



PART II

Vision Zero Action Plan
OKLAHOMA CITY



PART II

Chapter 3: Understanding the Problem

Crash Analysis
Crash Profiles
Critical Crash Rate Method
HIN Development & Results
Measuring Equity

CHAPTER 3: UNDERSTANDING THE PROBLEM

> ***This crash data was analyzed throughout the planning process to guide decision making and understand the areas and roadway characteristics in the City that are in need of safety enhancements.***

Improving safety for all people in the City of Oklahoma City is a high priority for staff, the VZAB, and the community. This chapter of the VZAP provides a detailed analysis of the City's crash history, crash profiles, and the High Injury Network (HIN).

CRASH ANALYSIS

Based on available data, this analysis was conducted using crash data from the Oklahoma Highway Safety Office for the years 2017-2021. This crash data was analyzed throughout the planning process to guide decision making and understand the areas and roadway characteristics in the City that are in need of safety enhancements.

Citywide crash trends, shown to the right in **Figure 12**, revealed that from 2017-2021, there were 75,747 total crashes and 385 fatal crashes in the City of Oklahoma City. During this period, crashes throughout the City peaked in 2017 at 17,029. Total crashes decreased slightly over 2018 and 2019 but remained consistent near the mark of 15,500 annual crashes. 2020 presented a low for the period with 12,347 crashes, which presumably correlated with the COVID-19 pandemic. Like the trend of decreasing crashes that can be observed, the number of fatalities per 100,000 population has generally increased on an annual basis from a low of 9.4 fatalities per 100,000 population in 2018 to a high of 14.1 fatalities per 100,000 population in 2021.

Although the total number of fatal (K), suspected serious injury (A), suspected minor injury (B), and possible injury (C) crashes all experienced significant dips in volume during the 2019-2020 timeframe, the percentage of those crash severities are elevated when compared to the 2017-2019 timeframe. Fatal injury crashes experienced a high in 2021 with 95 occurrences, and a low of 63 in 2018. Notably, despite the lower amount of crashes during 2020-2021, the percentage of fatalities was significantly higher than in previous years.

FIGURE 12: KAB CRASH SUMMARY (2017-2021)

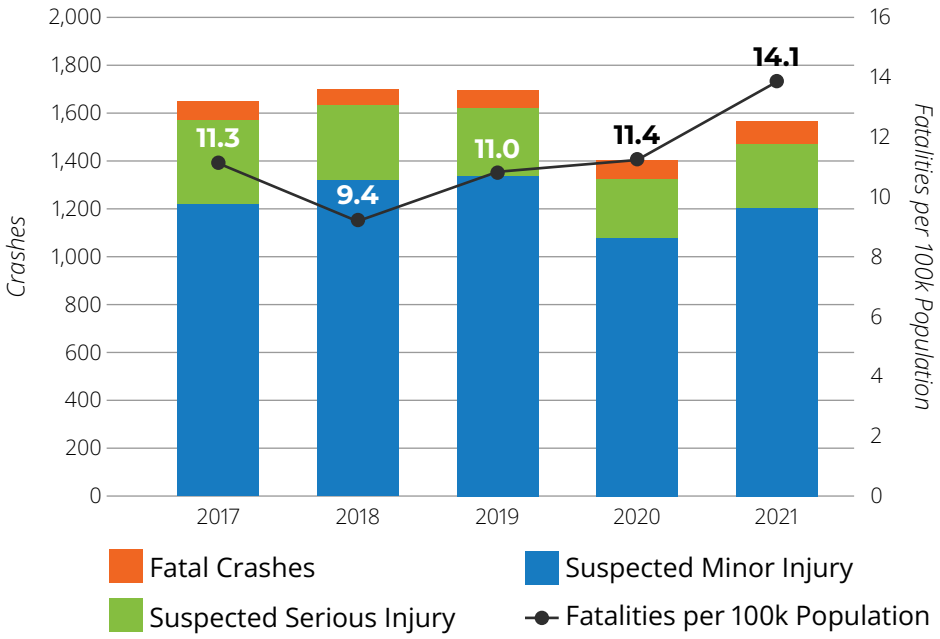


TABLE 8: TOTAL CRASHES BY SEVERITY (2017-2021)

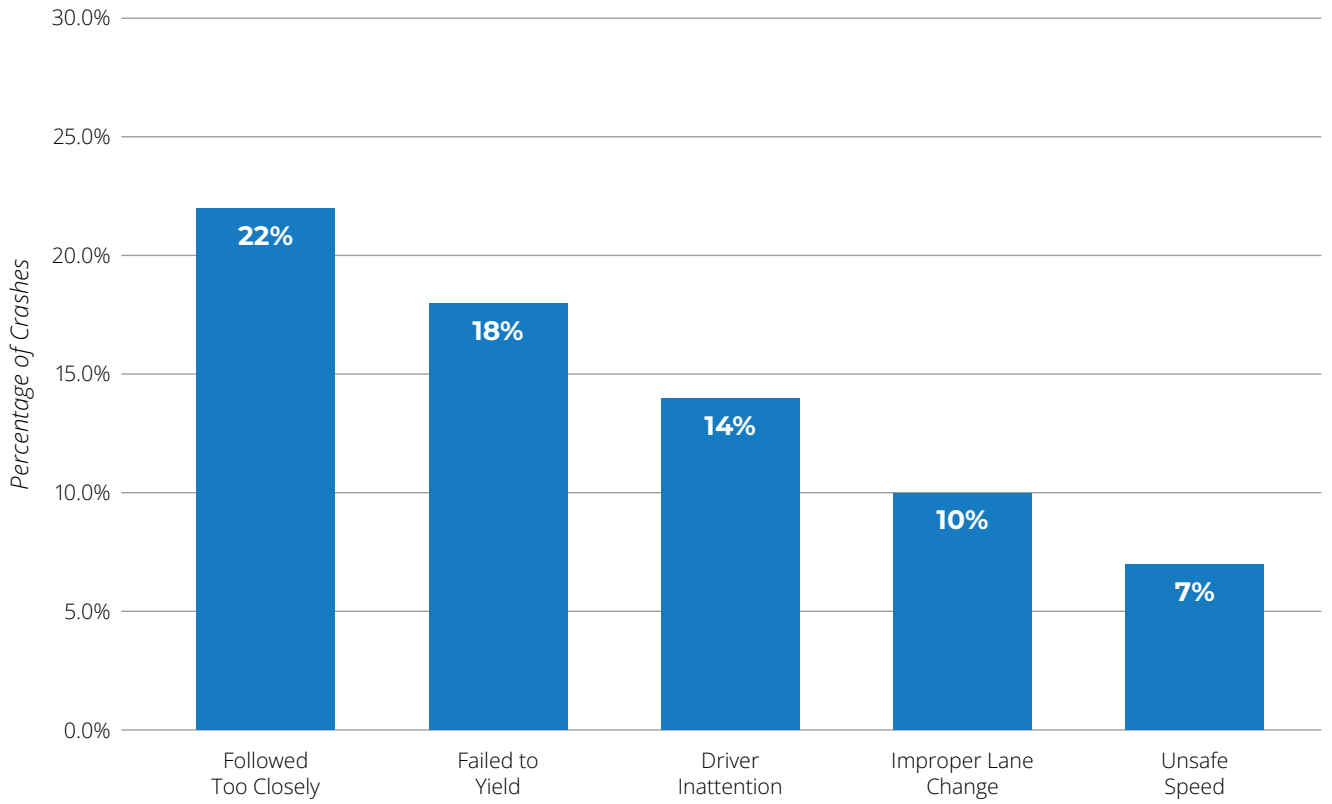
Year	K - Fatal Injury		A - Suspected Serious Injury		B - Suspected Minor Injury		Grand Total
2017	76	0.4%	351	2.1%	1,291	7.6%	**17,029**
2018	63	0.4%	312	2.0%	1,319	8.5%	**15,441**
2019	74	0.5%	285	1.8%	1,334	8.5%	**15,666**
2020	77	0.6%	246	2.0%	1,077	8.7%	**12,347**
2021	95	0.6%	268	1.8%	1,200	7.9%	**15,264**

Indicates the two highest years by percentage

TOP CONTRIBUTING FACTORS

Crashes can occur for a variety of reasons, but a review of historical crashes can unveil trends and common themes. Through the 5-year period of 2017-2021 the most common contributing factor to crashes was 'Followed too Closely', which constituted 22% of all crashes. 'Failed to Yield' and 'Driver Inattention' made up the 18% and 14% of total crashes, respectively. 'Improper Lane Change' contributed significantly to total crashes as well. While 'Unsafe Speed' did not exhibit a high percentage of crashes, the effects of speeding drivers may not be fully captured within this dataset. The Oklahoma Highway Safety Office dataset mainly focuses on primary contributing factors, often overlooking the potential influence of secondary contributing factors. Factors like speeding, which might have a more substantial impact when considered as secondary contributors, should not be underestimated. Incorporating these into analyses is crucial for developing more effective countermeasures and policy recommendations.

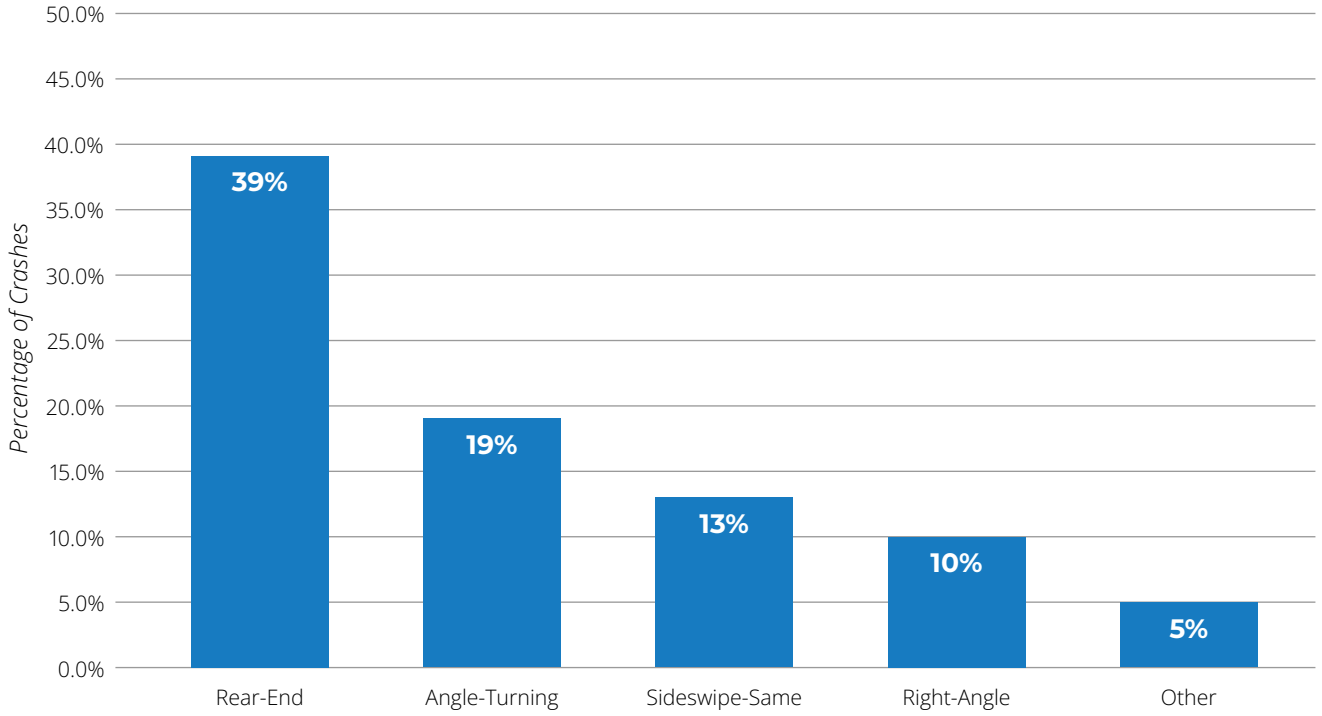
FIGURE 13: TOP CONTRIBUTING FACTORS (2017-2021)



TOP MANNERS OF COLLISION

The top manner of collisions between 2017-2021 in Oklahoma City are shown below. In the City, the top manner of collision for crashes was 'Rear-End', which made up nearly 40% of all crashes. 'Angle-Turning' crashes made up the second greatest proportion of crashes observed. Angle-Turning crashes occur when the front of one vehicle hits the side of another at an angle between 90 and 180 degrees. Angle-Turning crashes can occur when drivers merge into a lane on the highway, change lanes, or turn at intersections. 'Sideswipe-Same' crashes occur when two vehicles collide from the side while traveling in the same direction, often a result of one vehicle veering into a parallel lane. 'Sideswipe-Same' crashes made up 13% of crashes from 2017-2021. 'Right-Angle' crashes made up 10% of crashes throughout Oklahoma City, followed by 'Other' manners of collision.

FIGURE 14: TOP MANNERS OF COLLISION (2017-2021)



CRASH DENSITY

Exhibit 2 displays a crash heat map of total crashes within the City from 2017-2021. The crash heat map visualizes the density of crash counts at various locations and does not consider specific roadway or crash characteristics such as functional classification, traffic volumes, and crash severity. Each of these factors, though, contribute to the frequency of crashes.

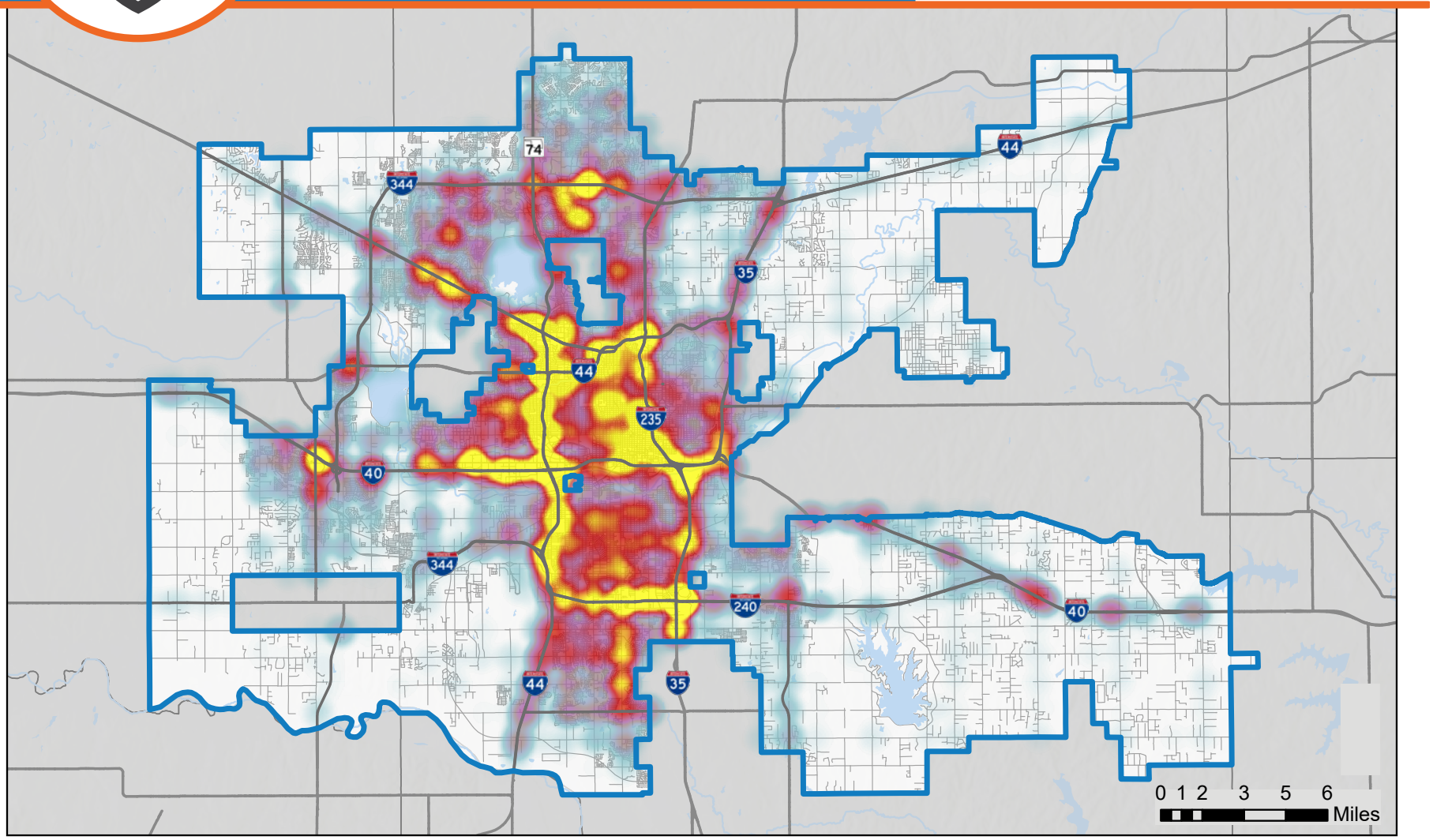
The greatest densities of crashes occurred at intersections with the highest number of traffic volumes. The crash heat map displays a high density of crashes along major highways in the City. Roadways in OKC with the highest overall crash density include I-44, I-35, I-40, and I-240. **Table 9** provides details on the crash severity breakdown for all crashes recorded during the period of 2017-2021.

TABLE 9: BREAKDOWN OF CRASH SEVERITY (2017-2021)

Crash Severity	Crash Count	Percentage
K – Fatal Injury	223	0.5%
A – Suspected Serious Injury	993	2.0%
B – Suspected Minor Injury	4,093	8.3%
C – Possible Injury	10,307	20.9%
N – Not Injured	33,633	68.3%

EXHIBIT 2: CRASH HEAT MAP (2017-2021)

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INTERSECTIONS

Table 10 illustrates the percentage of annual crashes observed at intersections throughout Oklahoma City. Over the entire period, nearly every two out of three crashes that occurred were at intersections. From 2017-2019 the percentage of crashes that occurred at intersections remained constant around 65%, while 2020-2021 experienced a slight uptick in the total percentage of crashes at intersections. Intersections present an elevated propensity for conflict between vehicles, pedestrians, and bicyclists as they all regularly converge at these locations.

Table 11 below shows the 10 intersections with the highest number of crashes in the 5-year study period. In Oklahoma City, the intersection of Western Avenue and 119th Street experienced the most crashes during the five-year period with a total of 197 crashes. Both the first and second high crash intersections are in South Oklahoma City on Western Avenue. The other 8 high crash intersections in the City all occur on major corridors such as the NW Expressway, Kilpatrick Turnpike, Hefner Parkway, Interstate 44, or Interstate 240 (**Exhibit 3**).

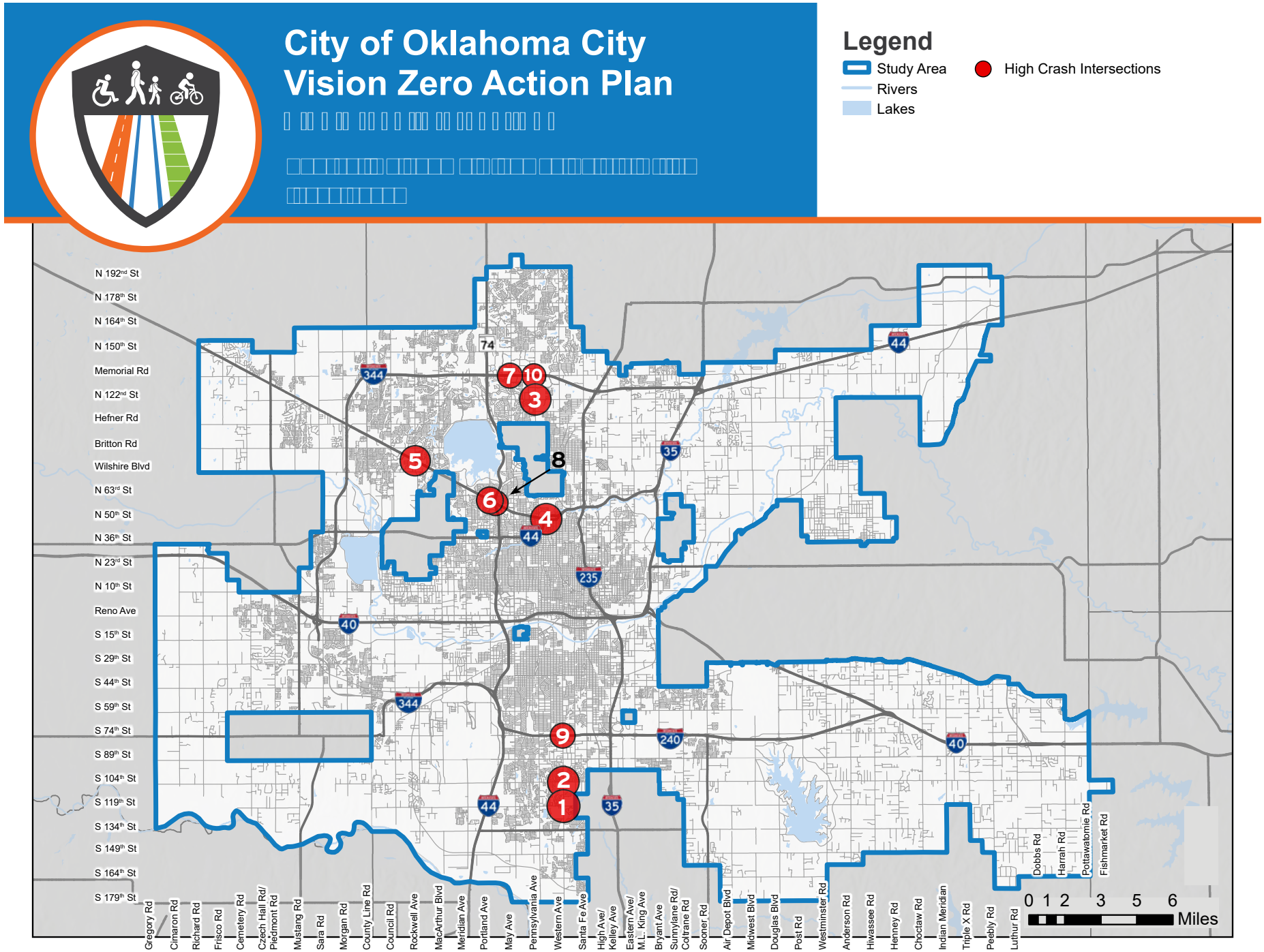
TABLE 10: INTERSECTION CRASHES BY YEAR (2017-2021)

Year	% Crashes at Intersections
2017	67%
2018	64%
2019	62%
2020	72%
2021	71%
Average	***65%***

TABLE 11: HIGH CRASH INTERSECTIONS (2017-2021)

Rank	Intersection	Number of Crashes
1	Western Ave & 119 St S	197
2	Western Ave & 104 St S	183
3	Pennsylvania Ave & 122 St N	179
4	I-44 & NW Expressway	177
5	NW Expressway & Rockwell Ave	167
6	NW Expressway & Portland Ave	131
7	Kilpatrick Turnpike & May Ave	114
8	Hefner Parkway & NW Expressway	114
9	I-240 & Western	113
10	Kilpatrick Turnpike & Pennsylvania Ave	104

EXHIBIT 3: HIGH CRASH INTERSECTIONS (2017-2021)



VULNERABLE ROAD USERS

Vulnerable Road Users (VRUs) are described as those unprotected by an outside shield, creating greater risk of injury in any collision with a vehicle. Resultingly, VRUs need alternative protection against such collisions. Pedestrians, including those such as roadway workers, persons operating a wheelchair or other personal mobility device, such as electric scooters, bicycles, and skateboards, are all considered VRUs.

From 2017-2021, Oklahoma City experienced 1,086 pedestrian crashes and 460 bicycle crashes. Of the pedestrian-related crashes, 632 resulted in a fatal, severe, or minor injury (KAB) crash, or approximately 58%. Of the bicycle-related crashes, 212 resulted in a fatal, severe, or minor injury (KAB) crash, or approximately 46%. Bicycle and pedestrian related crashes are 4-5 times more likely to result in a KAB. Notably, pedestrian-related crashes increased over this five-year period, indicating a greater need for vulnerable road user safety within Oklahoma City.

TABLE 12: PEDESTRIAN AND BICYCLE CRASHES (2017-2021)

Crash Type	Total Crashes	High Injury Crashes (KAB)	Percent High Injury Crashes (KAB)
Pedestrian Related	1,086	632	58%
Bicycle Related	460	212	46%
Total	***1,546***	***844***	***55%***

EXHIBIT 4: PEDESTRIAN RELATED CRASHES (2017-2021)

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Legend

- Study Area
- Rivers
- Lakes
- Pedestrian Related Crashes (1086)

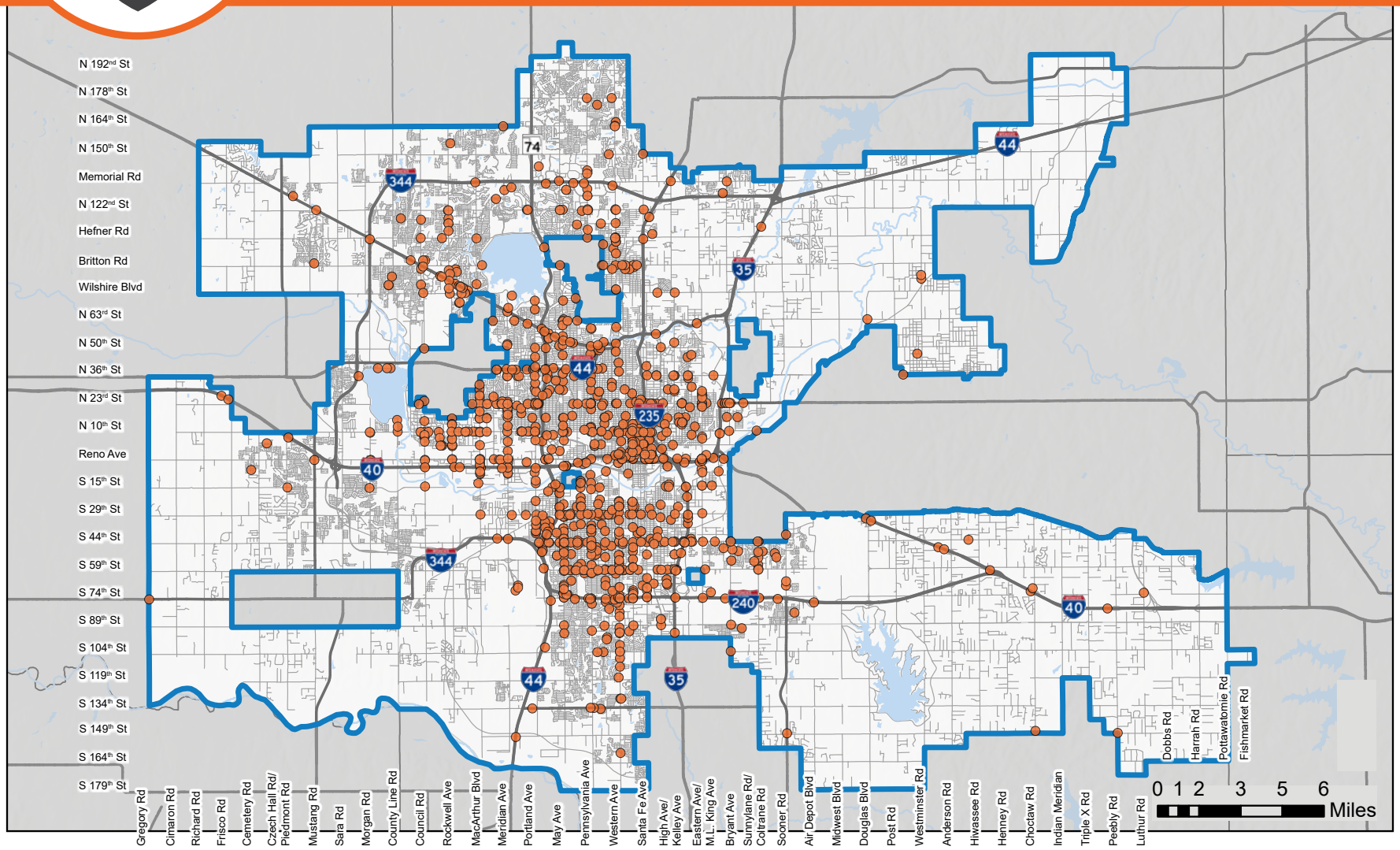
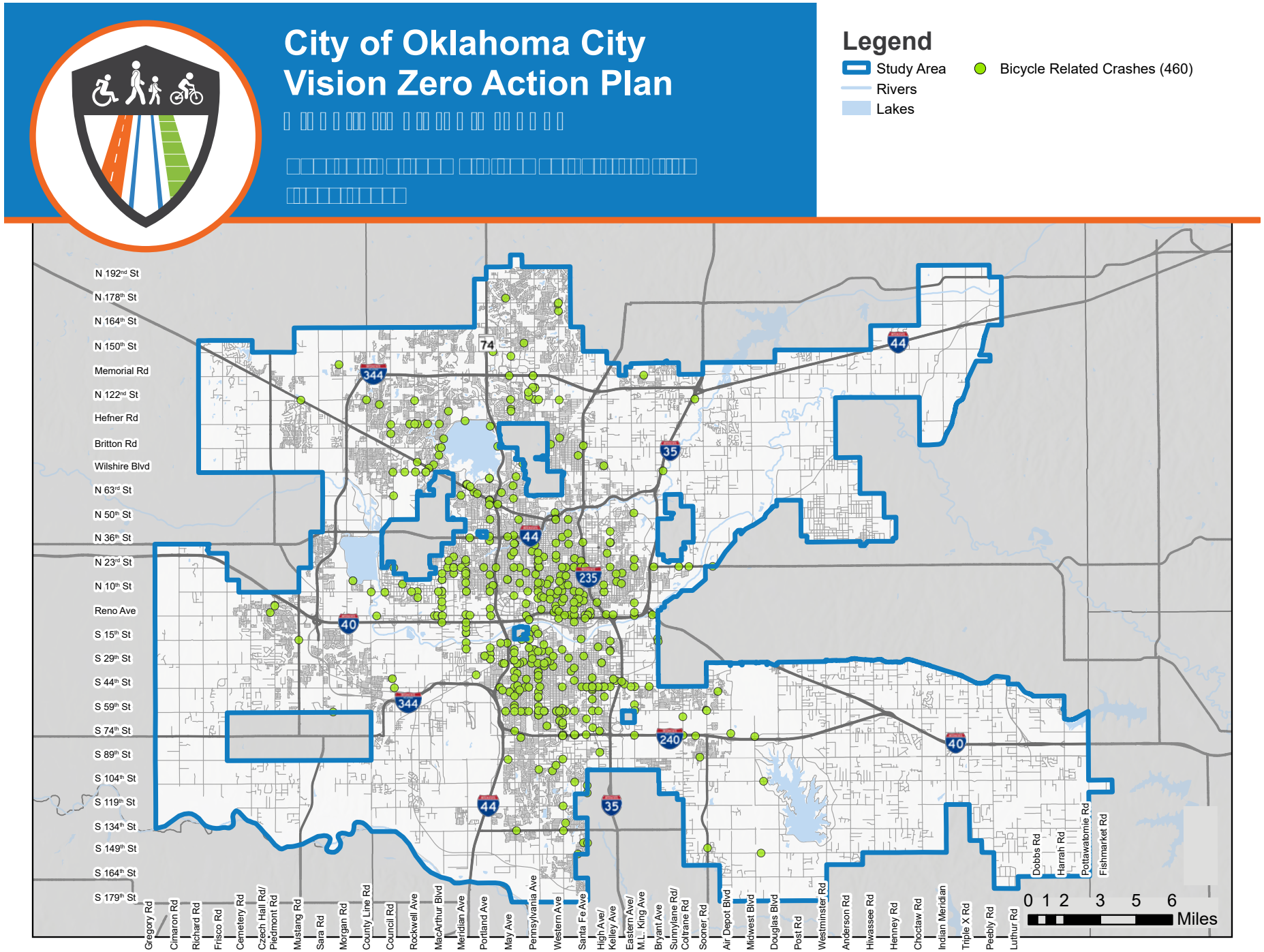


EXHIBIT 5: BICYCLE RELATED CRASHES (2017-2021)



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DISTRACTED DRIVING

Distracted driving crashes are caused by the driver's attention being diverted away from the task of driving. This can be the result of many distractions including, using a cell phone, eating or drinking, interacting with passengers or pets, and many other factors. Overall, distracted driving crashes in Oklahoma City experiences significantly higher KAB rates than total crashes. In total, distracted driving crashes made up less than 2% of total crashes recorded throughout the City but had significantly more severe consequences.

Most distracted driving crashes throughout the city were observed between Lake Hefner Parkway & I-235 and I-344 & I-240. Crashes are primarily observed along major thoroughfares and local roads.

FIGURE 15: TOTAL CRASHES V. DISTRACTED DRIVING CRASHES SEVERITY COMPARISON

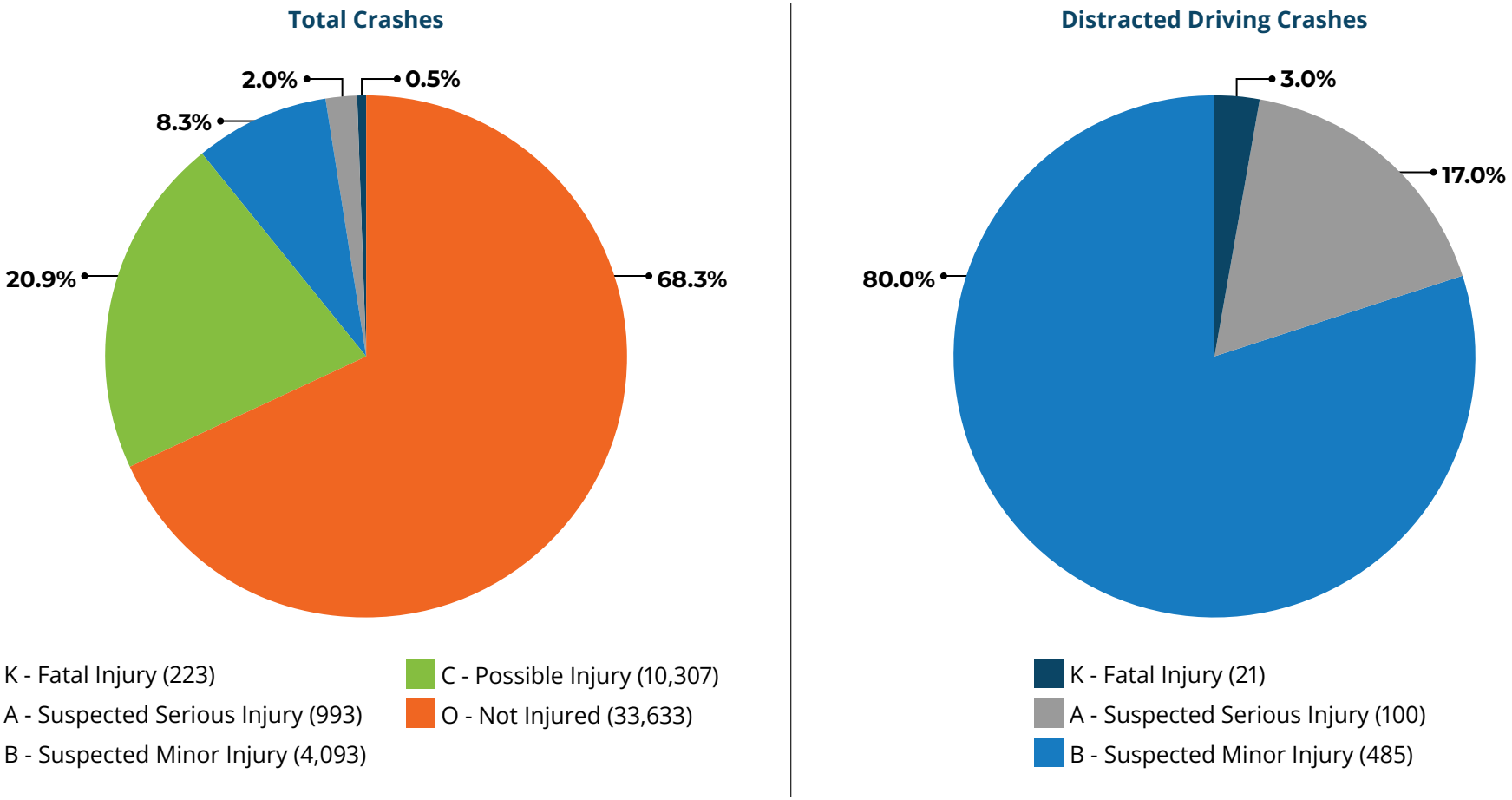
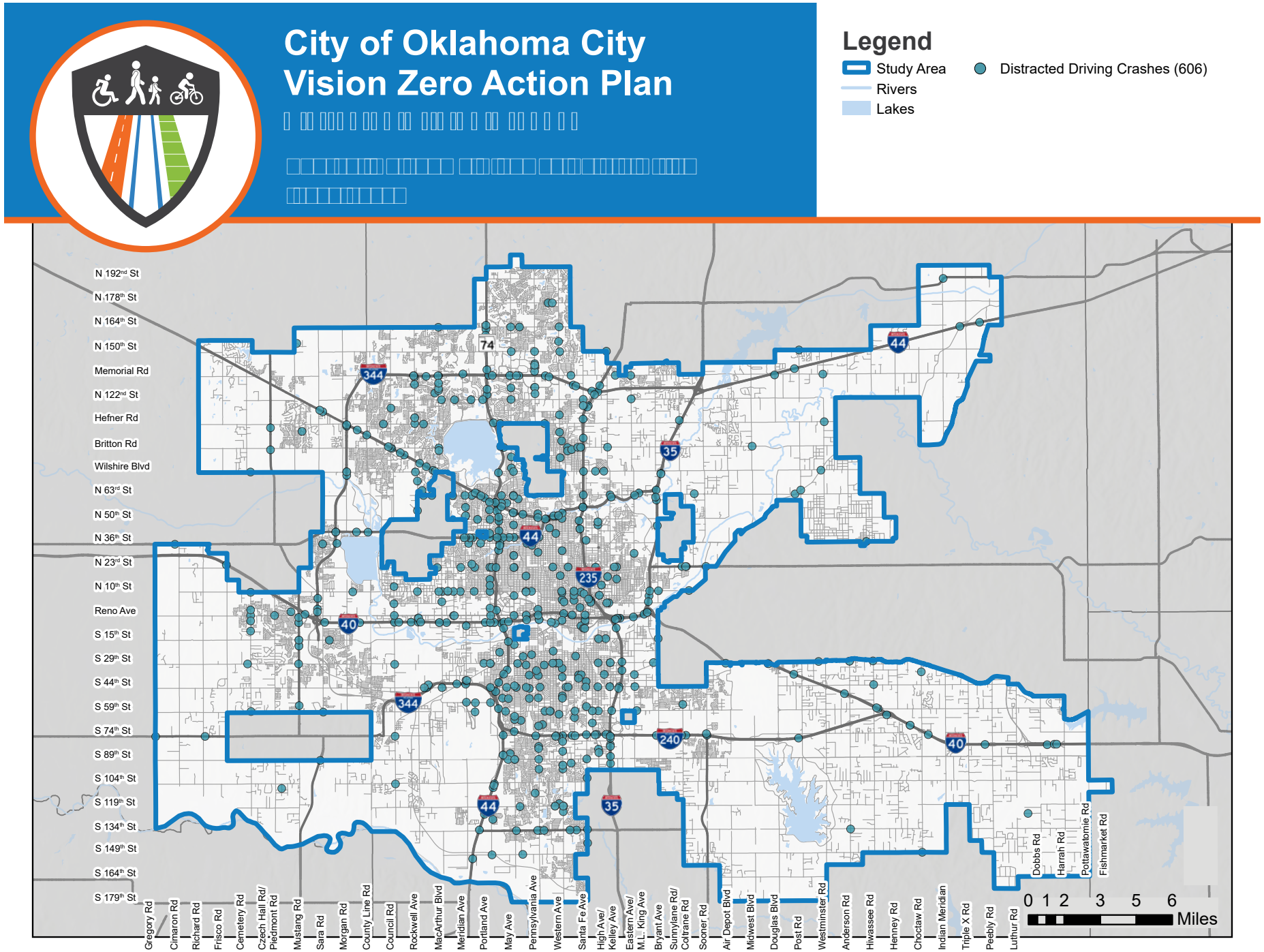


EXHIBIT 6: DISTRACTED DRIVING CRASHES (2017-2021)



IMPAIRED DRIVING

Impaired driving represents a significant safety concern that affects not only the person driving under the influence of alcohol or drugs, but also, innocent parties such as passengers, other drivers, and vulnerable road users. From 2017-2021, Oklahoma City experienced 2,104 total impaired driving-related crashes with 289, or 14%, of those resulting in a KAB. According to the OHSO crash data, an impaired driving crash is 94% more likely to result in an injury or fatality.

FIGURE 16: TOTAL CRASHES V. IMPAIRED DRIVING CRASHES SEVERITY COMPARISON

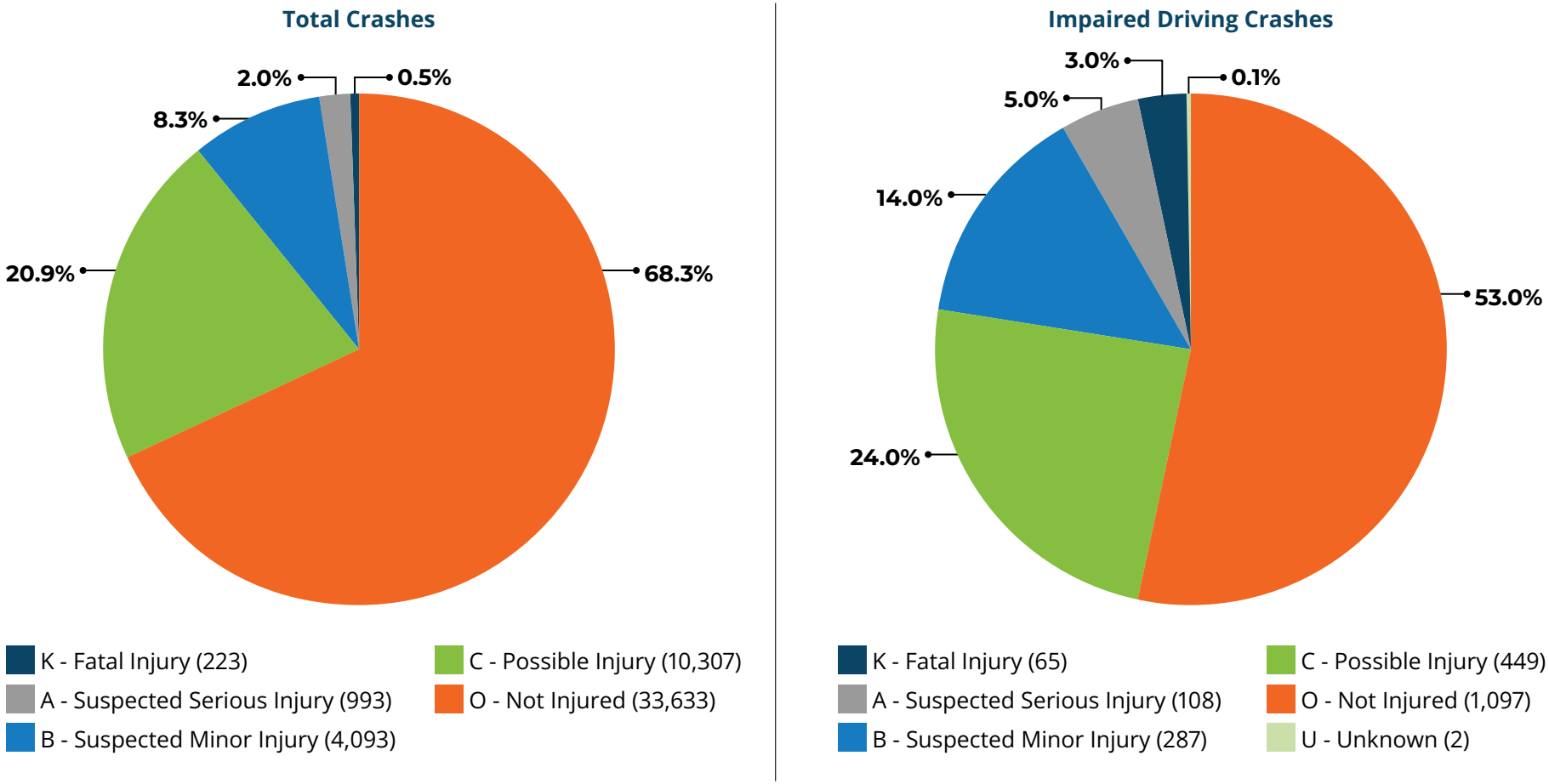
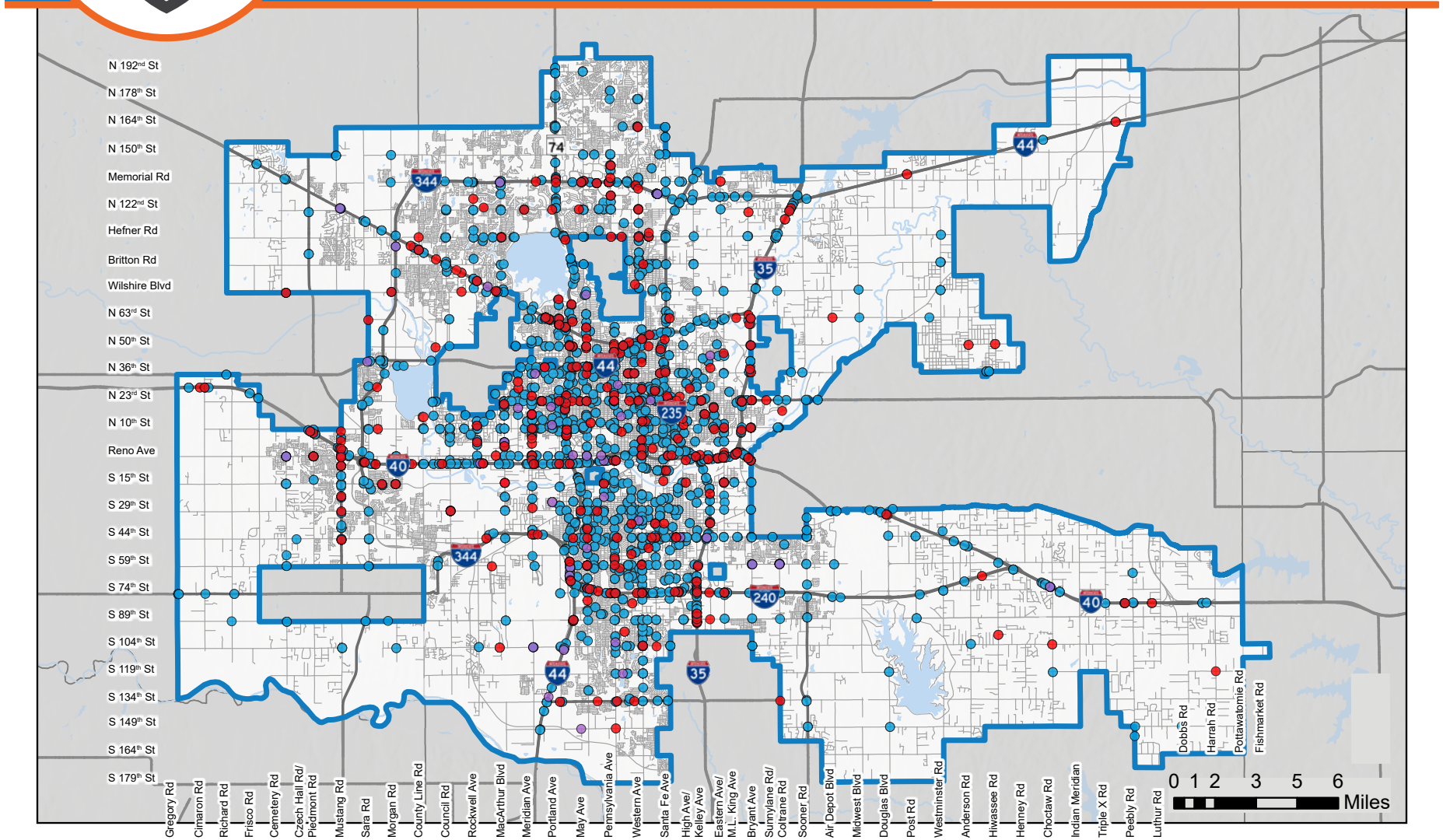


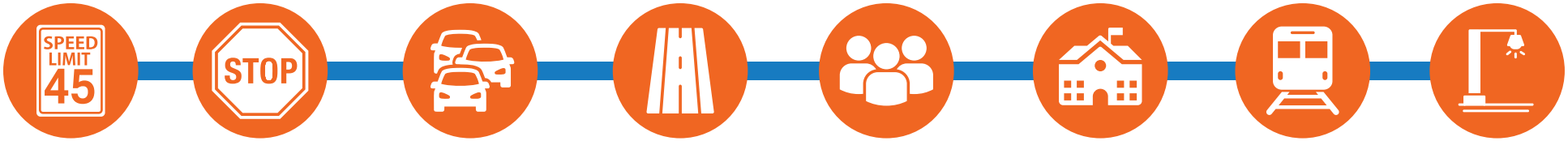
EXHIBIT 7: IMPAIRED DRIVING CRASHES (2017-2021)

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CRASH PROFILES

The crash trends in the previous section established a baseline for further analysis which was expanded upon through the creation of Crash Profiles. These profiles aimed to identify trends in roadway characteristics that may have influenced the frequency or severity of crashes throughout the City of Oklahoma City from 2017-2021. This analysis was achieved by examining various additional datasets to the existing crash data, providing detailed information on road design and characteristics of the roadways where crashes commonly occur. The roadway characteristics analyzed includes:



The Crash Profiles were developed by overlaying these characteristics to identify combinations of characteristics that resulted in the highest frequencies and severities of crashes. This analysis produced five combinations of overrepresented road characteristics that could benefit from further study to lessen their impact on crash frequencies and severities.

CRASH PROFILE 1

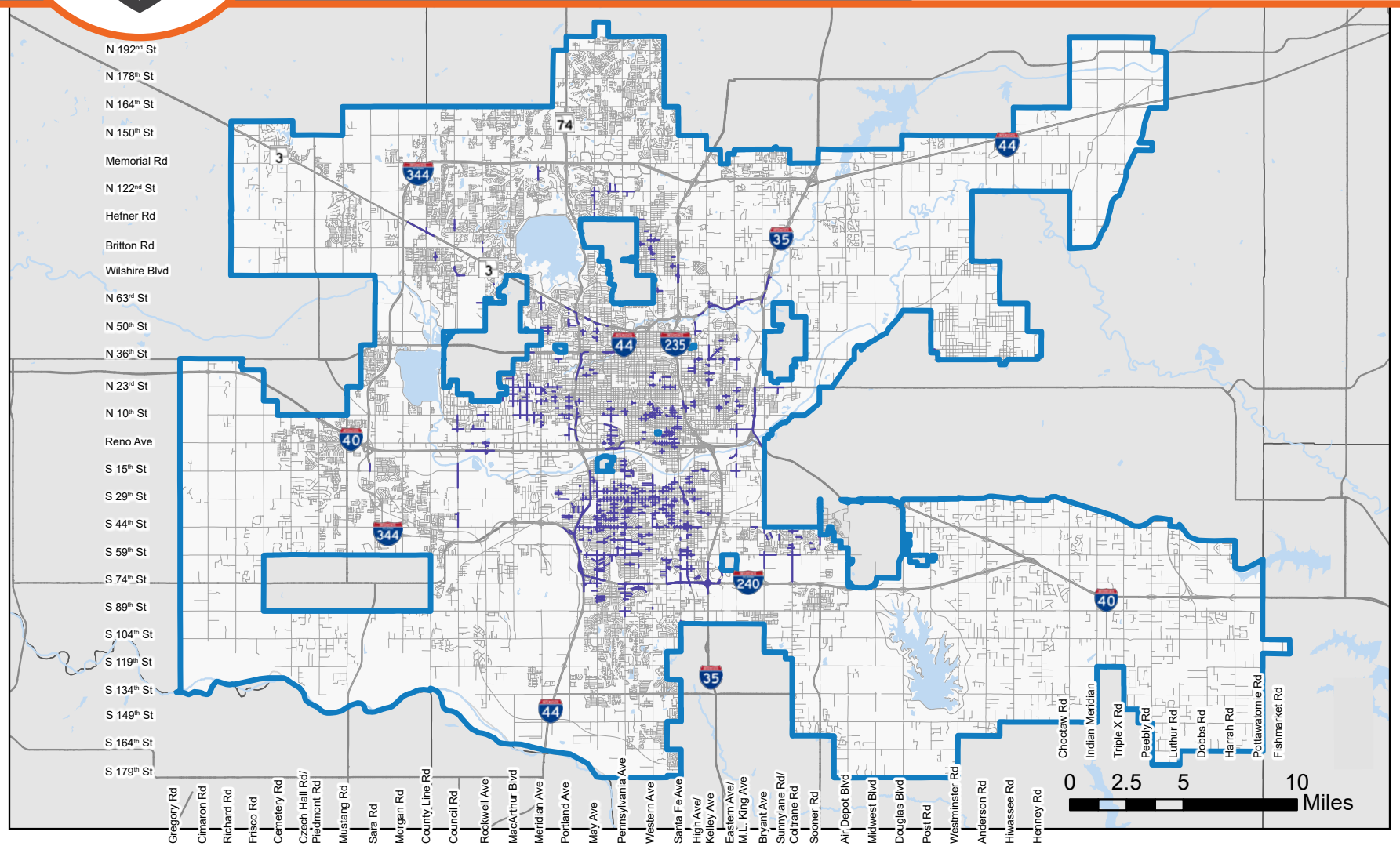
Crash Profile 1 identifies crashes happening within Disadvantaged Census Tracts and less than a half mile from a school as exhibiting a higher-than-average density of crashes. These roadways generally see a higher percentage of VRUs with students using alternative modes of transportation, so this Crash Profile signifies a particular need for VRU-related countermeasures. Road segments where these crashes were observed are generally situated in the central portion of the city. Notably, while these roadways represent about 1.3% of the total roadway network, over 25% of all KAB crashes happen on these segments.

TABLE 13: CRASH PROFILE 1

Crash Profile 1: Within a Disadvantaged Census Tracts & Near School (<0.5 mile)		
	Number of Crashes	**Percentage of Crashes**
K	51	23%
A	252	25%
B	1,047	26%
Total KABs	***1,350***	***25%***

EXHIBIT 8: CRASH PROFILE 1

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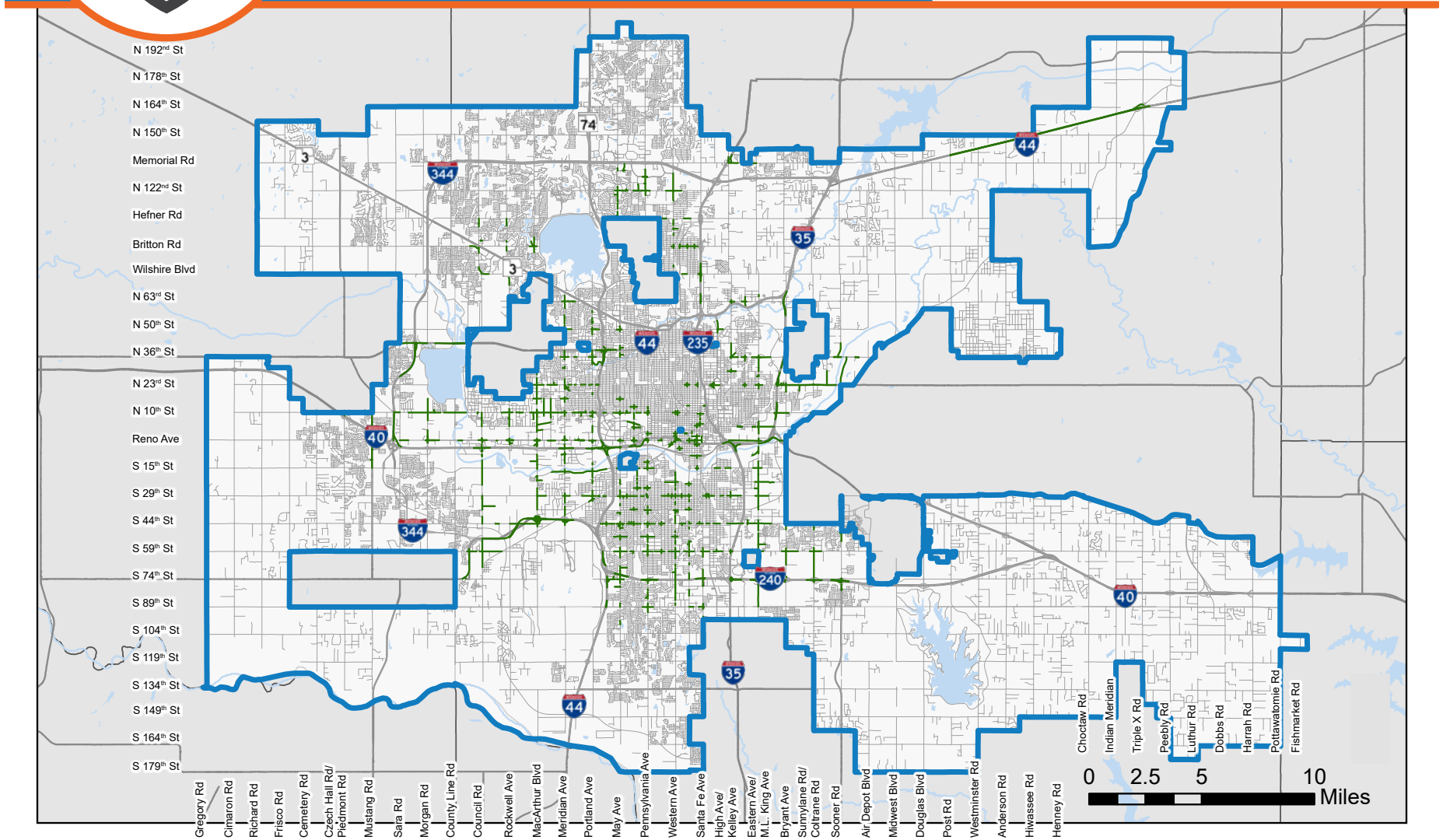
CRASH PROFILE 2

Crash Profile 2 displays crashes occurring within Disadvantaged Census Tracts and on 4-lane roads as exhibiting a higher-than-average density of crashes. Generally, 4-lane undivided roadways roads exhibit high crash densities due to their high number of conflict points, and higher speeds. Road segments where these crashes were observed are generally situated in the central and northeast portions of the City. These roadways only represent about 3.8% of the total roadway network, while comprising over 23% of all KAB crashes. The inclusion of medians or roadway reconfigurations could reduce crashes on these roadways.

TABLE 14: CRASH PROFILE 2

Crash Profile 2: Within a Disadvantaged Census Tracts & 4 Lane Roads		
	Number of Crashes	**Percentage of Crashes**
K	66	30%
A	255	26%
B	916	22%
Total KABs	***1,237***	***23%***

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CRASH PROFILE 3

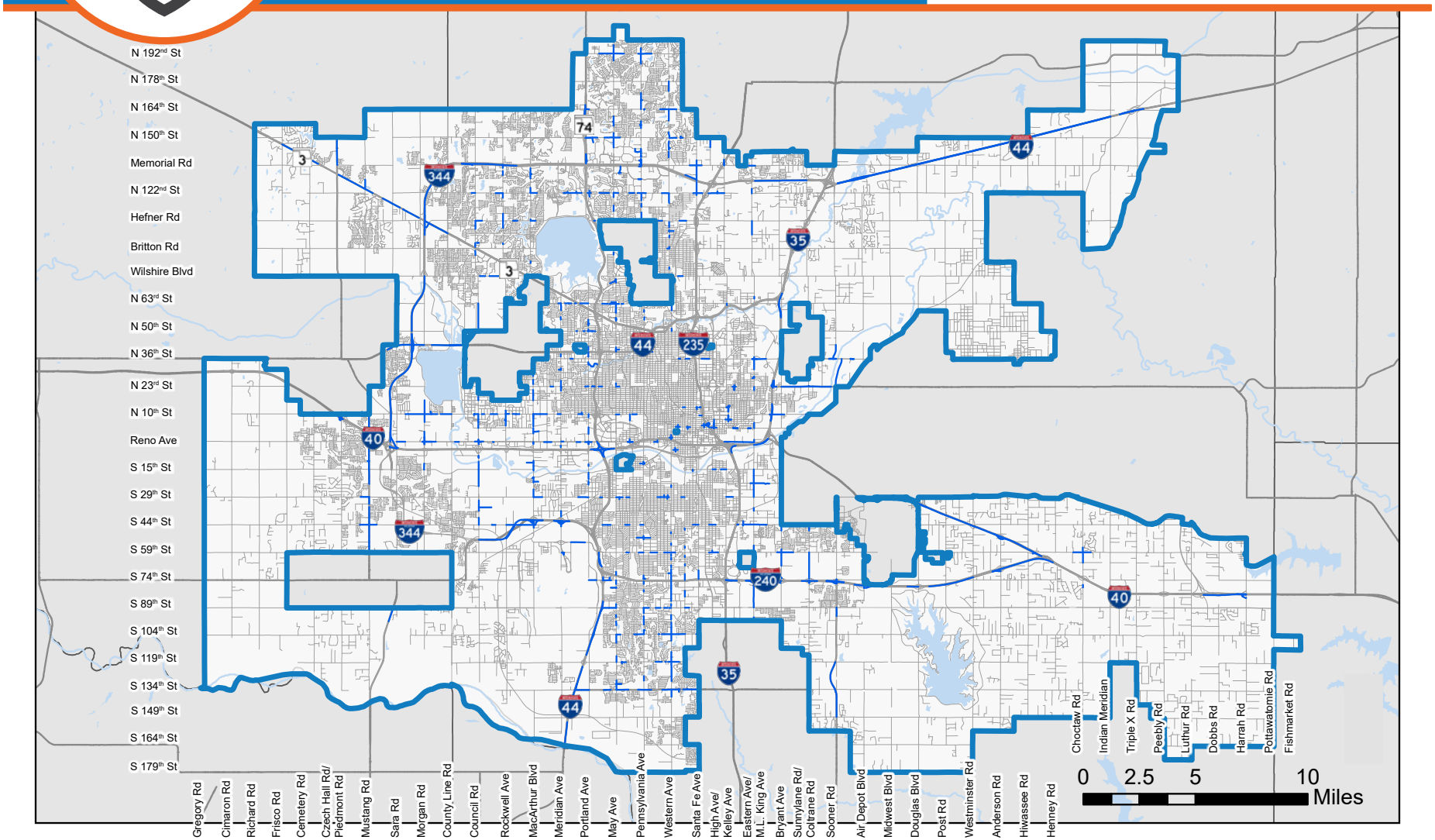
Crash Profile 3 represents crashes occurring over 75 feet from a streetlight and on 4-lane roads. These crashes include the combination of low visibility with a high density of conflict points. These roadways represent 4% of the total roadway network, while comprising 22.5% of all KAB crashes. Lighting and visibility improvements could reduce crashes on these roadways.

TABLE 15: CRASH PROFILE 3

Crash Profile 3: Not Near Street Light (>75 ft) & 4 Lane Roads		
	Number of Crashes	**Percentage of Crashes**
K	63	28%
A	216	22%
B	913	22%
Total KABs	***1,192***	***22%***

EXHIBIT 10: CRASH PROFILE 3

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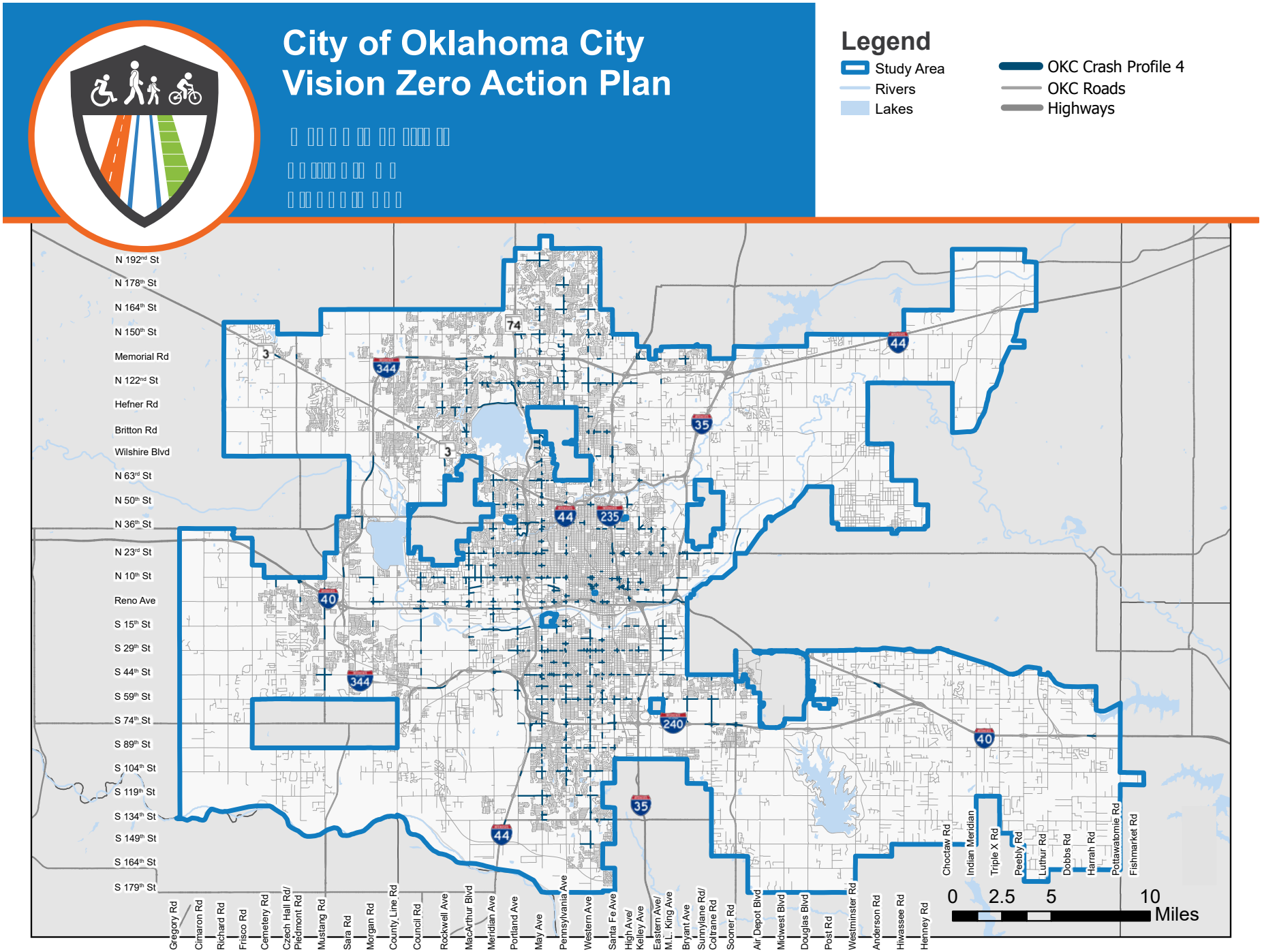
CRASH PROFILE 4

Crash Profile 4 includes crashes occurring where posted speeds are between 35-40 MPH 4-lane roads. This speed range is generally the high end of 4-lane roads, indicating that this combination is particularly problematic. This is the third profile that includes 4-lane roadway segments. These roadways represent 3.6% of the total roadway network, while comprising 22.5% of all KAB crashes. Implementing appropriate speed limits and installing medians could decrease crashes on these roads.

TABLE 16: CRASH PROFILE 4

Crash Profile 4: 35-40 MPH & 4 Lane Roads		
	Number of Crashes	**Percentage of Crashes**
K	45	20%
A	244	25%
B	903	22%
Total KABs	***1,192***	***22%***

EXHIBIT 11: CRASH PROFILE 4



CRASH PROFILE 5

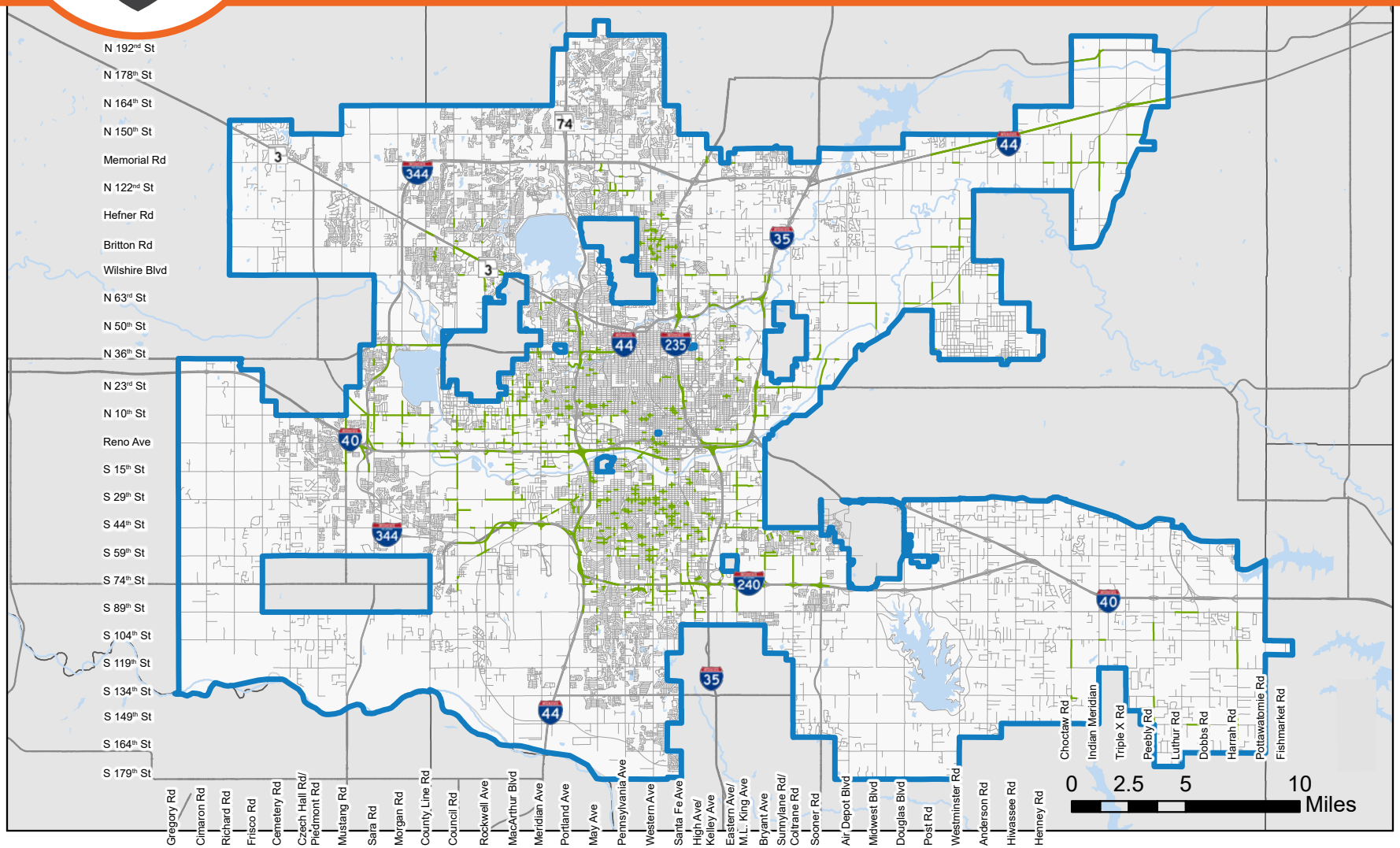
The final Crash Profile displays crashes occurring within Disadvantaged Census Tracts and away from street lights, once again highlighting the need for visibility improvements. Further investigation into these roadway segments could highlight the specific need for streetlights in Disadvantaged Census Tracts, which often experience lower visibility levels. These roadways represent 4.8% of the total roadway network, while comprising over 22% of all KAB crashes.

TABLE 17: CRASH PROFILE 5

Crash Profile 5: Within a Disadvantaged Census Tracts & Not Near Street Light (>75 ft)		
	Number of Crashes	**Percentage of Crashes**
K	71	32%
A	240	24%
B	875	21%
Total KABs	***1,186***	***22%***

EXHIBIT 12: CRASH PROFILE 5

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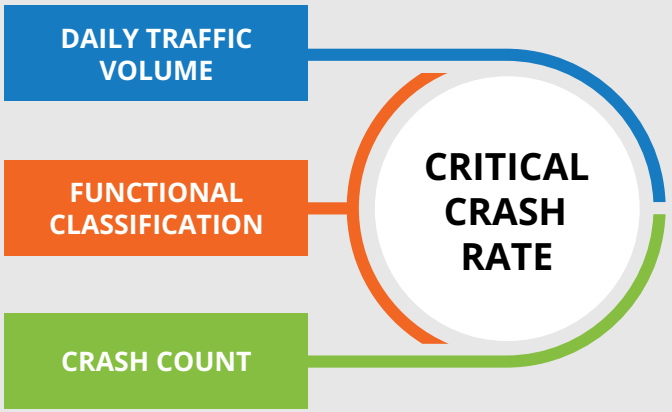
CRITICAL CRASH RATE METHOD

The Highway Safety Manual's (HSM) critical crash rate analysis is a network screening method used to assess the safety performance of road segments or intersections. It aims to identify locations with a higher likelihood of severe crashes and prioritize them for safety improvements. Overall, the critical crash rate analysis is a valuable tool for identifying and addressing safety issues on our nation's highways and roads. It helps improve the safety of transportation infrastructure by identifying roads that have a higher-than-average amount of crashes.

The method deployed for calculating critical crash rates involves comparing road segments with similar roadway functional classification and context. The analysis involves collecting crash data and traffic volume data for a specific roadway segment or intersection over a defined period. By comparing the critical crash rates of different locations, transportation agencies can identify high-crash areas that require attention.

An ArcGIS Pro model was created to calculate the critical crash rate and supporting calculations for each roadway segment in Oklahoma City. The model assigns crashes, weighted by the severity of the crash, to an adjacent segment and performs the calculations in the order outlined by the FHWA. The following section outlines the process used in the calculation of the critical crash rate using fatal and severe injury crashes from the years 2017-2021.

FIGURE 17: CRITICAL CRASH RATE INPUTS



CALCULATION STEPS

Crashes to Segments

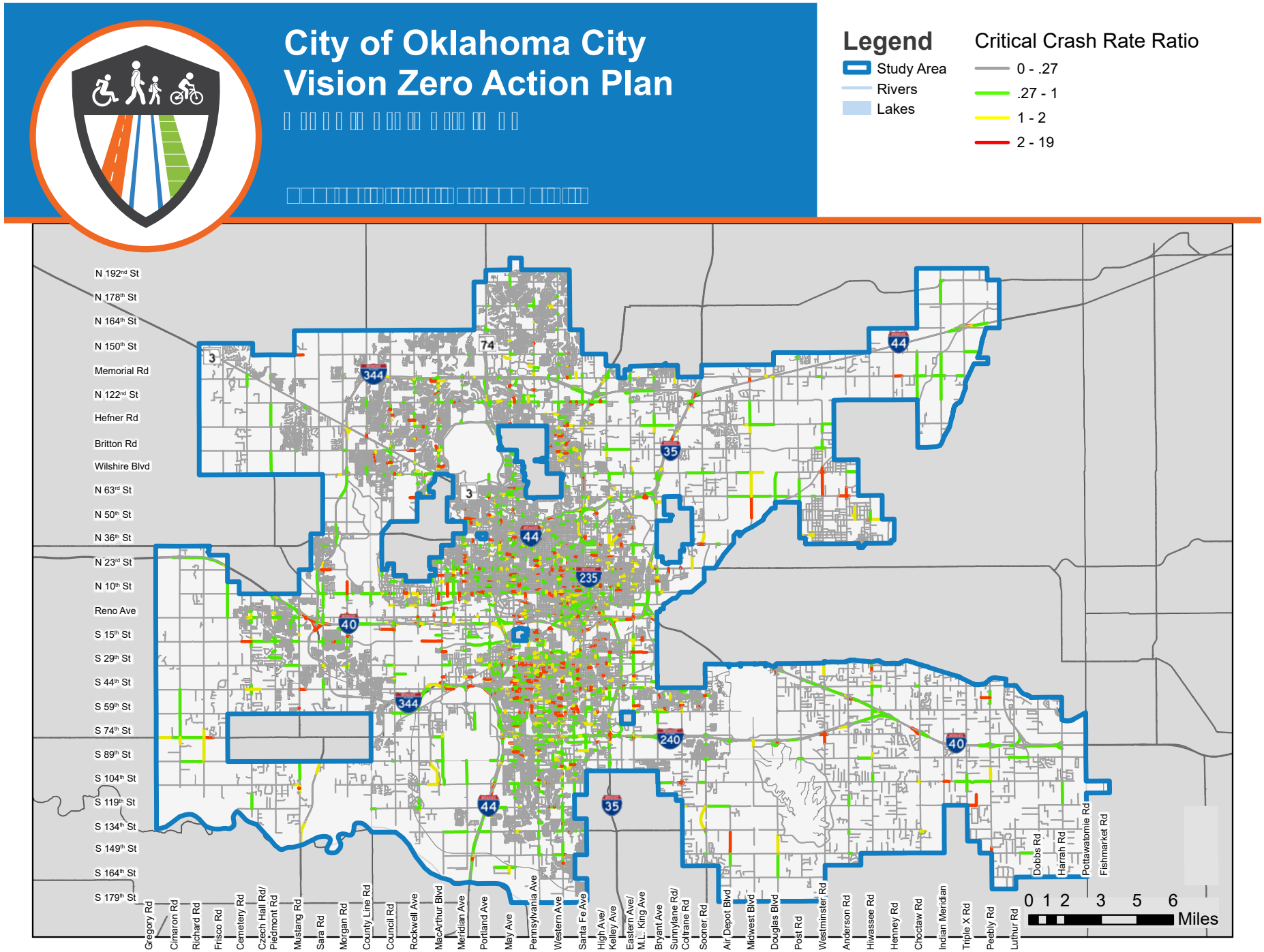
Calculating the critical crash rate requires three data inputs: roadway functional classification, daily traffic volumes, and weighted crash counts. The critical crash rate is calculated by dividing the number of severe crashes (fatalities and serious injuries) by the average daily traffic volume. This rate helps identify areas where crashes are occurring at a higher frequency compared to the traffic volume. The result is a rate of crashes per hundred million vehicle miles traveled (HMVMT).

Calculate Variables

The variables of the critical crash rate were calculated using the equations specified in the FHWA Highway Safety Manual. The critical crash rate compares the difference between the observed crash rate and the expected crash rate. The observed crash rate is the existing crashes at each road segment per HMVMT. The expected average crash rate per HMVMT normalizes the daily volumes for each functional class. Once calculated, the equation highlights segments that experience a higher crash rate than what is expected based on the similar functional classifications, context, traffic volumes, and weighted crash counts.

Critical Crash Rate Ratio

Once the variables are input, a ratio is calculated to identify segments experiencing higher severe injury and fatal crash rates than expected. If the ratio is greater than 1.0, or if the observed crash rate is higher than the critical crash rate, then the road segment's crash history was higher than other road segments of similar functional classification and context. Segments with a ratio of 1.0 or greater were flagged as potential HIN segments. When considering the results of the critical crash rate analysis, additional factors such as excessive speeding, inadequate signage, poor visibility, or problematic intersections should be considered and evaluated.


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Legend
Study Area
Rivers
Lakes
Critical Crash Rate Ratio
0 - .27
.27 - 1
1 - 2
2 - 19
N 192nd St
N 178th St
N 164th St
N 150th St
Memorial Rd
N 122nd St
Hefner Rd
Britton Rd
Wilshire Blvd
N 63rd St
N 50th St
N 36th St
N 23rd St
N 10th St
Reno Ave
S 15th St
S 29th St
S 44th St
S 59th St
S 74th St
S 89th St
S 104th St
S 119th St
S 134th St
S 149th St
S 164th St
S 179th St
Gregory Rd
Cimaron Rd
Richard Rd
Frisco Rd
Cemetery Rd
Czech Hall Rd/ Piedmont Rd
Mustang Rd
Sara Rd
Morgan Rd
County Line Rd
Council Rd
Rockwell Ave
MacArthur Blvd
Meridian Ave
Portland Ave
May Ave
Pennsylvania Ave
Western Ave
Santa Fe Ave
High Ave/ Kelley Ave
Eastern Ave/ M.L. King Ave
Bryant Ave
Sunnylane Rd/ Coltrane Rd
Sooner Rd
Air Depot Blvd
Midwest Blvd
Douglas Blvd
Post Rd
Westminster Rd
Anderson Rd
Hiwassee Rd
Henney Rd
Choctaw Rd
Indian Meridian
Triple X Rd
Peebly Rd
Luthur Rd
Dobbs Rd
Harrah Rd
Pottawatomie Rd
Fishmarket Rd
0 1 2 3 5 6
Miles

HIGH-INJURY NETWORK (HIN) DEVELOPMENT & RESULTS

The process to select segments for the HIN is primarily a data-driven effort combined with a qualitative look at the model results. The goal of the HIN selection process is to maximize the total fatal, severe injury, and possible injury crashes on the least amount of roads. The following steps can be taken to implement and monitor future improvements once the HIN is established:

Prioritize safety improvements

Based on the analysis results and crash patterns, prioritization of safety improvements (countermeasures) for the identified high-risk locations can be established. This could involve implementing engineering measures such as roadway redesign, installing traffic control devices, improving lighting, or enhancing pedestrian and cyclist safety.

Resource allocation

Allocation and distribution of the resources needed to implement the safety improvements. This may include funding, personnel, and coordination with other agencies or stakeholders.

Implement and monitor improvements

Carry out the planned safety improvements and closely monitor their effectiveness. It is important to track crash data after the improvements have been implemented to assess the impact on critical crash rates and overall safety performance.

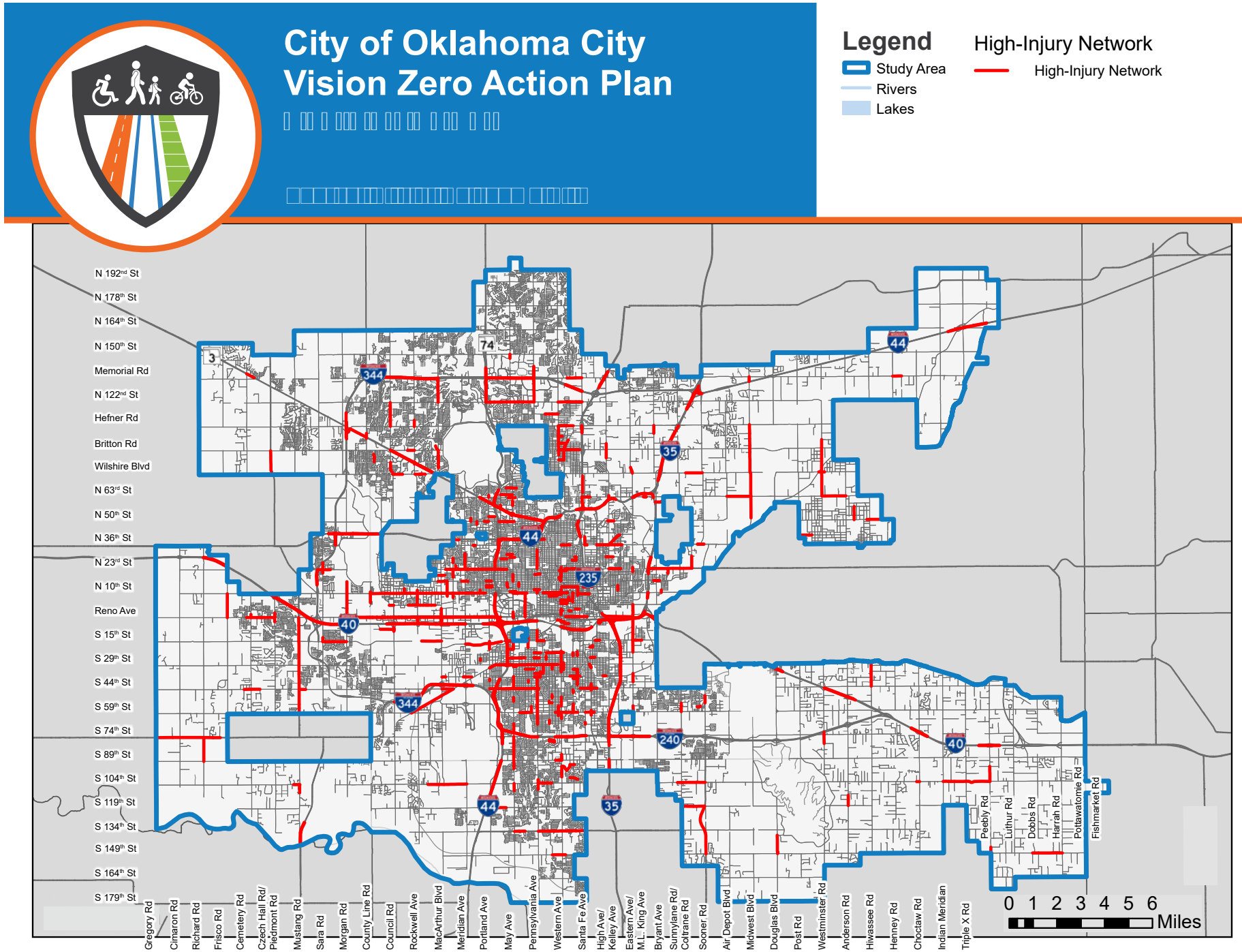
Continuously review and update

Regularly review the critical crash rate analysis results and update the prioritization of safety improvements as new crash data becomes available. This ensures that resources are allocated to the locations that have the greatest potential for reducing severe crashes.

To refine and clean the model results, one-crash segments that resulted in a greater than 1.0 ratio were removed to prioritize corridors experiencing high severity crashes. The remaining segments observed more than one high injury crash between 2017 and 2021 and had a crash rate higher than expected. Gaps between flagged segments were linked or filled with the intent of creating a consistent and contiguous HIN.

The resulting HIN for the VZAP consists of 6.6% of the total road network in the City of Oklahoma City, while also capturing 58.2% of fatal, severe injury, and possible injury crashes, and 87% of fatal crashes. The HIN corridors for the City can be seen in the map on the following page.

EXHIBIT 14: HIGH-INJURY NETWORK



EQUITY REVIEW

Oklahoma City's commitment to ending traffic-related fatalities and serious injuries must ensure that all residents—regardless of race, income, age, ability, or zip code—can travel safely throughout the city. Historically, disadvantaged communities have faced a disproportionate share of traffic risks, with limited access to safe walking, biking, and transit options, and a lack of infrastructure investment. As a result, low-income neighborhoods, communities of color, and areas with high equity needs often bear the brunt of traffic violence.

By putting equity at the center of Vision Zero, we are not only addressing current disparities but also ensuring that future transportation investments create safe, accessible, and inclusive spaces for all residents. This chapter examines the imbalanced distribution of traffic violence across neighborhoods, outlines the methodology Oklahoma City will use to identify and target high-need areas, and proposes strategies for engaging residents in a meaningful and inclusive way.

MEASURING EQUITY

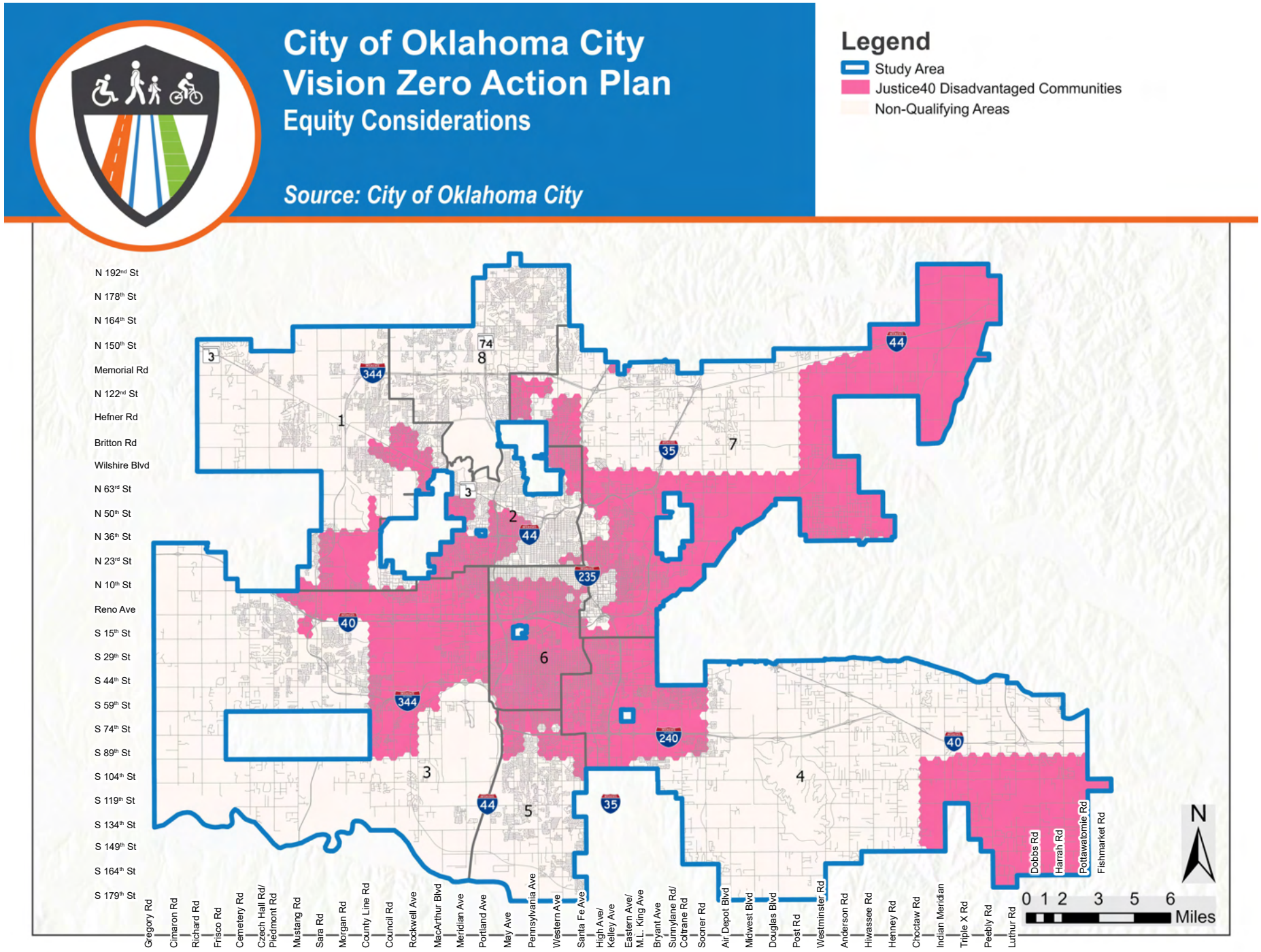
U.S. DEPARTMENT OF TRANSPORTATION JUSTICE40 INITIATIVE

To ensure that transportation investments and safety improvements are distributed equitably, Oklahoma City uses federal guidelines, such as those established by the U.S. Department of Transportation (USDOT) Justice40 Initiative, to identify and prioritize disadvantaged communities. The Justice40 Initiative, established in 2021 under Executive Order 14008, aims to direct 40% of the overall benefits from specific federal investments—such as clean energy, sustainable housing, and clean transit—to disadvantaged communities.

The USDOT has developed the Equitable Transportation Community (ETC) Explorer to assess how communities experience disadvantage due to historical underinvestment in transportation infrastructure. This tool evaluates communities using five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. Each census tract receives a score based on these components, which are then combined to produce a final score. Areas scoring in the 65th percentile or higher are considered disadvantaged by USDOT standards.

As shown in **Exhibit 15**, almost 35% of Oklahoma City's land area is considered a disadvantaged census tract according to USDOT. These disadvantaged areas are concentrated in the central part of the City, particularly in Wards 6 and 7.

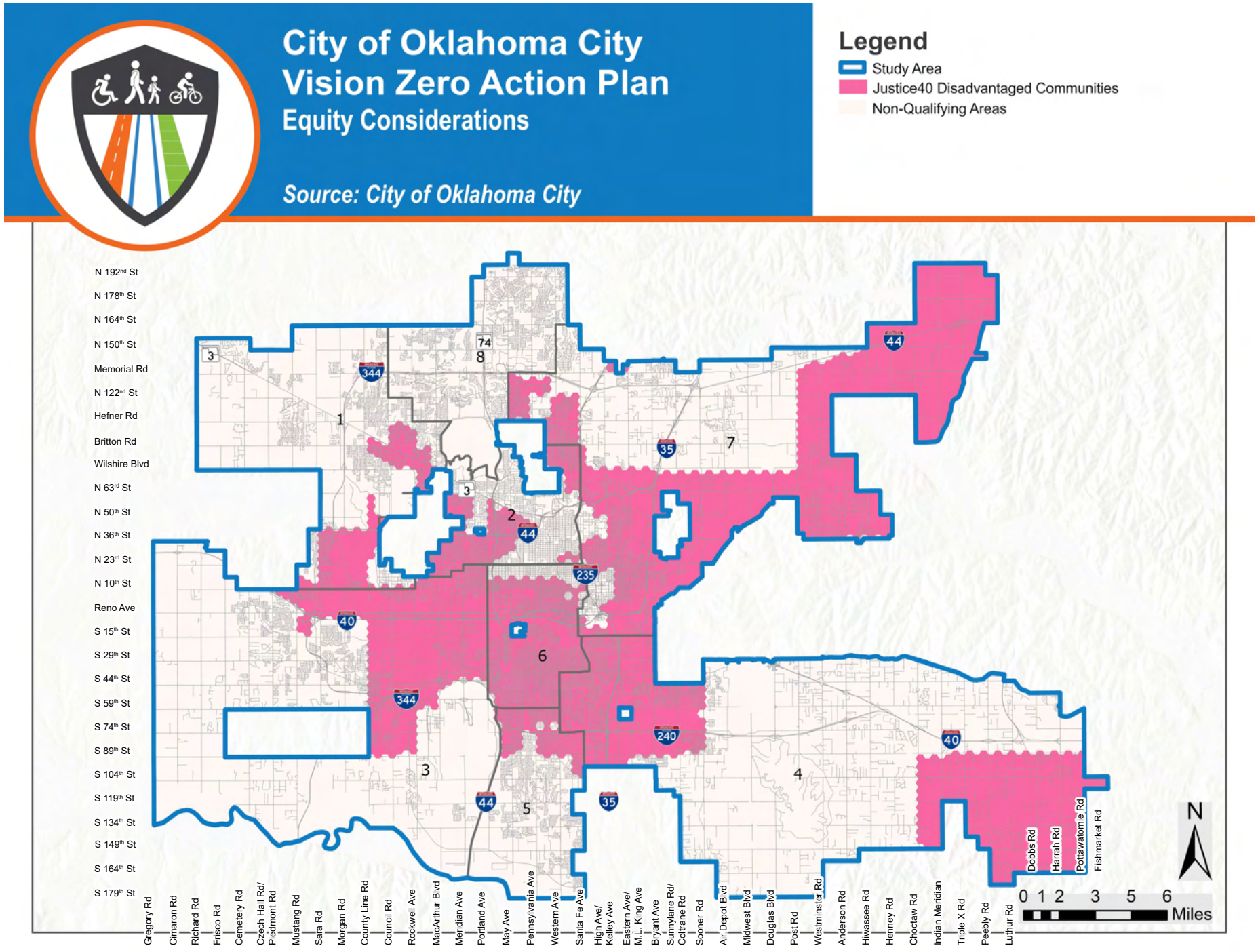
EXHIBIT 15: JUSTICE40 DISADVANTAGED COMMUNITIES AND NON-QUALIFYING AREAS, BY HEX GRID



OKLAHOMA CITY COMPOSITE EQUITY INDEX

The Oklahoma City Planning Department maintains a Composite Equity Index that divides the City into one square-mile hex-grid areas and scores them based on criteria such as poverty levels, median household income, educational attainment, age, race and ethnicity, among others. The OKC Composite Equity Index score has a range of values 1 through 17, with a score of 17 indicating the highest equity need. Areas with OKC Composite Equity Index score greater than 11 are considered disadvantaged communities by USDOT standards. Layering the with OKC Composite Equity Index with the Justice40 score allows us to understand which among the disadvantaged parts of the City have the highest equity need and would require the most targeted intervention and resource allocation. This overlay is visually represented in **Exhibit 16**, on a gradient scale from light pink to dark purple, where dark purple signifies the highest equity need areas.

EXHIBIT 16: OKC EQUITY SCORE AMONG JUSTICE40 DISADVANTAGED COMMUNITIES



CRASHES AND EQUITY

This section examines how crash exposure overlaps with the equity indices to identify where to prioritize equitable safety investments and where to incorporate project elements that will support populations most at risk of dying or being seriously injured in crashes.

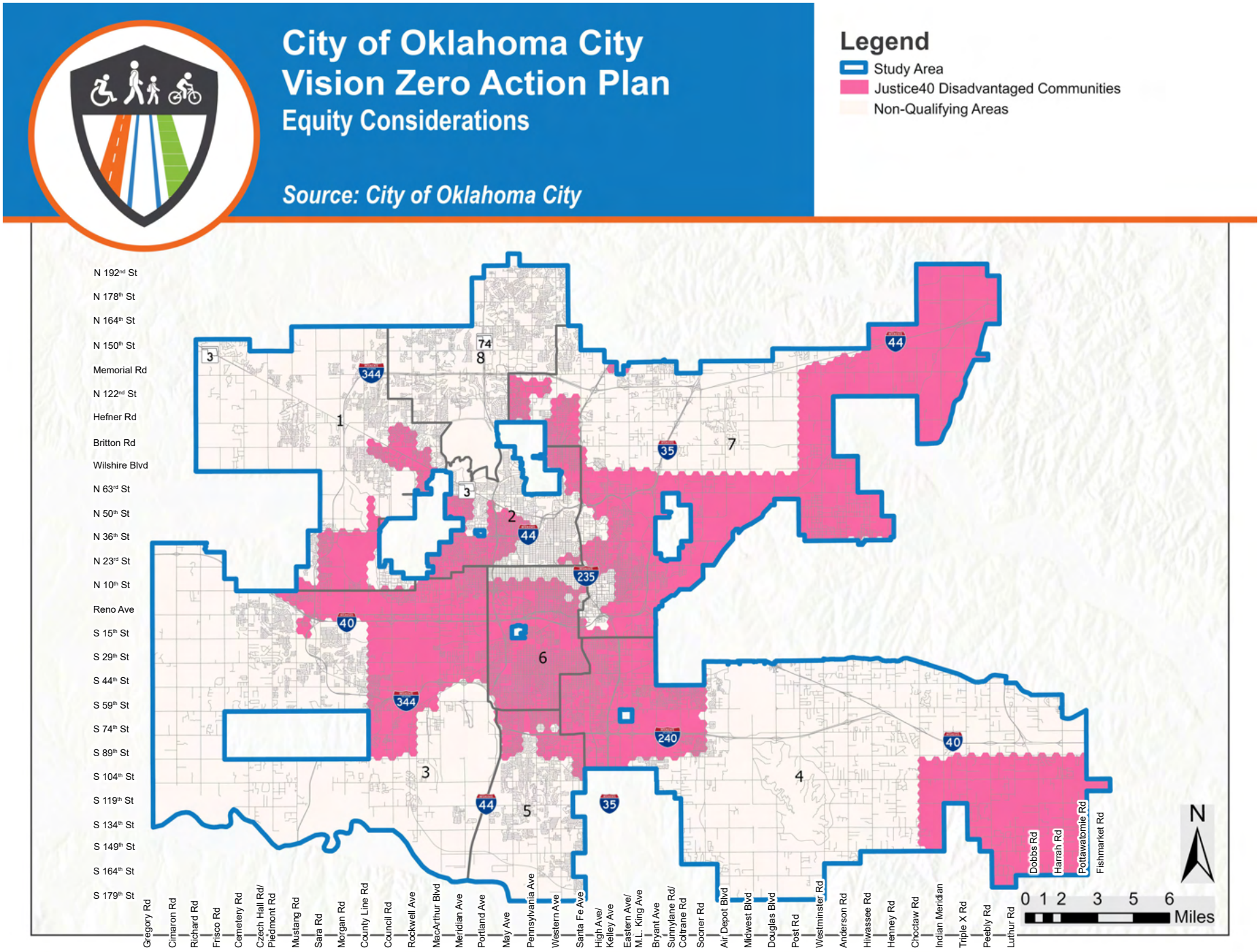
Across Oklahoma City, disadvantaged communities experience the highest densities of KA (killed or seriously injured) crashes, total crashes, and have the most high-injury network (HIN) miles. The per-square-mile density of KA crashes, total crashes, and HIN miles significantly increases with higher Composite Equity Index scores. For example, the average per-square-mile density of KA crashes in the top 20% of equity need areas is nearly five times greater than the average density of KA crashes per mile the bottom 40% of equity need areas. **Exhibit 17** shows in dark purple the areas that are in the top 5% of equity scores, all crashes, KA crashes, and HIN miles, and thus face both the highest socio-economic and traffic violence burdens.

Table 18 shows that areas qualifying as Justice40 disadvantaged communities contain a higher share of KA crashes (61% of total) and high-injury network miles (62% of total) compared to non-qualifying areas, even though the total area of the disadvantaged communities is half the size of non-qualifying areas. This translates to 3 KA crashes per square mile in disadvantaged communities, compared to 1 KA crash per square mile in non-disadvantaged communities, and 2 KA crashes per square mile Citywide. This also translates to 0.9 HIN miles per square mile in disadvantaged communities, compared to 0.3 HIN miles per square mile in non-qualifying areas, and 0.5 HIN miles per square mile Citywide.

TABLE 18: KA CRASHES AND HIN MILES IN JUSTICE40 AREAS COMPARED TO NON-QUALIFYING AREAS AND CITYWIDE

Area Type	Number of KA Crashes	HIN Miles	Area (sq. mi.)	KA Crashes per sq. mi.	HIN Miles per sq. mi.
Justice40 Disadvantaged Community	736	199	233.6	3	0.9
Non-Qualifying Area	480	120	436.3	1	0.3
Citywide	1,216	319	669.9	2	0.5

EXHIBIT 17: TOP 5% PERCENTILE INDEX OF OKC EQUITY SCORES, NUMBER OF ALL CRASHES OF ALL CRASHES, NUMBER OF KA CRASHES, AND LENGTH OF HIN MILES



RACIAL DESCRIPTION OF FATAL CRASH VICTIMS

The Fatal and Injury Reporting System (FARS) Tool was used to understand whether specific racial groups were overrepresented in fatal or pedestrian crashes between 2013 and 2021. Compared to the populations identified through the US Census in **Table 19**, **populations identifying as Black or American Indian/Alaska Native (AIAN) are overrepresented among all fatal crashes and pedestrian-involved fatal crashes in Oklahoma City.**

*TABLE 19: FATAL CRASH INVOLVEMENT BY RACE/ETHNICITY BETWEEN 2013-2021 COMPARED TO ACS 5-YEAR ESTIMATES**

Year	Hispanic	White	Black	AIAN	Asian	2+ Races	Other Race	Unknown Race
American Community Survey (ACS) 5 Year Estimates for Race and Ethnicity l	12.8%	64.6%	9.9%	3.7%	3.1%	5.7%	0.2%	0%
Average Percent of Persons Killed in Fatal Crashes by Race/Ethnicity	8.4%	62.3%	18.2%	7.2%	1.5%	0.9%	1.3%	0.1%
Percent of Pedestrians Killed in Fatal Crashes by Race/Ethnicity	10.1%	59.2%	19.6%	10.1%	0.6%	0%	0.6%	0%

Indicates populations disproportionately affected by fatal and vulnerable road user crashes.

** Population estimates aggregate Canadian, Cleveland, Grady, McClain, Oklahoma, and Pottawatomie Counties per year.*

RECOMMENDATIONS

Prioritize Disadvantaged Communities During Community Engagement

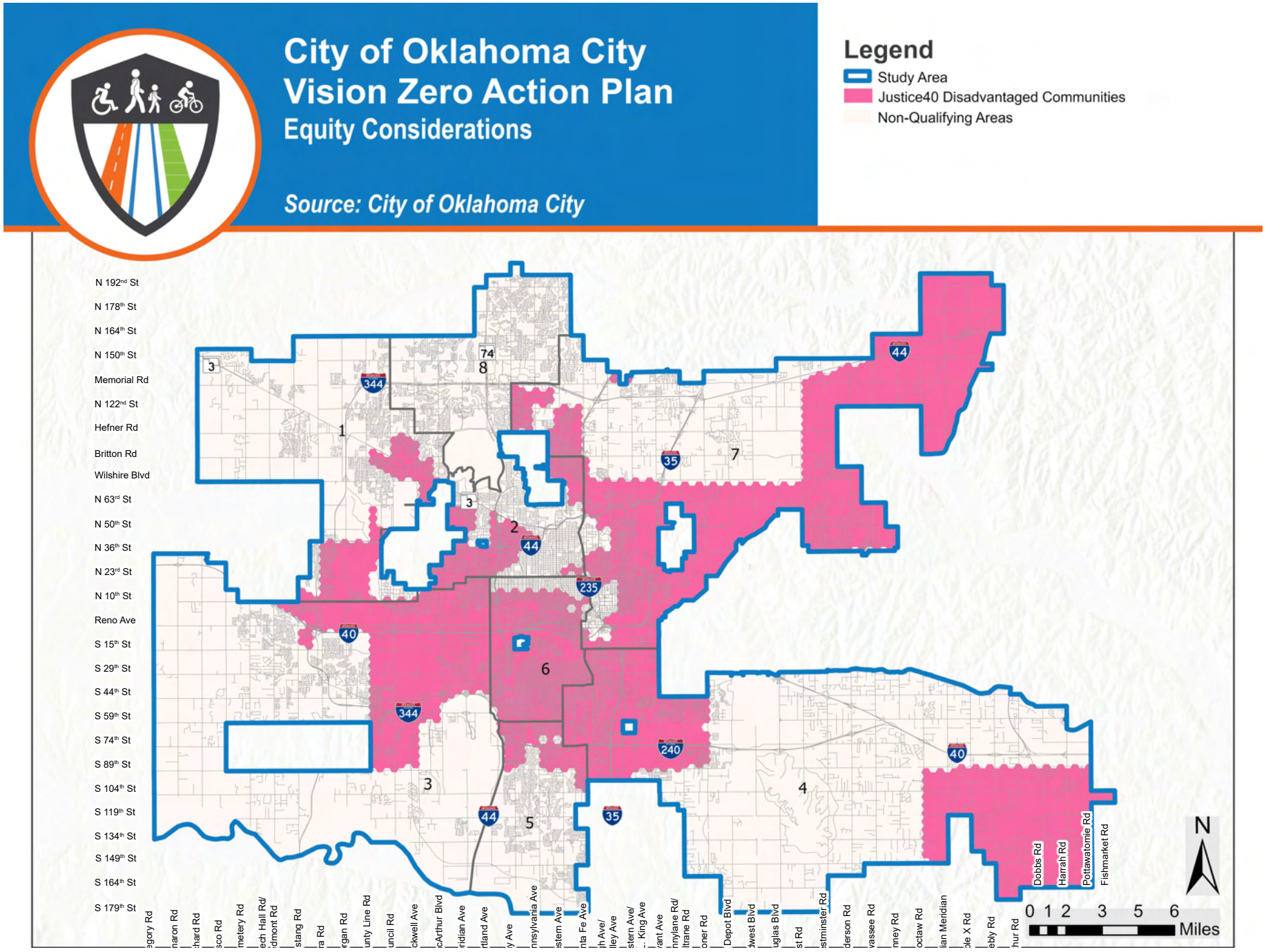
Prioritizing engagement in disadvantaged communities and high need areas is critical to achieving equitable outcomes in Vision Zero projects. As the Equity Analysis shows, Oklahoma City's most disadvantaged communities also face the highest rates of traffic violence. Engaging these residents ensures that their specific needs, concerns, and lived experiences shape the plan's recommendations.

Future Vision Zero planning activities should conduct targeted outreach in Wards 6, 2 and 7, which have the highest concentration of equity and safety need, with accessible and culturally relevant educational campaigns, workshops and events.

Prioritize Disadvantaged Communities for Project Development and Delivery

Exhibit 18 highlights the overlap between the areas with the highest composite equity index scores and the corridor segments and intersections recommended for intervention by the project team and Oklahoma City staff. **Seven of the eight study corridors are within the top 10% of equity need areas in the city.** While South Mustang Road does not serve the highest equity index areas, it addresses some of the locations with the highest occurrences of KA crashes. This figure demonstrates a successful process of identifying priority corridors and projects that target areas with the greatest equity needs and highest crash rates. Moving forward, projects should be implemented in order of priority, starting with wards that have the highest equity need.

EXHIBIT 18: COMPOSITE INDEX SCORE GREATER THAN OR EQUAL TO 90% AND INTERSECTION PROJECTS ALONG SELECTED CORRIDOR SEGMENTS



Utilize Safety Countermeasures that Support Vulnerable Road Users

Exhibit 19 shows that intersection recommendations on NW Expressway, NW 23rd Street, SW 44th Street, and S Pennsylvania Avenue are in areas with the highest quintile of populations 65 years or older or who rely on alternate transportation. Intersection recommendations on NE 23rd Street and the southern end of South Mustang Road are adjacent to such areas. In these places, special consideration should be given to leading pedestrian intervals, signal timing adjustments that accommodate walking speeds of less than 3.5 feet per second, and improved visibility.

Prioritize Safety Improvements Over Traffic Enforcement in Disadvantaged Communities

While it is tempting to use short term actions such as traffic enforcement in high injury locations, it is also important to recognize that Vision Zero believes that all road user behavior is a response to road design. As an example, without proper infrastructure, people walking or bicycling need to use judgment about where the safest crossings and paths of travel are. Enforcement should be focused on unsafe behaviors causing serious and fatal collisions in Oklahoma City, as there is a risk of over policing in these places along which many disadvantaged community members face a challenge of poor infrastructure.

Potential Externalities and Mitigation Strategies

When implementing safety improvements and interventions in high equity need areas, there is potential for externalities to arise. Below are a few to consider during the project development process, along with risk-mitigating strategies:

1. **Gentrification and Displacement**

   Externality: Safety improvements, such as new bike lanes, pedestrian amenities, and traffic calming measures, can increase the appeal of disadvantaged neighborhoods to higher-income residents. This may lead to rising property values and rents, potentially displacing long-term, low-income residents.

   Mitigating Strategy: Pair safety improvements with anti-displacement policies such as affordable housing protections. Engage residents in planning processes to ensure the benefits of improvements are equitably shared.

2. **Distrust or Resistance from the Community**

   Externality: Some disadvantaged communities may be wary of safety interventions, viewing them as a form of outside interference, or may be concerned about the changes disrupting daily life.

   Mitigating Strategy: Build trust through transparent, consistent, and meaningful community engagement. Involve residents in decision-making processes and ensure that project goals and benefits are clearly communicated.

3. **Shifting Traffic Patterns**

   Externality: Traffic calming or road diets in disadvantaged areas could push traffic to adjacent, often underserved areas, leading to new safety hazards in those neighborhoods.

   Mitigating Strategy: Use data-driven planning to anticipate shifts in traffic patterns. Plan complementary interventions in adjacent areas to prevent new problems from emerging.

4. **Maintenance and Upkeep Challenges**

   Externality: Once safety improvements are implemented, ongoing maintenance can be a challenge in disadvantaged areas with limited municipal resources, leading to neglect or disrepair of infrastructure.

   Mitigating Strategy: Develop long-term maintenance plans with dedicated funding for disadvantaged communities. Involve the community in monitoring and reporting infrastructure issues through simple, accessible channels.

By addressing these potential externalities and proactively implementing risk-mitigating strategies, safety improvements efforts in high-equity need areas can maximize their positive impact while minimizing unintended harm.

EXHIBIT 19: INTERSECTION PROJECTS ALONG CORRIDORS OVERLAYING THE TOP 20% OF HEX GRIDS WITH POPULATIONS 65 YEARS OR OLDER OR WHO RELY ON ALTERNATE TRANSPORTATION

