficulty of pedestrians finding safe gaps in traffic to cross. PED P Kevwords: raised median

#### B14 – Install roundabout or mini-roundabout

Where to use - Unsignalized intersections with a crash history or observed conflicts related to speeding through the intersection. PED BIKE P Kevwords: roundabout

#### **CATEGORY C: IMPROVE** SIGHT DISTANCE

C1 – Clear sight triangles on stopor yield-controlled approaches to intersections or in the medians of divided highways near intersections Where to use - Unsignalized intersections



or medians with restricted sight distance and patterns of crashes related to lack of sight distance, where sight distance can be improved by clearing roadside or median obstructions without major construction. Keywords: increase triangle sight distance BIKE

#### C2 – Change horizontal and/or vertical alignment of approaches to provide more sight distance

Where to use - Unsignalized intersections with restricted sight distance due to horizontal and/or vertical geometry and with patterns of crashes related to that lack of sight distance that cannot be ameliorated by less expensive methods. BIKE

#### C3 – Eliminate parking that restricts sight distance

Where to use - Unsignalized int	ersections with restricted	sight distance due to parking.
Keywords: prohibit on-street parking		BIKE

Where to use - Unsignalized intersections with patterns of right-angle crashes related to lack of driver awareness of the intersection on an uncontrolled approach and lack of driver awareness of the stop sign on a stop-controlled approach. Kevwords: flashina beacon. stop controlled

### PED BIKE

#### E10 – Add a warning beacon to an existing regulatory or warning sign (Provide flashing beacons at stop controlled intersections)

Where to use - Unsignalized intersections with a crash history or observed vehicle conflicts caused by non-compliance with a traffic control device or lack of awareness of intersection traffic control and where the existing sign is not conspicuous in its surroundings.

#### E11 – Provide intersection warning signs

Where to use - Unsignalized intersections with poor visibility of the intersection from approaches, a crash history or observed conflicts involving lack of awareness of the intersection or traffic control, and observed speeding on approaches to the intersection.



PED BIKE

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#### E12 – Provide Advance Traffic Control Warning signs (Install advance warning signs (positive guidance))

Where to use - Unsignalized intersections with poor visibility of the intersection traffic control from one or more approaches.

#### E13 – Install post-mounted reflective delineators at the intersection

Where to use - Unsignalized intersections with a history of nighttime crashes, remote stretches in which intersections may not be conspicuous to drivers along the major road, and poor nighttime visibility of the intersection.

#### E14 – Install reflective strips on sign posts

Where to use - Unsignalized intersections with observed poor conspicuity of existing signs, particularly at night, crash history or observed conflicts due to lack of awareness of the intersection or intersection traffic control, especially at night, and observations of non-compliance with traffic control. Keywords: enhance regulatory

#### E15 – Provide a yield line on yield-controlled approaches

Where to use -Unsignalized intersections with a crash history or observed conflicts related to failure to yield to the right-of-way.

#### E16 – Replace standard stop sign with flashing LED enhanced stop sign

Where to use - Unsignalized intersections with a crash history or observed vehicle conflicts caused by non-compliance with traffic control device or lack of awareness of intersection traffic control, an existing sign that is not conspicuous in its current surroundings, and poor sign visibility during low-light conditions. Keywords: enhance warning

#### E17 – Install red or orange flags with a regulatory or warning sign

Where to use - Unsignalized intersections with conflicts caused by non-compliance with traffic control device or lack of awareness of intersection traffic control, an existing sign that is not conspicuous in its surroundings, and a recent change in traffic control

#### E18 – Enhance pedestrian signing

Where to use - Use such signs as a Pedestrian Warning sign (W11-2), Turning Vehicles Yield to Peds sign (R10-15), Pedestrian Crossing Sign (R1-5, R1-9, R9-2, R9-3), and In-Street Pedestrian Crossing Sign (R1-6) at unsignalized intersections with conflicts between vehicles and pedestrians crossing the roadway, vehicles that are not yielding to pedestrians in existing crosswalk or unmarked crosswalk.

#### E19 – Replace transverse crosswalk markings with high visibility markings

Where to use - Unsignalized intersections with conflicts between vehicles and pedestrians crossing the roadway, vehicles that are not yielding to pedestrians in existing crosswalk or unmarked crosswalk. PED

#### E20 – Provide advance yield line

Where to use - Unsignalized intersections with conflicts between vehicles and pedestrians crossing the roadway, vehicles that are not yielding to pedestrians in existing crosswalk. PED Keywords: lower posted speed, speed limit

#### H4 – Provide speed reduction pavement markings

Where to use - Unsignalized intersections with a citation history or observations of speeding on the approach to the intersection and conflicts due to lack of awareness of the intersection. UNSIG

#### H5 – Provide a dynamic speed feedback sign

Where to use - Unsignalized intersections with a citation history or observations of speeding on approach to intersection, change in speed limit or land use (e.g., change from rural to urban), and changeable speed limit by time and day of the week (e.g., during school hours). UNSIG

Keywords: changeable speed warning signs

#### H6 – Provide smooth lane narrowing

Where to use - high-speed, uncontrolled approaches of two-lane two-way stop controlled intersections with low traffic volumes to reduce speeds when approaching such intersections. Lane narrowing can be accomplished through pavement markings or a combination of pavement markings and edge line/shoulder/median rumble strips. Keywords: lane narrowing, rumble strips, painted median UNSIG



Where to use - Complex unsignalized intersections with a high frequency of crashes related to turning vehicle positioning (e.g., sideswipe crashes). Keywords: channelization

#### I2 – Provide a double yellow centerline on the median opening of a divided highway at intersections

Where to use - Unsignalized intersections on divided highways that are experiencing a high degree of crashes caused by side-by-side queuing and angle stopping within the median area

#### I3 – Provide a double yellow centerline on the minor road approaches

Where to use - Unsignalized intersections with conflicts between stopped vehicles and turning or oncoming vehicles and poor vehicle positioning. UNSIG Keywords: centerline, stop bar, stop sign

#### I4 – Provide dotted edge-line extensions

Where to use - Unsignalized intersections with vehicles on the minor approaches not positioning themselves appropriately before entering the major road and vehicles in the median of a divided roadway that are encroaching upon the major road through lane.



STOP



Association of State and Highway and Transportation Officials (AASHTO) to identify and rapidly deploy proven but underutilized innovations to shorten the project delivery process, enhance roadway safety, reduce congestion and improve environmental sustainability. See http://www.fhwa.dot.gov/everydaycounts/ for additional information.

#### **Keywords:**

Keywords have been provided for those countermeasures with a crash modification factor in the CMF Clearinghouse (http://www.cmfclearinghouse.org/). Some countermeasures may be found using a variety of search terms and the keywords provided are examples of those terms. For those countermeasures without keywords listed, their effectiveness may not have been studied or submitted to the CMF clearinghouse.



PED BIKE



BIKE stem http://pedbikesafe.org/BIKESAFE/guide\_background.cfm

#### PEDSAFE 2013- Pedestrian Safety Guide and Countermeasure Selection PED /stem http://pedbikesafe.org/PEDSAFE/guide\_background.cfn





PED



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