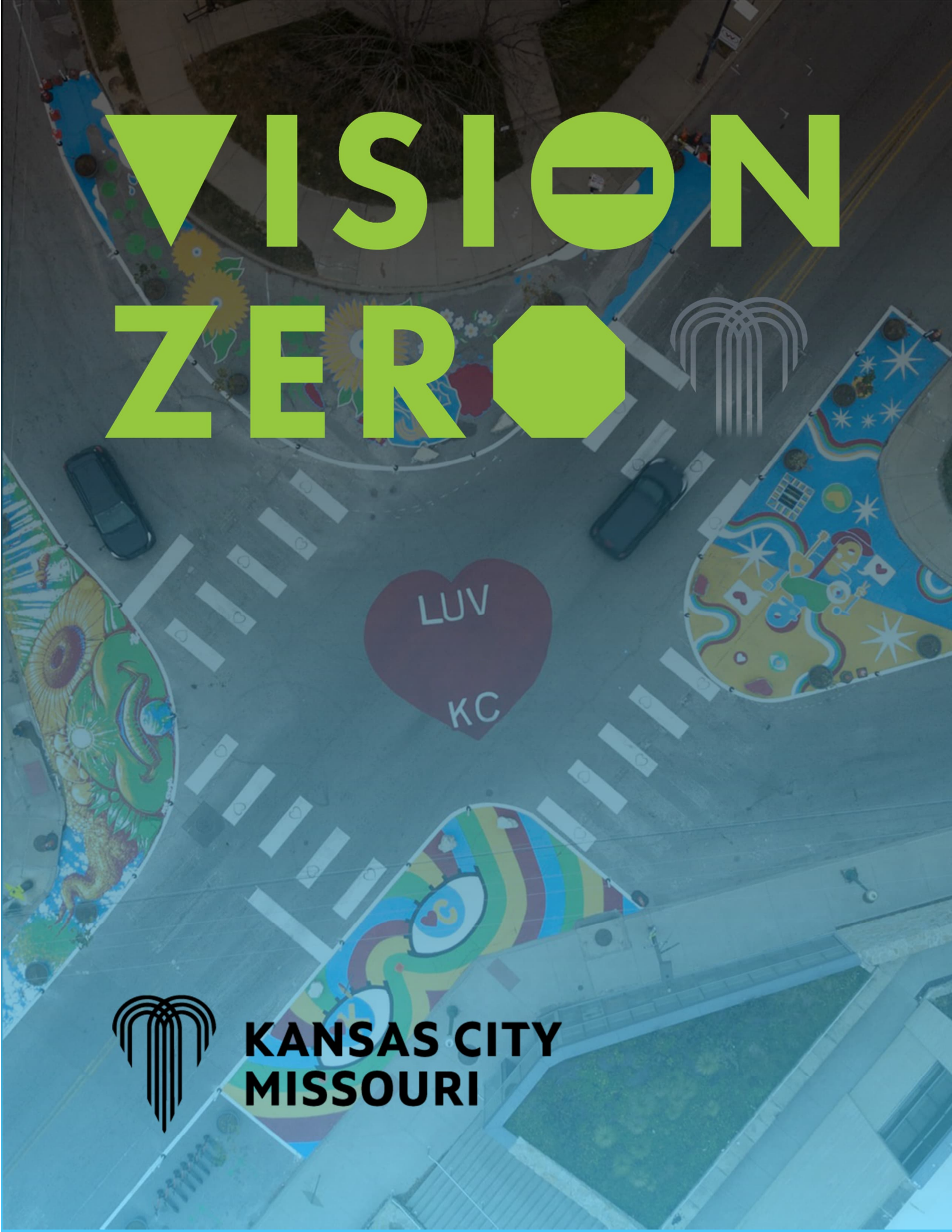
VISION ZERO
LUV
KC
KANSAS CITY
MISSOURI

Kansas City Vision Zero Action Plan

FINAL

August 2022

Prepared for:

KANSAS CITY MISSOURI

The City of Kansas City, Missouri

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Cover page image: Westport Road & Wyandotte Street Bloomberg Asphalt Art Project (Image Source: Street Smarts Design + Build)

LETTER FROM THE MAYOR

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ACKNOWLEDGEMENTS

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Contents

EXECUTIVE SUMMARY

Integrating a Vision Zero mindset into traffic safety activities requires a long-term commitment from a range of stakeholders. Kansas City has made this commitment. In May 2020, City Council passed the Vision Zero resolution to eliminate traffic fatalities and serious injuries on our streets by 2030, while increasing safe, healthy, equitable mobility for everyone. The statistics below of Kansas City crashes from 2010 – 2020 illustrate the grave issue this represents.

783 LIVES LOST

3,879 PEOPLE SERIOUSLY INJURED

37% OF THESE CRASHES WERE YOUNG PEOPLE

37% INCREASE SINCE 2010

$36.53 BILLION IN ECONOMIC LOSSES

BLACK USERS ARE TWICE AS LIKELY TO BE KILLED AS WHITE USERS

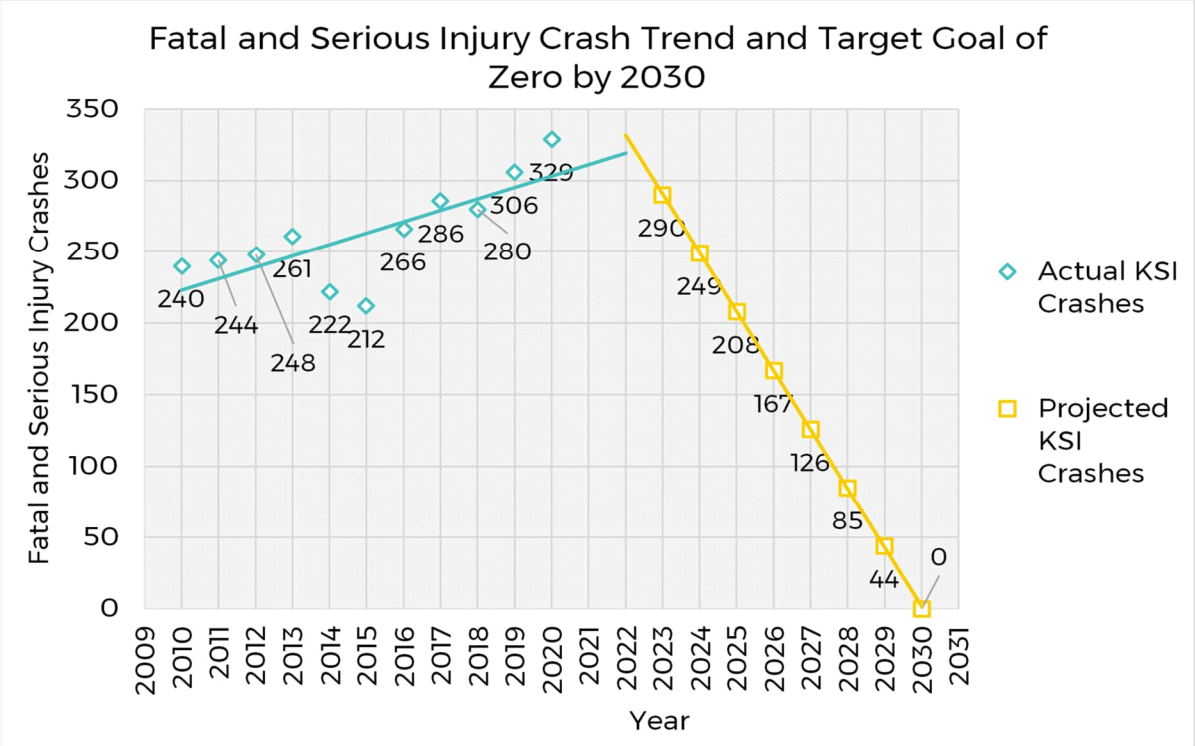

Figure 1: Actual fatal and serious injury (KSI) crashes in Kansas City 2010 - 2020 and targeted KSI crashes to achieve 2030 goal of Zero

Eliminating traffic deaths and serious injuries will require everyone involved in the transportation system to focus all our efforts on achieving this goal. This means elected officials, planners, engineers, emergency responders, and drivers, walkers, and bicyclists on our roads all have a critical role to play. If any of these groups fail to act, achieving Vision Zero is not possible. To achieve our Vision Zero goals, we must focus on the specific factors that relate to the most extreme safety issues and have a higher proportion of fatal and serious injury crashes:

Equity – 89% of the city's highest risk roads are in transportation disadvantaged areas. We must focus safety funding in disadvantaged areas of the city.

Speed and Aggressive Driving – 29% of all fatal and serious crashes in the city involve an aggressive driver. We must focus on reducing speeds and speeding by reducing speed limits and incrementally implementing design changes that reduce tendencies to speed.

High Crash Locations – 68% of the fatal and serious injury crashes happen on just 12% of Kansas City roads. This is highlighted in the High Injury Network (HIN) map. We must include our HIN in prioritizing all infrastructure spending.

High Risk Locations – Certain Road characteristics lead to elevated risk like roads with 4- and 6-lane, 30mph and 35mph speed limits, excess capacity, and signalized intersections. We must enact policy and standards to prohibit design with high risk characteristics.

People Walking and Biking – 15% of fatal and serious crashes involve pedestrians and bicyclists although walking and biking account for less than 5% of the overall mode share. We must improve visibility and increase designated space for pedestrians and bicyclists.

Angle Crashes – Angle crashes—commonly called "t-bone" crashes—are the #1 type of crash leading to fatal and serious injuries in the city. These crashes most often happen at traffic signals. We must systematically address signalized intersections.

Fixed Object Crashes – Fixed object crashes, when a vehicle hits something in or adjacent to a road, are the second most common fatal and serious injury crash type in the city. We must focus on eliminating infrastructure that contributes to these crashes, like signalized intersections, as well as address aggressive driving behavior.

Male Drivers – Males make up a disproportionate amount of roadway deaths—73.1% of all crashes on local access streets. We must target education, design, and enforcement toward male roadway users.

Reckless Drivers – Within Kansas City, aggressive driving is the top behavior contributing to fatal and serious injury crashes, accounting for 29% of crashes. We must focus behavior change efforts towards reckless driving behavior, especially aggressive driving.

Young Drivers – Young drivers are involved in 28% of all fatal and serious injury crashes. The top age ranges were people between 20 - 34 years old. To achieve Vision Zero in Kansas City, we must focus behavior change efforts towards younger drivers and provide drivers education programs.

HOW WILL WE ACHIEVE VISION ZERO?

To achieve Vision Zero, Kansas City has pledged to take steps to implement these Eight Core Safety Principles:

1. Prioritized Safety – We will prioritize safety and equity in all plans, designs, funding allocations, and operations.

2. Safe Speeds – We will lower speed limits, reconstruct roads to discourage speeding, vigorously enforce speed limits, and educate drivers on the dangers of speeding to slow vehicle speeds everywhere in the city.

3. Safe Streets – We will construct new streets and retrofit existing streets with the safest configurations possible.

4. Safe Intersections – We will construct new intersections and retrofit existing intersections with the safest configurations possible.

5. Complete Streets – We will construct new streets and retrofit existing streets to provide a safe and convenient network of protected bike lanes, sidewalks, and trails and support expanded transit service.

6. Safe Users – We will provide educational opportunities for drivers on the dangers of speeding and driving while intoxicated.

7. Safe and Equitable Law Enforcement – We will enforce traffic laws based on a data-driven, performance based, and equitable program to support traffic safety.

8. Accurate Data and Reporting – We will improve data collection efforts and report progress in a transparent and accessible manner.

VISION ZERO INTRODUCTION

Vision Zero is a concept that embraces a transformative mindset and approach to making all roads safe for all users. A Vision Zero approach refuses to accept that fatalities and serious injuries are inevitable consequences of mobility on our roads. Vision Zero aims to create a transportation system where no one is killed or seriously injured on our streets.

Integrating a Vision Zero mindset into traffic safety activities requires a long-term commitment from a range of stakeholders. Kansas City has made this commitment. In May 2020, City Council passed the Vision Zero resolution to eliminate traffic fatalities and serious injuries on our streets by 2030, while increasing safe, healthy, equitable mobility for everyone.

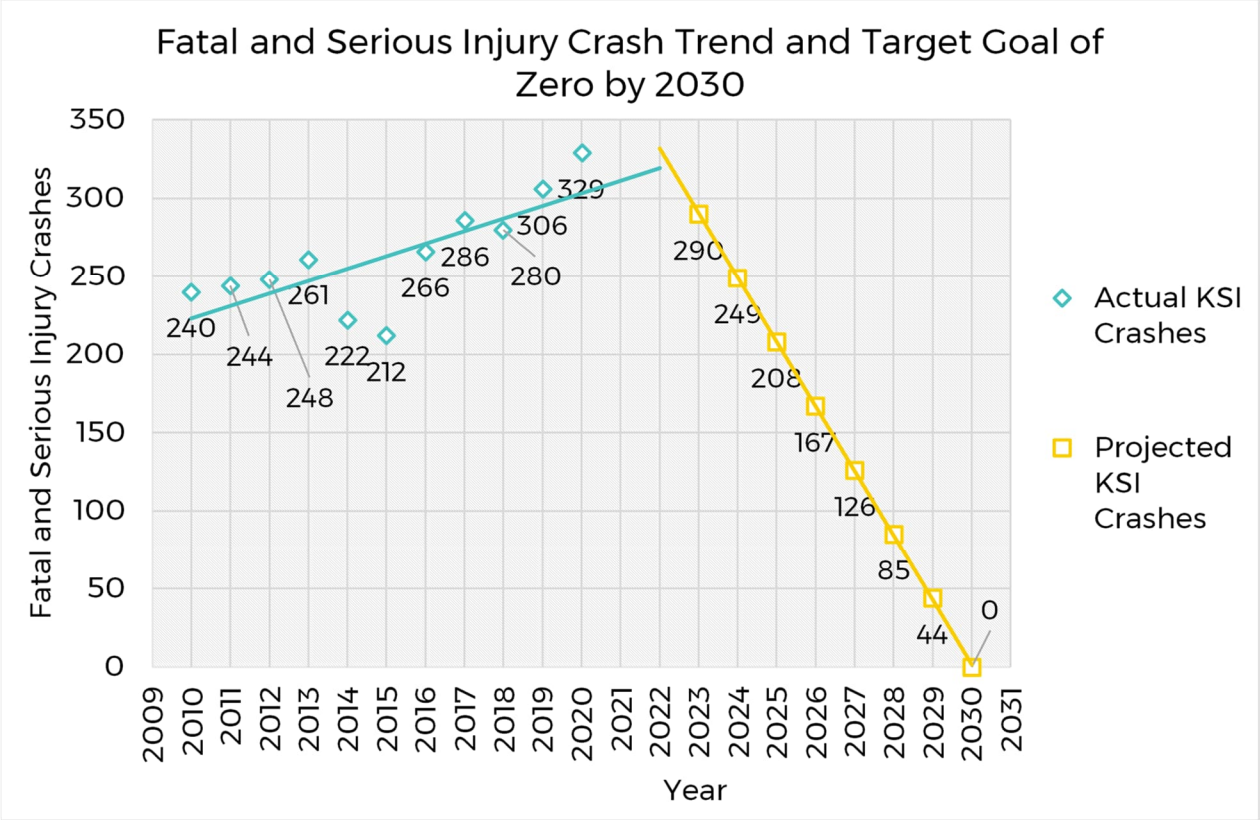

Figure 2: Actual fatal and serious injury (KSI) crashes in Kansas City 2010 - 2020 and targeted KSI crashes to achieve 2030 goal of Zero

Eliminating traffic deaths and serious injuries is not an easy task. It will require everyone involved in the transportation system to focus all our efforts on achieving this goal. This means elected officials, planners, engineers, emergency responders, and drivers, walkers, and bicyclists on our roads all have a critical role to play. If any of these groups fail to act, achieving Vision Zero is not possible. This Action Plan outlines the steps to achieve Vision Zero.

WHY VISION ZERO

Kansas City is at a critical moment for traffic safety. Significant improvements in traffic safety have been realized since the 1950s. But since 2010, the number of crashes where someone was killed or seriously injured in the city has been steadily increasing. The statistics below illustrate how grave this issue has become in Kansas City since 2010.

783 LIVES LOST

3,879 PEOPLE SERIOUSLY INJURED

37% OF THESE CRASHES WERE YOUNG PEOPLE

37% INCREASE SINCE 2010

$36.53 BILLION IN ECONOMIC LOSSES

BLACK USERS ARE TWICE AS LIKELY TO BE KILLED AS WHITE USERS

Kansas City's worsening traffic safety record since 2010 tracks with National trends. However, Kansas City ranks among the worst cities in the nation for traffic deaths and serious injuries. The figure below compares Kansas City's fatal crash rate to a list of peer cities. Of these, Kansas City is the 4th worst city for fatal traffic crashes.

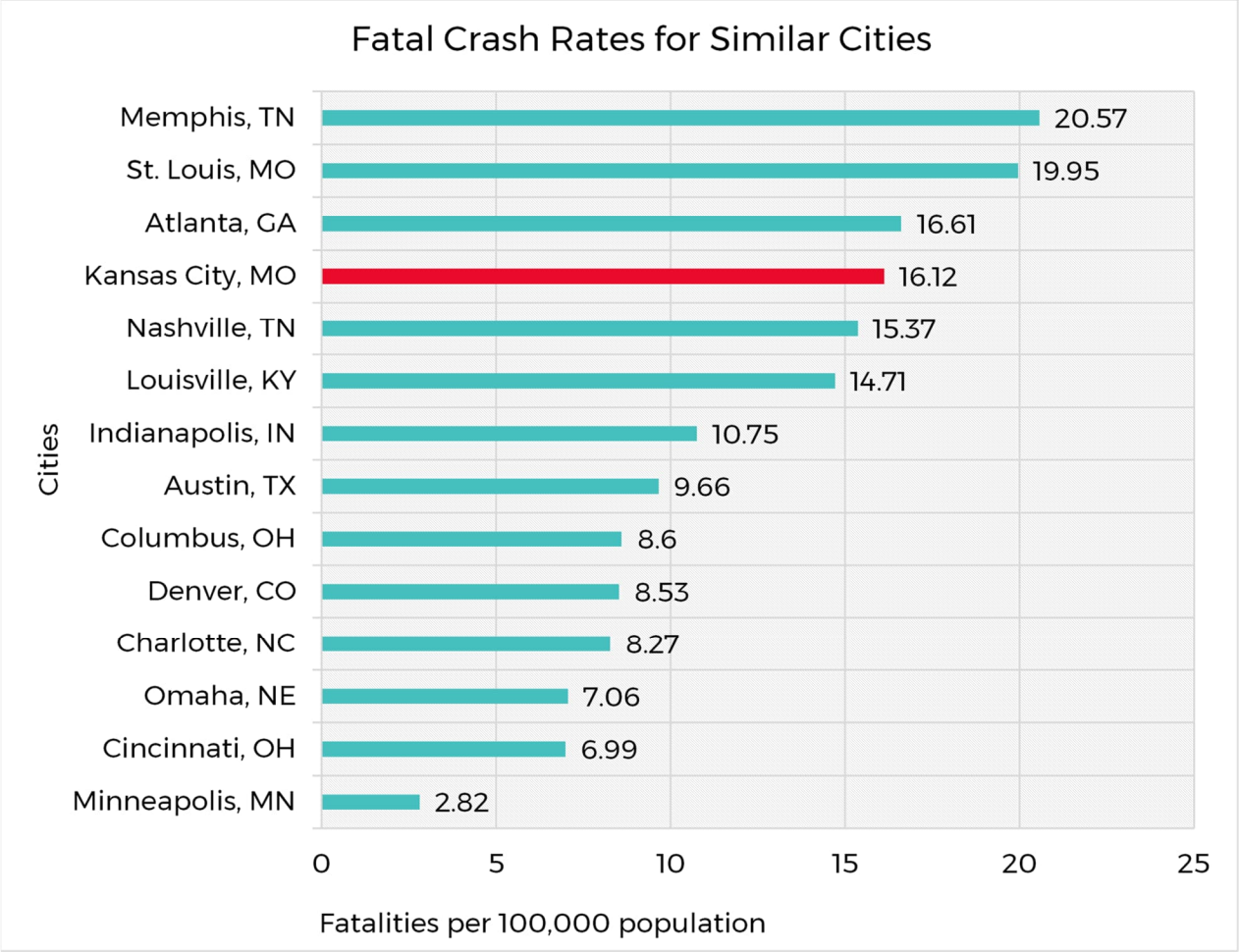

Figure 3: Fatal Crash Rates for Peer Cities (Data Source: NHTSA FARS and US Census Bureau ACS 5-Year Estimate)

VISION ZERO APPROACH

Kansas City has committed to Vision Zero as a new approach to traffic safety. It is a paradigm shift in the way we understand traffic safety and how safety principles are implemented to eliminate fatal and serious injury crashes. The table below compares the prevailing traffic safety approach to Vision Zero.

Table 1: Fundamental Guiding Principles of Vision Zero

	Traditional/Prevailing Traffic Safety Approach	Vision Zero Traffic Safety Approach
Premise	Deaths are inevitable	Deaths are preventable
Goal	Preventing all crashes	Preventing fatalities and serious injuries
Focus	Perfecting human behavior	Designing a road system that accounts for human error
Responsibility	Individual users: drivers, pedestrians, and bicyclists	Shared responsibility: all system designers, operators, and users

In addition to these fundamental principles, Vision Zero is:

- Data Driven – Detailed analysis of crash data —specifically the analysis of fatal and serious injury crashes—is the foundation of addressing traffic safety issues in Kansas City. See the Data Analysis section of this report for an outline of the data-driven analysis for Kansas City.
- Actionable – The elimination of deaths and serious injuries on our streets is a complex and difficult task. Without specific actionable steps, it can be difficult to identify what should be done and by whom to achieve the goals of Vision Zero. This plan identifies specific action steps to achieve Vision Zero. See the Action Plan section of this report with actionable steps the City can take to eliminate fatal and serious injury crashes.
- Accountable – Without a mechanism in place to track and report on the actionable steps from this plan, it will be difficult to continue progress towards achieving Vision Zero. Key Performance Indicators (KPIs) of success are identified with desired targets to be tracked and used to improve accountability. See the Monitoring section of this report for an outline of how we will keep accountable.

VISION ZERO ACCOMPLISHMENTS IN KANSAS CITY

While this action plan represents the first Vision Zero Action Plan in Kansas City, the City has already begun implementing several Vision Zero projects. Following the Vision Zero Resolution in 2020, the City started engagement around Vision Zero and pursuing quick build traffic safety implementation projects. Starting in 2021, Kansas City has already constructed a variety of vision zero projects and continuing too today. Six intersections have been redesigned with a focus on pedestrian safety. Fifty locations were selected for neighborhood level traffic calming. Fifty other signalized intersections have received a leading pedestrian interval in their timing. Nineteen miles of protected bicycle facilities are also being constructed. Kansas City is already moving toward a safer transportation system.

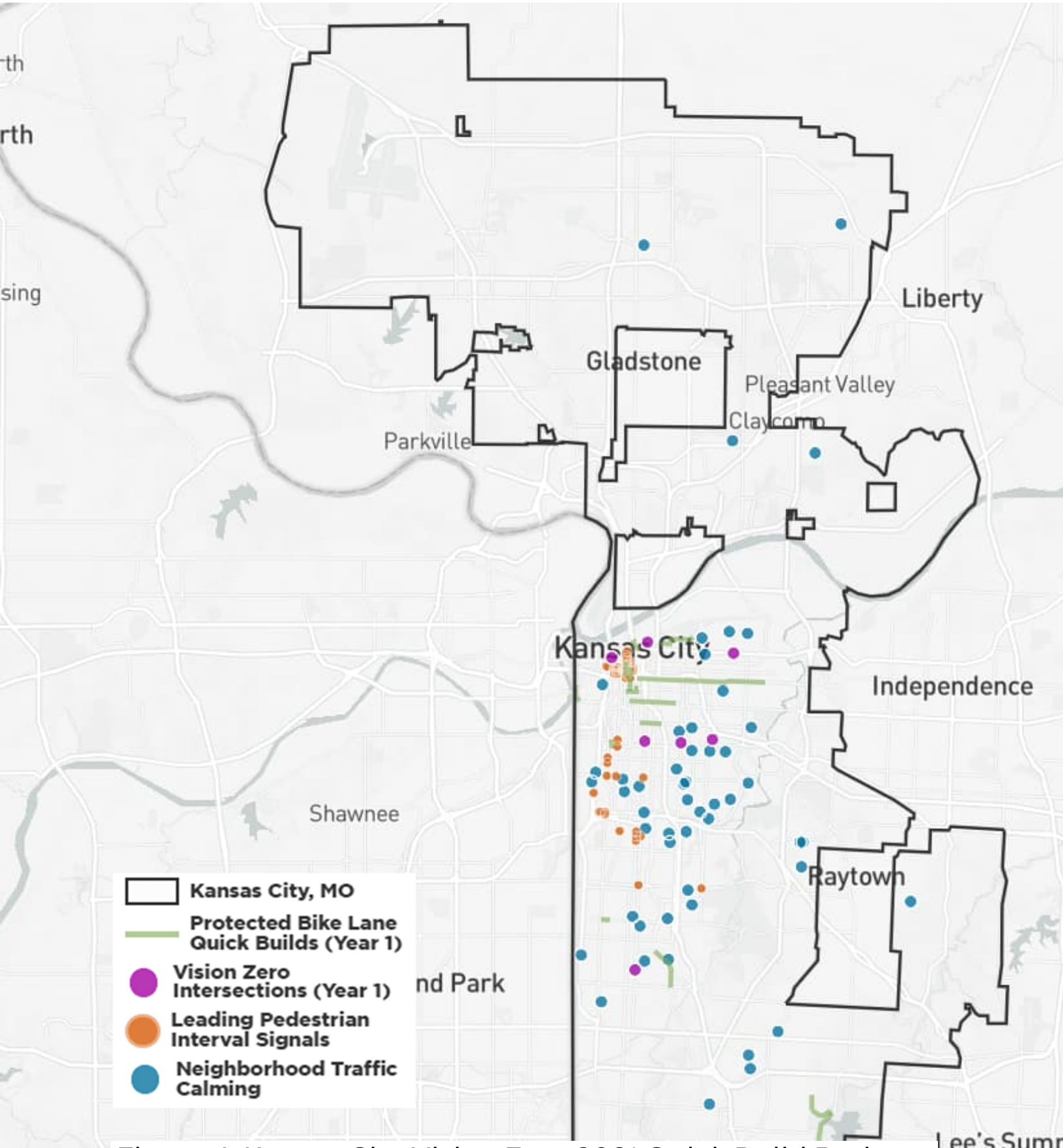

Figure 4: Kansas City Vision Zero 2021 Quick Build Projects

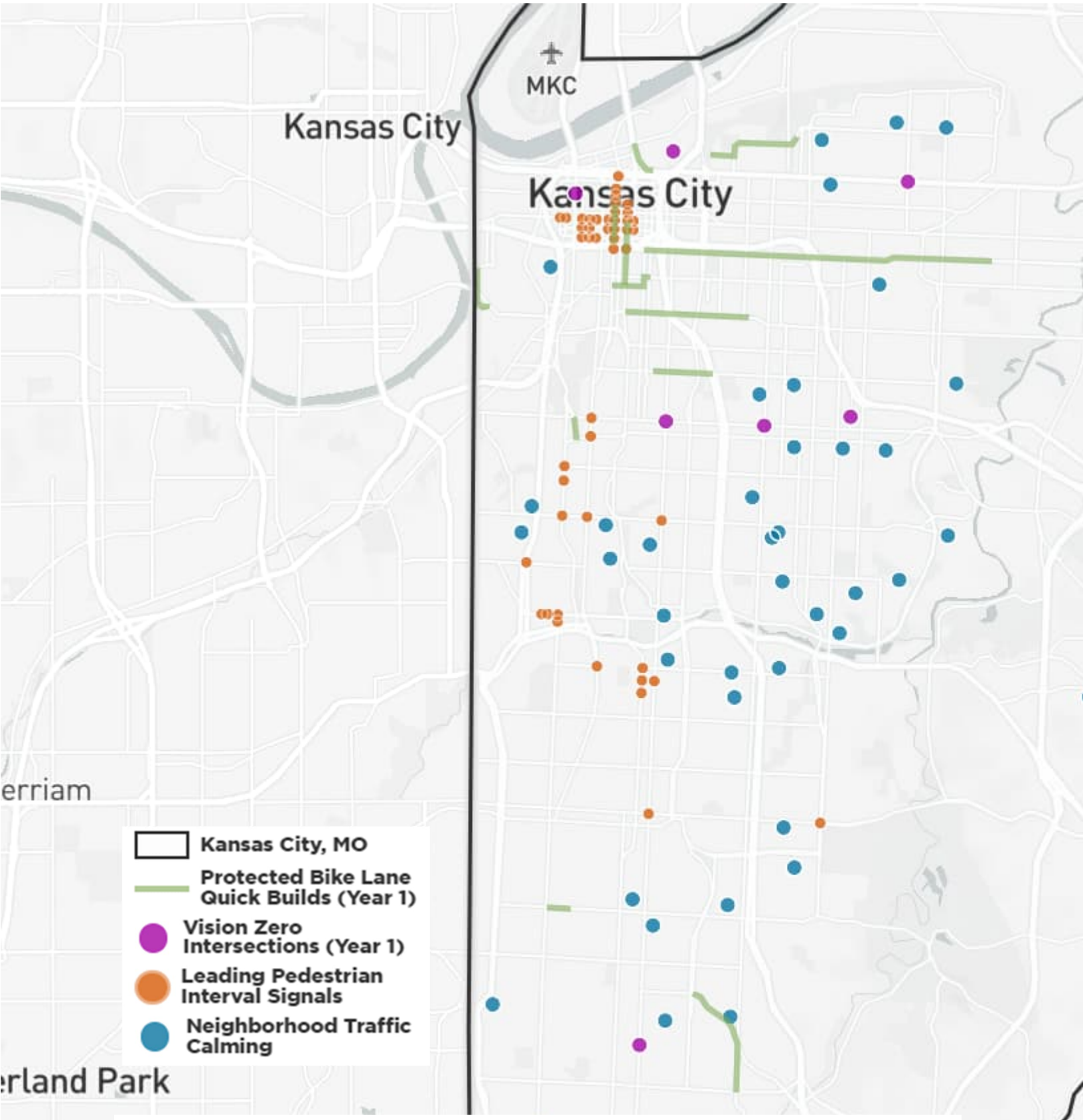

Figure 5: Kansas City Vision Zero 2021 Quick Build Projects Detail

Vision Zero Task Force

The Vision Zero resolution directed the city manager to convene a Vision Zero Task Force for the purpose of creating and implementing an action plan "to reduce traffic fatalities and serious injuries to zero by 2030" through various means. The task force was created in the summer of 2020 and is made up of staff from multiple departments including Public Works, City Planning and Development, the City Manager's Office, the Kansas City Fire and Police Departments and city councilmembers, as well as external partners from a variety of community organizations and neighborhood associations such as The Whole Person, LISC Kansas City, Mid-America Regional Council, the Kansas City Area Transit Authority/RideKC, BikeWalkKC, the Northeast Chamber of Commerce and Ivanhoe Neighborhood Council. The task force meets regularly throughout the year and plays an integral role in informing various aspects of the Vision Zero program and action plan. These are the Task Force's obligations and accomplishments to date:

1. Obligations
    a. Develop and implement the Vision Zero Action Plan
    b. Ensure roadway projects comply with best practices in roadway safety design as consistent with the Complete Streets Ordinance No. 170949; coordinating with DataKC and the Kansas City Police Department to collect and visualize traffic crash data to identify high-injury corridors and intersections through the open data portal; and
    c. Begin implementation of five semi-permanent Vision Zero projects no later than December 1, 2021
2. Accomplishments to date
    a. Creation of the Vision Zero Action Plan
    b. Traffic Calming Quick Builds and 31st Street design
    c. 50 neighborhood traffic calming locations
    d. 6 Intersections being calmed and reconstructed
    e. 10 Leading Pedestrian Interval locations implemented
    f. 19 Miles of protected bicycle facilities

Planning and Policy

Over the past years, Kansas City has focused on the initial steps to achieving Vision Zero in Kansas City by incorporating positive activities into the policies and processes of the City.

Decriminalizing Walking and Biking

In May 2021, the City Council voted to repeal several sections of the Municipal Code of Ordinances related to walking and biking.[1] The three laws were related to:

[1] Ordinance 210100 Text (PDF)

- Jaywalking (Code of Ordinances 70-783)
- Operating a “dirty” bicycle (Code of Ordinances 70-258)
- Allowing police to stop to inspect a bicycle “at any time” upon reasonable cause (reasonable cause not defined) (Code of Ordinances 70-706)

The city council unanimously voted to repeal all three sections of the code of ordinances with the declaration that these ordinances did not contribute to the safety of walking, biking, or driving in the city.

Project Prioritization
In addition to implementing quick build projects, the Kansas City Public Works department has already implemented Vision Zero as a key ranking factor in rating Capital Improvement Plan (CIP) projects. If a project is located on the High Injury Network as included in this plan, the projects receive a higher score for implementation. Additionally, if the project greatly adds safety countermeasures as outlined by Vision Zero principles in this plan, it scores even higher. This project prioritization is now a permanent part of CIP planning in Kansas City.

Vision Zero Planning Coordination
The Vision Zero action plan is strategically aligned with the creation of Kansas City’s Comprehensive Plan update titled the Kansas City Spirit Playbook. This planning process began in 2020 and is slated to be complete in 2022. The vision statement for the plan, and many of the goals, mirror the aims of Vision Zero including: improving equity, multimodal mobility, linking transportation and land use planning, and eliminating fatal and serious injury crashes. One of the Objectives of the KC Spirit Playbook is “Vision Zero.” The engagement related to that planning process was heavily utilized in the creation of this plan, with extensive discussions surrounding the topic of Vision Zero and related transportation, land use, and livability concepts.

Another way vision zero has been incorporated into city policy is in the decision matrix for protected bicycle facilities. Roads that have been identified as both potential road diet corridors as well as potential bicycle facility corridors are prioritized for receiving protected bicycle lane facilities.

Public Engagement Efforts to Date

City staff initiated community engagement as a foundational element of the Vision Zero program. The early public engagement strategy included both outreach on the Vision Zero program in general, as well as project-specific outreach on Year One Vision Zero projects.

Figure 6: Michael Kelley. Policy Director of Advocacy Group BikeWalkKC, Speaks on Vision Zero Efforts with Mayor Quinton Lucas and City Manager Brian Platt

When the initiative launched in May 2020, an online engagement survey and interactive map were deployed on the City's website (https://kcmo.gov/visionzero) to provide a Covid-19 safe way to gauge public priorities and collect detailed traffic safety information to supplement crash records and ultimately be a factor in informing future Vision Zero project locations.

As of July 2022, the online Vision Zero Engagement Map had nearly 1,000 entries (941) documenting various issues all over the city ranging from pedestrian hazards to unsafe driving behavior to visibility concerns.

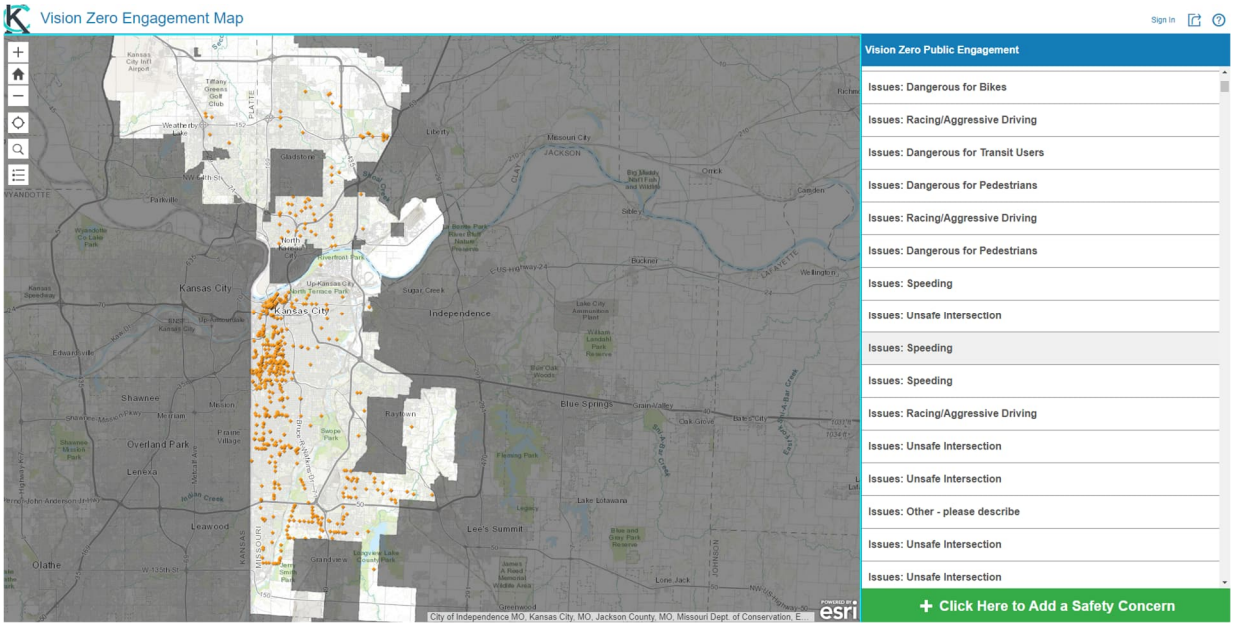

Figure 7: Vision Zero Engagement Map

Table 2: Community-Reported Safety Issue Summary

Issue Type	Issues Reported
Dangerous for Pedestrians	250
Unsafe Intersection	224
Dangerous for Bicyclists	194
Racing or Aggressive Driving	107
Speeding	84
Other	33
Idea	20
Visibility/Lighting	18
Transit Rider Danger	9
Railroad Crossing	1

The Task Force also leveraged work being done on other projects dealing with roadway safety – such as the update to the City's Comprehensive Plan and the GO KC Sidewalk Program – to inform the direction of the program. City staff used over a dozen existing council district, neighborhood association, and other capital project and community engagement meetings to inform residents about the Vision Zero program and gather feedback about safety issues in their neighborhoods.

The KC Spirit Playbook Comprehensive Plan engagement sessions were not only an effective project coordination opportunity, but also a key source of community feedback during the City's Comprehensive Plan update process pertaining to Vision Zero and traffic safety. An engagement summary and recordings of videos for Mobility Strategy Sessions can be found at https://playbook.kcmo.gov/mobility-strategy-team. Over 300 members of the public attended the five public Strategy Sessions related to

the mobility topic area. Vision Zero and traffic safety was the key component to these sessions and led to Vision Zero becoming one of the key objectives to be included in the KC Spirit Playbook.

Project-Specific Outreach
The rapid implementation intersection projects and neighborhood traffic calming projects also engaged the community using a standardized public notification process including in-person and online public meetings, informational mailers, and meetings with neighborhood associations, schools, and councilmembers.

City staff also hosted an online public meeting to present and gather feedback on the draft Vision Zero Action Plan in July 2022.

Program-wide Outreach
Public engagement will be an ongoing and key component of the Vision Zero program as the City seeks to gather public input to inform future projects and notify the community about upcoming Vision Zero work. More information about the Initiative's long-term community engagement strategy can be found in the engagement section later in this report.

DATA ANALYSIS

Kansas City staff conducted a comprehensive data analysis to support the Vision Zero efforts. A data-driven approach is an essential element to any Vision Zero effort. The data helps identify specific crash issues related to equity, roadway user types, roadway features, and locations in the city. Combining this data analysis with public engagement and input from the Vision Zero Task Force, we can create meaningful focus areas for improvements, identify effective countermeasures, and create an Action Plan that will drive Kansas City towards zero deaths and serious injuries on our roads.

This data analysis, which focuses exclusively on traffic crashes where someone was killed or seriously injured (KSI crashes), contains three primary parts:

- Crash Summary statistics focusing on trends, users, and contributing crash circumstances
- Systemic Risk Analysis focusing on crash risk factors related to neighborhood context, equity factors, and physical roadway configuration
- Crash Maps including the creation of:
    - High Injury Network (HIN) and intersections based on existing crash concentrations along roadway segments
    - High Risk Network (HRN) building on the risk factors identified in the Systemic Analysis
    - Crash Rate Maps focusing on crashes in neighborhood areas

Unless otherwise noted, all data analyses are restricted to local access streets in Kansas City. This means that all Interstates and other access-controlled freeways are excluded from the analysis. Please note, that the analysis does include roads that provide local full access but are controlled by MoDOT as part of state jurisdiction. Many of these roads, such as MO-1 Highway (NE Antioch Road), provide critical local links in the city, have a dramatic impact on the safety and mobility in their neighborhoods, and are regularly patrolled by Kansas City Police Department. Many Kansas Citians likely don't realize they're driving on a Missouri state highway on these streets, so it is important to maintain these roads in the analysis. Grade separated highways, such as I-70 and I-35 have less direct impact on neighborhood safety (aside from the barriers they pose to users), and the City has less ability to influence decision making on these roads. For these reasons, the analysis excluded these roads.

CRASH SUMMARY

Staff obtained crash records from the crash database maintained by the Mid-America Regional Council (MARC) for all of Kansas City from years 2010 through 2020. MARC

sources and rectifies this data from the Missouri Statewide Traffic Accident Records System (STARS) maintained by the Missouri State Highway Patrol. The STARS system maintains crash records from all police agencies in the state and serves as a central repository of authoritative crash record data. Where the STARS data was lacking in certain aspects, the analysis utilized data from the Fatality Analysis Reporting System (FARS) maintained by the National Highway Traffic Safety Administration (NHTSA). This data included equity, age, and curve data. We used this data to identify crash trends in Kansas City and identify crash issues related to demographics, user behavior, and environmental factors.

Trends (Complete)

Staff conducted a data analysis focusing on the trends and the impact of crashes over time. The intention of the following initial crash analysis for a 10-year period data, from 2010 to 2020, was to provide a baseline trend analysis. In 2020, there were approximately 61 fatal and 268 severe injury vehicles crashes. Between 2010 and 2020, KSI crashes of Kansas City increased by 37% overall, with fatal crashes increased by 74%, and serious injury crashes increased by 28%.

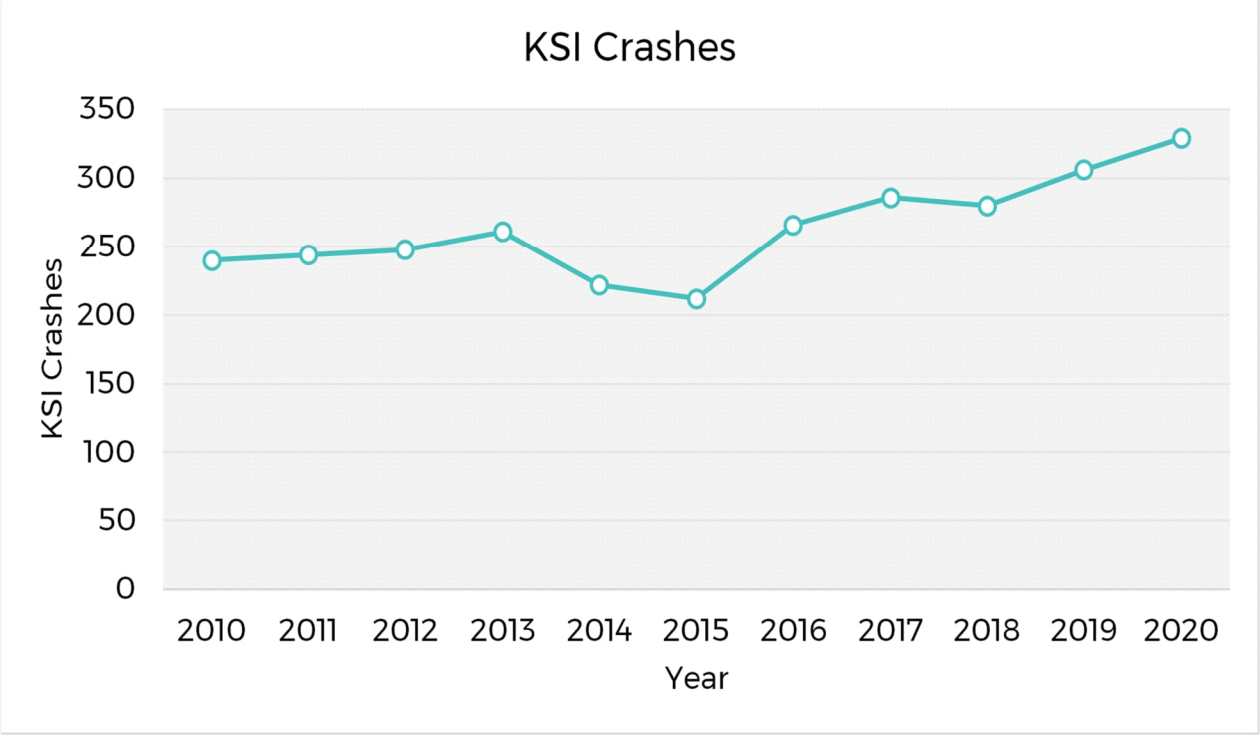

Figure 8: Fatal and Serious Injury Crash Trend 2010-2020

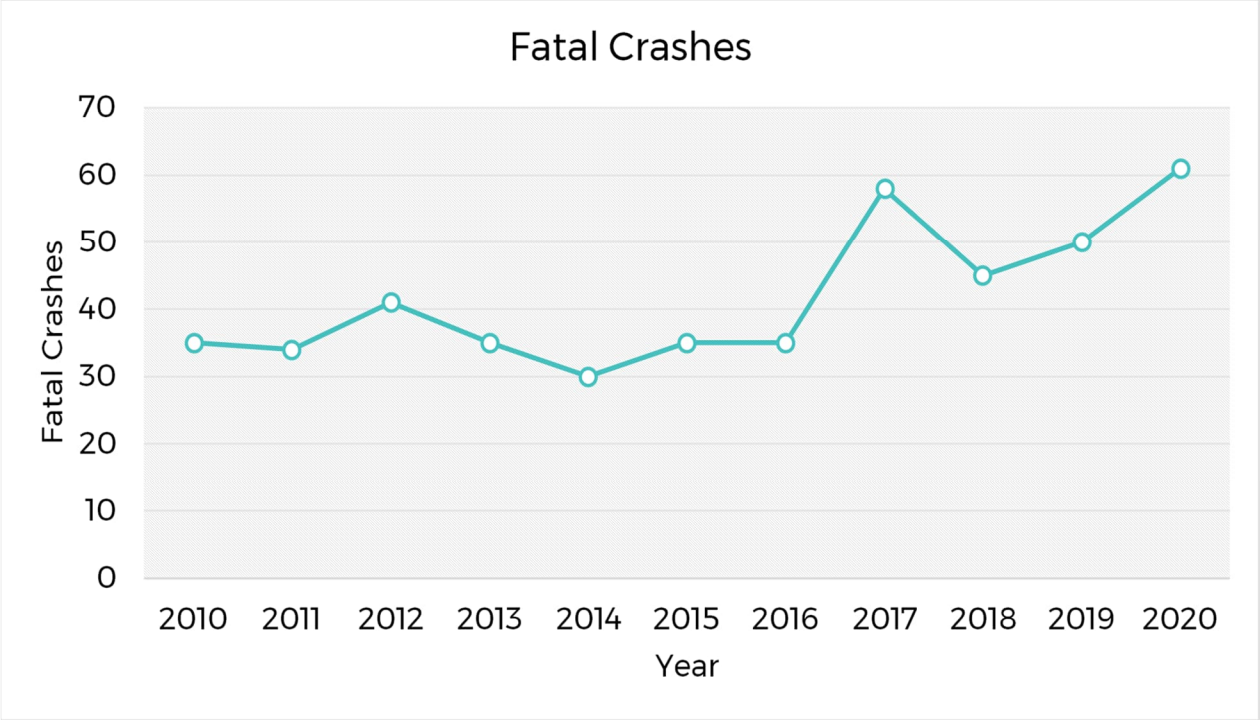

Figure 9: Fatal Crash Trend 2010-2020

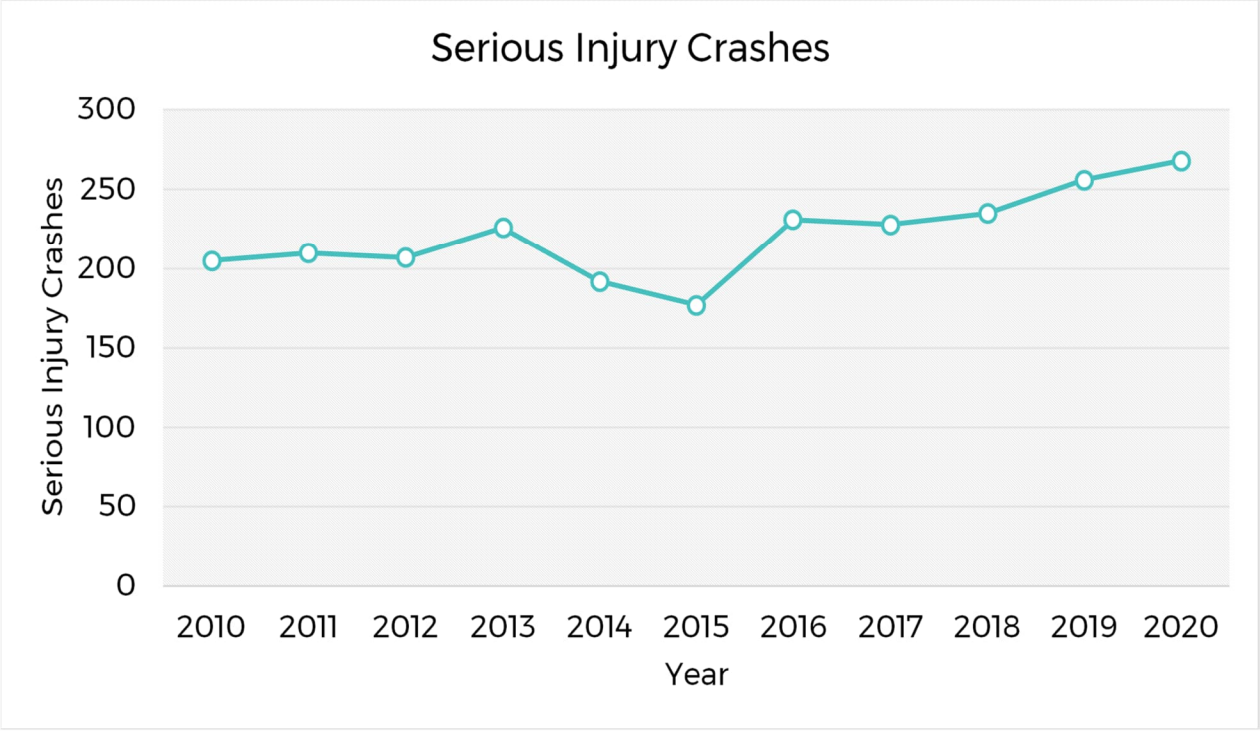

Figure 10: Serious Injury Crash Trend 2010-2020

The following figures provide a detailed look at crash summary trends based on the mode of transportation. Though biking and walking represent a smaller share of overall KSI crashes on local access streets, the relative risk is much higher than for driving due to the relatively low mode share of walking and biking. This signifies that to achieve Vision Zero, all transportation modes must be considered including driving, walking, and biking.

Since 2010, vehicle KSI crashes have increased 43% between 2010 and 2020. Pedestrian KSI crashes have increased 37% and bicycle crashes have increased 2.8% over the years between 2010 and 2020.

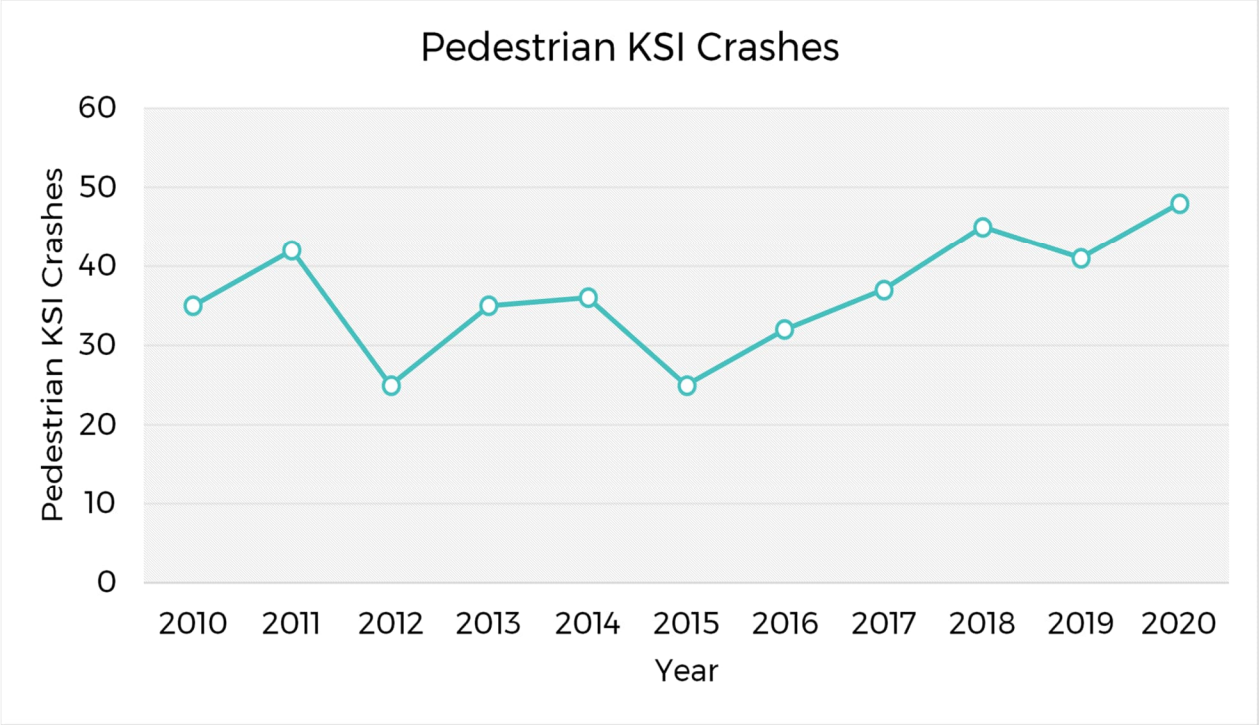

Figure 11: Pedestrian Fatal and Serious Injury Crash Trend 2010-2020

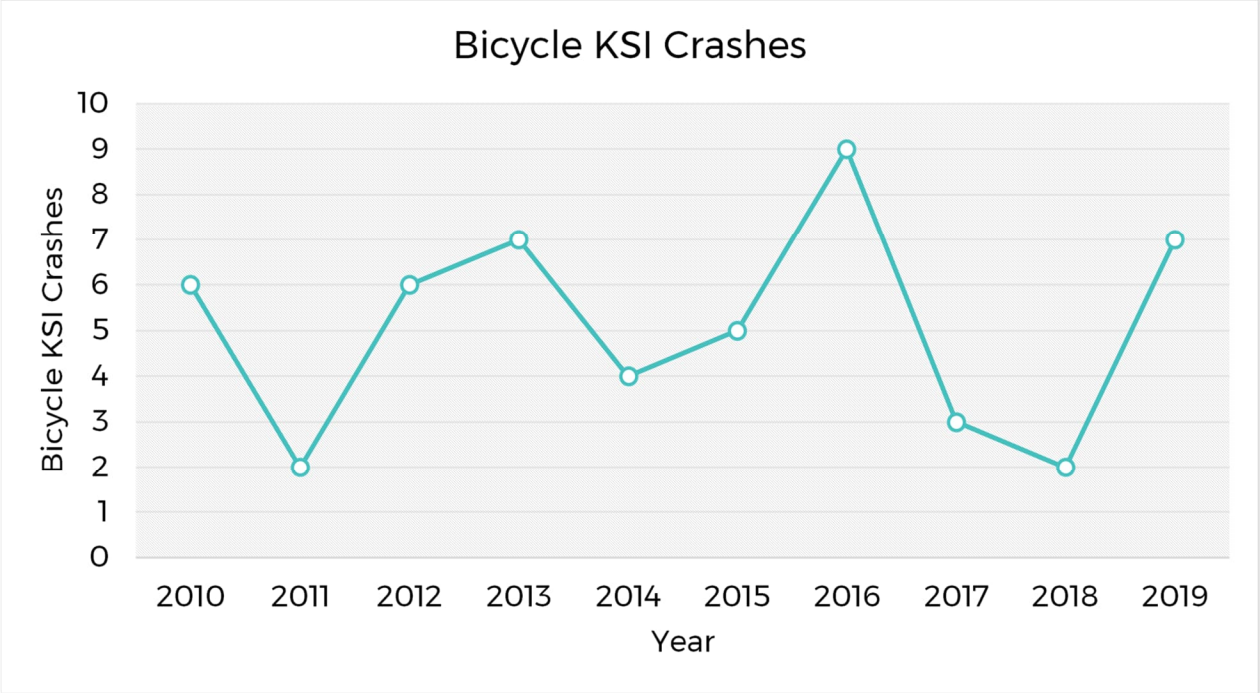

Figure 12: Bicycle Fatal and Serious Injury Crash Trend 2010-2020

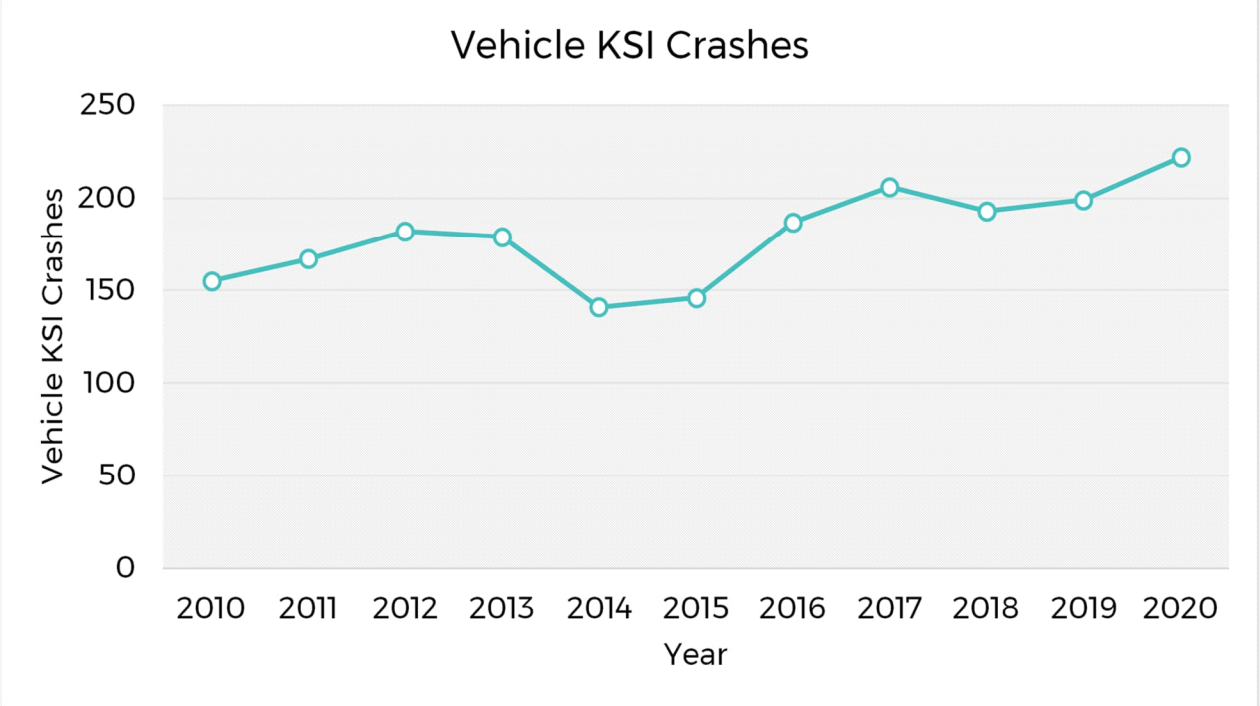

Figure 13: Vehicle Fatal and Serious Injury Crash Trend 2010-2020

Crash Cost to Society

Between 2010 and 2020 (11 years), there were a total of 53,598 fatal, serious, and non-incapacitating injury crashes in the city. The estimated cost to society resulting from crashes during this period adds up to $36.5 billion, which equates to approximately $3.3 billion per year. This data is shown in Table 3.

Table 3: Estimated Crash Cost to Society of Fatal and Injury Crashes within the Boundaries of Kansas City, Missouri on all Streets (2010-2020)

Severity	Crashes	Cost per Crash Severity	Cost to Society*	Average Cost per Year
Fatal	734	$11,600,00	$8,514,400,000	$774,036,364
Disabling Injury	3,260	$554,800	$492,586,000	$44,780,545
Non-Disabling Injury	49,604	$151,100	$27,520,299,200	$2,501,845,382
Total	53,598		$36,527,285,200	**$3,320,662,291**
*Crash costs are an estimation of the monetary impact of a crash based on the FHWA 2022 estimated crash cost. This includes direct costs such as medical bills, lost wages, repairs, etc as well as intangible consequences such as reduced quality of life.				

Roadway Users

Local access streets provide mobility for all modes of transportation, primarily driving, walking, and biking. The majority (85%) of KSI crashes on surface streets are vehicle crashes that do not involve pedestrians or cyclists. However, a substantial share of the crashes do involve pedestrians (13.6%) and cyclists (1.5%).

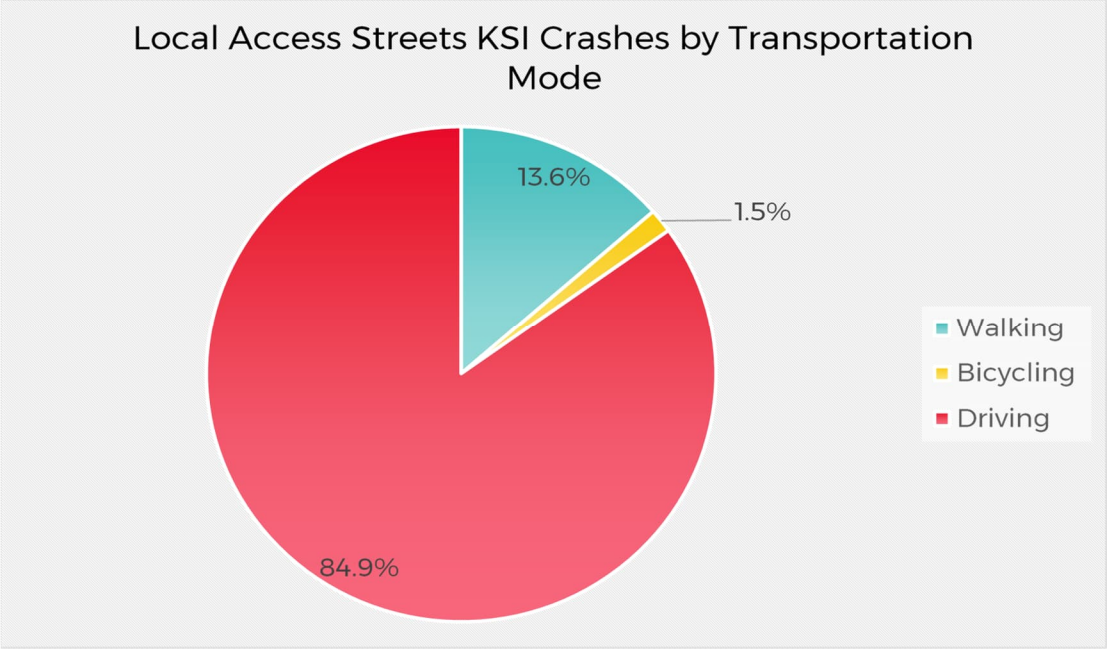

Figure 14: Local Access Streets Fatal and Serious Crashes by Transportation Mode 2016-2020

Equity

Crashes on local access streets do not occur evenly by race. The following data provides an insight on the users and equity aspect of the crashes happening in the past five years. When normalized by population, it becomes apparent that black users (non-Hispanic) bear a much greater burden of KSI crashes. 46% of crashes involved black users (non-Hispanic), but only 27% of Kansas Citians identify as black (non-Hispanic). This means that these users are 1.7 times more likely to be killed or seriously injured in traffic crashes than average. All other demographic groups are under-represented in KSI crashes compared to average.

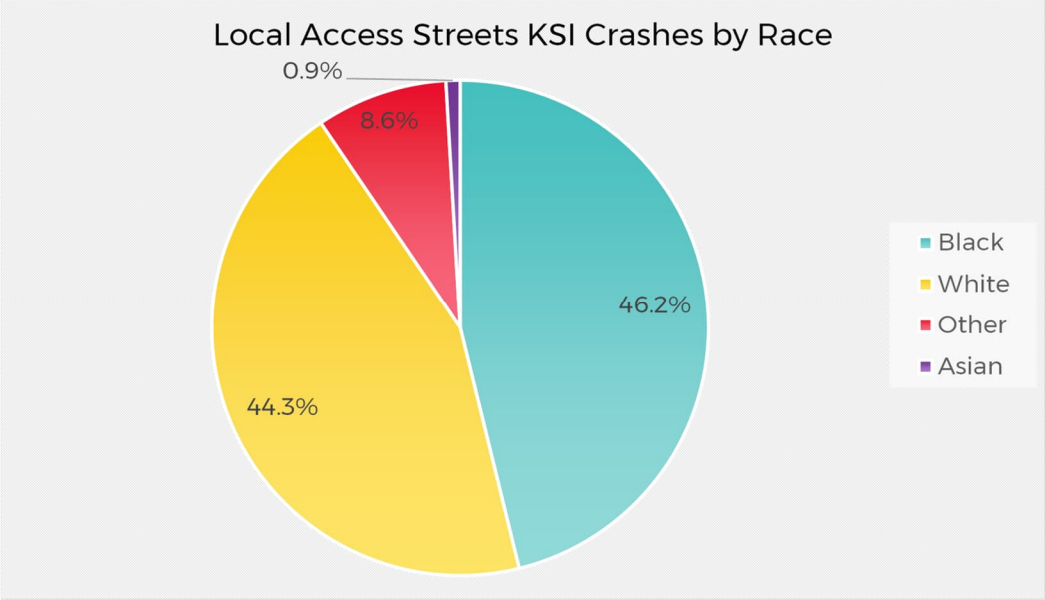

Figure 15: Local Access Streets Fatal and Serious Crashes by Race 2015-2019

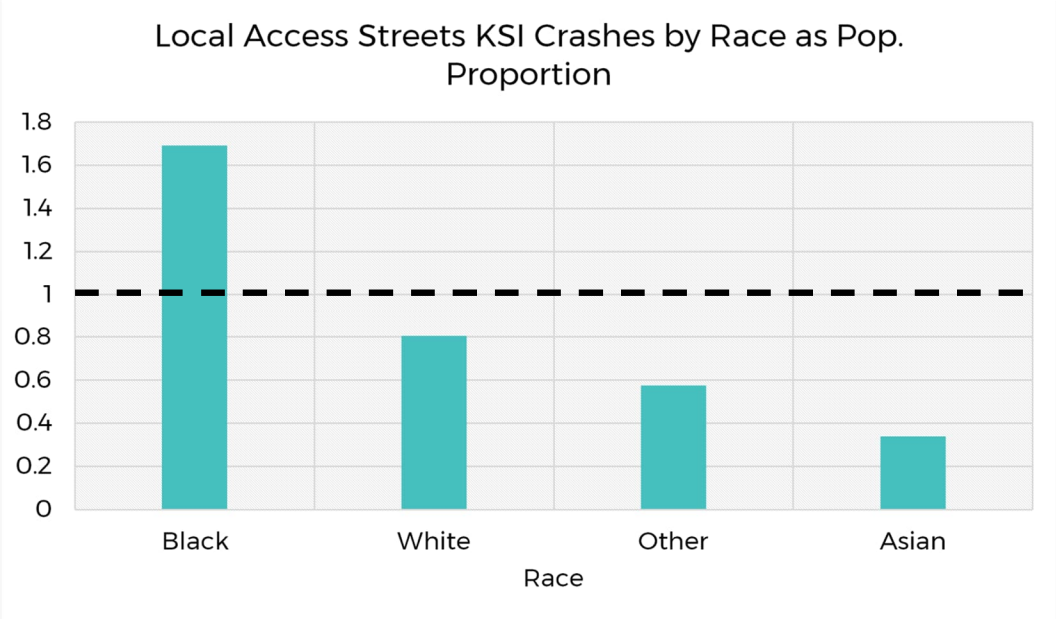

Figure 16: Local Access Streets Fatal and Serious Crashes by Race as a Representation of Population (>1.0

= Over-Representation) 2015-2019

Age and Sex

Crashes on local access streets do not occur evenly across age groups. The groups that account for the largest number of crashes is those in their late 20s and early 30s, with those aged 25-29 accounting for 125 KSI crashes and 30-34 for 121 KSI crashes. Normalizing for population, users in their late 20s not only are involved in a high frequency of KSI crashes, but these users are also highly over-represented. Users in the age group of 25-29 are 1.8 times more likely to be involved in a KSI crash than average. There is no substantial over-representation in crashes by older users.

Males make up a disproportionate amount of roadway deaths. Male users currently account for 73% of crashes and are nearly 1.5 times as likely to be involved in a KSI crash compared to women on local access streets. Males drive more vehicle miles than females and are more likely to participate in risky driving behaviors, including driving under the influence of alcohol, lack of seat belt use, and driving aggressively. Normalizing the data by sex to the Kansas City population, males are approximately three times as likely to be involved in roadway crash compared to females.

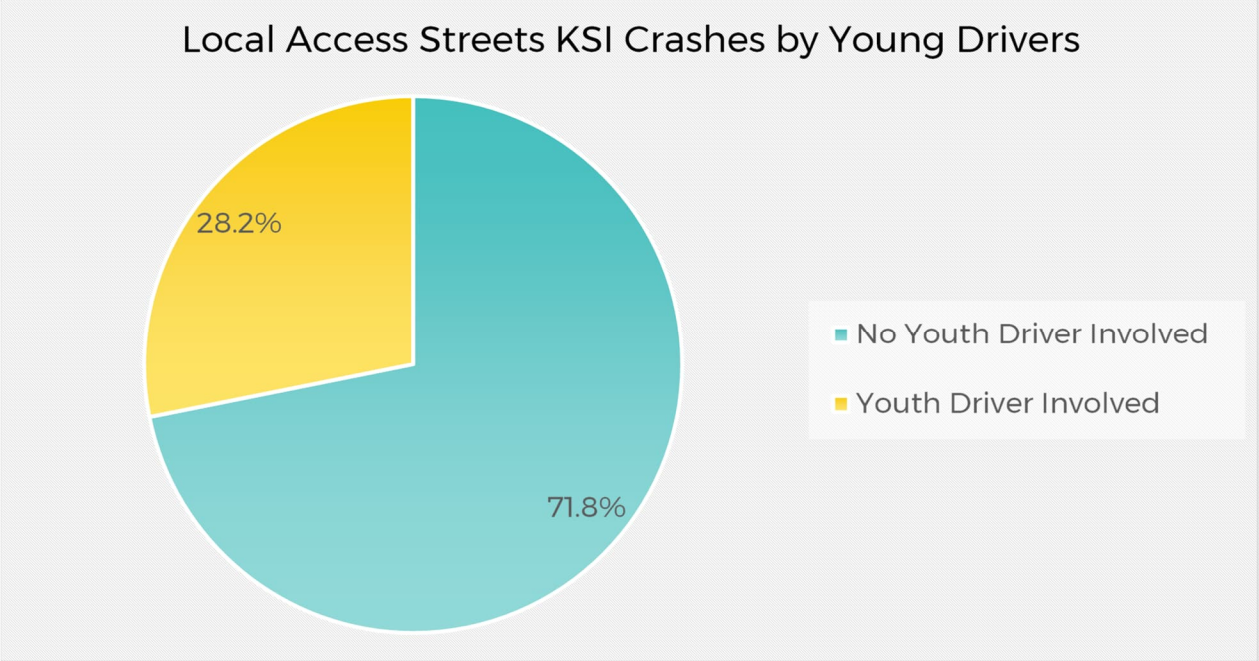

Figure 17: Local Access Streets KSI Crashes by Young Drivers 2016-2020

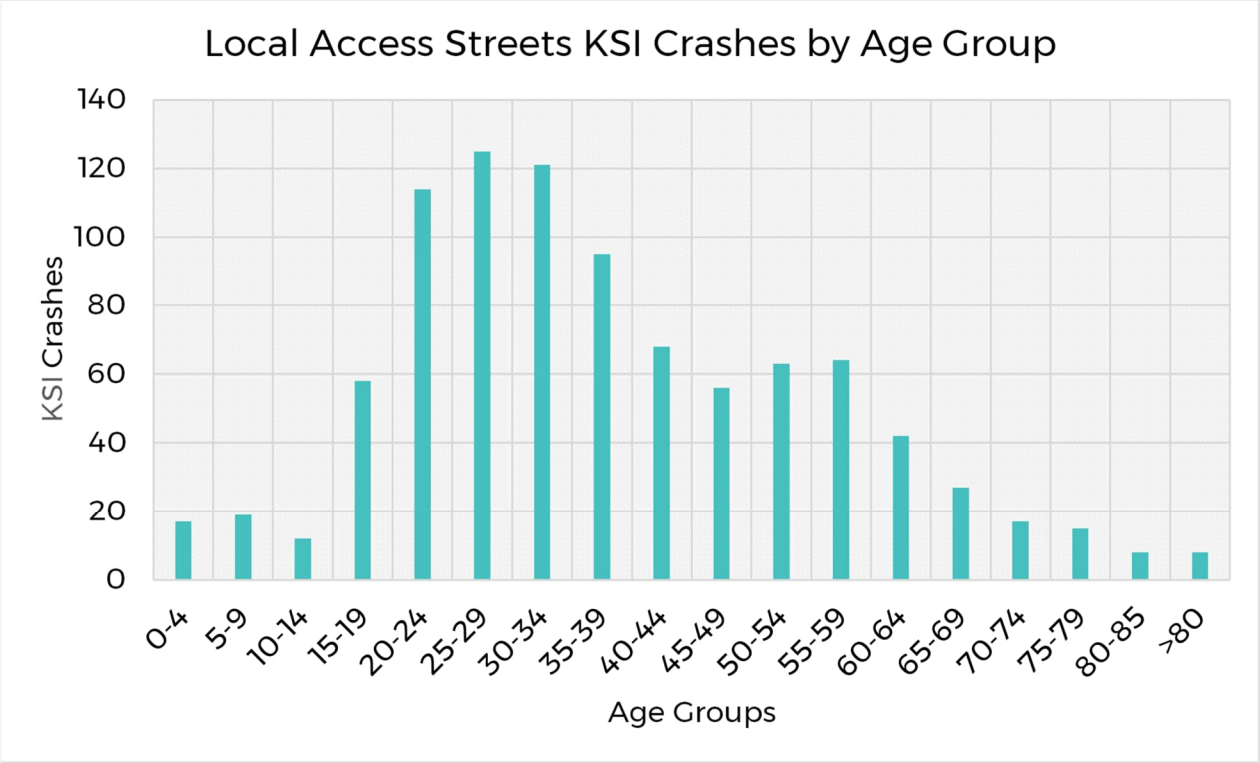

Figure 18: Local Access Streets Fatal and Serious Crashes by Age Group 2016-2020

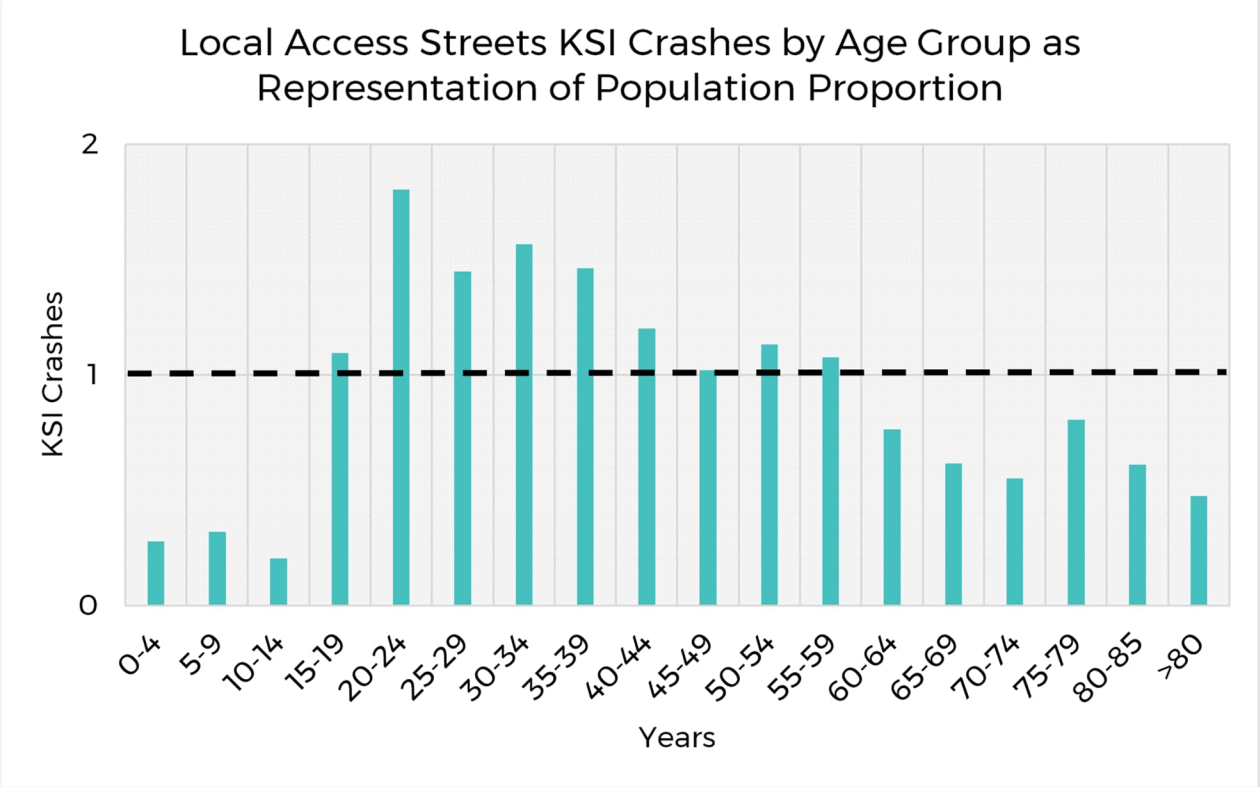

Figure 19: Local Access Streets Fatal and Serious Crashes by Age Group as a Representation of Population (>1.0 = Over-Representation) 2016-2020

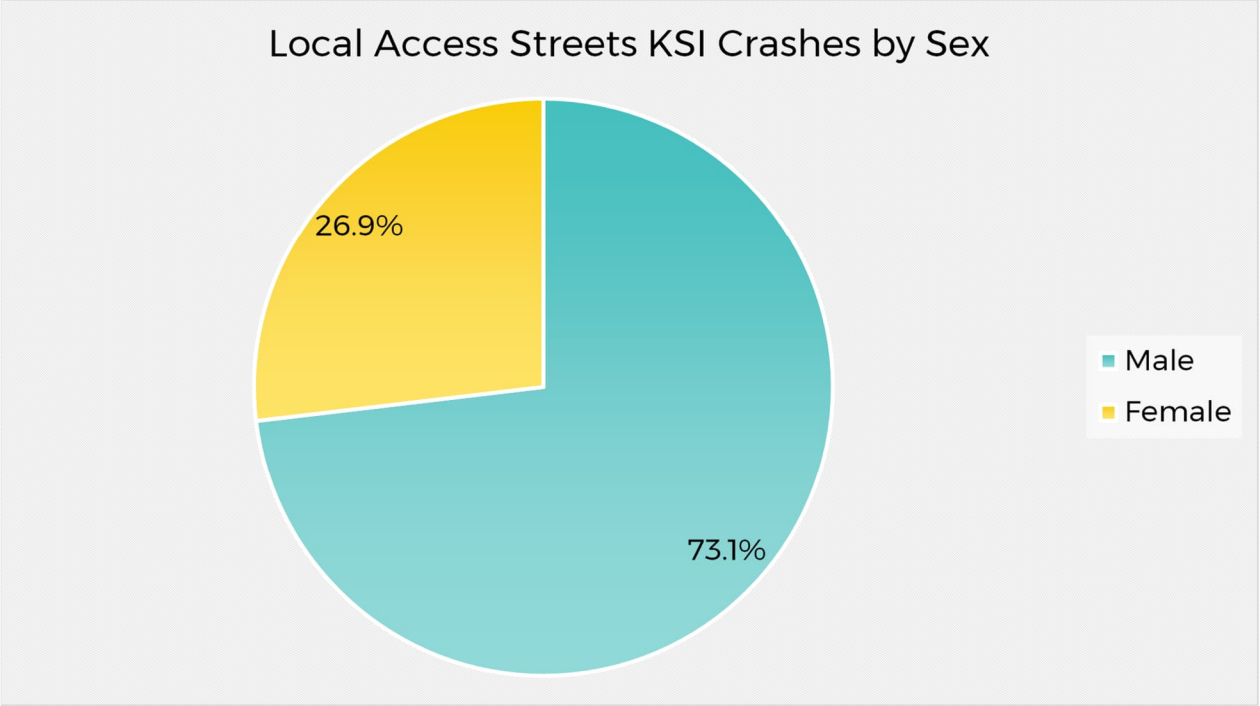

Figure 20: Local Access Streets Fatal and Serious Crashes by Sex 2016-2020

Crash Types and Locations

The most prevalent KSI crash type in the city is angle crash. These are commonly referred to as "T-bone" crashes, where one vehicle hits the side of another vehicle. These crashes often result in serious injuries and deaths, especially at higher speeds. These crashes happen most often at intersections, especially those with traffic signals. The second most common crash type is "fixed object" where a car strikes something on the side of the road or in the road such as a utility pole, a tree, wall, or building. These most often happen in mid-block locations and not at intersections. The third most common KSI crash type is those involving a pedestrian. This is particularly concerning, considering the share of people walking in the city compared to driving is relatively low.

User behaviors have a more significant effect on fixed object crashes than other crash types. More than half (51%) of fixed object KSI crashes were attributed to aggressive drivers. This is 1.75 times higher than the average rate of KSI crashes related to aggressive drivers. Intoxication had a higher contribution to these crashes with 15% of fixed object KSI crashes involved intoxication compared to only 7% of all KSI crashes involving intoxication. This means that twice as many fixed object KSI crashes involved intoxication than average KSI crashes.

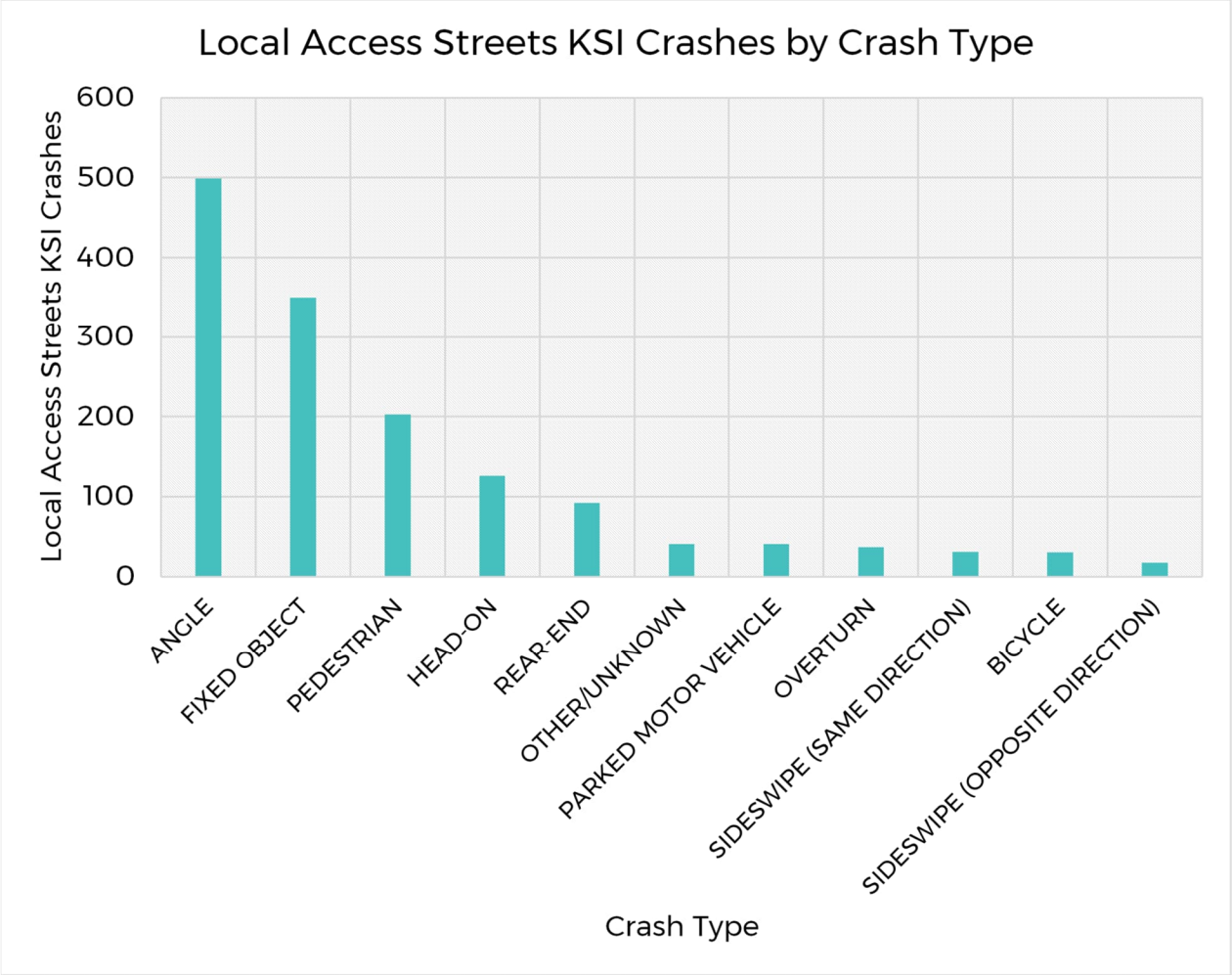

Figure 21: Local Access Streets Fatal and Serious Crashes by Crash Type 2016-2020

The majority of KSI crashes happened on Minor Arterial roads. These are streets with less traffic volume that often pass-through residential areas and serve less dense areas with schools, parks, light commercial, office, and industrial land uses. A substantial number also occurred on Principle Arterial streets. These are major streets in the city with high traffic volumes such as: Southwest Trafficway, Main Street, and North Oak Street. Principal Arterials often serve dense, urban areas and provide access to Interstate highways and other freeways. Out of all the KSI crashes, 77% of the crashes occurred on an intersection, and 67% occurred while the movement was a straight movement and not on a curved roadway.

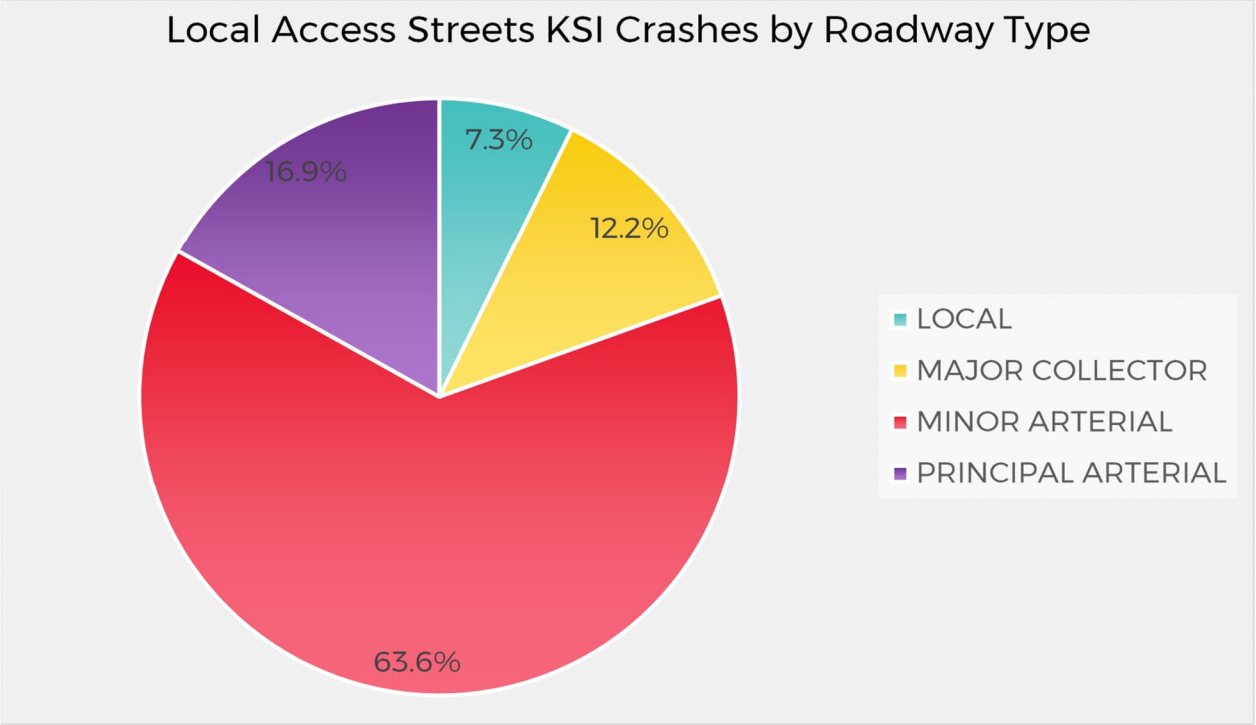

Figure 22: Local Access Streets Fatal and Serious Crashes by Roadway Type 2016-2020

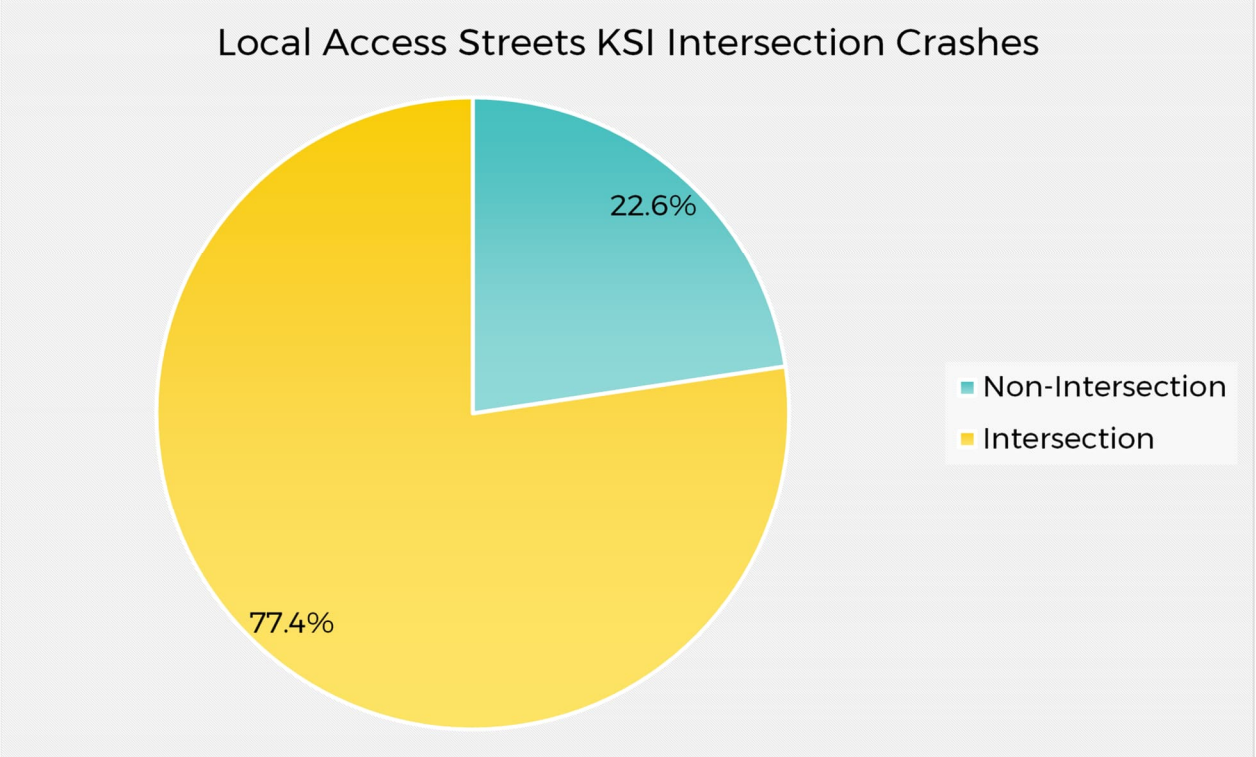

Figure 23: Local Access Streets Fatal and Serious Crashes Intersection vs Non-Intersection Crashes 2016-2020

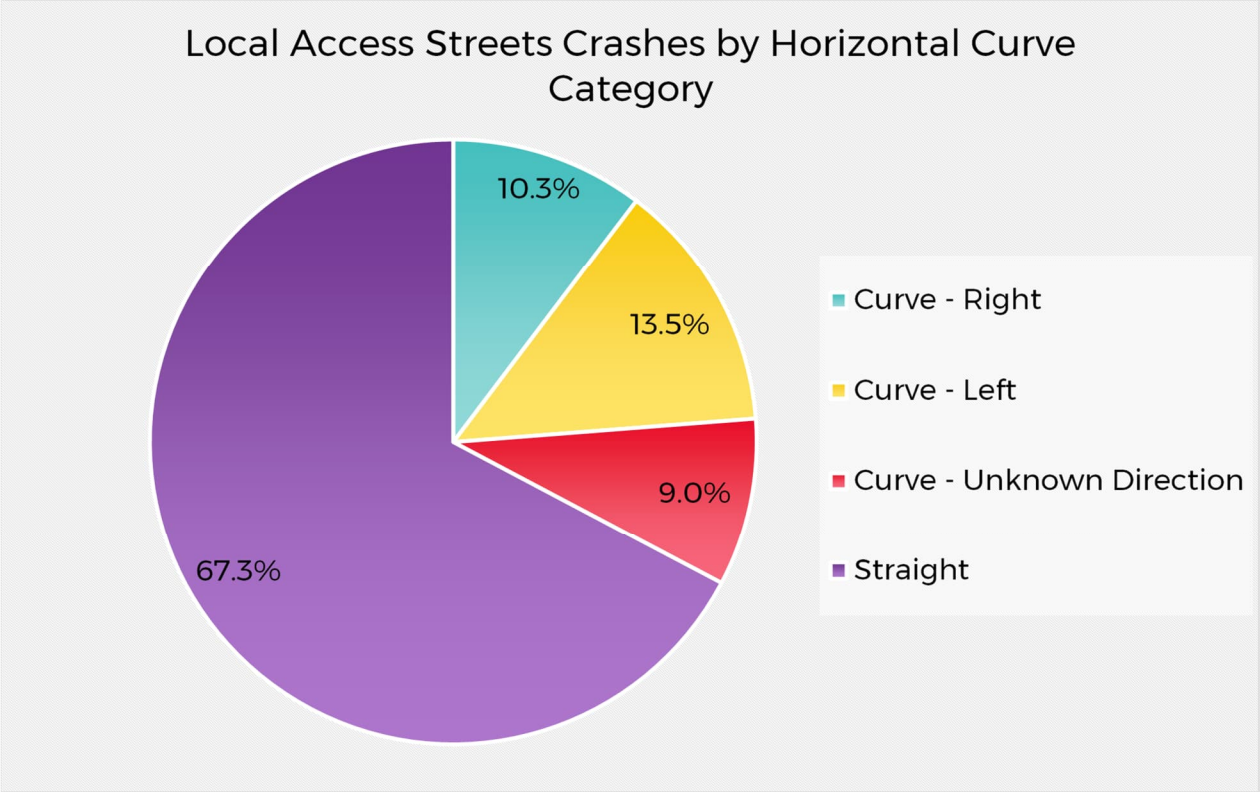

Figure 24: Local Access Streets Fatal and Serious Crash by Horizontal Curve Category 2016-2020

User Behavior

A key focus of Vision Zero is on the responsibility of all parties involved with roadway safety. In the past, the primary focus was put on user behavior and efforts involved perfecting user behavior through education and law enforcement. Vision Zero shifts this focus from perfecting human behavior to taking a Safe System approach that addresses underlying weaknesses in the system. This responsibility falls on system engineers, designers, and planners. Regardless of this, driver behavior is still an important part of understanding the safety landscape in our city and serves to inform behavioral countermeasures that can supplement the engineering and planning countermeasures that form the backbone of a Vision Zero approach.

Unlicensed Drivers

The figure below shows that the majority of the KSI crashes on local access streets do not involve unlicensed drivers. However, the fact that nearly one-third of our KSI crashes involved an unlicensed driver is troubling. The trend of KSI crashes involving unlicensed drivers has been significantly increasing during the past ten years, growing more than 350%. Anecdotal evidence points to an equity issue with driver licensing.

In 2001, Missouri implemented a graduated driver's license (GDL) program. The GDL program requires new drivers to spend a certain amount of time driving with a licensed adult. This program, and programs like it, have been shown to reduce teen driving crashes, which is a major focus in traffic safety.

Although GDLs improve safety among most teens, young people living in disadvantaged communities with high rates of poverty and minority populations have noted impediments to obtaining a driver's license. These teens may not have an adult in their life that can spend the time driving with them to obtain the necessary number of hours to get a full driver's license. As this issue compounds over the years, the teen may not have any adult in their life with a driver's license because of equity related GDL issues continuing over the past 20 years. Other teens may have physically disabled parents or guardians, such as those with low vision, who cannot legally obtain a driver's license.

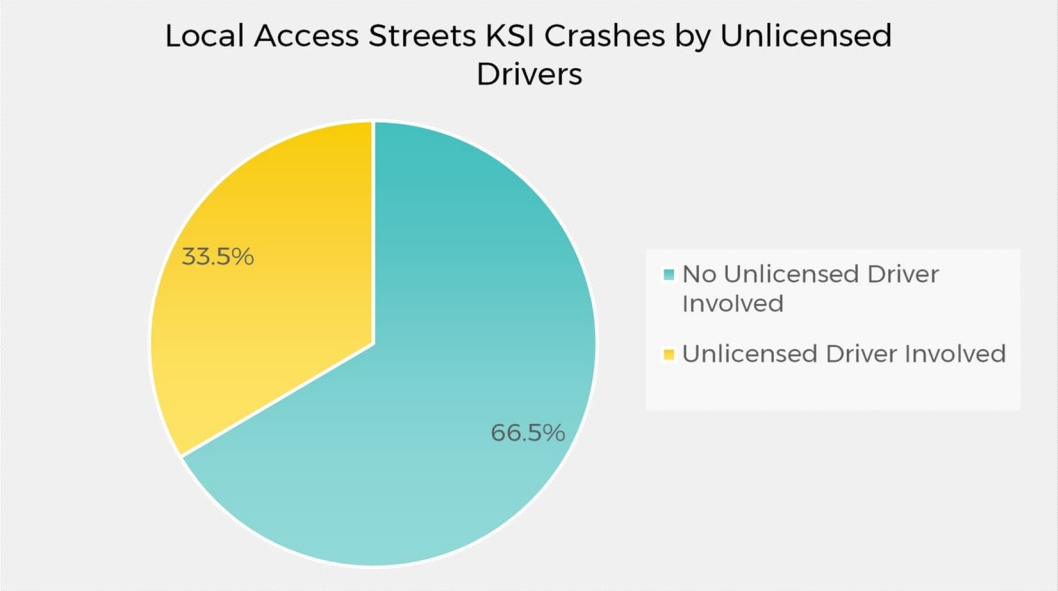

Figure 25: Local Access Streets Vehicle KSI Crashes by Unlicensed Drivers 2016-2020

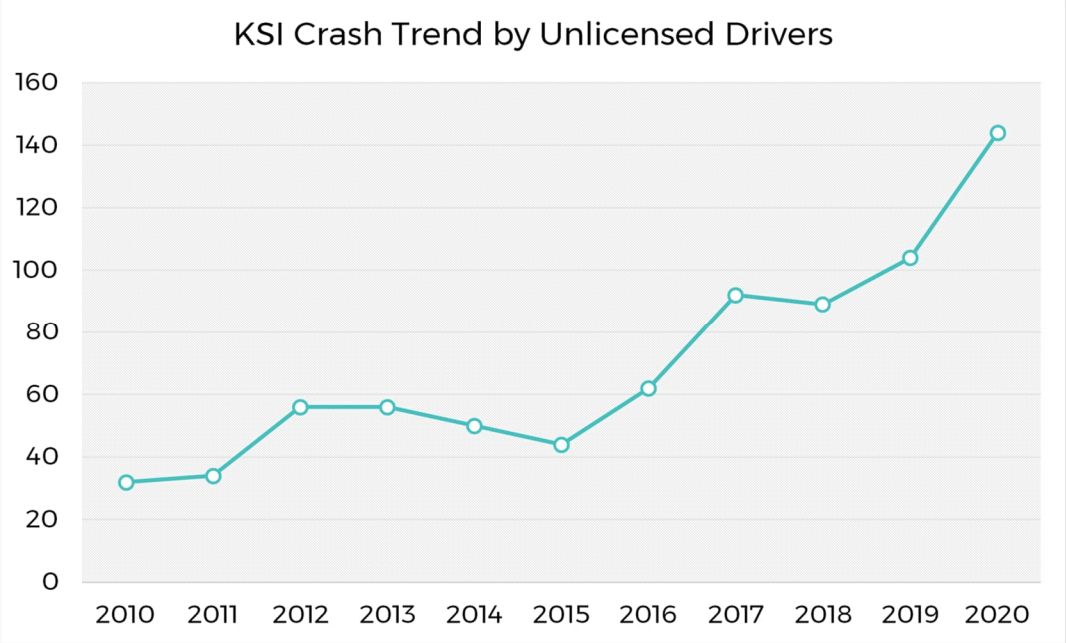

Figure 26: Local Access Streets KSI Crash Trend by Unlicensed Drivers 2010-2020

Reckless Driving Behaviors

Drivers will always make mistakes—that is the nature of being a human operating a machine in a complex environment. However, some mistakes, such as aggressive behavior, driving while intoxicated, and driving distracted can be considered worse than honest mistakes. In some cases, these behaviors may be classified as reckless or even negligent. Some of these behaviors have a much greater impact on fatal and serious injury crashes than others.

Aggressive driving is the top behavior contributing to fatal and serious injury crashes. This behavior includes speeding, driving too fast for various road conditions, tailgating, illegal passing, and weaving in traffic. Nearly one-third (29%) of the fatal and serious injury crashes in Kansas City involve aggressive driving.

Impaired and distracted driving is often cited as an important contributing circumstance for crashes in common literature. However, crash data shows only 8% of KSI crashes involve impaired drivers, and only 5% of the crashes are related to distracted driving.

Based on this data, although intoxicated and distracted driving are clearly poor driver behaviors, they are potentially less important to focus on than other factors.

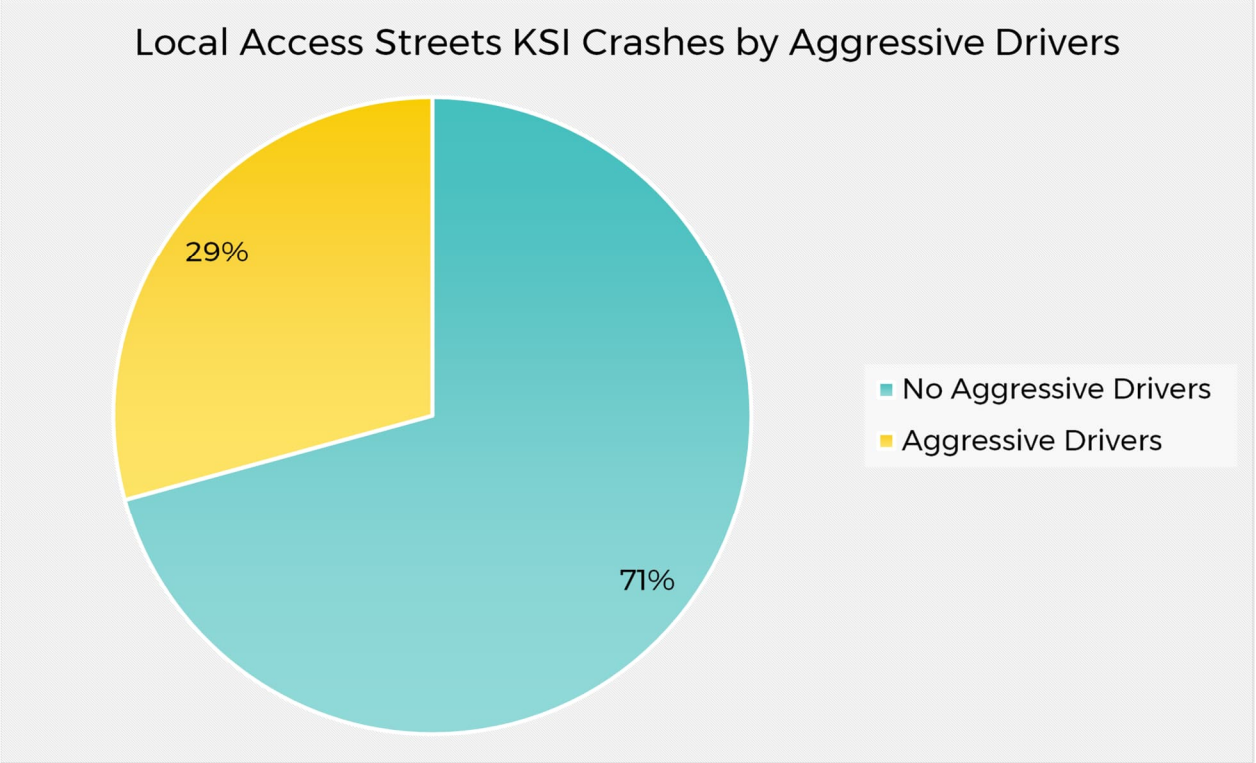

Figure 27: Local Access Streets KSI Crashes by Aggressive Drivers 2016-2020

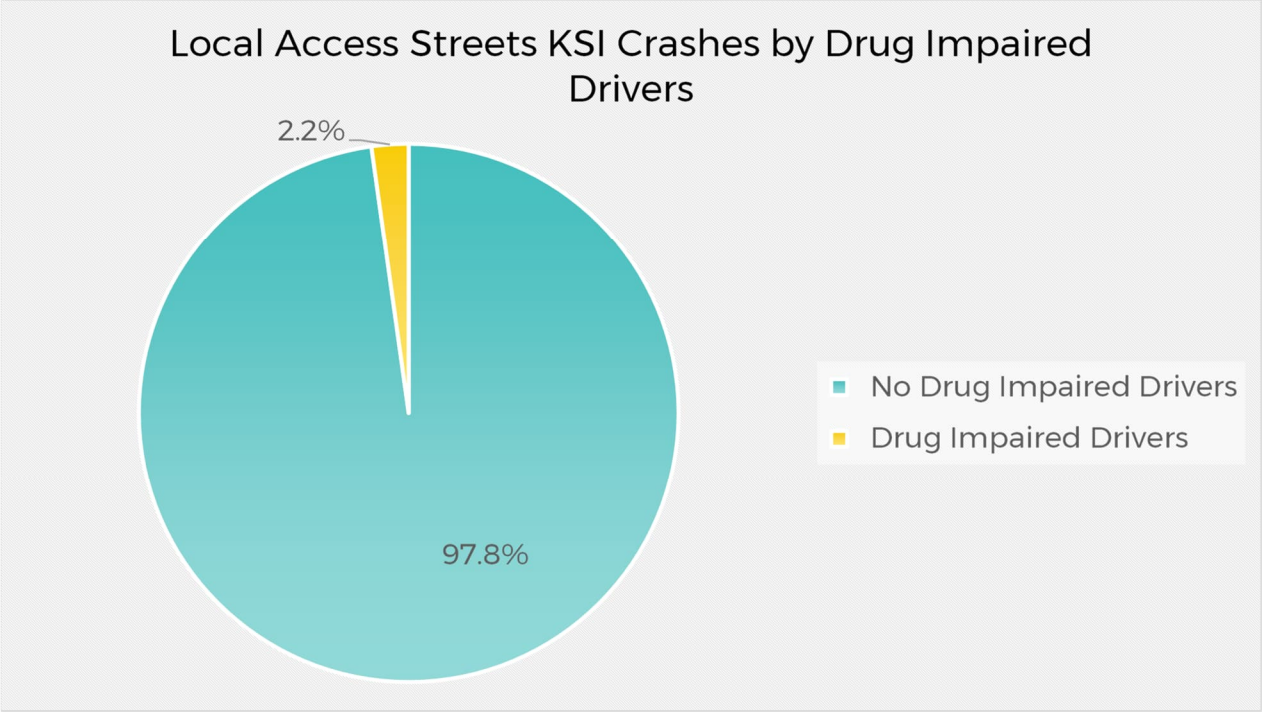

Figure 28: Local Access Streets KSI Crashes by Drug Impaired Drivers 2016-2020

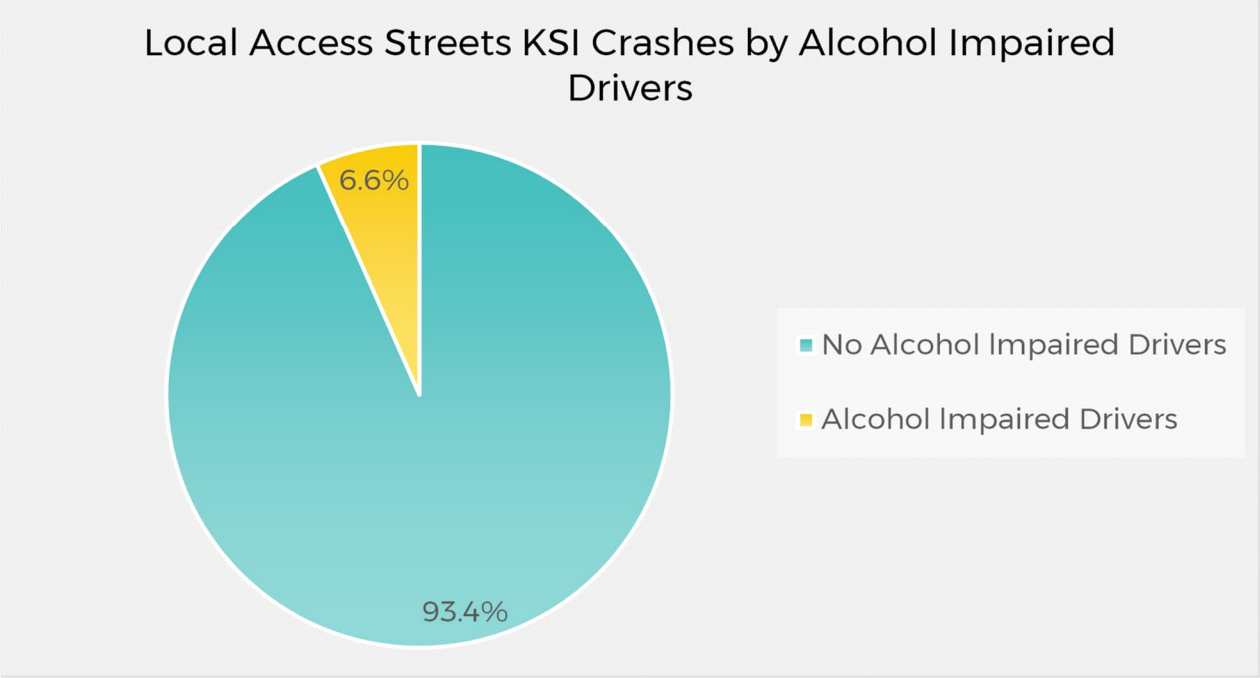

Figure 29: Local Access Streets KSI Crashes by Alcohol Impaired Drivers 2016-2020

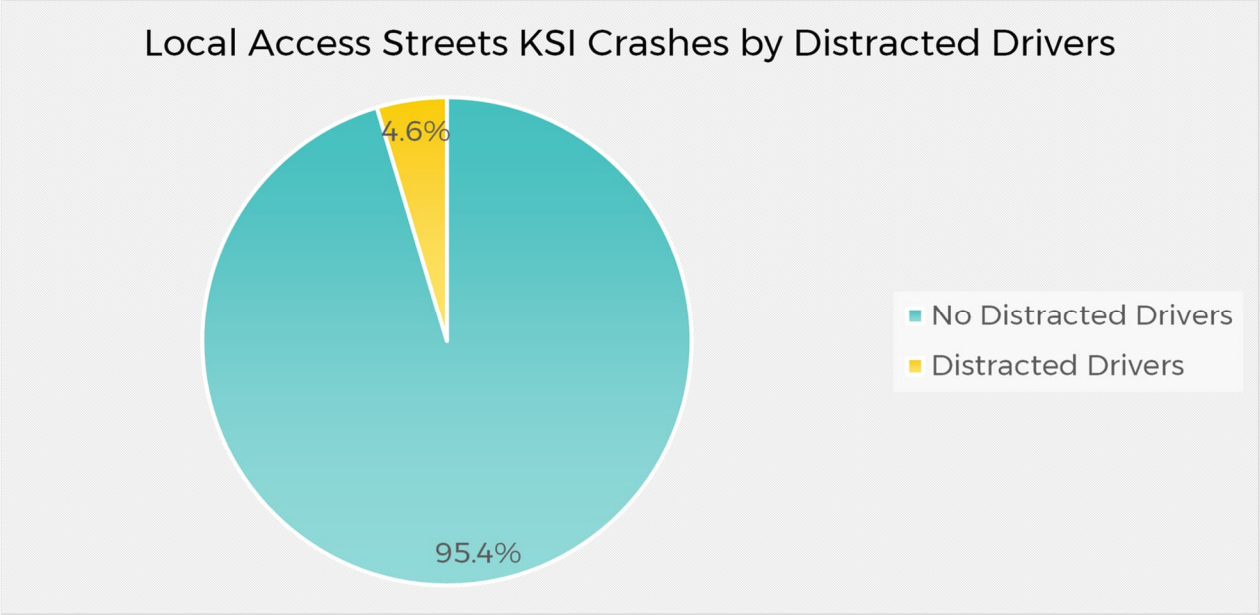

Figure 30: Local Access Streets KSI Crashes by Distracted Drivers 2016-2020

Occupant Protection

Most vehicle occupants in KSI crashes were found to have been wearing protection, seatbelts in the case of motor vehicles and helmets for cyclists and motorcyclists. The behavior of drivers and motorcyclists were also examined and found that 88.8% of the KSI crashes happened when occupants were wearing seatbelts and 99% of all motorcycle KSI crashes happened when occupants were wearing their helmets. This data clearly shows that seatbelt and helmet usage is very widespread, but that utilizing all proper occupant protection equipment in a vehicle will not necessarily stop fatal and serious injury crashes from occurring.

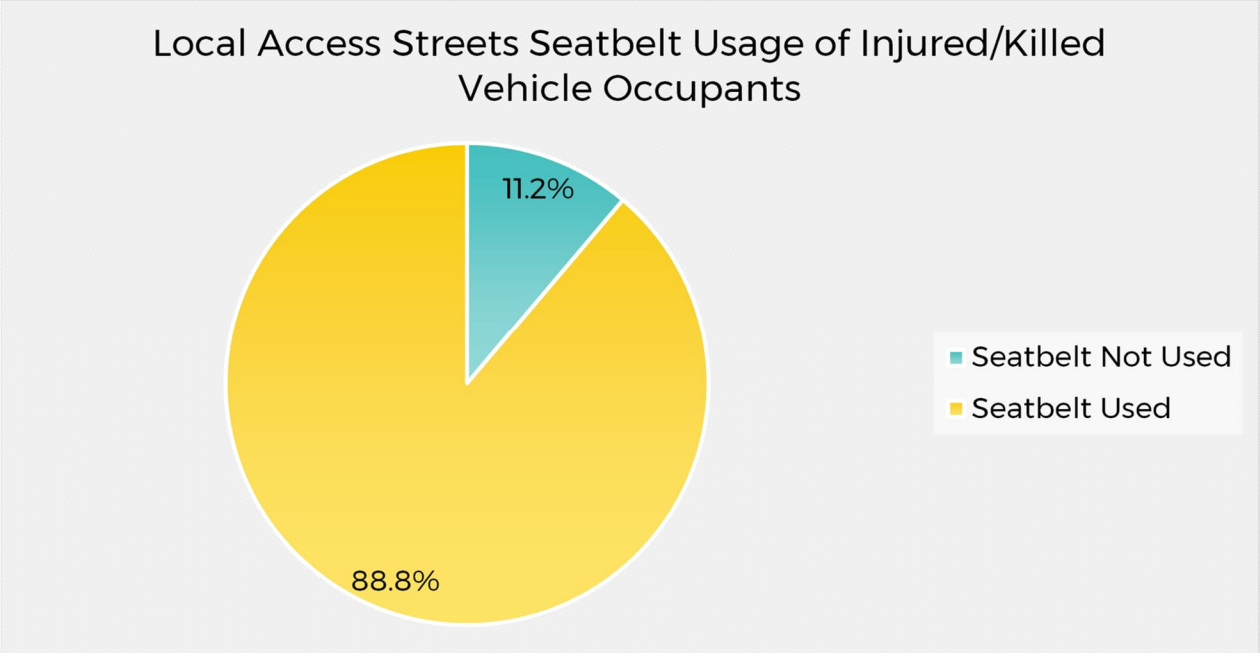

Figure 31: Local Access Streets Fatal and Serious Crash Seatbelt Usage 2016-2019

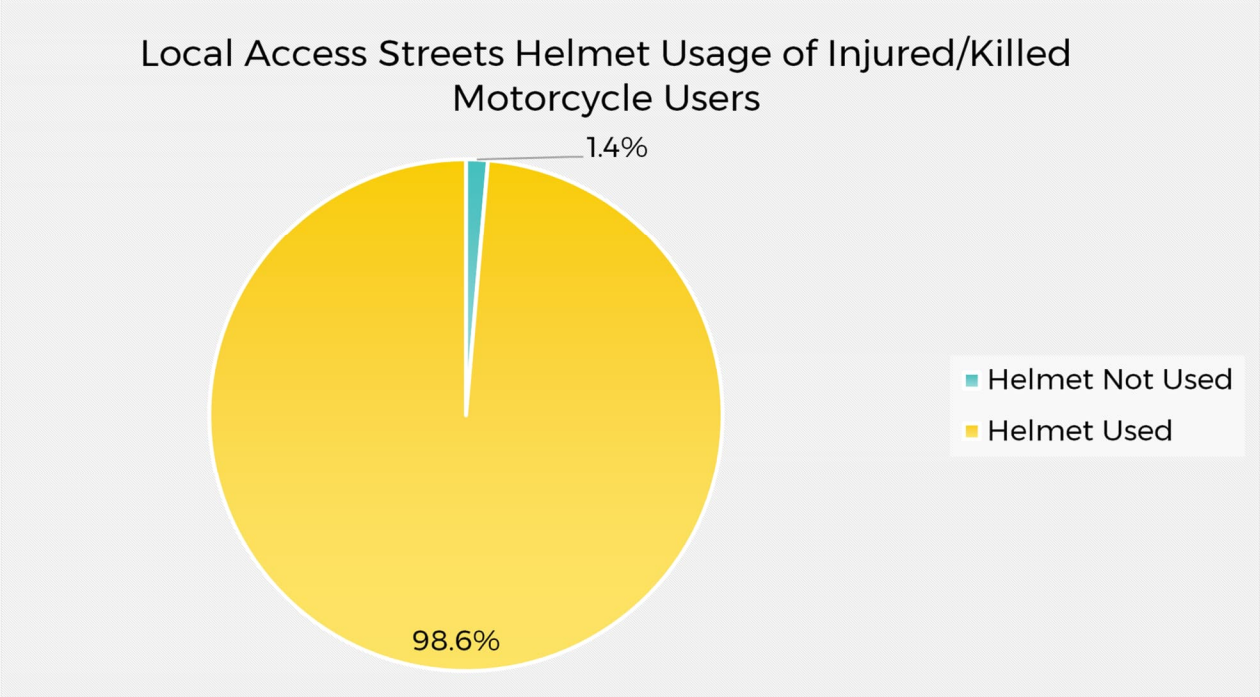

Figure 32: Local Access Street Fatal and Serious Motorcycle Crash Helmet Usage 2016-2019

Environmental Factors

Wet, icy weather often leads to large pileups on highways and a lot of concentrated crashes. This is usually reported on the nightly news broadcasts and leads to the impression that these events are a major traffic safety issue. However, the data shows that the majority of KSI crashes occurred with clear or cloudy weather and not in rain,

snow, or ice. Most crashes also occur during daylight hours, or at night on streets where streetlighting is present. Street lighting may still be a safety concern, because although streetlights present, these lights may be inoperable or placed in a suboptimal location that doesn't properly illuminate areas of conflict, especially where pedestrians may be crossing the street.

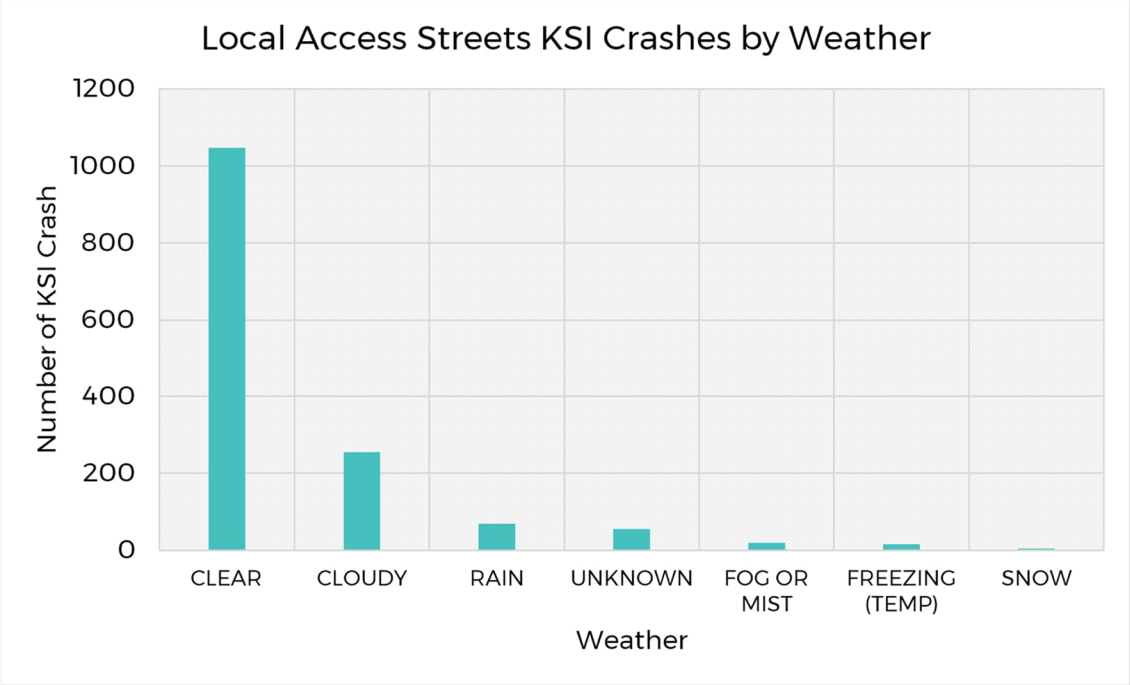

Figure 33: Local Access Streets Fatal and Serious Crash by Weather Conditions 2016-2020

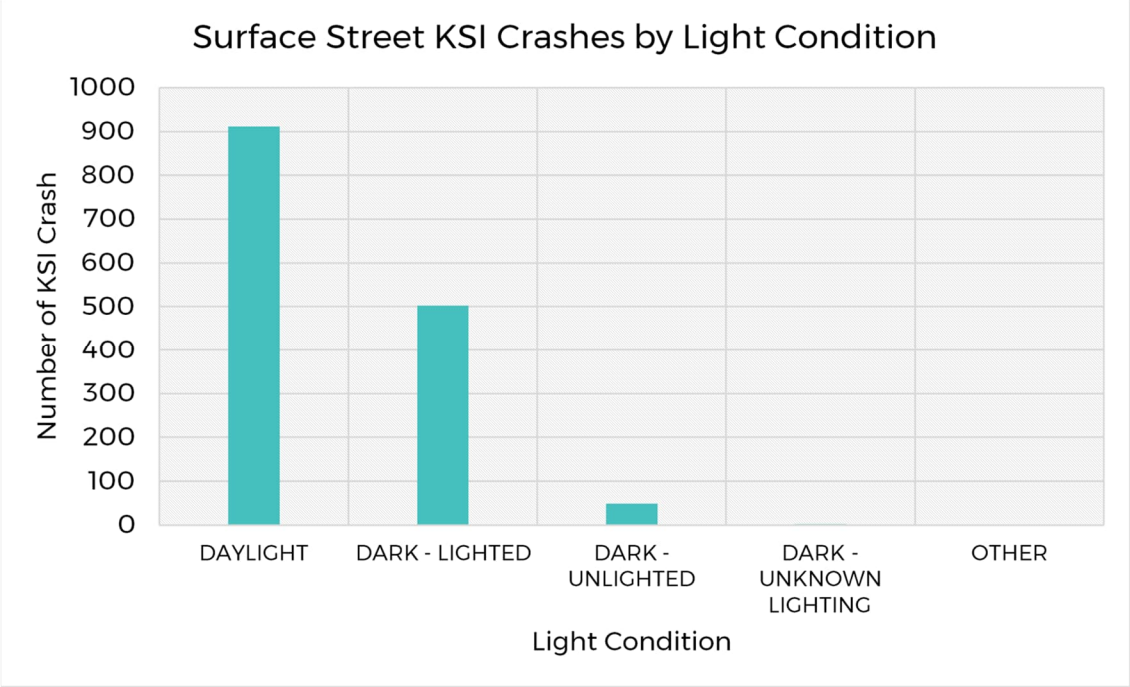

Figure 34: Local Access Streets Fatal and Serious Crash by Light Conditions 2016-2020

Crash trends by day of week and hour tend to correspond to traffic pattern trends with higher numbers of crashes happening in the afternoon peak periods of traffic, especially on Friday afternoons. Friday night into Saturday morning and Saturday night into Sunday morning are also higher than average times for KSI crashes.

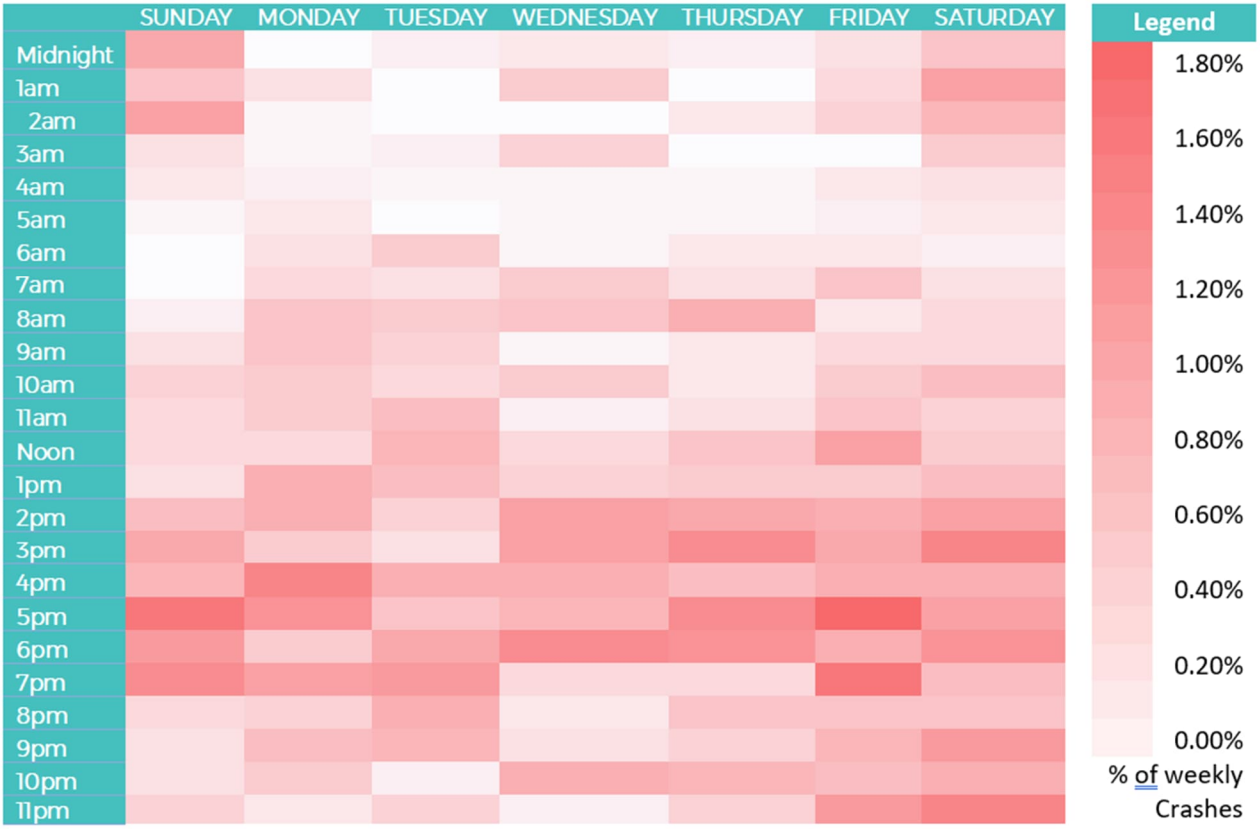

Figure 35: Local Access Streets Fatal and Serious Crashes per Hour 2016-2020

SYSTEMIC RISK ANALYSIS

Staff conducted a systemic risk analysis to assess how factors that are not typically recorded in crash data impact the relative risk of crashes. For this analysis, databases of crash data, roadway data, and demographic data were joined and analyzed together. The analysis compared the relative proportion of crashes with the relative proportion of roadways with a given feature. This was used to create a "Representation Ratio," for intersections and corridors, shown in the charts below.

For the entire city the normalized value is 1.0 (i.e., 100% of crashes happen on 100% of roads), therefore any values above 1.0 show places where crashes are over-represented. For example, 70% of the KSI crashes happened in urban areas, but only 44% of our roadway miles are in urban areas. This means the representation ratio is 1.6 and it is 1.6 times more likely for a KSI crash to happen on an urban street. This is an over-representation and equates to a roadway risk factor based on the road context. On the other hand, 26% of KSI crashes happened in suburban areas of the city, and 48% of our roadway miles are in suburban areas, resulting in a representation ratio of 0.5, which

means it's about half as likely for a KSI crash to happen on a suburban area road than average in the city. This is an under-representation and shows that there is a relatively lower risk of KSI crashes occurring in suburban areas.

Attributes explored in the systemic analysis include:

- land use context—rural, suburban, urban
- disadvantaged areas vs non-disadvantaged areas
- traffic volume—daily volume and relative congestion
- roadway configuration—one-way/two-way, number of lanes, divided or undivided
- intersection control—signal, roundabout, stop

Area types of urban, suburban, and rural are defined based on the population and employment density of various parts of Kansas City, mirroring the Kansas City Travel Demand Model. Urban areas generally include census tracts within the I-435 loop south of the Missouri River and south of Vivion Road north of the Missouri River. Suburban areas include all other parts of the city that have been developed. Rural areas include all undeveloped parts of the city on the outskirts of town. The general areas denoted as urban, suburban, and rural are shown in **Error! Reference source not found.**. Disadvantaged areas of the city were identified using the Transportation Disadvantaged Census Tracts identified by the USDOT.[2]

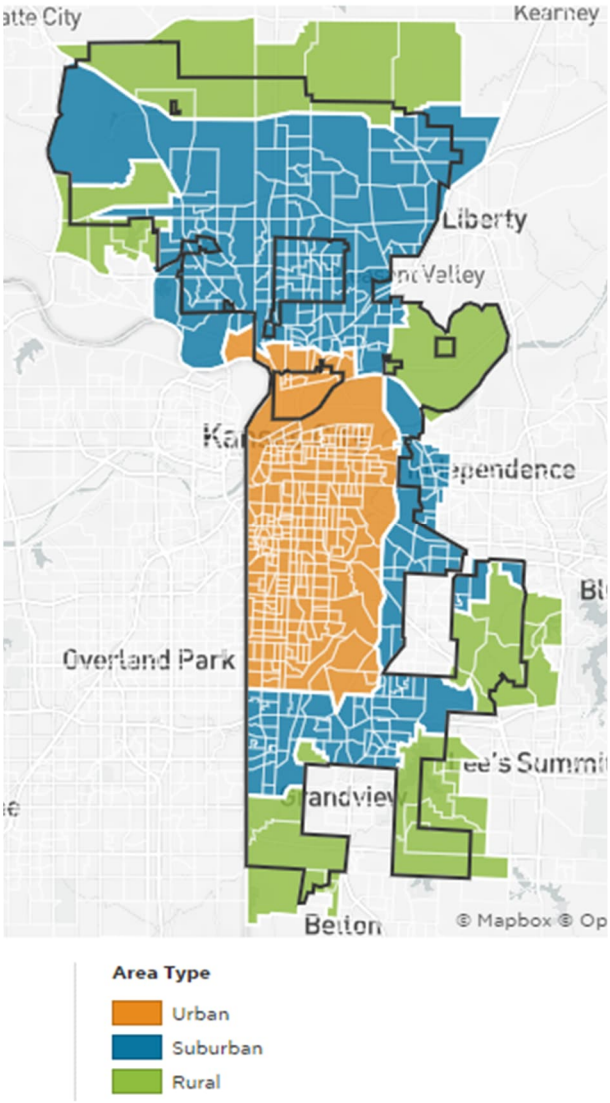

Figure 36: General Boundaries for the Urban, Suburban, and Rural Classification of Segments and Intersections

Road Segment Crash Risk

City staff analyzed roadway segments within the local access road network compared to their correlated KSI crashes.

[2] https://www.arcgis.com/apps/dashboards/d6f90dfcc8b44525b04c7ce748a3674a

Besides the area context of the roadway in question, these segments were sorted by the number of travel lanes available for the bidirectional roadways, presence of median, and speed limit. After compiling the data seen in the figures below, analysis showed that KSI crashes were 1.6 times more likely to occur on urban roadways in disadvantaged areas. In all land use contexts, disadvantaged areas were twice as likely to experience KSI crashes than non-disadvantaged parts of the city. This trend of increased crash risk for disadvantaged communities holds true no matter the land use context—a transportation disadvantaged tract in a rural, suburban, or urban area has an elevated risk over non-disadvantaged areas in rural, suburban, and urban areas.

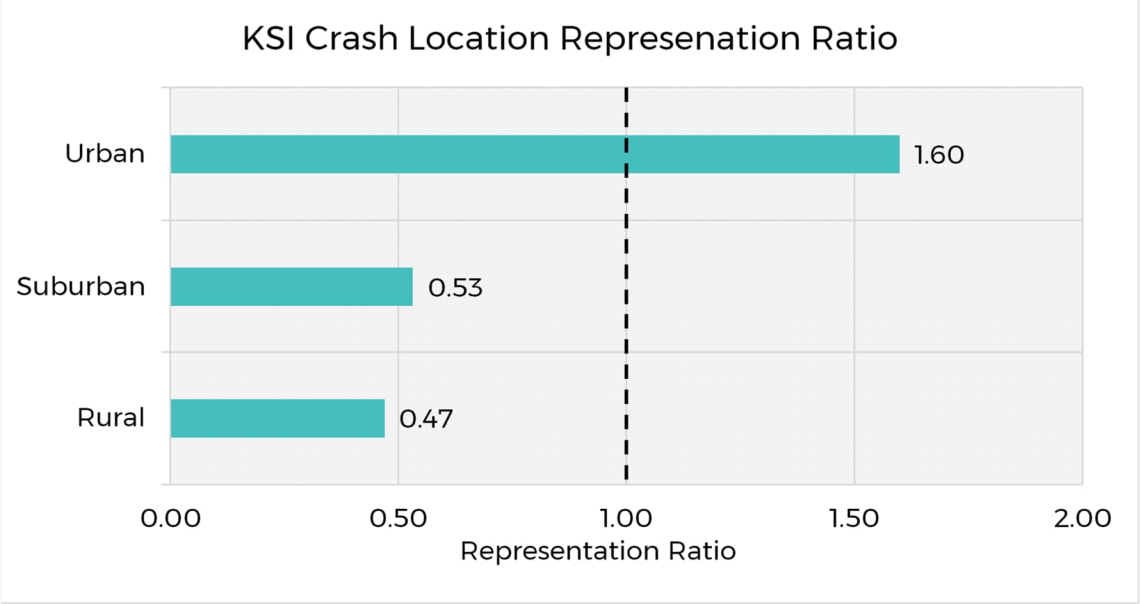

Figure 37: Roadway Location Representation Ratio of KSI Crashes

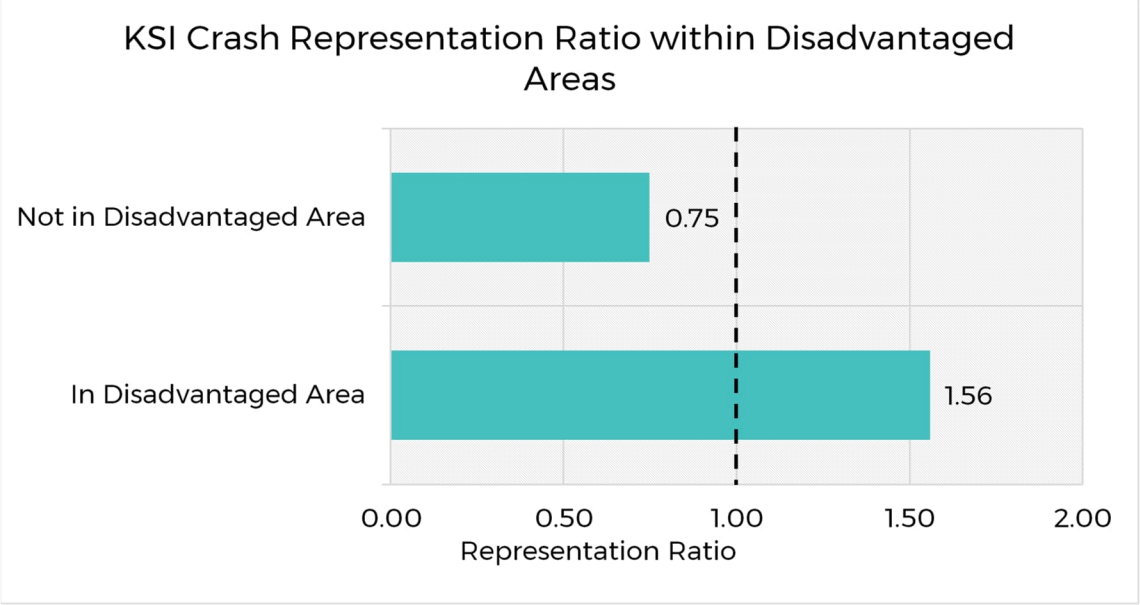

Figure 38: KSI Crash Representation Ratio within Transportation Disadvantaged Area

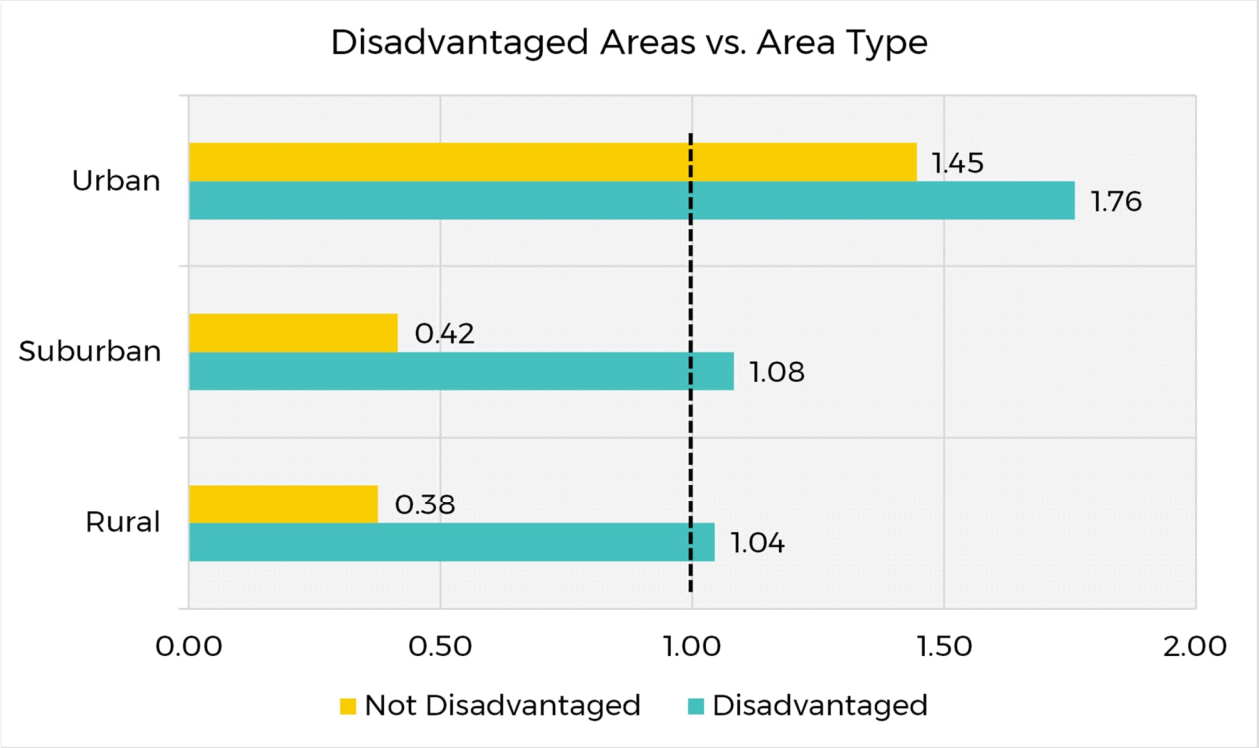

Figure 39: Location of KSI Crash Representation Ratio

Focusing on the infrastructure elements of roadways, several factors are highly correlated to increased crash risk. More fatal and serious injury crashes occurred on two-way streets with more than one lane in each direction, with a strong positive correlation between KSI crashes and an increasing number of lanes—4-lane and 6-lane roads having much higher crash risk than two lane roads. For both 4 and 6-lane roadways, undivided roadways are more likely to experience KSI crashes than roadways with either Two-Way Turn Lanes (TWLTL) or raised medians. KSI crashes are three times more likely to occur on a roadway with a posted speed limit of 35 mph; however, all speed limits above 25 mph were found to have a positive correlation with KSI crashes.

KSI crashes were also positively correlated with a lack of congestion. Using a volume to capacity ratio to judge congestion the analysis revealed that, among arterial streets, the least congested roads in the city were found to have the highest crash risk. These roads were approximately twice as likely to have a fatal or serious injury crash than the city's most congested roads.

Vehicle traffic volume also had an impact on crash risk, but the risk was not linear. Very low volume roads have the lowest crash risk, and as traffic volumes increase, this crash risk increases. However, at 10,000 vehicles per day—the typical capacity of a two-lane road—the crash risk levels off with relatively similar crash risk for roads from 10,000 vehicles per day to 40,000+ vehicles per day. Roadways with 30,000 – 40,000 vehicle per day have a significantly elevated crash risk but are an outlier due to a small sample size of these types of roads in the city.

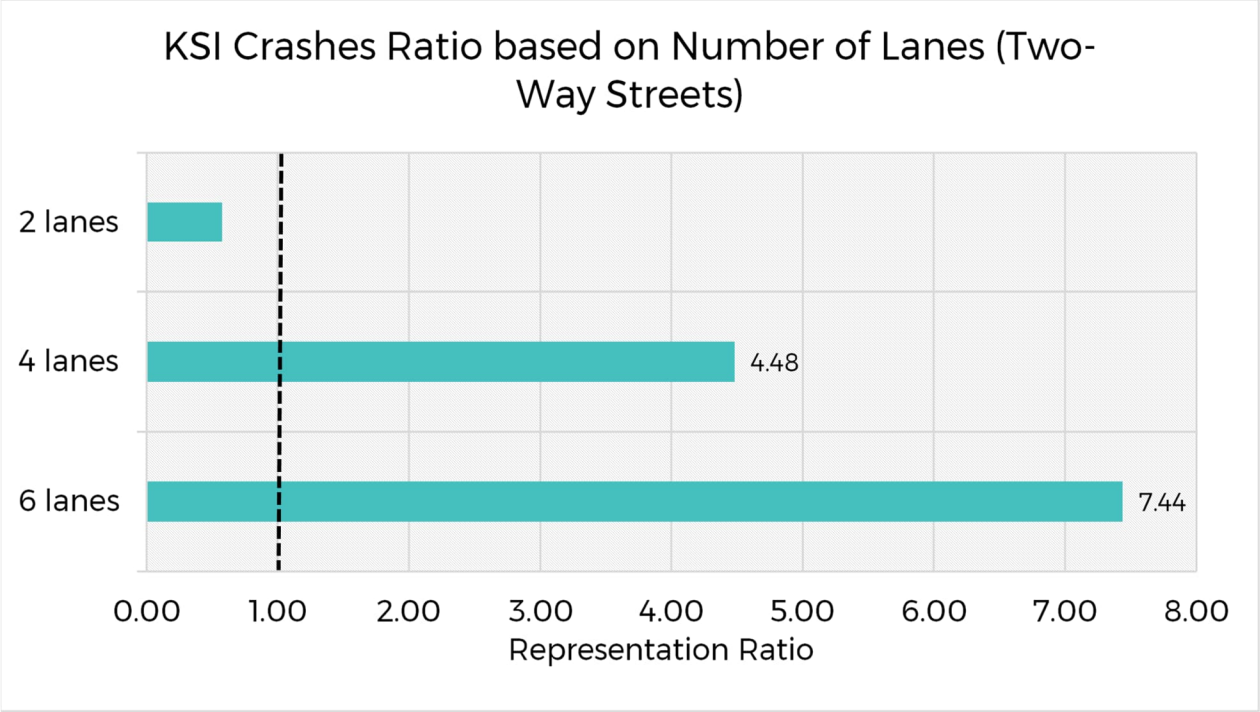

Figure 40: KSI Crash Representation Ratio for Two-Way Roads Based on Total Number of Lanes

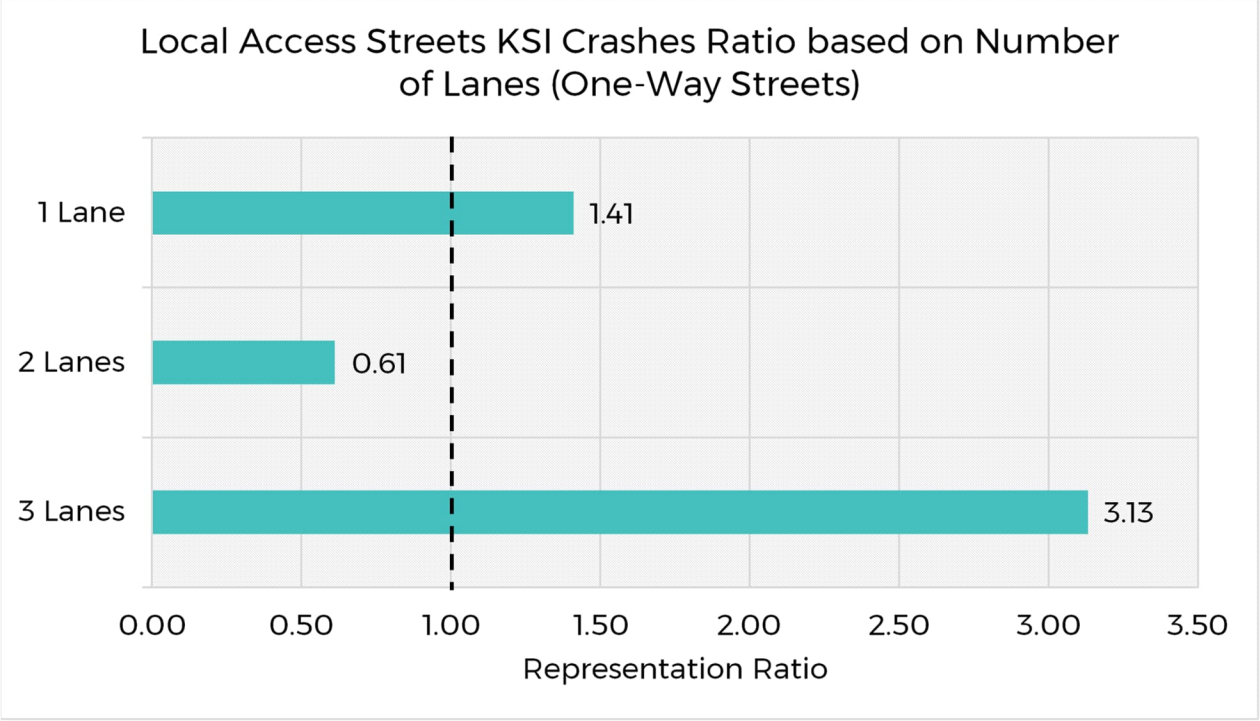

Figure 41: KSI Crash Representation Ratio for One-Way Roads Based on Total Number of Lanes

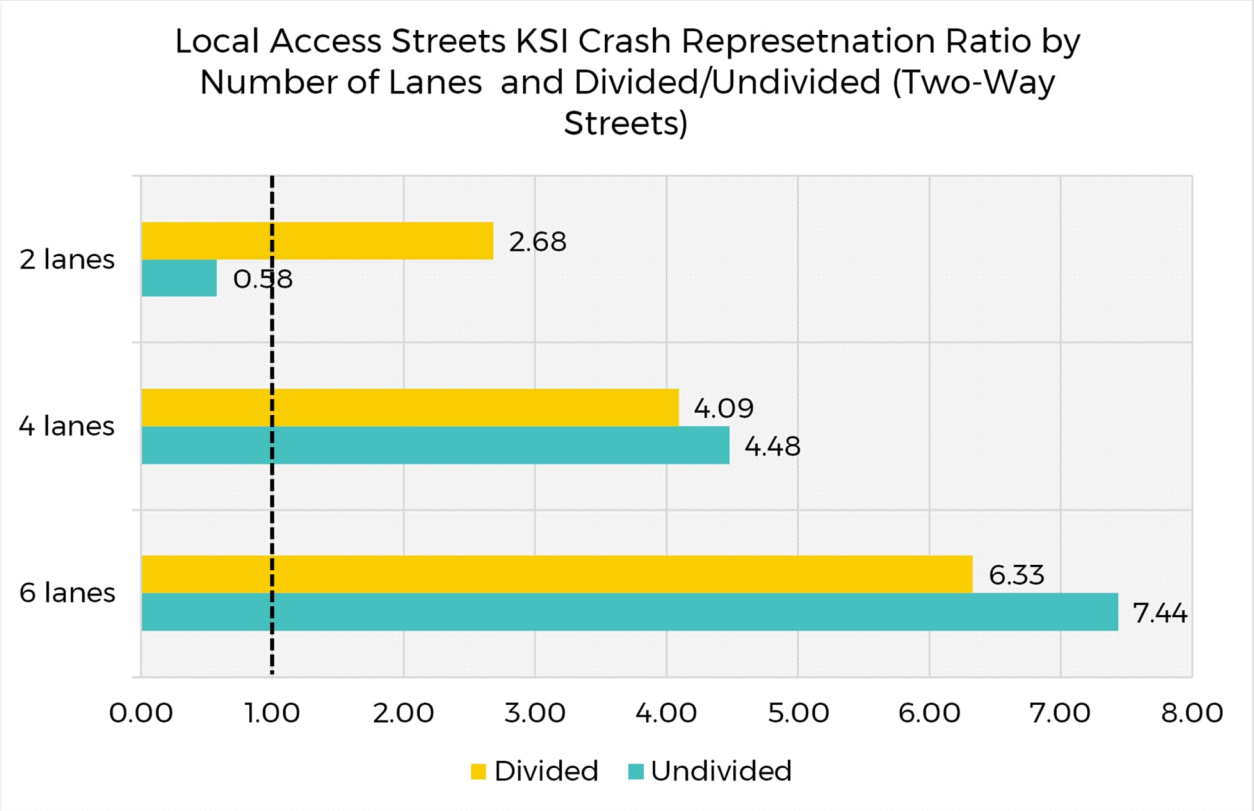

Figure 42: KSI Crash Representation Ratio for Two-Way Roads Based on Total Number of Lanes and Divided/Undivided

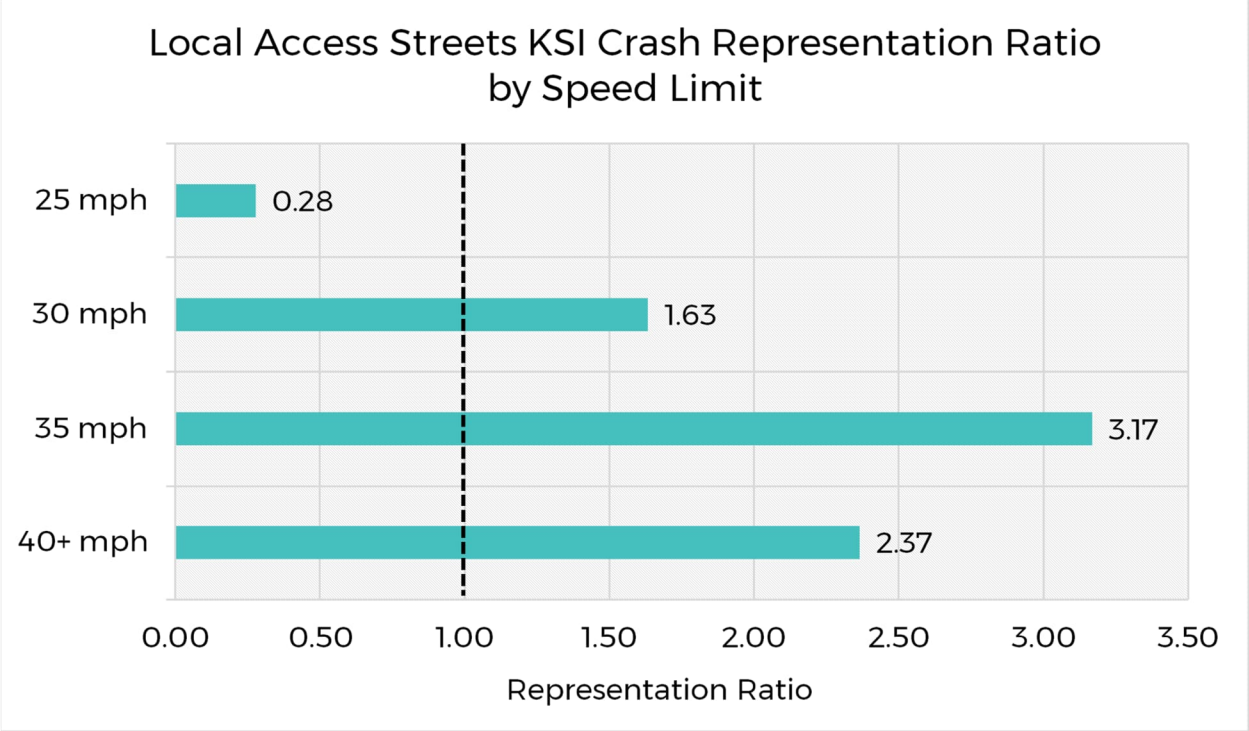

Figure 43: KSI Crash Representation Ratio Based on Speed Limits

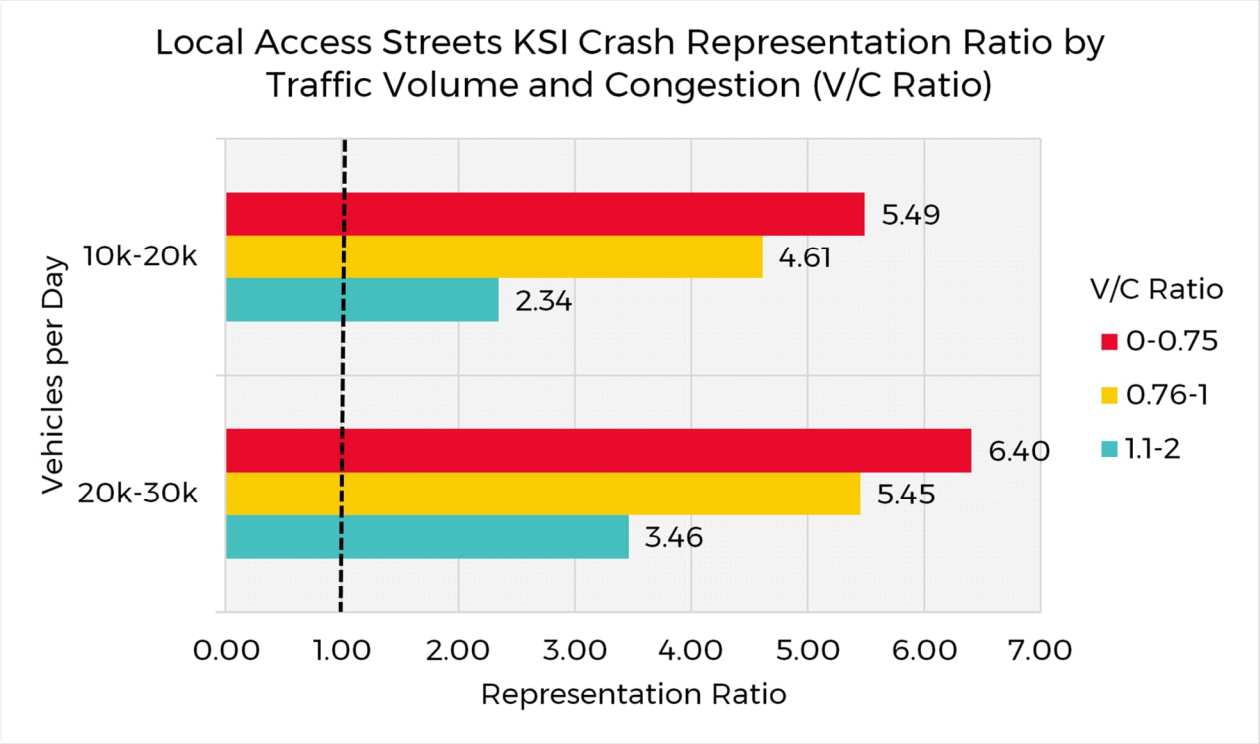

Figure 44: KSI Crash Representation Ratio Based on Traffic Volume and Congestion (V/C ratio—lower number indicates less congested road

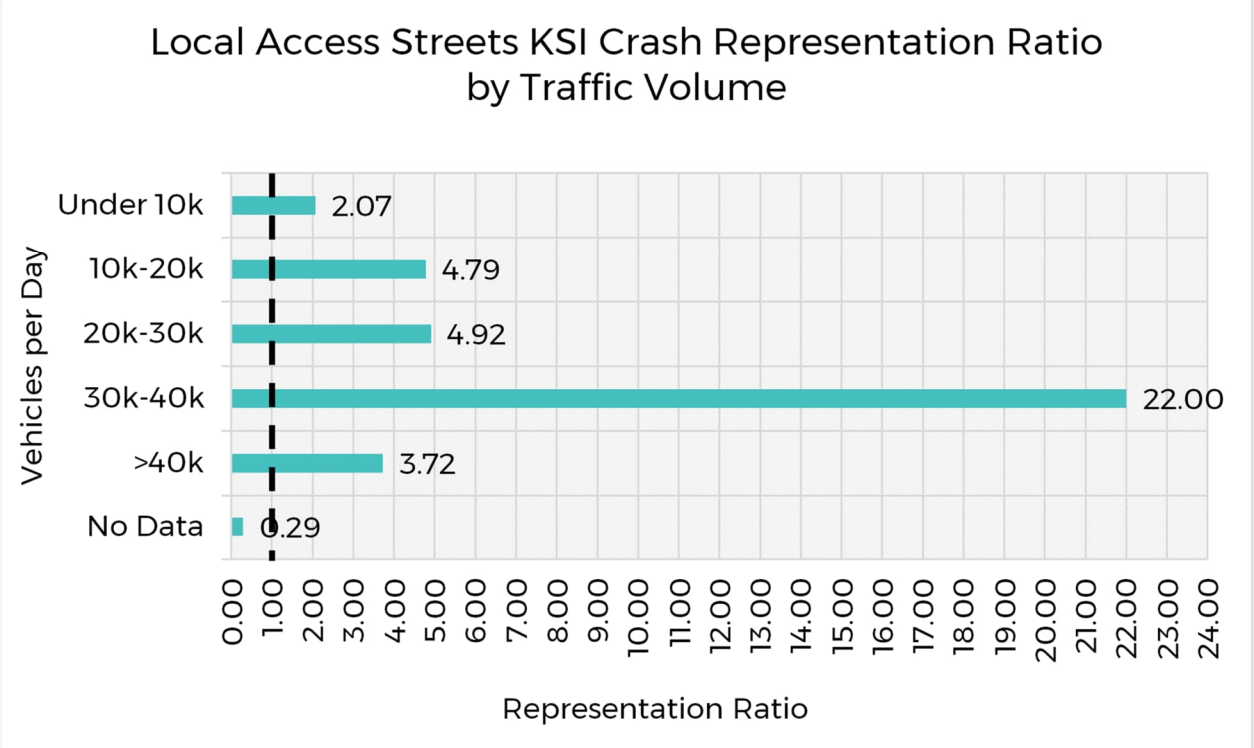

Figure 45: KSI Crash Representation Ratio Based on Traffic Volume

Intersection Crash Risk

All intersections within the local road network were analyzed alongside KSI crashes. These intersections were divided into three types: traffic signal, stop controlled, and roundabout. After compiling the data seen in the figure below, the analysis revealed that KSI crashes were 4.82 times more likely to occur at an intersection with a traffic signal. Comparatively, both stop controlled and roundabout intersections have a representation ratio less than 1.0, indicating that KSI crashes are less likely to occur at these types of intersections; roundabouts were the least likely to have a KSI crash.

Traffic volume was also analyzed against KSI crashes at the three intersection types. KSI crashes were most likely to occur at traffic signals regardless of the traffic volume. Stop controlled intersections were also above a 1.0 representation ratio at higher volume intersections, though less so than intersections with traffic signals. Roundabouts were the least represented of KSI crashes when evaluating with traffic volume, with values less than 1.0.

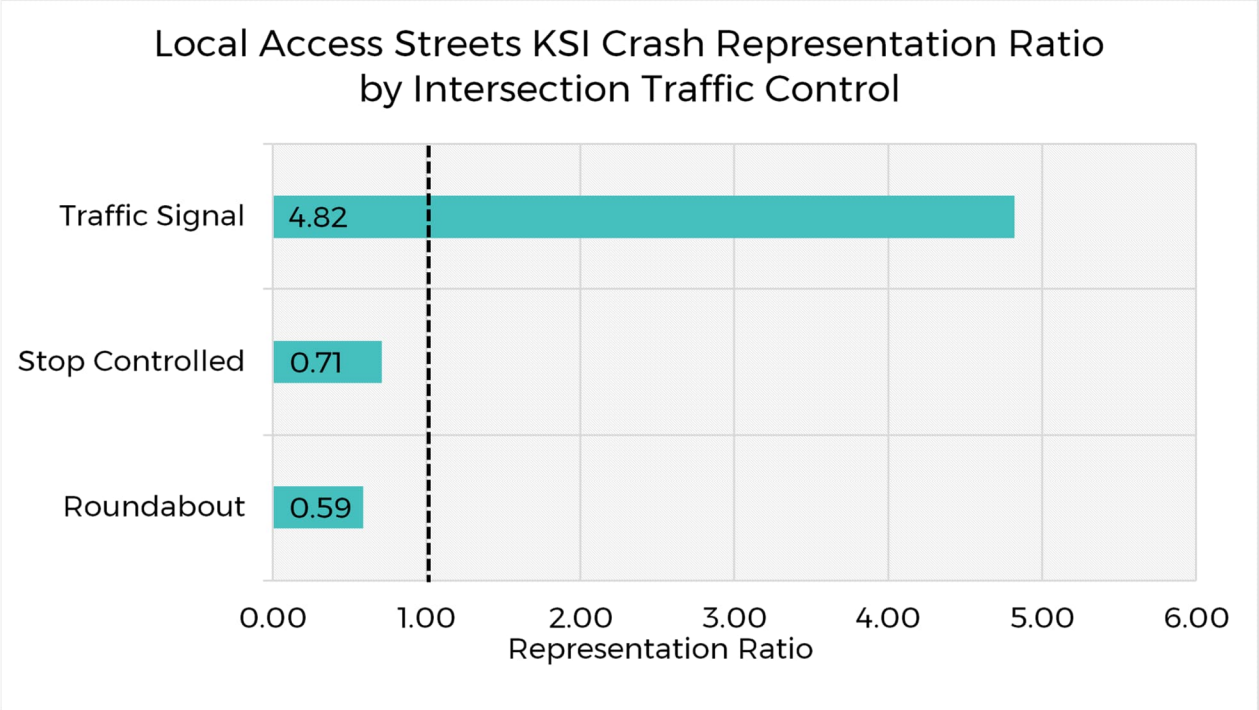

Figure 46: KSI Crash Representation Ratio Based on Intersection Traffic Control

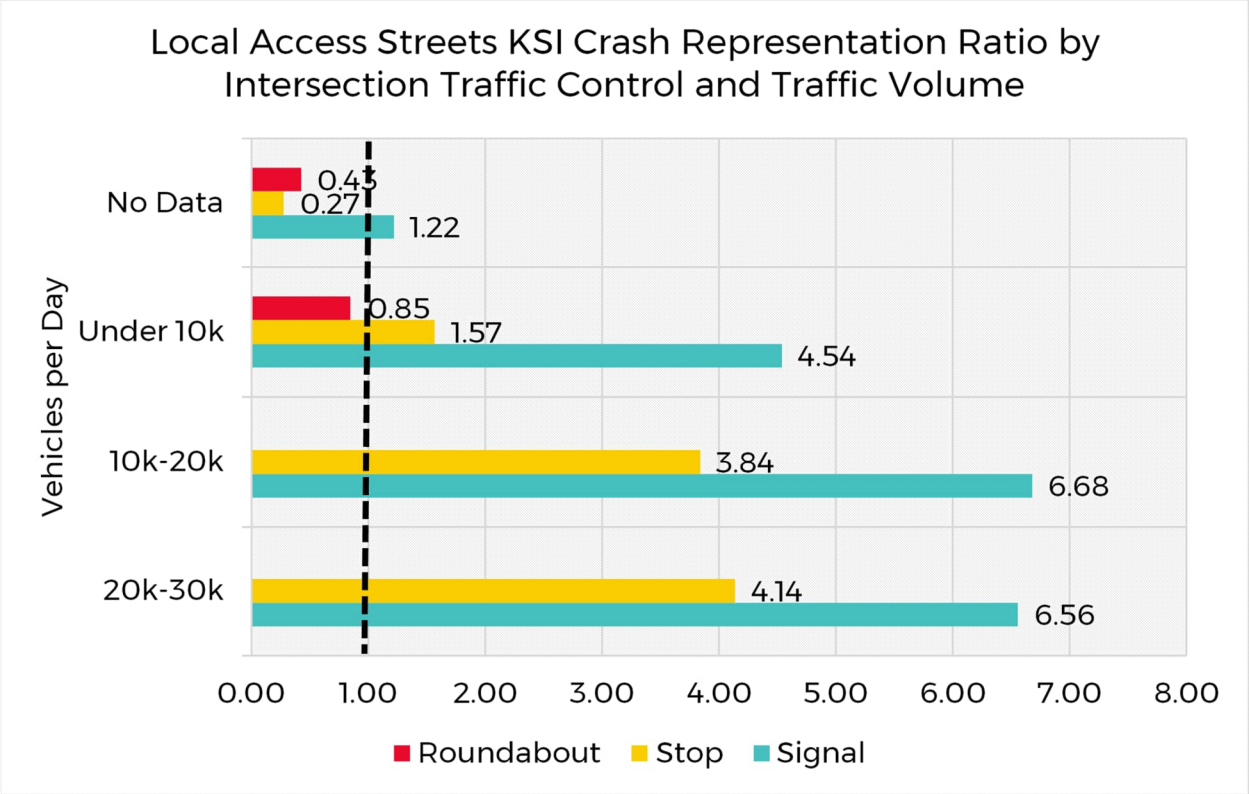

Figure 47: KSI Crash Representation Ratio Based on Intersection Traffic Control and Traffic Volume

CRASH MAPS

Mapping crash locations helps us understand the greatest areas of need for safety improvements. Three different maps were created that serve three different purposes:

- High Injury Network (HIN) and Intersection maps are based on locations that currently have the highest number of crashes in the city. These are locations where targeted improvements could greatly improve safety.
- High Risk Network and High Risk Intersection maps are based on a risk scoring system including multiple factors. These corridors and intersections may not have had recent KSI crashes, but they are locations that have a high likelihood of future KSI crashes. These are locations where the attributes of the roadway are similar to the roadways on the actual HIN, despite the recorded crash history.
- Crash Rate Maps show neighborhood areas that have a higher concentration of KSI crashes. These are neighborhoods that need funding allocated for both system-wide improvements like neighborhood traffic calming and targeted projects on HIN segments and intersections within the neighborhood.

High Injury Network (HIN) and Intersection Maps

To develop the HIN and intersections list, the fatal, serious injury, and minor injury crashes were separated by intersection or corridor related crashes. Then they were joined to the respective component of the network, with a 40-foot buffer for segments and 200-foot buffer for intersections. To aggregate the three crash severities, a weighted intensity for each intersection and segment was calculated with fatal crashes counting for twenty points, serious injuries four points, and minor injuries one point. These weights were chosen as they are approximately equal to the scale of the average crash cost to society for each severity of crashes. The weighted segments and intersections were then interlaid and compared to the roadway network to create the HIN and identify the high injury intersections.

The HIN was divided into four levels of priority. All corridors on the HIN have a high concentration of crashes and should be prioritized for investment, but some segments have much higher rates than others. Importantly, 68% of the fatal and serious injury crashes in Kansas City happened on just 13% of our streets. Looking at the highest priority corridors, 19% of fatal and serious injury crashes happened on just 2% of our streets. The KSI crash rate on a top priority corridor is 23 times higher than on a street that is not part of the HIN.

The following pages have statistics and the HIN maps. The maps can also be viewed online here: https://dashboards.mysidewalk.com/kc-spirit-mobility/traffic-safety#c-20024912

Table 4: High Injury Network Statistics

	KSI Crashes		Centerline Miles	
	Count	%	Total	%
Top Priority HIN	284	19%	55.3	2.1%
High Priority HIN	199	13%	49.6	1.9%
Medium Priority HIN	156	10%	55.8	2.2%
Moderate Priority HIN	393	26%	165.2	6.4%
Entire HIN	1032	68%	325.9	12.7%
Not on HIN	489	32%	2249.8	87.3%
Citywide	1521	100%	2575.7	100.0%

Table 5: High Injury Network Statistics by Disadvantaged Areas

	Miles not in Disadvantaged Area	Miles in Disadvantaged Area	% in Disadvantaged Area
Top Priority HIN	19.0	36.3	65.6%
High Priority HIN	24.0	25.6	51.6%
Medium Priority HIN	39.2	16.6	29.7%
Moderate Priority HIN	97.9	67.3	40.7%
Entire HIN	180.1	145.8	44.7%
Not on HIN	1595.3	654.5	29.1%
Citywide	1775.4	800.3	31.1%

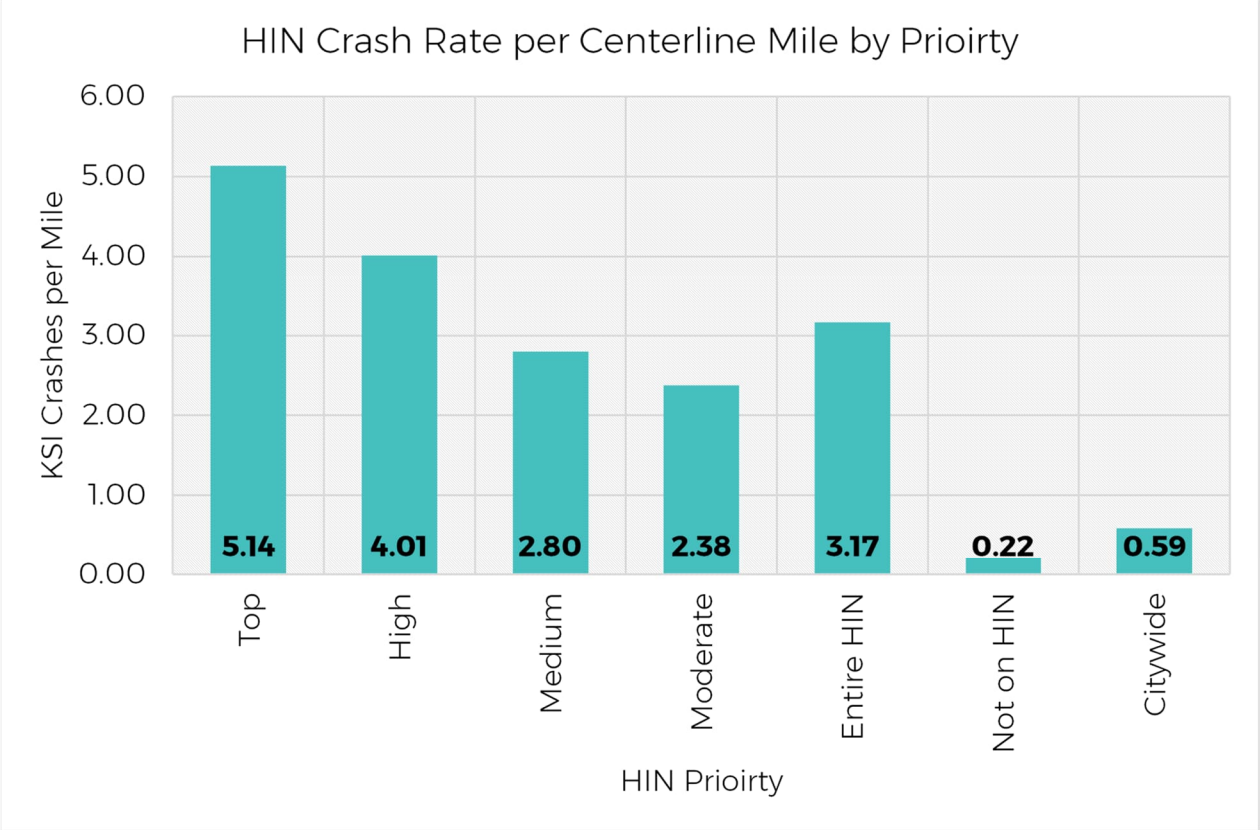

Figure 48: KSI Crashes per Centerline Mile on Local Access Roadways (2015-2019)

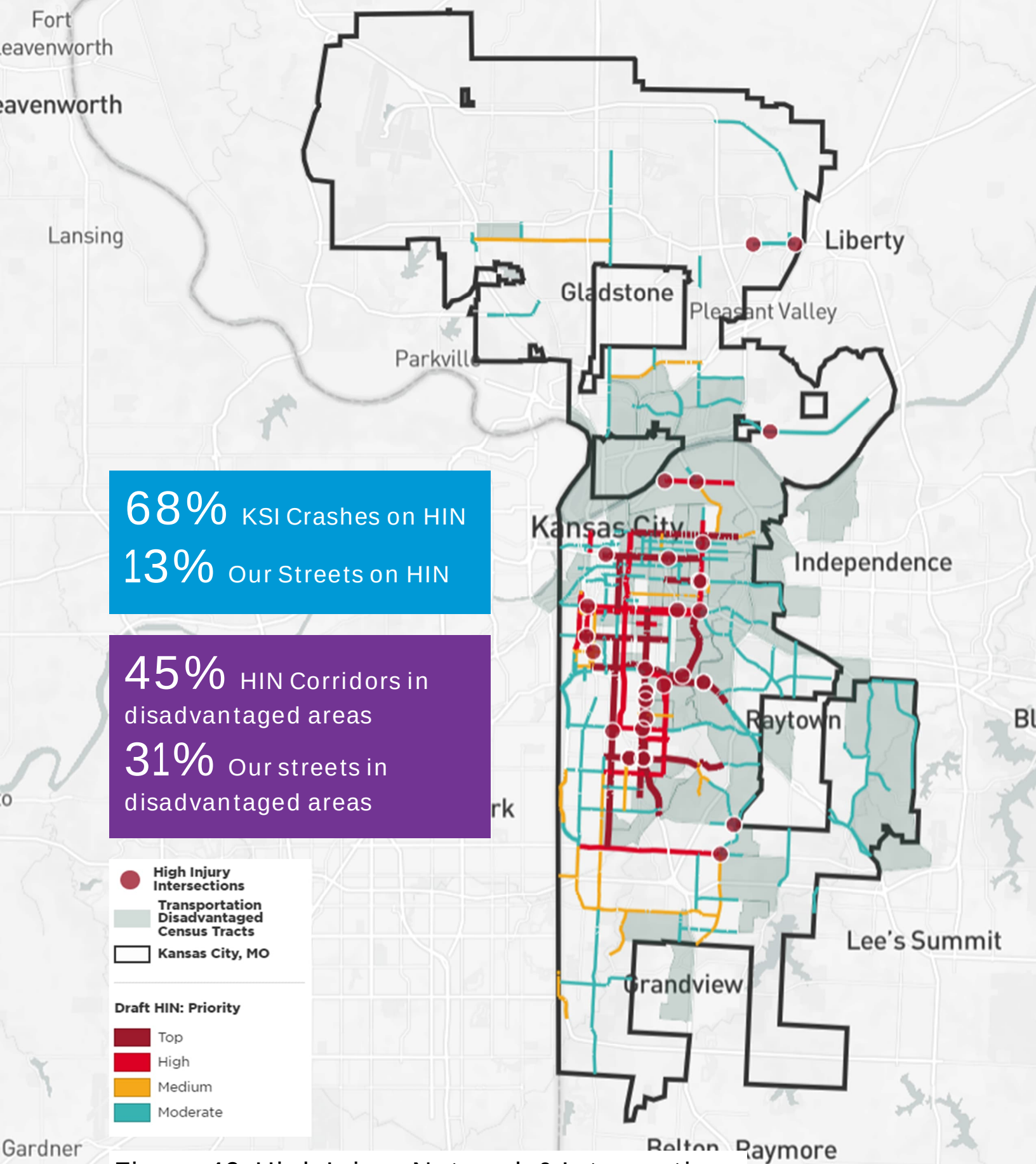

Figure 49: High Injury Network & Intersections

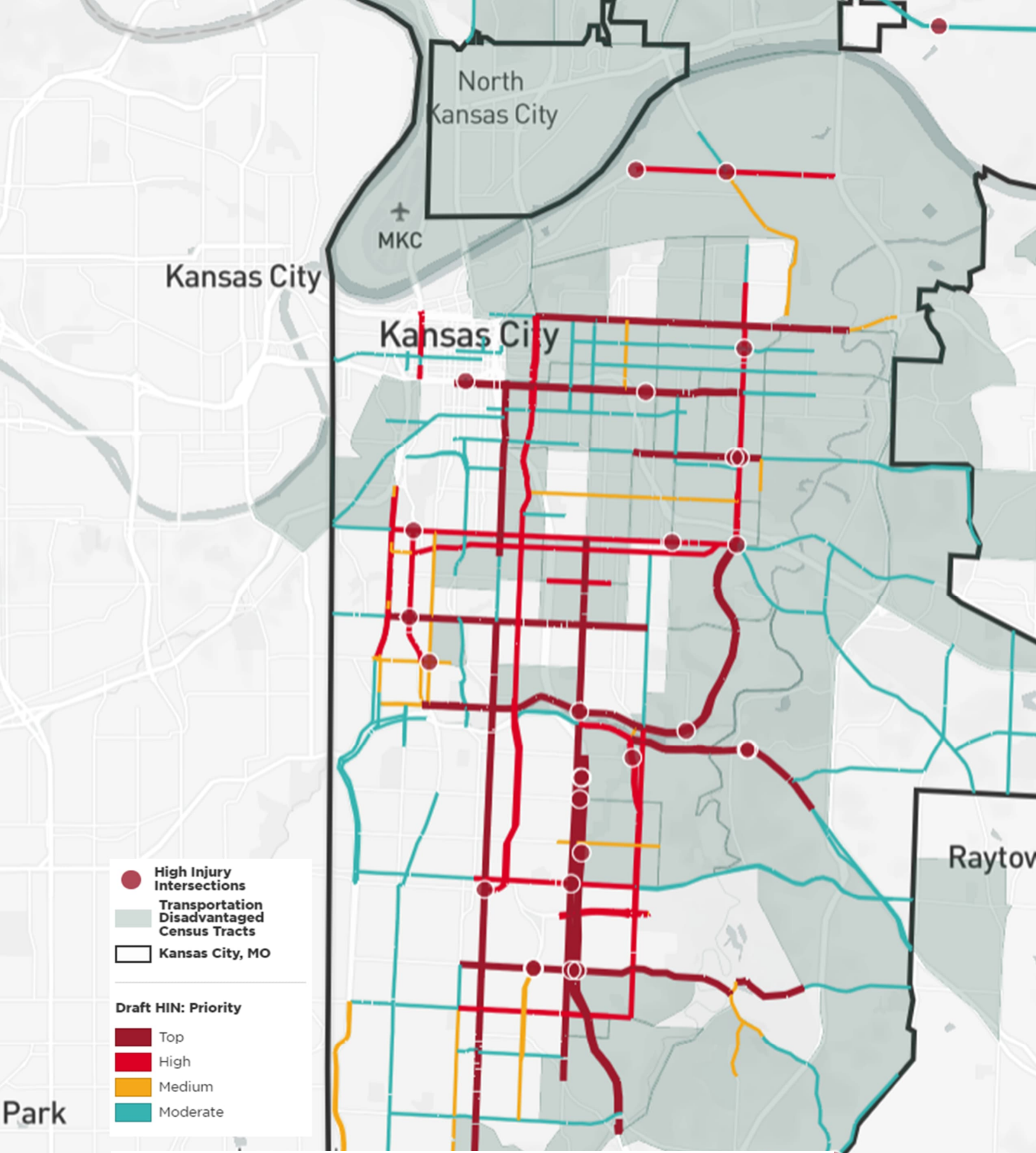

Figure 50: High Injury Network & Intersections Detail

High Risk Network Maps

After the risk factors were identified in the Systemic Analysis, staff developed a risk scoring system for Kansas City streets. Intersections and road segments were scored on a 10 point scale, with the score of 10 representing the highest risk roads and intersections, and a score of 0 representing relatively low risk roads and intersections. The scoring criteria are shown in the table below. Staff then applied the risk scores to the Kansas City roads and intersections to create the High Risk Network and High Risk Intersections maps. These maps are included in the Crash Maps section of this plan and can be viewed online here: https://dashboards.mysidewalk.com/kc-spirit-mobility/traffic-safety#c-20114969

Staff calculated statistics for the High Risk Network provided below. Notable takeaways include:

- 89% of the highest risk roads in the city scoring 8 to 10 points on the risk scoring table are in transportation disadvantaged areas.
- The highest risk roads, with scores from 8 to 10, have an average KSI crash rate 29.5 times higher than the lowest risk roads (5.9 KSI crashes per mile compared to 0.2 KSI crashes per mile).

Table 6: Risk Scoring for Segments

Risk Type		Risk Element	Risk Score
Land Use Context		Urban	1
		Suburban	0
		Rural	0
Transportation Disadvantaged Tract Status		Not in Disadvantaged Tract	0
		In Disadvantaged Tract	2
Number of Lanes	Two-Way Roads	2 Lanes	0
		4 Lanes	1
		6 Lanes	2
	One-Way Roads	1 Lane	0
		2 Lanes	0
		3 Lanes	2
Speed Limit		0 - 25 mph	0
		30 mph	1
		35 mph	2
		40+ mph	1
Traffic Volume		<10k vehicles per day	0
		10k -20k vehicles per day	1
		20k-30k vehicles per day	1
		30k+ vehicles per day	1
Congestion (Volume to Capacity Ratio)		0-.75 V/C Ratio	2
		.75-1.0 V/C Ratio	1
		1.0+ V/C Ratio	0
Total Points Possible			10

Table 7: Risk Scoring for Intersections

Risk Type	Risk Element	Risk Score
Land Use Context	Urban	2
	Suburban	0
	Rural	0
Transportation Disadvantaged Tract Status	Not in Disadvantaged Tract	0
	In Disadvantaged Tract	3
Traffic Control	Traffic Signal	3
	Stop Control or Roundabout	0
Traffic Volume	<5k vehicles per day	0
	5k -10k vehicles per day	1
	10k+ vehicles per day	2
Total Points Possible		10

Table 8: High Risk Network Statistics (2010-2020)

Risk Score	% Miles in Disadvantaged Areas	KSI Crash Rate per Mile	% of Total Miles in City	% of Total KSI Crashes in City
0-1 Minimal	0%	0.2	51%	12%
2-3 Moderate	69%	0.6	29%	17%
4-5 High	37%	2.0	10%	22%
6-7 Higher	66%	4.2	8%	34%
8-10 Highest	89%	5.9	2%	15%
Overall	31%	0.9	100%	100%

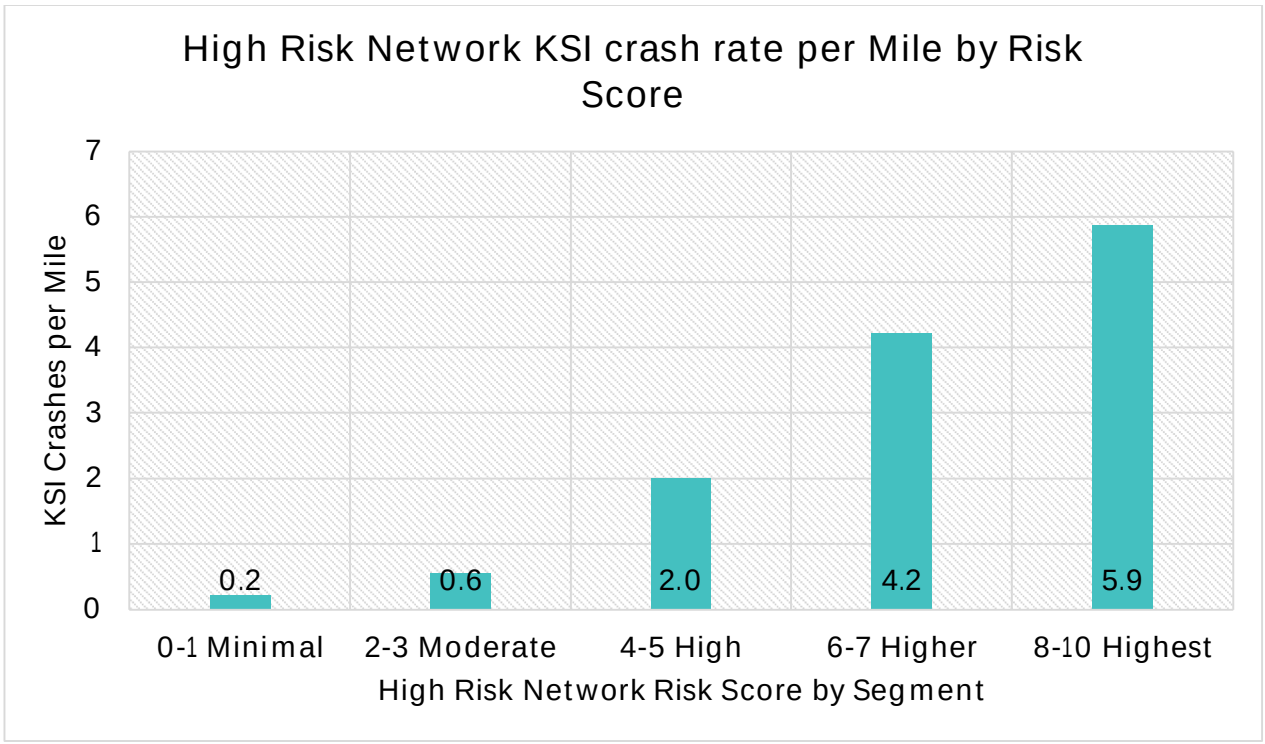

Figure 51: KSI Crash Rate per Mile by Risk Score for High Risk Network (2010-2020)

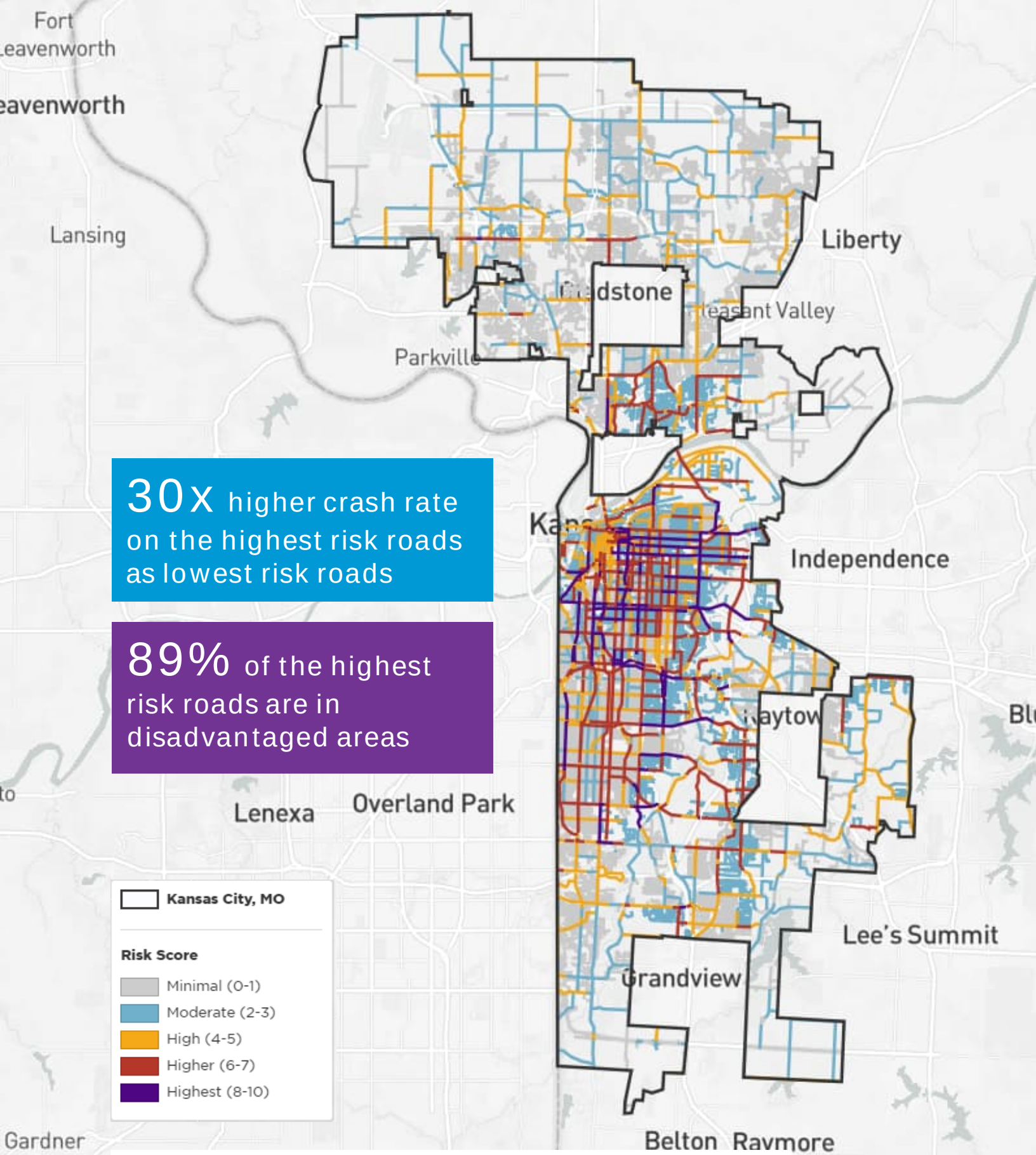

Figure 52: High Risk Segments in Kansas City, MO

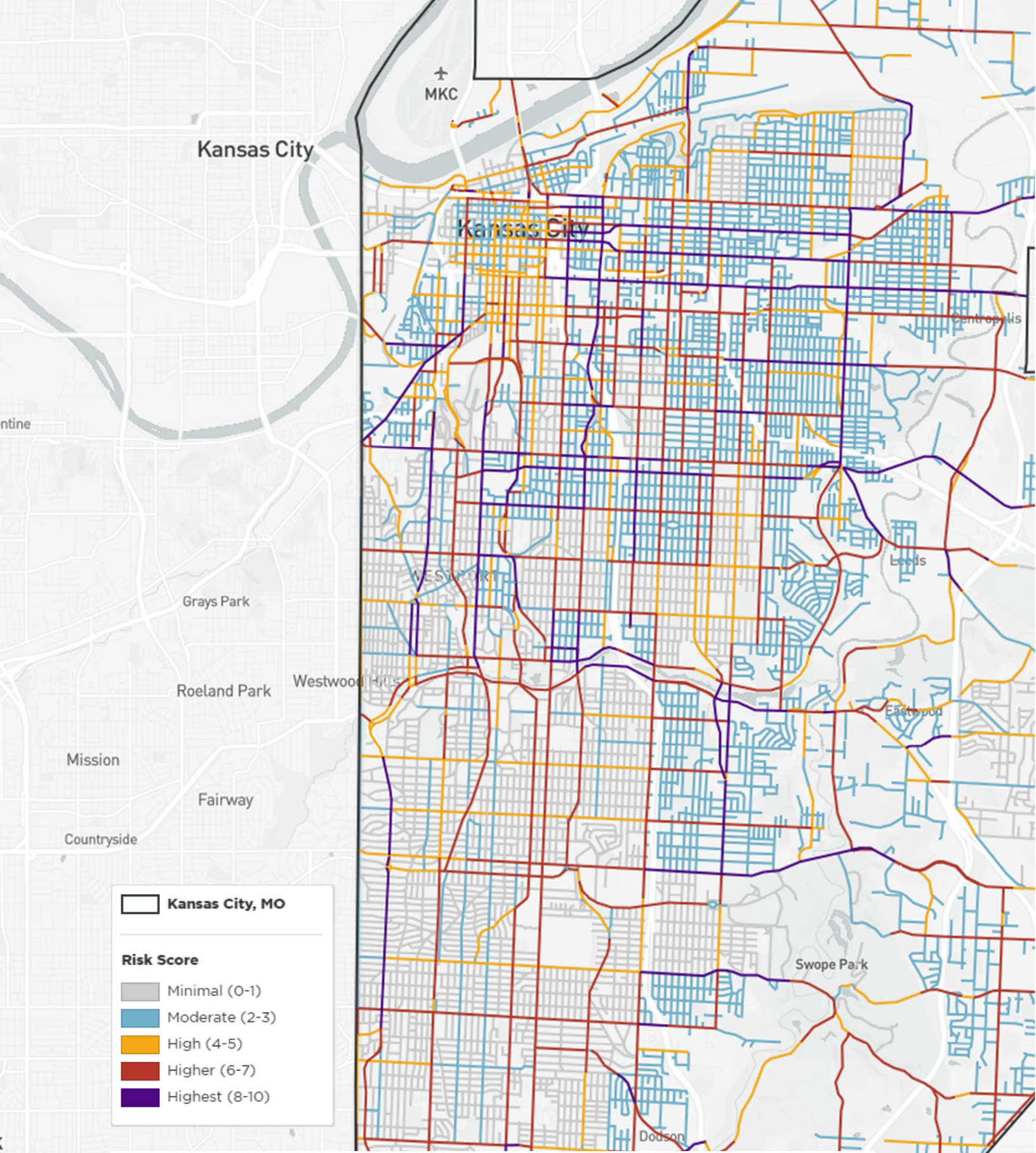

Figure 53: High Risk Segments in Kansas City, MO Detail

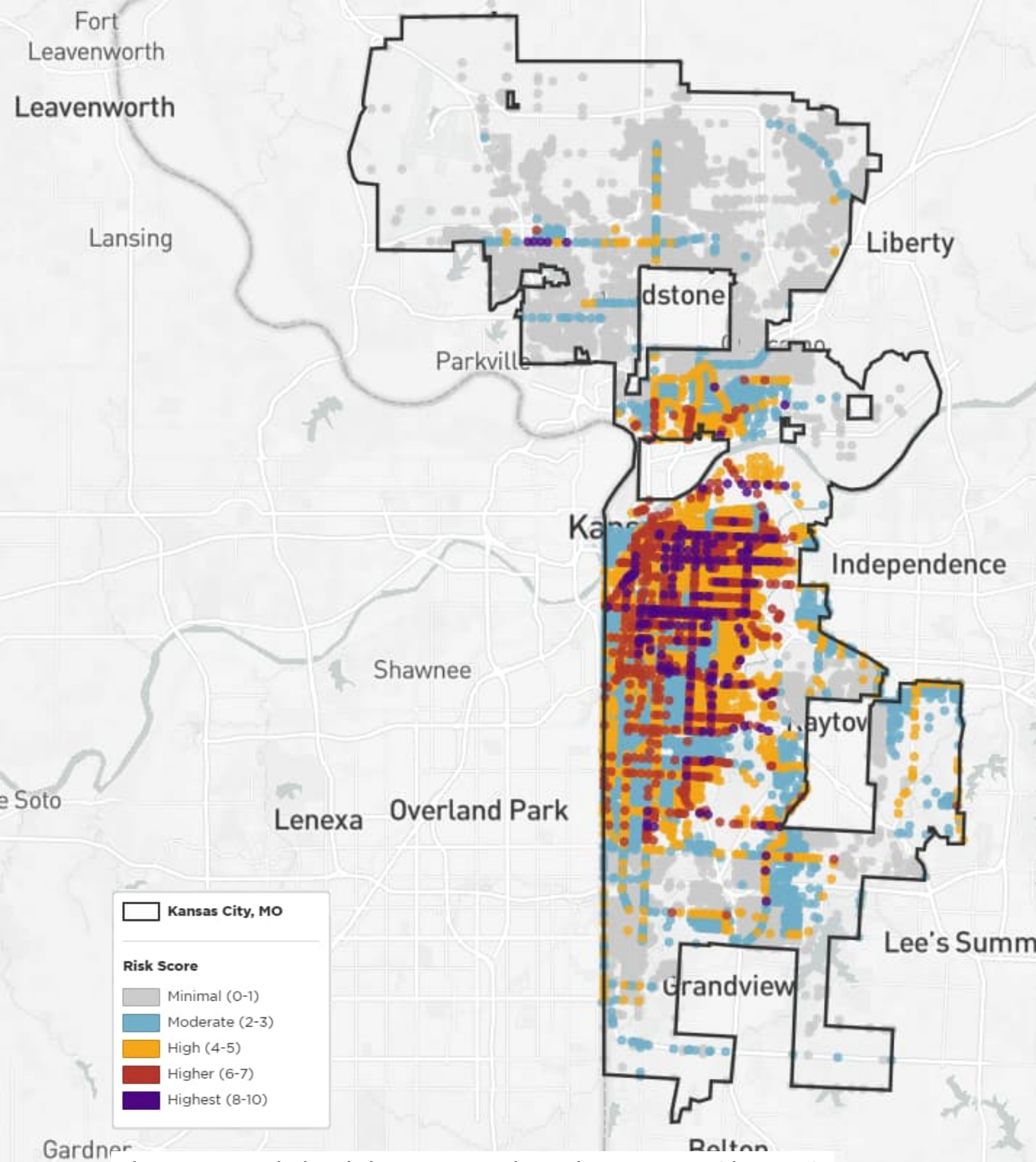

Figure 54: High Risk Intersections in Kansas City, MO

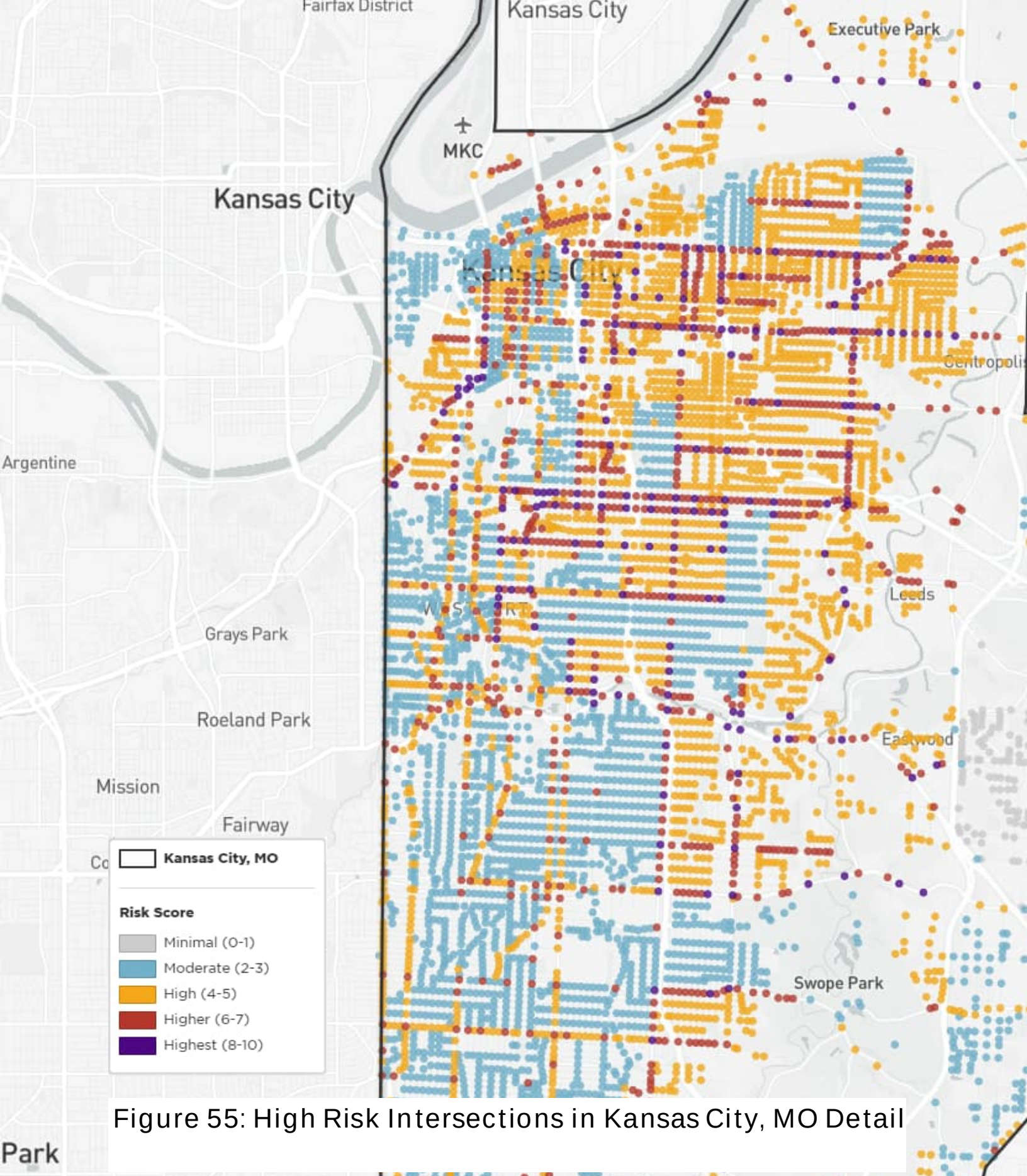

Figure 55: High Risk Intersections in Kansas City, MO Detail

Crash Rate Maps

The maps on the following pages show fatal and serious injury crash rates for both motor vehicle only and bicycle/pedestrian KSI crashes on local access streets by census tract. The maps are normalized by two different metrics:

- Crashes per Mile of Roadway
- Crashes per 100k Population

Each of these show a similar story in a slightly different way, but the common theme throughout is that KSI crashes are most highly concentrated in urban areas, especially disadvantaged urban areas. The motor vehicle crashes are most concentrated in the disadvantaged areas on the eastern portion of Midtown. For the bike and pedestrian crashes, when considering the non-normalized crash numbers, the downtown core area is the densest cluster of crashes; however, when population is accounted for, the eastern disadvantaged areas show a bit of a cluster.

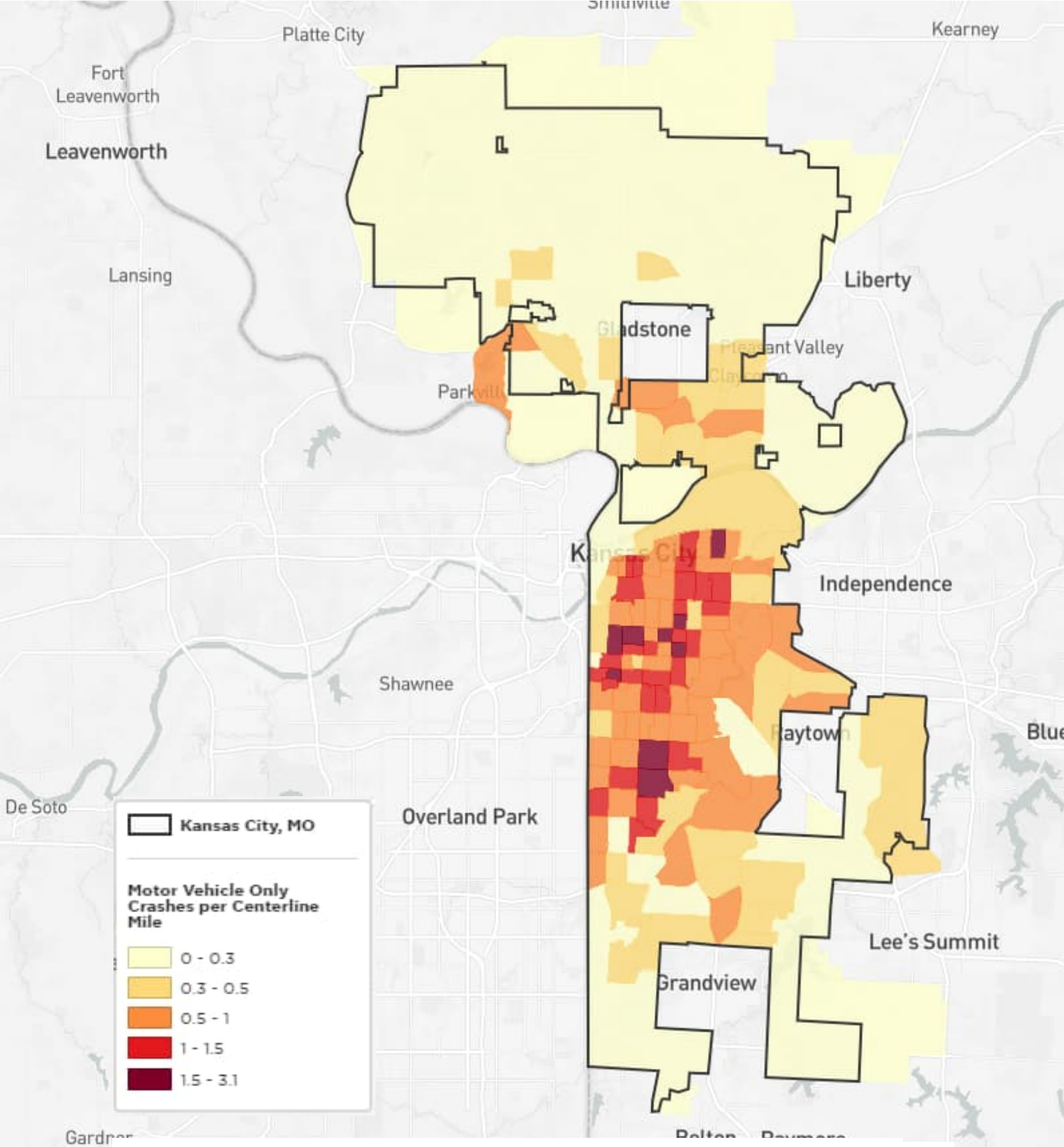

Figure 56: Fatal and Serious Motor Vehicle Only Crashes per Centerline Mile in Kansas City, MO Census Tracts

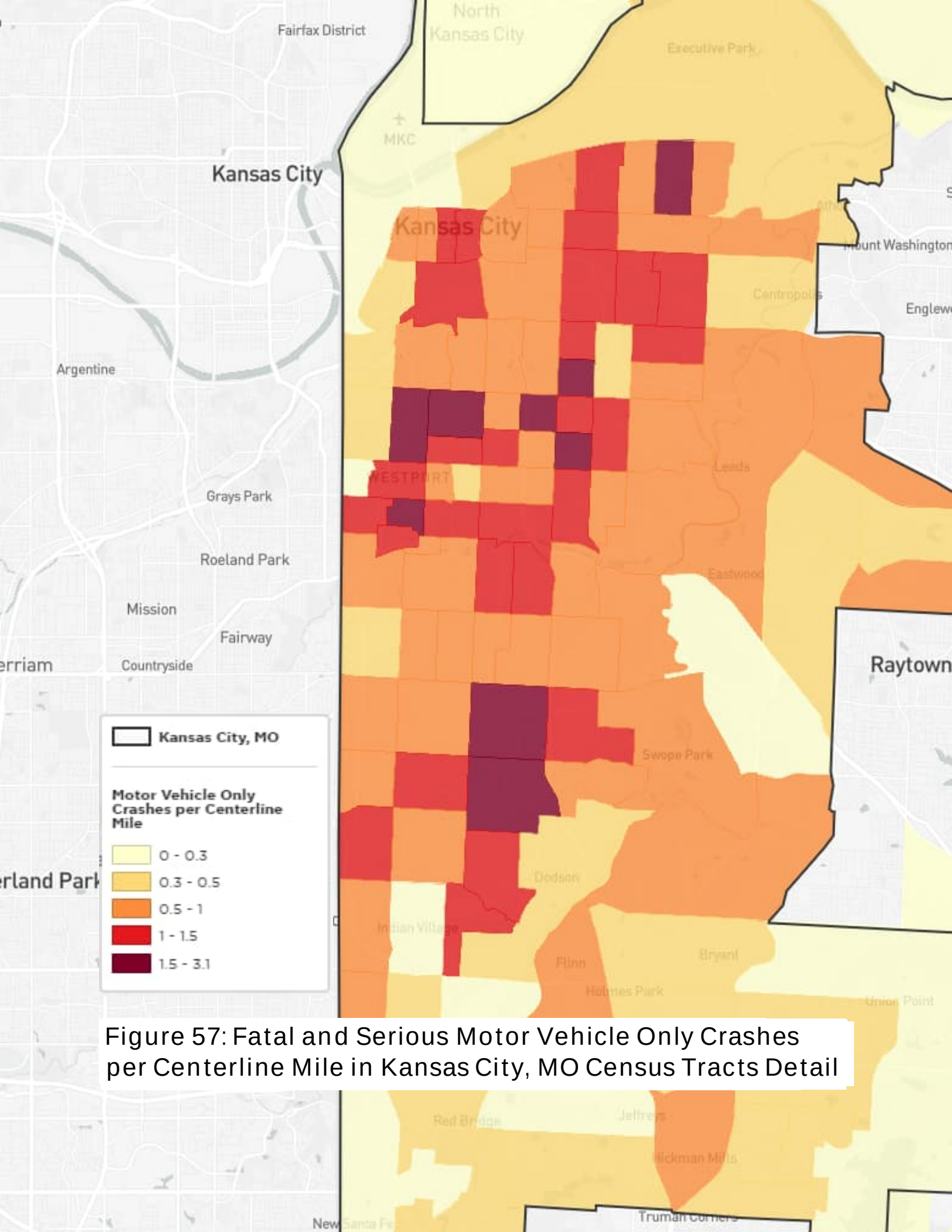

Figure 57: Fatal and Serious Motor Vehicle Only Crashes per Centerline Mile in Kansas City, MO Census Tracts Detail

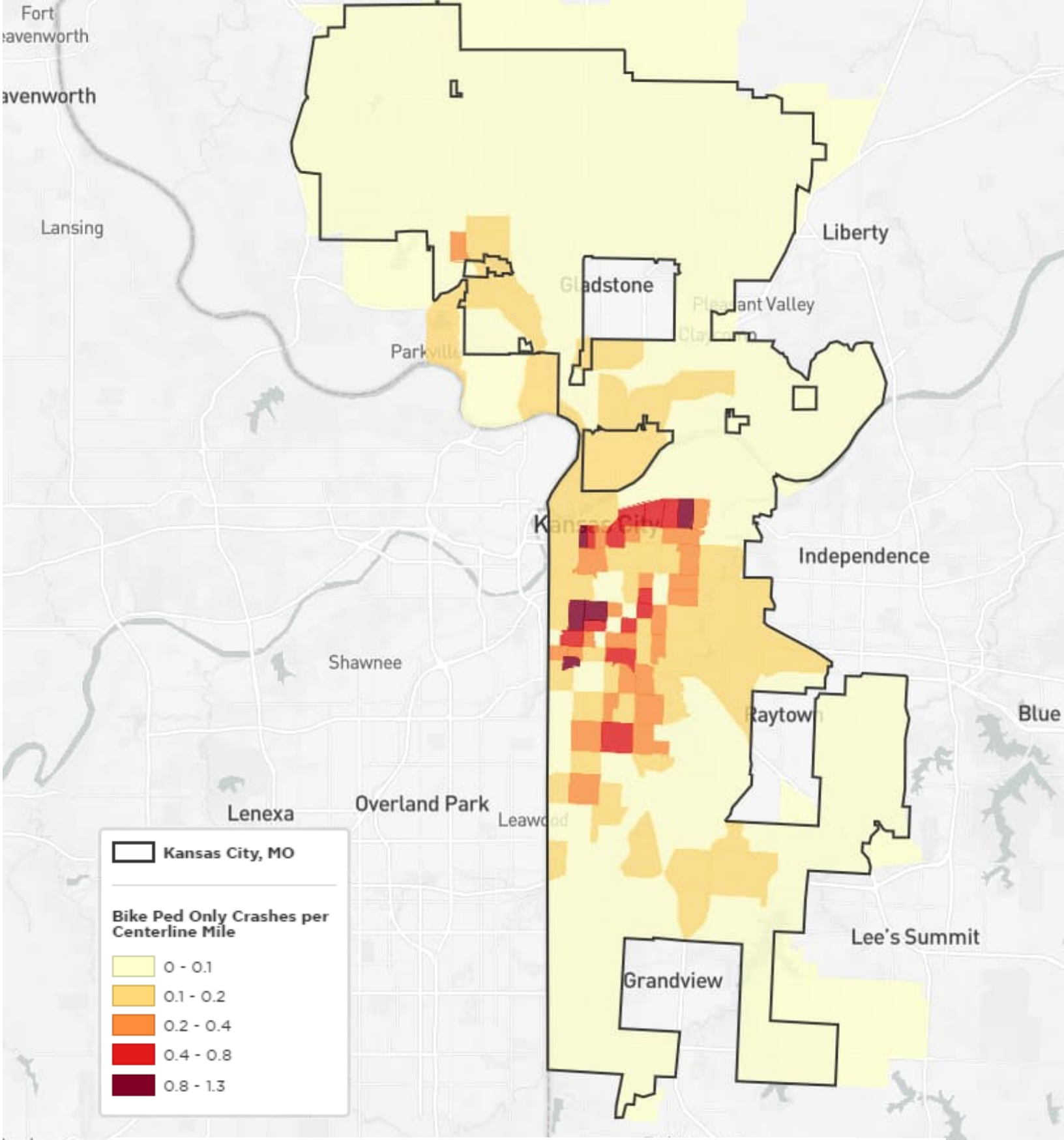

Figure 58: Fatal and Serious Bike/Pedestrian Crashes per Centerline Mile in Kansas City, MO Census Tracts

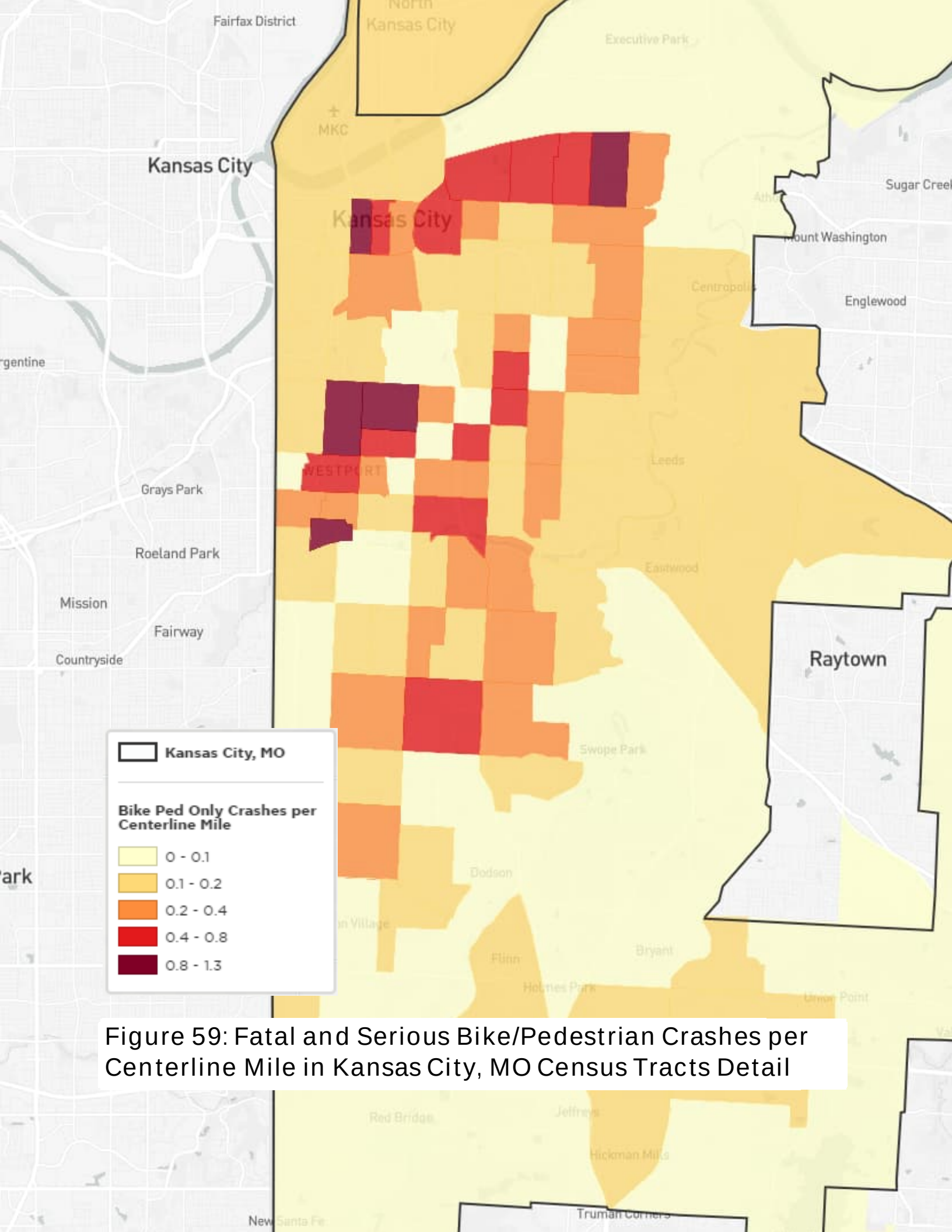

Figure 59: Fatal and Serious Bike/Pedestrian Crashes per Centerline Mile in Kansas City, MO Census Tracts Detail

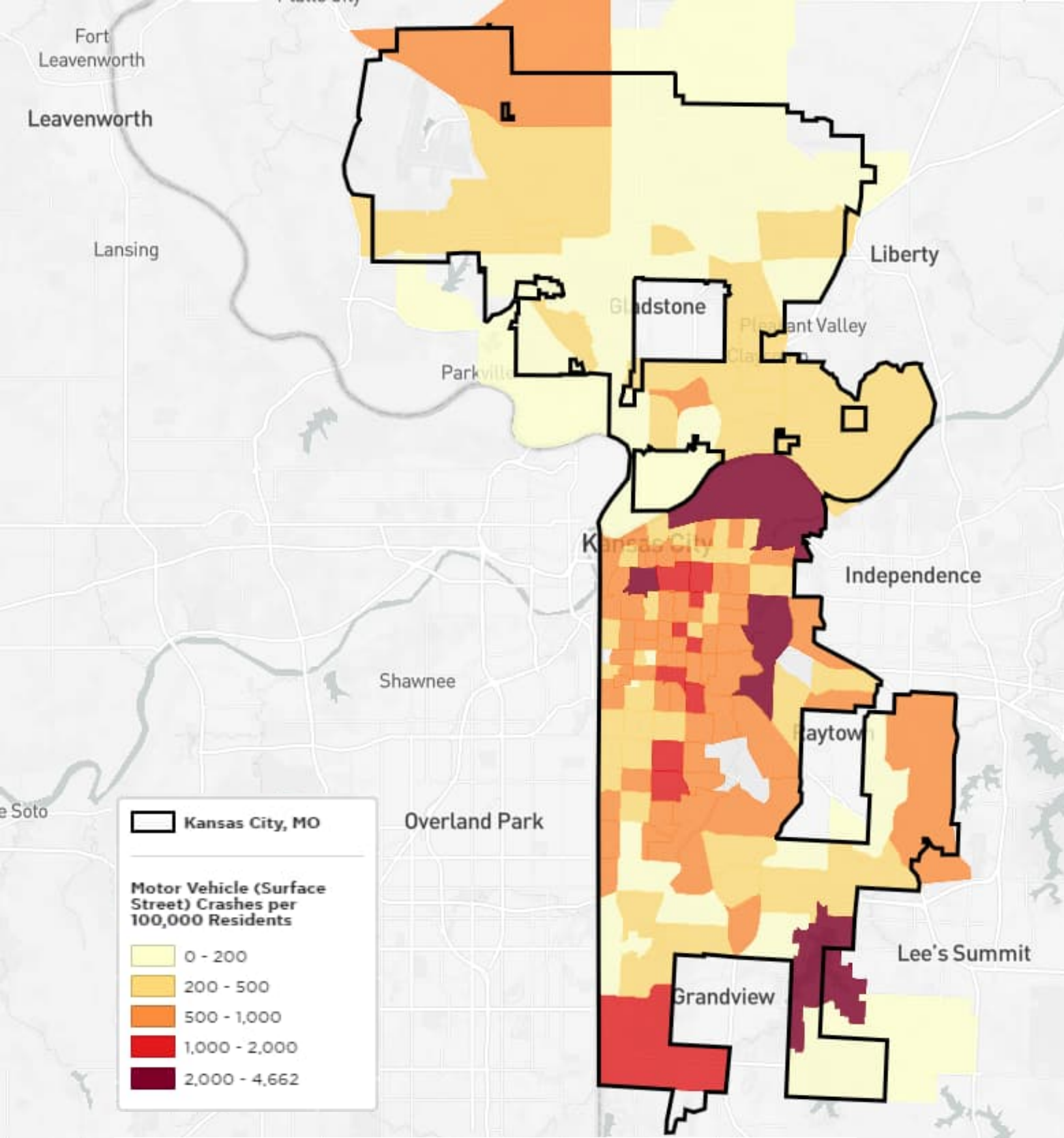

Figure 60: Fatal and Serious Motor Vehicle Only Crashes 100,000 Residents in Kansas City, MO Census Tracts

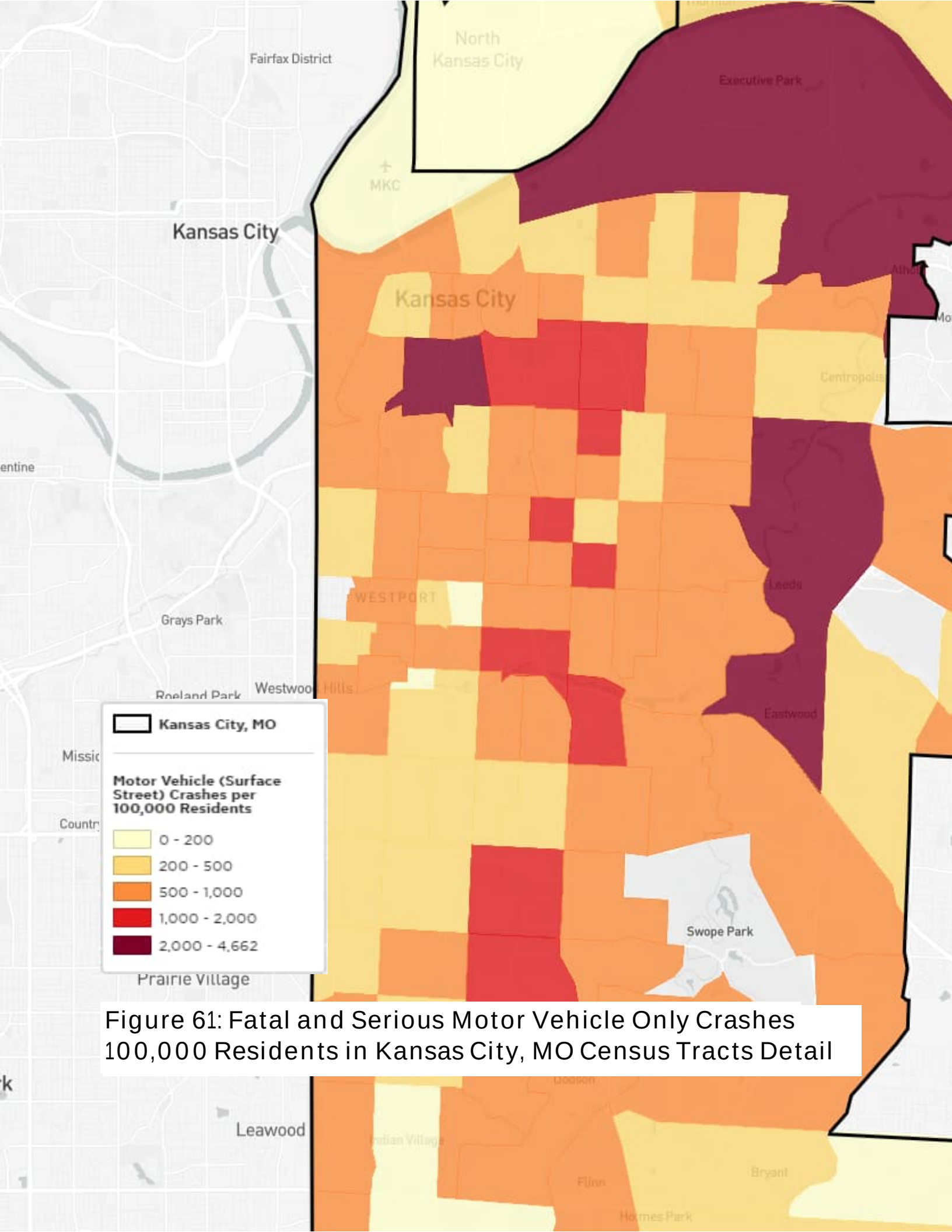

Figure 61: Fatal and Serious Motor Vehicle Only Crashes 100,000 Residents in Kansas City, MO Census Tracts Detail

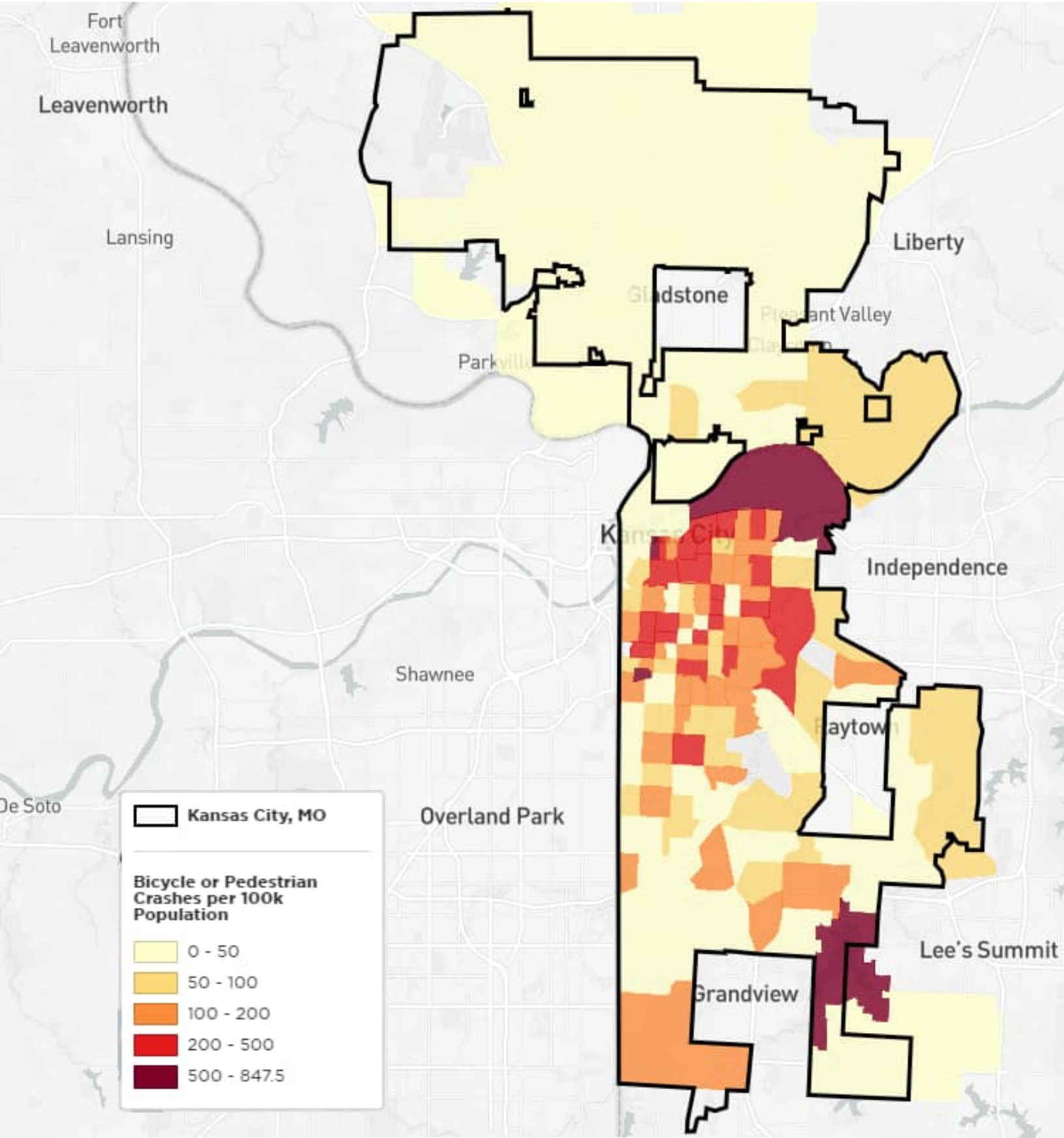

Figure 62: Fatal and Serious Bike/Pedestrian Crashes per 100,000 Residents in Kansas City, MO Census Tracts

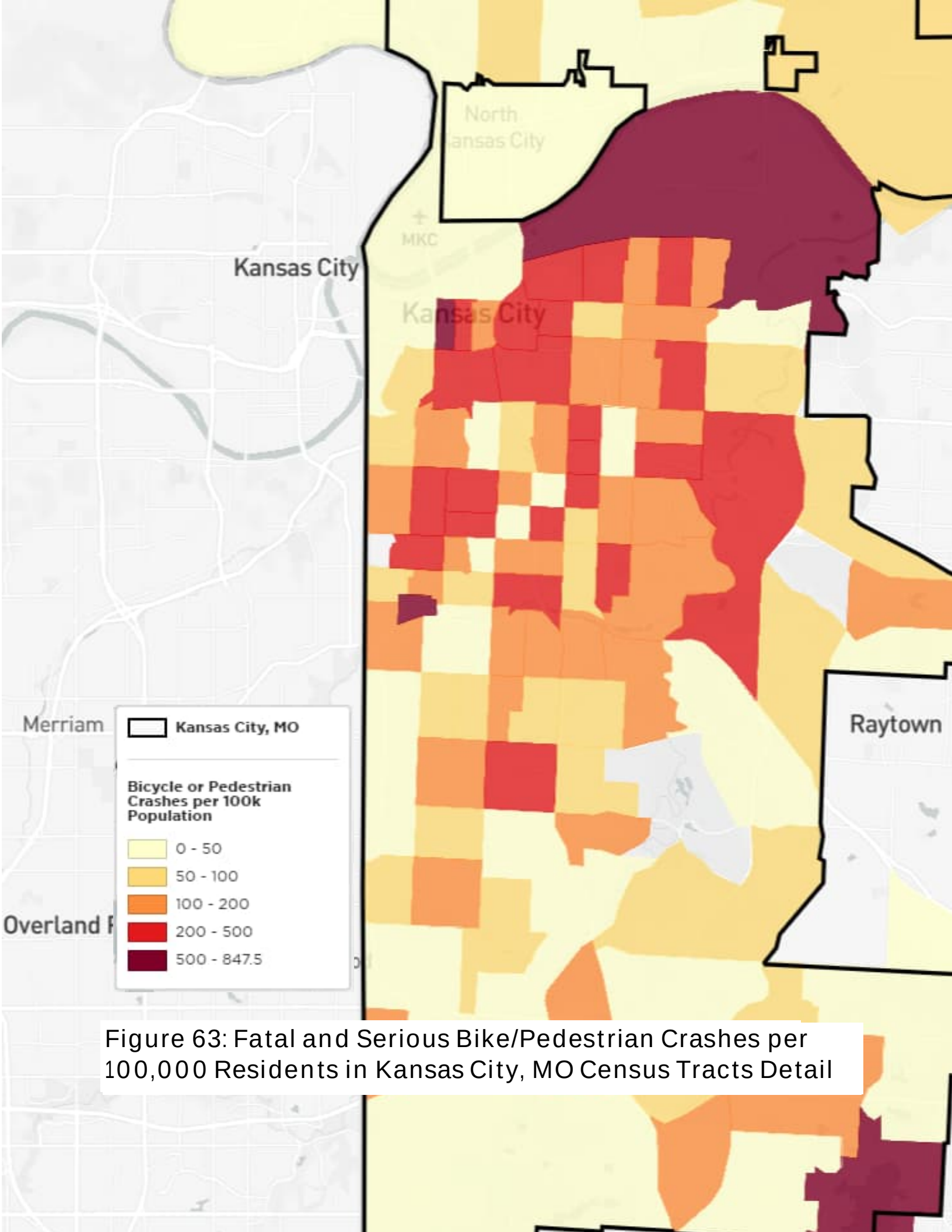

Figure 63: Fatal and Serious Bike/Pedestrian Crashes per 100,000 Residents in Kansas City, MO Census Tracts Detail

PUBLIC ENGAGEMENT

Public engagement will be an ongoing and key component of the Vision Zero program as the City seeks to gather public input to inform future projects and notify the community about upcoming Vision Zero work. This ongoing public engagement strategy will mirror early efforts and include both continued outreach about the Vision Zero program in general, as well as project-specific outreach on annual Vision Zero projects.

City staff will continue to convene the Vision Zero Task Force to monitor the initiative's progress, utilize existing neighborhood association and community meetings, partner agency meetings, city council meetings and other local project initiatives to keep residents informed about Vision Zero progress and planned work as well as an opportunity to gather input and project ideas.

Along with crash data and equity considerations, community feedback gathered at various engagement opportunities and the online Vision Zero engagement map will be a key factor in prioritizing annual Vision Zero projects.

Each year, as Vision Zero projects are finalized and funding is identified, project-specific outreach will involve a standardized public notification process including, but not limited to the following:

- One-on-one meetings with City Council members
- Informational mailers to residents near project areas
- In-person and/or virtual public meetings to share project details and gather input
- Direct outreach to impacted stakeholders like businesses, schools, and churches
- Direct outreach to neighborhood associations within project areas

Social media and news releases will also serve as a tool to notify the public about Vision Zero impacts, progress, and future engagement opportunities. Public awareness campaigns and public safety education programs may also be used in the future as a tactics to address specific focus areas like aggressive driving or bicycle safety.

The City's Vision Zero initiative will also look for opportunities to strengthen regional partnerships, share resources, and increase outreach through other partner agencies and local municipalities.

As Kansas City, Missouri continues to implement its Vision Zero initiative and realizes the impact of these infrastructure improvements on neighborhood streets, there will be opportunity for growth and evolution in the outreach strategy to ensure the program is meeting the needs of the community.

POLICY REVIEW

Official City policies are a key component to Vision Zero. To be effective, Vision Zero needs to be incorporated into all aspects of the operations and activities of the city, therefore polices need to be crafted with Vision Zero in mind. This section reviews the policies most relevant to achieving Vision Zero in Kansas City.

MAJOR STREET PLAN

The Major Street Plan (MSP) guides planning and design for existing and future arterial streets in Kansas City and was last updated in 2016. Given its age and new local and Federal policy, the Major Street Plan is due for an update. The new update should reflect the City's Complete Streets Ordinance, Climate Action Plan, Vision Zero Action Plan, Transit-Oriented Development Plan, and forthcoming KC Spirit Playbook Comprehensive Plan. The plan should be data driven and include performance criteria and a decision-making framework that reflects these policy updates.

Today, the MSP largely only considers existing and modeled future automobile travel to guide decisions about street design. As a result, roadways with too much automobile capacity are built, resulting in unsafe conditions for all road users. In a future update, the MSP should include a level of service estimate for all modes, metrics related to safety, equity, climate change and the environment, and lifecycle costs. Given a conflict between these criteria, safety considerations should be the deciding factor. As the City looks to reduce mode share for driving and increase mode share for transit, walking, and biking, future traffic forecasts should reflect that policy decision rather than assuming growth in vehicle traffic.

The Major Street Plan should be revised to include typical sections that reflect findings from the systemic safety analysis, particularly that roadways with excessive capacity have a higher likelihood of fatalities and serious injuries to all road users. A more detailed assessment of roadway attributes, land use context, and equity should inform the design of typical section. Today the Major Street Plan lacks any formal authority to construct "half improvements" for new roads. These half improvements have been approved by design exception in the past. The new Major Street Plan should formally recognize the requirement to build all new roads as half improvements.

Typical sections should include configurations that include all modes, with new guidelines for separated and protected bicycle facilities and exclusive transit lanes. Given the high prevalence of crashes at intersections – particularly signalized intersections – the MSP should include typical intersection layouts that incorporate safe, multi-modal design standards.

Finally, the MSP should offer clarity on how and when to apply a standard. In greenfield development areas, right-of-way dedication and site preparation should reflect future automobile capacity needs, but roadways should only be built to accommodate today's automobile traffic needs. The MSP should also guide the maintenance, operation, and

reconfiguration of major streets that are already built and incorporate guidance on traffic calming, road diets, and incorporation of pedestrian, bicycle, and transit facilities.

If updated in this fashion, the Major Street Plan could become the foundation of the Complete Street Design guide, as required by the Complete Street ordinance.

COMPLETE STREETS ORDINANCE

The Kansas City Council adopted a Complete Streets Ordinance in 2017. The ordinance provides clear direction to incorporate complete streets principles into the design of major capital projects, routine street maintenance (e.g., street resurfacing), and private development. The ordinance expanded the acceptable design guides and criteria that could be used for complete streets projects, such as NACTO design guides or Multimodal LOS analysis. The ordinance led to an inter-departmental focus on Complete Streets through the City's Mobility Committee and staff openness to new engineering and design standards for streets.

The ordinance should be reviewed for clarity, effectiveness, compliance, and relevance and revised by the City Council if needed. City staff should review the implementation and reporting sections of the ordinance and verify that these procedures are being followed. Some of the elements of the ordinance requirements have not been fully implemented since the ordinance was enacted. One important element was the requirement for the city to develop a Complete Street Design Guide. As of 2022, this design guide has yet to be developed.

ENGINEERING AND DESIGN GUIDES

Several departmental handbooks and engineering guides. These plans include:

- Traffic Engineering and Operations Manual (2017)
- Traffic Calming Handbook
- Public Works Design and Construction Standards (Ongoing)
- Parks and Boulevards Design Guide (2013)

These policy handbooks and design guidelines should be thoroughly reviewed and revised for compliance with the Complete Streets ordinance and Vision Zero Action Plan. Currently, many processes and guidelines prioritize motorist convenience and traffic flow over safety. Some notable issues include:

- There is no comprehensive Complete Streets guide acting as the primary resource and authority on street design. This makes implementation of complete streets more difficult than necessary for staff, project managers, consultant engineers, and development applicants and likely has led to low compliance with the Complete Streets Ordinance.

- The Traffic Calming Handbook criteria for placement of traffic calming devices exclude arterials, which are the primary traffic safety concern in the city. The Complete Streets guide notion of a "neighborhood" where traffic calming is to be applied is a single-family residential street. Yet many KCMO residents live in multifamily or mixed-use buildings located on arterial streets, since restrictive zoning limits such uses to arterial streets. This is a fundamental equity and environmental justice issue. Appropriate traffic calming and safety measures for arterial streets should also be included in the handbook.

- The Traffic Engineering and Operations Manual should place a greater emphasis on safety. Crash countermeasures beyond those mentioned in the traffic calming measures should be included in the manual. Most processes and standards should be revised to prioritize safety as a primary consideration with traffic progression, parking, and truck deliveries considered lower priorities. The procedures for obtaining and analyzing crash data should also be reviewed. Rather than collecting and scanning police crash reports manually for use in safety analysis, the Streets and Traffic division should make use of the MARC crash database, which is already based on digitized Missouri Uniform Traffic Crash Reports. Reporting on high crash locations should exclude property damage only crashes, which often skew to relatively safer roadway design rather than the most dangerous locations.

- The Parks and Boulevard Design Guide is largely focused on the aesthetics and history of boulevard and parkways streets. While these are important factors, safety concepts should also be introduced and prioritized into this design guide. In particular, the guidelines should re-examine restrictions on left turn lanes, prohibitions of on-street parking, and the requirement that parkways be at least four lanes in width, even if only 2-lanes are necessary for the traffic volume.

EQUITY ANALYSIS

A well-designed and equitable transportation system provides safe and accessible roads for everyone in the city. Currently our transportation system is anything but equitable: our black communities share a much higher risk of being killed or seriously injured on our streets. Other equity concerns exist as well, especially related to disabled users of our transportation system, as well as people walking and biking. The equity analysis focuses on the data showing the distribution of high-risk infrastructure in Kansas City, data reflecting the risk of death/serious injury crashes based on neighborhoods (transportation disadvantaged census tracts[3] vs non-disadvantaged areas), race, as well as disabled road users, and unlicensed drivers.

As mentioned previously in the Systemic section of the Action Plan, the KSI crash representation ratio chart suggested that disadvantaged areas tend to have a higher risk of KSI crashes overall. As shown in the chart, the representation ratio of KSI crashes in disadvantaged areas is 2.1 times more likely to happen than in the non-disadvantaged areas.

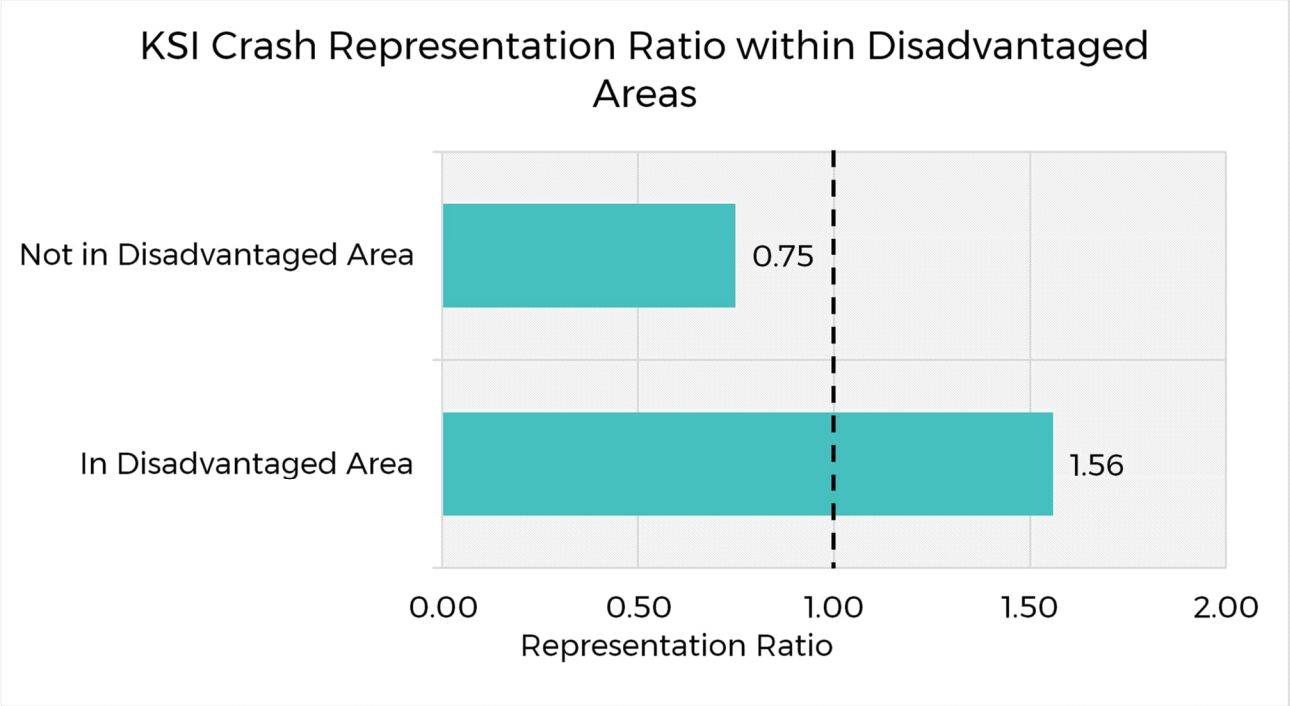

Figure 64: KSI Crash Representation Ratio of Disadvantaged Areas

[3] https://www.arcgis.com/apps/dashboards/d6f90dfcc8b44525b04c7ce748a3674a

This disproportionate crash risk is not just city-wide either. The bar chart below shows more information about the disadvantaged areas risk based on land use context area types. This shows that disadvantaged areas have a higher risk of KSI crashes regardless of if they're in urban, suburban, or rural areas. The disparity is especially strong in rural and suburban areas where the representation ratio is nearly three times higher for the disadvantaged areas compared to non-disadvantaged areas based on the ratio of the KSI crashes.

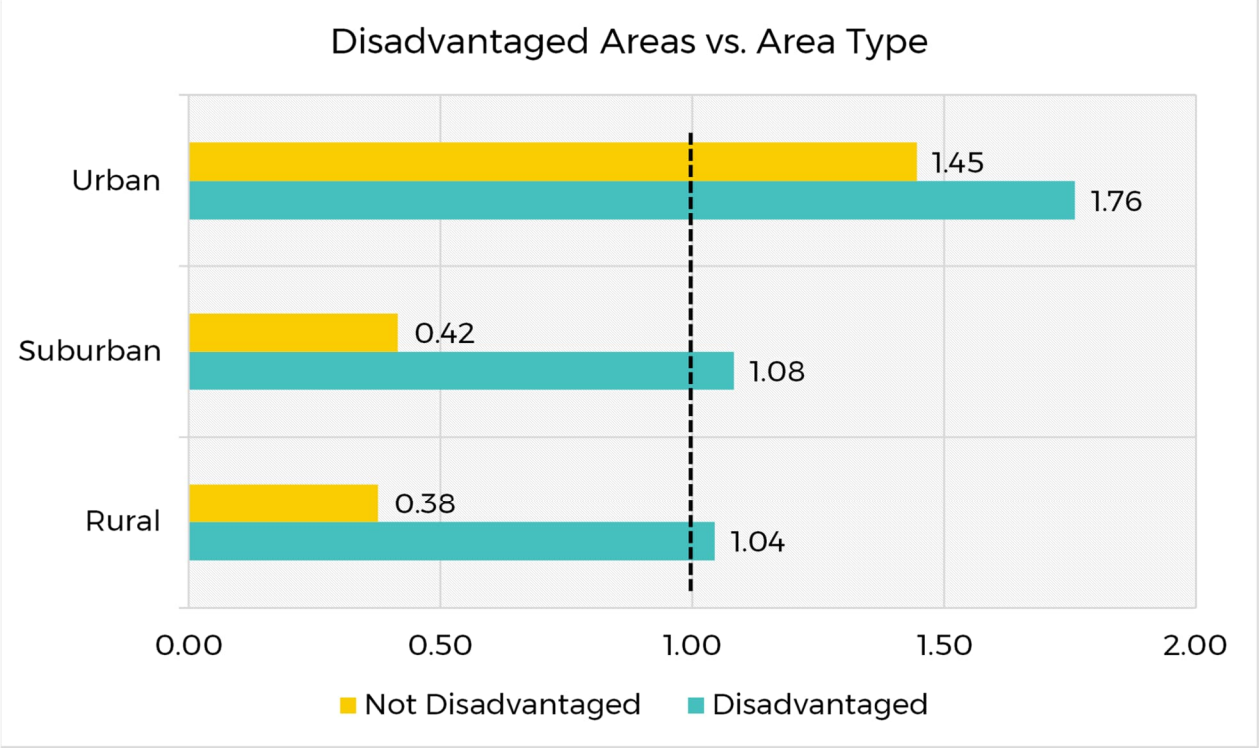

Figure 65: KSI Crash Representation Ratio of Disadvantaged Areas by Urban, Suburban, and Rural Areas

HIGH RISK ROADS IN DISADVANTAGED AREAS

Multiple risk factors were examined as part of the systemic risk analysis. Based on the risk factors, which included 4-lane and 6-lane roads, roads with 35 mph speed limits, roads with very little traffic volume compared to the capacity, and intersections with signals, a risk scoring criteria was developed and mapped throughout the city. This analysis showed a much higher concentration of high risk roads in disadvantaged areas. As shown in the table below, 89% of the highest risk roads and 66% of the second highest risk roads are in disadvantaged areas. Overall, only 31% of Kansas City roads are in disadvantaged areas.

Table 9: High Risk Network Statistics of Disadvantaged Areas

Risk Score	% Miles in Disadvantaged Areas	KSI Crash Rate per Mile	% of Total Miles in City	% of Total KSI Crashes in City
0-1 Minimal	0%	0.2	51%	12%
2-3 Moderate	69%	0.6	29%	17%
4-5 High	37%	2.0	10%	22%
6-7 Higher	66%	4.2	8%	34%
8-10 Highest	89%	5.9	2%	15%
Overall	31%	0.9	100%	100%

Data associated with the HIN also reflects similar equity trends. There are relatively more miles in disadvantaged areas with a relatively small amount of total centerline miles being in these areas. Almost half (44.7%) of the KSI crashes, associated with the HIN, occurred on centerline miles in the disadvantaged census tracts, while only 31.1% of total centerline miles are in the citywide equity areas. This issue is even more acute for the highest priority HIN segments with the greatest concentration of crashes. The Top Priority HIN has 65.6% of its segments in disadvantaged areas. This is more than double the proportion of all roads in disadvantaged areas.

Table 10: High Injury Network Statistics by Disadvantaged Areas

	Miles not in Disadvantaged Area	Miles in Disadvantaged Area	% in Disadvantaged Area
Top Priority HIN	19.0	36.3	65.6%
High Priority HIN	24.0	25.6	51.6%
Medium Priority HIN	39.2	16.6	29.7%
Moderate Priority HIN	97.9	67.3	40.7%
Entire HIN	180.1	145.8	44.7%
Not on HIN	1595.3	654.5	29.1%
Citywide	1775.4	800.3	31.1%

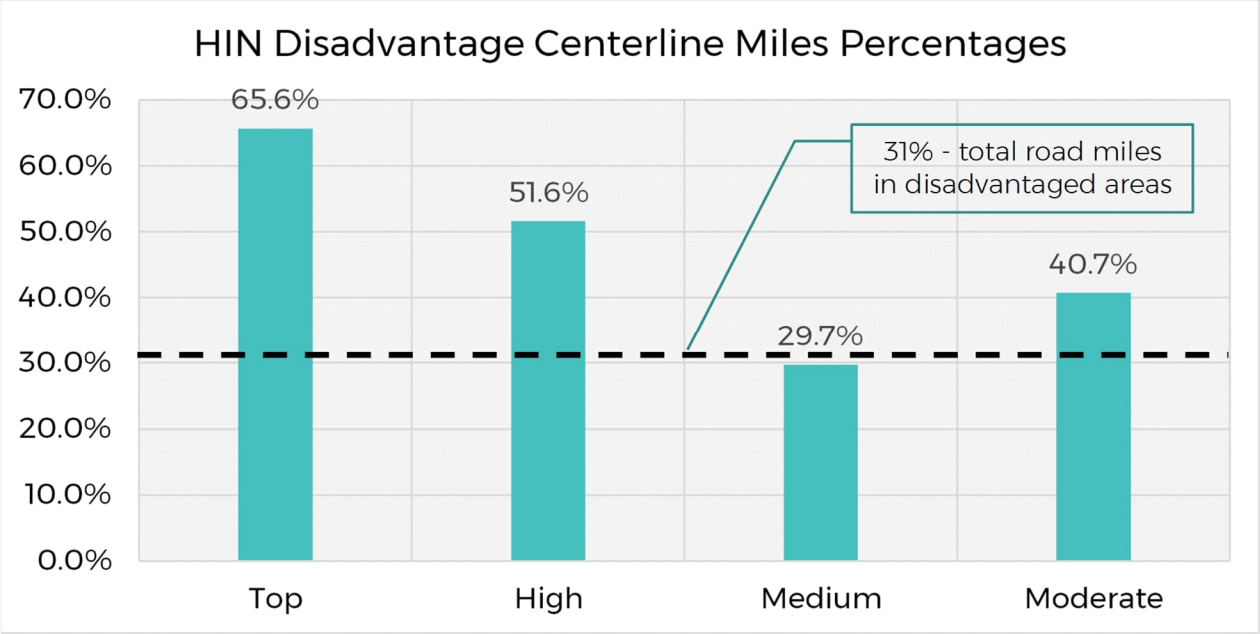

Figure 66: Percentages of Centerline Miles Located on the HIN.

RACE/ETHNICITY RISK FACTORS

Looking specifically at race and ethnicity of road users in Kansas City, more inequities are apparent. Black users make up the largest race/ethnicity group to be killed in traffic crashes, accounting for 46% of all deaths. Because there are fewer black Kansas Citians than white, this is a significant over-representation. The chart below shows the normalized graph of death rates compared to population rates. This shows that black users have been 2.0 times more likely to be killed in a traffic crash than a white user from 2010 – 2020.

Looking at health data from the Missouri Department of Health and Human Services, this elevated crash risk translates to elevated death and injuries related to traffic crashes for black roadway users. A black Kansas Citian has a lifetime mortality (death) rate from traffic crashes 2.6 times higher than a white Kansas Citian and a lifetime morbidity (injury) rate 3.7 times higher than white Kansas Citians.

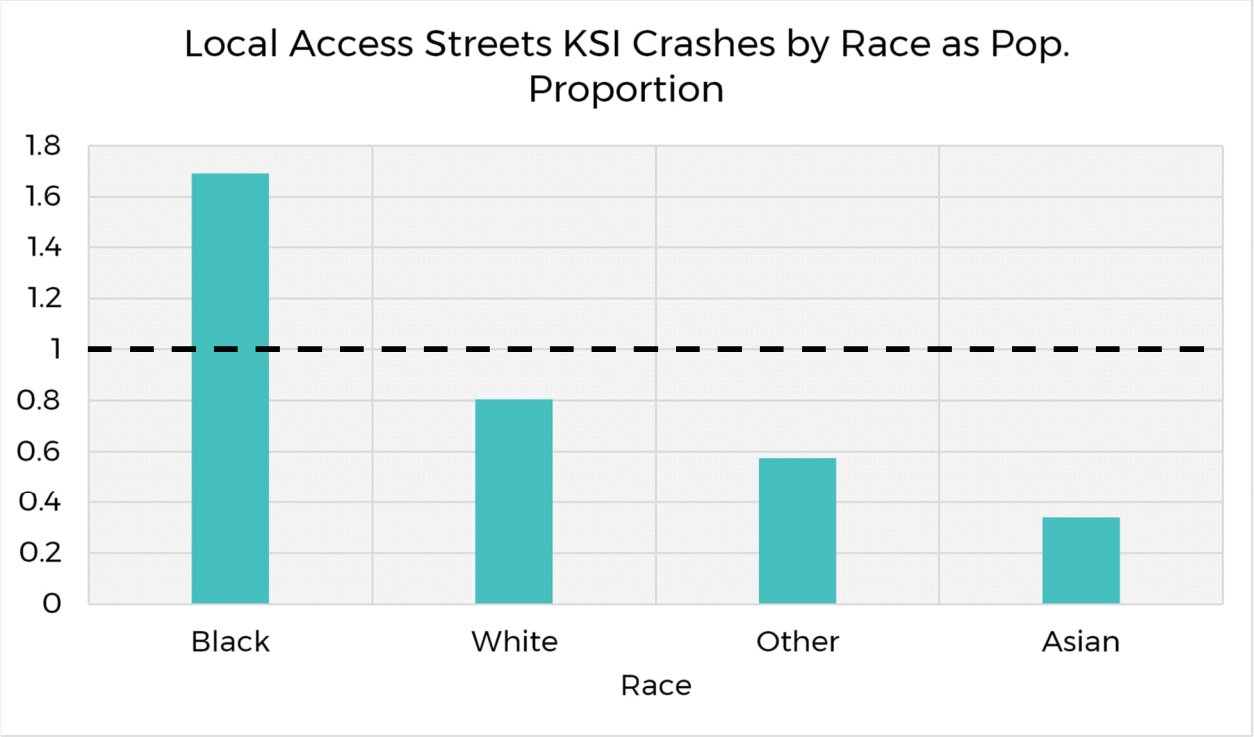

Figure 67: Local Access Streets Fatal and Serious Crashes by Race as a Representation of Population (>1.0 = Over-Representation) 2016-2019

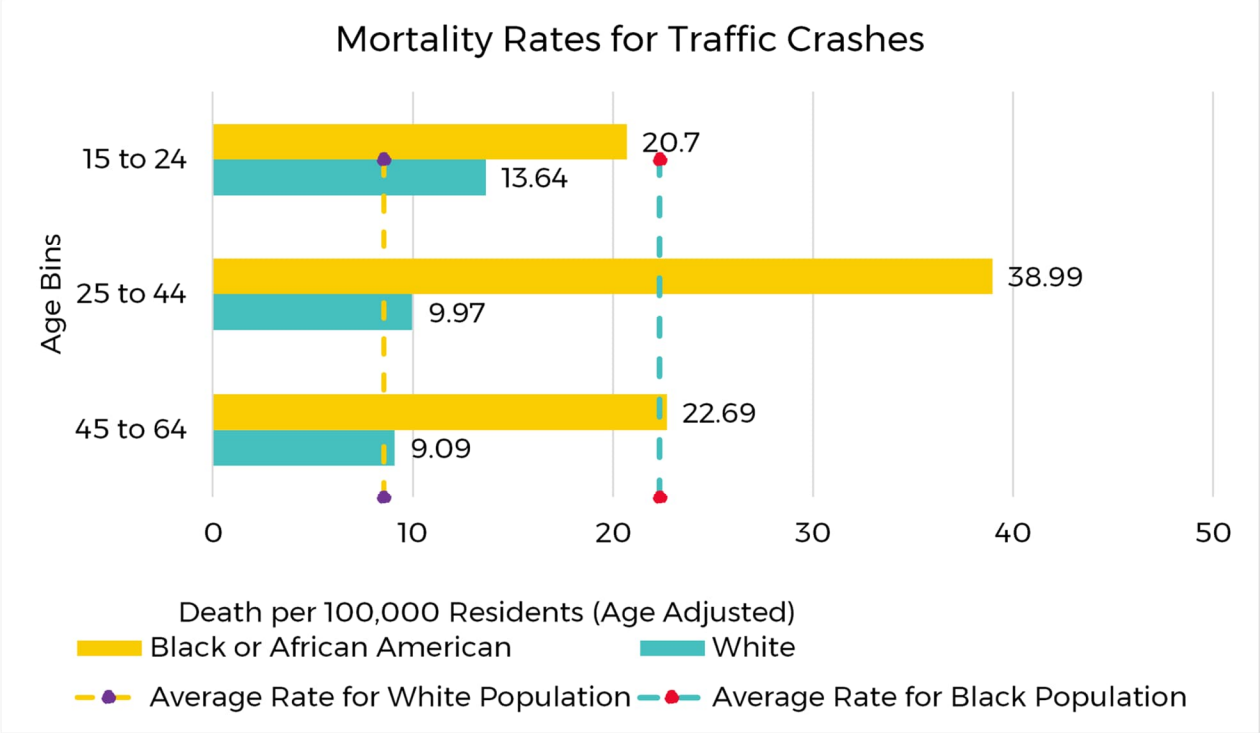

Figure 68: Fatality Rates by Race and Age for all Motor Vehicle Crashes (Missouri DHSS MOPHIMS; Injury MICA 2011-2015; Age Adjusted using 2000 Standard Population)

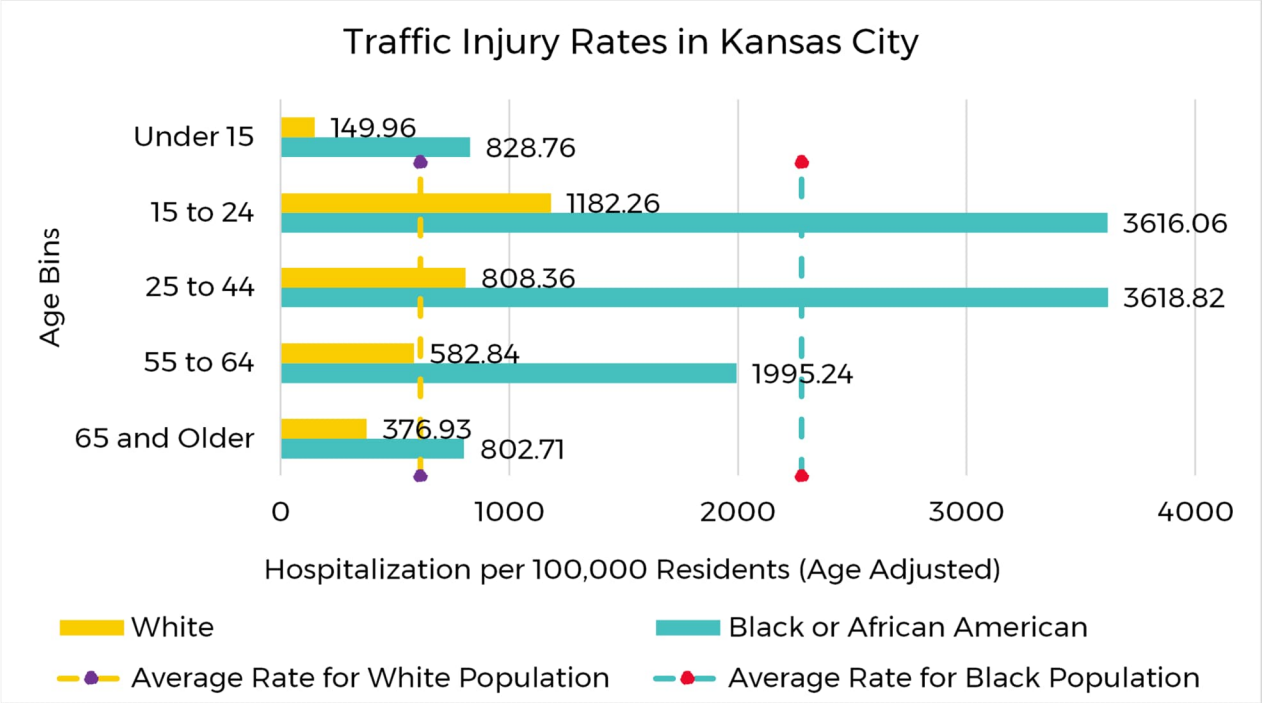

Figure 69: Overall Average Injury Rate of all modes by Race (Missouri DHSS MOPHIMS; Injury MICA 2011-2015; Age Adjusted using 2000 Standard Population)

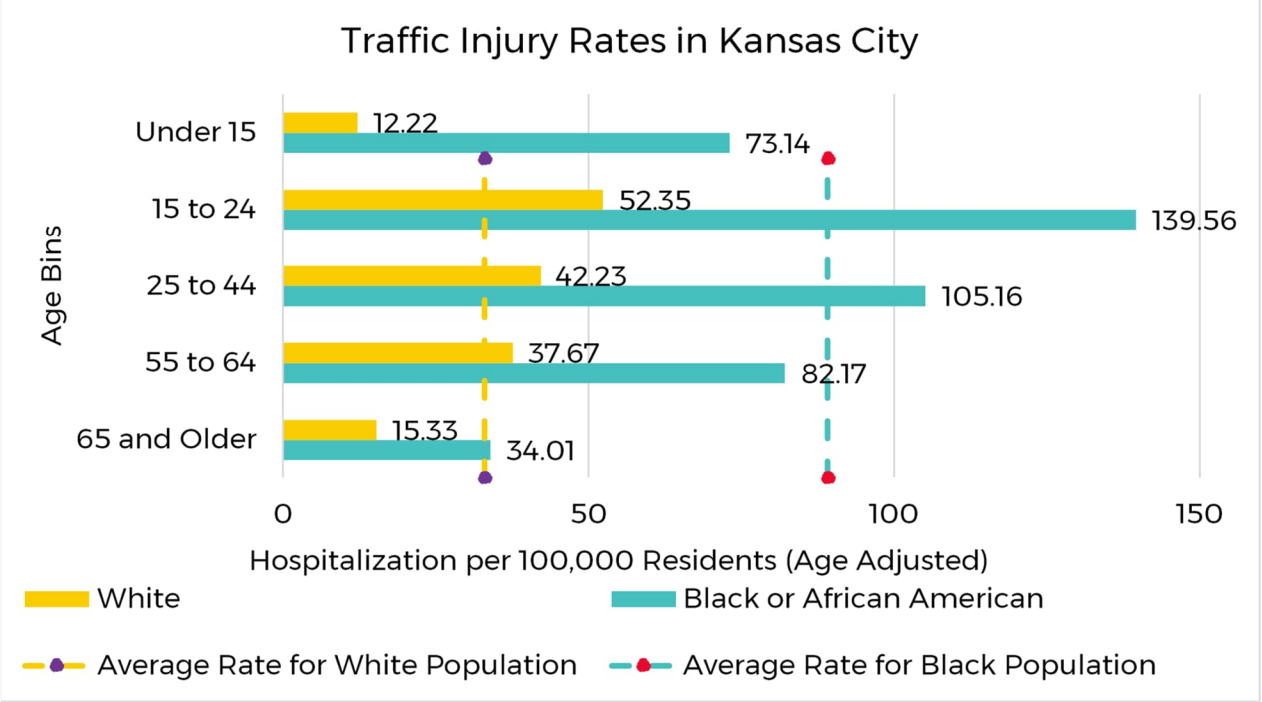

Figure 70: Overall Average Injury Rate of Bike and Pedestrians by Race (Missouri DHSS MOPHIMS; Injury MICA 2011-2015; Age Adjusted using 2000 Standard Population)

UNLICENSED DRIVERS

During the past ten years, the trend of KSI crashes involving unlicensed drivers has been significantly increasing with a growing by more than 350%. As mentioned in the User Behavior Section of the Action Plan, teens from disadvantaged communities may not have an adult in their life that can spend the time driving with them to obtain the necessary number of hours to get a full driver's license. Moreover, some teens may have physically disabled parents or guardians, such as those with low vision, who cannot legally obtain a driver's license. Although GDLs improve safety among most young people, those who live in disadvantaged communities with high rates of poverty and minority populations have significant impediments to obtaining a driver's license. The following data reflects the growing trends and equity concerns of unlicensed drivers.

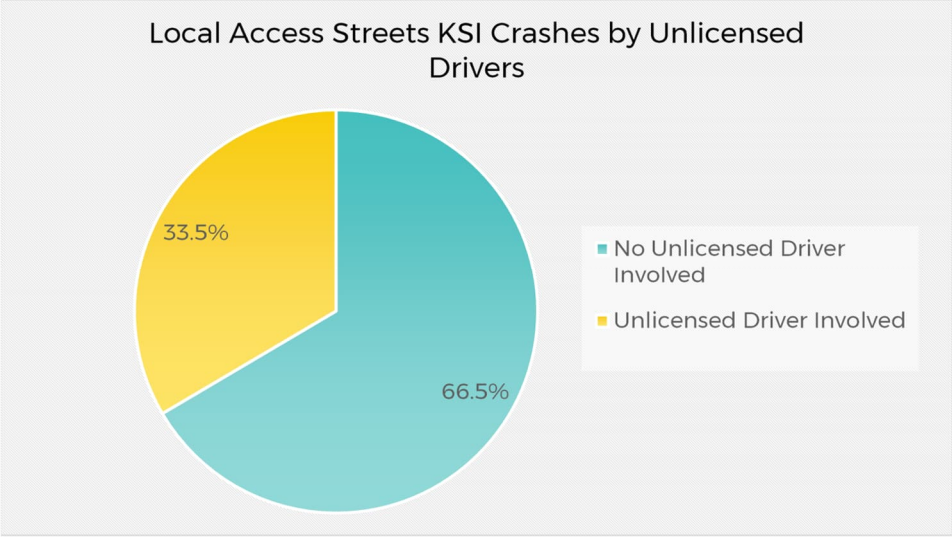

Figure 71: Local Access Streets Vehicle KSI Crashes by Unlicensed Drivers 2016-2020

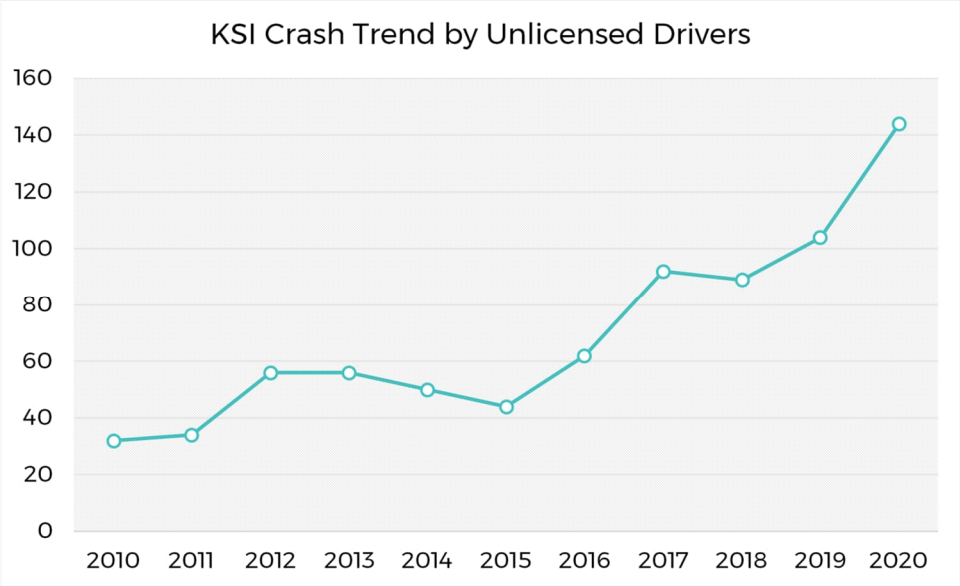

Figure 72: Local Access Streets KSI Crash Trend by Unlicensed Drivers 2010-2020

UNDERREPORTING OF CRASHES

It is important to also consider the source of the data and whether it provides an accurate reflection of the total number of crashes. The following sections highlight the difference between the data that came from the Missouri Department of Health and Human Services MICA (MICA) and the data from the police crash record Missouri STARS database. MICA is the State's mortality/morbidity data that comes from vital statistics and hospitals. Police crash record data often suffers from under-reporting of traffic crashes for a variety of reasons.

Unreported crashes are less of an issue in the case of fatal traffic crashes, as these crashes are the most highly investigated, and victims often are not able to leave the scene if they're already deceased or injured badly enough that they will die of injuries later at the hospital. In contrast, serious injury crashes suffer from significant under-reporting issues. The table below compares traffic crashes that result in in-patient hospitalization in Kansas City compared to people with suspected serious injuries from traffic crashes in Kansas City. Bicycle and pedestrian data show that as many as 30% of the injuries are un-reported in the police database and all user data shows that 20% of all suspected serious injuries are unreported in the police database.

Table 11: Comparison of Injury Data from Missouri STARS police records and Missouri MICA Injury records

Underreporting of Serious Injury Traffic Crashes			
User Type	**Police Reported Suspected Serious Injury Crashes (2010 – 2015)***	**Missouri MICA Reported In-Patient Hospitalizations from Traffic Crashes (2010 – 2015)***	**% Unreported Crashes**
Bicyclists and Pedestrian	227	324	30%
All Users	1905	2383	20%

*Note that data range is from 2010 – 2015 because this is the most recent data available from the Department of Health and Human Services. This situation is not expected to have significantly changed since 2015.

While it may seem shocking that 20% - 30% of serious injury crashes are not reported by the police, it is consistent with national averages, which have ranged in estimates up to 50% unreported in some locations.[4] Using the method of rigorously comparing the hospital and police records, some studies found that the California Statewide Integrated Traffic Reporting System (SWITRS) under-reported San Francisco pedestrian injuries by 21% (using San Francisco General Hospital medical records as a gold

[4] https://www.roadsafety.unc.edu/wp-content/uploads/2018/11/CSCRS_R4_FinalReport.pdf

standard).[5] This under-reporting is typically most extreme in disadvantaged areas. For example, a year-long study conducted in San Francisco indicated that Police reports underestimate the number of African American pedestrian accidents. Women were also more likely than men to be linked to a police report. Showing that some races were less likely than white pedestrians to be linked to a police report.[6]

SUMMARY

Traffic safety has serious equity connections in Kansas City:

- A fatal or serious injury crash is twice as likely to happen in a transportation disadvantaged area than a non-disadvantaged area
- Transportation disadvantaged areas have elevated risk of fatal and serious injury crash compared to a non-disadvantaged area in rural, suburban, and urban areas
- 89% of the highest risk roads in the city are in transportation disadvantaged areas
- 66% of the top priority HIN corridors are in transportation disadvantaged areas
- Black road users are twice as likely to be killed and almost four times as likely to be injured in a traffic crash than white road users
- It is more challenging for young minorities to obtain a driver's license due to the graduated driver's license program and lack of driver's education programs in schools
- As many as 20% of all serious injuries and 30% of pedestrian and bicyclist serious injuries are never reported to the police, and this problem is worse among minority users

[5] https://safetrec.berkeley.edu/publications/evaluate-causes-pedestrian-and-bicyclist-traffic-fatalities-and-injuries-and-establish

[6] https://www.roadsafety.unc.edu/wp-content/uploads/2018/11/CSCRS_R4_FinalReport.pdf

ACTION PLAN

This action plan is the vehicle that will allow us to achieve Vision Zero in Kansas City. Achieving zero deaths and zero serious injury crashes is a major undertaking and requires focused actions. The data analysis, public engagement, and Vision Zero Task Force have all helped shape this plan. The action plan is based on three primary elements:

- Focus Areas, which provide specific issues for the action plan to address
- Core Principles, which provide fundamental strategies to address focus area issues
- Action Steps, which provide specific actions to be taken to implement countermeasures

FOCUS AREAS

Focus Areas are the first element of the plan. These are the factors that have the most significant contribution to the high number of fatal and serious injury crashes in Kansas City. By focusing on addressing the safety issues specific to these areas, we can more effectively target our countermeasures.

Equity

Equity issues related to poverty and race and very evident in traffic crashes, especially in our black neighborhoods and among our black road users in Kansas City. These neighborhoods and users are disproportionately impacted by traffic crashes.

- A fatal or serious injury crash is twice as likely to happen in a transportation disadvantaged areas than a non-disadvantaged area
- Transportation disadvantaged areas have elevated risk of fatal and serious injury crash compared to a non-disadvantaged area in rural, suburban, and urban areas
- 89% of the highest risk roads in the city are in transportation disadvantaged areas
- 66% of the top priority HIN corridors are in transportation disadvantaged areas
- Black road users are twice as likely to be killed and almost four times as likely to be injured in a traffic crash than white road users

To achieve Vision Zero in Kansas City, we must focus safety funding in disadvantaged areas of the city.

Speed

As drivers' speeds increase, crashes tend to happen more often and result in more severe crashes. This is especially true for people walking and biking who do not have any of the protections vehicle occupants have in a crash.[7]

In Kansas City, speeding and aggressive driving associated with speeding are major contributing factors in crashes. Nearly one-third of crashes in the city involved an aggressive driver who was either speeding, tailgating, passing illegally, or engaged in other aggressive behavior. When looking at the speed limit data, the relationship between speed and crash risk is obvious. Compared to a 25 mph road, the risk of a fatal or serious injury crash is 5.8 times higher on a 30 mph road and 11.3 times higher on a 35 mph road. 40+ mph roads in Kansas City are shown as slightly lower risk than 35 mph roads, but that is likely because these roads are relatively rare and mostly in rural areas.

People walking and biking have dramatically different outcomes with small differences in vehicle speeds. A user outside a car has only a 10% chance of being killed when hit at 23 mph. That user has a 50% chance of being killed at 42 mph. At 58 mph, the user has a 90% chance of being killed.[8]

To achieve Vision Zero in Kansas City, we must focus on reducing speeds and speeding.

High Crash Locations

Fatal and serious injury crashes are not equally distributed throughout the city. Certain road corridors and intersections have a much higher concentration of fatal and serious injury crashes than others. The Kansas City High Injury Network and intersections illustrates this and are listed in below. 68% of the fatal and serious injury crashes in the city occurred on just 12% of Kansas City roads. Looking at the highest crash locations, these roads accounted for nearly 20% of fatal and serious injury crashes on just 2% of our roads. These roads have a fatal and serious injury crash rate 23 times higher than a road not on the High Injury Network.

These high crash locations are closely tied to equity. About 31% of the roads in Kansas City are in disadvantaged areas. The High Injury Network is more concentrated in these areas, with 45% of the HIN located in disadvantaged areas. But the highest crash HIN corridors—the top priority corridors—occur even more frequently in disadvantaged areas. Two thirds (66%) of the top priority HIN corridors are in disadvantaged areas. This is more than double the proportion of HIN roads in disadvantaged areas compared to average roads.

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[7] https://www.ntsb.gov/safety/safety-studies/documents/ss1701.pdf

[8] https://www.transportation.gov/sites/dot.gov/files/2022-02/USDOT-National-Roadway-Safety-Strategy.pdf

To achieve Vision Zero in Kansas City, we must focus our transportation spending on high crash locations.

Top 10 Fatal & Serious Injury Crash Roads in Kansas City	Top 10 Fatal and Serious Injury Crash Intersections in Kansas City
Prospect	Prospect & 63rd
Bruce R Watkins	Bruce R Watkins & Gregory (West)
Troost	Bruce R Watkins & Gregory (East)
Truman	Chouteau & Front
Emanuel Cleaver II	Van Brunt & 23rd
Gregory	Emanuel Cleaver II & Elmwood
Independence	Askew & Truman
Blue	Shoal Creek & M152
39th	Blue Ridge & Bannister
23rd	Jackson & 31st

Table 12: Top Ten List of High KSI Crash Corridors and Intersection in Kansas City

High Risk Locations

While working to improve the safety of the city, it will be important to not only focus on improving the roadways where KSI crashes are occurring in high concentrations along the High Injury Network, but also the roadways with attributes that were shown to have a strong correlation with increased risk of higher severity crashes. Fatal and serious injury crashes are relatively rare when looking at an entire transportation system, and we shouldn't wait for someone to be killed or seriously injured on a road or at an intersection before we act. To be more proactive, we can change high risk streets and intersections where there is a high probability of a future KSI crash occurring to minimize that risk. See the Systemic Risk Analysis section for the detailed analysis behind which roadway characteristics were found to be of higher risk in Kansas City.

To achieve Vision Zero in Kansas City, we must focus on eliminating high risk roadways and intersections. The highest risk roads include 4-lane and 6-lane arterial roads, especially those roads with very little traffic on them. The highest risk intersections are intersections with traffic signals.

Walking and Biking

People walking and biking on our roads do not have the same level of protection of vehicles occupants do when involved in a traffic crash. As such, when they are involved in a crash, they are more likely to suffer a serious injury or a death. Although walking and biking account for less than 5% of the overall mode share in Kansas City, more than 15% of the fatal and serious injury crashes involve these users. 13.6% of KSI crashes involved pedestrians and 1.5% involved bicyclists. Although biking and walking KSI crashes represent a smaller share of overall KSI crashes on surface streets, the relative risk is much higher than for driving.

Bicycle and pedestrian crashes in Kansas City are most concentrated in disadvantaged areas in the city including the Westport area, the Historic Northeast, and areas east of Troost in Midtown. The only crash concentration of these users not in a disadvantaged

areas is in Downtown. These crashes are also concentrated along transit corridors in these areas, where people walking and biking are accessing transit and the other destinations along these important corridors. Another key location for fatal and serious injury crashes of people walking and biking is along and across the Bruce R. Watkins US-71 Highway corridor.

To achieve Vision Zero, we must focus on improving safety for people walking and biking.

Angle Crashes

Angle crashes are a crash type that occurs at a right angle where the front side of the vehicle collides against the side of another vehicle—commonly called "t-bone" crashes. Angle crashes often result in very severe injury and deaths because cars have minimal protection for the occupants of the vehicle being stuck from the side. This crash type is the #1 crash type leading to fatal and serious injury crashes in the city. See the Data Analysis Section on Crash Types and Locations for the detailed analysis.

To achieve Vision Zero in Kansas City, roadways must be designed to limit angle crashes.

Fixed Object Crashes

Fixed object crashes, when a vehicle hits something in or adjacent to a road, are the second most common fatal and serious injury crash type in the city. The most common objects that are hit include bridge piers and signals. Additionally, these crashes involve a higher proportion of intoxicated drivers than other crash types. See the Crash Types and Locations section of the report for the detailed analysis.

To achieve Vision Zero in Kansas City, we must focus on addressing infrastructure and behavioral issues related to fixed object crashes.

Male Drivers

Males make up a disproportionate amount of roadway deaths. Nationally, males account for over 70% of all roadway fatalities.[9] Within Kansas City, male drivers account for an even higher proportion of the fatal and serious injury crashes—73.1% of all crashes on local access streets. Normalizing the data by sex to the Kansas City population, males are approximately three times as likely to be involved in roadway crash compared to females. Research does show that as drivers grow older the difference in crash rates between males and females goes down.[10]

To achieve Vision Zero in Kansas City, we must focus behavior change efforts towards male road users.

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[9] https://www.iihs.org/topics/fatality-statistics/detail/males-and-females

[10] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/811766.pdf

Reckless Drivers

Human error will always be present as drivers operate vehicles in complex environment with lots of stimuli both inside and outside of the vehicle. However, some driving behavioral mistakes, such as aggressive driving, driving while intoxicated, and driving distracted are reckless and potentially negligent. Within Kansas City, aggressive driving is the top behavior contributing to KSI crashes, accounting for 29% of crashes. Typical aggressive driving includes speeding, driving too fast for conditions, tailgating, illegal passing, and weaving in traffic. Based in the data shown in the User Behavior section of the report, impaired drivers accounted for 8% of incidents, and distracted drivers only accounted for 5% of the KSI crashes. While it is never acceptable to drive intoxicated or intentionally drive distracted, these behaviors are resulting in far fewer KSI crashes in Kansas City compared to aggressive driving.

To achieve Vision Zero in Kansas City, we must focus behavior change efforts towards reckless driving behavior, especially aggressive driving.

Young Drivers

Based on the age analysis of the road users involved in KSI crashes, young drivers are involved in nearly one third of all KSI crashes. The top two age ranges were people between 25-29 (125 KSI crashes) and 30-34 (121 KSI crashes). When normalizing those age groups to the population of Kansas City, users in between their mid-20s and mid-30s are 1.8 times more likely to be involved in a KSI collision than average. These users are not engaging in substantially different behaviors than other users, with rates of aggressive driving, intoxicated driving, and distracted driving nearly the same as for KSI crashes of all user age groups. It is likely that these drivers are simply less experienced than other drivers, and tend to drive on higher risk roads, and tend to drive in areas with more cyclists and pedestrians.

To achieve Vision Zero in Kansas City, we must focus behavior change efforts towards younger drivers and provide drivers education programs.

CORE SAFETY PRINCIPLES

This action plan has identified eight core safety principles based on the current best practices to create a safe transportation system. These principles contain key strategies that can be employed by the City to address the safety issues identified in the Focus Areas.

Prioritized Safety

Traffic safety is a complex issue that is affected by many different people and City departments. To achieve Vision Zero, it is imperative that everyone who has any involvement in the transportation system take responsibility for improving safety on our streets. Vision Zero must be the priority, period.

Prioritizing Vision Zero means different things for

Top Prioritized Safety Countermeasures

- Dedicating funding for areas with highest concentration and highest risk of fatal and serious injury crashes

different departments. For City Planning and Development, it will mean incorporating the fundamentals of Vision Zero in all types of plans and development application reviews. Future Area Plan updates, the Major Street Plan, and other multimodal plans will prioritize Vision Zero over other transportation considerations. For the Public Works Department, it will mean incorporating Vision Zero into funding decisions when planning for future infrastructure improvements and allocating funding based on the expected safety improvements of the project. For the Kansas City Police Department, it will mean prioritizing traffic safety improvements with traffic law enforcement rather than as a means for criminal enforcement. For elected officials and department heads, it will mean enacting and enforcing policies focused on eliminating deaths and serious injuries on our roads.

Importantly, fixing safety issues will require money to pay for roadway improvements, educational campaigns, and equipment to monitor identified safety metrics. Safety issues in the city are highly concentrated to certain roadway corridors and certain neighborhoods, especially in our transportation disadvantaged areas with high minority populations. The funding for safety projects will not be effective if the funding is widely distributed throughout the city rather than targeting the funding in the areas of greatest need.

Safe Speeds

Aside from equity, driver speed is the most important factor in traffic safety. Speed reductions are a highly effective way to increase safety on our roads. This involves both reducing the average speed of a road and reducing the speed of the fastest drivers. When a driver is going slower, they are better able to quickly perceive dangerous situations, they have a wider peripheral field of view to monitor streetside activity of people walking and biking, and their vehicle requires a much shorter distance to come to a stop. Because of this, slow speed roads can sometimes result in “near miss” crashes but these “near miss” crashes don’t turn into fatal or serious injury crashes because the driver was able to stop in time. A high number of “near miss” crashes in an area where very few fatal or serious injury crashes are happening are a sign that the safe system is working.

Top Safe Speed Countermeasures

- Lower speed limits
- Installing more speed limit signs
- Traffic Calming
- Road Diets
- Interim Speed Safety Cameras

When a vehicle does collide with another vehicle or someone walking or biking, the crash is much less severe at lower speeds. For every 1 mph of average speed reduction, the fatal crash frequency may lower by up to 22%.[11] To achieve Vision Zero, we will need to slow down the speed of drivers on our roads. This will make our roads safer, make our neighborhoods more livable, walkable, and bikeable, and reduce greenhouse gas emissions. Furthermore, lowering speeds will not significantly impact trip length—travel

[11] https://escholarship.org/uc/item/5hg5m6sm

time is much more significantly impacted by the number of traffic signals and length of time motorists stop at them than the speed limit of the roadway.

People walking and biking have dramatically different outcomes with small differences in vehicle speeds. A user outside a car has only a 10% chance of being killed when hit at 23 mph. That user has a 50% chance of being killed at 42 mph. At 58 mph, the user has a 90% chance of being killed.[12]

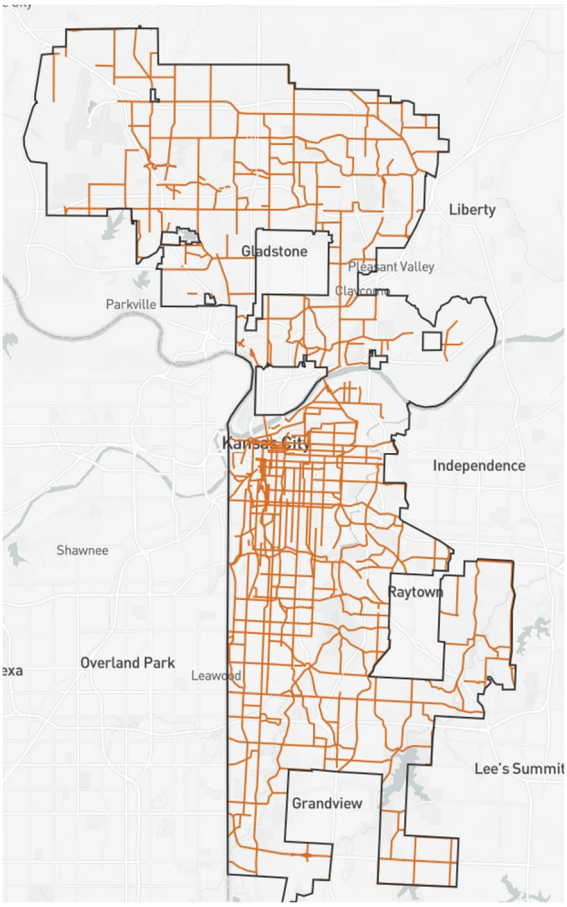

Figure 73 Roadways with Posted or Statutory Speed Limits above 35 mph

Speed limits are set by ordinance (the "statutory speed limit") in Kansas City at 25 mph for local streets and 35 mph for arterial roads unless a posted speed limit sign is present.[13] Speed limit signs are posted throughout the city to set the speed limit higher or lower than the statutory limit. In the past, these posted speed limits were set by measuring the 85th percentile speed--the speed at which 85% of drivers were going slower. This means the speed limits are often set above the speed at which the average driver on the road is driving. By raising the posted speed limit according to the 85th percentile speed, average speeds often increase, which raises the 85th percentile speed, thus allowing another posted speed limit increase and setting up a feedback look for higher and higher speeds. There is no strong evidence that setting speed limits this way is a safe way to set speed limits.[14] To improve safety, lowering speed limits in Kansas City must be considered and modern safety-target based method for setting posted speed limits must also be considered.

Currently, the statutory speed limit (the legal speed limit if no posted speed limit signs exist) is 35 mph on arterial streets. Many of these arterial streets, and many other collector streets as well, are also posted with 35 mph speed limit. It is troubling to note that 35 mph speed limit is the highest risk speed limit, and also one of the most

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[12] https://www.transportation.gov/sites/dot.gov/files/2022-02/USDOT-National-Roadway-Safety-Strategy.pdf

[13] https://library.municode.com/mo/kansas_city/codes/code_of_ordinances?nodeId=COORKAMIVOII_CH70TRVE_ARTIVOP_DIV4SP_S70-362MALIES

[14] https://www.ntsb.gov/safety/safety-studies/documents/ss1701.pdf

common speed limits in the city. Roads with this speed limit, particularly in urban areas, are contributing to elevated numbers of people being killed and seriously injured on our roads.

Posted speed limits and statutory speed limits are not always obeyed by drivers. However, extensive studies on speed limits show simply lowering speed limits and posting speed limit signs more frequently slow cars down with no other traffic calming interventions. The City of Seattle performed this and has reported locations with this intervention have seen an 18% reduction in injury crashes, a 10% reduction in average speed, and a 55% reduction in people driving 40+ mph on the study corridors.[15]

In addition to considering the lowering of speed limits and posting speed limits more frequently throughout the city, these countermeasures could be pursued to lower speeds:

- Road Diets—remove unnecessary vehicle lanes to slow drivers—projected 19-47% reduction in crashes
- Major Street Traffic Calming—make geometric changes at intersections to narrow overall roadway width, narrow lanes, and tighten turn radii—projected 32% reduction in crashes
- Neighborhood Traffic Calming—implementing traffic calming devices like speed humps, chicanes, and curb extensions strategically throughout a neighborhood—projected 33% reduction in crashes
- Reduced School Zone Speed Limits with Flashing Beacons—reducing the speed temporarily near a school and use flashing beacons to identify when the reduced school zone speed limit is active—projected 5% reduction in total crashes, but 40-50% reduction in vulnerable user crashes
- Speed Feedback Signs—signs that digitally display a driver's speed as they pass by the sign—projected 5% reduction in crashes
- Speed Safety Cameras—speed cameras that

Figure 74: Neighborhood Traffic Calming on Cherry Street (Image Source: Street Smarts Design + Build)

[15] https://www.seattle.gov/Documents/Departments/SDOT/VisionZero/SpeedLimit_CaseStudies_Report.pdf

automatically issue a speeding ticket after identifying the vehicle and driver—projected 32% reduction in crashes

- High Visibility Targeted Speed Enforcement—posting police patrol cars and motorcycles in highly visible locations for speed enforcement in targeted safety corridors—projected 15-42% reduction in crashes
- Driver Education Courses—providing support for in-school or non-profit based drivers education courses for young people—projected 5-11% reduction in crashes
- Public Awareness Educational Campaigns—educational campaigns on the radio, billboards, and digital media to raise awareness of the dangers of speeding—projected 12-24% reduction in crashes

Safe Streets

Creating safer streets is a fundamental aspect of Vision Zero. A street can be designed in such a way that encourages speeding, has a high number of conflict points, and forces pedestrians and cyclists into dangerous exposure to traffic. A street can also be designed in a way that encourages drivers to slow down and pay attention, reduces the total number of conflict points, and separates cyclists and pedestrians into safe spaces.

Top Safe Streets Countermeasures

- Road diets
- "Half street" Improvements for new roads
- Traffic Calming
- Access Management

In the past, safety data did not exist, and analytical methods were not possible, so designers relied on street design guides like the AASHTO "Green Book" with typical parameters. The assumption was that if a street met these typical parameters, then it could be considered safe. But traffic safety isn't that simple—the roadway environment is complex, is influenced by the surrounding context, and can influence the behaviors of road users. Thankfully, now we have access to a rich set of safety data and many modern analytical techniques to identify specific safety issues on streets and proven methods to improve safety in a variety of contexts.

The Systemic Risk Analysis in this plan highlights the most important factors of street design that leads to elevated risk. The most important factors relate to needlessly wide streets in Kansas City. Streets with multiple lanes, especially where there is no need for the additional lanes based on the traffic volume of the street could be eliminated in the city. This can be easily and inexpensively accomplished using "road diets" where the number of vehicle lanes are reduced and the additional space converted to things like bicycle and pedestrian facilities, on-street parking, transit stops, parklets, and outdoor dining. In addition to improving safety, this has the added benefits of making our city more livable, improving multimodal access, and achieving Kansas City's climate protection goals.

Figure 75: Needlessly Wide Roads like Truman Road Contribute to Elevated Risk of Fatal and Serious Injury Crashes (Image Source: Google)

One-way roads also pose safety issues when needlessly wide. Three-lane, one-way roads are three times more likely to have a KSI crash on them than average. Many roads downtown were converted from two-way roads to increase traffic capacity and ability to quickly drive through downtown. This results in higher rates of speeding on these streets and a challenging environment for pedestrians and cyclists to navigate. Reducing the number of lanes on these streets or converting the streets back to two-way streets could be used to improve safety downtown where a concentration of bicycle and pedestrian KSI crashes exists.

To avoid creating safety issues when new roads are built in developing parts of the city, needlessly wide roads should not be built based on future traffic volume projections. Many streets are built to handle traffic projected 20 or 30 years into the future. This results in streets with 4-lane to 6-lane cross-sections and very minimal traffic on them. New roads should be built today for the traffic expected today, with additional right of way space preserved for future expansion if it becomes necessary sometime in the future. New roadways should be constructed as “half improvements”, i.e. – build a new road as only 2-lanes whereas the final configuration is anticipated to be widened to 4-lanes in the future, like the example pictures shown.

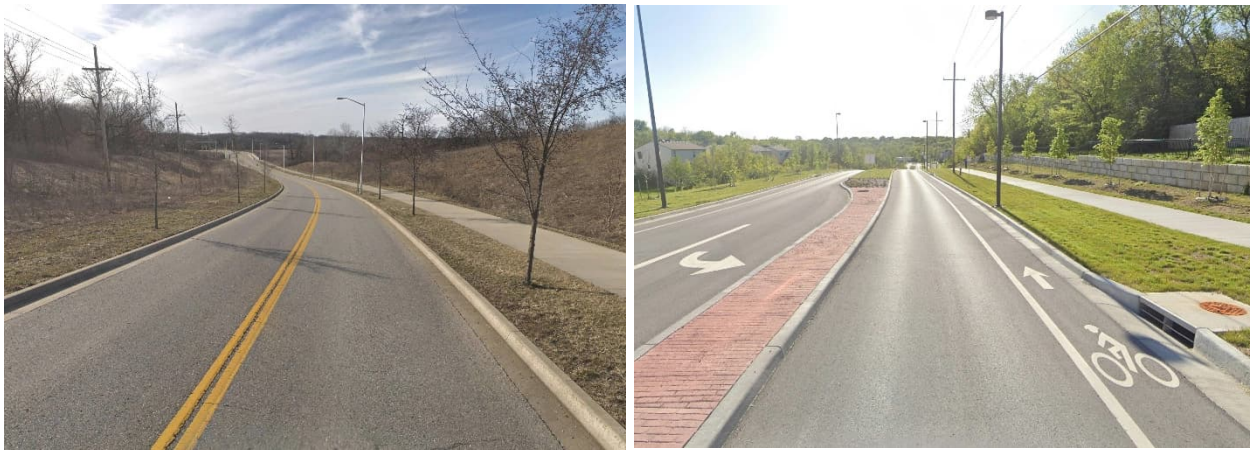

Figure 76: Examples of "half road improvements" in the Northland—Soccer Drive and Englewood Boulevard.

Facilities for pedestrians should always be included on all new roads and bicycle facilities should always be added on new roads especially where they are identified on the Bike KC plan. Construction of regular safe pedestrian and bicyclist crossings is critical to maintaining mobility for all users and ensuring pedestrian safety.

One of the areas where considering bicycle and pedestrian facilities is vital to create thriving communities are the roadway networks surrounding schools. Currently the Safe Routes to School (SRTS) includes bike safety classes, walking school busses, earn-a-bike programs, and several other direct student instruction programs. Through SRTS, schools can have technical assistance to identify and improve challenges in the surrounding transportation network including broken sidewalks, missing crosswalks, abandoned buildings, dangerous streets, and missing school reduced speed zones. SRTS can be considered an invaluable tool to help the public get involved with Vision Zero, as their programs tend to involve children, parents/guardians, school staff, the local police, and technical experts. Creating safe roads and streets for children is especially important, as safe roads for children are safe for everyone.

In addition to these fundamental elements, existing safety issues and high risk roads should be addressed using proven safety countermeasures. These include:

- Road Diets—remove unnecessary vehicle lanes and replace with multimodal infrastructure and livability elements—projected 19-47% reduction in crashes
- Corridor Access Management—managing the number and width of driveways, managing left-turn access in and out of driveways—projected 25-31% reduction in crashes
- Install Center Medians—raised medians preferably, but also painted medians or two-way left-turn lanes improve safety—projected 19% reduction in crashes
- Major Street Traffic Calming—make geometric changes at intersections to narrow overall roadway width, narrow lanes, and tighten turn radii—projected

32% reduction in crashes

- Neighborhood Traffic Calming—implementing traffic calming devices like speed humps, chicanes, and curb extensions strategically throughout a neighborhood—projected 32% reduction in crashes

- Improve Roadway Lighting—increased lighting levels on streets especially in specific locations where pedestrians and cyclist may be crossing the street—projected 42% reduction in crashes

- Improve Roadway Curves—using tactics including wider edge lines, enhanced signing, rumble stripes, and safety edge treatments to reduce the chance of a car leaving the roadway or crossing over the centerline—projected 11% - 64% reduction in horizontal curve crashes

Safe Intersections

Intersections inherently create points of conflict between roadway users and 77.4% of fatal and serious injury crashes happen at intersections in Kansas City. But not all intersection types are equal in terms of safety. Based on the Kansas City crash analysis it is known that signalized intersections are 6.8x and 8.2x more likely to results in a KSI type crash than a stop controlled and roundabout type intersection, respectively. To achieve Vision Zero, we reevaluate of the types of intersections we build on our transportation system and their configurations and safety features should be considered.

Top Safe Intersections Countermeasures

- Roundabouts
- All-way stops
- Left turn lanes
- Pedestrian/Bike intersection crossing improvements

Intersection Control Evaluation (ICE) tools can be utilized to evaluate proper intersection traffic control based on safety and operations. FHWA provides resources for communities to implement the ICE process, such as Safety Performance for Intersection Control Evaluation (SPICE), or cities and states can implement their own policies. Committing to the ICE process could be important to ensure that the proper intersection control is built to maximize the safety of all roadway users.

Roundabouts are a known intersection safety countermeasure that reduce fatalities 90% - 100% and injuries by up to 76%.[16] Roundabouts are also by far the safest possible type of intersections for pedestrians and cyclists. Based on NHTSA data, in the past 15 years only 3 pedestrians and 1 cyclist have been killed at a roundabout *in the entire United States*. There have been no pedestrian or bicyclist deaths at roundabouts in Missouri in the past 15 years. To achieve zero roadway fatalities by 2030, a "roundabout first" policy could be implemented. A roundabout first policy is an official process by which a roundabout is considered before any other form of traffic control at an

[16] https://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa08006.pdf

intersection. Only when a roundabout is found to be completely infeasible would a traffic signal or other type of intersection considered.

In addition to roundabouts, other effective safety treatments can be employed. All-way stop sign intersections are nearly as safe as roundabouts and cost a fraction as much. For low volume intersections where an all-way stop would not severely impact traffic, this is a very low cost, highly effective treatment.

Figure 77: All way stop and traffic calming installation at Wyoming St and Valentine Rd (Image source: Street Smarts Design + Build)

Where intersection cannot be wholly redesigned as a roundabout or converted to an all-way stop, resources could be directed to apply proven safety engineering countermeasures at existing intersections. For example, at signalized intersections aging signals should be rebuilt, especially signals that lack mast arms, left-turn signal phasing, and pedestrian push buttons. Intersection street lighting should also be evaluated. Most streets and intersection are lit, but we need to ensure lighting is operable, in the desired location, and correctly spaced.

Proven safety countermeasures at signalized and unsignalized intersections include:

- Construct Dedicated Left-Turn Lanes at Intersections—add dedicated left turn lanes to move left turning cars out of through lanes of traffic—projected 55% reduction in crashes

- Pedestrian and Bicycle Crossing Improvements—create high visibility crosswalks and bike crossing markings, provide push buttons and pedestrian signals and bicycle signal detection—projected 19-36% reduction in crashes

- Implement Improved Signal Timing—changing signal phasing and cycle—

projected 8-27% reduction in crashes

  - Yellow Change Intervals—increasing the time a yellow light is displayed—projected 36-55% reduction in crashes
  - Leading Pedestrian Intervals—providing pedestrians a few second's head start at an intersection in advance of a green light—projected 13-55% reduction in crashes
  - Provide Protected and Protected/Permissive Left Turn Phasing—providing a left turn signal for cars to safely turn left in an exclusive phase—projected 45-58% reduction in crashes
  - Flashing-Yellow Arrow Signal Phasing—use the flashing yellow arrow light instead of the green arrow + green ball signal—projected 25% reduction in crashes

- Traffic Signal Backplates with Reflective Borders—providing a strip of retroreflective tape around a signal to increase its visibility—projected 15% reduction in crashes

Complete Streets

To create a truly safe transportation system, a primary focus must be placed on improving safety, convenience, and access for all users. To do this, a Complete Street approach should be incorporated that prioritizes safety and access for people walking, biking, and using transit. The Kansas City Complete Street Ordinance outlines many of the aspects necessary for successful Complete Street implementation.

Top Complete Street Countermeasures

- Improved transit service and access
- Protected bike lanes
- Sidewalks and pedestrian crossings

Buses and streetcars contribute dramatically less to high severity crashes, per user-mile, compared to private car usage. Additionally, dense cities tend to have fewer incidents of fatal and serious injury crashes compared to those cities with sprawling layouts. Increasing multimodal use will be strengthened by land use shifts towards higher density development to decrease overall car trips. This is necessary for not only multimodal goals, but also to accommodate future growth while implementing core safety principles. Increased transit reliability and utilization will allow for safety goals to be met for all users. Improving transit is a key component of achieving Vision Zero in Kansas City. Ways to improve safety as part of public transit include station accessibility as well as considerations for streetcars, light rail, and bus rapid transit (BRT) systems.

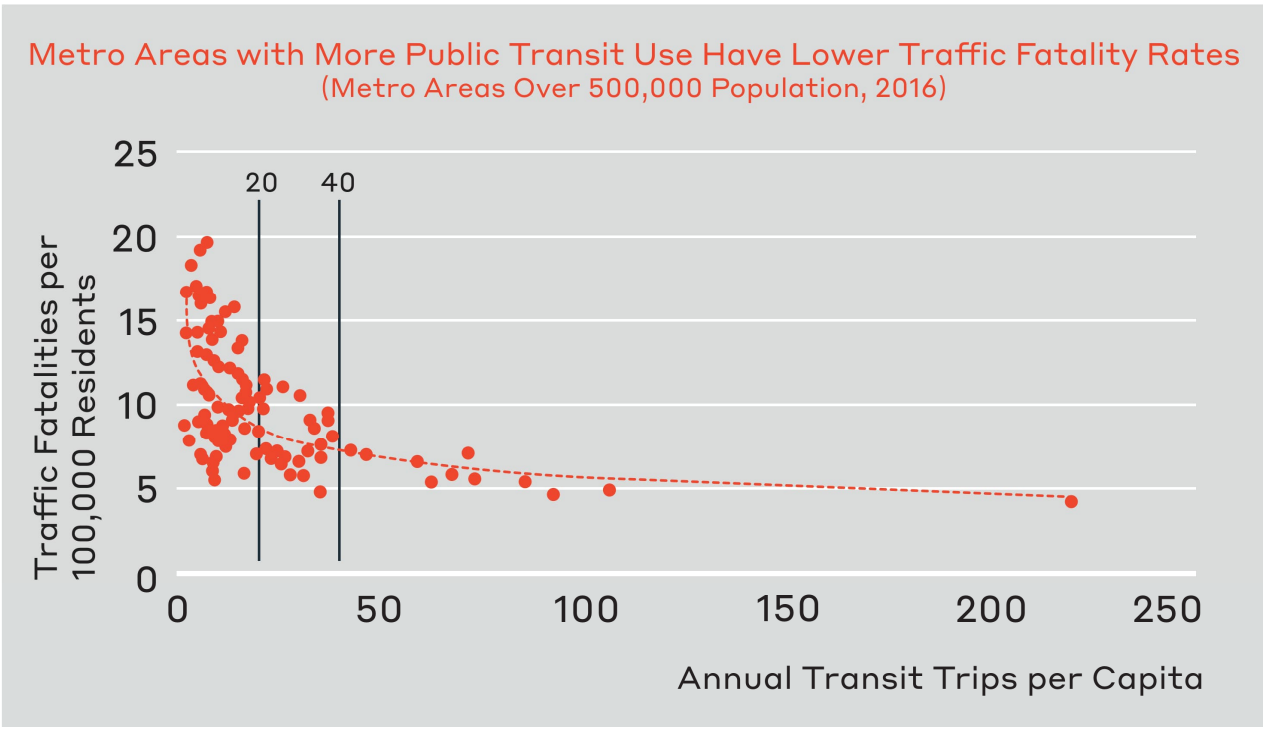

Figure 78: Metro Areas by Fatal Crashes and Annual Transit Trips (Source - American Public Transportation Association)

Cycling is one of the most sustainable, efficient, and healthy modes of transport available, especially in urban environments. Despite its benefits, cycling adoption is hindered by perceived and real safety concerns. Planning for safe cycling networks is critical to Vision Zero effort. Most important is reducing vehicle speeds, as discussed in the Speed Focus Area. But more than that, the different user modes should be separated wherever possible by constructing dedicated bicycle and dedicated pedestrian facilities. Where the users can't be separated, such as at intersections, safe crossings should be considered. Constructing the network of protected bike lanes as proposed in the 1-year and 5-year bike networks will be essential to achieving Vision Zero. Additionally, these separated facilities should be maintained so that users feel most safe using their dedicated facility. Protected bicycle lanes should be maintained by regular sweeping and upkeep of the vertical separation as well as pavement markings and signage.

Figure 79: RideKC Bus with bike rack (Image Source: BikeWalkKC)

Land use planning will be a key step to achieving Vision Zero. Considerations should be given to street layout and block sizes. A safe street layout supports low traffic speeds, three-way intersections, and roundabouts. Long blocks often tend to result in higher vehicle speeds due to fewer intersections as well as pedestrians more likely to cross traffic at midblock locations rather than at intersections. On the other hand, very short blocks can also decrease road safety. In addition to there being more land devoted to streets, short blocks also mean that vulnerable road users are more exposed to motor vehicle traffic at intersections because there are more conflict points.

Proven safety countermeasures for multimodal networks include:

- Improve Pedestrian Crossings at Signalized Intersections—increase the yield rate of motorists by improving pedestrian signal timing and visibility—projected 15% reduction in crashes
    - Crosswalk Visibility Enhancements —augment the existing intersections the visibility of vulnerable users at the crosswalks to increase the rate of yielding of motorists—projected 9-55% reduction in crashes
    - Implement Leading Pedestrian Interval—providing pedestrians a few second's head start at an intersection in advance of a green light—projected 13-55% reduction in crashes
- Improve Pedestrian Crossings at Uncontrolled Locations—install safe crossing locations for pedestrians to increase the yield rate for motorists to pedestrians—projected 55% reduction in crashes
    - Rectangular Rapid Flashing Beacons—provide a pedestrian activated push-button warning system to increase the yield rate of motorists this is an improvement meant for lower-speed connector type roadways—projected 47% reduction in pedestrian crashes
    - Pedestrian Hybrid Beacons—provide a pedestrian activated push-button warning system to increase the yield rate of motorists this is an improvement meant for higher speed roadways—projected 29% reduction in crashes and 55% reduction in pedestrian crashes
- Pedestrian Refuge Islands—create a safe location to protect pedestrians while they wait for adequate gaps in traffic or for vehicles to yield—46% reduction in pedestrian crashes
- Construct Sidewalks and Trails—create safe separated paths for pedestrians to navigate safely around the city—projected 59% reduction in pedestrian crashes
- Construct Dedicated Bicycle Infrastructure—create safe facilities for cyclists of all comfort levels—projected 73% reduction in vehicle/bike crashes

Safe Users

A fundamental principal of Vision Zero is to strengthen the system and place less reliance on driver behavior and the attempt to perfect that behavior. But road users share responsibility for traffic safety in addition to the system designers, elected officials, and system operators. Creating safer users starts with providing a road environment and speeds in which they can safely operate. At the same time these efforts are underway, education opportunities and encouragement campaigns should also be conducted.

Top Safe Users Countermeasures

- Advocate for Driver Education Classes
- Support Local Education Programs run by Advocacy Groups
- Conduct campaigns focused on speeding

Certain behaviors and certain users have much more impact on and are impacted more by fatal and serious injury traffic crashes. The Focus Areas that these countermeasures will target to reduce fatal and serious injuries for are male drivers, young drivers, and reckless drivers, particularly drivers who are speeding and driving while intoxicated. Countermeasures for these Focus Areas will typically work on safety campaigns that inform drivers of the importance of driving safely. These campaigns will generally work towards emphasizing the importance of driving at a safe speed for the roadway conditions and training drivers to be watchful and cognizant of vulnerable road users.

On top of public safety campaigns, it will also be important to support external non-profit and advocacy groups already working towards educating the driving public. Examples of these countermeasures include:

- Advocating for Driver Education classes at public schools—providing support for in-school or non-profit based drivers education courses for young people—projected 5-11% reduction in crashes
- Volunteer drivers to help young adults meet driving hour requirements to obtain licenses—creating an environment for young adults with busy parents opportunities to receive their drivers' permit is expected to greatly decrease the number of crashes involving unlicensed drivers, but there is currently no quantifiable data to estimate the projected reduction in crashes.
- Supporting multimodal educational programs run by advocacy groups like BikeWalkKC—through the SRTS program and other similar programs, communities can feel safe using alternative means of transportation—projected 16% reduction in vulnerable road user crashes

Safe and Equitable Enforcement

Law enforcement is a key component of traffic safety and the Vision Zero approach. Law enforcement officers from KCPD cannot be everywhere at all times, so it is most important to change our infrastructure and educate our drivers on safe behaviors, but enforcement remains a key tool to address the worst reckless and negligent behaviors of drivers.

Top Safe and Equitable Enforcement Countermeasures

- Interim Speed Safety Cameras
- Data driven & traffic safety focused policing
- Equitable enforcement

Law enforcement raises special equity issues. When enforcement is deployed, it is imperative that it is done in an equitable manner. Many of our worst safety issues exist in transportation disadvantaged areas. These areas have historically had a strained relationship with law enforcement. Enforcement activities in these areas should be accompanied by public information and education campaigns about the enforcement activities. Targeted speeding enforcement should also be structured to provide warnings for minor speeding infraction first with tickets starting on the second offence, subject to police officer judgement. This way, lower income residents that may be significantly impacted by a traffic ticket can have an opportunity for behavior change prior to that happening.

Laws related to speeding and aggressive driving should be considered one of the top priorities for enforcement activities to achieve Vision Zero goals. A secondary focus should be placed on intoxicated driving. Leveraging multiple strategies will increase the likelihood of success in improving the current system's equity and safety. Some strategic enforcement can be taken to develop an equitable safety plan that address the crash issue through both infrastructure and behavioral improvements. Traffic safety enforcement activities should be promoted through partnership with KCPD. The following countermeasures should be utilized:

- Data Driven Policing & Traffic Safety Data Collaboration—safety data orientated collaboration should be provided to the KCPD officers to focus their traffic safety efforts in a data-driven way and information gathering to support safety activities from other Kansas City departments

- Interim Speed Safety Cameras—speed cameras that automatically issue a speeding ticket after identifying the vehicle and driver—projected 32% reduction in crashes

- High Visibility Targeted Speed Enforcement—posting police patrol cars and motorcycles in highly visible locations for speed enforcement in targeted safety corridors—projected 15-42% reduction in crashes

- Speeding and DUI Saturation Patrols—could be implemented to better avoid crashes caused by reckless or aggressive driving behaviors at high crash locations based on a data-driven and safety targeted approach

Accurate Data

Accurate data is critical to identifying key safety issues, planning safety countermeasures, and tracking progress as countermeasures are implemented. The analysis framework established in this action plan combines crash reports, roadway infrastructure, and demographic data to draw conclusions about key safety issues in the region and areas for high-impact safety improvements. However, this analysis framework would benefit from investment in data quality and accuracy.

Top Accurate Data and Reporting Countermeasures

- Create Roadway Safety Data System
- Partner with KCPD to improve reporting accuracy

Law enforcement is the primary source of information on motor vehicle crashes. Critical information like the location of the crash, actions of people involved, and other contributing circumstances to the crash are all based on investigations conducted by law enforcement. The Public Works Department can partner with the Kansas City Police Department to improve crash reporting to make it more thorough and less biased. Providing law enforcement with context to roadway infrastructure, behavior and responsibilities of all roadway users, and equity can help law enforcement produce more accurate reports.

Establishing a centralized roadway safety data system is another critical step to a data-driven safety program. The data system should include provisional and final crash data provided by MoDOT, MARC, and KCPD. The data system should take care to accurately geocode the crash location and associate it with a stable ID linking it to the City's Centerline features. Roadway attribute data should be updated and include time series information (so as roadways are changed and made safer, the linkages between these improvements and crash rates can be tracked). Roadway attributes could include:

Centerline Attributes:

- Roadway functional class
- Access type (limited access, full access, or partially limited access)
- Number, direction, and width of through lanes
- Presence and type of median (including turn lanes)
- Presence and condition of sidewalks
- Presence and type of bicycle facility
- Presence of on-street parking
- Presence and type of mid-block crossings
- Speed limit
- Number of driveways or access points
- Pavement condition
    - Date of most recent resurfacing
    - Date of planned resurfacing
- Average daily traffic volumes
- Direction of travel (one-way vs. two-way)
- Estimated roadway capacity
- V/C Ratios (peak and off-peak)

- Prevailing speeds
- Presence and type of crosswalks
- Safety countermeasures or other traffic calming used

Intersection Attributes

- Type of control (all-way stop, two-way stop, roundabout, signal)
    - Operational attributes – protected left turn phase, leading pedestrian interval
- Average AADT per intersection leg
- Total pedestrian volume at signalized intersections (expand to 24-hour volumes)
- Safety countermeasures used
- Number of curb ramps (include number of ADA compliant curb ramps)
- Crosswalk style

The crash safety system should include adopted High Injury Networks and Intersections as well as initial risk scores for centerline segments and intersections.

As many as 20% of all serious injury crashes and 30% of pedestrian and bicycle serious injury crashes are unreported to the police. Non-traditional and innovative data sources should also be explored and included to address this reporting issue. By partnering with the health department and area Level 1 Trauma Centers, problems related to under-reported injury crashes can be addressed. The outcomes of patients, which are sometimes not fully investigated by law enforcement, may also be made more accurate. A partnership with a public hospital, such as University Health, may be a good partnership to start with.

More accurate and comprehensive data on roadway speeds would also assist with safety analysis and helping measure the effectiveness of road diets and safety countermeasures. Existing infrastructure from the City's traffic management center or data from Operation Green Light signals may be able to provide some data on speeds already. Certain models of mobile speed feedback displays also record speed data, which could be used for regular speed studies throughout the city. Finally, vendors like INRIX supply cell phone-derived speed data, which can provide typical speeds on higher-volume streets.

Additional traffic volume data should also be included in the safety data system by including manual traffic movement counts and machine counts already collected throughout the city. These could be further supplemented and expanded by making use of big data vendors such as Streetlight Data, which can provide multimodal traffic volume estimates on street segments using anonymized cell phone location data.

Finally, up-to-date operational and roadway characteristic data is a must. Information on speed limits, the number of lanes, lane width, median type, on-street parking, etc. should be recorded in an asset management system (currently Cartegraph) and included in the safety data system. Intersection data, including details on signal operations (e.g. leading pedestrian intervals, left turn phases), should also be included.

ACTION STEPS

Achieving Vision Zero will not happen without a coordinated, concerted effort from many different departments and projects. The action steps in this plan provide a framework to guide this effort. These steps form the framework of a 10 year program designed to achieve Vision Zero in Kansas City. The program contains three primary pillars:

- Policy and Process Actions – designed to integrate the Vision Zero approach to all aspects of city governance
- System-Wide Action Steps – distributed low-cost, high value systemic projects identified for implementation in all parts of the city to prevent future crashes
- Targeted Project Action Steps – major projects addressing the highest crash locations in the city

The following sections detail the action steps included in these pillars.

Policy and Process Actions

The first pillar of this action plan is to update the relevant policies and processes in the city to bring all our actions in line with the Vision Zero fundamentals. By doing this, Vision Zero will become an integral and enduring part of doing business in the city. The below policies, processes, and educational efforts can begin in year one of this action plan. Many of these action items are already underway as official city policy or process. Other action items have been piloted or previously identified as a priority but would benefit from formal adoption and expansion to more parts of the City.

Immediate Policy Action Steps

- Provide dedicated Vision Zero funding in annual budget. The City currently has a specific Vision Zero line item in its Capital Improvements Plan. It also uses major capital projects budget, street resurfacing budget, and neighborhood capital projects budgets to implement safety projects. Continued budgeting for Vision Zero safety projects and inclusion of safety in CIP planning is essential to realizing Vision Zero.
- Consider revisions to the Major Street Plan. The City is already implementing road diets and half road improvements on certain streets. Updating this policy document could formalize this and many other safety measures as a standard practice. The update should focus on safety, multimodal access, creating roadway environments sensitive to their context, and roads that foster targeted low vehicle speeds.
- Conduct a city-wide Speed Limit review. Evaluate whether speed limits are safe for their context and all road users. Following this review, adjust speed limits as

necessary, consistent with community engagement and equity principles established by the forthcoming Spirit Playbook comprehensive plan recommendations.

- Increase support for expanded public transit service and access. Public transit is the safest form of transportation today. Increasing service and safe access to transit fosters increased transit mode share. The city should continue to support regional transit funding mechanisms, continue to fund transit at increasing levels, and work on improving pedestrian and bicycle access to transit stops consistent with the forthcoming KC Spirit Playbook comprehensive plan recommendations.

Figure 80: KC Streetcar (Image Source: KC Streetcar Authority)

- Continue to work with BikeWalkKC on Safe Routes to School efforts, which help improve access and safety around school facilities through educational programming, community engagement, and planning.

Immediate Process Action Steps

- Continue to refine a public engagement process that is consistent with comprehensive plan recommendations. This process should guide staff and the City Council on when and how to engage residents and stakeholders through Citywide or areawide project planning and prioritization as well as project-specific design and implementation activities. Special care should be taken that residents living in Transportation Disadvantaged areas are actively involved in decisions that impact their safety, can help staff identify safety needs and prioritize projects, and understand the safety countermeasures available to help improve safety in the area.

- Continue to refine the Project Prioritization Process in Capital Improvements Planning and Vision Zero project planning. Scarce resources can have a bigger impact if spent on the right projects and in areas with the highest needs. Continue to center equity, safety, and asset preservation in project planning and prioritization.

- Continue to coordinate with private development so that any required traffic

impact studies for new development prioritize safety, asset preservation, and multimodal access.

- Review and Revise City Engineering and Design Guides to focus on accessibility, transparency, and usability by all parties and to prioritize safety outcomes over all other considerations. This includes:

    - Create a Complete Street Design Manual. The 2017 Complete Streets Ordinance codified the need to develop and update a context-sensitive manual on the design of streets for all modes. Still yet to be developed, this manual would be a comprehensive resource for street design in the city that could be used by staff, consultant engineers and landscape architects, private developers, residents, and other stakeholder groups. Such a manual would reference and/or be incorporated into other Public Works and Parks department design guidelines, policies, and procedures.

    - Update the Traffic Calming Manual to allow traffic calming measures to be applied in more places.

    - Update the Traffic Engineering and Operations Manual to focus on safety and update crash reporting and analysis methods to align with Vision Zero best practices.

    - Use Intersection Control Evaluation to determine the best solution for intersection control based on operations and safety.

    - Update the Walkability Plan to reflect current day circumstances and incorporate safety principles to all aspects of the plan.

    - Update Parkway & Boulevard Standards to focus on safety and multimodal access while still maintaining the historic integrity of the system.

Figure 81: Gillham Road Cycle Track

- Develop a Safety Data System that can be used to plan safety improvements and measure Vision Zero progress over time.

    - Collaborate with KCPD on crash investigation efforts to continuously improve crash investigation and data collection.

- Use and update existing data on street and intersection conditions and operations.

- Create a new data source recording all safety projects, locations, types of countermeasures used, and the date of implementation. Use the data system to conduct before/after studies and evaluate the effectiveness of the safety project. Optionally conduct speed studies and include observations in the safety data system.

Immediate Education and Enforcement Action Steps (Complete for KCMO Review)

- Create a Driver's Education Task Force for Teens. Many teen drivers in disadvantaged areas lack a licensed adult guardian in their lives that can help them obtain the necessary training hours to obtain a graduated driver's license. This task force will explore options to include the availability of driver's education through methods such as advocating for returning driver's education curriculum to high schools, partnering with non-profits to support driver training, and providing driver training through a City funded program.

- Conduct a Speeding Public Information Campaign. This campaign could be aimed at helping drivers understand the impacts of speed and today's heavier automobiles on vulnerable road users, like pedestrians and bicyclists, and encourage safer driving habits.

- Coordinate with the Kansas City Police Department for traffic enforcement should not be used to enforce safe speeds and driving behavior only, not as a tool for criminal enforcement. Special care should be taken to assign resources so that Transportation Disadvantaged communities are not over-policed.

Figure 82: Micromobility hub (Image Source: Street Smarts Design + Build)

System-Wide Action Steps

The second pillar of this action plan is implementation of system-wide improvements. These improvements, also known as "systemic" improvements, are distributed low-cost improvements designed to eliminate risk and thereby eliminate future fatal and serious injury crashes before they happen. Based on the systemic risk analysis, we can identify factors on roads that lead to an elevated risk of crashes. By utilizing distributed improvements throughout the city address weaknesses in the transportation system, we can lower risk everywhere in a low cost and equitable manner.

Immediate System-Wide Steps (Year 1)

The systemic countermeasures in the Core Safety Principles section of this plan will serve as a basis of systemic improvement projects. A prioritized list of highly effective systemic improvements is further included in the list below. Some of these installations are already underway at high-risk locations. The Immediate Year 1 System-Wide activities will include:

- Complete deployment of current neighborhood traffic calming, major street traffic calming, and lead pedestrian interval implementations currently underway
- Complete construction of sidewalks and curb ramps currently underway
- Develop a prioritized system-wide deployment program for years 2 – 10. This strategy will identify specific locations based on the systemic risk analysis to deploy specific systemic countermeasures based on project prioritization metrics and identify funding needs for program.
- Develop prioritized sidewalk construction program based on project prioritization metrics and identify funding needs for the program as part of GO Bond program and identify additional funding needs as necessary.

Ongoing System-Wide Steps (Year 2 – 10)

System-wide improvements will become an ongoing part of Vision Zero implementation being undertaken on an annual basis every year for the next 10 years. The yearly activities for system will include:

- Annually construct system-wide systemic improvements identified in the prioritized system-wide deployment strategy.
- Annually construct sidewalks and curb ramps identified in the prioritized sidewalk construction program
- Complete an annual review and refinement of the prioritized system-wide deployment strategy for the remainder of the 10-year program.
- Coordinate resurfacing maintenance projects where road diets, lane narrowing, or bicycle facility installation are needed for safety improvements through the Mobility Committee and implement safety treatments with resurfacing projects.

Table 13: System-Wide Project Priority List

	Countermeasure Description	Typical Components	Typical Locations
Neighborhood Traffic Calming	Using self-enforcing physical roadway features to slow vehicles or reduce volumes to support livability and vitality of neighborhood streets in Kansas City. This is primarily includes adding vertical elements to slow down cut through traffic on local streets.	Speed humps, speed cushions, raised crosswalks, curb extensions/bulb-outs, traffic circles, pedestrian mid-block crossings with refuge islands	Local neighborhood roadways, typically coinciding with requested improvements from neighborhood
Major Street Traffic Calming	Making geometric changes at intersections to narrow the overall roadway width, lanes, and tighten the curve radii to help manage speeds and decrease the width of travel lanes pedestrians need to cross.	Curb extensions/bulb-outs, pedestrian refuge islands, road diet with potential bicycle facilities retrofitting	Wide collector roadways, minor/major arterials
Road Diets (Roadway Reconfiguration)	Converting existing 6-lane and 4-lane roadways to 5-lane and 3-lane roadways. Median can be either raised with left turn lanes at intersections or a continuous two-way left-turn lane. Can be implemented with a resurfacing performed for maintenance reasons or stand alone.	Reducing the number of lanes and using the space for turn lanes, on-street parking, or bicycle facilities; curb extensions/bulb-outs, pedestrian refuge islands	Wide collector roadways, minor/major arterials

	Countermeasure Description	Typical Components	Typical Locations
Improvement of Sidewalks and Trail Network	Both filling in the missing gaps in the pedestrian network or repairing sidewalks and ADA curb ramps in disrepair to create a comfortable environment for pedestrians.	Sidewalk construction or sidewalk repair	Identified missing or poor-quality sidewalk locations
Improved Pedestrian Crossing (Mid-block)	Creating safe locations for pedestrians to cross at uncontrolled locations so they do not have to go out of their way to cross at signalized intersections.	Installation of RRFBs, pedestrian hybrid beacons, pedestrian refuge islands, crosswalk visibility, and sidewalk/walkway improvements	Locations between signalized intersections in urban areas especially at pedestrian attractors such as transit stops and entrances to multifamily buildings, businesses, and parks.
Traffic Signal Improvements – Leading Pedestrian Intervals (LPI)	LPIs provide pedestrians a 3-7 second head start to enter a signalized intersection before vehicles are given a green light. This provides the pedestrians the opportunity to better establish their presence in the crosswalk before vehicles have the priority to turn.	Updated traffic signal phasing plan, updated ADA compliant pedestrian signals, crosswalk visibility enhancements	Signalized intersections in urban areas

	Countermeasure Description	Typical Components	Typical Locations
Traffic Signal Improvements – Protected/Permissive Left-turn Phasing	Many of Kansas City's major throughfare Corridors currently only provide permissive left-turn phasing or no left-turn phasing at all (with many intersections restricting left-turns during the peaks), which can make it difficult for motorists to navigate through the City and create safety issues. Implementing a protected left-turn phase will provide a designated left-turn priority	Added designated left-turn lanes at signals, potential installation of two-way left-turn lane in conjunction with road diets, added left-turn signal heads, traffic signal timing changes	Signalized intersections currently lacking left turn lanes, left turn signals, or protected/permissive signal phasing; potential road diet locations
Traffic Signal Improvements – Flashing Yellow Arrows	Flashing yellow arrows tend to warn left-turning motorists to yield to vehicles and pedestrians better than the conventional green ball + green arrow configuration.	Added designated left-turn lanes at signals, potential installation of two-way left-turn lane in conjunction with road diets, added left-turn signal heads, traffic signal timing changes	Signalized intersections currently lacking left turn lanes, left turn signals, or protected/permissive signal phasing; potential road diet locations
Traffic Signal Improvements – Red/Yellow Change Intervals	Appropriately timed red/yellow change intervals based on the reviewing the signal performance measures can reduce the number of red light running as well as the speed though the intersections.	Traffic signal timing changes	Signalized intersections

	Countermeasure Description	Typical Components	Typical Locations
Installing Designated Left-turn Lanes on Arterial Corridors	Adding left-turn lanes will allow for increased mobility and safety for all roadway users, giving motorists an opportunity to make safe left-turns will decrease the number of angle and rear end crashes	Protected/permissive left-turn phasing, adding left-turn lanes, adding two-way left-turn lanes, road diets, corridor access management, flashing yellow arrow signal phasing	4+ lane roads currently lacking turn lanes, potential road diet locations
Improved Curve Delineation and Signage	Increasing the visibility of curves to decrease the chances of motorists to run off the road or cross the centerline	Striping wider edge lines, enhanced curve warning and delineation signing, rumble stripes, and safety edge treatments	Horizontal curve locations especially in rural or parkland/open space areas
Reduced School Speed Limits and Safe Routes to School	Review the existing school speed zones and signing around schools to upgrade the schools' signing plans to adhere to the MUTCD and add active flashing beacons to reduced school speed limit zone signs	Safe routes to schools planning, improving built environment for multimodal, installation of reduced school speed limits flashing assemblies	Roadways adjacent to schools
Street Lighting	Improved lighting increases the nighttime visibility of the roadway environment and potential non-motorized users, thus increasing the safety for all users.	Horizontal and vertical illuminance	Locations near transit stops, mid-block crossings, and locations with high numbers of night-crashes

Targeted Project Action Steps

The third pillar of this action plan is implementation of targeted project improvements. These improvements are individual projects along specific corridors and intersections that were previously identified as unsafe. These locations were chosen based on the high injury network (HIN) ranking, high injury intersection scores, and input from project stakeholders. By leveraging site specific improvements in the transportation system, we can lower risk at the most dangerous intersections and roadway corridors.

Prioritization Metrics

The highest level prioritization metric is the High Injury Network priority. The HIN was broken down into Top, High, Medium, and Moderate priority segments, solely based on their weighted KSI score. After narrowing the corridor list down to those ranked priority HIN corridors, a further prioritization metric is used to rank projects within the HIN groups. This metric includes:

- Equity
- Inclusion on the proposed bike network
- Inclusion on the road diet candidate network.
- Leveraging other adjacent projects
- Feasibility of quick implementation

Equity was a top concern of the project team. The results of the equity analysis were used to complete initial refinements of the targeted project list.

Three types of locations will be prioritized in this analysis: Extensions of existing or recent projects, locations on the High-Injury Network or Road Diet Network, and locations where protected bike facilities had been planned but not yet implemented. Corridors listed as “Analysis” under the Road Diet Candidate column implies that further study may be needed.

These locations will then be analyzed for the feasibility of implementing known countermeasures for intersections. Intersections with a higher number of KSI crashes will be prioritized above intersections with a lower number of KSI crashes. Intersections already being addressed in existing or planned projects, and intersections which met the above criteria but would require a substantial amount of study or planning before countermeasures could be identified were put on the next tier of priority.

This method of project prioritization was applied to the Immediate Targeted Steps (Year 1) to identify the initial project list. This prioritization metric will be applied to the Short Term (Year 1 – 3) projects identified for planning and concept development in Year 1 and in subsequent years.

Immediate Targeted Steps (Year 1)

The countermeasures in the Core Safety Principles section of this plan will serve as a basis of targeted improvement projects. Due to the large number of corridors and intersections present on the high injury and high-risk networks, project prioritization is a key element for success. For first round of projects, high injury corridors and high injury intersections were considered that were also prioritized using the

prioritization metric and through stakeholder input. The Immediate Targeted Steps (Year 1) will include:

- Implement countermeasures on identified roadway corridors, shown on Table 14. These and all following tables are listed alphabetically, not in order of priority. This list reflects top priority projects, but there is no prioritization between projects on this list.
- Implement countermeasures at identified intersections, shown on Table 15
- Planning/Concept development for Top Priority HIN Corridors and high injury intersections according to the project prioritization metrics
- Coordinate with MODOT to Implement quick build improvements on US-71 corridor as described below.
- Protected Bikeway Construction (30 mile network)

Short Term Targeted Steps (Year 1 – 3)
Targeted steps are an ongoing part of Vision Zero and a moving target. After implementing Immediate Targeted Steps (Year 1), activities to follow for Short Term Targeted Steps (Year 1 – 3) will include:

- Implement countermeasures on Top Priority HIN Corridors, shown on Table 16.
- Implement countermeasures on high injury intersections, shown on Table 17.
- Planning/concept development for US-71 Improvements as described below.
- Planning/Concept development for High and Medium Priority HIN Corridors according to the project prioritization metrics
- Continue construction of protected Bikeway network every year

Medium Term Targeted Steps (Year 3 – 5)
After implementing Short Term Targeted Steps (Year 1 – 3), Medium Term Targeted Steps (Year 3 – 5) will include:

- Construct Projects on High and Medium Priority HIN Corridors, shown on Table 18 and Table 19, respectively.
- Planning/Concept development for Moderate Priority HIN Corridors according to the project prioritization metrics
- Continue planning/concept development for US-71 Improvements as described below
- Continue construction of protected Bikeway network every year

Long Term Targeted Steps (Year 5 – 10)
Projects are listed for the first five years of targeted steps. A part of the Vision Zero processes is re-evaluating priorities on a continual basis, year after year. Long Term Targeted Steps (Year 5 – 10) will include:

- Reassess HIN and high injury intersections lists.
- Complete, or continue to complete, an annual review and refinement of the prioritized targeted projects for the remainder of the 10-year program.
- Implement Projects on Moderate Priority HIN Corridors
- Construct US-71 Improvements as described below.

In addition to the above steps, the target of overall roadway fatalities reaching zero by 2030 should continue to be assessed. Depending where actual numbers are at in relation to the goal set by this plan, more resources or different strategies may have to be implemented.

Bruce R. Watkins US-71 Highway

The US-71/Bruce R. Watkins Drive (US-71) corridor was first proposed in the 1950's to provide a direct connection between downtown Kansas City with the growing southern areas of the region. Decades prior to the planning and construction of the US-71 corridor, residential segregation, restrictive covenants, and redlining in Kansas City had restricted where African Americans could rent or purchase property to east of the Troost Avenue corridor. This legally sanctioned practice at the time led to the development of many thriving and prosperous, middle-class African American communities and neighborhoods on the east side of Kansas City. The US-71 corridor tore through these neighborhoods and negatively impacted the African American communities that were physically divided for its construction in the 1990s and early 2000s.

The project was initially known as the South Midtown Freeway, and as planning and engineering progressed, community members that were being displaced filed a lawsuit in 1973 to halt the construction of the project and request that it be redesigned to lessen the overall impact to the adjacent neighborhoods and provide enhanced connectivity across the highway facility. In total, nearly 1,800 families, mostly African American, were vacated from their homes to allow for the construction of US-71 between 1968 and 1978.

In 1985 a federal consent decree was issued that the South Midtown Freeway project was to be reevaluated and to be designed as "less than a freeway, and more than a parkway." This consent decree also determined that the eventual US-71 facility would be constructed with three at-grade, signalized intersections located at Gregory Boulevard, 59th Street, and 55th Street. Following a reassessment of the project and the inclusion of the at-grade intersections, along with commitments for enhanced landscaping and other beautification elements, the project was allowed to proceed to construction. The three signalized at-grade highway intersections were thought to aid in maintaining east/west connectivity for the neighborhoods on either side of US-71 (Figure 2). These intersections and signals have made this five-mile segment of US-71 the highest crash location for pedestrians and cyclists in the entire city and have proven to be a poor design for all users of the highway creating unintended challenges for decades.

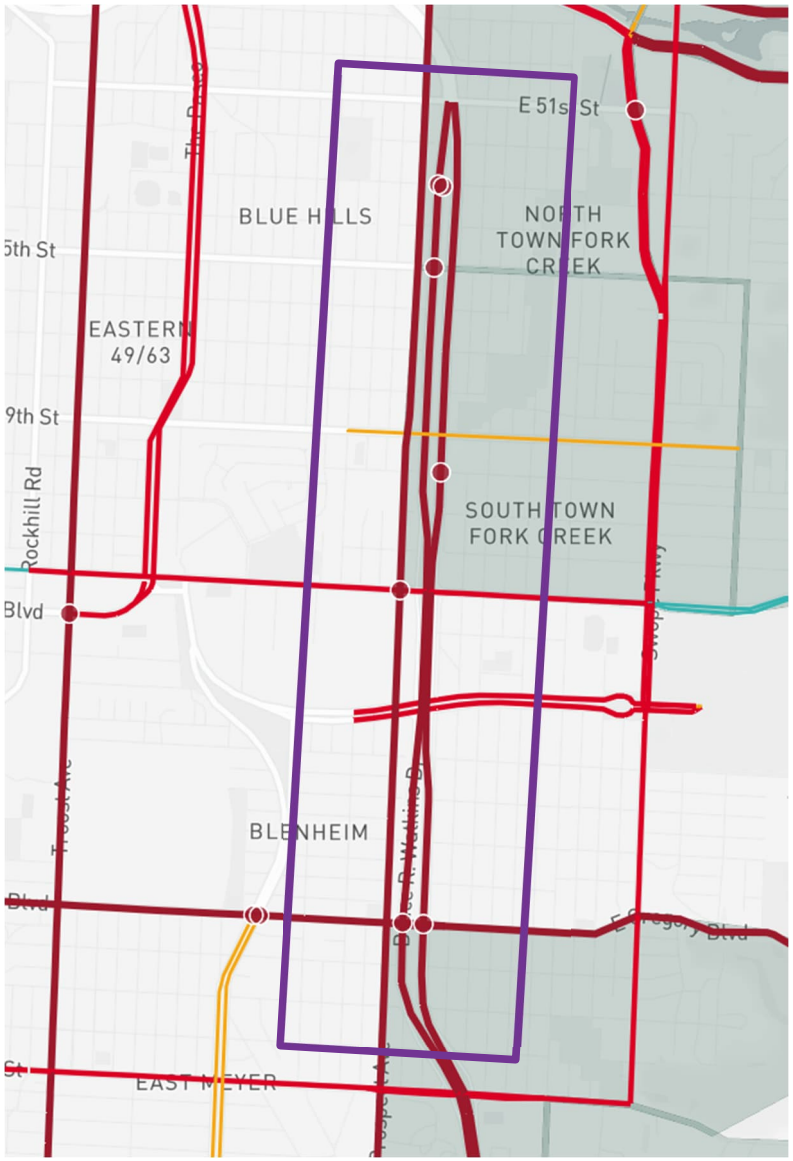

Figure 83: The Bruce R. Watkins (US-71 Highway) Corridor HIN Detail

Six intersections on the US-71 corridor are included on the top 30 high KSI crash intersections. The entire length of the corridor and Prospect Avenue directly adjacent to it are on the Top Priority HIN. The corridor also crosses one other Top Priority HIN corridor (Gregory Blvd), two High Priority HIN corridors (Meyer Blvd and 63rd Street), and one Medium Priority HIN corridor (59th Street). Nearly the entire section is in a Transportation Disadvantaged area.

To fully address the grave safety issues on this corridor, a long-term planning and construction strategy is needed. This will likely consist of a Planning and Environment Linkages (PEL) study, environmental assessment according to the National Environmental Policy Act (NEPA). This process should be started as soon as possible in coordination with MoDOT and would likely extend through Year 5 of this action plan, with eventual constructing extending through the end of Year 10 of this action plan.

Because the safety issues are so great in the area, interim improvements will be considered and are included in this plan. Year 1 improvements will include coordinating with MoDOT on performing improvements starting at Gregory Blvd and Meyer Blvd such as:

- Performing a road safety audit
- Improving street lighting
- Improving sidewalks
- Constructing major street traffic calming measures
- Implementing Lead Pedestrian Intervals and other traffic signal timing improvements

Table 14: Immediate Targeted Projects (Year 1) Corridor Improvement Locations

Immediate Targeted Projects (Year 1) Corridor Improvement Locations						
Roadway	**High Injury Network Rank**	**Road Diet Candidate?**	**Disadvantaged Area?**	**Fatalities (2015 – 2019)**	**Serious Injuries (2015 – 2019)**	**Length (miles)**
23rd St (Chestnut Ave - Topping Ave)	Top	Yes	Yes	7	18	1.48
31st St (Troost Ave - Topping Ave)	High	Yes	Yes	3	38	3.96
Hardesty / Van Brunt Ave (Independence - 23rd St)	High	Yes	Yes	5	20	2.39

Table 15: Immediate Targeted Projects (Year 1) Intersection Improvement Locations

Immediate Targeted Projects (Year 1) Intersection Improvement Locations			
Primary Roadway	**Intersection**	**Disadvantaged Area?**	**Safety Risk Score**
23rd Street	• Hardesty Ave • Van Brunt Ave	Yes	9 / 10
31st Street	• Paseo • Brooklyn Ave • Benton Blvd • Indiana	Yes	9 / 10
63rd Street	• Prospect Ave • Indiana Ave • Swope Pkwy	Yes	10 / 10

Immediate Targeted Projects (Year 1) Intersection Improvement Locations			
Primary Roadway	**Intersection**	**Disadvantaged Area?**	**Safety Risk Score**
Cleveland Avenue	• E 45th Street • E 59th Street	Yes	9 / 10
Emanuel Cleaver II Blvd	• Elmwood Ave • Cleveland Ave • Prospect Ave	Yes	9 / 10
Independence Blvd	• Woodland Ave • Prospect Blvd • Cleveland/Monroe	Yes	10 / 10
Paseo Blvd	• Gregory Avenue	No	6 / 10
US Highway 71	• Gregory Ave • Meyer Ave	Yes	N/A

Table 16: Short Term Targeted Projects (Year 1 – 3) Top Priority HIN Corridors

Short Term Targeted Projects (Year 1 – 3) High Injury Corridors						
Roadway	**High Injury Network Rank**	**Road Diet Candidate?**	**Disadvantaged Area?**	**Fatalities (2015 – 2019)**	**Serious Injuries (2015 – 2019)**	**Length (miles)**
39th St (Southwest Trfwy - Indiana Ave)	Top	Yes	Partial	4	48	2.74
Blue Pkwy (Swope Pkwy - 435)	Top	No	Yes	5	37	3.47

Short Term Targeted Projects (Year 1 – 3) High Injury Corridors						
Roadway	**High Injury Network Rank**	**Road Diet Candidate?**	**Disadvantaged Area?**	**Fatalities (2015 – 2019)**	**Serious Injuries (2015 – 2019)**	**Length (miles)**
Bruce R Watkins Dr (51st St - Blue River Rd)	Top	No	Partial	19	40	8.74
Emanuel Cleaver II Blvd (Main St - E 31st St)	Top	Yes	Partial	8	72	9.09
Gregory Blvd Swope (River - Ewing Ave)	Top	No	Partial	15	43	2.92
Independence Ave (The Paseo - 435)	Top	Analysis	Yes	7	69	4.20
Prospect Ave North (31st St - 55th St)	Top	No	Partial	12	35	3.00
Prospect Ave South (63rd St - Hickman Mills Dr)	Top	No	Partial	6	21	2.24
Troost Ave (670 - Bannister Rd)	Top	Yes	Partial	16	65	8.96
Truman Rd (Grand Blvd - Hardesty Ave)	Top	Analysis	Partial	12	67	6.38

Table 17: Short Term Targeted Projects (Year 1 – 3) High Injury Intersections

Short Term Targeted Projects (Year 1 – 3) High Injury Intersections			
Primary Roadway	**Intersection**	**Disadvantaged Area?**	**Safety Risk Score**
31st Street	• Jackson Street • Van Brunt Blvd	Yes	8 / 10 9 / 10
Truman Road	• Askew Avenue • Oak Street	Yes	7 / 10 6 / 10
Blue Parkway	• Coal Mine Road	Yes	7 / 10
Blue Ridge Blvd	• 87th Street • Bannister Road • Sni-A-Bar Road	Yes	8 / 10 7 / 10
Broadway Blvd	• 31st Street • 39th Street	No	7 / 10
Bruce R Watkins Drive	• 53rd Street • 60th Street • Gregory Avenue	Yes	N/A
Church Road	• M-162	No	N/A
Eldon Avenue	• M-210	No	N/A
Front Road	• Chouteau Trafficway • River Front Drive	Yes	10 / 10 6 / 10
Hardesty Avenue	• 9th Street	Yes	9 / 10
Main Street	• 43rd Street	Yes	10 / 10

Short Term Targeted Projects (Year 1 – 3) High Injury Intersections			
Primary Roadway	**Intersection**	**Disadvantaged Area?**	**Safety Risk Score**
Swope Parkway	• 51st Street	Yes	6 / 10
Troost Avenue	• Meyer Blvd	No	6 / 10

Table 18: Medium Term Targeted Projects (Year 3 – 5) High Priority HIN Corridors

Medium Term Targeted Projects (Year 3 – 5) High Priority HIN Corridors						
Roadway	**High Injury Network Rank**	**Road Diet Candidate?**	**Disadvantaged Area?**	**Fatalities (2015 – 2019)**	**Serious Injuries (2015 – 2019)**	**Length (miles)**
35th St (Michigan Ave - Bellefontaine Ave)	High	No	Yes	4	9	0.74
63rd St (Rockhill Rd - Swope Pkwy)	High	Yes	Partial	6	21	1.86
75th St (Holmes Rd - South Benton Ave)	High	Yes	No	2	28	1.85
Broadway North (Independence Ave - Truman Rd South)	High	No	No	0	6	0.90
Broadway South (31st St - Westport Rd)	High	Analysis	No	2	26	1.54
Cleveland Ave North (Emanuel Cleaver II Blvd -	High	Yes	Partial	4	11	1.04

Medium Term Targeted Projects (Year 3 – 5) High Priority HIN Corridors						
Roadway	**High Injury Network Rank**	**Road Diet Candidate?**	**Disadvantaged Area?**	**Fatalities (2015 – 2019)**	**Serious Injuries (2015 – 2019)**	**Length (miles)**
Swope Pkwy)						
Cleveland Ave South (67th St - Gregory Blvd)	High	No	Yes	2	1	0.44
Front St (River Front Rd - 435)	High	No	Yes	5	17	2.30
Linwood Blvd (SW Trfwy - Cleveland Ave)	High	Analysis	Partial	3	24	3.00
Meyer Blvd East (Presson Dr - Swope Pkwy)	High	Yes	No	4	13	2.06
Meyer Blvd West (Troost Ave - E 63rd St)	High	Yes	No	0	2	0.38
Paseo (Independence Ave - E 41st St)	High	Yes	Partial	7	32	5.35
Southwest Trafficway (I-35 - Westport Rd)	High	No	No	14	18	4.00
Swope Pkwy (Prospect Ave - 67th St)	High	Yes	Yes	1	35	5.39
Van Brunt Blvd (26th St - 31st St)	High	Yes	Yes	3	11	1.25

Table 19: Medium Term Targeted Projects (Year 3 – 5) Medium Priority HIN Corridors

Medium Term Targeted Projects (Year 3 – 5) Medium Priority HIN Corridors						
Roadway	**High Injury Network Rank**	**Road Diet Candidate?**	**Disadvantaged Area?**	**Fatalities (2015 – 2019)**	**Serious Injuries (2015 – 2019)**	**Length (miles)**
103rd St (State Line Rd - Wornall Rd)	Medium	Yes	No	0	2	0.62
27th St (The Paseo - Van Brunt Blvd)	Medium	Yes	Partial	2	15	2.42
43rd St (Jarboe St - Oak St)	Medium	No	Partial	2	15	0.91
47th St (Madison Ave - Main St)	Medium	No	No	0	21	1.14
Bannister Rd (Wornall Rd - Blue Ridge Rd)	Medium	Yes	No	8	24	4.75
Barry Rd (I-29 - N Oak Trfwy)	Medium	Yes	No	0	34	9.09
Belmont Blvd (Front St - BNSF Railroad)	Medium	Yes	Yes	3	12	2.20
Benton Blvd (Independence Ave - Truman Rd)	Medium	Yes	Partial	0	16	1.01
Blue Ridge Blvd (Bannister Rd - I-49)	Medium	Analysis	Yes	2	26	3.33
Blue River Rd (Red Bridge Rd - Blue Ridge Blvd)	Medium	No	Partial	1	5	1.77

Medium Term Targeted Projects (Year 3 – 5) Medium Priority HIN Corridors						
Roadway	**High Injury Network Rank**	**Road Diet Candidate?**	**Disadvantaged Area?**	**Fatalities (2015 – 2019)**	**Serious Injuries (2015 – 2019)**	**Length (miles)**
Hillcrest Rd (Oldham Rd - Memorial Park Cemetery)	Medium	No	Yes	0	4	0.69
Holmes Rd (75th St - Red Bridge Rd)	Medium	Analysis	Partial	2	13	4.86
M 150 Hwy (State Line Rd - Union Pacific Railroad)	Medium	No	No	2	2	1.75
Madison Ave (43rd St - 47th St)	Medium	Analysis	No	0	4	0.50
Main St (31st St - 47th St)	Medium	Analysis	Partial	2	17	1.99
Mill Creek Pkwy (43rd St - 47th St)	Medium	Yes	No	0	5	0.50
Oldham Rd (Gregory Blvd - Oakwood Rd)	Medium	No	Yes	4	7	0.64
Red Bridge Rd (Wornall Rd - Blue Ridge Blvd)	Medium	No	Partial	0	10	4.95
State Line Rd (W Tam-O-Shanter Dr - 135th St)	Medium	Analysis	No	0	4	0.83
Topping Ave (23rd St - 26th St)	Medium	No	Yes	3	2	0.37
Vivion Rd	Medium	Analysis	Partial	1	11	3.25

Medium Term Targeted Projects (Year 3 – 5) Medium Priority HIN Corridors						
Roadway	**High Injury Network Rank**	**Road Diet Candidate?**	**Disadvantaged Area?**	**Fatalities (2015 – 2019)**	**Serious Injuries (2015 – 2019)**	**Length (miles)**
(N Oak Trfwy - I-35)						
Ward Pkwy (75th St - 89th St)	Medium	Analysis	No	3	17	3.70
Wornall Rd (Bannister Rd - Red Bridge Rd)	Medium	No	No	1	17	2.08

Figure 84: Troost Avenue (Image Source: Google)

MONITORING

One of the most important steps of a Vision Zero Safety Plan is monitoring the annual progress toward zero transportation related deaths or serious injuries on Kansas City Streets. To achieve the goal of zero deaths and serious injuries per year, the City must achieve dramatic reductions in these crashes every year. The city must eliminate approximately 40 fatal and serious injury crashes every year until 2030. This equates to approximately a 25% decrease in fatal and serious injury crashes every year for the next 8 years until 2030.

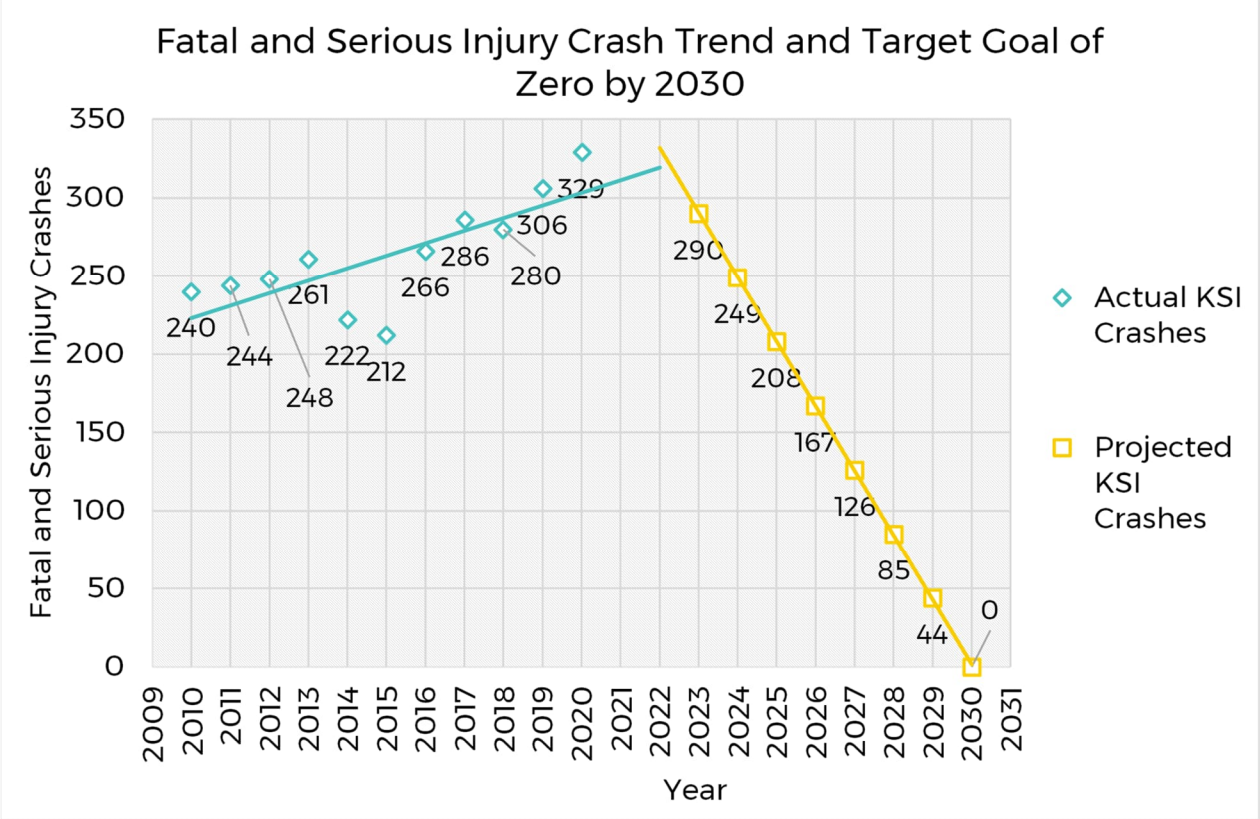

Figure 85: Actual fatal and serious injury (KSI) crashes in Kansas City 2010 - 2020 and targeted KSI crashes to achieve 2030 goal of Zero

To monitor the progress towards zero deaths and serious injuries, the City pledges to annually record and report the key performance indicators shown in the tables below by the 15th of July each year covering data for the previous year, as data is available. For the crash-focused key performance indicators, there is an inherent delay in data accessibility, as crash data for a full calendar year is not typically available until Spring or Summer of the next year. These key performance indicators will be made available to the public via a dedicated Vision Zero page on the City Website. This reporting should be used in the Public Improvements Advisory Committee (PIAC) process and budget development process. If no notable progress has not been reached, the City Council will reassess this Action Plan, current projects completed, and funding dedicated to Vision

Zero projects and programs.

Table 20: Crashes-focused KPI for KCMO Vision Zero Plan (Note: KPI include Freeway Crashes)

KPI Measurement	Baseline 3-yr avg. 2018-2020	3-yr avg. 2019-2021	Baseline 1-yr 2020	2021
Fatal and Serious Injury Crashes (Citywide, Non-Freeway)	305		329	
Fatal and Serious Injury Crashes (Disadvantaged Areas, Non-Freeway)	171		195	
Number Killed (Citywide, Non-Freeway)	55.3		66	
Number Seriously Injured (Citywide, Non-Freeway)	313		333	
Number Killed or Seriously Injured (Vulnerable Users, Non-Freeway)	49		51	
Rate of Traffic-related fatalities per 100 million vehicle miles travelled (Non-Freeway)	2.16		2.58	
Rate of Traffic-related Serious Injuries per 100 million vehicle miles travelled (Non-Freeway)	12.23		13.01	

Table 21: Investment-focused KPI for KCMO Vision Zero Plan

KPI Measurement	Baseline 1-yr 2022	2023
Miles of HIN improved	6.7	
Number of Safety Improved Intersections	7	
Miles of Reduced Speed Limits	0	
Number of Systemic Improvements	1	
Number of Traffic Calming Projects	50	
Proportion of CIP dedicated to Safety	n/a	