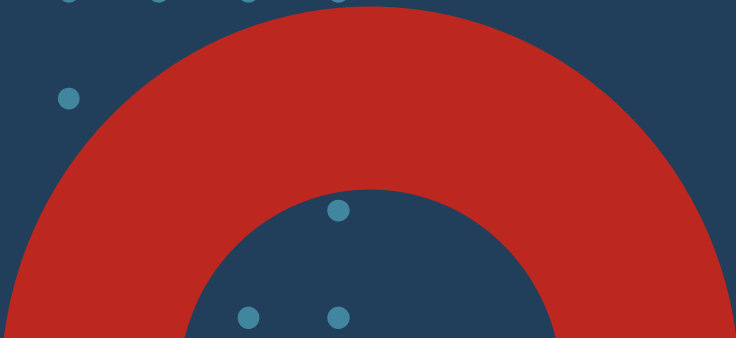


PART II

CHAPTER 3-4



PART II

This comprehensive strategy aims to enhance community safety, mobility, and overall quality of life by minimizing crash-related injuries.



PART II: REEVES COUNTY STATE OF SAFETY

INTRODUCTION

Part II of the Reeves County CSAP details the current state of safety in the County. For the project's recommendations to be well informed data collection involved crash history, safety emphasis areas, and equity. From this data collection data analysis involved finding road segments with a Critical Crash Rate as well the creation of High Injury Network. These data analysis processes allow for a detailed understanding of the existing conditions, which is vital to the success of the project and its future implementation. **Part I** of the plan discusses the purpose and process of the plan - guiding data analysis in **Part II**, **Part II** creates the foundation for **Part III**.

Chapter 3: Crash History Analysis

- › Countywide Crash Trends
- › Crash Heat Map
- › High Crash Intersections
- › Bicycle & Pedestrian Crashes
- › Freight Related Crashes
- › Motorcycle Crashes
- › Distracted Driving
- › Impaired Driving
- › Safety Emphasis Areas
- › Equity & Safety in Reeves County

Chapter 4: High-Injury Network

- › Critical Crash Rate Method
- › Critical Crash Rate Calculation
- › High-Injury Network Development and Results

CHAPTER 3. CRASH HISTORY ANALYSIS

Chapter 3 focuses on Reeves County's crash history, performance within the safety emphasis areas, and the state of safety from an equitable perspective. Historical crash data for the last five years (2019-2023) from TxDOT's Crash Record Information System (CRIS) was used to complete the crash history analysis and create a High-Injury Network (HIN).

COUNTYWIDE CRASH TRENDS

The chart below shows historical crash data from 2019 to 2023 to highlight Countywide Crash Trends (**Figure 12**). In 2019, Reeves County peaked at 788 crashes. Crashes over the years generally stayed consistent; however, in 2023, there was a significant drop in fatalities compared to the number of fatalities in 2022. There was a decrease of 102 fatalities across the two years. Overall, there were fewer crashes from 2019 to 2023, yet from 2020 to 2023, there was a steady increase in total crashes from 2022 to 2023.

FIGURE 12. TOTAL CRASH SUMMARY (2019-2023)

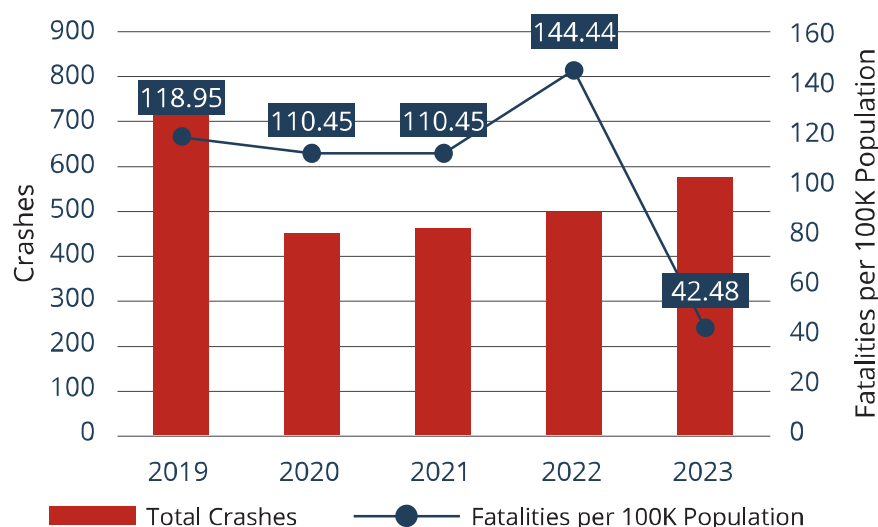


Table 2 below, outlines the crash severities. As the total crash count declined over the years, so did the number of fatal crashes. With fewer total crashes, there was also a decline in fatal crashes (K) despite a spike in 2022. In 2023, a record low of 5 fatal injuries occurred. This is an 8% increase between 2021 and 2022 in the number of suspected minor injuries (B). So, while there were fewer suspected serious injuries, more were suspected to be minor.

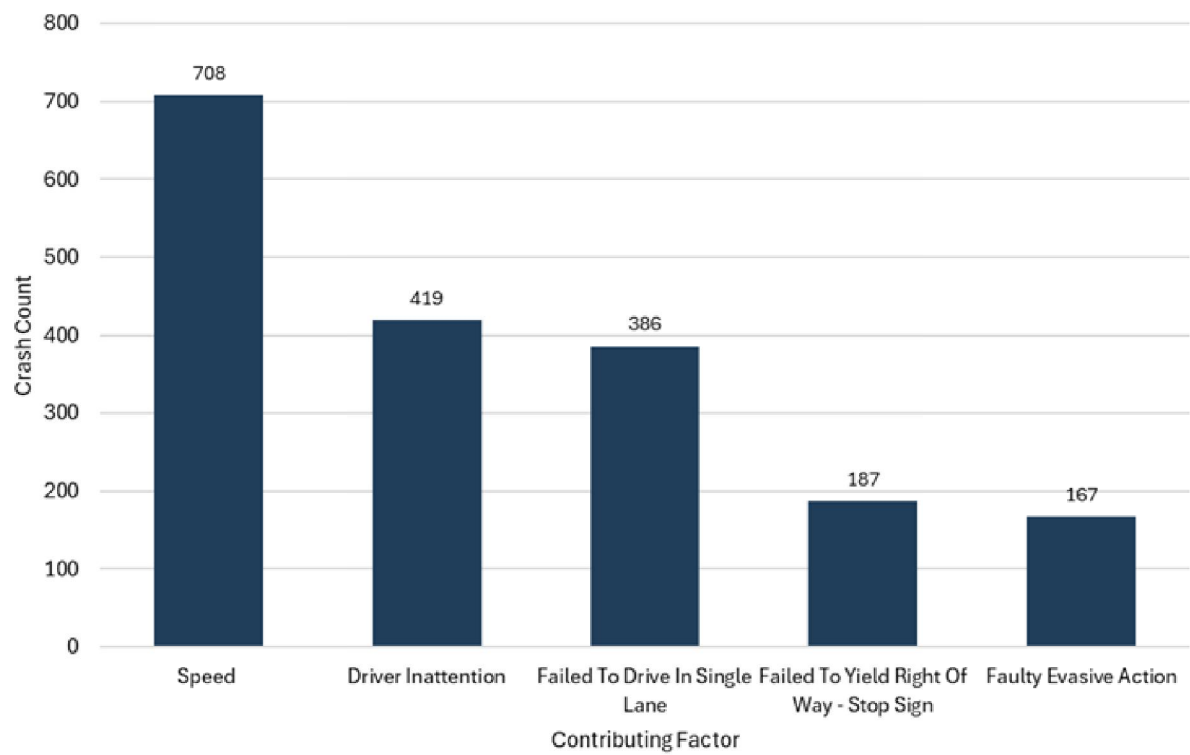
TABLE 2. TOTAL CRASHES BY SEVERITY (2019-2023)

YEAR	TOTAL CRASHES	K-FATAL	A - SUSPECTED SERIOUS INJURY	B- SUSPECTED MINOR INJURY	C- POSSIBLE INJURY	N - NO INJURY	99 - UNKNOWN
2019	672	11 (2.4%)	33 (4.2%)	72 (9.7%)	59 (8.9%)	12 (1.8%)	12 (1.8%)
2020	376	10 (1.3%)	22 (5%)	39 (9.4%)	32 (8.7%)	10 (2.7%)	10 (2.7%)
2021	392	10 (1.3%)	24 (5.4%)	30 (7.1%)	37 (9.8%)	16 (4.1%)	16 (4.1%)
2022	387	14 (1.8%)	21 (4.4%)	72 (15.7%)	45 (11.8%)	7 (1.8%)	7 (1.8%)
2023	440	5 (.06%)	50 (8.5%)	84 (16%)	60 (13.9%)	9 (2%)	9 (2%)



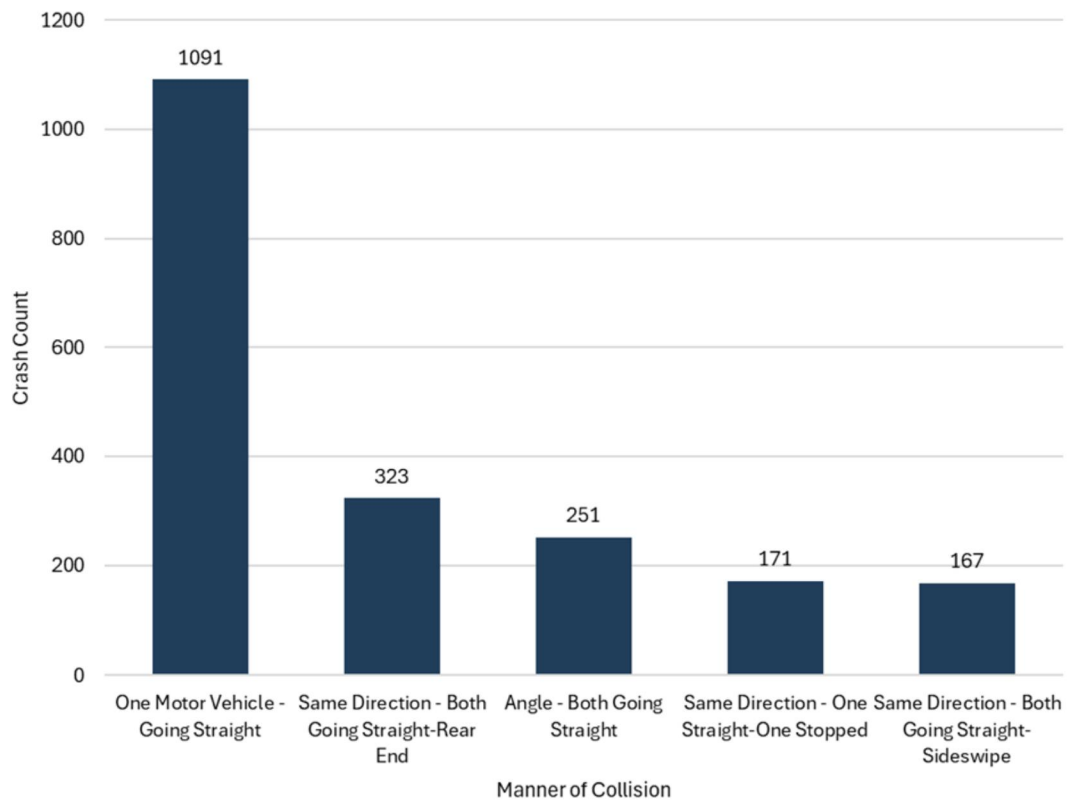
Figure 13 below shows the top contributing factors to crashes in Reeves County. Speeding is the top factor contributing to 25.6% of total crashes in Reeves County. Nearly double the number of crashes related to speeding compared to any other factor. Driver inattention is the second leading factor, contributing to 15.2% of crashes. Closely behind, the driver failed to drive in a single lane. This can stem from drivers being distracted, drowsy, and impaired driving. Drivers failing to yield to a stop sign contributed to almost 7% of total crashes. A faulty evasive action refers to a driver's incorrect or ineffective maneuver to avoid a potential collision, which either fails to prevent the accident or even causes a secondary accident. This contributed to 6% of collisions in Reeves County.

FIGURE 13. TOP CONTRIBUTING FACTORS (2019 - 2023)



While contributing factors refer to factors that may have contributed to a crash, manners of collision describe the actual geometry of the crash. For example, a crash labeled as 'Angle-Both Going Straight' is referring to a T-bone crash. **Figure 14** shows the five most common manners of collision in Reeves County by number of crashes. The top manner of collision was 'One Motor Vehicle - Going Straight' which refers to a single vehicle leaving their travel lane (roadway and lane departure).

FIGURE 14. TOP MANNERS OF COLLISION (2019-2023)



CRASH HEAT MAP

The crash heat map displays where the concentration of crashes occurs, with the yellow coloring showing where more crashes occurred. The breakdown of crashes by severity is displayed in **Figure 15**. Additionally, the hash marks indicate where a fatal crash has occurred. During the five-year study period, 50 fatal crashes have occurred with the majority occurring on both I-20 and I-10 (**Exhibit 2**). Although most fatal crashes are occurring on the interstates, the largest concentrations of crashes are occurring in the Town of Pecos City and at major intersections in the County. The intersections include with large crash concentrations are the I-20 and I-10, US 285 and SH 302, and US 285 and RM 652 intersection.

FIGURE 15. CRASH SEVERITY BREAKDOWN

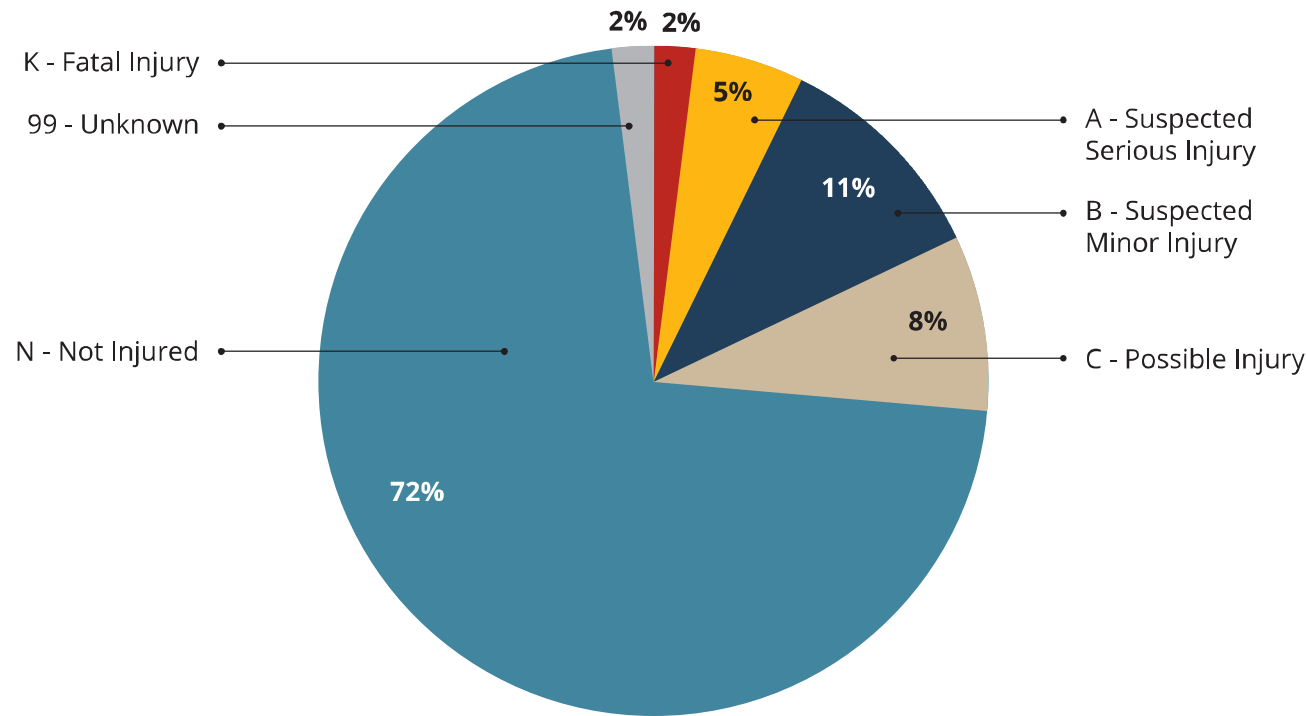
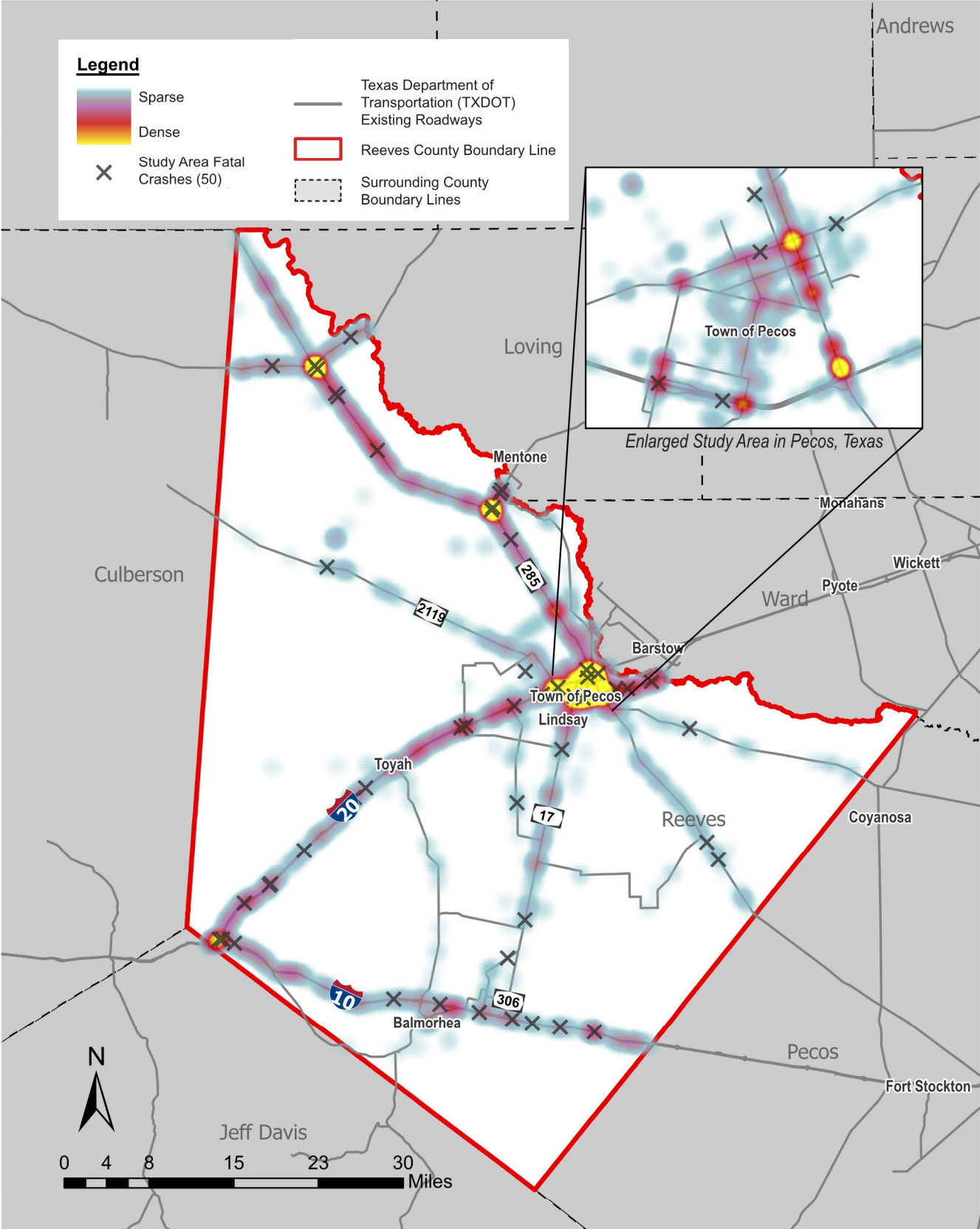


EXHIBIT 2. CRASH HEAT MAP



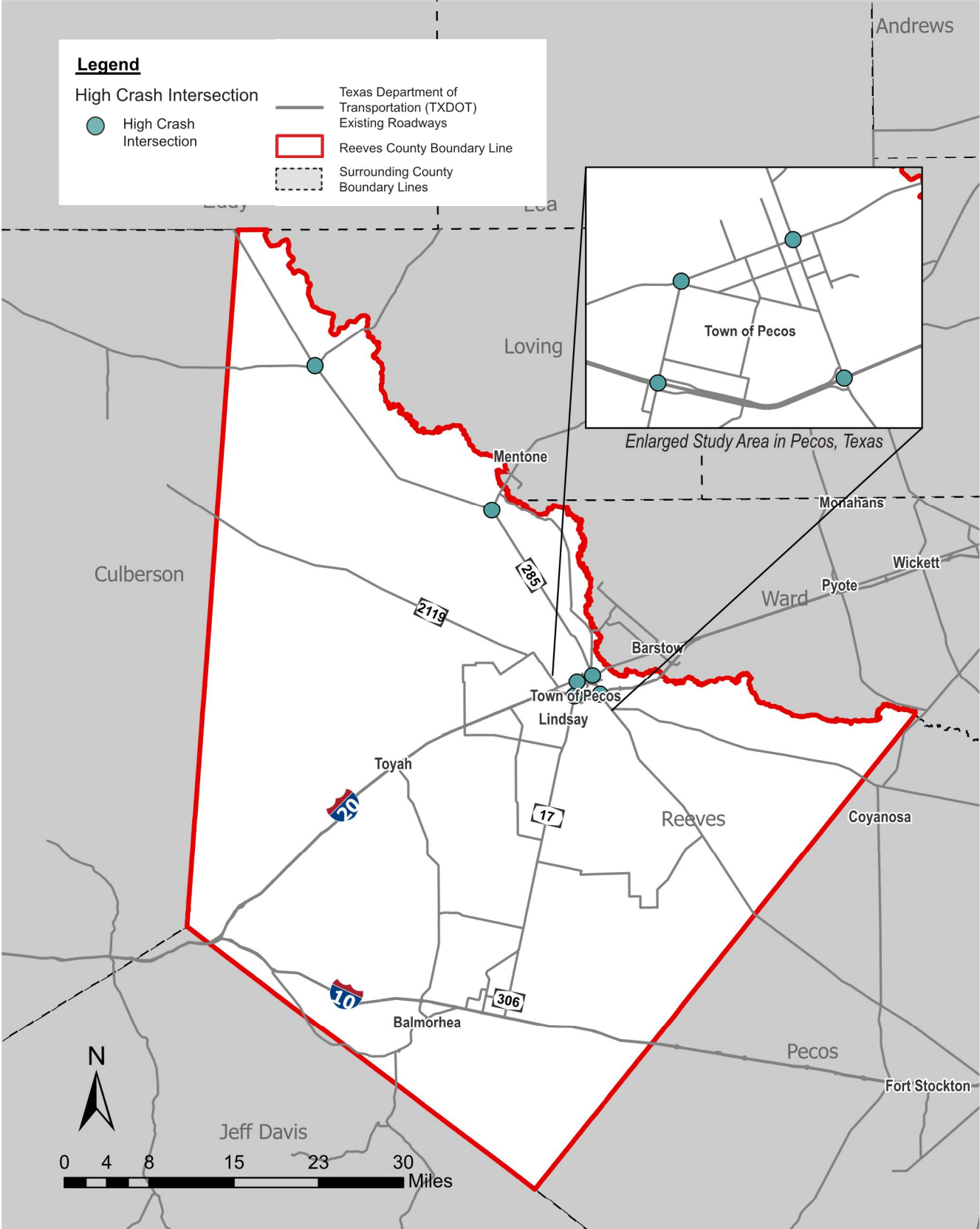
HIGH CRASH INTERSECTIONS

Intersections can easily become safety hazards for all roadway users since these are areas where the most conflicts for vehicles, pedestrians, and bicyclists occur. 5% of all crashes in Reeves County occurred at one of the top six ranking intersections for crashes. **Table 3** summarizes the intersections in Reeves County with the most crashes. The intersections with the most crashes are at SH 302 & US285. 30 crashes occurred at this intersection, making this the location of 1.08% of total crashes in Reeves County. The intersection with the least number of crashes was at BI 20B & SH17, making up about 0.05% of all crashes in the county. While these areas are the most concentrated for crashes, crashes are still dispersed around the city. Of the other five intersections listed in **Table 3** three of the high crash intersections included a connection to US 285. The intersection where the most crashes occur is where US 285 divides into a two-lane, two-direction road with unprotected turn lanes. **Exhibit 3** shows the locations of the intersections.

TABLE 3. HIGH CRASH INTERSECTIONS

RANK	INTERSECTION	NUMBER OF CRASHES
1	SH 302 & US 285	30
2	US 385 & RM 652	26
3	BI 20B & US 285	25
4	IH 20 & SH 17	23
5	IH20 & SH 285	16
6	BI 20B & SH 17	14

EXHIBIT 3. HIGH CRASH INTERSECTIONS



BICYCLE & PEDESTRIAN CRASHES

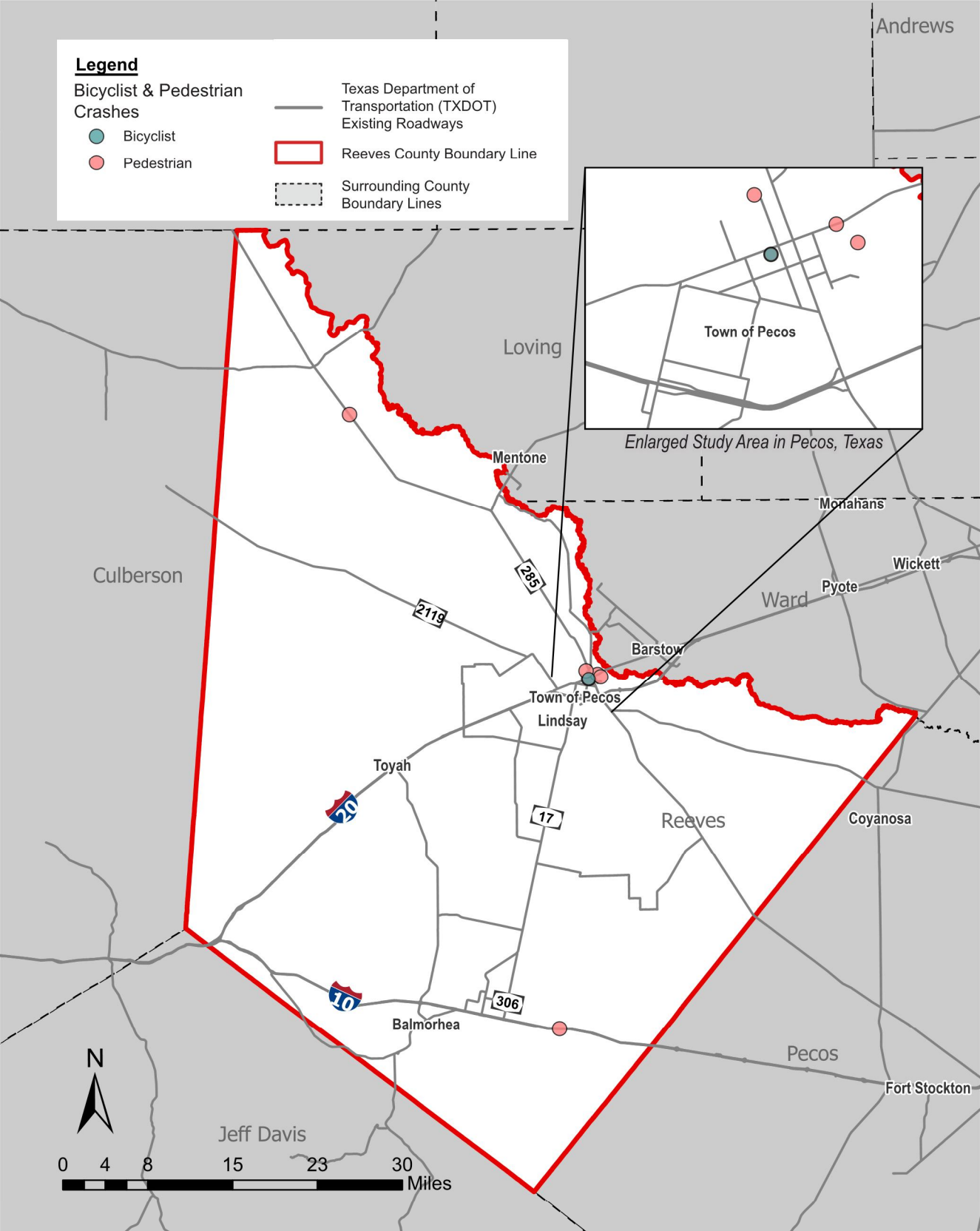
Pedestrian and bicycle crashes in Reeves County were minimal, accounting for less than 0.05% of all crashes from 2019 to 2023. During the study period, there were nine pedestrian crashes and one bicyclist crash, resulting in three fatalities (K), two suspected serious injuries (A), and one crash each classified as a suspected minor injury (B), possible injury (C), and unknown severity (99). This data is presented in **Exhibit 4**, with a comparison of severity levels between bicycle/pedestrian crashes and vehicle-only crashes shown in **Table 4**.

Although pedestrian and bicyclist crashes are rare in Reeves County, they tend to be more severe when they do occur. Fatalities (K) make up 30% of pedestrian crashes, significantly higher than the 2% fatality rate for vehicle-only crashes, 15 times more a pedestrian or cyclist was fatally injured. Also notably, suspected serious injuries (A) are much higher in pedestrian and bicyclist crashes (30%) compared to vehicle-only crashes (5%), indicating a greater likelihood of severe outcomes for vulnerable road users. The percentage of crashes resulting in no injuries (N) is significantly lower for pedestrians and bicyclists (10%) compared to vehicles (72%).

TABLE 4. VEHICLES VS. BICYCLIST & PEDESTRIANS BY CRASH SEVERITY

CRASH SEVERITY	VEHICLE	BICYCLE/PEDESTRIAN	DIFFERENCE
K – Fatal Injury	2%	30%	1400%
A – Suspected Serious Injury	5%	30%	500%
B – Suspected Minor Injury	11%	10%	-9%
C – Possible Injury	8%	10%	25%
N – Not Injured	72%	10%	-86%
99- Unknown	2%	10%	400%

EXHIBIT 4. PEDESTRIAN AND BICYCLIST CRASH MAP



FREIGHT RELATED CRASHES

Reeves County experiences significantly fewer freight-related crashes compared to crashes overall. Freight-related incidents make up only a small fraction of fatal crashes, accounting for 3% compared to 50% of all crashes—a 50% difference, as shown in **Table 5**. This suggests that while freight traffic is present, it is not a major contributor to the county's most severe crashes.

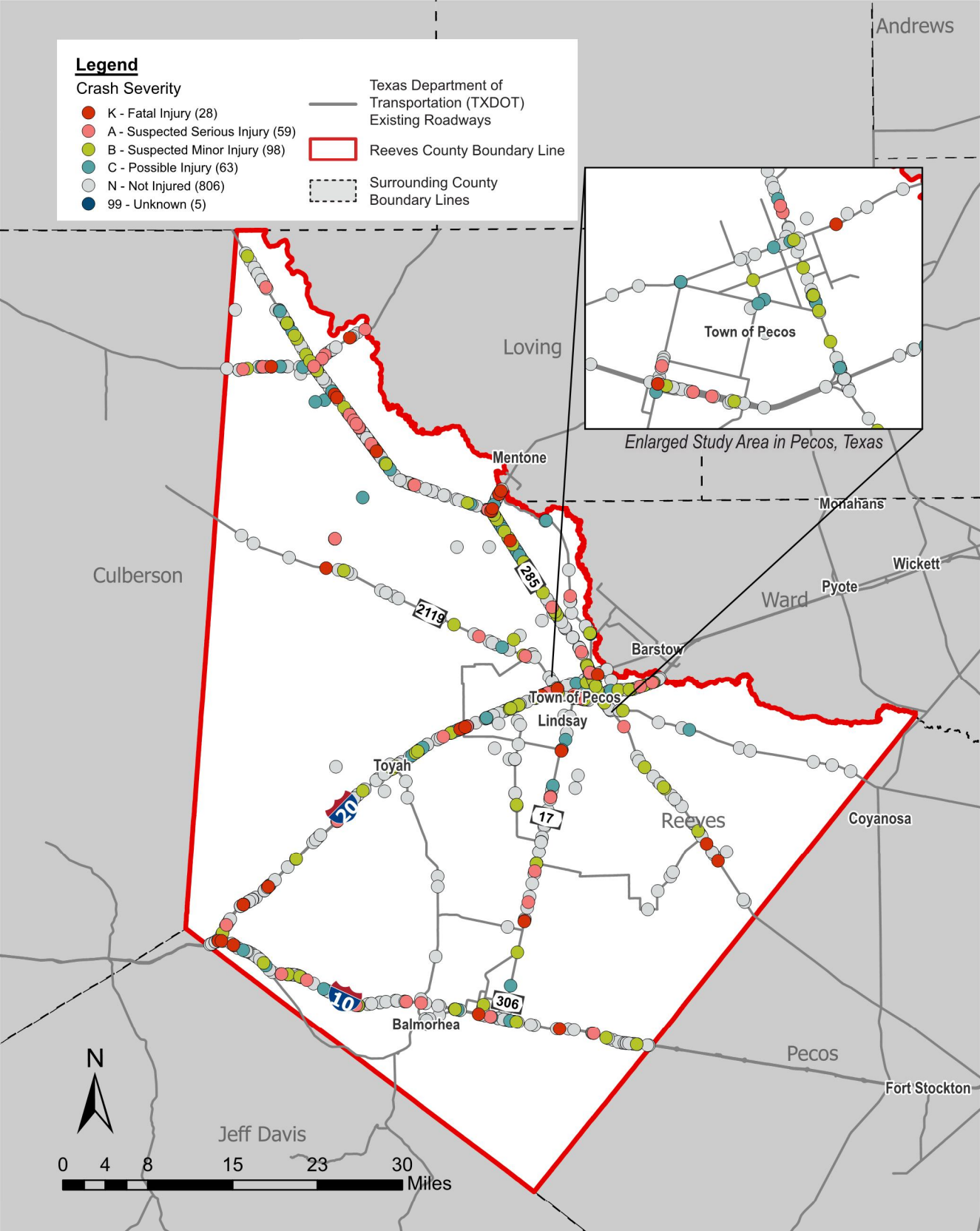
For suspected serious injuries (A), freight-related crashes are slightly more frequent (6%) than crashes overall (5%), but the difference is minimal. Suspected minor injuries (B) and possible injuries (C) both show slightly lower percentages in freight-related crashes compared to all crashes, with 2% differences for each.

The percentage of crashes resulting in no injuries is somewhat higher for freight-related crashes (76%) compared to all crashes (72%), indicating that when freight vehicles are involved in crashes, they may result in less severe outcomes overall. The percentage of unknown severity is also slightly lower in freight-related crashes. **Exhibit 5** shows the locations of freight-related crashes.

TABLE 5. ALL CRASHES VS. FREIGHT RELATED CRASHES BY SEVERITY

CRASH SEVERITY	ALL CRASHES	FREIGHT RELATED	DIFFERENCE
K - Fatal Injury	2%	3%	50%
A - Suspected Serious Injury	5%	6%	20%
B - Suspected Minor Injury	11%	9%	-18%
C - Possible Injury	8%	6%	25%
N - Not Injured	72%	76%	6%
99- Unknown	2%	0.47%	-77%

EXHIBIT 5. FREIGHT RELATED CRASHES



MOTORCYCLE CRASHES

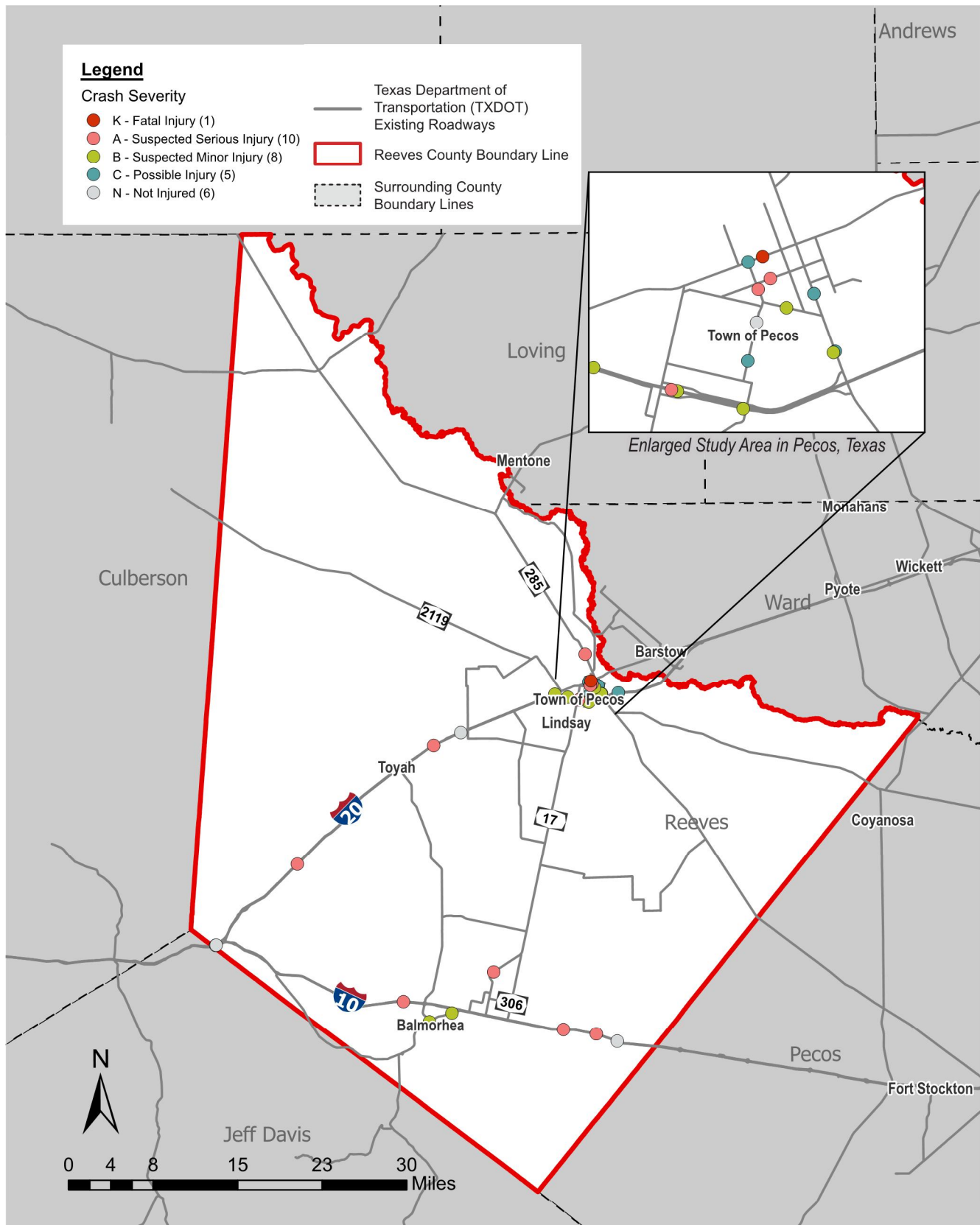
Motorcycle crashes in Reeves County occur at a lower rate than crashes overall but tend to result in more severe injuries when they do happen. As shown in **Table 6**, fatalities (K) occur in 3.3% of motorcycle-related incidents, slightly more than the 2% fatality rate for all crashes—a 65% increase in occurrences. However, suspected serious injuries (A) are much more common in motorcycle crashes, accounting for 33% of incidents compared to only 5% for all crashes, a drastic 560% increase.

Suspected minor injuries (B) are more frequent in motorcycle crashes (27%) than in all crashes (11%), reflecting a 145% increase in motorcycle incidents. Possible injuries (C) occur at twice the rate in motorcycle crashes (16%) compared to all crashes (8%), marking a 100% increase. The proportion of crashes with no injuries (N) is significantly lower for motorcycles (20%) than for all crashes (72%), supporting the increased risk of injury for motorcyclists. Additionally, no motorcycle crashes were classified under the unknown severity category (99%), whereas 2% of all crashes fell into this category, a 100% difference. Locations of motorcycle crashes are in **Exhibit 6**.

TABLE 6. ALL CRASHES VS. MOTORCYCLE CRASHES BY SEVERITY

CRASH SEVERITY	ALL CRASHES	MOTORCYCLE CRASHES	DIFFERENCE
K – Fatal Injury	2%	3.3%	65%
A – Suspected Serious Injury	5%	33%	560%
B – Suspected Minor Injury	11%	27%	145%
C – Possible Injury	8%	16%	100%
N – Not Injured	72%	20%	-72%
99- Unknown	2%	0%	-100%

EXHIBIT 6. MOTORCYCLE CRASHES



DISTRACTED DRIVING

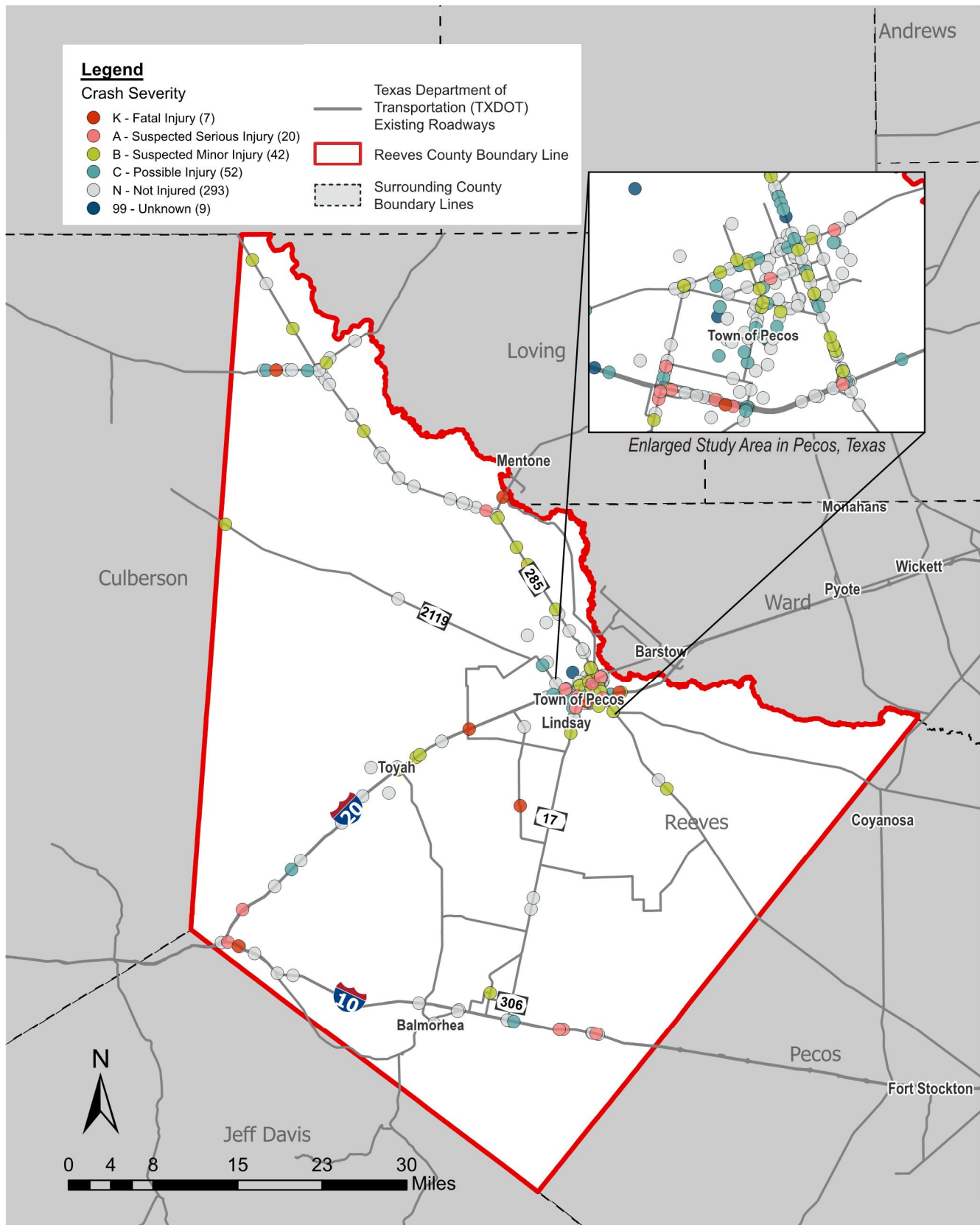
Crashes involving distracted driving in Reeves County tend to be less severe than overall crash trends. As shown in **Table 7**, fatalities (K) accounted for 2% of distracted driving crashes and in all crashes. The percentage of suspected serious injuries (A) also remains the same for both all crashes and distracted driving crashes (5%), indicating that distracted driving does not necessarily increase the likelihood of severe injury or fatalities. Suspected minor injuries (B) occur at nearly the same rate in distracted driving crashes (10%) as in all crashes (11%), having a 9% decrease. Possible injuries (C) are more common in distracted driving incidents (12%) than in all crashes (8%), showing a 50% increase.

Crashes resulting in no injuries (N) occur slightly less frequently in distracted driving cases (69%) compared to all crashes (72%), a 4% difference, proving a higher risk of injury in distracted driving incidents. The percentage of crashes classified under unknown severity (99) is the same at 2% for both categories. Locations of motorcycle crashes are in **Exhibit 7**.

TABLE 7. ALL CRASHES VS. DISTRACTED DRIVING CRASHES BY SEVERITY

CRASH SEVERITY	ALL CRASHES	DISTRACTED DRIVING CRASHES	DIFFERENCE
K – Fatal Injury	2%	2%	0%
A – Suspected Serious Injury	5%	5%	0%
B – Suspected Minor Injury	11%	10%	-9%
C – Possible Injury	8%	12%	50%
N – Not Injured	72%	69%	-4%
99- Unknown	2%	2%	0%

EXHIBIT 7. DISTRACTED DRIVING CRASHES



IMPAIRED DRIVING

As displayed in **Table 8**, crashes involving impaired driving in Reeves County tend to result in more injuries but fewer fatalities compared to overall crash trends. Fatal crashes (K) account for 10% of impaired driving incidents, significantly higher than the 2% fatality rate across all crashes—a 400% difference, meaning impaired driving has proven to be 3x more likely to result in a fatality. Suspected serious injuries (A) occur at twice the rate in impaired driving crashes (10%) compared to all crashes (5%), also emphasizing the heightened risk of severe harm when impairment is involved.

The rate of suspected minor injuries (B) is nearly the same for impaired driving and all crashes (10% vs. 11%), having a 9% difference. Possible injuries (C) are slightly more frequent in impaired driving cases (10%) compared to all crashes (8%), though the variation is minor at 25%. The proportion of crashes resulting in no injuries (N) is lower for impaired driving crashes (53%) than for all crashes (72%), reinforcing the increased likelihood of a more serious injury in these incidents.

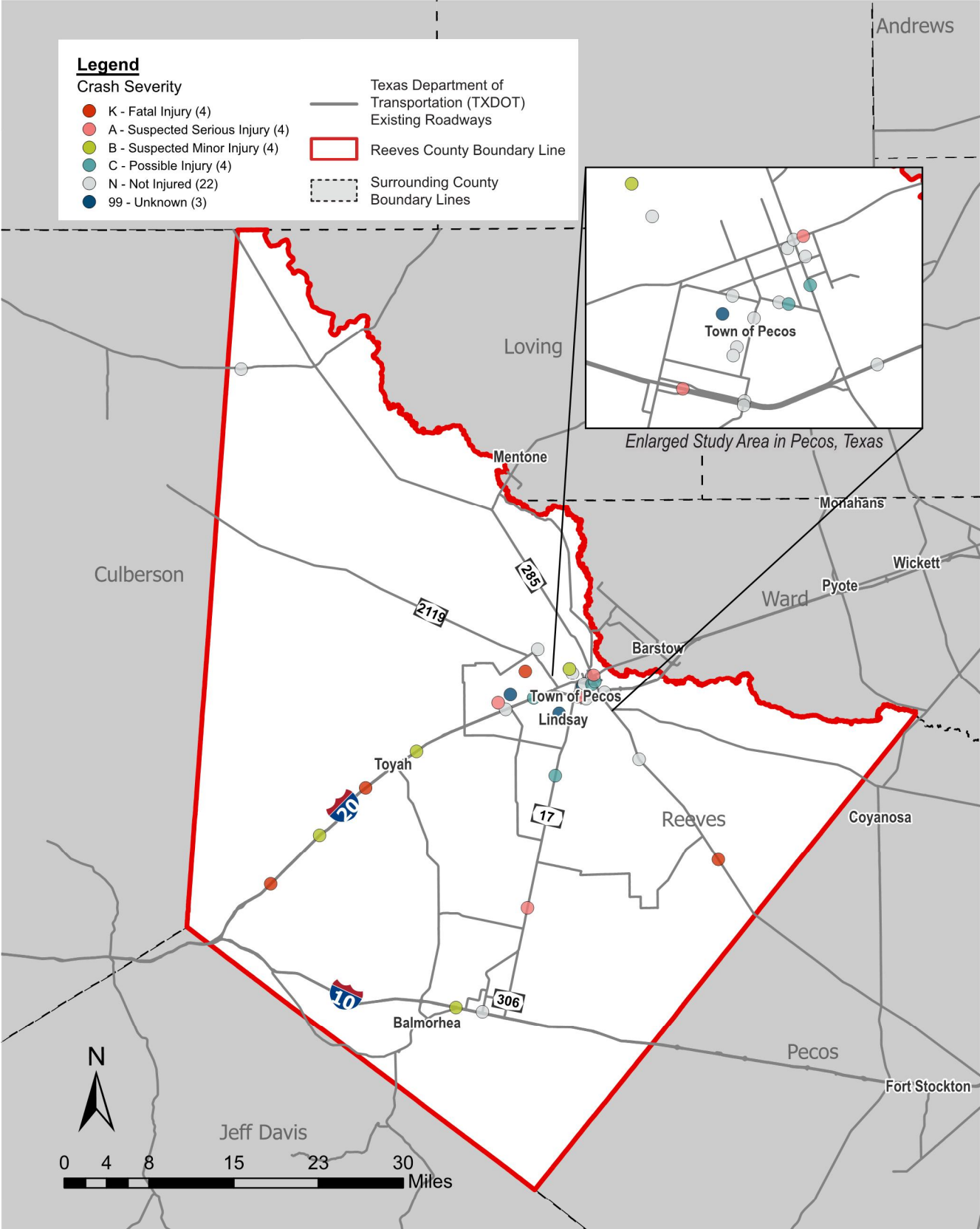
Additionally, the percentage of crashes classified under unknown severity (99) is more than three times higher for impaired driving crashes (7%) compared to all crashes (2%)—a 250% increase.

Crashes involving impaired driving in Reeves County are more likely to result in suspected serious injuries compared to crashes overall. While fatal crashes happen less often in impaired driving incidents (10% vs. 50% for all crashes), suspected serious injuries (A) are twice as common (10% vs. 5%). This suggests that if an impaired driving crash occurs, there is a higher chance of getting seriously injured, even though fatalities are less frequent. Additionally, fewer impaired driving crashes result in no injuries (53% vs. 72% for all crashes), meaning you're more likely to be injured in some way. The locations of impaired driving crashes can be found in **Exhibit 8**.

TABLE 8. ALL CRASHES VS. IMPAIRED DRIVING CRASHES BY SEVERITY

CRASH SEVERITY	ALL CRASHES	IMPAIRED DRIVING CRASHES	DIFFERENCE
K - Fatal Injury	2%	10%	400%
A - Suspected Serious Injury	5%	10%	100%
B - Suspected Minor Injury	11%	10%	-9%
C - Possible Injury	8%	10%	25%
N - Not Injured	72%	53%	-26%
99- Unknown	2%	7%	250%

EXHIBIT 8. IMPAIRED DRIVING CRASHES



SAFETY EMPHASIS AREAS



Source: Adobe Stock

- **DISTRACTED DRIVING** – where distraction in vehicle, drive inattention, or cell phone or mobile use was cited as a contributing factor.



Source: Adobe Stock

- **IMPAIRED DRIVING** – where at least one driver was identified as having been drinking, having taken medication, been under the influence of alcohol or drugs, a blood alcohol content greater than zero, or a positive drug test.



Source: Adobe Stock

- **INTERSECTION SAFETY** – occurs within the boundaries of an intersection or in which the first harmful event occurred on an approach to or an exit from an intersection and is related to movement through the intersection.



Source: Adobe Stock

- **OCCUPANT PROTECTION** – where a vehicle occupant was not restrained or not using appropriate child restraints or seat belts.



Source: Adobe Stock

- **ROADWAY AND LANE DEPARTURE** – where single motor vehicles run off the road and head-on collisions.



Source: Adobe Stock

- **SPEED-RELATED** – where unsafe speed under the limit or over the limit was cited as a contributing factor.



Source: Adobe Stock

- **VULNERABLE ROAD USERS** – consists of pedestrian and bicyclists and separating users in terms of time and/or space.



Source: Reeves County

- **POST CRASH CARE** – enhance the survivability of crashes through expedient access to emergency medical care, crash investigation, traffic incident management, and justice.



REEVES COUNTY

Reeves County vs. Texas

Table 9 highlights key differences between Reeves County and Texas in fatal and severe injury crashes. Roadway and lane departure crashes account for 39% of severe crashes in Reeves County, compared to 32% statewide, a 18% increase within Reeves County. Similarly, intersection-related crashes contribute to 25% of severe crashes in Reeves County, compared to 32% in Texas. There is a 28% more likely chance of a fatal or severe crash due to intersection safety occurring in Texas compared to one in Reeves County.

Occupant protection issues, such as failure to wear seat belts, contribute to 26% of severe crashes in Reeves County, a 27% difference from the state average of 19%. Speed-related crashes, however, are less prevalent locally, making up 25% of severe crashes compared to 33% statewide, a 32% difference.

Distracted driving plays a slightly smaller role in Reeves County, accounting for 12% of severe crashes compared to 15% statewide, a 25% difference. The biggest gaps appear in impaired driving and vulnerable road user crashes. Impaired driving contributes 4% of severe crashes in Reeves County, compared to 19% statewide—a 375% increased chance of occurring in Texas at large. Similarly, crashes involving pedestrians, bicyclists, and motorcyclists make up only 3% of severe crashes in Reeves County, far below the statewide rate of 14%, a 367% difference.

These statistics suggest that while some crash factors, such as impaired driving and vulnerable road users, occur at much lower rates in Reeves County, roadway departures and intersection-related crashes remain significant reasons for why collisions occur both locally and Statewide.

TABLE 9. REEVES COUNTY VS. TEXAS EMPHASIS AREA CRASH PERCENTAGES FOR FATAL AND SEVERE INJURY CRASHES

EMPHASIS AREA	REEVES	TEXAS	DIFFERENCE
Roadway/ Lane Departure	39%	32%	18%
Occupant Protection	26%	19%	27%
Speed-Related	25%	33%	-32%
Intersection Safety	25%	32%	-28%
Distracted Driving	12%	15%	-25%
Impaired Driving	4%	19%	-375%
Vulnerable Road Users	3%	14%	-367%

EQUITY & SAFETY IN REEVES COUNTY

USDOT Equitable Transportation Communities (ETC)

Equity is an important consideration when prioritizing and selecting future transportation investment opportunities for the region. Using data from the USDOT's Equitable Transportation Community (ETC) Explorer, underserved areas within the county were identified. Equity and existing disadvantaged communities were key considerations in the crash history analysis to enhance safety in these identified areas. The analysis examined population characteristics across five categories:

**Transportation Insecurity:**

Lack of reliable transportation options for users to get to their desired destination, which includes access to public transportation.

**Environmental Burden:**

Environmental characteristics such as pollution, hazardous material exposure, or the built environment that contribute to health disparities, negative educational outcomes, and economic hardships.

**Social Vulnerability:**

Socioeconomic factors such as poverty rates contribute to a larger burden on individuals.

**Health Vulnerability:**

Assess the increased prevalence of health conditions that may result from air, noise, water pollution, and other lifestyle factors such as poor walkability and long commute times.

**Climate and Disaster Risk Burden:**

Measures the current and future risks to communities from climate and natural disasters, based on potential losses from existing hazard exposure and vulnerability.

Each category was scored, summed, and ranked to generate a final index score for each census tract. According to USDOT metrics, a census tract is considered disadvantaged if its overall score falls at or above the 65th percentile compared to all census tracts in the U.S.



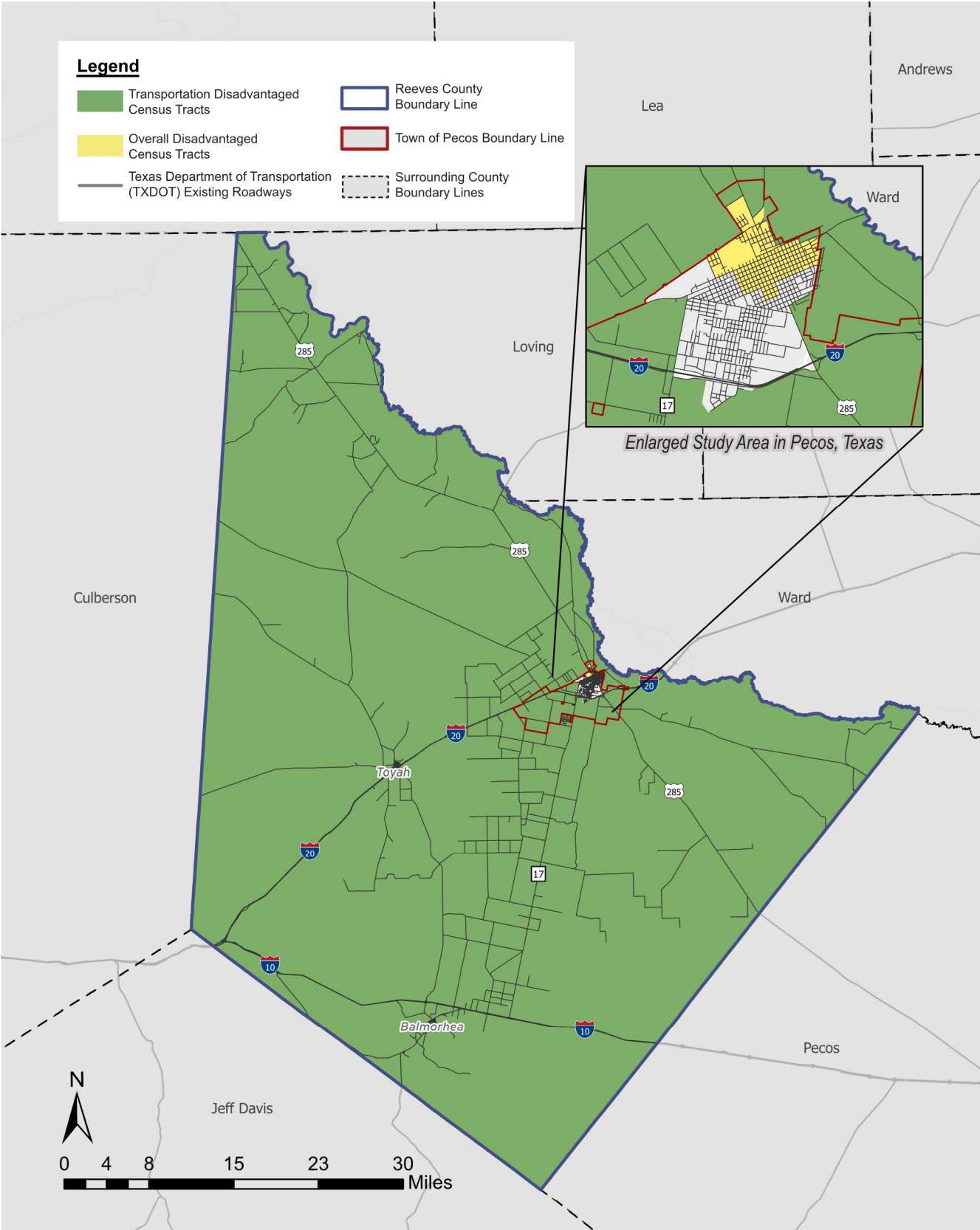
Overall & Transportation Disadvantaged Census Tracts

The disadvantaged census tracts in Reeves County cover approximately 18,000 residents, accounting for 67% of the county's population. These tracts include areas along major roadways such as IH 20, IH 10, US 285, SH 17, and SH 2115, as well as the towns of Pecos City, Lindsay, Balmorhea, and Toyah. A visual representation of these tracts within Reeves County, as identified by the USDOT's ETC Explorer, is provided in **Exhibit 9**. 62% of Reeves County residents reside in a transportation census tract identified as disadvantaged according to the USDOT's standards. Since a majority of the county is either in an overall or transportation disadvantaged census tract, the crash severities are consistent with the county's overall statistics. The only difference is that within an overall or transportation disadvantaged census tract suspected serious injury crashes are 20% more likely (**Table 10**).

TABLE 10. COUNTYWIDE VS. DISADVANTAGED CENSUS TRACT CRASHES BY SEVERITY

CRASH SEVERITY	COUNTYWIDE	OVERALL & TRANSPORTATION DISADVANTAGED AREAS	DIFFERENCE
K – Fatal Injury	2%	2%	0%
A – Suspected Serious Injury	5%	6%	20%
B – Suspected Minor Injury	11%	11%	0%
C – Possible Injury	8%	8%	0%
N – Not Injured	72%	72%	0%
99 - Unknown	2%	2%	0%

EXHIBIT 9. OVERALL & TRANSPORTATION
DISADVANTAGED CENSUS TRACTS



CHAPTER 4. HIGH-INJURY NETWORK

While **Chapter 3** offers insight into the crash history of the county, **Chapter 4** aims to provide details on the high-injury network (HIN), a tool to aid in the decision-making process. The HIN identifies the locations on the county's roadway network that are experiencing the brunt of the safety issues identified in **Chapter 3**. Ultimately, the HIN is meant to aid in project selection and prioritization to reach the County's goal of zero road deaths.

A high-injury network is comprised of a network of roads that have a higher-than-average rate of fatal (K) and suspected serious injury (A) crashes. Crash data is utilized when determining the network by providing information on crash frequency and severity. Roadway information such as volumes, functional classifications, and length are also used in the analysis to identify the HIN. Understanding the top traffic safety issues affecting the county is the foundation of achieving the vision zero goal, but the identification and prioritization of projects aimed at enhancing safety is the action needed to reach it. The HIN provides the information needed to act by highlighting the locations on the roadway network that would make the largest impact of crash reduction if improved.



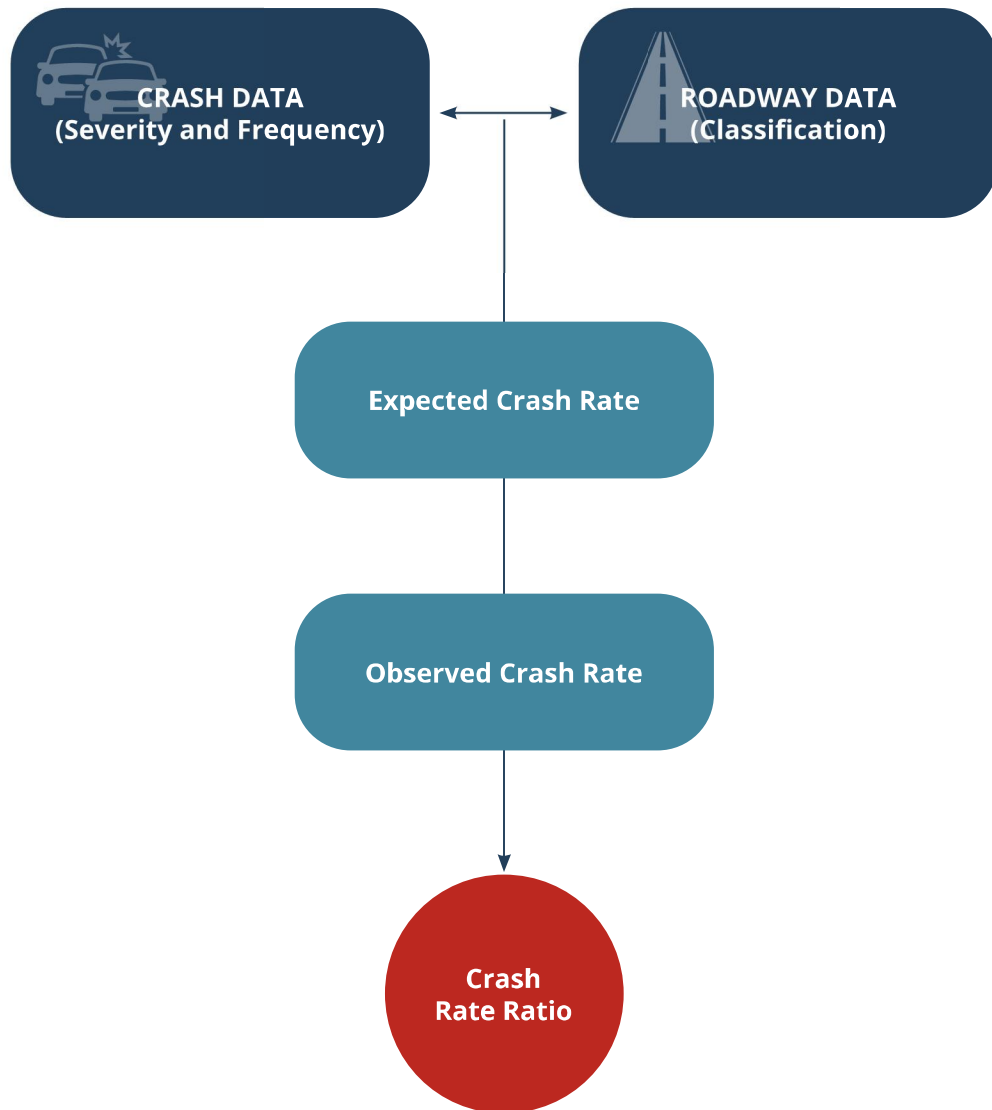
A high-injury network is a network of roads, intersection, or other transportation infrastructure that has a higher-than-average rate of crashes resulting in injuries or fatalities

CRITICAL CRASH RATE METHOD

The Federal Highway Administration (FHWA) outlines methods to prioritize locations where safety improvements are most needed, such as calculating crash rates. In the Highway Safety Manual, Section 4.4.4.5, the critical crash rate method is shown as a way to identify crash hotspots through the comparison of the observed crash rate of a segment to the expected crash rate based on roadways with a similar functional class and volume. A segment is considered for the HIN if its observed crash rate is higher than the expected crash rate.

To perform the calculations outlined in the Highway Safety Manual, an ArcGIS model was created to determine the observed and expected crash rate for each road segment in the county. The model assigned crashes to adjacent segments and performed the calculations in the order outlined by the FHWA. **Figure 16** shows a simplified version of the process the ArcGIS model performs. The following section outlines the process used to calculate the critical crash rate using fatal (K) and suspected serious injury (A) crashes from the five-year study period (2019 – 2023) in Reeves County.

FIGURE 16. SIMPLIFIED ARCGIS MODEL PROCESS FOR HIN ANALYSIS



CRITICAL CRASH RATE CALCULATION

The following three steps were followed to calculate the critical crash rate for each road segment in Reeves County:

- 1 Assigning Data to Road Segments**
- 2 Calculate Variables of Critical Crash Rate**
- 3 Calculate Critical Crash Rate Ratio**

Assigning Data to Road Segments

For the critical crash rate to be calculated, three data inputs are required: roadway functional classifications, daily traffic volumes, and crash counts. Several roadway factors, such as traffic volumes, number of lanes, and speed, can inflate crash rates therefore the normalization and comparison of the rates is a crucial part of this analysis. The critical crash rate compares road segments that have similar functional classifications and normalizes daily traffic volumes to calculate crashes at a more equal level based on their commonalities.

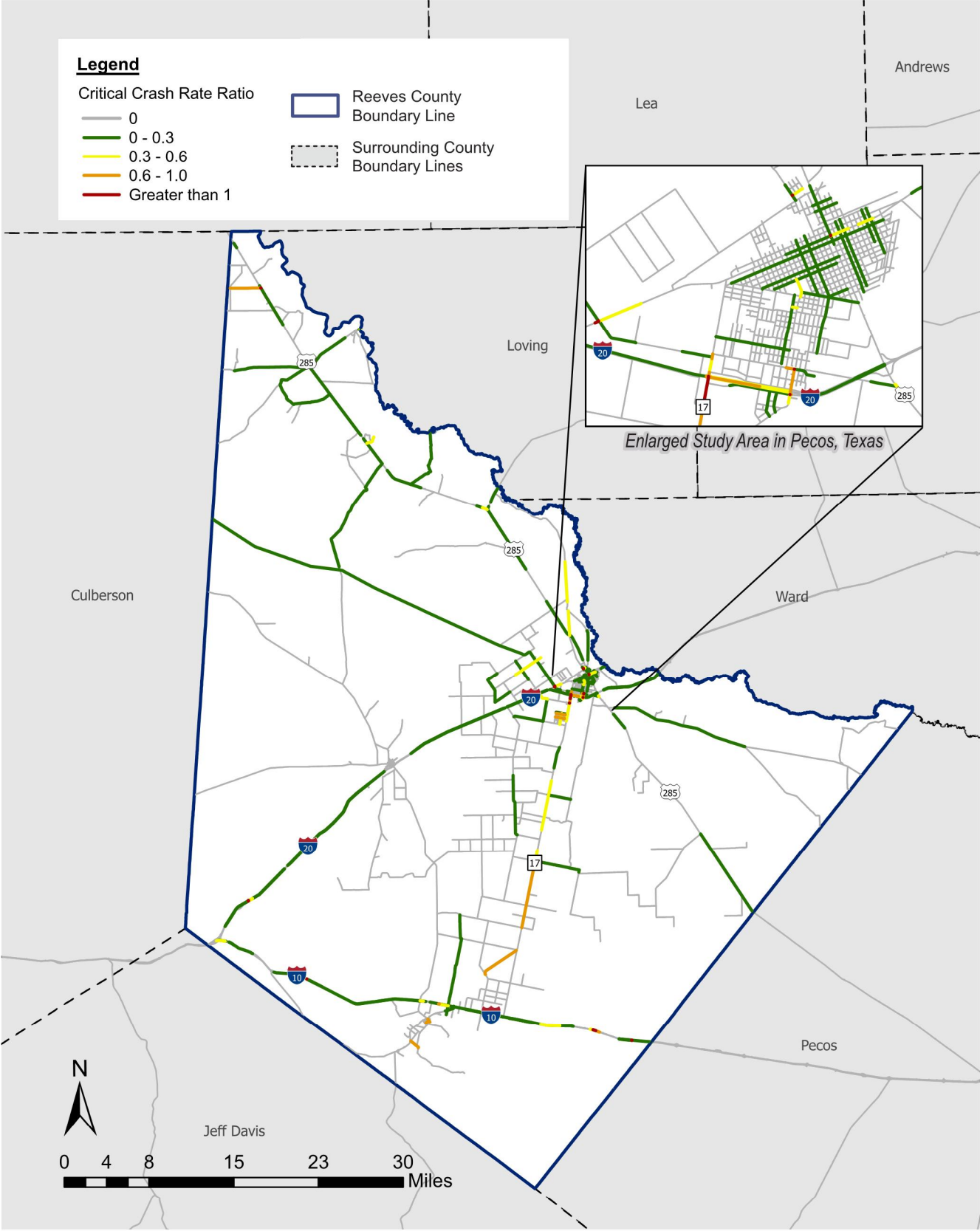
Calculate Variables of Critical Crash Rate

The critical crash rates for each road segment were calculated utilizing the equations outlined in the FHWA's Highway Safety Manual. Observed crash rate represents the existing KA crashes on each segment per 100 million vehicle-miles traveled. To calculate the expected average crash rate per 100 million vehicle-miles traveled, the daily volumes for each functional classification were normalized then similar roadways were compared to each other. For example, freeways were only compared to other freeways.

Calculate Critical Crash Rate Ratio (CCRR)

After calculating the observed and expected crash rates, a ratio was identified to see the magnitude of difference between the two. If the ratio was greater than 1.0 (observed crash rate is higher than the expected crash rate), this meant that the segment had a more severe crash history than other roadways with similar volumes and functional class. Any segments with a ratio greater than 1.0 were flagged as potential HIN segments. **Exhibit 10** provides a map with the results of critical crash rate ratio analysis.

EXHIBIT 10. CRITICAL CRASH RATE RATIO RESULTS



HIN DEVELOPMENT AND RESULTS

After flagging all critical crash rate ratios greater than 1.0, qualitative refinement of the model is conducted to create a cohesive network from the results. The finalized HIN should include the smallest percentage of roadways while capturing the majority of fatal (K) and suspected serious injury (A) crashes.

The first step of the cleaning process involved removing any segments that only experienced one severe or fatal crash during the study period but had a ratio greater than 1.0. This was done to ensure that segments with more severe crash histories were prioritized. Additionally, gaps between high crash segments were connected to create a continuous and consistent HIN.

Following the refinement of the critical crash rate results shown in **Exhibit 10**, the HIN for Reeves County was finalized. **Exhibit 11** shows Reeves County's high-injury network. The HIN is approximately 9% of total roadway network in the county and captures 69% of fatal and severe injury crashes. All segments included in the HIN have been summarized in **Table 11** below.

TABLE 11. HIGH-INJURY NETWORK FACILITIES LIST

CORRIDOR	LIMITS		FUNCTIONAL CLASS	PEAK CCRR	LENGTH (MI.)	CRASHES			PEAK VOLUME
	From	To				K	A	Total	
US 285	County Border	Ranch Rd 2007	Other Principal Arterial	0.05	8.39	2	1	3	1,881
IH 10	27,000 ft from FM 3078 Overpass	Southeastern County Border	Interstate	0.72	29.48	7	14	21	7,037
IH 10	Southwestern County Border	5 miles from County Border	Interstate	0.47	4.35	3	3	6	6,213
SH 17	County Road 311	FM 2448	Minor Arterial	0.91	3.59	1	2	3	1,080
IH 20	10,000 ft from I-20 & I-10 Interchange	County Road 216	Interstate	0.19	17.88	6	12	18	10,378
SH 17	Ranch Rd 3334	County Road 131	Minor Arterial	0.74	12	1	9	10	2,980
IH 20	Shaw Rd	Exit 37 on IH 20	Interstate	0.21	8.2	3	7	10	10,289
SH 17	County Road 204	IH 20	Minor Arterial	1.05	0.74	1	4	5	9,098
IH 20	SH 17	Country Club Rd	Interstate	1.60	1.09	1	5	6	11,339
IH 20	US 285	County Border	Interstate	0.16	5.95	3	6	9	18,951
S Park St	W Lunday Dr	W Jackson St	Local	0.22	0.91	0	2	2	328

CORRIDOR	LIMITS		FUNCTIONAL CLASS	PEAK CCRR	LENGTH (MI.)	CRASHES			PEAK VOLUME
	From	To				K	A	Total	
S Willow St	W Daggett St	W 2nd St	Local	0.14	1.62	0	2	2	328
S Plum St	W Walthall St	W 1st St	Local	0.06	0.78	1	1	2	1,950
IH 20 BL	US 285	S Almond St	Other Principal Arterial	0.32	0.56	1	3	4	5,407
FM 2119	IH 20 Business Loop	Hog Rd	Major Collector	2.41	0.86	1	2	3	3,169
US 285	E A St	Wells Rd	Other Principal Arterial	0.06	0.56	0	2	2	13,819
SH 302	US 285	County Border	Major Collector	0.29	2.29	4	4	8	6,277
US 285	County Road 232	County Road 108	Other Principal Arterial	2.54	10.68	5	10	15	7,900
RM 652	County Road 446	County Border	Major Collector	0.21	12.37	3	6	9	4,615



Reeves County's HIN consists of approximately:

- *9.3% of Reeves County's Network*
- *86% of Fatal Crashes*
- *69% of Fatal and Severe Injury Crashes*

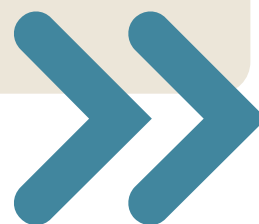


EXHIBIT 11. HIGH-INJURY NETWORK

