



Vision Zero
Action Plan
OKLAHOMA CITY

CITY OF OKLAHOMA CITY **VISION ZERO ACTION PLAN**

February 2025



Prepared For:



Vision Zero
Action Plan
OKLAHOMA CITY

Prepared By:

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Expect More. Experience Better.





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EXECUTIVE SUMMARY

Vision Zero Action Plan OKLAHOMA CITY



EXECUTIVE SUMMARY

Oklahoma City was awarded the Safe Streets and Roads for All (SS4A) grant through the US Department of Transportation to develop a Vision Zero Action Plan (VZAP). The VZAP provides an analysis of the City's roadways and recommends countermeasures to reduce transportation-related fatalities and serious injuries on the City's most dangerous roadways. This approach kicked off in January 2024 and will run through adoption in February 2025.

This Plan is organized into three parts, each containing a purpose statement and listing of chapters contained within. The parts of the plan correspond to the various phases of the planning process:

Part I: Background and Purpose

- **Chapter 1:** Creating a Vision
- **Chapter 2:** Engaging the Community

Part II: Oklahoma City State of Safety

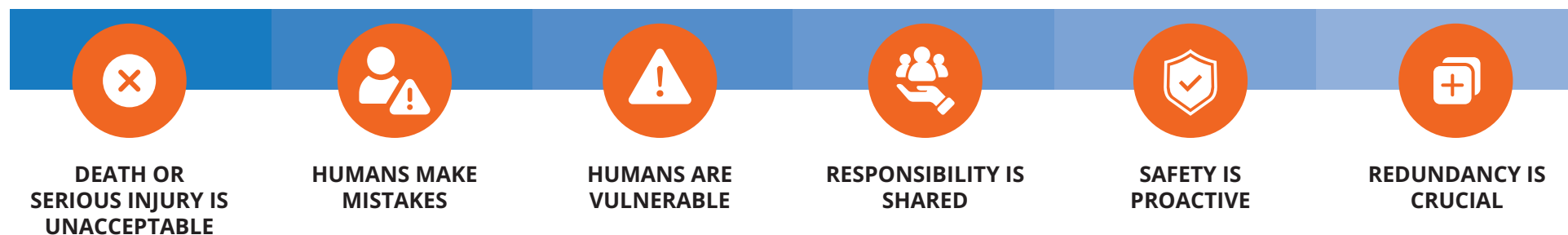
- **Chapter 3:** Understanding the Problem

Part III: Vision Zero Action Plan

- **Chapter 4:** Designing the Solution
- **Chapter 5:** Getting to Zero



The Safe Streets and Roads for All (SS4A) program is a primary driving force behind the VZAP, which is characterized and guided by the Federal Highway Administration's (FHWA) Safe Systems Approach. The guiding principles for this plan are viewed through a safety lens, which aims to eliminate all traffic fatalities and severe injuries, prioritizing the principles of safer road design, enforcement, education, and community engagement to achieve this goal. The guiding principles of the Safe Systems Approach and this document are detailed in [Chapter 1](#), but can more generally be summarized as follows:



With these safety guiding principles in mind, the Vision Zero Advisory Board (VZAB) worked together to establish a mission that clearly communicates and guides how this Plan serves the community and stakeholders into the future. This vision for Oklahoma City's Vision Zero Action Plan is:



*The City of Oklahoma City aims to **eliminate road fatalities** through strategic infrastructure enhancements, policy advocacy, and inclusive education. The City is dedicated to **protecting all road users** and promoting a **sustainable, vibrant community**.*



To make this mission a reality, Oklahoma City's Council, along with the Vision Zero Advisory Board and staff commit to the overall goal of improving safety in Oklahoma City by adopting a Vision Zero resolution in February 2025. The Vision Zero Resolution is provided in [Appendix Item A](#).

Part II of the Plan, Oklahoma City State of Safety, establishes an empirical understanding of existing conditions and key safety considerations, laying the foundation for **Part III** of the Plan. **Chapter 3** analyzes the Citywide crash history, details safety emphasis areas, and reviews the equitable state of safety throughout the City.

Citywide crash trends, as shown below in **Figure 1**, revealed that from 2017-2021, there were 75,747 total crashes and 385 fatal crashes in the City of Oklahoma City. During this period, crashes throughout the City peaked in 2017 at 17,029. Total crashes decreased slightly over 2018 and 2019 but remained consistent near the mark of 15,500 annual crashes. 2020 presented a low for the period with 12,347 crashes, which correlated with the COVID-19 pandemic. Like the trend of decreasing crashes that can be observed, the number of fatalities per 100,000 population has generally increased on an annual basis from a low of 9.4 fatalities per 100,000 population in 2018 to a high of 14.1 fatalities per 100,000 population in 2021. **Figure 1** below displays the total fatal, suspected serious injury, and suspected minor injury crashes (KABs) that occurred in the City of Oklahoma City over this five-year period in relationship with the number of fatalities per 100,000 people.

The Crash Profiles seen in **Tables 1-5** in the executive summary identify the top 5 combinations of roadway design and environmental characteristics that yield the highest percentages and severities of crashes. A Crash Profile is a detailed analysis of specific factors or characteristics on a roadway that may be correlated with crashes. Crash severities are listed as “KABs” indicating fatal injuries (K), suspected serious injuries (A), and suspected minor injuries (B). For example, Crash Profile 1 identifies 25% of all KAB crashes from 2017 to 2021 to be within a Disadvantaged Census Tract and near a school. The crash profiles provides the City of Oklahoma City with another level of analysis assisting in the future selection of safety countermeasures and policy recommendations.

FIGURE 1: OKLAHOMA CITY KAB CRASH SUMMARY (2017-2021)

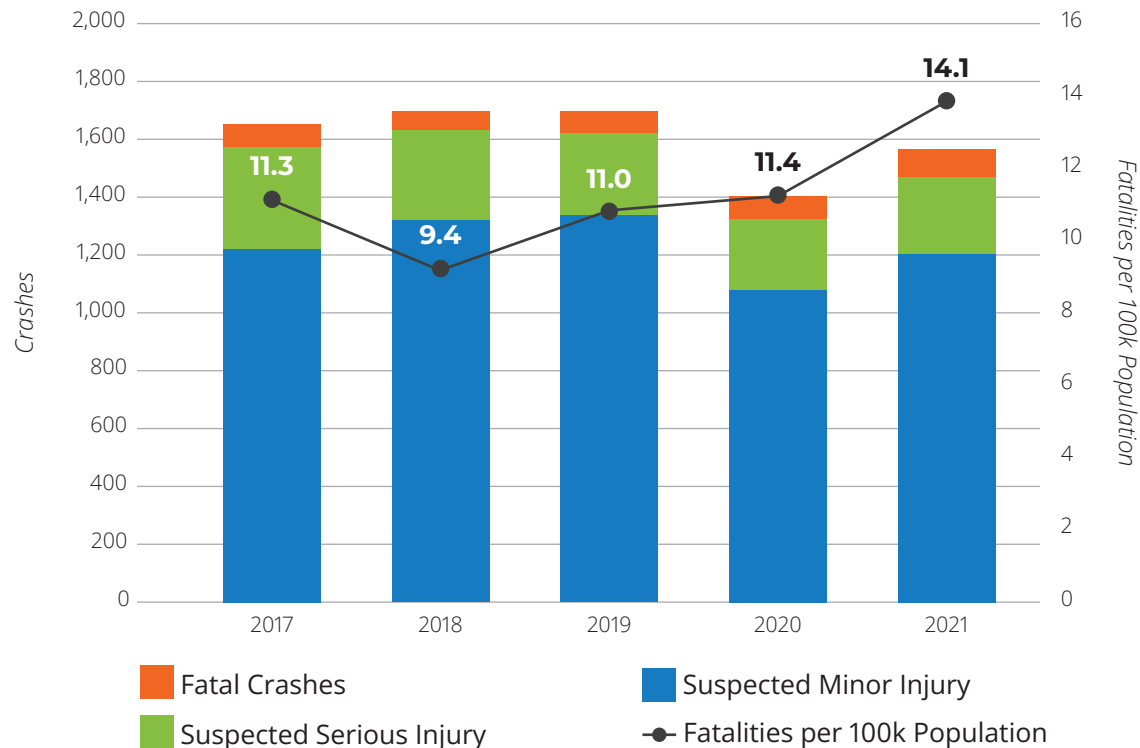




TABLE 1: CRASH PROFILE 1

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

TABLE 2: CRASH PROFILE 2

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

TABLE 3: CRASH PROFILE 3

Crash Profile 3		
	Not Near Streetlight (<75 ft) & 4 Lanes	
	Number of Crashes	Percentage of KABs
K	63	28%
A	216	22%
B	913	22%
Total KABs	1,192	22%

TABLE 4: CRASH PROFILE 4

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

TABLE 5: CRASH PROFILE 5

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

Chapter 2 Discusses the equity review done to ensure that transportation investments and safety improvements are distributed equitably. This is accomplished through using USDOT's Equitable Transportation Community (ETC) Explorer to assess how communities experience disadvantage using five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability.

Chapter 3 discusses the results of the high-injury network (HIN) study. A high-injury network is a network of roads, intersections, or other transportation infrastructure that experiences an above average rate of KABs. The identification and prioritization of these networks is foundational in the success of a Vision Zero Action Plan. The HIN will be essential in allowing the City to:

- Prioritize safety improvements
- Allocate and distribute resources
- Implement and monitor improvements
- Continuously review and update with the most recent crash data

Chapter 4 presents seven (7) roadway segments on the HIN selected as priority locations to make targeted recommendations to improve the City's most unsafe roadway locations. These segments, as shows in **Table 6** below, were selected with input from City staff and advisory group and scored based on equity, engagement, and feasibility.

Chapter 5 of the plan details countermeasures and recommendations for the study corridors, as well as systemic recommendations as a part of the Vision Zero Action Plan. This includes policies, programs, strategies, and actions formed using Oklahoma City's guiding principles.

TABLE 6: STUDY CORRIDORS

Study Corridors								
Study Corridor	Limits		Length (mi)	Crashes				Daily Volume
	From	To		K	A	B	Total KABs	
1. NE 23rd Street	I 35	N Bartell Rd	1.82	8	5	23	36	15,136
2. NW 23rd Street	N Ann Arbor Ave	N I 44 Hwy	1.75	3	6	27	36	15,132
3. Mustang Road*	Reno Ave	SW 59th St	4	7	10	50	67	24,425
4. SW 44th Street	I-44 NBFR	Johnston Dr	1.77	3	9	32	44	10,705
5. S Pennsylvania Avenue	SW Grand Blvd	SW 59th St	1.49	3	3	25	31	12,415
6. NW 10th Street	County Line Rd	N Rockwell Ave	1.96	3	6	16	25	8,689
7. NW Expressway	N Council Rd	N Wilshire Blvd	2.1	0	12	30	42	18,006
Total			14.89	27	51	203	281	14,930

*Owned and Operated by the Oklahoma Department of Transportation



The High Injury Network (HIN) identifies road segments where the fatal or serious injury crashes occur at a higher frequency than expected. The HIN displays the corridors within Oklahoma City transportation network that experience a higher risk of injury or fatality.

Recommendations on study corridors provide detailed and crafted countermeasures for specific areas of Oklahoma City that have varying crash histories, road geometries, intersection control, and land use context. Additionally, systemic recommendations are organized by safety emphasis area and provide a countermeasure toolbox to make Citywide improvements wherever needed.

Systemic countermeasures are designed to be implemented in all areas of the City to improve safety, in addition to the targeted recommendations and study corridors. The corresponding toolbox in **Chapter 4** provides a comprehensive collection of strategies and interventions designed to address specific traffic safety issues and challenges. **Table 7** shows a summary of these countermeasures. Each Countermeasure will have an associated Crash Modification Factor (CMF) that indicates the expected rate of crashes a community can observe after the associated countermeasure has been implemented. Countermeasures with lower CMFs typically exhibit the highest reduction in crashes. These figures are derived from the CMF Clearinghouse.

Chapter 5 outlines the action plan, which is comprised of policies and programs to create solutions for systemic issues and are organized by the 5 safety emphasis areas (Safer Vehicles, Safer Roads, Safer Speeds, Safer People, and Post Crash Care) and focus on eliminating deaths on Oklahoma City roads. To make goals easier to achieve for each emphasis area, each goal has strategies and actions outlines. The corresponding table provides each strategy outlined in the action plan for each emphasis area. The implementation of these actions will be a collaborative effort between city departments including Planning, Public Works, EMBARK, Police, and Fire; and external stakeholders such as the ODOT, ACOG, OSHO, and the Department of Health. All under the direction and support of the Mayor and City Council.

TABLE 7: COUNTERMEASURES SUMMARY

Countermeasures	CMF	Context (Urban/Rural)
Medians and Pedestrian Refuge Islands	0.29	Urban
Median Barriers	0.29	Both
Rectangular Rapid Flashing Beacons (RRFB)	0.31	Both
Bike Lanes	0.435	Both
Dedicated Left- and Right-Turn Lanes at Intersections	0.52 – 0.86	Both
Roadway Reconfiguration	0.53	Urban
Roundabouts	0.59	Both
Sidewalks	0.598	Both
Lighting	0.68	Both
Reduced Left-Turn Conflict Intersections	0.7029	Both
Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections	0.732	Both
Crosswalk Visibility Enhancements	0.732	Both
Longitudinal Rumble Strips	0.745	Rural
Enhanced Delineation for Horizontal Curves	0.82	Rural
Retroreflective Backplates	0.85	Both
Appropriate Speed Limits	0.856	Both
Pedestrian Hybrid Beacons	0.883	Urban
Leading Pedestrian Interval	0.9	Urban
Corridor Access Management	0.93	Both
Wider Edge Lines	0.97	Both
Yellow Change Intervals	0.99	Both





PART I

Vision Zero Action Plan OKLAHOMA CITY

PART I

Chapter 1: Creating a Vision

Safety Guiding Principles

Chapter 2: Engaging the Community

Introduction

Internal Work Sessions

Project Timeline

Public Events

Vision Zero Advisory Board

Online Engagement

CHAPTER 1: CREATING A VISION

*Through this holistic approach
Vision Zero aims to achieve the goal
of eventually eliminating all traffic
fatalities and severe injuries.*

SAFETY GUIDING PRINCIPLES

The Oklahoma City Vision Zero Safety Action Plan was developed using three guiding principles to help Oklahoma City achieve their goal of zero traffic related fatalities in the City: Vision Zero, Safe System Approach, and the Six Es of Safety. The Vision Zero Safety Action Plan will assist City Staff and local partners through making informed decisions when identifying projects that will improve traffic safety in the City.





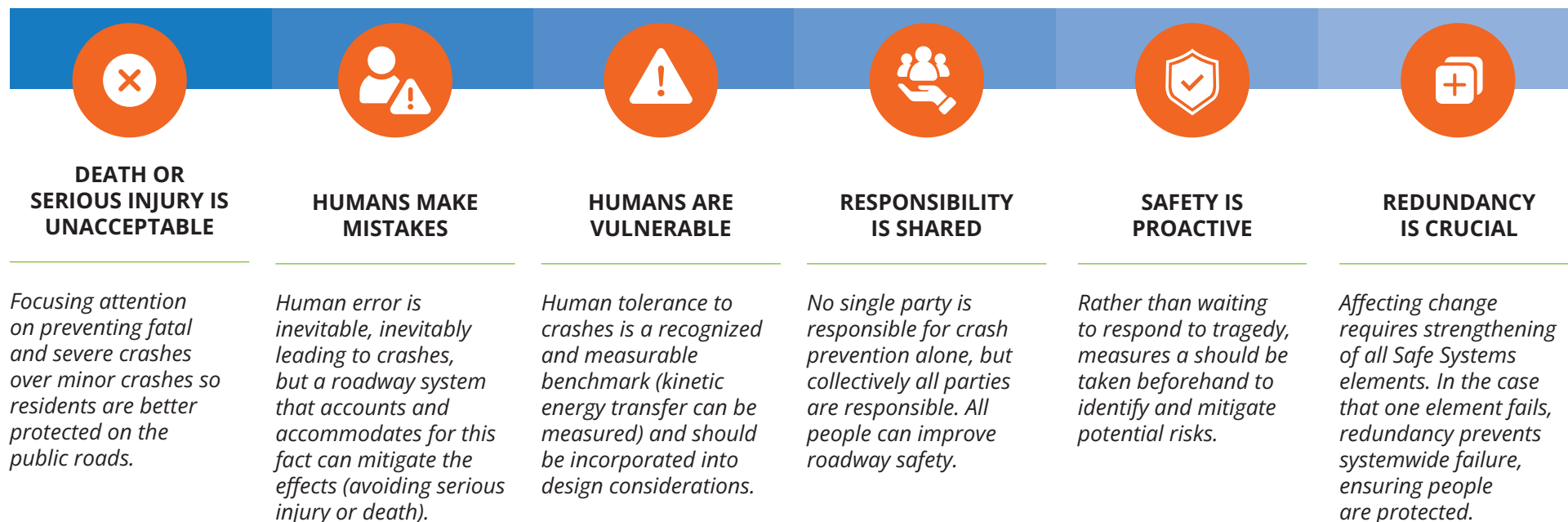
VISION ZERO

Vision Zero is a traffic safety initiative, pioneered in Europe, that enacts change through prioritizing the principles of safe road design, enforcement, education, and community engagement. Through this holistic approach Vision Zero aims to achieve the goal of eventually eliminating all traffic fatalities and severe injuries. The Vision Zero initiative recognizes that human error is inevitable therefore road systems should be designed to mitigate consequences of mistakes. Through the emphasis of a comprehensive approach to crash related injury reduction cities can experience improvements in quality of life, safety, and community mobility.

The Vision Zero initiative is different from other approaches, because it works to create a shift in the community through challenging the idea that traffic injuries and fatalities are simply a byproduct of modern transportation networks. Instead, Vision Zero promotes the idea that there is a possibility of creating a safe and accessible transportation systems for all and opens the opportunity to influence real change in a community. Although the Vision Zero goal is ambitious, every step closer to the goal, every reduction in a traffic related injury or fatality, has a tremendous positive impact on a community.

SAFE SYSTEM APPROACH

The Safe System Approach was pioneered in the 1990's by Swedish road safety expert, Claes Tingvall. The Safe System Approach is the framework and mechanism by which this Vision Zero Action plan can be implemented. The six key principles that can be utilized to implement the elements of the Safe System Approach are as follows:



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The Safe System Approach is a principles-based approach intended to eliminate serious and fatal injuries. This approach acknowledges that humans make mistakes that can be offset through traffic safety planning. Efforts to mitigate or lessen the physical impacts on the human body include roadway design, reducing speeds, physically separating automobiles from other road users, as well as technological advancements in vehicles, such as lane departure assist and autonomous emergency breaking.

There are five complementary objectives outlined by the U.S. Department of Transportation (USDOT) that correspond to and support implementation of the Safe System Approach detailed below:

- 1 **Safe Roads** are not defined by their design alone. Rather, the road design, construction, maintenance, operation, and countermeasures work collaboratively to improve safety.
- 2 **Safe Speeds** have a direct correlation with increased rate of survival in crashes. Reducing speeds reduces impact, improves visibility, and affords drivers additional breaking time.
- 3 **Safe Vehicles** are responsible for preventing crashes or mitigating their consequences. Active safety measures can help prevent crashes from occurring, while passive measures can lessen the implications of a crash.
- 4 **Safe Road Users** bear the burden of responsibility for complying with rules and regulations of the roadway.
- 5 **Post-Crash Care** accounts for the actions of those that respond to a crash, whether it be emergency services, law enforcement, or clean up.

FIGURE 2: THE SAFE SYSTEM APPROACH



Source: USDOT



SIX “E’S” OF SAFETY

Similar to how the Safe System Approach works, the Six Es of Safety are components of an integrated and comprehensive framework. While every community varies in its composition and understanding of safety, the Six Es can be deployed at all levels to enhance the user experience and improve safety.

ENGINEERING

Engineering projects and interventions in support of Vision Zero may be implemented through the built environment to improve safety. Calming traffic and improving safety for all users is the primary goal. Examples of proven engineering project enhancements include the implementation of safety countermeasures, or traffic calming measures that reduce speeding.

EDUCATION

Education can improve safety by raising awareness of transportation choices, furthering, or establishing the benefits of multimodal transportation, and demonstrating the proper way to utilize the system.

EVALUATION

Evaluation can support both proactive and responsive measures. Understanding the when, where, and why of crashes allows us to respond to historical trends and adjust to improve future safety. Similarly, careful evaluation can help head off potential issues before they reach greater severity.

EQUITY

Equity efforts must be made to acknowledge and rectify the imbalance and additional burden that disadvantaged populations carry. Vulnerable and disadvantaged populations are historically under-served and deserve access to the same information and infrastructure as everyone else.

ENFORCEMENT

Enforcement can ensure that traffic laws and regulations are being followed by system users, while also ensuring that profiling does not occur. Enforcement can also target and prioritize problem behaviors like speeding and other dangerous behavior over minor infractions.

ENCOURAGING

Encouraging the community to further their knowledge and understanding of safety principles can be fun and interactive. Events and activities can support and promote better behavior.

CHAPTER 2: ENGAGING THE COMMUNITY

Feedback from the community allows the Vision Zero Planning Team to understand the concerns of the people impacted and ensure that the plan will meet their needs.

INTRODUCTION

Community feedback is essential to any planning process. Feedback from the community allows the Vision Zero Planning Team to understand the concerns of the people impacted and ensure that the plan will meet their needs. In addition, creating a space for the community to share concerns and opinions grows project support allowing for easier and more impactful implementation of safety recommendations. The feedback collected provides the foundation for the goals and recommendations of the plan. The Public Engagement for the Oklahoma City Vision Zero Action Plan included the following opportunities for participation:

- Vision Zero Advisory Board (VZAB)
- Internal Work Sessions
- Regional Safety Summit
- Public Pop-ups
- Public Workshops
- Public Hearings to City Council and Other Committees
- Online Engagement

PROJECT TIMELINE

The OKC VZAP kicked-off in April 2024 and the planning process spanned until December 2024. A timeline for the VZAB meetings is presented in **Figure 3**.

FIGURE 3: OKC VZAP TIMELINE





VISION ZERO ADVISORY BOARD

The Vision Zero Advisory Board (VZAB) served as the guiding body throughout the planning process, building consensus and taking ownership of the plan, while providing critical feedback at key project milestones. The VZAB was comprised of City Staff from various departments, as well as public representatives from local, regional, and statewide organizations. The VZAB Meetings were held on the following days:

- **Meeting 1:** Kick-off & Goal Setting – April 8, 2024
- **Meeting 2:** High-Injury Network Results – June 3, 2024
- **Meeting 3:** Policy Review/Action Plan – August 6, 2024
- **Meeting 4:** Draft Recommendations – October 22, 2024
- **Meeting 5:** Draft Plan – December 2024
- **Meeting 6:** Final Adoption & Recognition of the VZAB – February 2025

Members of the VZAB serve as advocates of the plan process and champions for the plan throughout the implementation phase. During the first VZAB Meeting, a mission statement was developed to outline the plan's mission and establish a commitment to serving stakeholders and the community at large.

FIGURE 4: VZAB MEETING #3



“

*The City of Oklahoma City aims to **eliminate road fatalities** through strategic infrastructure enhancements, policy advocacy, and inclusive education. The City is dedicated to **protecting all road users** and promoting a **sustainable, vibrant community**.*

”

The VZAB participated in a variety of exercises, including a SWOT Analysis, selection of study corridors, HIN refinement, development of the action matrix, and action prioritization, among others. The VZAB also defined its target to reducing roadway fatalities and severe injuries. This target is described in the City's Vision Zero Resolution stating: “the City Council of The City of Oklahoma City does hereby adopt the Vision Zero Action Plan and the goal of 100% reduction in traffic deaths and serious injuries by 2035, stating that no loss of life or serious injury is acceptable on our streets.” The VZAB celebrated the completion of the planning process in February 2025 to initiate the implementation phase to continue working towards eliminating fatalities and serious injuries on Oklahoma City's roads.

INTERNAL WORKSESSIONS

In addition to the VZAB, a series of internal worksessions were held between the project team and City departments to identify potential obstacles within current development and project delivery processes. These sessions focused on opportunities to enhance collaboration and recommending streamlined strategies that would support the advancement of VZAP's overarching goals. There were 3 series of Worksessions with a variety of city departments and some external partners including Public Works, Development Services, Public Transportation & Parking, Embark, Downtown OKC, among others. The purpose of the Worksessions included the identification of procedural and organizational barriers that could limit or disallow the successful implementation of the VZAP recommendations.

PUBLIC EVENTS

REGIONAL SAFETY SUMMIT

On February 28th, 2024, the City of Oklahoma City and ACOG held a collaborative Regional Safety Summit to raise awareness of safety in Central Oklahoma and the efforts for safety that were to be developed over the course of the year. During the summit, participants and stakeholders came together to learn about the state of roadway safety within their community and explored new solutions through policy, education, and countermeasures.

This event kicked off the VZAP and helped spread word of the upcoming initiatives. During the Summit, a breakout session specific to safety conditions and concerns in the City of Oklahoma City was held. Regional Safety Summit attendees were asked to identify specific areas where they recognized safety opportunities throughout the City to gather value input. This feedback was used throughout the planning process in the VZAP to ensure the needs of OKC residents and stakeholders were heard and being addressed in the planning process. The summit concluded with a panel of trusted leaders in the City of Oklahoma City and the region to talk about safety and how they relate to the Six Es of Safety.

FIGURE 5: OKLAHOMA CITY AND ACOG REGIONAL SAFETY SUMMIT PHOTOS



REGIONAL SAFETY SUMMIT

FIGURE 6: SCISSORTAIL PARK POP-UP EVENT



PUBLIC POP-UPS

In-person public pop-up events were also used to engage the public throughout the process. The pop-ups were great opportunities for residents to interact with the project team, learn about Vision Zero and the SS4A program, understand the project goals, and how residents could advance these goals at a local level. These events were held in public settings with the intent to bring the project to planned community events where people were already planning to attend. The siting and event choice was done in a manner that considered a variety of locations as well as a variety of event types in order to gain input from as many different people as possible. The following list includes all pop-up events that were held:

- Juneteenth on the East – June 15, 2024
- Midweek Farmers Market – June 26, 2024
- Southwest Library – August 7, 2024
- Dia de Muertos Festival – November 10, 2024
- Healthy Living OKC – November 18, 2024
- First Friday Art Walk – December, 6 2024

The pop-ups were split into two rounds of three events. The first round was geared towards soliciting public input from event attendees through the Project Website. Attendees were handed flyers with project information as well as QR codes and links to the project website. There were iPads available for attendees to take the online survey and visit the interactive map.

The second round presented the draft recommendations and provided the public an opportunity to vote and prioritize their preferred recommendations. This prioritization process will serve the City an opportunity to establish a list of projects and actions to be completed first.

PUBLIC WORKSHOPS

In August 2024, the City of Oklahoma City hosted a series of public workshops for residents to learn more about the Vision Zero Action Plan and provide input on the future of safety for drivers, pedestrians, and cyclists in the City. Attendees had opportunities to talk to the project team about areas where safety concerns are identified and discuss potential recommendations for transportation safety improvements that would mitigate crashes. The date and locations of the Public Workshop events include:

- Canadian Valley Technology Center – August 14, 2024
- Northwest Library – August 21, 2024
- Northwest Church of Christ – August 27, 2024
- Latino Community Development Agency – November 4, 2024
- Pete White Health and Wellness Center – November 12, 2024
- Oklahoma City University – November 19, 2024

The first three workshops during August included activities such as boards for attendees to provide input on safety countermeasures, drunk goggles, kids station, and opportunities to write down policy recommendations for VZAP.

The second round of Public Workshops for the VZAP was held in November 2024. The intent of this round of Public Workshops is continuing to inform the public of the importance of safety for the City of Oklahoma City as well as showcase many of the policy recommendations and countermeasures that have come out of the analysis conducted.

PUBLIC HEARINGS (COUNCIL, COMMITTEES)

The Consultant Team held 4 public hearing opportunities with City elected and appointed officials. The following meeting dates were observed:

- Planning Commission Study Session – January 9, 2025
- Transportation Commission – January 24, 2025
- Planning Commission Final Meeting – January 23, 2025
- City Council Adoption – February 11, 2025

These Public Hearings served as the final opportunities for elected and appointed officials as well as the general public to provide comments on the Final Report before it was adopted by the City Council.

FIGURE 7: PHOTOS FROM PUBLIC WORKSHOPS





ONLINE ENGAGEMENT

Community engagement involved collaboration, input, and involvement from a broad cross-section of community members and project stakeholders. The plan utilized a combination of in-person and online outreach opportunities to maximize public and stakeholder input, to solidify the vision for the future. The online portion of community engagement began with the launch and introduction of the [project website](https://vision.okc.gov/vision-zero)¹ that provided foundational information about the purpose and process, as well as an opportunity for comments through an interactive project area map and written survey. The website was available and updated from June to October to keep the public informed and up to date.

Overall, the responses received throughout the process highlight the community's desire for a safer, more efficient, and more pedestrian-friendly city with efficient transit options. Addressing these issues through targeted infrastructure upgrades, better traffic management, and enhanced enforcement could significantly enhance safety and improve accessibility for all road users.

IN TOTAL, THE PROJECT WEBSITE GARNERED:



6,796 VIEWS



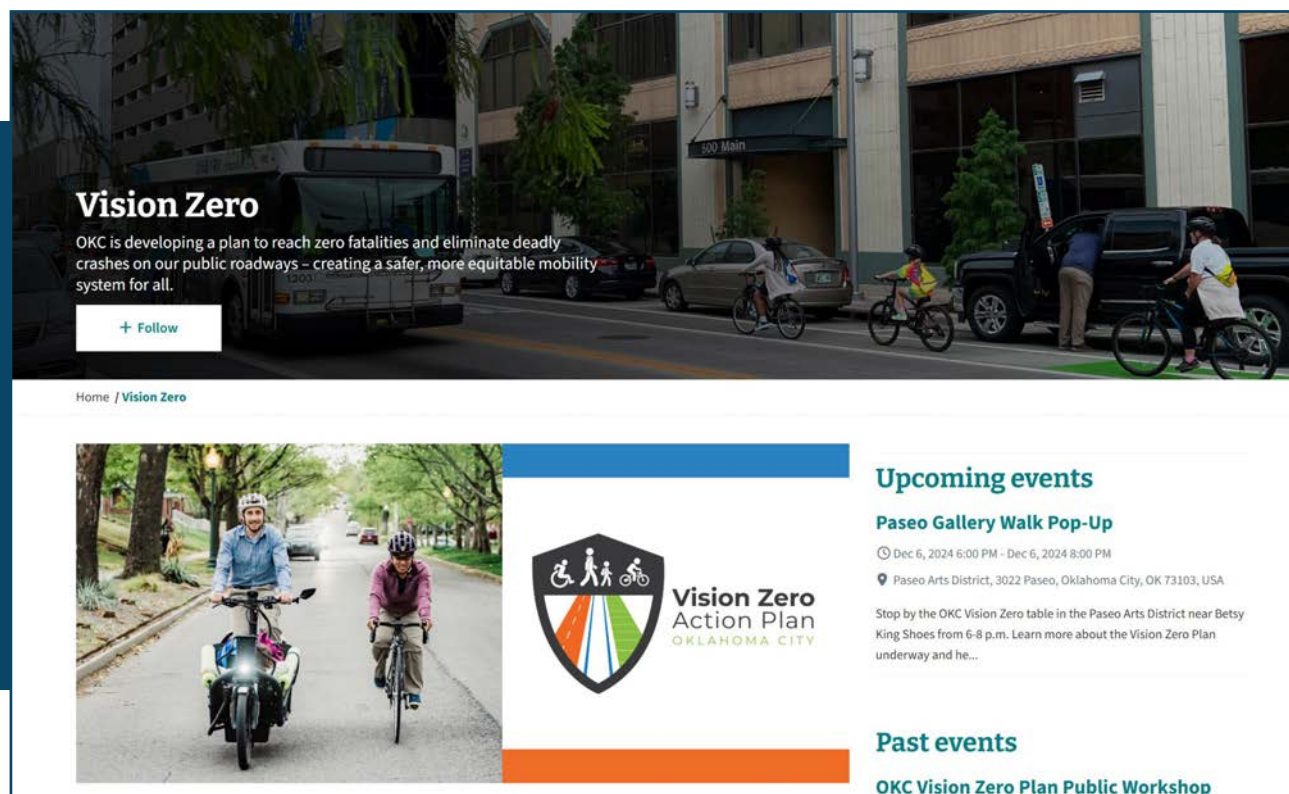
5,121 VISITS



1,819 TOTAL CONTRIBUTIONS

📍 1,260 Map Survey Pins

📝 559 Written Surveys Contributions



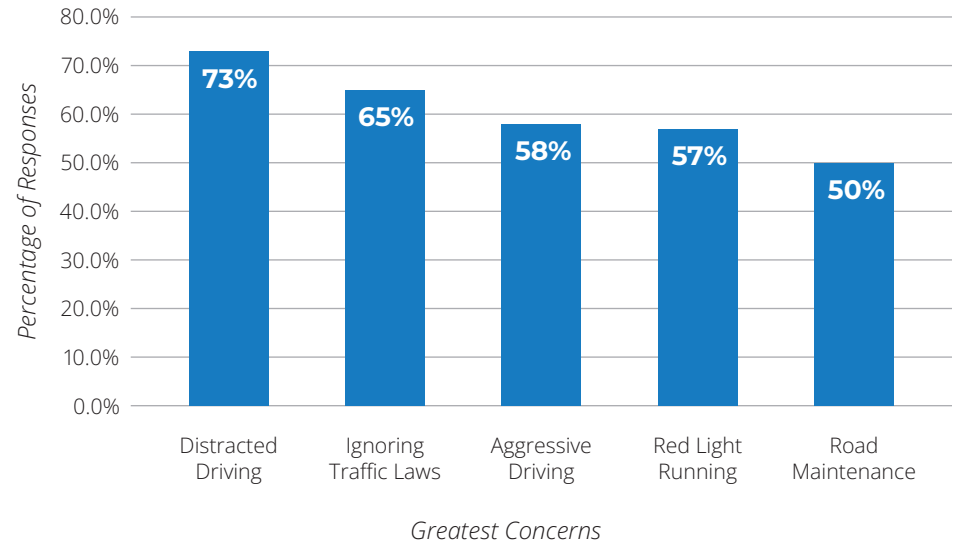
¹ <https://vision.okc.gov/vision-zero>

WRITTEN SURVEY

The Written Survey was distributed on the project website and at in-person engagement events to collect information on demographics, mode choice, and roadway safety concerns. The survey comprised of 24 questions and divided into 4 sections. Of the 559 received survey responses, most households reported having no work commute or commuting 10-20 minutes to their place of work. The top reporting age group for the written survey those aged 60-64, while most respondents indicated their household as having 1-3 cars. Additionally, the top safety concerns for participants included distracted driving, ignoring traffic laws, and aggressive driving. Key insights from the written survey included:

- **Pedestrian Safety – 82% of respondents** support investing in making walking safer by creating more sidewalks, mid-block crossings, high visibility crosswalks, and more.
- **Public Transportation – 75% of respondents** support investing in making transit safer by creating more shelters, lighting and pedestrian access.
- **Bicycling Safety – 73% of respondents** support investing in making bicycling safer by creating more bike lanes and separation from vehicle traffic.
- **Enforcement & Education – 71% of respondents** support funding for educational programs for driver safety and enhanced enforcement.
- **Infrastructure & Car Dependency – 42% of respondents** support reducing speed limits to slow down unsafe drivers. Many respondents rely on personal vehicles due to the convenience and perceived lack of viable alternatives.

FIGURE 9: TOP SAFETY CONCERNS IDENTIFIED THROUGH WRITTEN SURVEY



**Percentages are representative of respondents who included these in their top 3 concerns.*



MAP SURVEY

Residents and stakeholders were encouraged to provide feedback on the safety conditions of existing roadways with an interactive map survey.

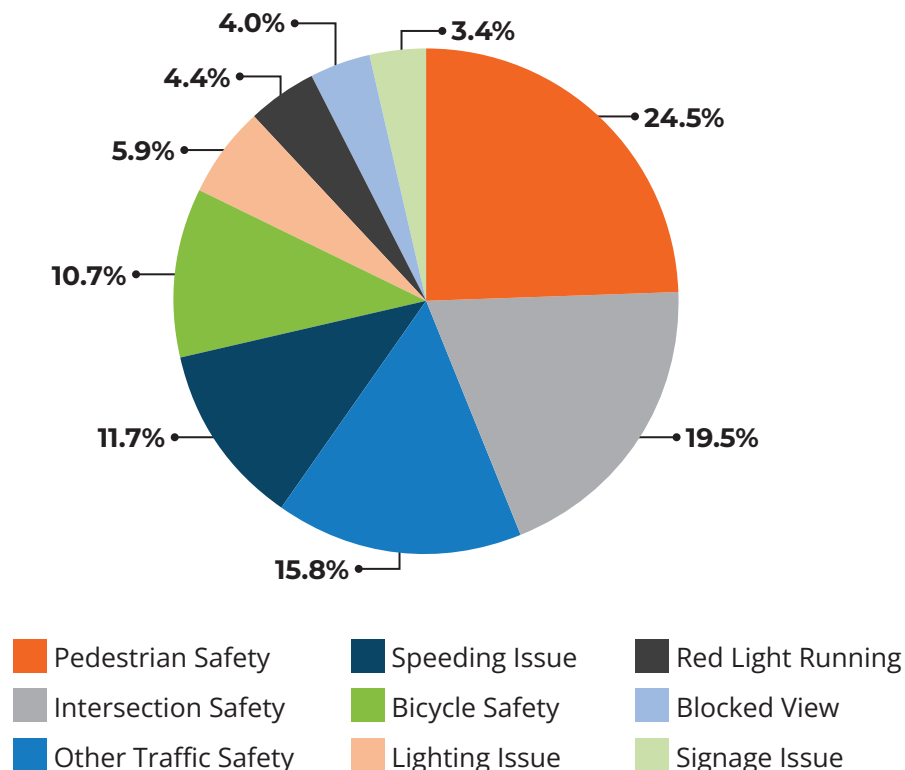
Exhibit 1 on page 15 displays the map comment received. This engagement tool enabled website visitors to identify specific locations throughout the City that related to nine comment topics like speeding issues, visibility concerns, intersection safety, and several others. Once the location and topic were identified, respondents can leave detailed comments regarding their concerns, potential resolutions, or ideas. The results of the map survey identified several key insights including the following corridors within City Limits:

- **Pedestrian Safety (25%):** Respondents identified a need for better infrastructure like sidewalks, crosswalks, and pedestrian signals.
- **Intersection Safety (20%):** Dangerous intersections were identified as needing traffic lights, stop signs, or roundabouts.
- **Speeding (12%):** Major concerns related to vehicular speeds were identified near schools, residential areas, and busy intersections.

In addition to some of the key insights that emerged, various geographic locations were identified as hotspots, or areas with significant comment volume. Several of the key areas of concern identified include:

- **NW 23rd Street:** High speeds and frequent red-light running.
- **Western Avenue:** Speeding and limited pedestrian infrastructure.
- **Classen Boulevard:** Need for better pedestrian crossings and traffic calming.
- **Portland Avenue:** Frequent speeding and intersection safety.
- **Wilshire Boulevard:** Lack of sidewalks and poor lighting.

FIGURE 10: TOP SAFETY CONCERNS IDENTIFIED THROUGH MAP SURVEY



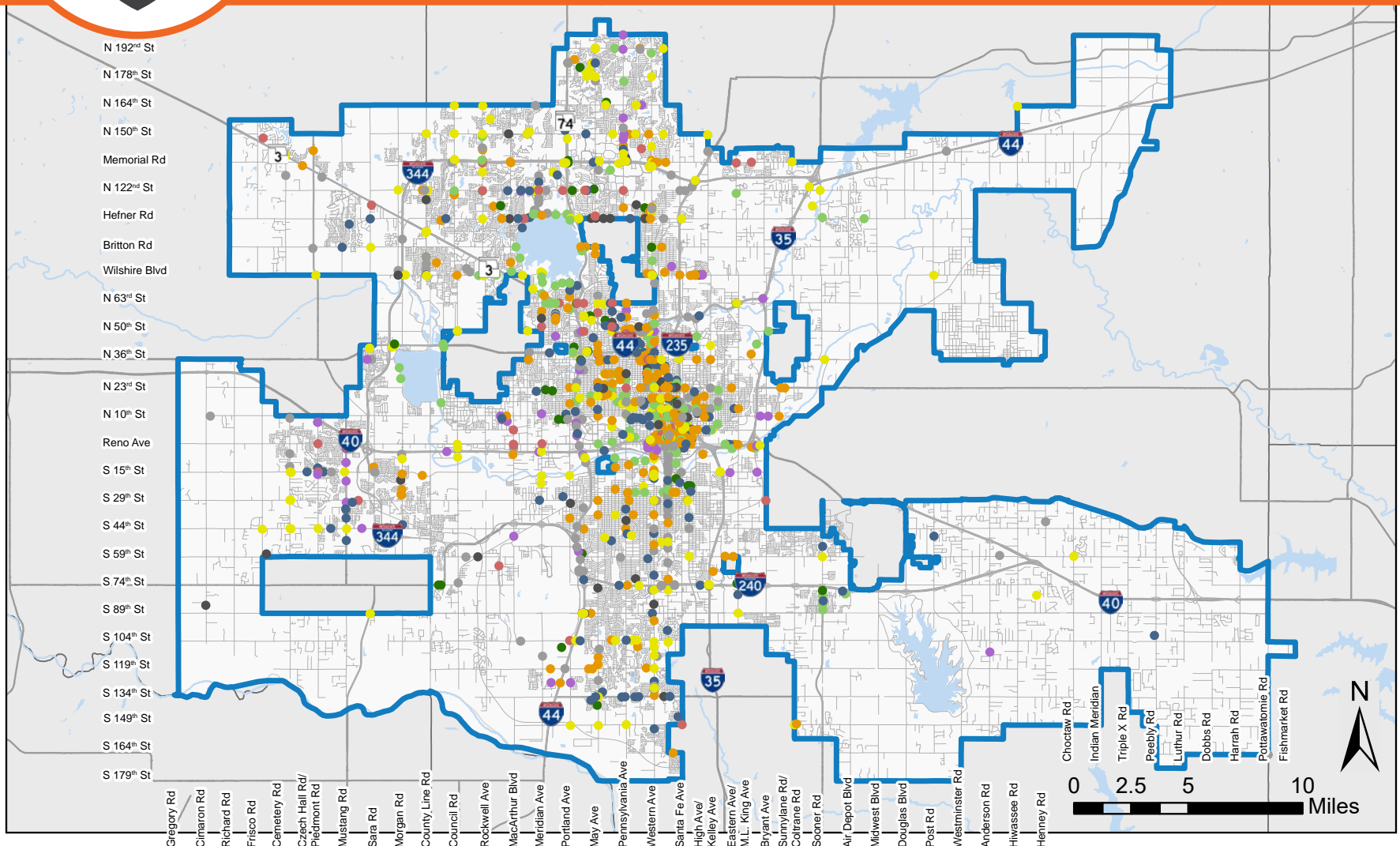


City of Oklahoma City Vision Zero Action Plan

Social Pinpoint Comments

Legend

- Study Area
- Rivers
- Lakes
- Bicycle Safety
- Blocked View
- Intersection Safety
- Lighting Issue
- Other Traffic Safety
- Pedestrian Safety
- Red Light Running
- Signage Issue
- Speeding Issue



MEDIA INVOLVEMENT

Members of the media were involved throughout the entire Public Engagement Process from the Summit through all workshops. City Staff members participated in interviews with a variety of TV/Radio stations, as well as newspaper outlets. Their involvement was used to advertise the VZAP, as well as all other public engagement opportunities.

FIGURE 11: TV STATION FILMING DURING A PUBLIC WORKSHOP







PART II

Vision Zero Action Plan OKLAHOMA CITY



PART II

Chapter 3: Understanding the Problem

Crash Analysis

Crash Profiles

Critical Crash Rate Method

HIN Development & Results

Measuring Equity

CHAPTER 3: UNDERSTANDING THE PROBLEM

This crash data was analyzed throughout the planning process to guide decision making and understand the areas and roadway characteristics in the City that could benefit from of safety enhancements.

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

CRASH ANALYSIS

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



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

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

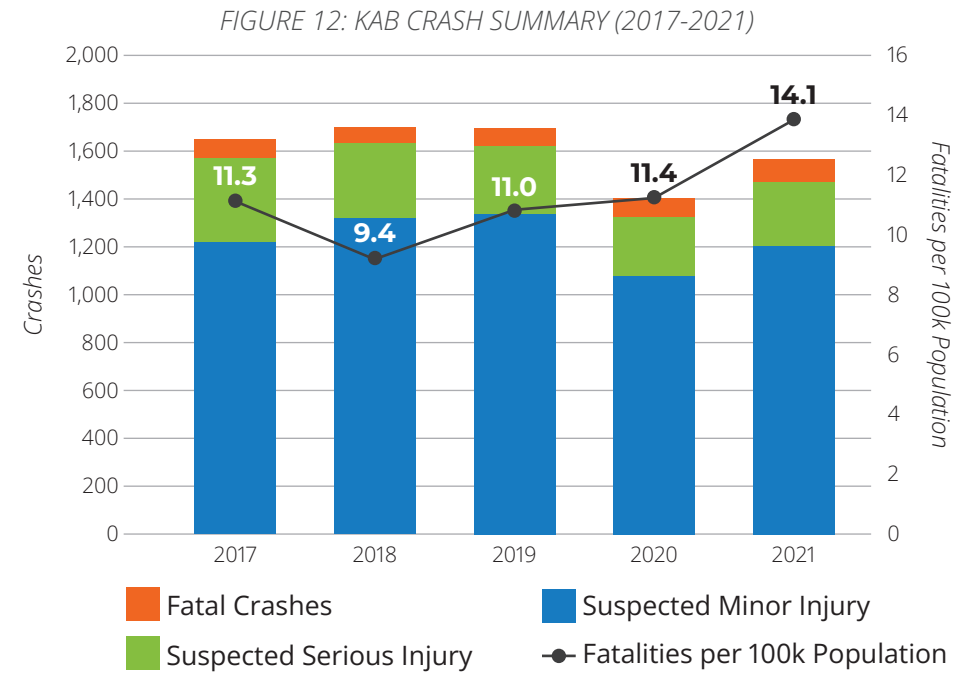


TABLE 8: TOTAL CRASHES BY SEVERITY (2017-2021)

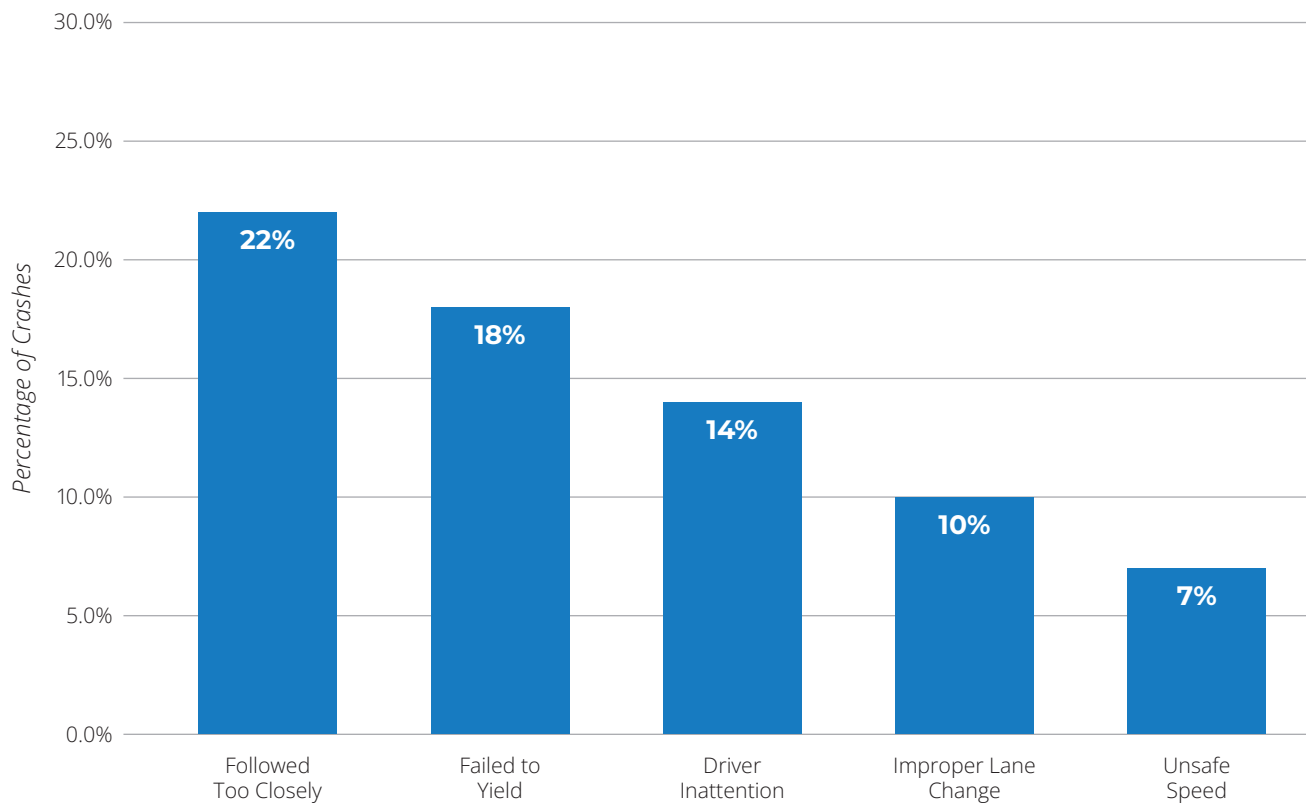
Year	K - Fatal Injury		A - Suspected Serious Injury		B - Suspected Minor Injury		Grand Total
2017	76	0.4%	351	2.1%	1,291	7.6%	17,029
2018	63	0.4%	312	2.0%	1,319	8.5%	15,441
2019	74	0.5%	285	1.8%	1,334	8.5%	15,666
2020	77	0.6%	246	2.0%	1,077	8.7%	12,347
2021	95	0.6%	268	1.8%	1,200	7.9%	15,264

Indicates the two highest years by percentage

TOP CONTRIBUTING FACTORS

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

FIGURE 13: TOP CONTRIBUTING FACTORS (2017-2021)

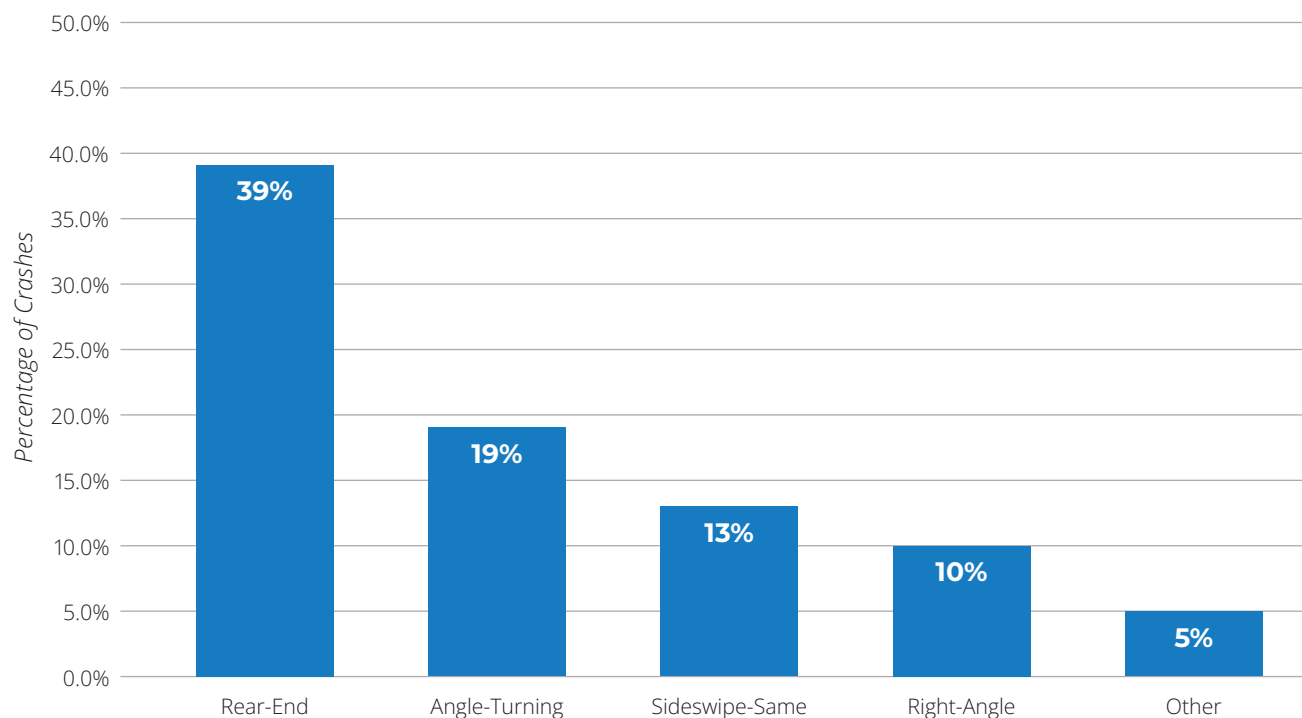




TOP MANNERS OF COLLISION

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

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



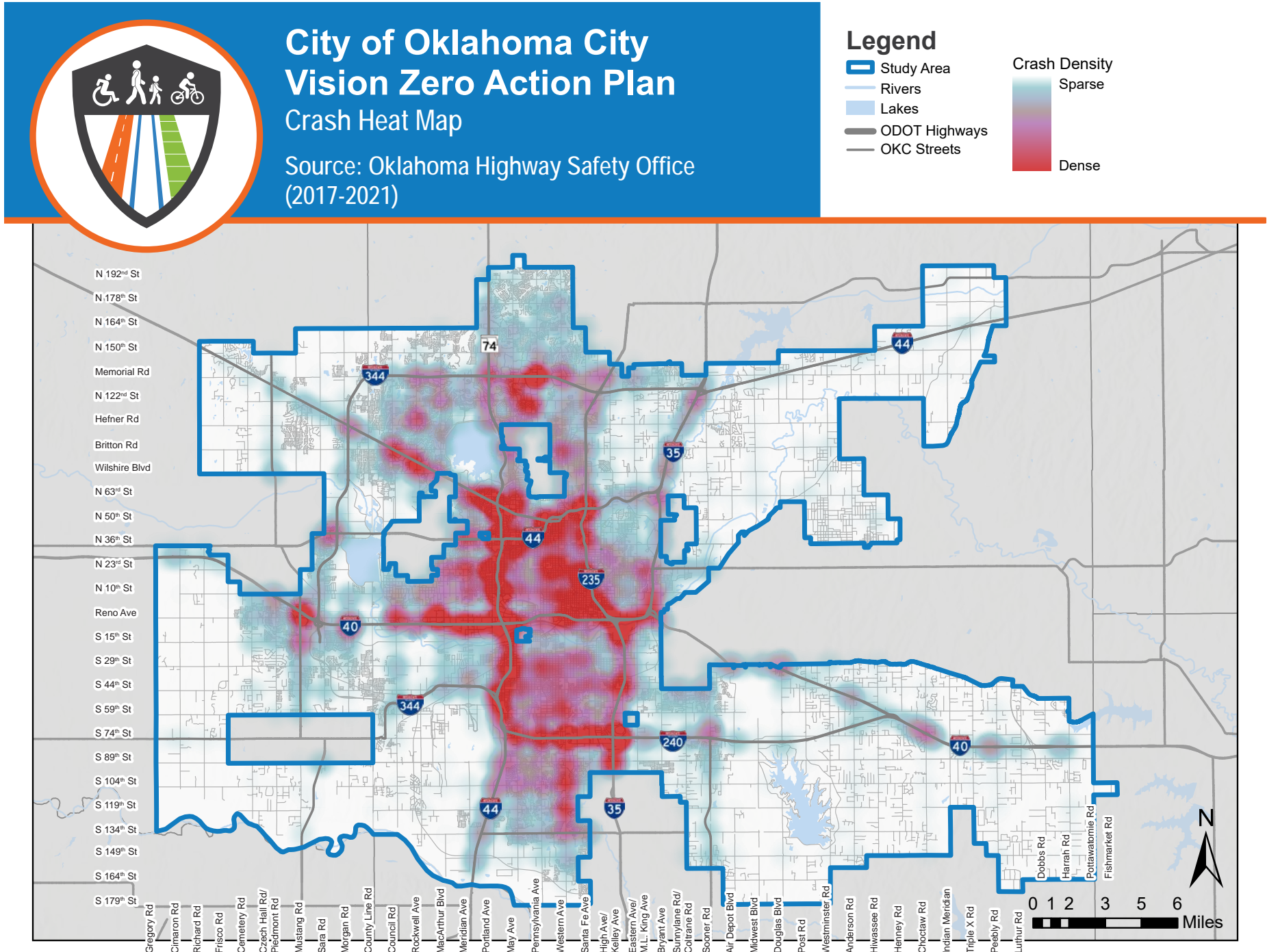
CRASH DENSITY

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

The greatest densities of crashes occurred at intersections with the highest number of traffic volumes. The crash heat map displays a high density of crashes along major highways in the City. **Table 9** provides details on the crash severity breakdown for all crashes recorded during the period of 2017-2021.

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

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



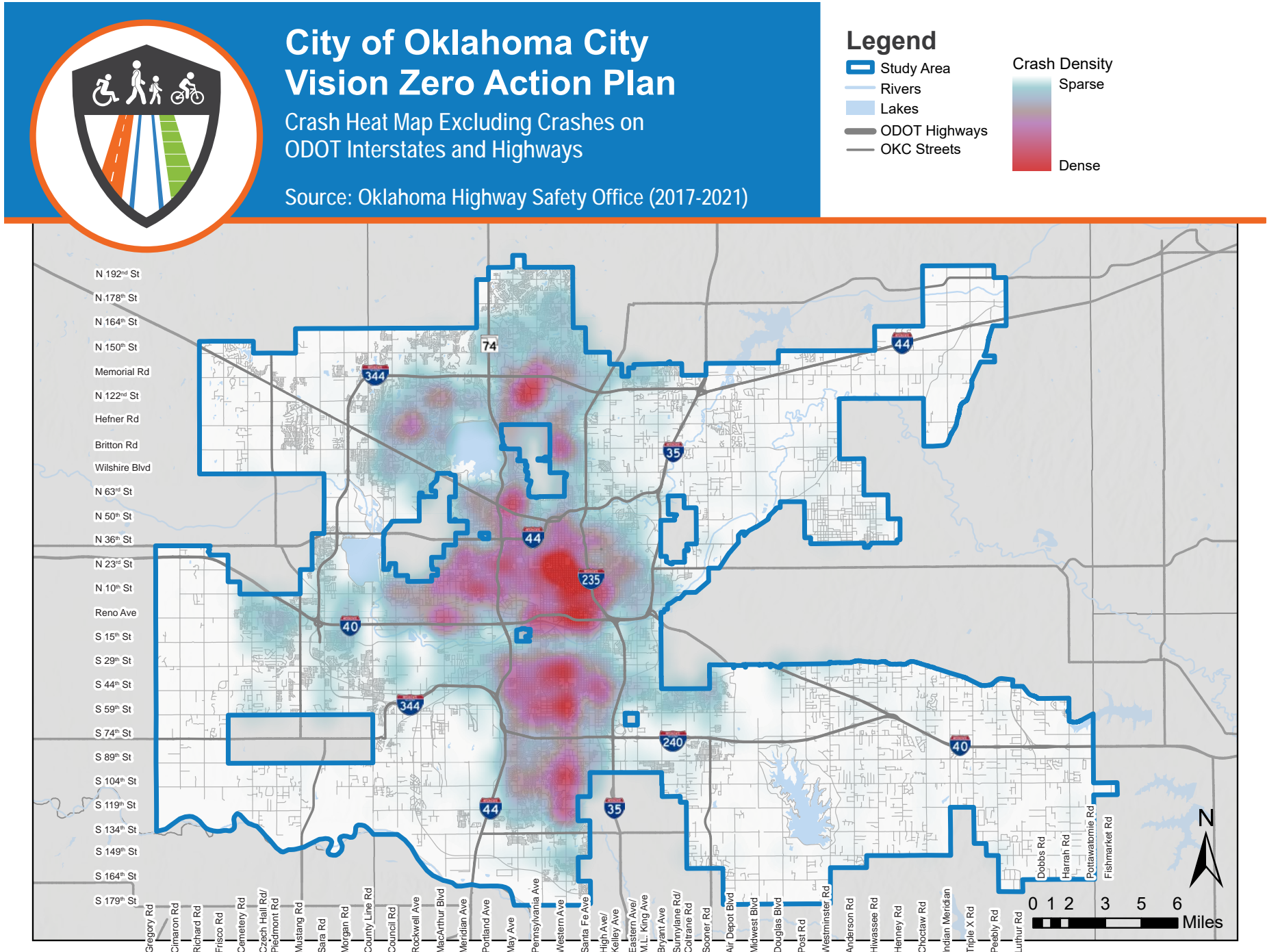
As displayed by **Exhibit 2**, a large portion of the crashes in Oklahoma City occur on major interstates and highways. To identify crash hot spots on more local roadways, a second crash heat map was created. **Exhibit 3** is a crash heat map in which all crashes that occurred on interstates or highways were excluded from the analysis.

While the original crash heat map (**Exhibit 2**) showed the greatest densities of crashes occurring on I-44, I-35, I-40, and I-240, **Exhibit 3** shows the largest crash density area to be in and around Oklahoma City’s downtown. Additionally, **Table 10** provides more detailed information about the severity of the crashes displayed in **Exhibit 3** and a comparison to the severity breakdown for **Exhibit 2**. While the percentage of fatal crashes were the same, there was a larger percentage of suspected serious and minor injury crashes that occurred on more local roadways when compared to all crashes. There was also a smaller percentage of no injury crashes that occurred on local roads.

TABLE 10: CRASH SEVERITY BREAKDOWN COMPARISON BETWEEN ALL CRASHES AND NON-INTERSTATE/HIGHWAY CRASHES

Crash Severity	Percentage of All Crashes	Percentage of All Non-Interstate or Highway Crashes	Difference
K – Fatal Injury	0.5%	0.5%	0.0%
A – Suspected Serious Injury	2.0%	2.4%	20.0%
B – Suspected Minor Injury	8.3%	9.3%	12.1%
C – Possible Injury	20.9%	23.5%	12.4%
N – Not Injured	68.3%	64.4%	-5.7%

EXHIBIT 3: CRASH HEAT MAP EXCLUDING CRASHES ON ODOT INTERSTATES AND HIGHWAYS



INTERSECTIONS

Table 11 illustrates the percentage of annual crashes observed at intersections throughout Oklahoma City. Over the entire period, nearly every two out of three crashes that occurred were at intersections. From 2017-2019 the percentage of crashes that occurred at intersections remained constant around 65%, while 2020-2021 experienced a slight uptick in the total percentage of crashes at intersections. Intersections present an elevated propensity for conflict between vehicles, pedestrians, and bicyclists as they all regularly converge at these locations.

Table 12 below shows the 10 intersections with the highest number of crashes in the 5-year study period. In Oklahoma City, the intersection of Western Avenue and 119th Street experienced the most crashes during the five-year period with a total of 197 crashes. Both the first and second high crash intersections are in South Oklahoma City on Western Avenue. The other 8 high crash intersections in the City all occur on major corridors such as the NW Expressway, Kilpatrick Turnpike, Hefner Parkway, Interstate 44, or Interstate 240 (**Exhibit 4**).

TABLE 11: INTERSECTION CRASHES BY YEAR (2017-2021)

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

TABLE 12: HIGH CRASH INTERSECTIONS (2017-2021)

Rank	Intersection	Fatal Crashes	Suspected Serious Injury Crashes	Suspected Minor Injury Crashes	Number of Crashes
1	Western Ave & 119 St S	0	2	15	197
2	Western Ave & 104 St S	0	1	11	183
3	Pennsylvania Ave & 122 St N	0	1	8	179
4	I-44 & NW Expressway	0	3	9	177
5	NW Expressway & Rockwell Ave	0	2	7	167
6	NW Expressway & Portland Ave	0	1	10	131
7	Kilpatrick Turnpike & May Ave	0	1	7	114
8	Hefner Parkway & NW Expressway	0	1	7	114
9	I-240 & Western	0	3	4	113
10	Kilpatrick Turnpike & Pennsylvania Ave	0	1	3	104



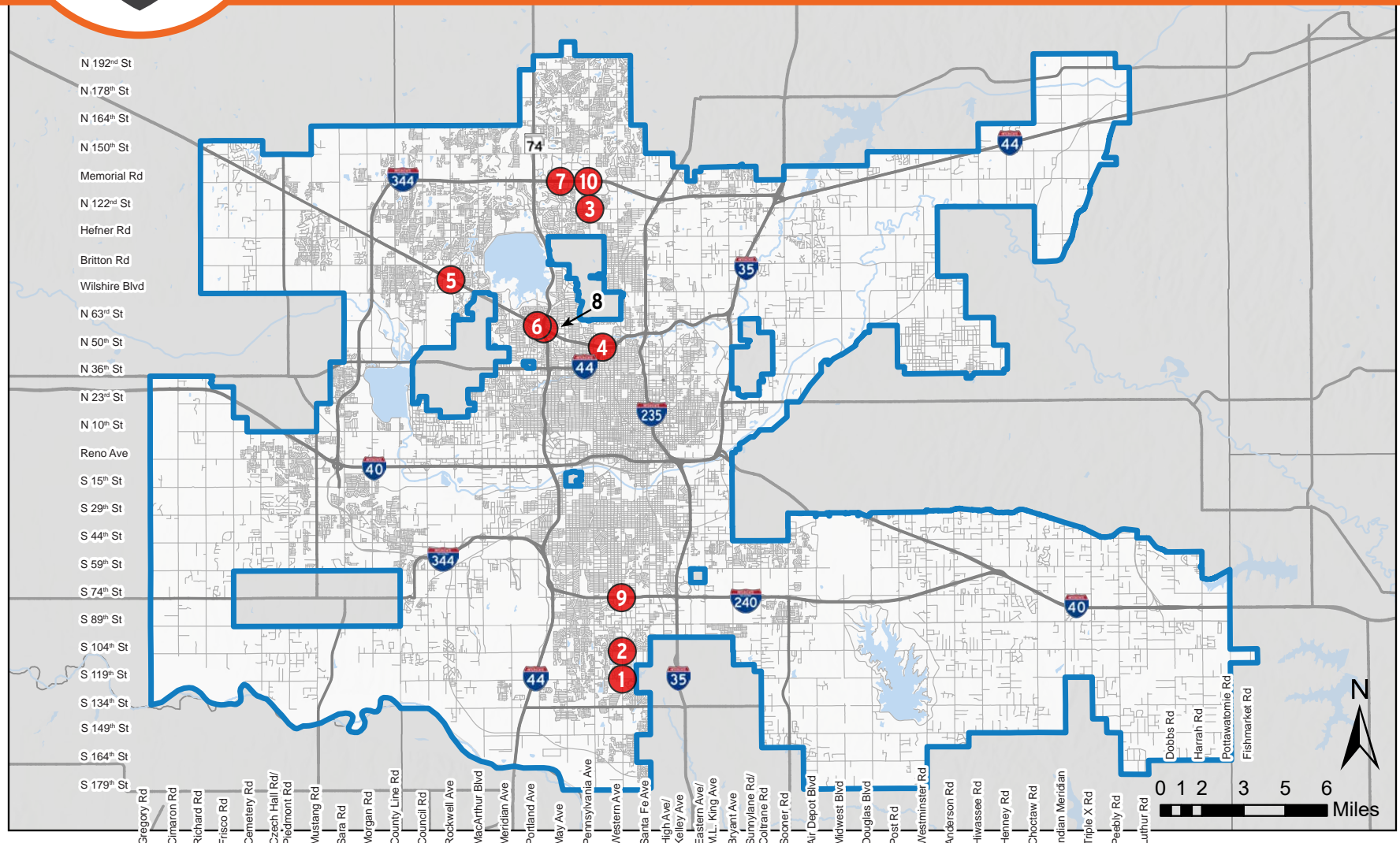
City of Oklahoma City Vision Zero Action Plan High Crash Intersections

Source: Oklahoma Highway Safety Office
(2017-2021)

Legend

- Study Area
- Rivers
- Lakes
- ODOT Highways
- OKC Streets

High Crash Intersections



VULNERABLE ROAD USERS

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

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

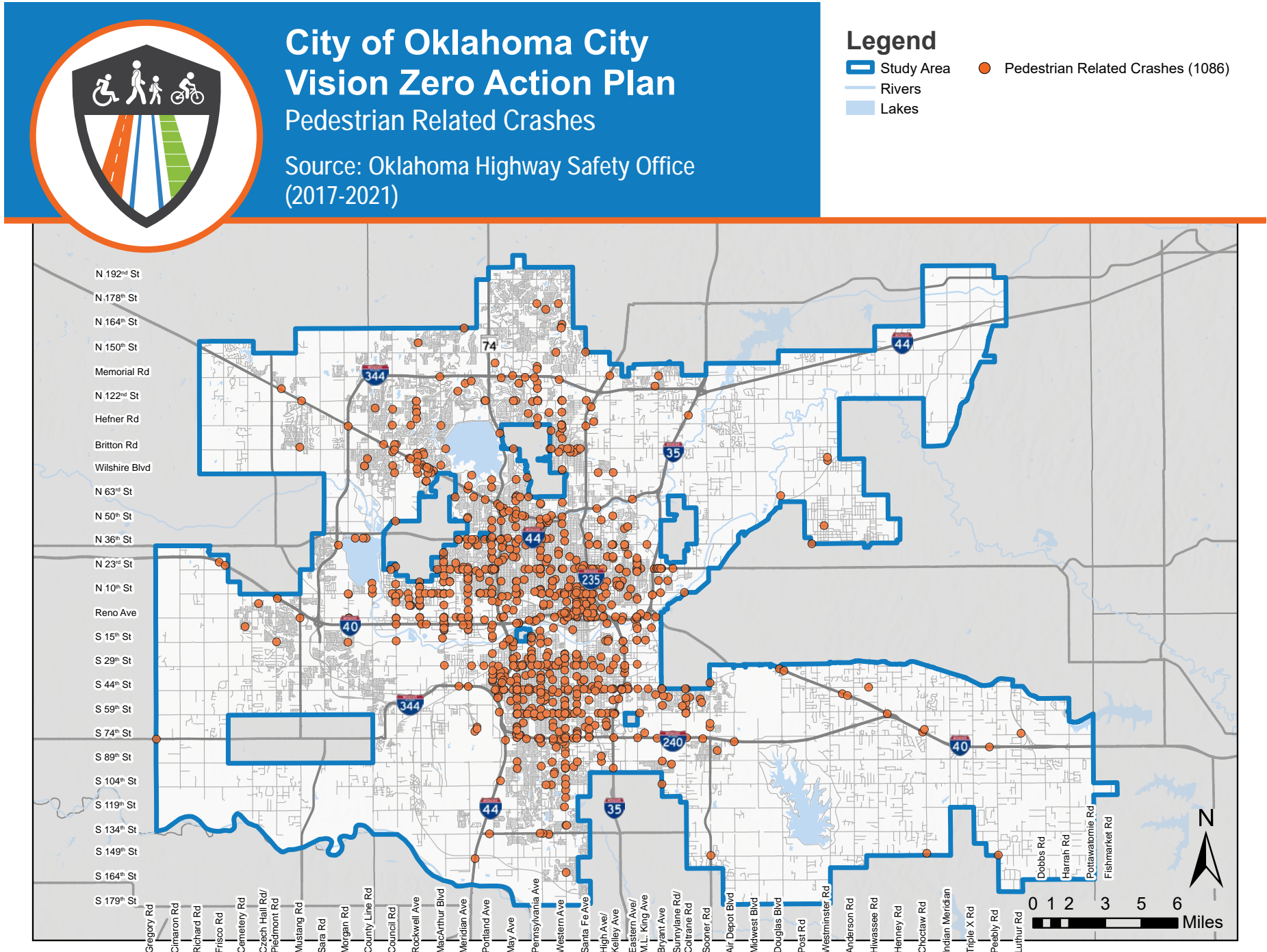
TABLE 13: BICYCLE CRASHES (2017-2021)

Year	Total	K	A	B	KAB	Percent KAB
2017	92	3	9	30	42	46%
2018	78	2	7	29	38	49%
2019	117	2	13	38	53	45%
2020	86	2	9	30	41	48%
2021	87	2	9	27	38	44%
Total	460	11	47	154	212	46%

TABLE 14: PEDESTRIAN CRASHES (2017-2021)

Year	Total	K	A	B	KAB	Percent KAB
2017	226	26	43	62	131	58%
2018	202	15	36	59	110	54%
2019	227	23	47	67	137	60%
2020	200	25	40	48	113	57%
2021	231	23	52	66	141	61%
Total	1,086	112	218	302	632	58%

EXHIBIT 5: PEDESTRIAN RELATED CRASHES (2017-2021)



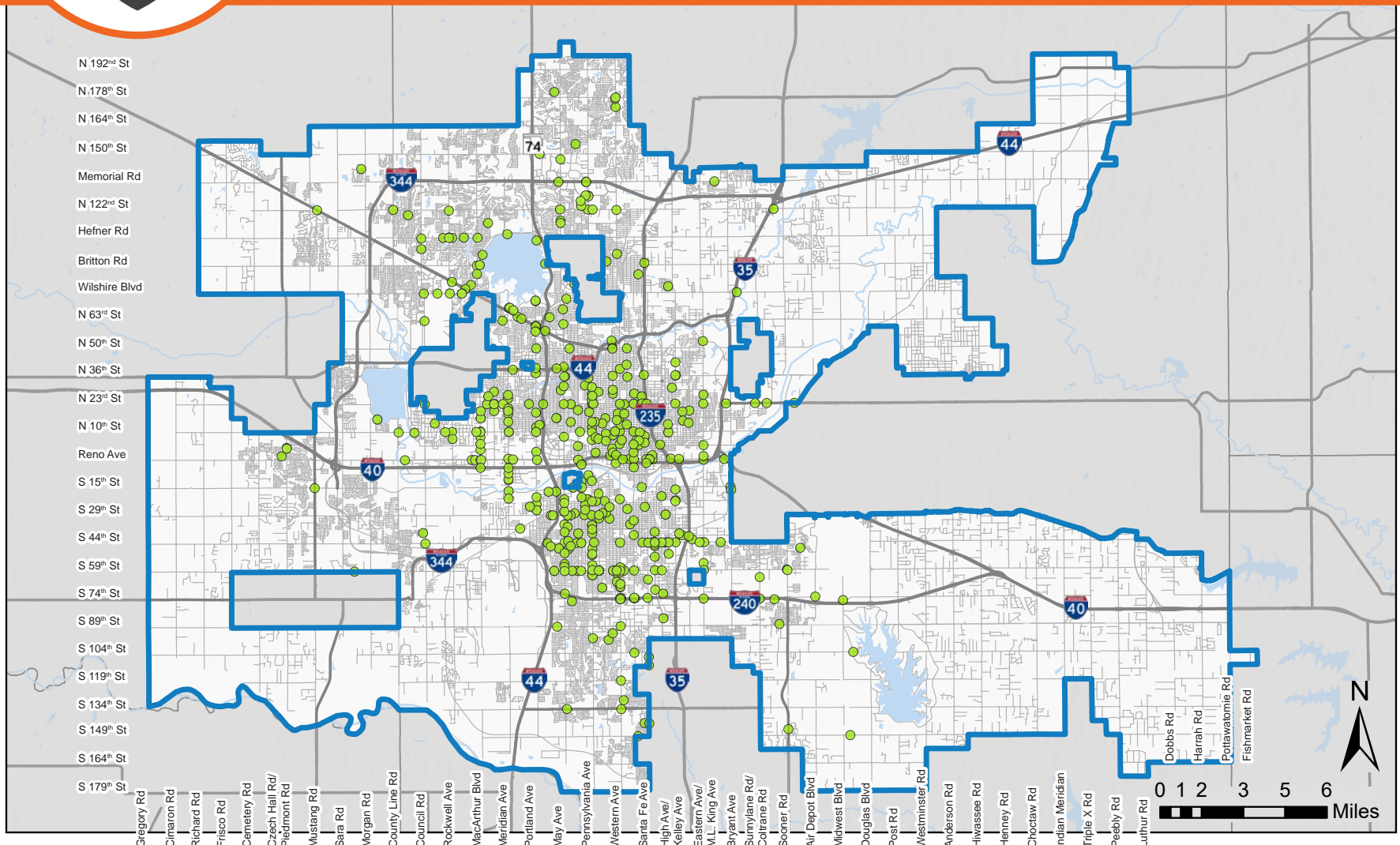


City of Oklahoma City Vision Zero Action Plan Bicyclist Related Crashes

Source: Oklahoma Highway Safety Office
(2017-2021)

Legend

- Study Area
- Rivers
- Lakes
- Bicycle Related Crashes (460)





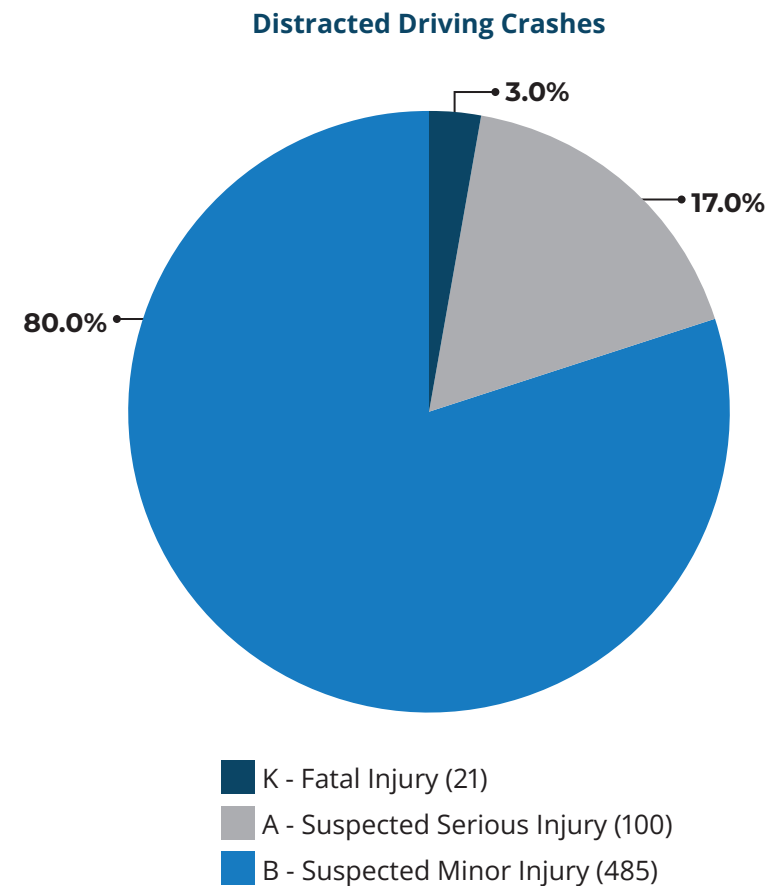
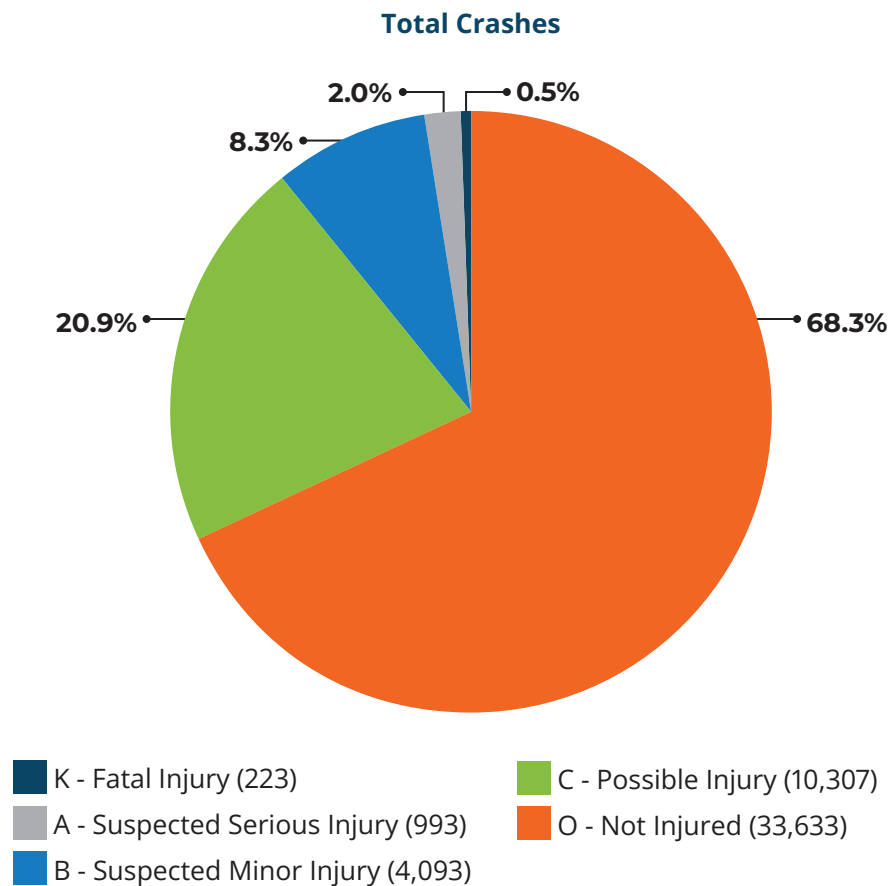
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DISTRACTED DRIVING

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

Most distracted driving crashes throughout the city were observed between City owned/operated intersections. Crashes are primarily observed along major thoroughfares and local roads.

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



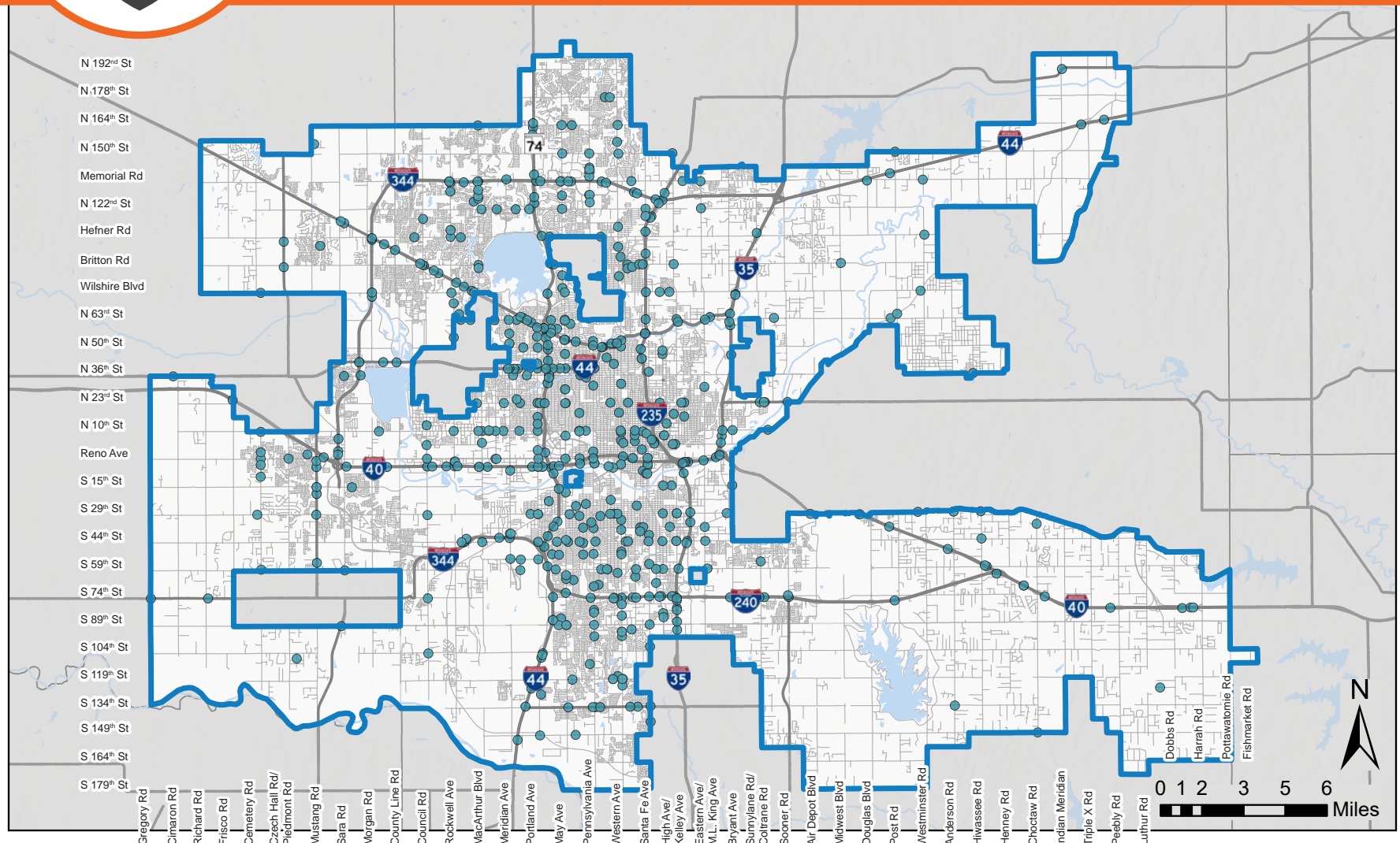


City of Oklahoma City Vision Zero Action Plan Distracted Driving Crashes

Source: Oklahoma Highway Safety Office
(2017-2021)

Legend

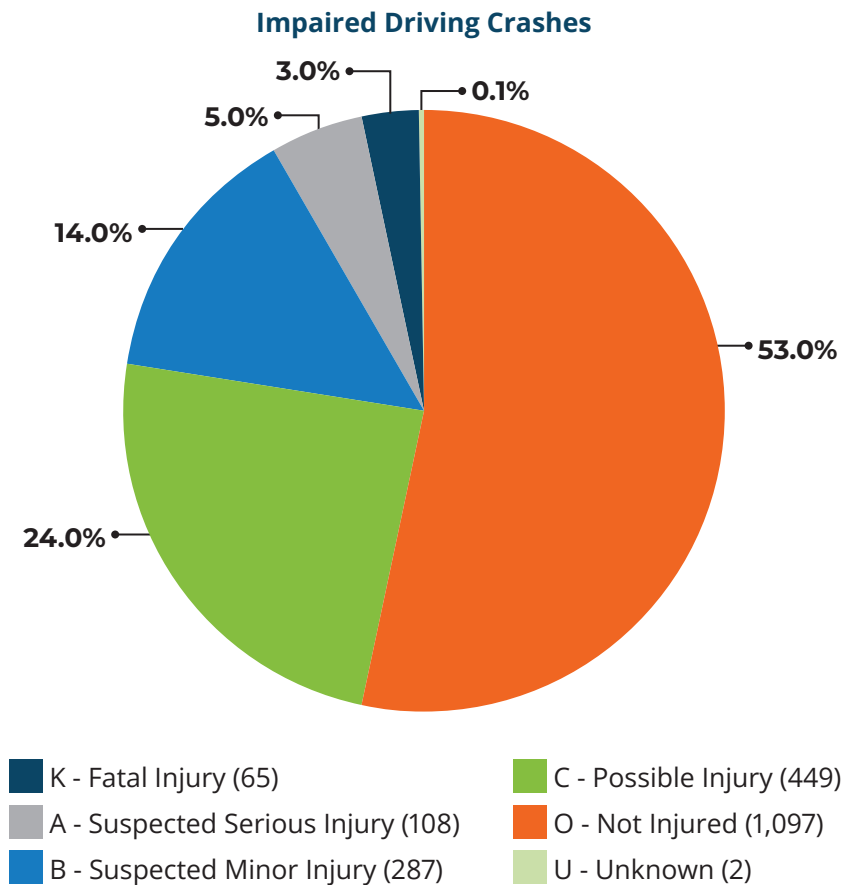
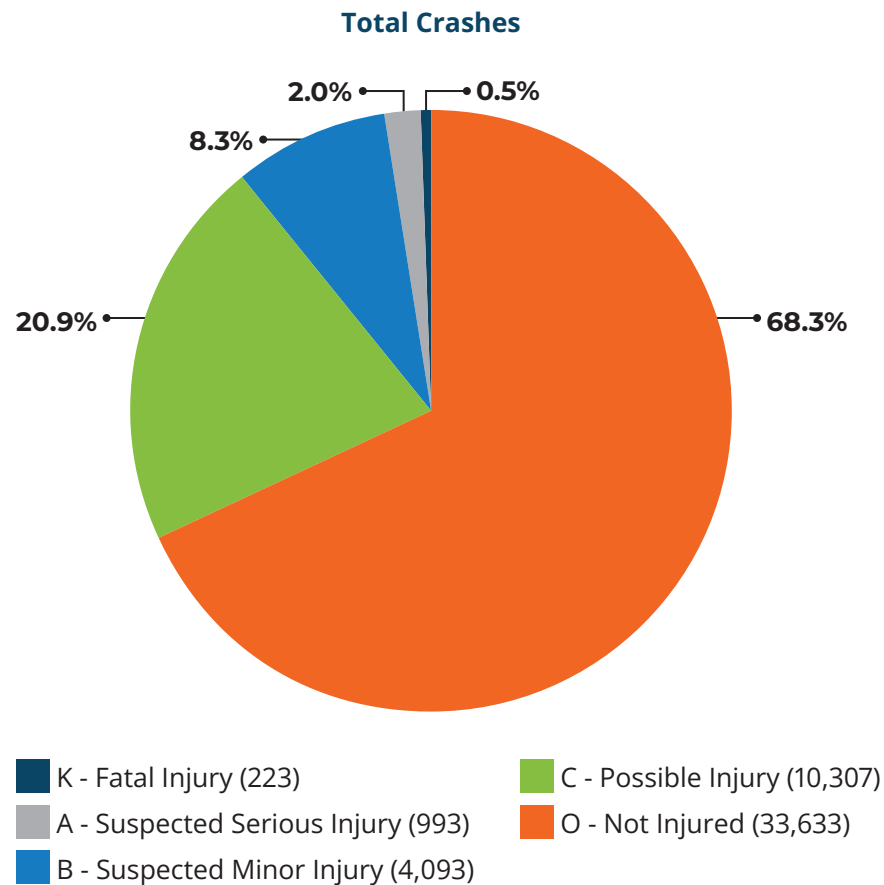
- Study Area
- Rivers
- Lakes
- Distracted Driving Crashes (606)



IMPAIRED DRIVING

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

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





City of Oklahoma City Vision Zero Action Plan Impaired/Drunk Driving Crash Map

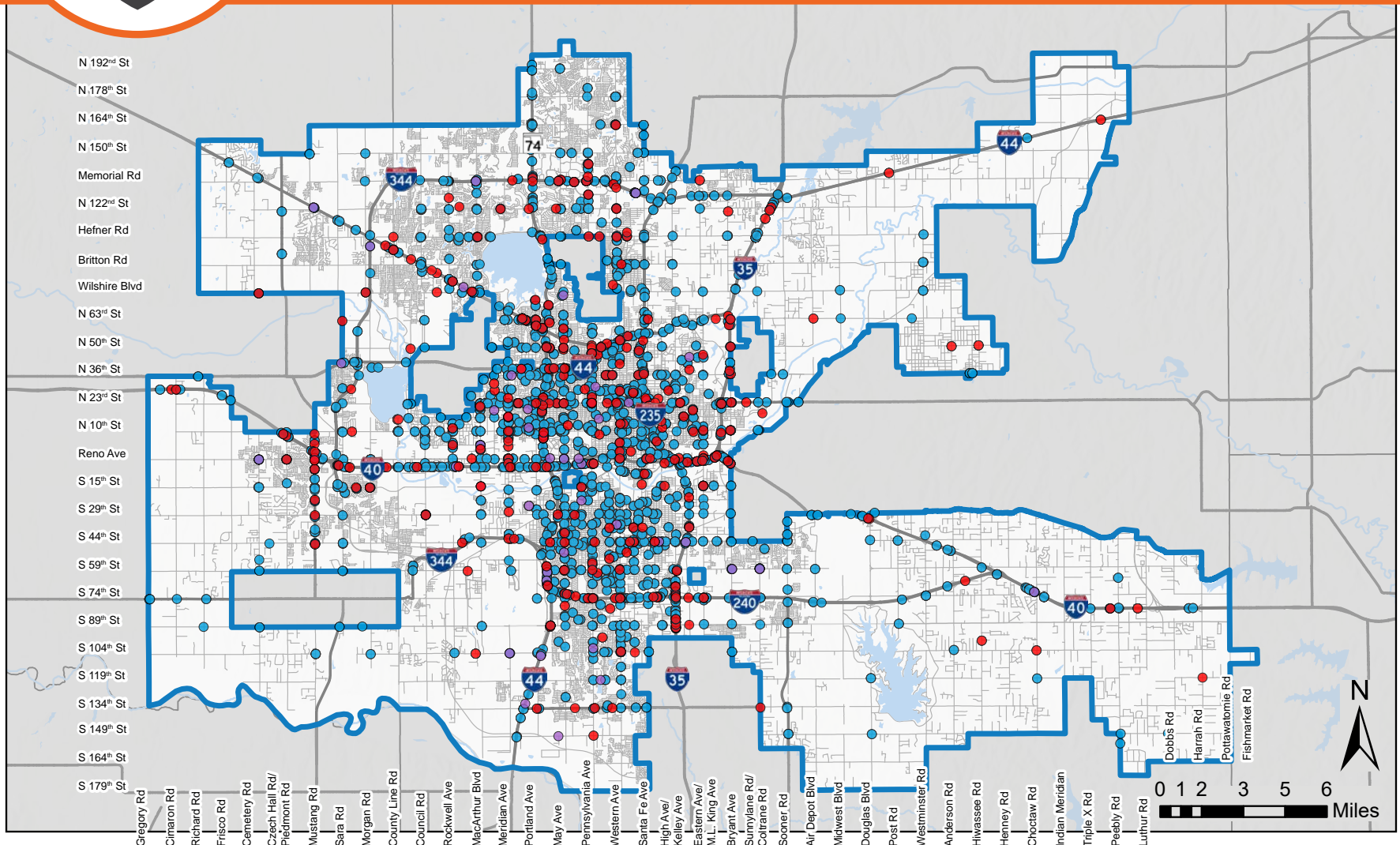
Source: Oklahoma Highway Safety Office
(2017-2021)

Legend

- Study Area
- Rivers
- Lakes

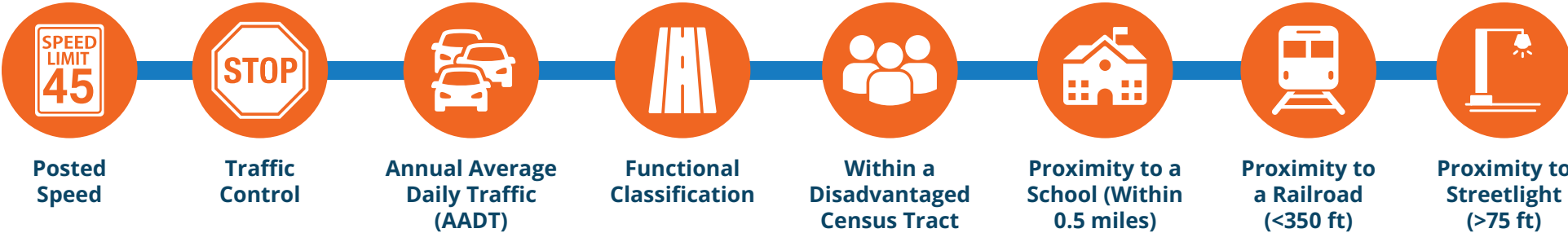
Impaired/Drunk Driving Crashes

- Drug Related Crash (304)
- Alcohol Related Crash (1707)
- Both (47)



CRASH PROFILES

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



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

CRASH PROFILE 1

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

TABLE 15: CRASH PROFILE 1

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



City of Oklahoma City Vision Zero Action Plan

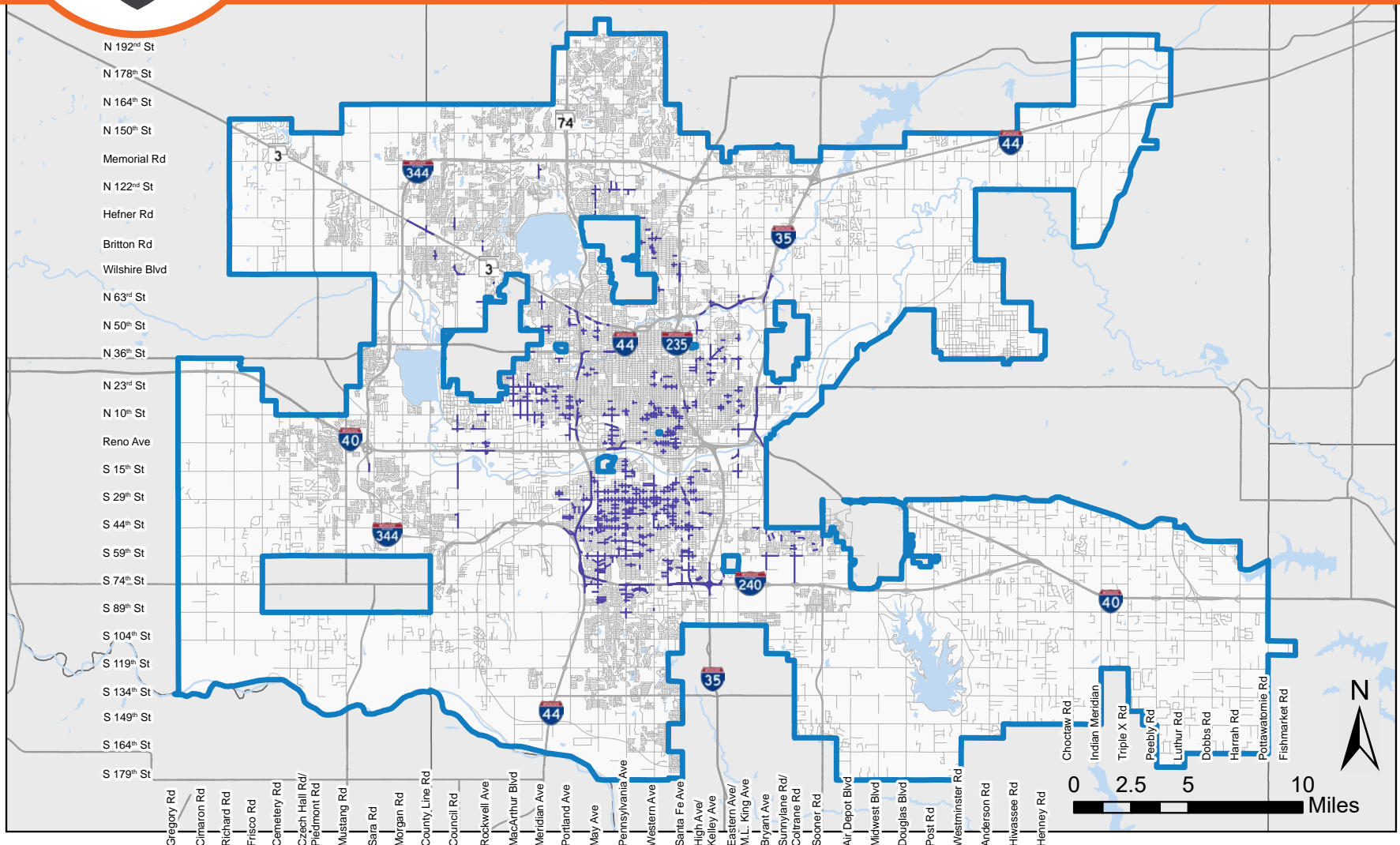
Crash Profile 1

Within a Disadvantaged Census Tract
Less than Half a Mile from a School

Legend

- Study Area
- Rivers
- Lakes

- OKC Crash Profile 1
- OKC Roads
- Highways



CRASH PROFILE 2

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

TABLE 16: CRASH PROFILE 2

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

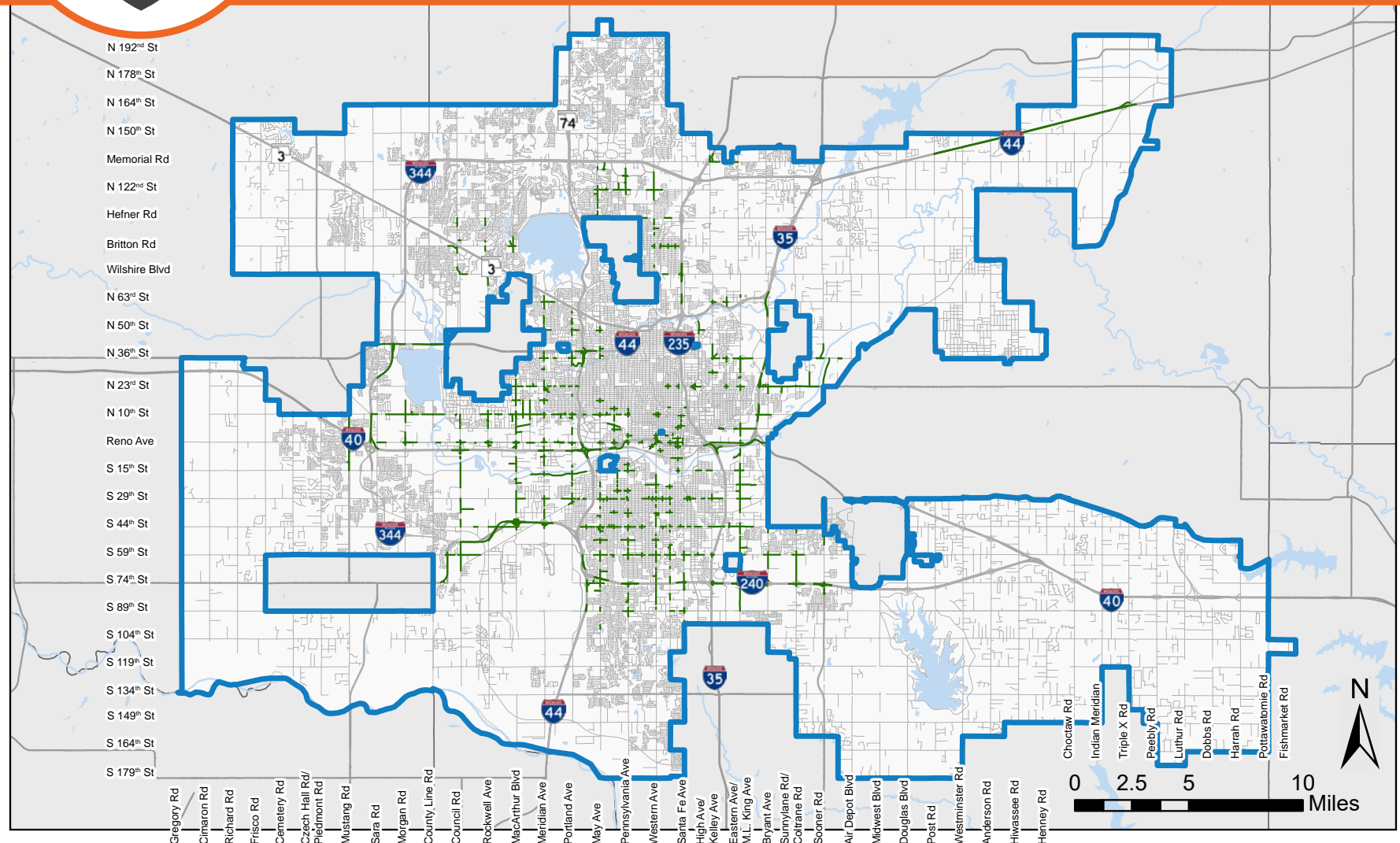


City of Oklahoma City Vision Zero Action Plan

Crash Profile 2
Within a Disadvantaged Census Tract
4 Lane Road

Legend

- Study Area
- Rivers
- Lakes
- OKC Crash Profile 2
- OKC Roads
- Highways



CRASH PROFILE 3

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

TABLE 17: CRASH PROFILE 3

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



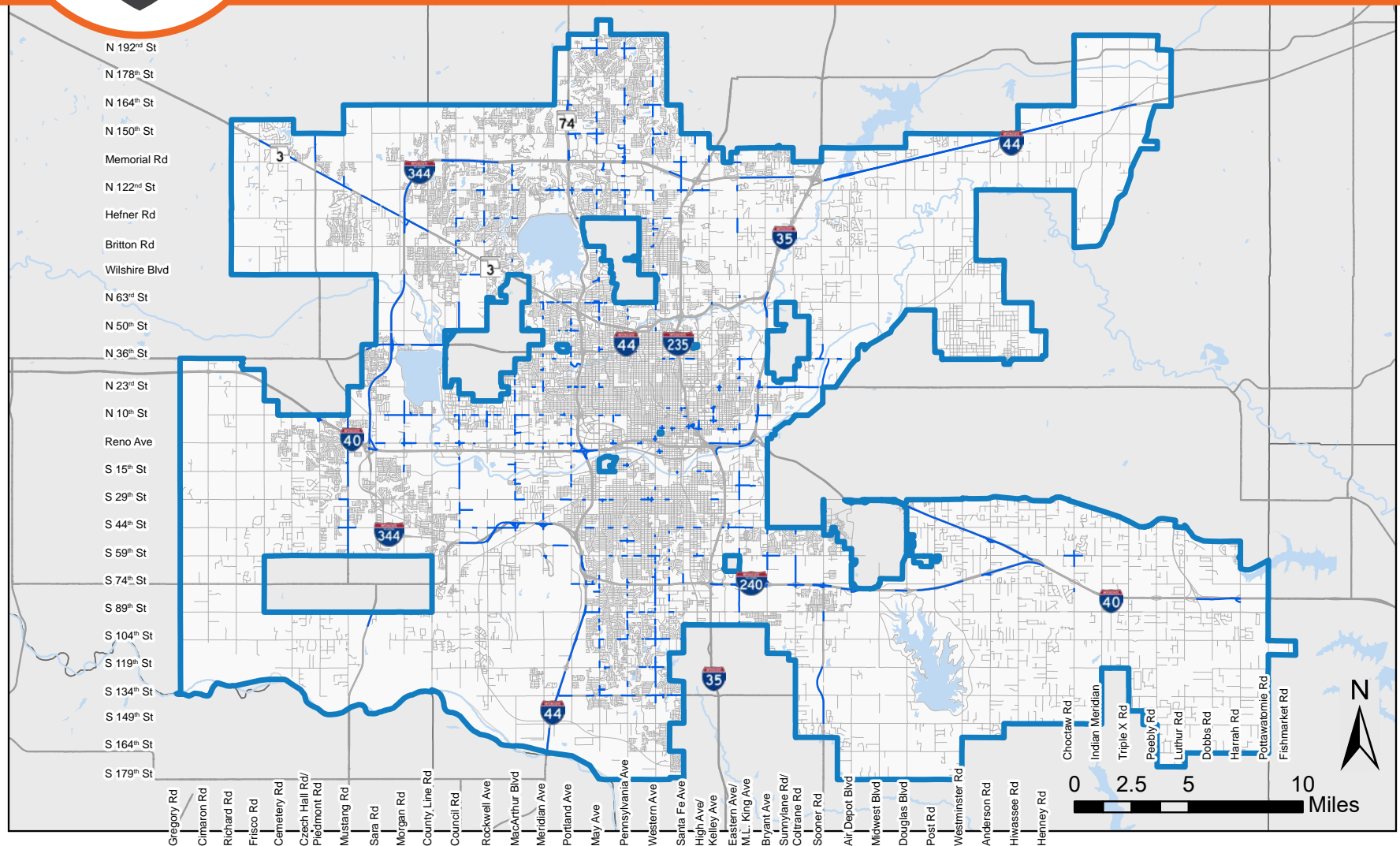
City of Oklahoma City Vision Zero Action Plan

Crash Profile 3
Not Near a Streetlight
4 Lane Road

Legend

- Study Area
- Rivers
- Lakes

- OKC Crash Profile 3
- OKC Roads
- Highways



CRASH PROFILE 4

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

TABLE 18: CRASH PROFILE 4

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



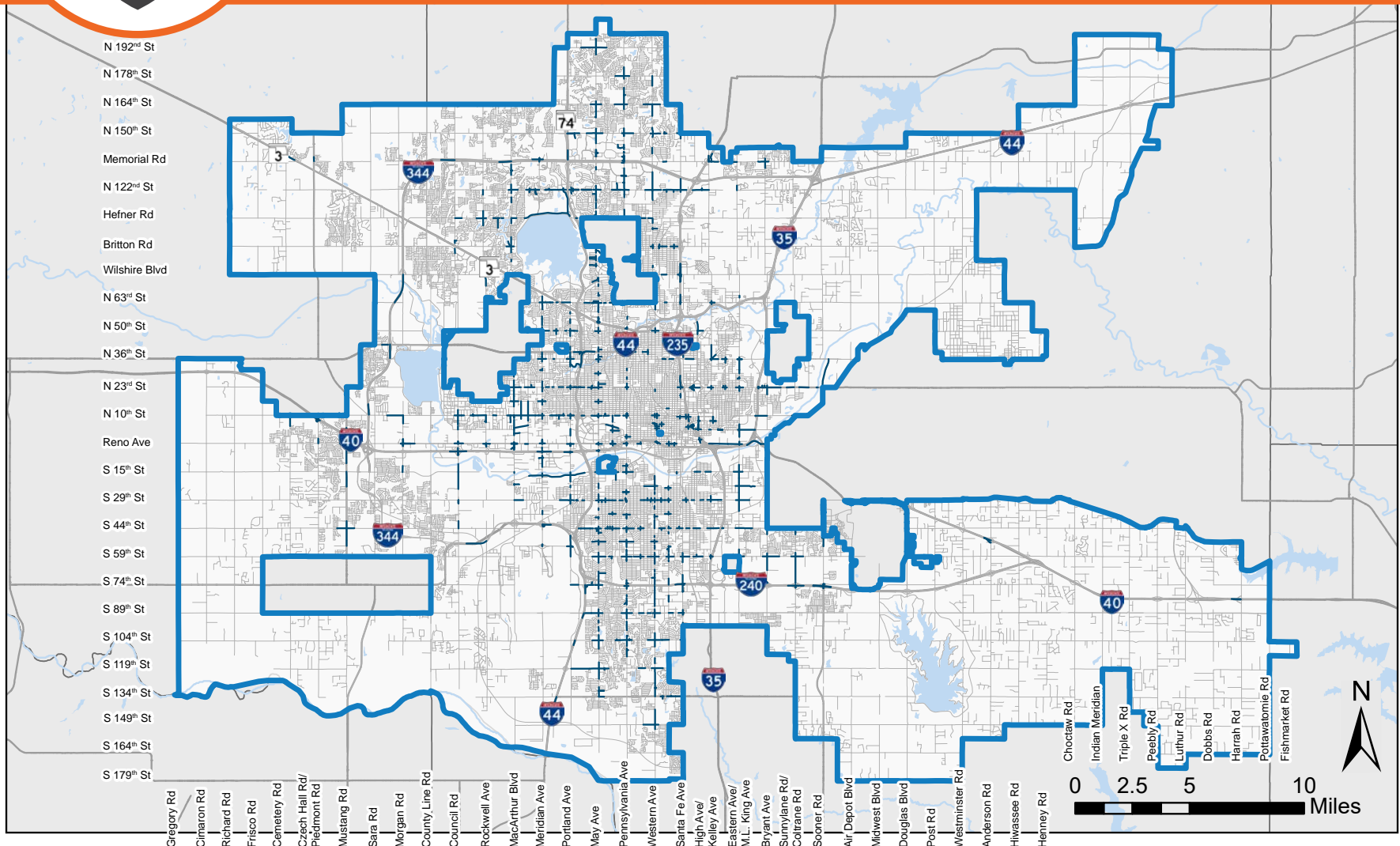
City of Oklahoma City Vision Zero Action Plan

Crash Profile 4
35 - 40 MPH
4 Lane Road

Legend

- Study Area
- Rivers
- Lakes

- OKC Crash Profile 4
- OKC Roads
- Highways



CRASH PROFILE 5

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

TABLE 19: CRASH PROFILE 5

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

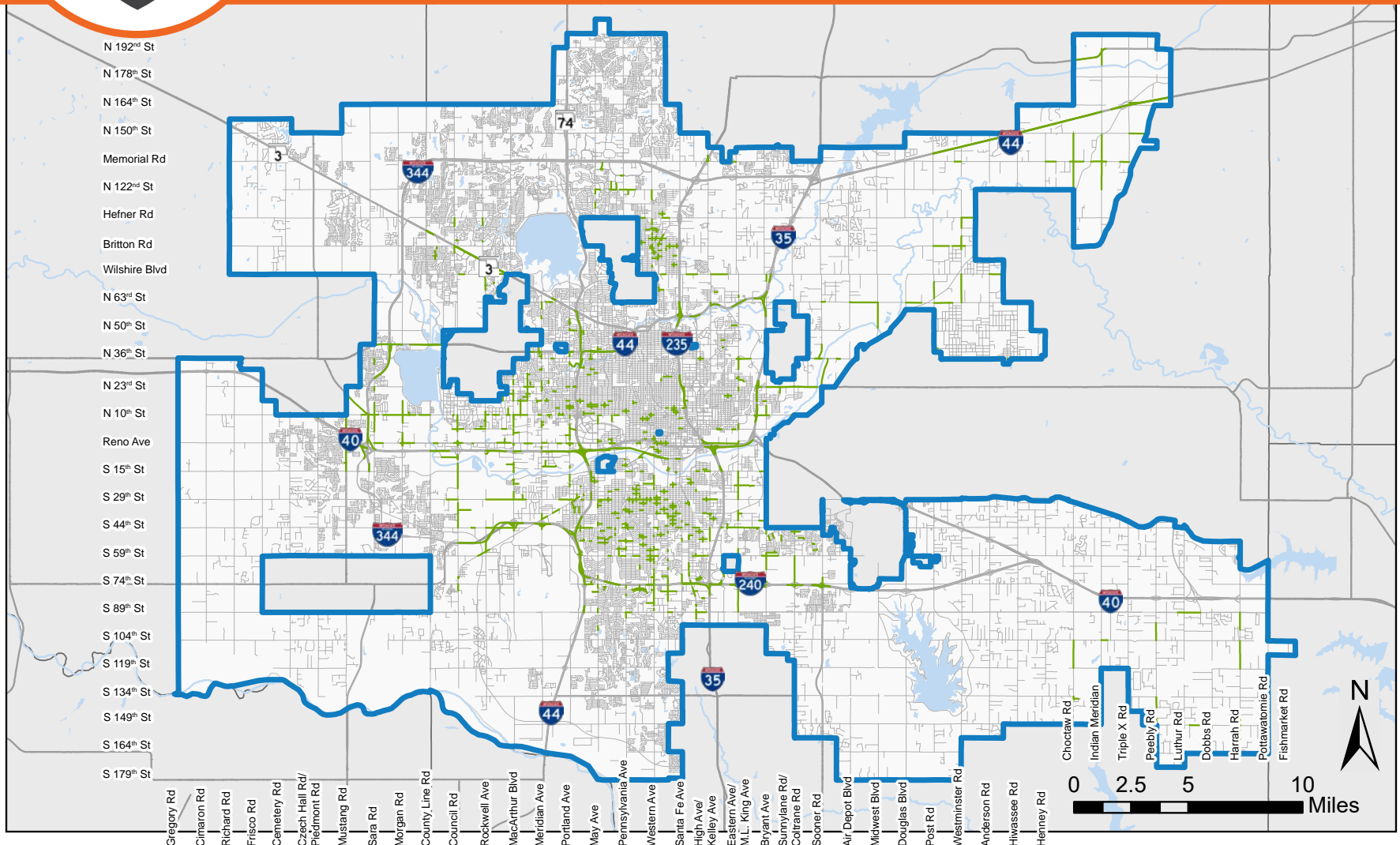


City of Oklahoma City Vision Zero Action Plan

Crash Profile 5
Within a Disadvantaged Census Tract
Not Near a Streetlight

Legend

- Study Area
- Rivers
- Lakes
- OKC Crash Profile 5
- OKC Roads
- Highways



CRITICAL CRASH RATE METHOD

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

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

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

CALCULATION STEPS

Crashes to Segments

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

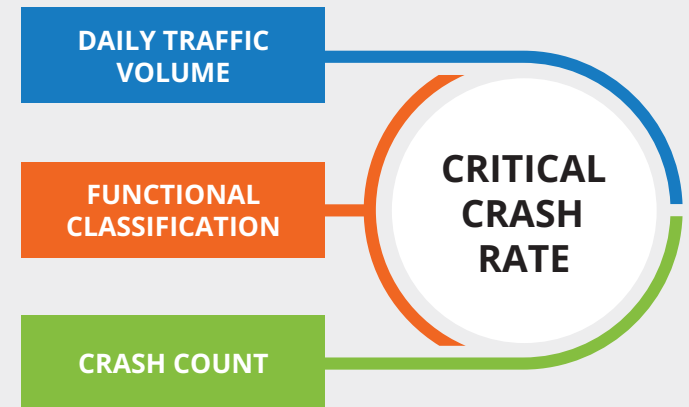
Calculate Variables

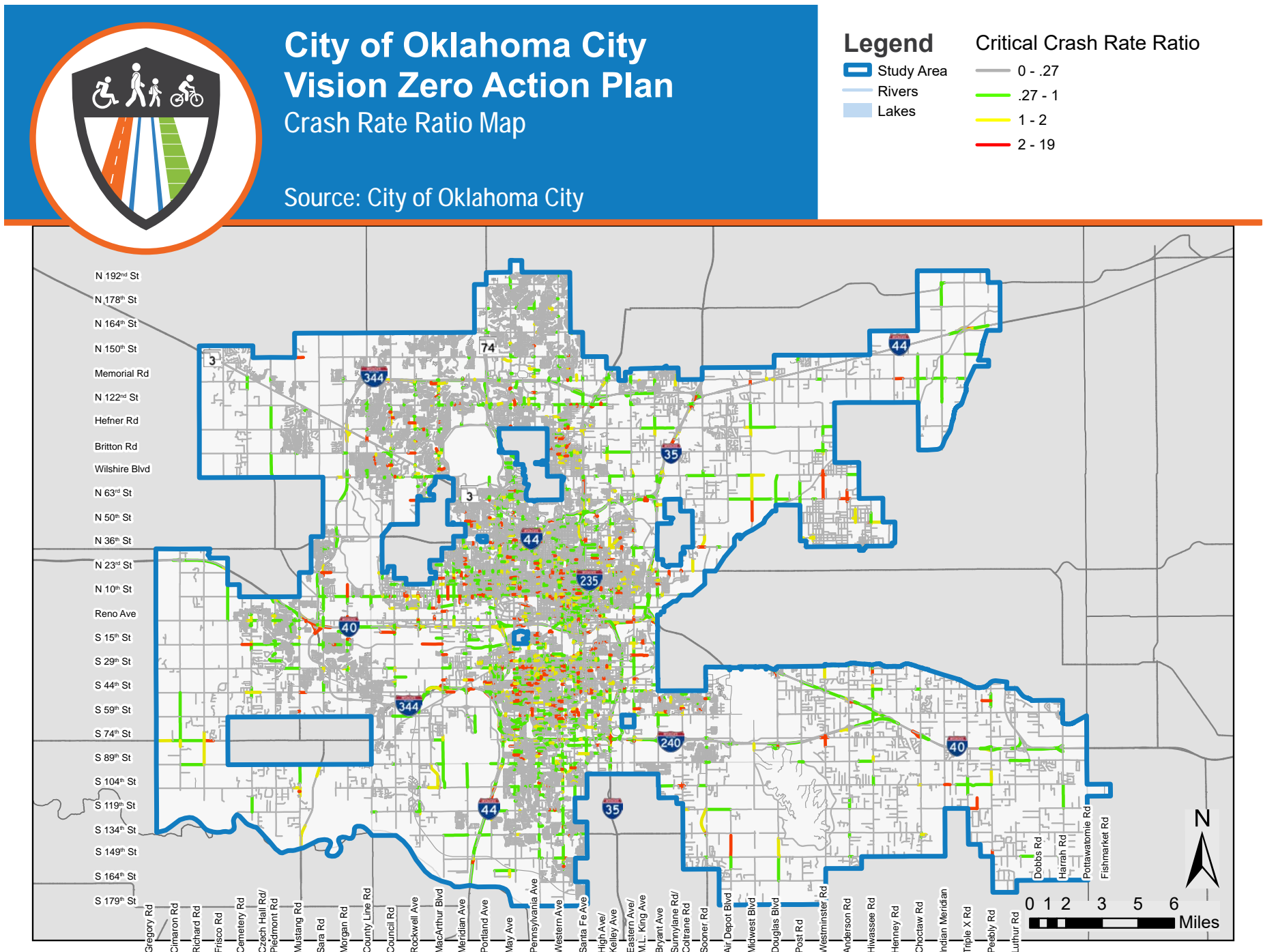
The variables of the critical crash rate were calculated using the equations specified in the FHWA Highway Safety Manual. The critical crash rate compares the difference between the observed crash rate and the expected crash rate. The observed crash rate is the existing crashes at each road segment per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

Critical Crash Rate Ratio

Once the variables are input, a ratio is calculated to identify segments experiencing higher severe injury and fatal crash rates than expected. If the ratio is greater than 1.0, or if the observed crash rate is higher than the critical crash rate, then the road segment's crash history was higher than other road segments of similar functional classification and context. Segments with a ratio of 1.0 or greater were flagged as potential High Injury Network (see page 47) segments. When considering the results of the critical crash rate analysis, additional factors such as excessive speeding, inadequate signage, poor visibility, or problematic intersections should be considered and evaluated.

FIGURE 17: CRITICAL CRASH RATE INPUTS





HIGH-INJURY NETWORK (HIN) DEVELOPMENT & RESULTS

The High Injury Network, or HIN, identifies specific areas within the City of Oklahoma City where a disproportionately high number of traffic fatalities and serious injuries have occurred. This network is intended to be used as a privatization tool for transportation safety improvement projects going forward. The process to select segments for the HIN is primarily a data-driven effort combined with a qualitative look at the ArcGIS Pro model results. The goal of the HIN selection process is to capture as many of the total fatal, severe injury, and possible injury crashes as possible on the least amount of roads. The following steps can be taken to implement and monitor future improvements once the HIN is established:



Prioritize safety improvements

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



Resource allocation

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



Implement and monitor improvements

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



Continuously review and update

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

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

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



City of Oklahoma City Vision Zero Action Plan High-Injury Network

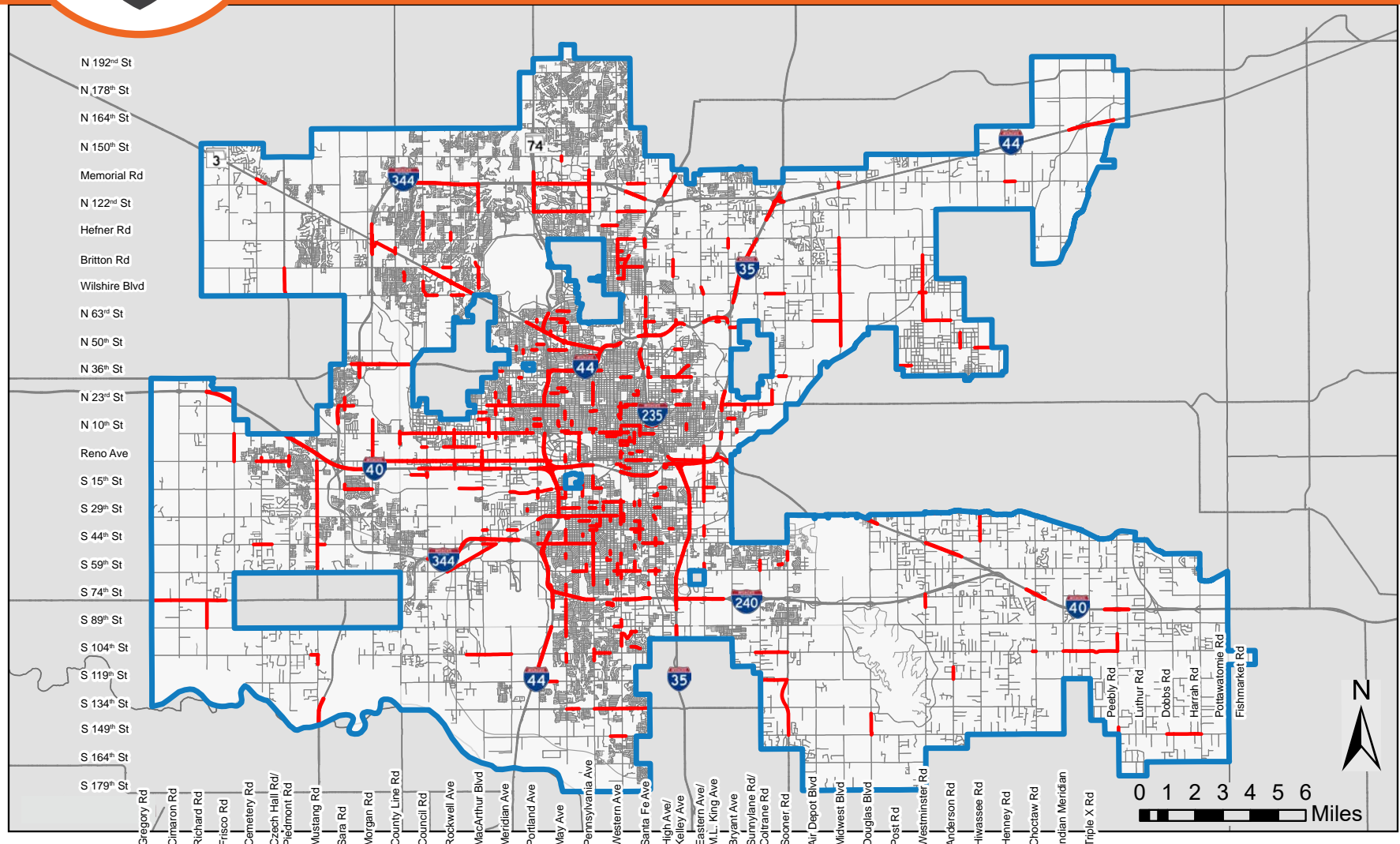
Source: City of Oklahoma City

Legend

- Study Area
- Rivers
- Lakes

High-Injury Network

- High-Injury Network



EQUITY REVIEW

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

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

MEASURING EQUITY

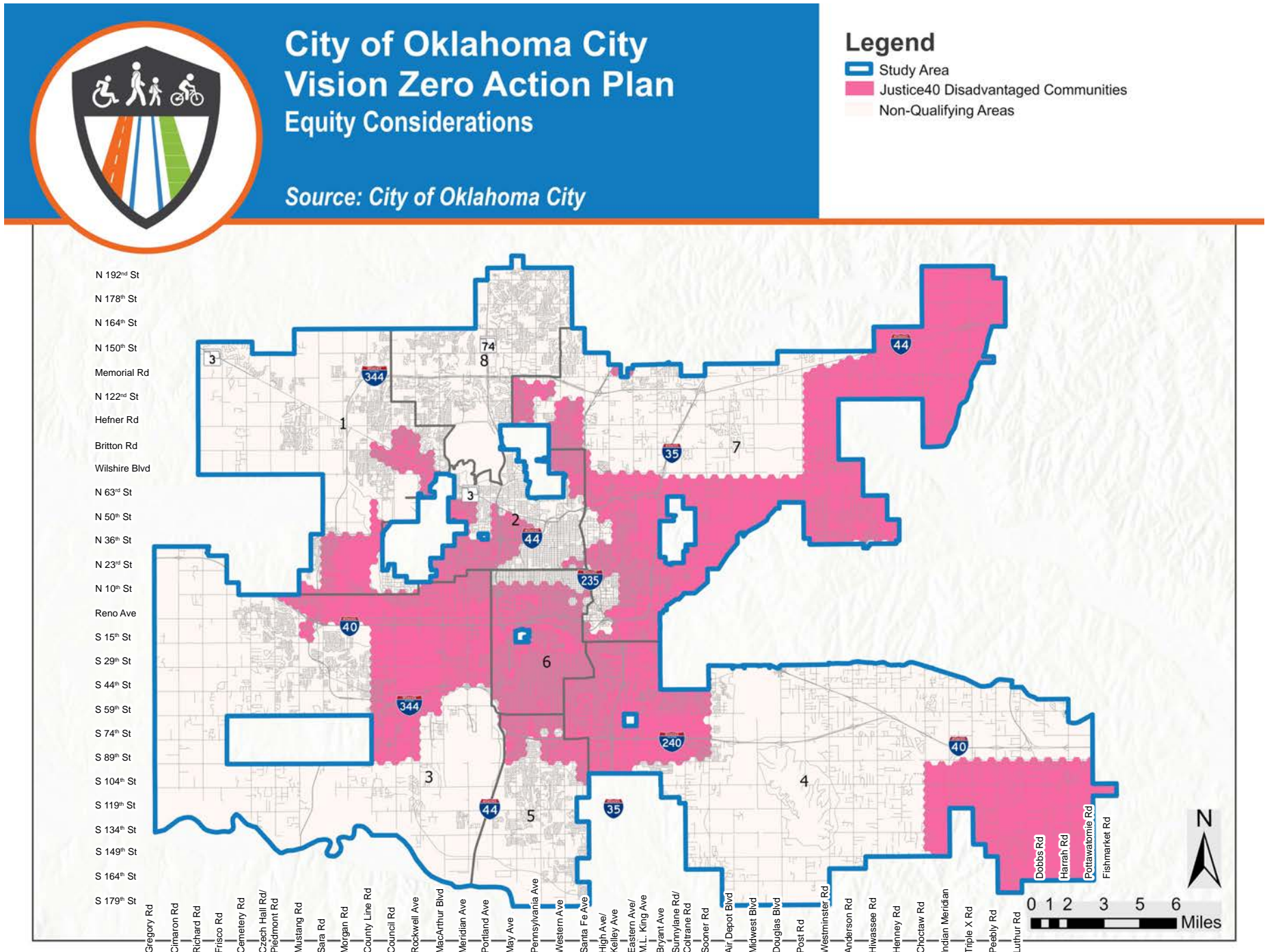
U.S. DEPARTMENT OF TRANSPORTATION JUSTICE40 INITIATIVE

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

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

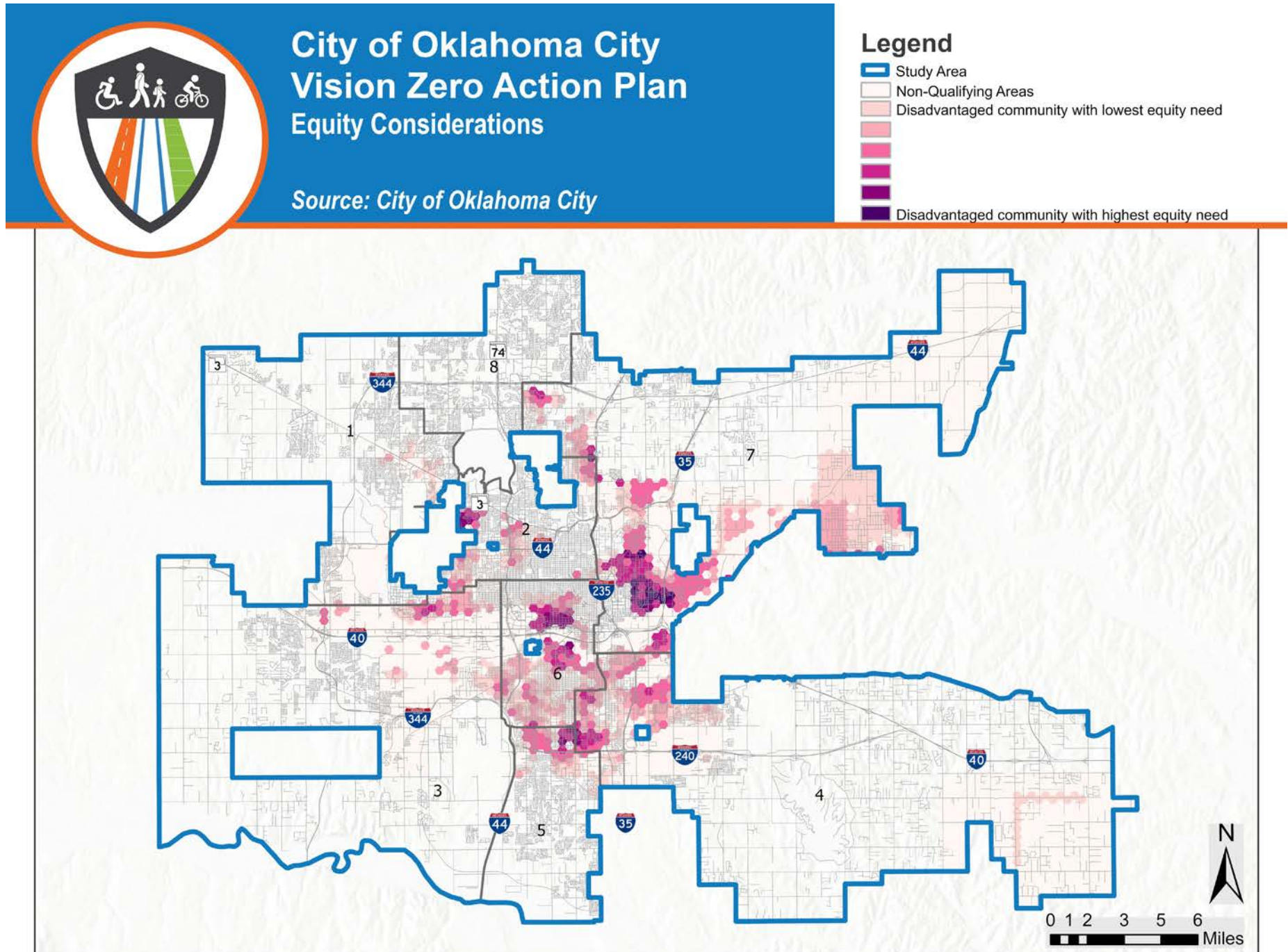
As shown in [Exhibit 16](#), almost 35% of Oklahoma City's land area is considered a disadvantaged census tract according to USDOT. These disadvantaged areas are concentrated in the central part of the City, particularly in Wards 6 and 7.

EXHIBIT 16: JUSTICE40 DISADVANTAGED COMMUNITIES AND NON-QUALIFYING AREAS, BY HEX GRID



OKLAHOMA CITY COMPOSITE EQUITY INDEX

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



CRASHES AND EQUITY

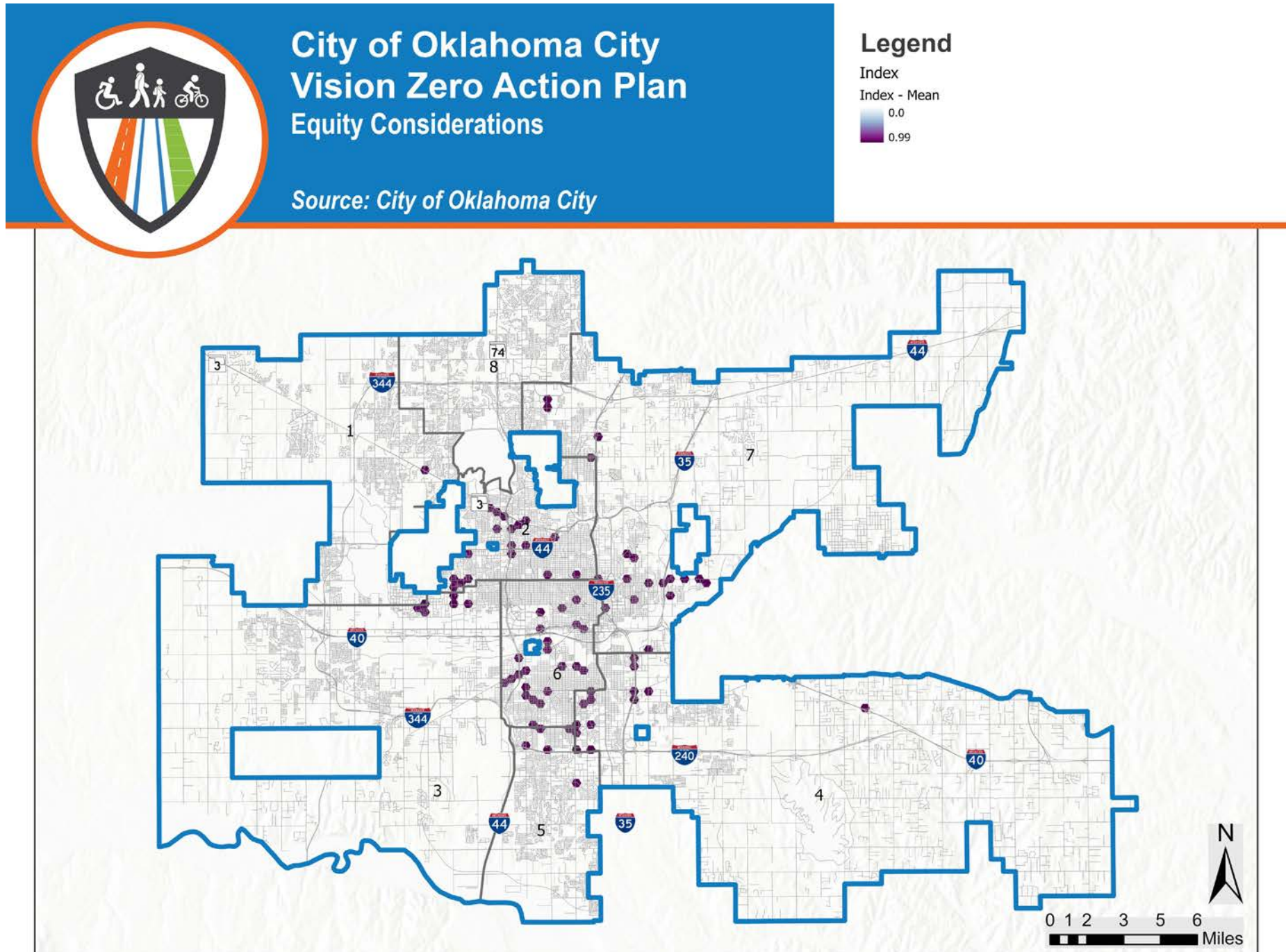
This section examines how crash exposure overlaps with the equity indices to identify where to prioritize equitable safety investments and where to incorporate project elements that will support populations most at risk of dying or being seriously injured in crashes.

Across Oklahoma City, disadvantaged communities experience the highest densities of KA (killed or seriously injured) crashes, total crashes, and have the most high-injury network (HIN) miles. The per-square-mile density of KA crashes, total crashes, and HIN miles significantly increases with higher Composite Equity Index scores. For example, the average per-square-mile density of KA crashes in the top 20% of equity need areas is nearly five times greater than the average density of KA crashes per mile the bottom 40% of equity need areas. **Exhibit 18** shows in dark purple the areas that are in the top 5% of equity scores, all crashes, KA crashes, and HIN miles, and thus face both the highest socio-economic and traffic violence burdens.

Table 19 shows that areas qualifying as Justice40 disadvantaged communities contain a higher share of KA crashes (61% of total) and high-injury network miles (62% of total) compared to non-qualifying areas, even though the total area of the disadvantaged communities is half the size of non-qualifying areas. This translates to 3 KA crashes per square mile in disadvantaged communities, compared to 1 KA crash per square mile in non-disadvantaged communities, and 2 KA crashes per square mile Citywide. This also translates to 0.9 HIN miles per square mile in disadvantaged communities, compared to 0.3 HIN miles per square mile in non-qualifying areas, and 0.5 HIN miles per square mile Citywide.

TABLE 20: KA CRASHES AND HIN MILES IN JUSTICE40 AREAS COMPARED TO NON-QUALIFYING AREAS AND CITYWIDE

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



RACIAL DESCRIPTION OF FATAL CRASH VICTIMS

The Fatal and Injury Reporting System (FARS) Tool was used to understand whether specific racial groups were overrepresented in fatal or pedestrian crashes between 2013 and 2021. Compared to the populations identified through the US Census in [Table 20](#), **populations identifying as Black or American Indian/Alaska Native (AIAN) are overrepresented among all fatal crashes and pedestrian-involved fatal crashes in Oklahoma City.**

TABLE 21: FATAL CRASH INVOLVEMENT BY RACE/ETHNICITY BETWEEN 2013-2021 COMPARED TO ACS 5-YEAR ESTIMATES*

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

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

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

RECOMMENDATIONS

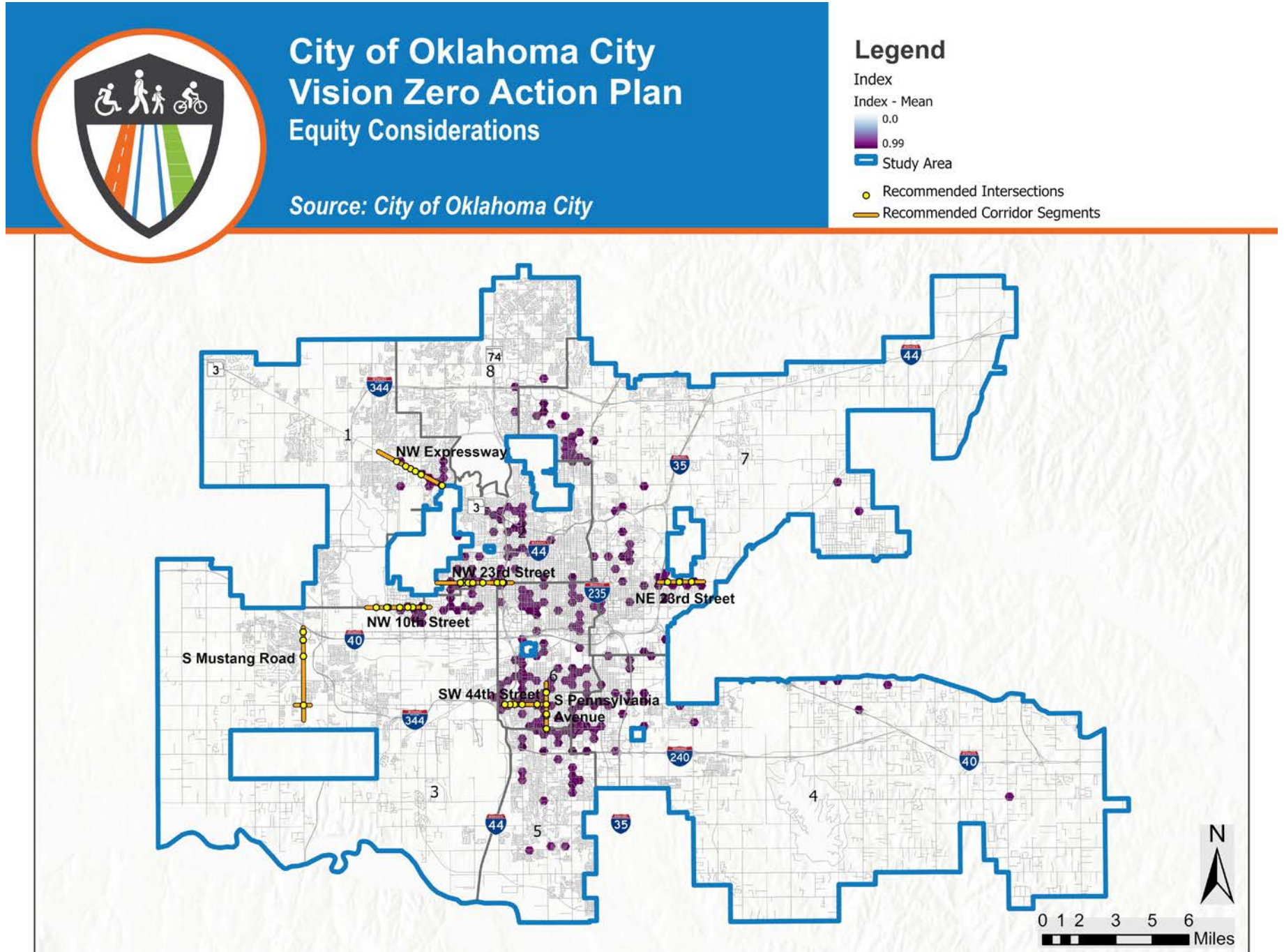
Prioritize Disadvantaged Communities During Community Engagement

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

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

Prioritize Disadvantaged Communities for Project Development and Delivery

Exhibit 19 highlights the overlap between the areas with the highest composite equity index scores and the corridor segments and intersections recommended for intervention by the project team and Oklahoma City staff. **Seven of the eight study corridors are within the top 10% of equity need areas in the city.** While South Mustang Road does not serve the highest equity index areas, it addresses some of the locations with the highest occurrences of KA crashes. This figure demonstrates a successful process of identifying priority corridors and projects that target areas with the greatest equity needs and highest crash rates. Moving forward, projects should be implemented in order of priority, starting with wards that have the highest equity need.



Utilize Safety Countermeasures that Support Vulnerable Road Users

Exhibit 20 shows that intersection recommendations on NW Expressway, NW 23rd Street, SW 44th Street, and S Pennsylvania Avenue are in areas with the highest quintile of populations 65 years or older or who rely on alternate transportation. Intersection recommendations on NE 23rd Street and the southern end of South Mustang Road are adjacent to such areas. In these places, special consideration should be given to leading pedestrian intervals, signal timing adjustments that accommodate walking speeds of less than 3.5 feet per second, and improved visibility.

Prioritize Safety Improvements Over Traffic Enforcement in Disadvantaged Communities

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

Potential Externalities and Mitigation Strategies

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

1 Gentrification and Displacement

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

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

2 Distrust or Resistance from the Community

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

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

3 Shifting Traffic Patterns

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

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

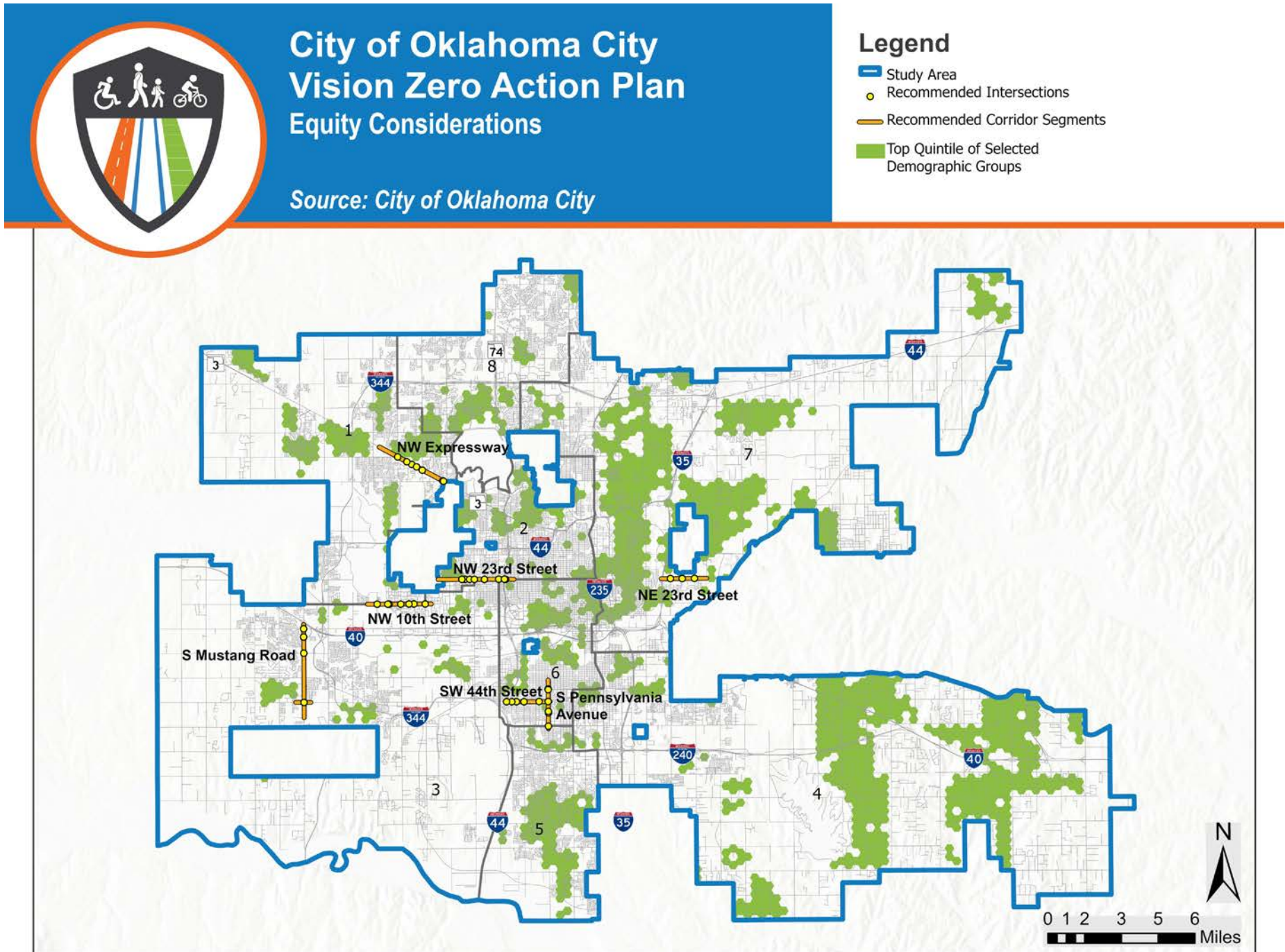
4 Maintenance and Upkeep Challenges

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

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

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

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







PART III

Vision Zero Action Plan OKLAHOMA CITY

PART III

Chapter 4: Designing a Solution

Systemic Countermeasures

Countermeasure Exhibits

Targeted Countermeasures

Chapter 5: Getting to Zero

Past Plan Reviews

Policy Recommendations

Plan Review

Implementation Program

CHAPTER 4: DESIGNING THE SOLUTION

The targeted recommendations on the chosen study corridors entail specific countermeasures based on the crash history, roadway geometry, intersection control, and context.

This chapter outlines the seven priority corridors that were chosen for further examination. These roadway segments were selected due to their abnormally high Critical Crash Rates, as well as their local significance. The corridors were identified by the VZAB at the second meeting, and further refined in conversations with City Staff. The targeted recommendations on the chosen study corridors entail specific countermeasures based on the crash history, roadway geometry, intersection control, and context. Additionally, this chapter provides a Systemic Countermeasure Toolbox; consisting of a variety of roadway countermeasures that may be used to further mitigate safety beyond the seven corridors in this study.





SYSTEMIC COUNTERMEASURES

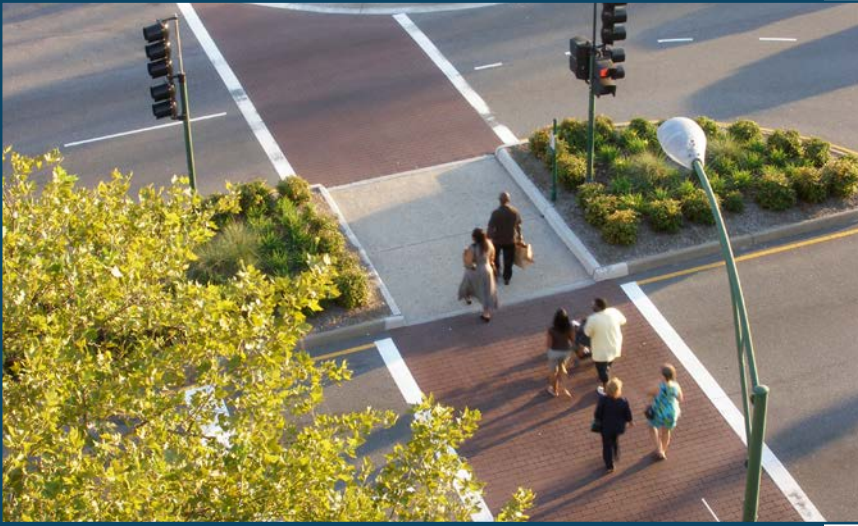
This portion of the VZAP details systemic countermeasures that can be implemented across the City of Oklahoma City to enhance safety **beyond the targeted countermeasures** on the selected study corridors. Precedence should be given to roadways and intersections along the HIN and Disadvantaged Census Tracts due to the crash history and creating a safer network for disadvantaged communities.

A countermeasure toolbox is a comprehensive collection of strategies and countermeasures designed to address specific traffic safety concerns. This toolbox provides the City of Oklahoma City with a range of options and resources to effectively improve safety and enhance the overall performance of roadways and transportation systems. The systemic countermeasure toolbox is detailed in the table below. Each countermeasure has an associated Crash Modification Factor (CMF). This figure is the ratio of crashes that can be expected to occur after the countermeasure has been implemented. These figures are provided by the CMF Clearinghouse, which is a national tool that provides CMF data, educates CMF users, and facilitates CMF research nationwide to compile the most reliable studies for increased accuracy in assigning CMFs.

TABLE 22: SYSTEMIC COUNTERMEASURES

Countermeasures	CMF	Context (Urban/Rural)
Medians and Pedestrian Refuge Islands	0.29	Urban
Median Barriers	0.29	Both
Rectangular Rapid Flashing Beacons (RRFB)	0.31	Both
Bike Lanes	0.435	Both
Dedicated Left- and Right-Turn Lanes at Intersections	0.52 – 0.86	Both
Roadway Reconfiguration	0.53	Urban
Roundabouts	0.59	Both
Sidewalks	0.598	Both
Lighting	0.68	Both
Reduced Left-Turn Conflict Intersections	0.7029	Both
Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections	0.732	Both
Crosswalk Visibility Enhancements	0.732	Both
Longitudinal Rumble Strips	0.745	Rural
Enhanced Delineation for Horizontal Curves	0.82	Rural
Retroreflective Backplates	0.85	Both
Appropriate Speed Limits	0.856	Both
Pedestrian Hybrid Beacons	0.883	Urban
Leading Pedestrian Interval	0.9	Urban
Corridor Access Management	0.93	Both
Wider Edge Lines	0.97	Both
Yellow Change Intervals	0.99	Both

FIGURE 18: MEDIAN & PEDESTRIAN REFUGE ISLAND



Source: Adobe Stock

FIGURE 19: MEDIAN BARRIER



Source: Adobe Stock

MEDIANS AND PEDESTRIAN REFUGE ISLANDS

Medians in urban and suburban areas can be defined by pavement markings, raised areas, or islands to separate motorized and non-motorized road users. Medians may also serve as a refuge for pedestrians. **A median with marked crosswalks can lead to a 46% reduction in pedestrian crashes.**

A pedestrian refuge island is a median with a refuge area that is intended to help protect pedestrians who are crossing a road. **Pedestrian Refuge Islands contribute to a 56% reduction in pedestrian crashes.**

MEDIAN BARRIERS

Median barriers are longitudinal barriers that separate opposing traffic on a divided highway and are designed to redirect vehicles striking either side of the barrier. These barriers can take the form of cable barriers, concrete barriers, or metal-beam guardrails. Median barriers significantly reduce the number of cross-median crashes. These barriers significantly reduce head-on crashes and fatalities by physically separating the two sides of the road. **Median Barriers Installed on Rural Four-Lane Freeways lead to a 97% reduction in cross-median crashes.**

RECTANGULAR RAPID FLASHING BEACONS (RRFB)

A rectangular rapid flashing beacon (RRFB) is a pedestrian-activated traffic control device installed at crosswalks to enhance visibility and alert drivers to the presence of pedestrians. When activated, the RRFB emits a rapid, alternating pattern of flashing lights to alert oncoming drivers to yield to pedestrians crossing the street. **According to FHWA, RRFBs can result in motorist yielding rates as high as 98 percent at marked crosswalks with varied speed limits, crossing distances, and number of travel lanes.**

BIKE LANES

A bike lane is a designated area of a roadway that is reserved for bicycles, typically marked with pavement markings and signage. Bike lanes provide cyclists with a dedicated space to ride, improving safety by reducing conflicts with motor vehicles, and encouraging more people to choose bicycling as a mode of transportation. **Bike Lane Additions can reduce crashes by up to 49% for total crashes on urban 4-lane undivided collectors and local roads and 30% for total crashes on urban 2-lane undivided collectors and local roads.** Notably, the introduction of bike lanes has led to a reduction in crashes across all categories, not just those involving vulnerable road users. This is particularly significant, as bike lanes increase average daily bicycle traffic by approximately 20%, while simultaneously reducing crashes across all modes of transportation.

FIGURE 20: RECTANGULAR RAPID FLASHING BEACON



Source: FHWA

FIGURE 21: BIKE LANE



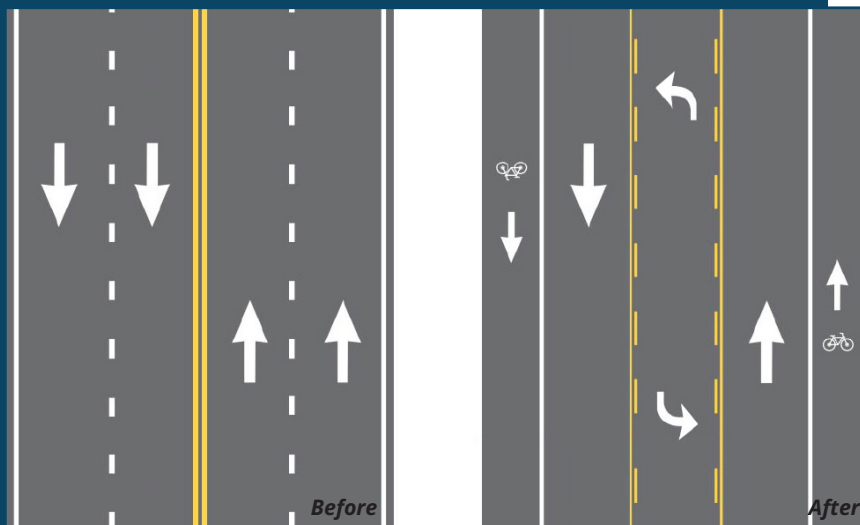
Source: City of Oklahoma City

FIGURE 22: DEDICATED LEFT- AND RIGHT-TURN LANES



Source: Adobe Stock

FIGURE 23: ROADWAY RECONFIGURATION



Source: FHWA

DEDICATED LEFT- AND RIGHT-TURN LANES AT INTERSECTIONS

Auxiliary turn lanes—either for left-turns or right-turns—provide physical separation between turning traffic that is slowing or stopped and adjacent through traffic at approaches to intersections. Turn lanes can be designed to provide for deceleration prior to a turn, as well as for storage of vehicles that are stopped and waiting for the opportunity to complete a turn.

While turn lanes provide measurable safety and operational benefits at many types of intersections, they are particularly helpful at two-way stop-controlled intersections. Many of the projects the Traffic Services Division added to the 2017 GO Bond list were to upgrade existing intersections with dedicated left turn lanes. All traffic signals approved through the Traffic and Transportation Commission are approved requiring dedicated left turn lanes per staff recommendations. **A dedicated turn lane can lead to a 28-48% reduction in total crashes.**

ROADWAY RECONFIGURATION

A roadway reconfiguration usually involves converting an existing four-lane roadway into a three-lane roadway. Implementing a roadway reconfiguration can improve safety, calm traffic, provide better mobility and access for all users, and enhance the quality of life in a community. Roadway reconfigurations make a roadway more “complete” by adding bike lanes or areas for pedestrians. Sometimes, roadway reconfigurations are called road diets. There are generally some capacity concerns with roadway reconfigurations, due to their reduction in lanes, however, it is important to note that they are only recommended in roadways that experience no more than 12,000 AADT, so in instances where a greater number of lanes is necessary, this countermeasure is not considered. Additionally, introducing center turnlanes will reduce conflicts between vehicles turning and through traffic, thereby improving throughput and reducing rear-end crashes in many instances. **In the context of a 4-lane to 3-lane reconfiguration, a road segment can experience up to a 47% reduction in total crashes.**

ROUNDAOBOUTS (RAB)

A roundabout is a type of circular intersection where traffic flows continuously around a central island. Vehicles entering a roundabout must yield to traffic already circulating within it, promoting a smooth and efficient flow of traffic with reduced conflict points compared to traditional intersections. Roundabouts are designed to improve safety, reduce congestion, and enhance traffic flow. **Roundabouts lead to a 78-82% reduction in fatal and injury crashes.**

SIDEWALKS

A sidewalk is a designated pathway alongside a road or street intended for pedestrian use. It provides a safe and separate space for pedestrians to walk, separated from vehicular traffic. Sidewalks enhance pedestrian safety by reducing the risk of collisions with vehicles, promoting walking as a mode of transportation, and providing accessible routes for people of all ages and abilities. **Sidewalks can contribute up to an 89% reduction in crashes involving pedestrians walking along roadways.**

FIGURE 24: ROUNDAOBOUT



Source: Adobe Stock

FIGURE 25: SIDEWALK



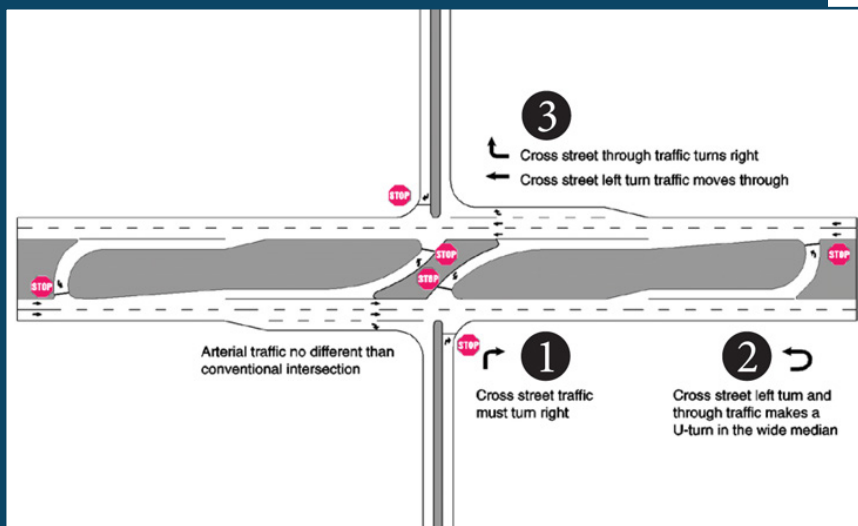
Source: Adobe Stock

FIGURE 26: CORRIDOR LIGHTING



Source: Adobe Stock

FIGURE 27: REDUCED LEFT-TURN CONFLICT INTERSECTION EXAMPLE



Source: FHWA

LIGHTING

The number of fatal crashes occurring in daylight is about the same as those in darkness. However, the nighttime fatality rate is three times the daytime rate despite only 25 percent of vehicle miles traveled (VMT) occurring at night. At nighttime, vehicles traveling at higher speeds may not be able to stop once a hazard or change in the road ahead becomes visible by the headlights. Therefore, improvements to the lighting infrastructure of a roadway lead to a highly visible, safer roadway.

Adequate lighting (i.e., at or above minimum acceptable standards) is based on research recommending horizontal and vertical illuminance levels to provide safety benefits to all users of the roadway environment. Adequate lighting can also provide personal security benefits for non-personal vehicle users as they travel along and across roadways. Increased lighting can come in the form of intersection or corridor lighting depending on the needs of the community. **Lighting can reduce pedestrian nighttime crashes by up to 42%.**

REDUCED LEFT-TURN CONFLICT INTERSECTIONS

Reduced left-turn conflict intersections (RCUT) are geometric designs that alter how left-turn movements occur. These intersections simplify drivers' decision-making and minimize the potential for higher-severity crash types, such as head-on and angle. Variations on the U-Turn are typical of these intersections. One type of these intersections, **the RCUT intersection, has been shown to lead to a 54% reduction in fatal and injury crashes.**

SYSTEMIC APPLICATION OF MULTIPLE LOW-COST COUNTERMEASURES AT STOP-CONTROLLED INTERSECTIONS

This systemic approach to stop-controlled intersection safety involves deploying a package of multiple low-cost countermeasures, including enhanced signing and pavement markings, at intersections. These countermeasures increase driver awareness and recognition of the intersections and potential conflicts. **This application is associated with a 10% reduction of fatal and injury crashes at all locations/types/areas.**

FIGURE 28: STOP-CONTROLLED INTERSECTION



Source: FHWA

CROSSWALK VISIBILITY ENHANCEMENTS

Crosswalk visibility enhancements encompass multiple strategies that can be used alone or in combination. High-visibility crosswalks use an inlay or thermoplastic tape patterns that are visible to the driver and pedestrians from far away. Improved lighting illuminates with a positive contrast that makes the pedestrian more visible by placing luminaries in forward locations. Enhanced signage and pavement markings alert the driver in advance that a pedestrian crosswalk is approaching, using either signage or pavement markings. This countermeasure includes enhancements such as raised crosswalks. **High-visibility crosswalks can reduce pedestrian injury crashes up to 40%.**

FIGURE 29: CROSSWALK VISIBILITY ENHANCEMENT



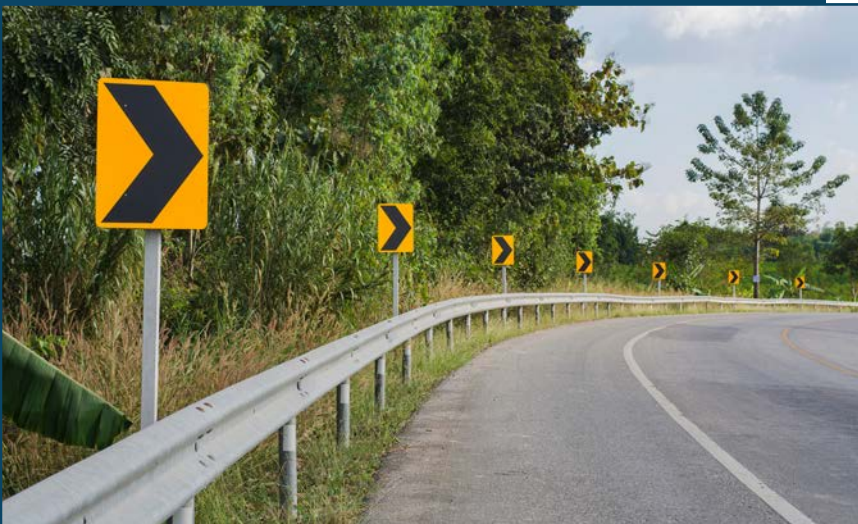
Source: Adobe Stock

FIGURE 30: LONGITUDINAL RUMBLE STRIPS



Source: Adobe Stock

FIGURE 31: ENHANCED DELINEATION FOR HORIZONTAL CURVE



Source: Adobe Stock

LONGITUDINAL RUMBLE STRIPS

Longitudinal rumble strips are milled or painted installations on the ground that alert a driver through vibration and sound. A longitudinal rumble strip is on the shoulder, edge, or near or at the center line of an undivided roadway. These are intended to warn drivers whose vehicles are crossing centerlines through the creation of noise and vehicular vibration.

Longitudinal rumble strips can result in a 44-64% reduction in head-on fatal and injury crashes on two-lane rural roads.

ENHANCED DELINEATION FOR HORIZONTAL CURVES

Enhanced delineation for horizontal curves includes various strategies implemented in advance or within curves. Pavement markings, center, and edge lines help drivers establish their position on the road. In-lane curve warning pavement markings are solid center lines on two-lane roads that warn drivers that a curve is approaching. Retroreflective strips are material on signposts that reflect light back to the driver to help draw attention to the sign during the night. A delineator is a retroreflective device placed on a post or roadside barrier along the side of the road that lets a driver align themselves on the road. Chevron signs placed on the outside of the curve or on the edge of the road inform the driver of the direction of the road. Enhanced visibility at horizontal curves can be improved by adding or upgrading to larger, retroreflective signs. Dynamic curve warnings detect vehicle speeds approaching a curve and alert drivers if the vehicular speed exceeds the speed limit. **Sequential Dynamic Chevrons, a type of enhanced delineation, can lead to a 60% reduction in fatal and injury crashes.**

RETROREFLECTIVE BACKPLATES

A retroreflective backplate is a backplate made by framing traffic signals with a 1-to-3-inch yellow retroreflective border. They improve the visibility of the signal by creating an illuminated border to provide greater contrast from the area around the signal. The backplates lead to improvements in both daytime and nighttime conditions. Oklahoma City Traffic Services Division has previously updated standards to include retroreflective backplates with 2" retroreflective border. Retroreflective backplates are a relatively low-cost, high-impact countermeasure to be implemented at traffic signals. **Safety benefits for retroreflective backplates include a 15% reduction in total crashes.**

APPROPRIATE SPEED LIMITS

Posted speed limits are often the same as the legislative statutory speed limit. Agencies with the authority to set speed limits can establish non-statutory speed limits or designate reduced speed zones, and an increasing number are doing so. Roadway safety experts agree that speed control is one of the most important methods for reducing fatal and serious injury crashes. A driver may not see or be aware of the conditions along a corridor and may drive at a speed that feels reasonable for themselves but may not be for all system users, especially vulnerable road users, such as children and seniors. **A driver traveling at 30 miles per hour who hits a pedestrian has a 45 percent chance of killing or seriously injuring them. At 20 miles per hour, that percentage drops to 5 percent.**

FIGURE 32: RETROREFLECTIVE BACKPLATES



Source: FHWA

FIGURE 33: SPEED LIMIT SIGN



Source: Adobe Stock

FIGURE 34: PEDESTRIAN HYBRID BEACON



Source: Adobe Stock

FIGURE 35: LEADING PEDESTRIAN INTERVAL



Source: sangabrielcity.com

PEDESTRIAN HYBRID BEACONS

The pedestrian hybrid beacon (PHB) is a traffic control device designed to help pedestrians safely cross higher-speed roadways at midblock crossings and uncontrolled intersections. They are often installed at school crossings, parks, or other areas with large amounts of foot traffic. PHBs are typically effective at locations where three or more lanes will be crossed or in areas with high traffic volume. If PHBs are not familiar to a community, agencies and other governmental departments may need to provide education campaigns to ensure proper utilization. **PHBs can lead to a 55% reduction in pedestrian crashes.**

LEADING PEDESTRIAN INTERVAL

A leading pedestrian interval (LPI) allows pedestrians to enter the crosswalk at an intersection 3-7 seconds before vehicles receive a green indication. An LPI increases pedestrian visibility, aiming to reduce conflict with vehicles. LPI also helps pedestrians who may require more time to cross the street. **Installing an LPI can lead to a 13% reduction in pedestrian-vehicle crashes at intersections.** The Traffic Services Division has programmed 234 of 842 signalized intersection (27%) with LPI, many in the Downtown and Bricktown areas.

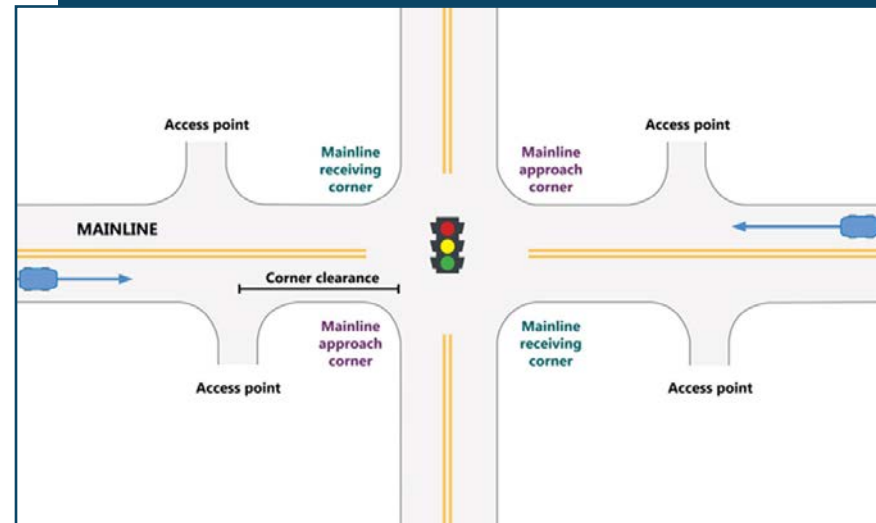
CORRIDOR ACCESS MANAGEMENT

Access management refers to the design, application, and control of entry and exit points along a roadway. This includes intersections with other roads and driveways that serve adjacent properties. Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestion. While access management is a broad topic, strategies can include the intentional spacing of intersections, utilizing protected turn lanes, and generally minimizing conflict points on a corridor. **Safety benefits include a 25 to 31% reduction in fatal and injury crashes along urban/suburban arterials.**

WIDER EDGE LINES

Edge lines are the pavement markings at the edge of travel lanes and are designed to help drivers clearly identify the road alignment ahead. To improve safety, designers increase edge lines from the minimum normal line width of 4 inches to the maximum normal width of 6 inches. Wider edge lines enhance the visibility of travel lane boundaries compared to traditional edge lines. Oklahoma City Traffic Services Division has previously updated the pavement marking details to include 6" edge lines and center lines. **Wider edge lines can reduce crashes by up to 22% for fatal and injury crashes on rural freeways.**

FIGURE 36: CORRIDOR ACCESS MANAGEMENT



Source: FHWA

FIGURE 37: WIDER EDGE LINES



Source: FHWA

FIGURE 38: YELLOW LIGHT AT SIGNAL



Source: Adobe Stock

YELLOW CLEARANCE INTERVALS

The yellow clearance interval is the time the yellow signal indication is displayed following a green light signal indication. Red-light running is a leading cause of crashes and fatalities at intersections, so timing the signal allows drivers to both stop safely without inviting accelerating through a yellow to red-light transition. A well-timed yellow clearance interval helps reduce crashes, indicating green has passed and red is following next. This leads to appropriate speeds and speed management at signalized intersections. **Safety benefits include a 36-50% reduction in red-light running when timed appropriately.**



TARGETED COUNTERMEASURES

In-field observations were made to understand the existing conditions impact on crash history. Observations were made through walking and driving each corridor and collected through the ArcGIS Field Maps app. These field-observations are grouped into corridor-wide and intersection-focused and used to select projects and recommendations that would improve traffic safety in each corridor, as well as Citywide.

STUDY CORRIDORS AND INTERSECTIONS

Seven road segments on the High-Injury Network (HIN) were selected for study corridors. These study corridors are examined on a deeper level to make targeted recommendations that will improve traffic safety on the city's most unsafe corridors. These corridors are selected by priority level, with input from the City Staff. Scoring criteria included equity, engagement, and feasibility. Data for each of the criteria was gathered through:



In coordination with Oklahoma City Staff and the Vision Zero Advisory Board (VZAB), seven study corridors were selected to have targeted recommendations and countermeasures found. The study corridors add up to 14.89 miles of roadway, capturing 281 KAB crashes within their limits (**Table 22**). Each corridor spans between multiple land use contexts across various parts of Oklahoma City.

Crash reports and in-field observations were studied to understand existing conditions and crash locations on the study corridors. These observations were the initial step in understanding the state of safety on the seven study corridors and led to the targeted countermeasures.

TABLE 23: STUDY CORRIDORS

Study Corridors								
Study Corridor	Limits		Length (mi)	Crashes				Daily Volume
	From	To		K	A	B	Total KABs	
1. NE 23rd Street	I 35	N Bartell Rd	1.82	8	5	23	36	15,136
2. NW 23rd Street	N Ann Arbor Ave	N I 44 Hwy	1.75	3	6	27	36	15,132
3. Mustang Road*	Reno Ave	SW 59th St	4	7	10	50	67	24,425
4. SW 44th Street	I-44 NBFR	Johnston Dr	1.77	3	9	32	44	10,705
5. S Pennsylvania Avenue	SW Grand Blvd	SW 59th St	1.49	3	3	25	31	12,415
6. NW 10th Street	County Line Rd	N Rockwell Ave	1.96	3	6	16	25	8,689
7. NW Expressway	N Council Rd	N Wilshire Blvd	2.1	0	12	30	42	18,006
Total			14.89	27	51	203	281	14,930

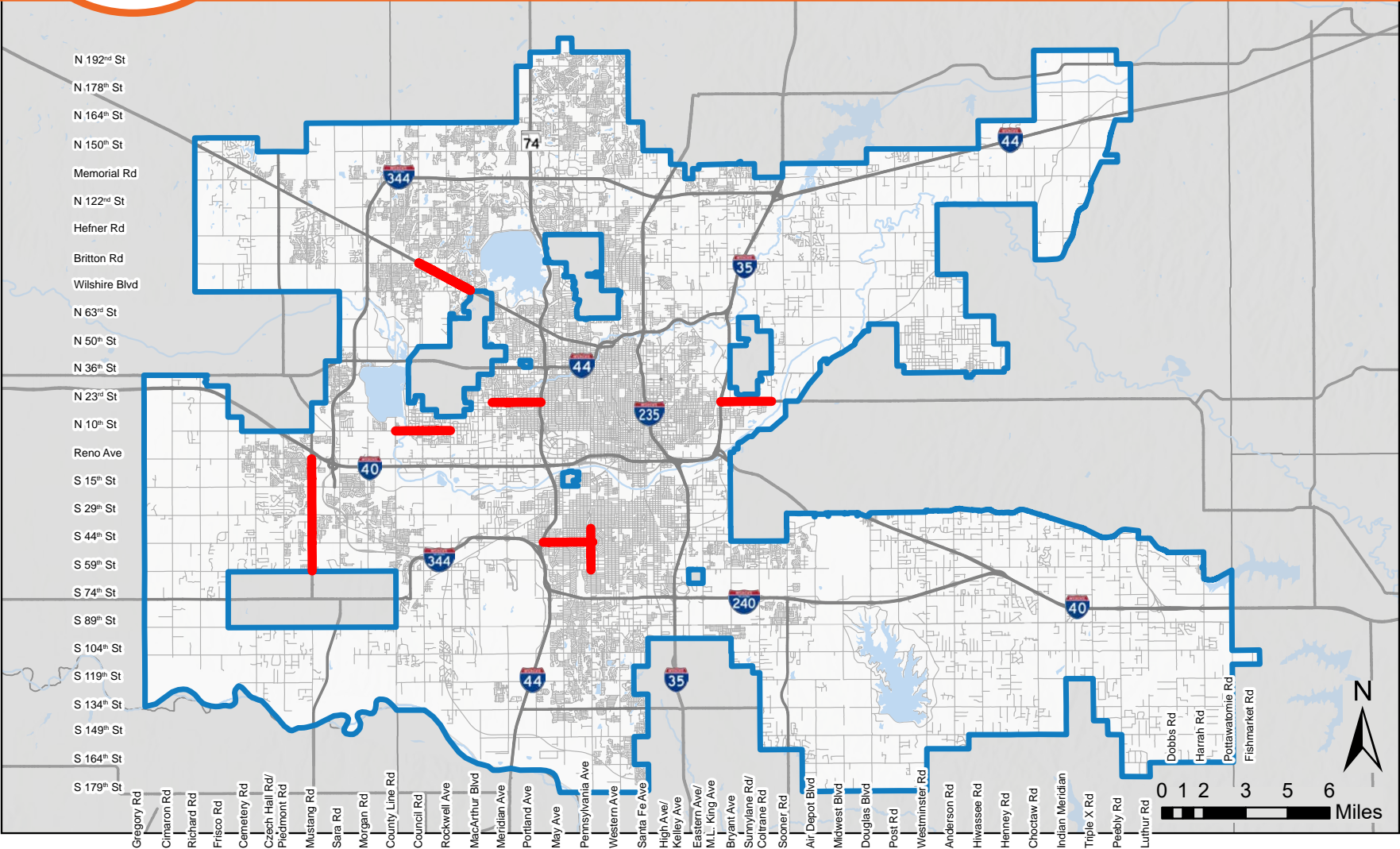
*Owned and Operated by the Oklahoma Department of Transportation



City of Oklahoma City Vision Zero Action Plan Study Corridors

Source: City of Oklahoma City

- Legend**
- Study Area
 - Rivers
 - Lakes
 - Study Corridors



GLOBAL RECOMMENDATIONS

Through walking and driving the various study corridors several traffic safety enhancements or opportunities have been identified for Citywide recommendations to be implemented throughout all study corridors. Pedestrian infrastructure was often observed to be intermittent. Crosswalk markings at signalized intersections were often observed to be either missing or fading and hard to differentiate from the surrounding pavement. Some intersections with pedestrian crossings also did not have pedestrian signals or push button assemblies. It is recommended to restripe or add high-visibility pedestrian crosswalks and signals at all signalized intersections. It was also observed that some traffic signal equipment along the study corridor was outdated or missing, including pedestrian signal heads, crossing signs, push buttons, radar detection, and reflective backplates at signal heads.

It is recommended that all signalized intersections have installed or be upgraded to include pedestrian signal heads and crossing signs, which are accompanied by push buttons to improve crossing safety. Retroreflective backplates for traffic signal heads are also recommended to increase visibility to the driver. Finally, vehicle detection systems should be reviewed to identify malfunctioning detector hardware or upgraded to optimize traffic flow and improve safety (e.g., dilemma zone detection). These recommendations should be considered for implementation throughout each study corridor.

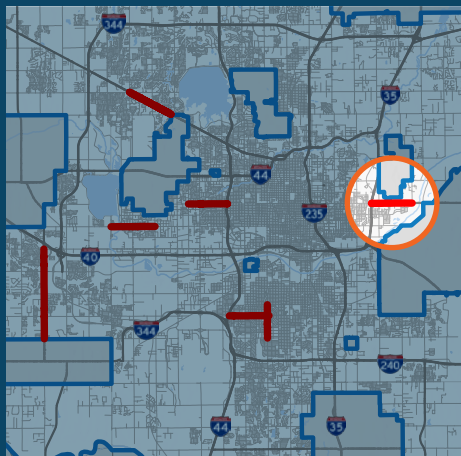
FIGURE 39: MISSING PEDESTRIAN INFRASTRUCTURE ON
MUSTANG ROAD AND NORTHWEST EXPRESSWAY



CORRIDOR 1: NE 23RD STREET

Context

The NE 23rd Street Corridor (Corridor 1), also known as US-62, from IH-35 to N Bartell Road that is 1.82 miles in length. Corridor 1 is located just to the east of the Oklahoma State Capitol between primarily single family residential and community commercial zoning districts it also has moderate industrial zoning scattered along the corridor and a small section zoned for agricultural. This section of NE 23rd Street is primarily a 4-lane undivided roadway with a volume of 15,100 vehicles per day. IH-35 intersection and N Bryant intersection have slightly different configurations, IH-35 intersection has a painted median as well as designated turning lanes and N Bryant intersection has a designated center turn lane from east and west approach. Speed limits vary on this corridor from 40 miles per hour (MPH) to 45 MPH.



Crash History

There were 146 total crashes on this section of NE 23rd Street between 2017-2021. Of these total crashes, 36 were KABs. Key takeaways for crash trends along Corridor 1 were the following:

39.5%

of KAB crashes were intersection-related

34.2%

The top manner of collision was rear-end crashes accounting for 50 of 146 total crashes

28.1%

Top contributing factor was "Failed to Yield or Stop", accounting for 41 of the 146 total crashes

Corridor Wide Recommendations

It is recommended to install countermeasures throughout Corridor 1 that will improve driver visibility. Reduced visibility was observed and is a concern throughout the corridor due to overgrown vegetation and the vertical crest of the road. To improve visibility, it is recommended to trim overgrown vegetation and install longitudinal rumble strips to the center striping of NE 23rd.

It is recommended to install retroreflective backplates to all traffic signals. Retroreflective backplates will improve traffic signal visibility for drivers allowing for a safer flow of traffic.

N Bryant Avenue Intersection

- Close the first driveway east of N Bryant Avenue in the southeast corner of the intersection

N Ray Avenue Intersection

- Install a concrete bus pad

N Coltrane Road Intersection

- Construct left-turn bays at this intersection along NE 23rd Street
- Once left-turn lanes are constructed traffic signals will need to be replaced as well as length of current traffic signal mast arms be reevaluated for the new intersection geometry
- Upgrade vehicle detection system to provide dilemma zone detection is provided

TABLE 24: COUNTERMEASURE CRASH MODIFICATION FACTORS FOR NE 23RD STREET

Countermeasure Crash Modification Factors for Corridor 1					
ID	Location	Recommendation	CMF ID	Countermeasure	CMF
1.1	Corridor	Retroreflective Backplates	1410	Add 3-inch yellow retroreflective sheeting to signal backplates	0.85
1.2	Corridor	Trim Vegetation	1024	Remove or relocate fixed objects outside of clear zone	0.62
1.3	Corridor	Longitudinal Rumble Strips	3346	Install centerline rumble strips	0.91
1.A.1	N Bryant Avenue	Driveway Consolidation	442	Closure or complete relocation of all driveways from functional area of intersection	0.93
1.B.1	N Ray Avenue	Concrete Bus Pad	N/A	Install a concrete bus pad	N/A
1.C.1	N Coltrane Road	Left Turn Bays	3948	Install left-turn lane	0.79
1.C.2	N Coltrane Road	Upgrade Vehicle Detection System	4854	Installation of an actuated advance warning dilemma zone protection system at high-speed signalized intersections	0.564

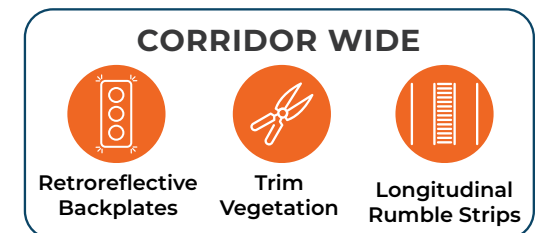
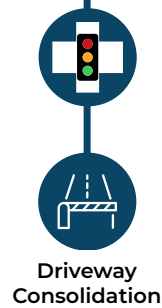
Table 24 summarizes the suggested countermeasures and crash modification factors (CMF). **Figure 40** summarizes all recommendations and countermeasures along NE 23rd Street.

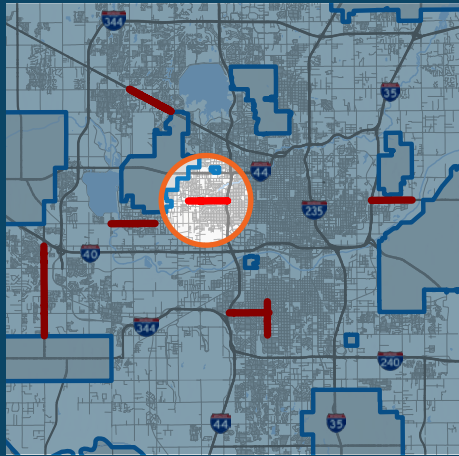
FIGURE 40: NE 23RD STREET RECOMMENDATIONS



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CORRIDOR 1: NE 23RD STREET FROM I 35 TO N BARTELL RD





CORRIDOR 2: NW 23RD STREET

Context

The NW 23rd Street Corridor (Corridor 2) is the section from N Ann Arbor Ave to N IH-44 that is 1.75 miles in length. This corridor is surrounded by mainly single-family residential with some commercial and higher density residential zones. This section of NW 23rd Street starts as a 4 lane undivided, switches to a 5-lane undivided with a center turn lane, and then back into a 4-lane undivided. N Ann Arbor Ave, N Meridian Ave, and N Portland Ave intersections have designated left turn lanes. Between Ridgcrest Dr and U.S. Bicycle Route 66 there is a raised median. This corridor experiences daily road volumes of 15,100, and has speed limits between 35 and 40 MPH.

Crash History

There were 342 total crashes on this section of NW 23rd Street between 2017-2021. Of these total crashes, 36 were KABs. Key takeaways for crash trends along Corridor 2 were the following:

93.6%

of KAB crashes were intersection-related

40.4%

The top manner of collision was rear-end crashes accounting for 138 of 342 total crashes

25.4%

Top contributing factor was "Failed to Yield or Stop" accounting for 87 of the 342 total crashes

Corridor Wide Recommendations

Access management could increase safety as well as to improve access to the corridor. It is recommended that the existing two-way left-turn lanes be converted into a raised median with channelized left-turn bays. To improve pedestrian access to transit it is recommended that the corridor be evaluated for midblock crossings leading to transit stops parking along the north side of the corridor between E Portland Avenue and N Ridgcrest Drive. To improve traffic safety, it is recommended that angled parking be converted to parallel parking and a concrete buffer be installed.

It is recommended to install retroreflective backplates to all traffic signals. Retroreflective backplates will improve traffic signal visibility for drivers allowing for a safer flow of traffic.



N Ann Arbor Avenue Intersection

- Install a flashing yellow arrow to signal heads
- Refresh pavement markings

N Sterling Avenue Intersection

- Enhance actuated pedestrian crossing

N Sterling Court Intersection

- Trim overgrown vegetation

N Minnie Lane Intersection

- Install ADA-compliant ramps
- Install pedestrian signals
- Stripe high visibility crosswalks

N Meridian Avenue Intersection

- Install a roundabout
- Close the collector opening at NW 19th Street
- Install lighting
- Install accessible pedestrian signals to pedestrian crossings

N Utah Avenue Intersection

- Refresh pavement markings

N Portland Avenue Intersection

- Stripe high visibility crosswalks on all approaches
- Install a pedestrian-scale luminaire pole on the northwest corner of the intersection
- Replace existing left-turn lane and flush median pavement markings along the east-west approaches with raised medians
- Limit driveway access within these left-turn lanes to right-in/right-out only
- Install entrance-only signage for the driveways along northbound N Portland Avenue just north of the northwest corner
- Install directional arrows in the parking areas

N Grand Boulevard Diamond Interchange

- Install east-west crosswalks on the north and south sides of NW 23rd Street on both sides of the interchange
- Install ADA-compliant curb ramps and pedestrian signals at both proposed crosswalks
- Straighten the current Bicycle Route 66 trail where it crosses NW 23rd Street on the west side of the N Grand Boulevard Interchange
- Remove the current trail crosswalk and the traffic island on the southwest corner of the interchange
- Extend the existing median along the west approach to provide a pedestrian refuge
- Shorten the curb radius for the existing eastbound right-turn lane so that the traffic signal would control the right-turn lane

TABLE 25: COUNTERMEASURE CRASH MODIFICATION FACTORS FOR NW 23RD STREET

Countermeasure Crash Modification Factors for Corridor 2					
ID	Location	Recommendation	CMF ID	Countermeasure	CMF
2.1	Corridor	Retroreflective Backplates	1410	Add 3-inch yellow retroreflective sheeting to signal backplates	0.85
2.2	Corridor	Left Turn Bays	279	Introduce raised/curb left-turn channelization	0.87
2.3	Corridor	Parking	163	Convert angle parking to parallel parking	0.65
2.4	Corridor	Midblock Crossing	11181	Presence of a pedestrian crosswalk at midblock locations	0.82
2.A.1	N Ann Arbor Ave	Pavement Markings	11280	Install contrast pavement markings	0.84
2.A.2	N Ann Arbor Ave	Flashing Yellow Arrow	7730	Install left turn flashing yellow arrow signals and supplemental traffic signs	0.857
2.B.1	N Sterling Ct	Trim Vegetation	1024	Remove or relocate fixed objects outside of clear zone	0.62
2.B.2	N Sterling Ave	Midblock Crossing	11181	Presence of a pedestrian crosswalk at midblock locations	0.82
2.B.3	N Sterling Ave	Pedestrian Hybrid Beacon	10585	Enhanced actuated pedestrian crossing	0.883
2.C.1	N Minnie Lane	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
2.D.1	N Meridian Ave	Close Collector	442	Closure or complete relocation of all driveways from functional area of intersection	0.93
2.D.2	N Meridian Ave	Roundabout (RAB)	4868	Conversion of intersection to roundabout	0.583
2.D.3	N Meridian Ave	Illumination	7776	Install lighting	0.68
2.D.4	N Meridian Ave	Pedestrian Signals	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
2.E.1	N Utah Ave	Pavement Markings	11280	Install contrast pavement markings	0.84



TABLE 25: COUNTERMEASURE CRASH MODIFICATION FACTORS FOR NW 23RD STREET (CONTINUED)

Countermeasure Crash Modification Factors for Corridor 2					
ID	Location	Recommendation	CMF ID	Countermeasure	CMF
2.F.1	N Portland Ave	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
2.F.2	N Portland Ave	Pedestrian Scale Luminaire	7776	Install lighting	0.68
2.F.3	N Portland Ave	Right In Right Out	9821	Install right-in-right-out (RIRO) operations at stop-controlled intersections	0.55
2.F.4	N Portland Ave	Raised Medians	2219	Install raised median	0.29
2.F.5	N Portland Ave	Entrance Only Signage	–	–	–
2.G.1	N Grand Blvd	Crosswalks	4123	Install high-visibility crosswalk	0.6
2.G.2	N Grand Blvd	Pedestrian Refuge	9120	Median treatment for ped/bike safety	0.86
2.G.3	N Grand Blvd	Pedestrian Signals	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
2.G.4	N Grand Blvd	Road Alignment	N/A	Adjust alignment to accommodate added RAB	N/A
2.G.5	N Grand Blvd	Curb Modifications	N/A	Adjust curbs to accommodate added RAB	N/A

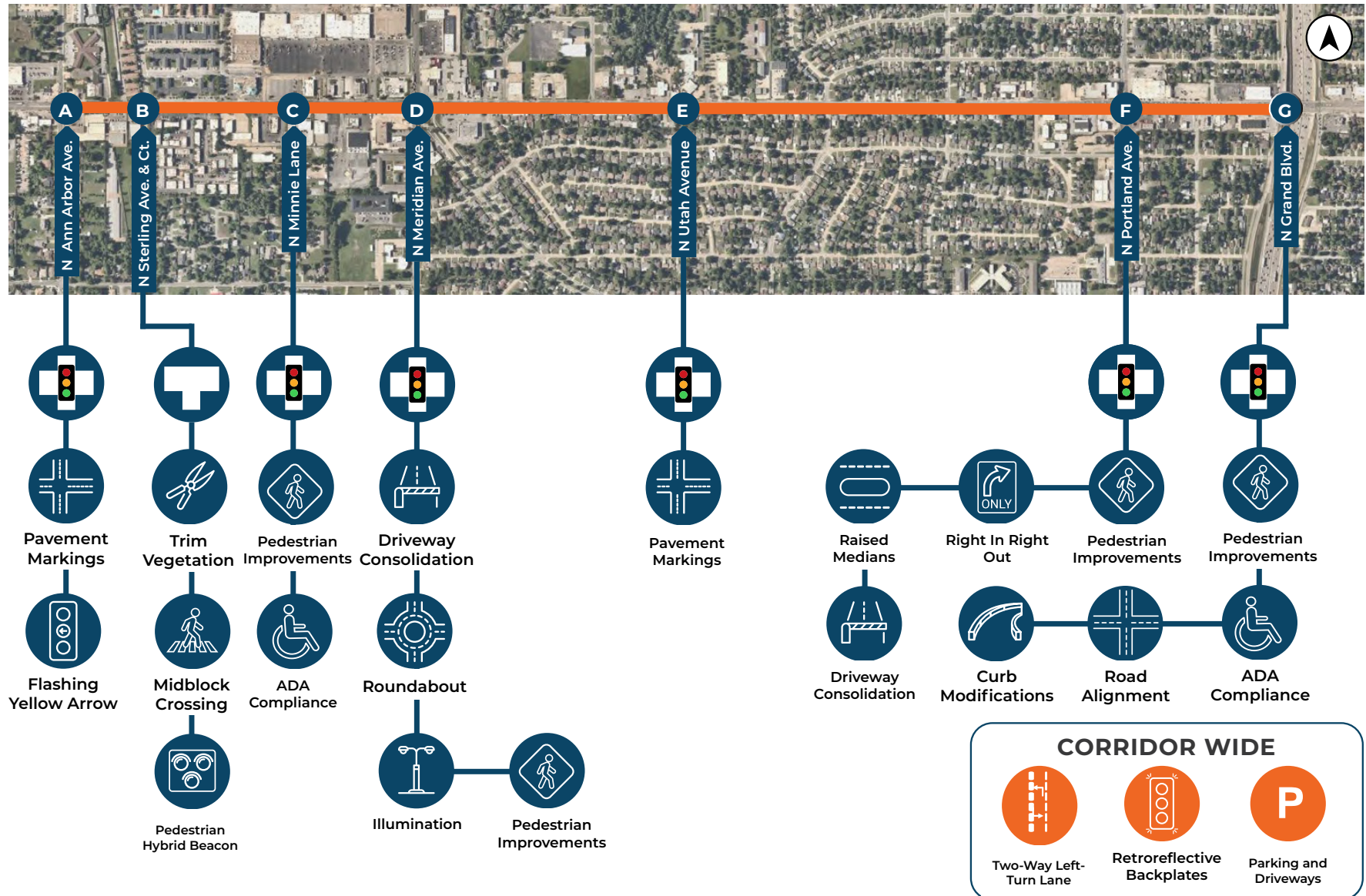
Table 25 summarizes the suggested countermeasures and crash modification factors (CMF). **Figure 41** summarizes all recommendations and countermeasures along NW 23rd Street.

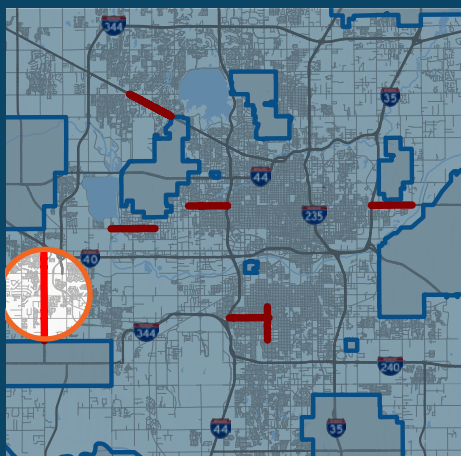
FIGURE 41: NW 23RD STREET RECOMMENDATIONS



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CORRIDOR 2: NW 23RD STREET FROM N ANN ARBOR AVE TO N I-44 HWY





CORRIDOR 3: S MUSTANG ROAD

Context

The S Mustang Road Corridor (Corridor 3) includes the segment between Reno Ave and SW 59th Street, that is 4 miles in length. Corridor 3 is located between a variety of different land use zones such as residential commercial, planned unit development, and agricultural. This section of S Mustang Road is primarily a 4-lane undivided with center turn lanes at various intersections and average daily traffic of 24,400. Speed limits for this corridor range from 45 MPH to 55 MPH.

Crash History

There were 561 total crashes on this section of S Mustang Road between 2017-2021. Of these total crashes, 67 were KABs. Key takeaways for crash trends along Corridor 3 were the following:

50.7%

of KAB crashes were intersection-related

48.6%

The top manner of collision was rear-end crashes accounting for 270 of 561 total crashes

30.5%

Top contributing factor was "Failed to Yield or Stop" accounting for 171 of the 561 total crashes

Corridor Wide Recommendations

The current cross-section along S Mustang Road is a four-lane undivided with narrow double-yellow centerline markings. To slow traffic, reduce lane departure, and increase overall safety throughout the corridor it is recommended to reduce lane widths by six inches to allow for wide (6-inch) double-yellow centerline markings with a center rumble strip.

W Reno Avenue Intersection

- Update pedestrian signals
- Stripe high visibility crosswalk
- Install ADA-compliant ramps

SW 5th Street Intersection

- Widen current intersection to provide dedicated left-turn lanes for northbound and southbound traffic
- Install a traffic signal
- Relocate the driveway for the current AAMCO business to align with the existing westbound SW 5th Street (implement after the intersection is signalized)

SW 15th Street Intersection

- Update pedestrian signals
- Stripe high-visibility crosswalks
- Install ADA-compliant curb ramps
- Base pedestrian clearance intervals on Institute of Transportation Engineers (ITE)-recommended best practices

SW 44th Street Intersection

- Refurbish lane markings at the SW 44th intersection
- Stripe high-contrast lane markings extending 500 feet from the intersection on north and south approaches
- Install lighting
- Update or replace traffic signals where necessary



TABLE 26: COUNTERMEASURE CRASH MODIFICATION FACTORS FOR S MUSTANG ROAD

Countermeasure Crash Modification Factors for Corridor 3					
ID	Location	Recommendation	CMF ID	Countermeasure	CMF
3.1	Corridor	Pavement Striping	11280	Install contrast pavement markings	0.84
3.A.1	W Reno Ave	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
3.A.2	W Reno Ave	Pedestrian Signals	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
3.B.1	SW 5th St	Traffic Signal Improvements	316	Install a traffic signal	0.86
3.B.2	SW 5th St	Dedicated Left Turn Lanes	3948	Install left-turn lane	0.79
3.B.3	SW 5th St	Driveway Relocation	442	Closure or complete relocation of all driveways from functional area of intersection	0.93
3.C.1	SW 15th St	Pedestrian Signals	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
3.C.2	SW 15th St	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
3.C.3	SW 15th St	Pedestrian Clearance Intervals	5252	Increase length of signal phases to allow for pedestrians more crossing time	0.49
3.D.1	SW 44th Street	High Contrast Lane Markings	11280	Install contrast pavement markings	0.84
3.D.2	SW 44th Street	Traffic Signal Improvements	316	Install a traffic signal	0.86
3.D.3	SW 44th Street	Illumination	7776	Install lighting	0.68

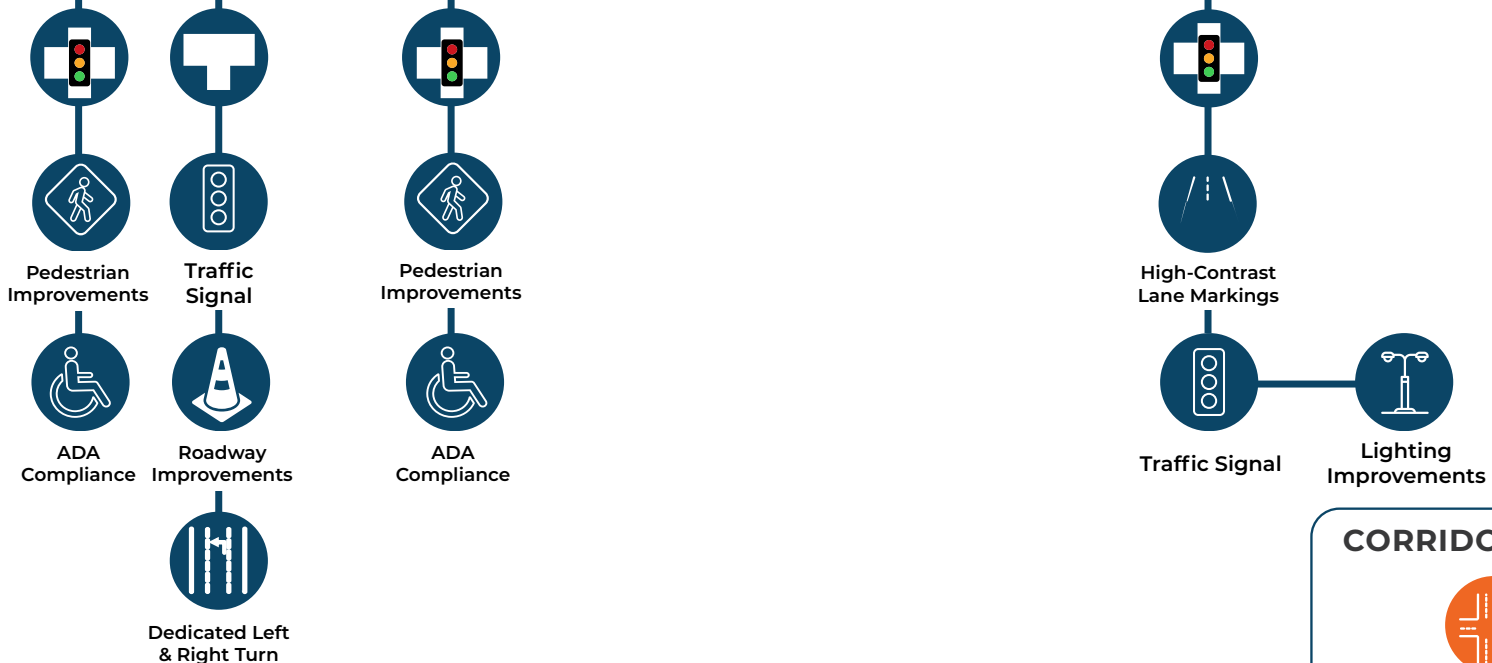
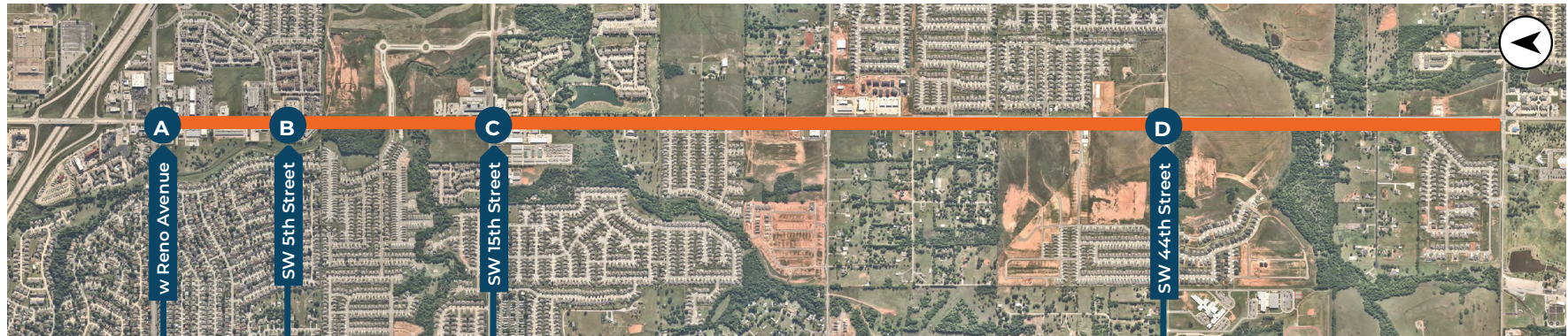
Table 26 summarizes the suggested countermeasures and crash modification factors (CMF). **Figure 42** summarizes all recommendations and countermeasures along S Mustang Road.

FIGURE 42: S MUSTANG ROAD RECOMMENDATIONS



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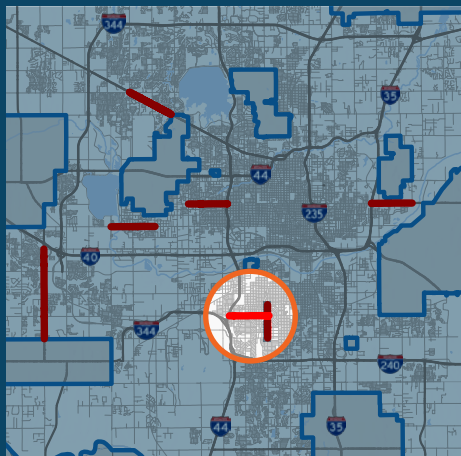
CORRIDOR 3: MUSTANG ROAD FROM W RENO AVE TO SW 59TH ST



CORRIDOR 4: SW 44TH STREET

Context

The SW 44th Street Corridor (Corridor 4) includes the segment between I 44 Northbound Frontage Road and Johnston Dr that is 1.77 miles in length and had daily traffic volumes of 10,700. This corridor is located between residential, commercial, and office land uses. This section of SW 44th Street has a speed limit of 40 MPH and is a 4-lane undivided road with designated left turn lanes at major intersections.



Crash History

There were 188 total crashes on this section of SW 44th Street between 2017-2021. Of these total crashes, 44 were KABs. Key takeaways for crash trends along Corridor 4 were the following:

100%

of KAB crashes were intersection-related

33.0%

The top manner of collision was rear-end crashes accounting for 62 of 188 total crashes

36.7%

Top contributing factor was "Failed to Yield or Stop" accounting for 69 of the 188 total crashes

Corridor Wide Recommendations

Due to the volume of traffic along this corridor it is recommended that the road be reconfigured from a four-lane undivided to a three lane – two through lanes with a center two-way left turn lane. This corridor's pedestrian and bicycle accessibility should be improved by installing a sidewalk on the south side of the corridor from S Agnew Street to S Pennsylvania Street. To improve visibility throughout the corridor it is recommended that updated lighting be installed, and high-contrast lane markings be striped along the corridor from S Ross Avenue to S Miller Avenue. Access management should also be addressed, driveways along the corridor from S May Avenue to S Ross Avenue need to be consolidated – priority given to those closest to the intersections.

It is recommended to install retroreflective backplates to all traffic signals. Retroreflective backplates will improve traffic signal visibility for drivers allowing for a safer flow of traffic.

I-44 Northbound Frontage Road Intersection

- Install a center turn lane to mitigate the lack of visibility due to the crest of the vertical curve at this intersection

S Independence Avenue Intersection

- Install additional lighting in the northeast corner
- Refresh pavement markings to improve visibility
- Update traffic signals to include a flashing yellow arrow
- Consolidate driveways near the intersection to reduce collision risk
- Install pedestrian bump-outs

S Land Avenue Intersection

- Install a midblock crossing

S May Avenue Intersection

- Update pedestrian signals
- Stripe high-visibility crosswalks
- Install ADA-compliant curb ramps

S Agnew Avenue Intersection

- Update existing left-turn yield on green ball symbol sign
- Close driveways closest to the intersection wherever possible



TABLE 27: COUNTERMEASURE CRASH MODIFICATION FACTORS FOR SW 44TH STREET

Countermeasure Crash Modification Factors for Corridor 4					
ID	Location	Recommendation	CMF ID	Countermeasure	CMF
4.1	Corridor	Retroreflective Backplates	1410	Add 3-inch yellow retroreflective sheeting to signal backplates	0.85
4.2	Corridor	Illumination	7776	Install lighting	0.68
4.3	Corridor	Sidewalks	11246	Install sidewalk	0.598
4.4	Corridor	Driveway Consolidation	442	Closure or complete relocation of all driveways from functional area of intersection	0.93
4.5	Corridor	Roadway Reconfiguration	2337	Install TWLTL (two way left turn lane) on two lane road	0.775
4.6	Corridor	High-Contrast Lane Markings	11280	Install contrast pavement markings	0.84
4.A.1	I-44 Frontage Rd	Center Turn Lane	2337	Install TWLTL (two way left turn lane) on two lane road	0.775
4.B.1	S Independence Rd	Flashing Yellow Arrow	7730	Install left turn flashing yellow arrow signals and supplemental traffic signs	0.857
4.B.2	S Independence Rd	Illumination	7776	Install lighting	0.68
4.B.3	S Independence Rd	Pedestrian Bump Outs	9120	Median treatment for ped/bike safety	0.86
4.B.4	S Independence Rd	Driveway Consolidation	442	Closure or complete relocation of all driveways from functional area of intersection	0.93
4.B.5	S Independence Rd	Pavement Markings	11208	Install contrast pavement markings	0.84
4.C.1	S Land Ave	Midblock Crossing	11181	Presence of a pedestrian crosswalk at midblock locations	0.82
4.D.1	S May Ave	Pedestrian Signals	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
4.D.2	S May Ave	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
4.E.1	S Agnew Ave	Traffic Signal Updates	4115	Increase cycle length for pedestrian crossing	0.5
4.E.2	S Agnew Ave	Driveway Consolidation	442	Closure or complete relocation of all driveways from functional area of intersection	0.93

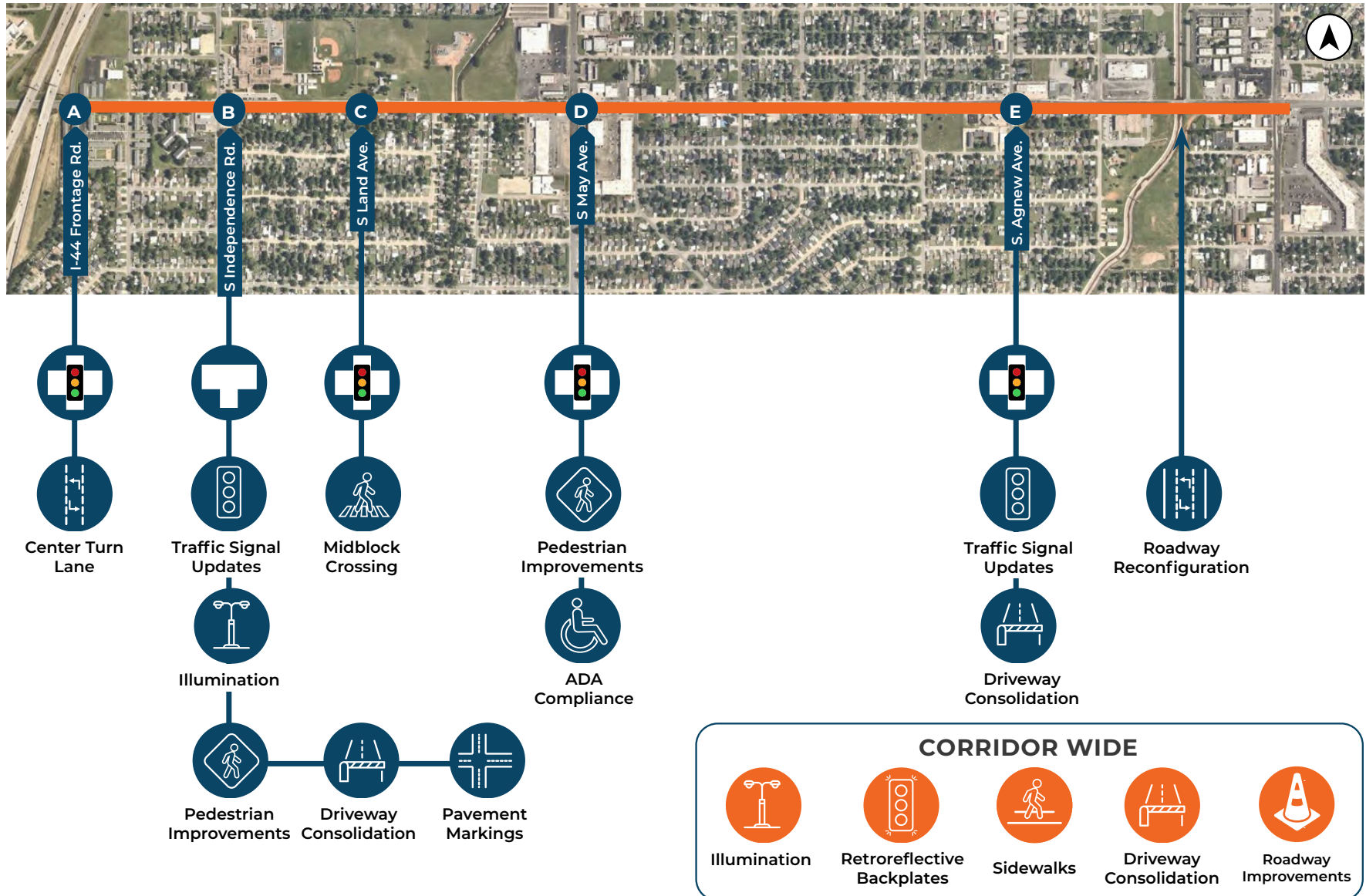
Table 27 summarizes the suggested countermeasures and crash modification factors (CMF). **Figure 43** summarizes all recommendations and countermeasures along SW 44th Street.

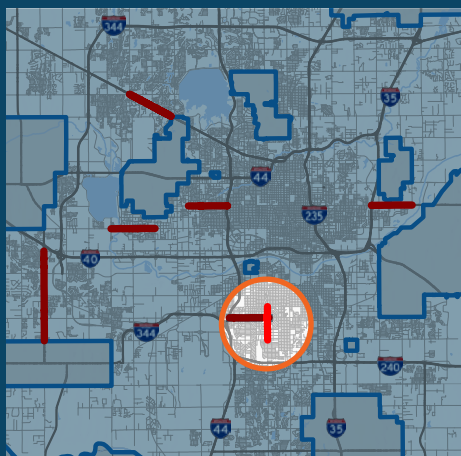
FIGURE 43: SW 44TH STREET RECOMMENDATIONS



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CORRIDOR 4: SW 44TH STREET FROM I-35 FRONTAGE RD TO JOHNSTON DR





CORRIDOR 5: S PENNSYLVANIA AVENUE

Context

The S Pennsylvania Avenue Corridor (Corridor 5) includes the segment from SW Grand Blvd to SW 59th St that is 1.49 miles in length. Corridor 5 is located between commercial and residential land uses. This section of S Pennsylvania is primarily a 4-lane undivided, but does have a median at SW Grand and a median with a center turn lane from one approach at both SW 59th and SW 44th St. This corridor experiences traffic volumes of 12,400 with a speed limit of 40 MPH.

Crash History

There were 229 total crashes on this section of S Pennsylvania Avenue between 2017-2021. Of these total crashes, 31 were KABs. Key takeaways for crash trends along Corridor 5 were the following:

100%

of KAB crashes were intersection-related

33.6%

The top manner of collision was rear-end crashes accounting for 77 of 229 total crashes

34.9%

Top contributing factor was "Failed to Yield or Stop" accounting for 80 of the 229 total crashes

Corridor Wide Recommendations

It is recommended that driveways be consolidated along the entire corridor, prioritizing closure of driveways closest to intersections. Reducing the number of potential points of conflict at an intersection by closing driveways will allow for drivers to better navigate intersections improving safety.

It is recommended to install retroreflective backplates to all traffic signals. Retroreflective backplates will improve traffic signal visibility for drivers allowing for a safer flow of traffic.

SW Grand Boulevard Intersection

- Install updated lighting
- Update pedestrian pavement markings
- Place medians leading to and within this intersection
- Installation of a “peanut-shaped” roundabout should be considered

SW 44th Street Intersection

- Update or replace traffic signals
- Review the yellow and all-red signal clearance intervals
- Replace the visor on the rightmost signal head

Entrance to U.S. Grant High School

- Expand the pedestrian traffic signal to include the driveway leading to U.S. Grant High School

SW 51st Street Intersection

- Realign the east approach to create a four-leg intersection

SW 59th Street Intersection

- Update pedestrian signals
- Stripe high-visibility crosswalks
- Install ADA-compliant curb ramps
- Install widened sidewalks or bike lanes



TABLE 28: COUNTERMEASURE CRASH MODIFICATION FACTORS FOR S PENNSYLVANIA AVENUE

Countermeasure Crash Modification Factors for Corridor 5					
ID	Location	Recommendation	CMF ID	Countermeasure	CMF
5.1	Corridor	Retroreflective Backplates	1410	Add 3-inch yellow retroreflective sheeting to signal backplates	0.85
5.2	Corridor	Driveway Consolidation	442	Closure or complete relocation of all driveways from functional area of intersection	0.93
5.A.1	SW Grand Blvd	Illumination	7776	Install lighting	0.68
5.A.2	SW Grand Blvd	Pedestrian Pavement Markings	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
5.A.3	SW Grand Blvd	Medians	2219	Install raised median	0.29
5.A.4	SW Grand Blvd	Roundabout	4868	Conversion of intersection to roundabout	0.583
5.B.1	SW 44th St	Traffic Signal Updates	316	Install a traffic signal	0.86
5.C.1	U.S. Grant HS	Pedestrian Traffic Signal	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
5.D.1	SW 51st St	Road Alignment	N/A	Adjust road alignment	N/A
5.E.1	SW 59th St	Pedestrian Signals	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
5.E.2	SW 59th St	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
5.E.3	SW 59th St	Widened Sidewalks	2197	Change sidewalk width from 4 to 6 feet (bike crashes)	–

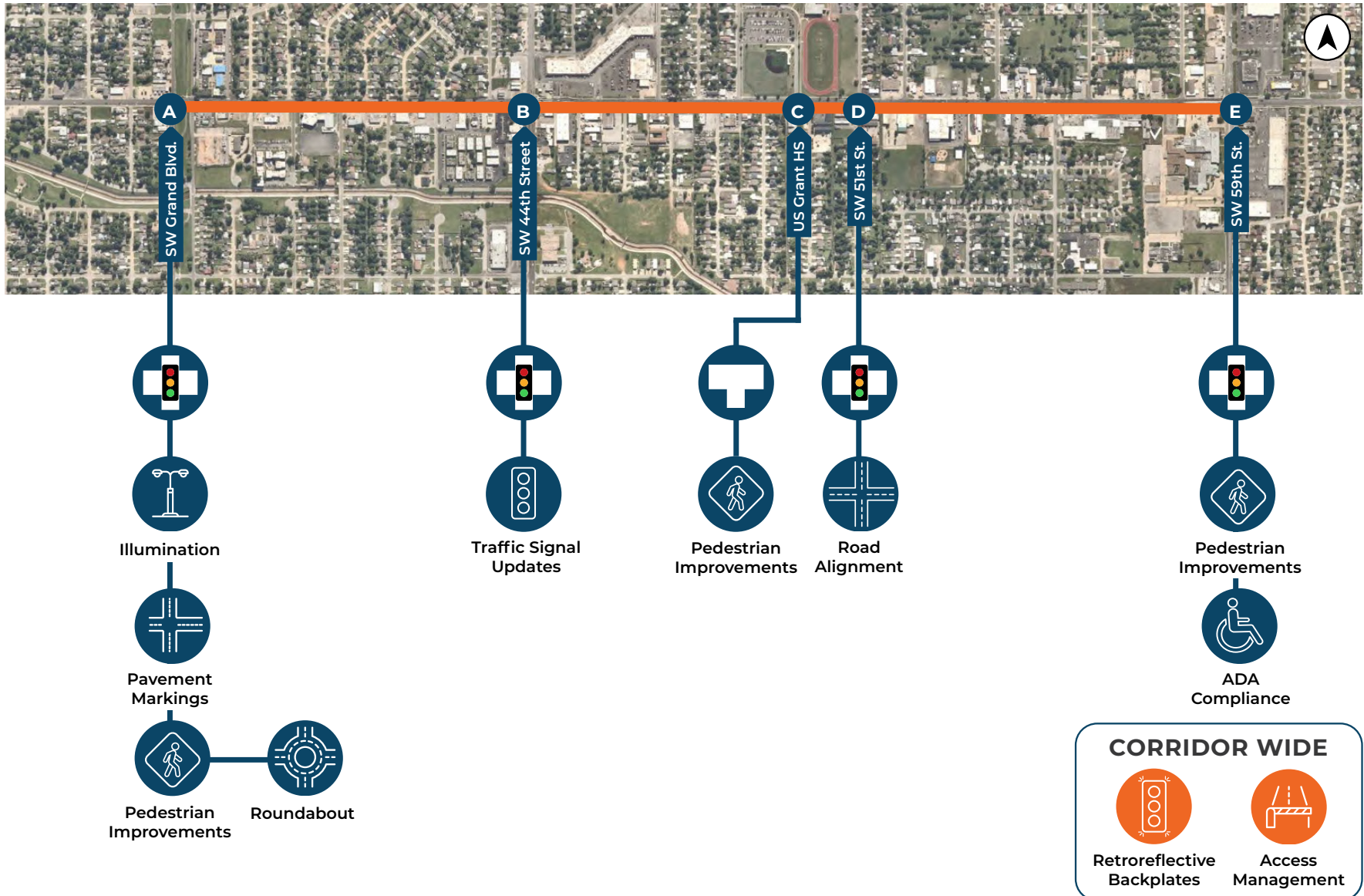
Table 28 summarizes the suggested countermeasures and crash modification factors (CMF). **Figure 44** summarizes all recommendations and countermeasures along S Pennsylvania Avenue.

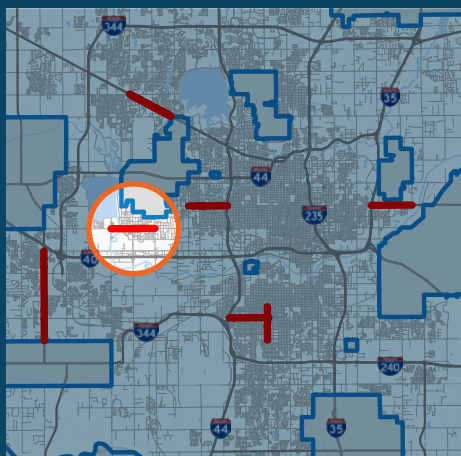
FIGURE 44: S PENNSYLVANIA AVENUE RECOMMENDATIONS



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CORRIDOR 5: S PENNSYLVANIA AVENUE FROM SW GRAND BLVD TO SW 59TH ST





CORRIDOR 6: NW 10TH STREET

Context

The NW 10th Street corridor (Corridor 6) includes the segment from County Line Rd to N Rockwell Ave that is 1.96 miles in length. This corridor is located between a variety of different land use zones. Zones include varying densities of residential, agricultural, planned unit development, and industrial. This section of NW 10th Street is a four-lane undivided road with center turn lanes at N Rockwell Ave, N Council Rd, and County Line Rd intersections. This corridor has a speed limit of 40 MPH and 45 MPH and average daily traffic volumes of 8,700.

Crash History

There were 180 total crashes on this section of NW 10th Street between 2017-2021. Of these total crashes, 25 were KABs. Key takeaways for crash trends along Corridor 6 were the following:

100%

of KAB crashes were intersection-related

38.3%

The top manner of collision was rear-end crashes accounting for 69 of 180 total crashes

22.8%

Top contributing factor was "Failed to Yield or Stop" accounting for 41 of the 180 total crashes

Corridor Wide Recommendations

This corridor is lacking sufficient access, it is recommended that the roadway be reconfigured from a four-lane undivided to a three-lane with a designated turning lane. Speed control is also a concern throughout this intersection; to mitigate this concern it is recommended to install speed management measures. Lastly, the corridor would benefit from installing updated lighting to improve visibility and safety.

It is recommended to install retroreflective backplates to all traffic signals. Retroreflective backplates will improve traffic signal visibility for drivers allowing for a safer flow of traffic.

County Line Road Intersection

- Consolidate driveways, focusing on closing driveways nearest to the intersection whenever possible
- Install high-contrast lane markings
- Implement measures to improve visibility for the right-turn lane
- Roadway reconfiguration to three lanes with a center turn lane and designated bike lanes

North Canadian River Bridge Intersection

- Widen existing sidewalk on the bridge

N Eagle Lane Intersection

- Stripe high-visibility crosswalks

N Council Road Intersection

- Upgrade street lighting
- Install sidewalks extending past the intersection
- Consolidate or relocate driveways wherever possible giving priority to driveways closest to the intersection

Driveways West of Glade Avenue Intersection

- Remove obstructing wall

Glade Avenue Intersection

- Install pavement markings to reduce dangers of limited vertical sight distance
- Install signage to reduce dangers of limited vertical sight distance
- Remove obstructions
- Install a pedestrian crosswalk
- Install stop bars

N Rockwell Avenue Intersection

- Install signal lighting
- Stripe high-visibility crosswalks



TABLE 29: COUNTERMEASURE CRASH MODIFICATION FACTORS FOR NW 10TH STREET

Countermeasure Crash Modification Factors for Corridor 6					
ID	Location	Recommendation	CMF ID	Countermeasure	CMF
6.1	Corridor	Retroreflective Backplates	1410	Add 3-inch yellow retroreflective sheeting to signal backplates	0.85
6.2	Corridor	Roadway Reconfiguration	2337	Install TWLTL (two way left turn lane) on two lane road	0.775
6.3	Corridor	Speed Management	6885	Install dynamic speed feedback sign	0.95
6.4	Corridor	Illumination	7776	Install lighting	0.68
6.A.1	County Line Rd	Driveway Consolidation	442	Closure or complete relocation of all driveways from functional area of intersection	0.93
6.A.2	County Line Rd	High Contrast Lane Markings	11280	Install contrast pavement markings	0.84
6.A.3	County Line Rd	Roadway Reconfiguration	2337	Install TWLTL (two way left turn lane) on two lane road	0.775
6.B.1	North Canadian River Bridge	Widen Sidewalk	2197	Change sidewalk width from 4–6 meters (bike crashes)	–
6.C.1	N Eagle Ln	High Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
6.D.1	N Council Rd	Driveway Consolidation	442	Closure or complete relocation of all driveways from functional area of intersection	0.93
6.D.2	N Council Rd	Illumination	7776	Install lighting	0.68
6.D.3	N Council Rd	Install Sidewalks	11246	Install sidewalk	0.598
6.E.1	Glade Ave	Remove Obstructing Wall	1024	Remove or relocate fixed objects outside of clear zone	0.62
6.E.2	Glade Ave	Crosswalk and Stop Bars	4123	Install high-visibility crosswalk	0.6
6.E.3	Glade Ave	Improved Vertical Sight Distance	720	Flatten crest vertical curve	0.8
6.F.1	N Rockwell Ave	Signal Lighting	316	Install a traffic signal	0.86
6.F.2	N Rockwell Ave	High Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6

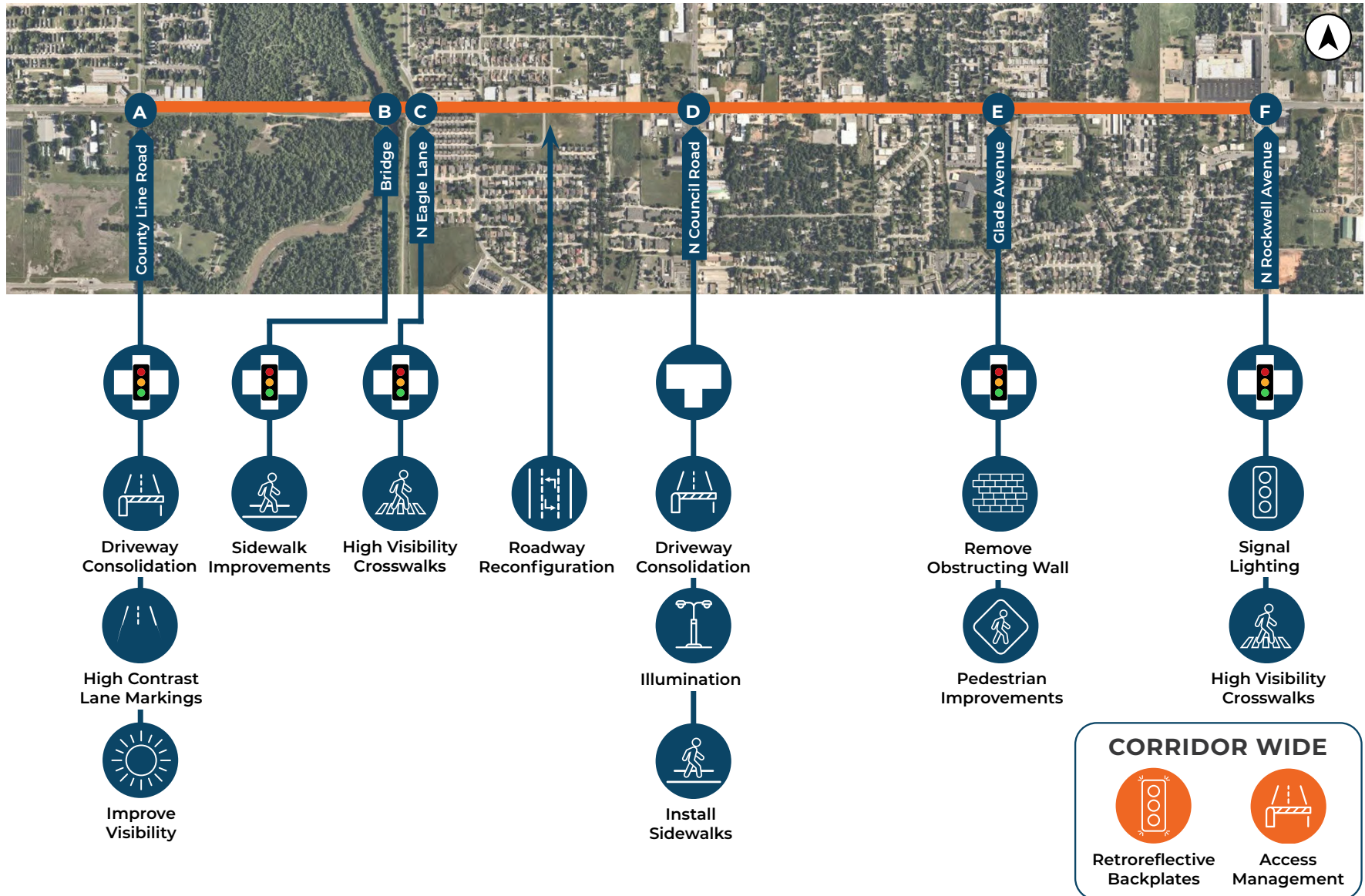
Table 29 summarizes the suggested countermeasures and crash modification factors (CMF). **Figure 45** summarizes all recommendations and countermeasures along NW 10th Street.

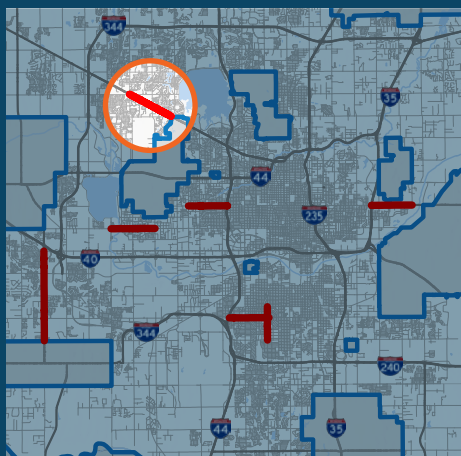
FIGURE 45: NW 10TH STREET RECOMMENDATIONS



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CORRIDOR 6: NW 10TH STREET FROM COUNTY LINE RD TO N ROCKWELL AVE





CORRIDOR 7: NW EXPRESSWAY

Context

The NW Expressway corridor (Corridor 7) includes the segment from N Council Rd to N Wilshire Blvd that is 2.1 miles long. This corridor is between commercial, industrial, residential, and planned unit development land use zones. This section of NW Expressway ranges between a six-lane divided and an eight-lane divided, six total through lanes and designated turn lanes. This corridor has average daily traffic of 18,000 and speed limits between 45 MPH and 50 MPH.

Crash History

There were 635 total crashes on this section of NW Expressway between 2017-2021. Of these total crashes, 42 were KABs. Key takeaways for crash trends along Corridor 7 were the following:

61.5%

of KAB crashes were intersection-related

49.0%

The top manner of collision was rear-end crashes accounting for 311 of 635 total crashes

27.9%

Top contributing factor was "Followed Too Close" accounting for 177 of the 635 total crashes

Corridor Wide Recommendations

This corridor was observed to have insufficient roadway accessibility, pedestrian infrastructure, and lighting. To increase roadway accessibility and traffic safety it is recommended to install medians with left-turn offsets as well as dedicated right turn lanes. To ensure safe travel for pedestrians it is recommended to install sidewalks and curbs. It is also recommended to install updated lighting throughout the entire corridor.

It is recommended to install retroreflective backplates to all traffic signals. Retroreflective backplates will improve traffic signal visibility for drivers allowing for a safer flow of traffic.

N Council Road Intersection

- Install a left turn lane
- Install updated pedestrian signals
- Stripe high-visibility crosswalks
- Install ADA-complaint curb ramps
- Upgrade drainage to accommodate pedestrian facilities

NW Passage Intersection

- Install updated pedestrian signals
- Stripe high-visibility crosswalks
- Install ADA-compliant curbs ramps
- Consider the installation of a no-right-turn-on-red sign
- Install a bus pad

Silver Crossing Intersection

- Explore lane reduction methods for this intersection.

Glade Avenue Intersection

- Install a dedicated right-turn lane

W Wilshire Boulevard Intersection

- Update the high-visibility crosswalk
- Increase signal crossing time

N Wilshire Boulevard Intersection

- Close the access point to NW Expressway just east of the traffic signal and pedestrian bridge at NW Wilshire Boulevard



TABLE 30: COUNTERMEASURE CRASH MODIFICATION FACTORS FOR NW EXPRESSWAY

Countermeasure Crash Modification Factors for Corridor 7					
ID	Location	Recommendation	CMF ID	Countermeasure	CMF
7.1	Corridor	Retroreflective Backplates	1410	Add 3-inch yellow retroreflective sheeting to signal backplates	0.85
7.2	Corridor	Medians with left-turn offsets	279	Introduce raised/curb left-turn channelization	0.87
7.3	Corridor	Right -turn lanes	5650	Install right-turn lane	0.7
7.4	Corridor	Sidewalks	11246	Install sidewalk	0.598
7.5	Corridor	Curbs	2375	Install curb and gutter	0.89
7.6	Corridor	Illumination	7776	Install lighting	0.68
7.A.1	N Council Rd	Left Turn Lane	3948	Install left-turn lane	0.79
7.A.2	N Council Rd	Drainage Updates	2375	Install curb and gutter	0.89
7.A.3	N Council Rd	Pedestrian Signals	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
7.A.4	N Council Rd	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
7.B.1	NW Passage	Pedestrian Signals	8967	Implement systemic signing and visibility improvements at signalized intersections	0.732
7.B.2	NW Passage	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
7.B.3	NW Passage	No Right-on-Red Signage	5194	Prohibit right-turn-on-red	–
7.B.4	NW Passage	Bus Pad	N/A	Install concrete bus pad	N/A
7.C.1	Silver Crossing	Road Reconfiguration	2841	–	0.53
7.D.1	Glade Ave	Right Turn Lane	5650	Install right-turn lane	0.7
7.E.1	W Wilshire Blvd	High-Visibility Crosswalks	4123	Install high-visibility crosswalk	0.6
7.E.2	W Wilshire Blvd	Increased Pedestrian Crossing Time	5252	Increase length of signal phases to allow for pedestrians more crossing time	0.49
7.F.1	N Wilshire Blvd	Access Management	442	Closure or complete relocation of all driveways from functional area of intersection	0.93

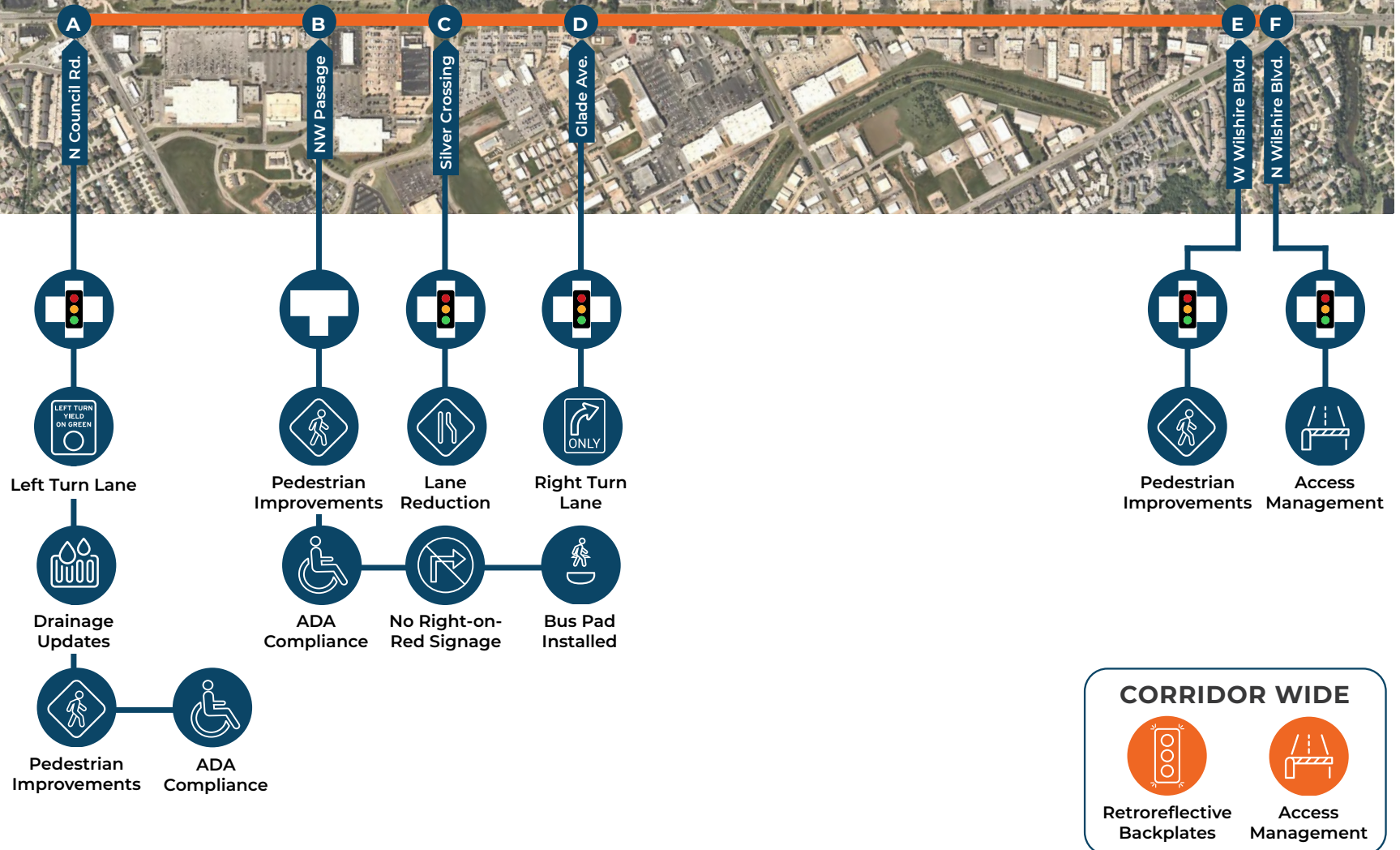
Table 30 summarizes the suggested countermeasures and crash modification factors (CMF). **Figure 46** summarizes all recommendations and countermeasures along NW Expressway.

FIGURE 46: NW EXPRESSWAY RECOMMENDATIONS



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CORRIDOR 7: NW EXPRESSWAY FROM N COUNCIL RD TO N WILSHIRE BLVD





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COUNTERMEASURE EXHIBITS

NE 23RD ST & N COLTRANE RD – SIGNALIZED INTERSECTION

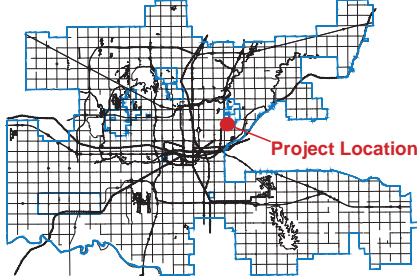
A redesigned signalized intersection could improve roadway and pedestrian safety at this intersection. Since this intersection and the roadway leading to this intersection has been the location of numerous KAB crashes, it is pertinent to improve the geometry and pedestrian facilities at this intersection. Removal of channelized turn islands on the north side of the intersection will aide in current sight-distance issues for drivers. Widening the intersection to add left-turn lanes and a westbound right-turn will allow drivers to safely decelerate and move out of thru-traffic lanes to make a turning movement. Addition of pedestrian facilities, including new pavement markings, ADA-compliant curb ramps, and pedestrian signals, will allow pedestrians to safely cross all sides of this intersection. An upgraded vehicle detection system will ensure dilemma zone detection.

SAFETY COUNTERMEASURES

NE 23rd St & N Coltrane Rd - Signalized Intersection

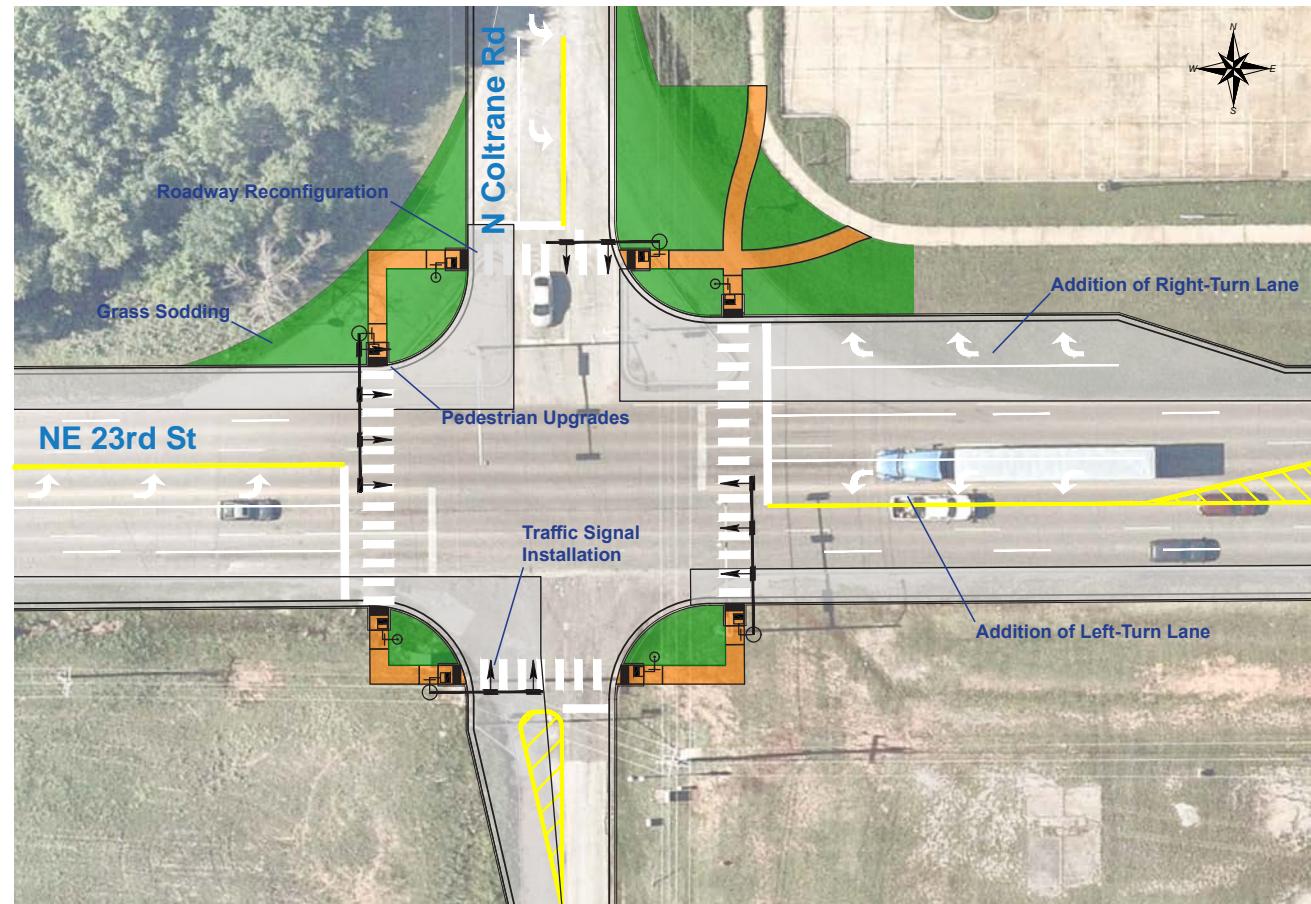


Key Map - Oklahoma City Limits



Legend

- Concrete Pavement
- Sidewalk
- Landscaping (Sod)
- Median
- Pavement Markings
- Bike Lane Marking
- Tactile Warning Device
- Pedestrian Signal Pole
- Traffic Signal Pole
- Rectangular Rapid Flashing Beacon
- Ground Mounted Sign



NW 23RD ST & N STERLING AVE – PHB PEDESTRIAN CROSSING

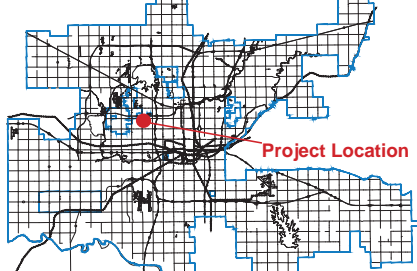
The location of public bus stop across the street from desired locations, including apartments, laundromats, and retail, has resulted in many pedestrians crossing NW 23rd St at unmarked crossing points. These unsafe movements have resulted in both fatal and serious injury crashes involving pedestrians. Installation of Pedestrian Hybrid Beacon (PHB) at a midblock location near these bus stops will provide pedestrians a safe and accessible street crossing. This midblock crossing will also improve pedestrian facilities by ensuring sidewalks and curb ramps are ADA compliant. The type of enhanced actuated pedestrian signal, either a PHB or RRFB (Rectangular Rapid Flashing Beacon), depends on roadway characteristics and posted speed limit. With a posted speed limit of 40 mph, a PHB signal is the most appropriate choice at this location. If the signal system along this corridor is coordinated, the PHB should be properly coordinated within the system.

SAFETY COUNTERMEASURES

NW 23rd St & N Sterling Ave - RRFB Pedestrian Crossing

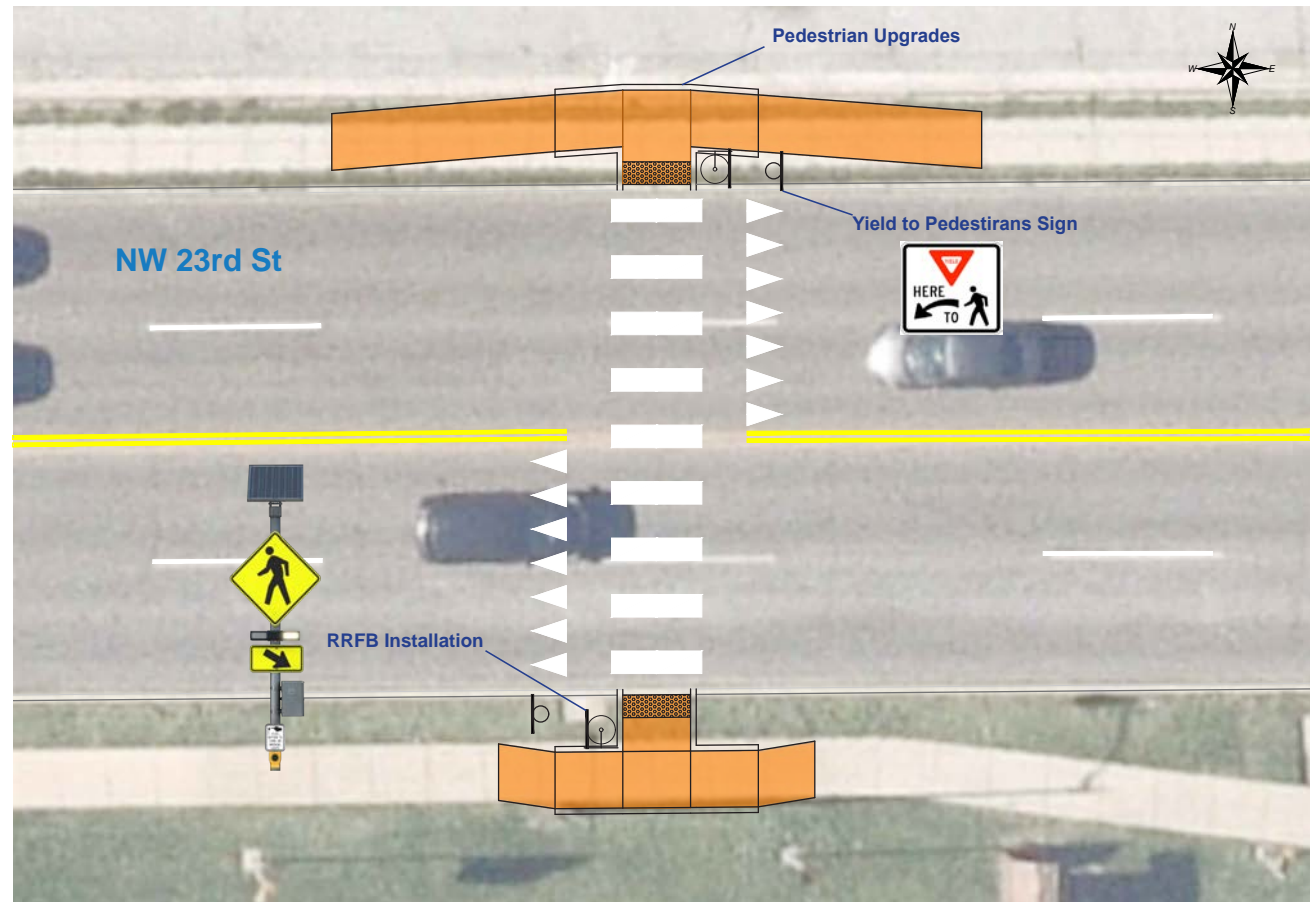


Key Map - Oklahoma City Limits



Legend

- Concrete Pavement
- Sidewalk
- Landscaping (Sod)
- Median
- Pavement Markings
- Bike Lane Marking
- Tactile Warning Device
- Pedestrian Signal Pole
- Traffic Signal Pole
- Rectangular Rapid Flashing Beacon
- Ground Mounted Sign



N MERIDIAN AVE & NW 23RD ST – ROUNDABOUT

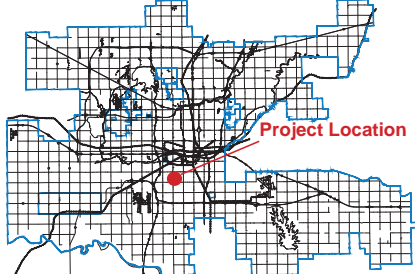
It is recommended to consider redesign of the intersection to a multi-lane roundabout. This new roundabout will increase traffic safety by safely slowing traffic, as well as increasing pedestrian safety. This intersection location is an ideal candidate for a roundabout due to the small amount of ROW procurement necessary to construct the design. The southeast corner of the intersection, owned by the City of Oklahoma City, provides flexibility to adjust the design, minimizing the need to encroach on significant portions of privately owned land. This roundabout design will close two openings to NW 19th St on the southeast side of the intersection to mitigate vehicle conflicts. Enhanced actuated pedestrian crossings will be installed at all pedestrian crossing to ensure that pedestrian crossing safety is the highest possible.

SAFETY COUNTERMEASURES

N Meridian Ave & NW 23rd St - Roundabout

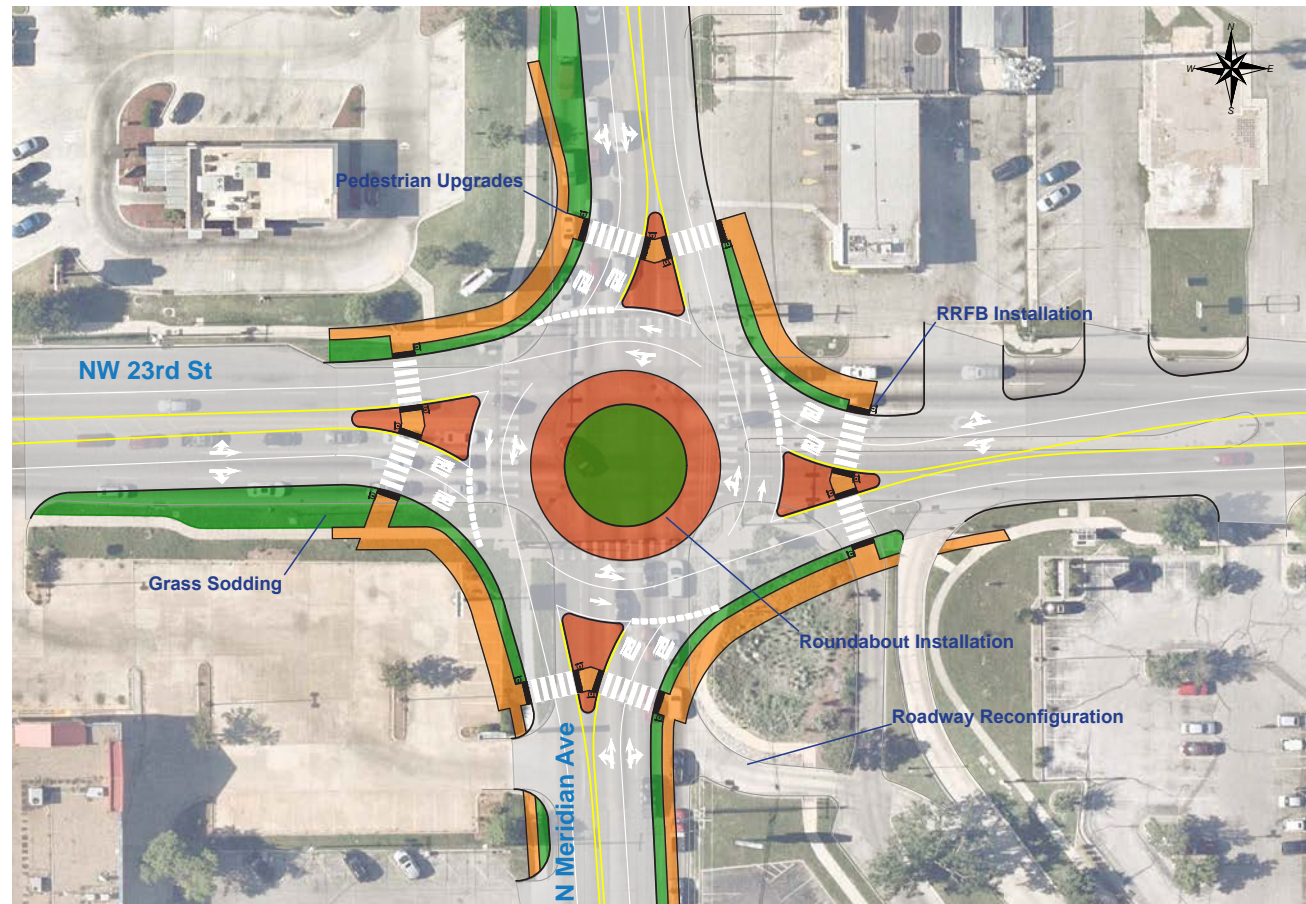


Key Map - Oklahoma City Limits



Legend

- Concrete Pavement
- Sidewalk
- Landscaping (Sod)
- Median
- Pavement Markings
- Bike Lane Marking
- Tactile Warning Device
- Pedestrian Signal Pole
- Traffic Signal Pole
- Rectangular Rapid Flashing Beacon
- Ground Mounted Sign



NW 23RD ST – ACCESS MANAGEMENT

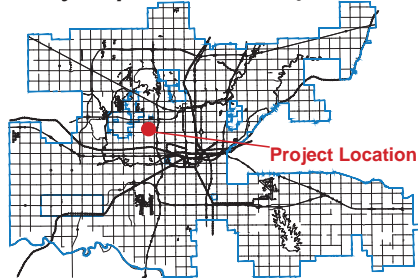
Introduction of access management along NW 23rd St will reduce dangerous driving maneuvers by drivers attempting to enter and exist driveways, as well as improving traffic flow by limiting turning options along the corridor. The type of access management that is recommended includes consolidating and relocating existing driveways. Driveways that are near intersections should be either be shrunk or relocated. Cross-access agreements between current and future developments with shared driveways is recommended. The installation of a raised center median that restricts the turning movements around the existing left-turn lane is recommended. This median installation will limit driveway access to right-in/right-out only. Additionally, entrance-only signs should be installed for the driveway along northbound N Portland Ave and directional pavement marking arrows to be installed.

SAFETY COUNTERMEASURES

NW 23rd St - Access Management

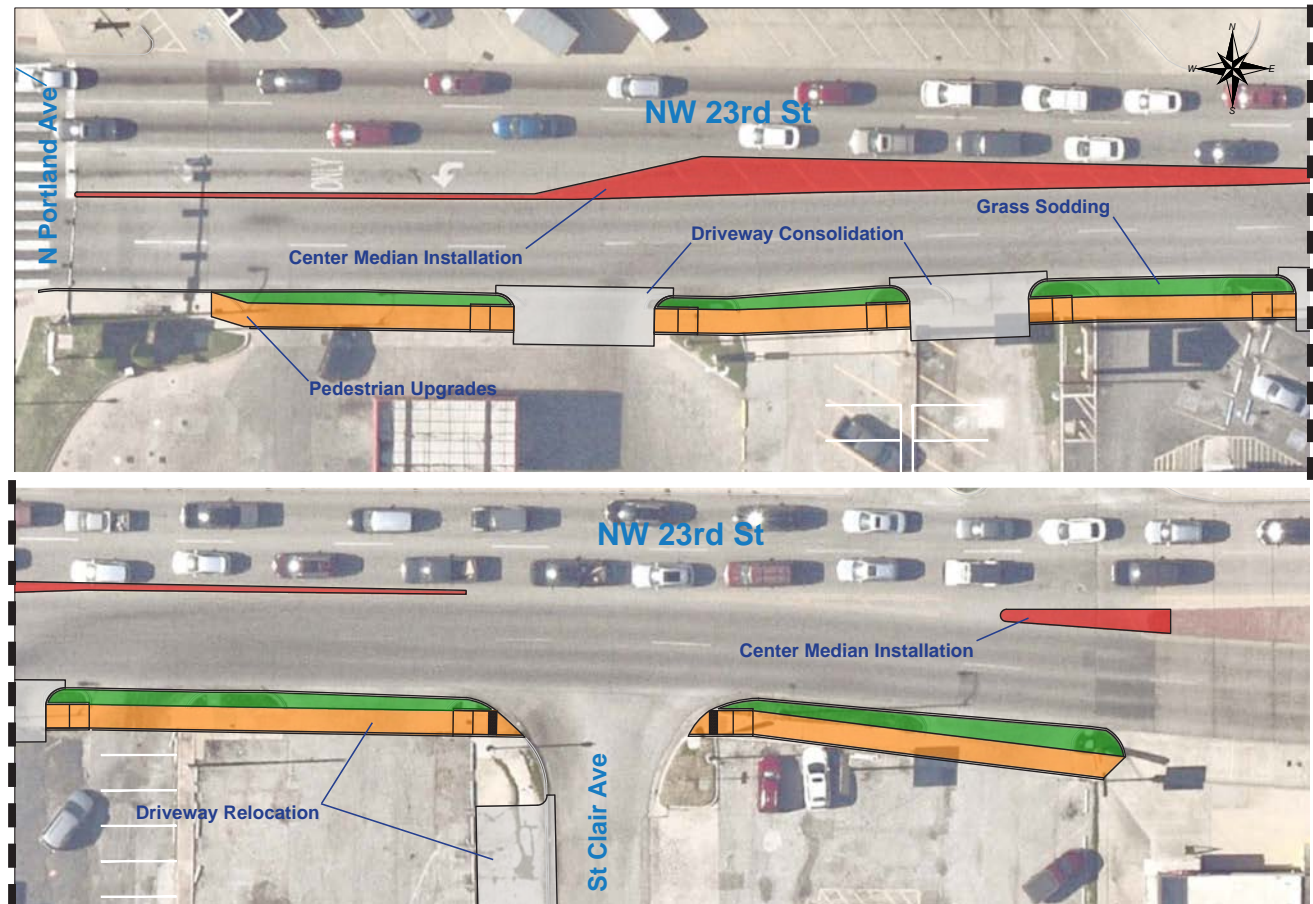


Key Map - Oklahoma City Limits



Legend

- Concrete Pavement
- Sidewalk
- Landscaping (Sod)
- Median
- Pavement Markings
- Bike Lane Marking
- Tactile Warning Device
- Pedestrian Signal Pole
- Traffic Signal Pole
- Rectangular Rapid Flashing Beacon
- Ground Mounted Sign

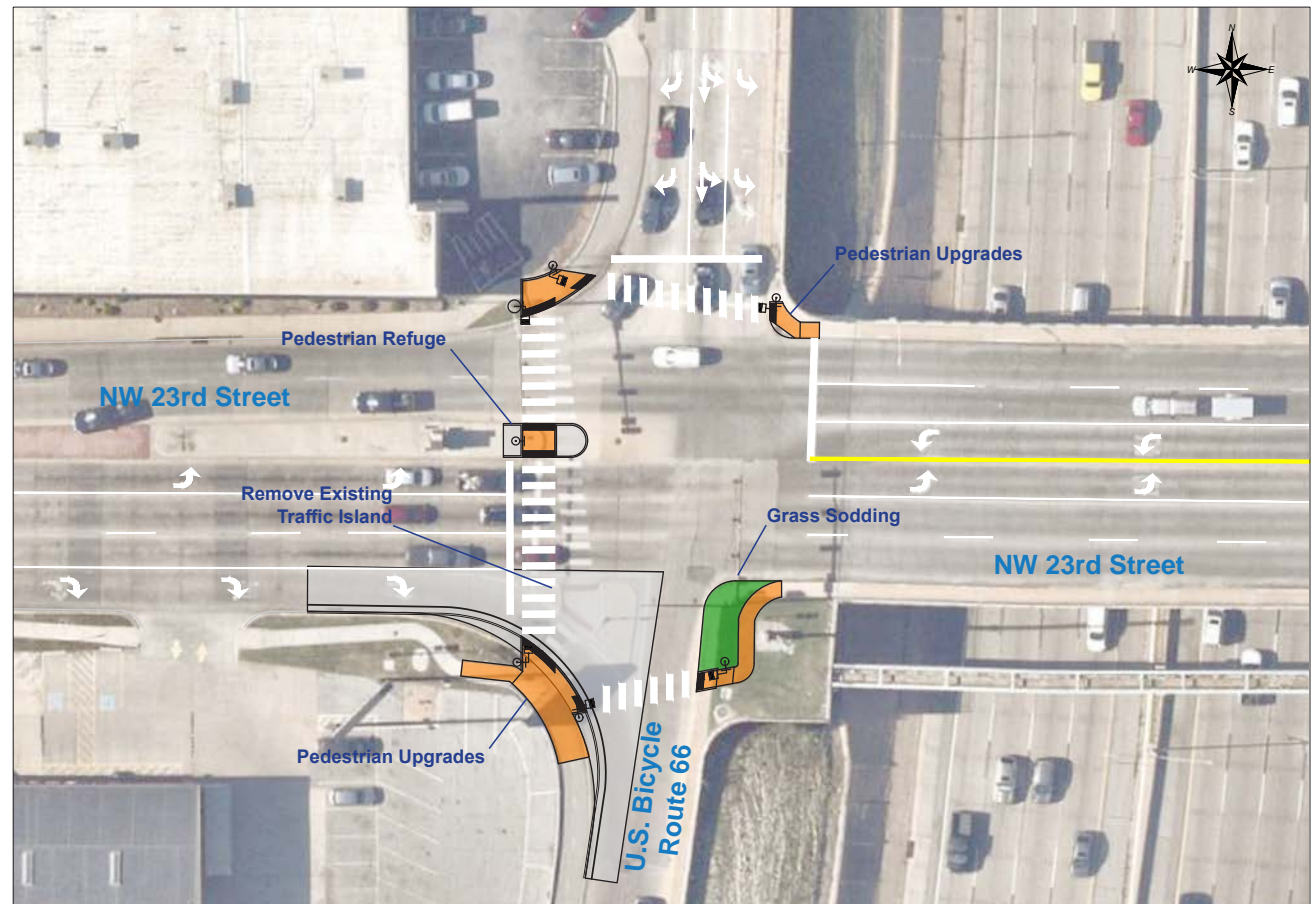
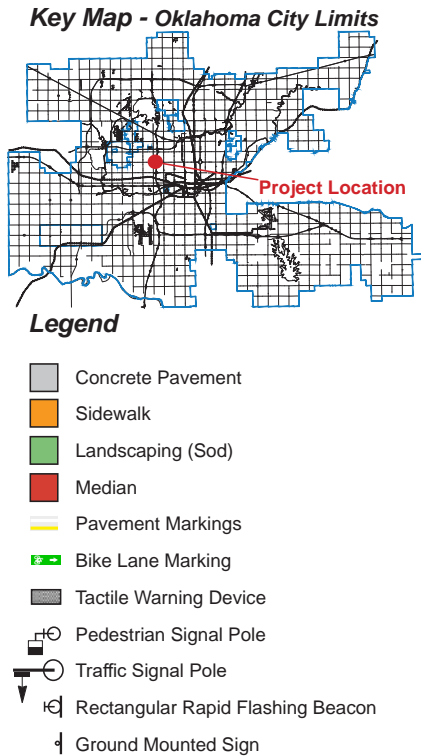


NW 23RD & N GRAND BLVD – DIAMOND INTERCHANGE

Several pedestrian improvements have been identified for the N Grand Boulevard diamond interchange to enhance the safety of vulnerable road users. It is recommended that east-west crosswalks be installed on the north and south sides of NW 23rd St on both sides of the interchange. Additionally, both intersections require ADA-compliant curb ramps and pedestrian signals to accommodate the proposed crosswalk. Due to the presence of US Bicycle Route 66 on the west side of the interchange, which crosses NW 23rd St, there are several recommendations that could help create a safer bicycling facility. The current trail crosswalk and traffic island on the southwest corner of the interchange should be removed and replaced with the extension of the existing median along the west approach to provide a pedestrian refuge. To accommodate this update, the current US Bicycle Route 66 trail should be straightened where it crosses NW 23rd Street. Finally, the curb radius for the existing eastbound right-turn lane needs to be shortened, and the traffic signal would control the right-turn lane. These recommended updates would aid in creating a safer crossing environment for all users.

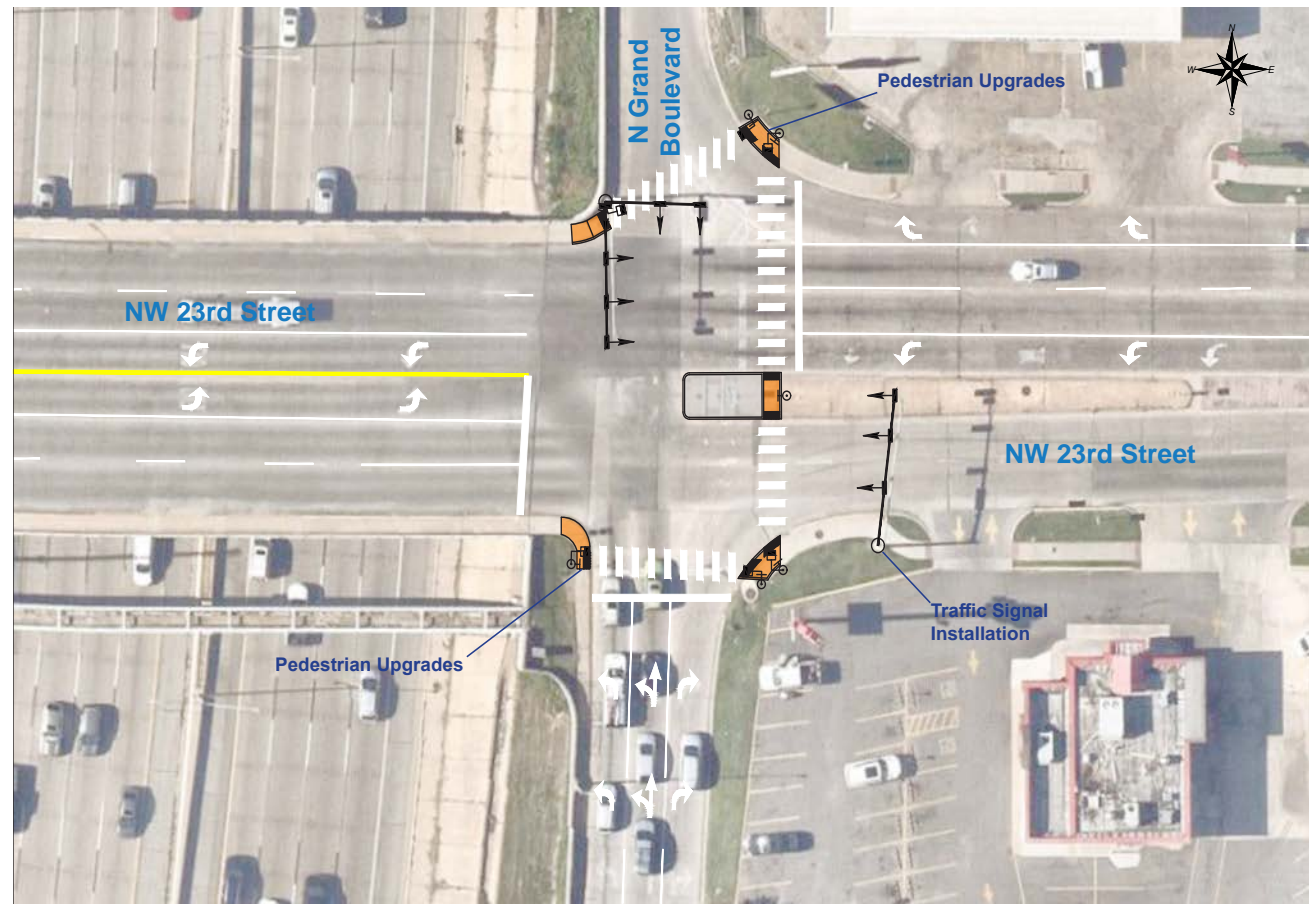
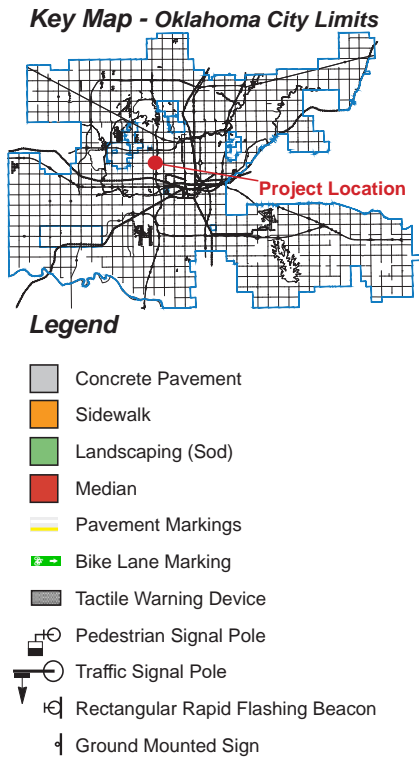
SAFETY COUNTERMEASURES

NW 23rd St & N Grand Boulevard - Diamond Interchange (1 of 2)



SAFETY COUNTERMEASURES

NW 23rd St & N Grand Boulevard - Diamond Interchange (2 of 2)





S MUSTANG RD & SW 5TH ST – SIGNALIZED INTERSECTION

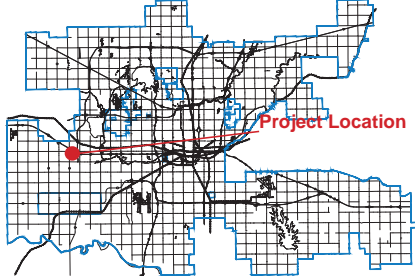
A new signalized intersection, targeted roadway improvements, and pedestrian improvements are recommended at the intersection of S Mustang Rd & SW 5th St. This new signalized intersection will include roadway widening to accommodate the addition of dedicated left-turn lanes for northbound and southbound traffic. The addition of curb medians for the northbound and southbound turn lanes will add additional safety for drivers and control turning access. Aligning the existing AAMCO driveway with SW 5th St allows this to be a proper four-leg intersection. Addition of pedestrian facilities, including new pavement markings, ADA compliant curb ramps, and pedestrian signals will provide safe pedestrian crossings at all sides of this intersection.

SAFETY COUNTERMEASURES

S Mustang Rd & SW 5th St - Signalized Intersection

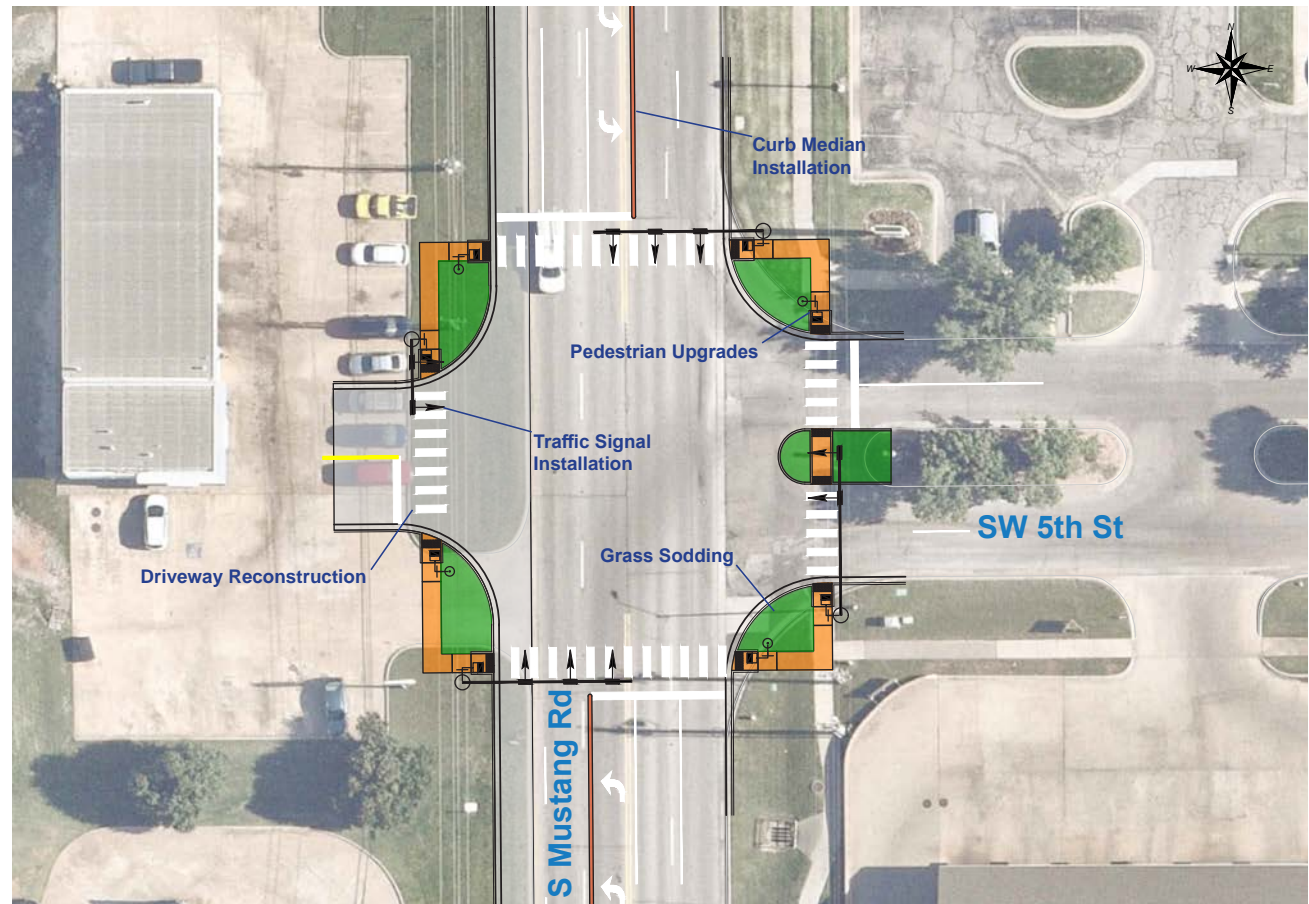


Key Map - Oklahoma City Limits



Legend

- Concrete Pavement
- Sidewalk
- Landscaping (Sod)
- Median
- Pavement Markings
- Bike Lane Marking
- Tactile Warning Device
- Pedestrian Signal Pole
- Traffic Signal Pole
- Rectangular Rapid Flashing Beacon
- Ground Mounted Sign





S PENNSYLVANIA AVE & SW GRAND BLVD/SW 36TH ST – ROUNDABOUT

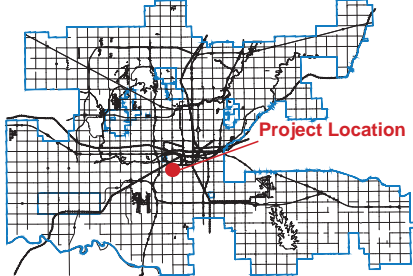
It is recommended to consider redesign of the intersection to a multi-lane, “peanut-shaped” roundabout. This new roundabout will increase traffic safety by safely slowing traffic, as well as increasing pedestrian safety. This location is ideal for a roundabout due to the current two-signal set-up for the north and south terminals of the intersection. The current configuration of the S Grand Blvd trail bisecting the two signals with little marking or warning provides a confusing and unsafe crossing locations for drivers, pedestrians, and cyclists. The recommended trail configurations routes users around the exterior of the roundabout with enhanced actuated pedestrian crossings are recommended to be installed at all pedestrian crossings to provide safe crossing locations.

SAFETY COUNTERMEASURES

S Pennsylvania Ave & SW Grand Blvd/SW 36th St - Roundabout

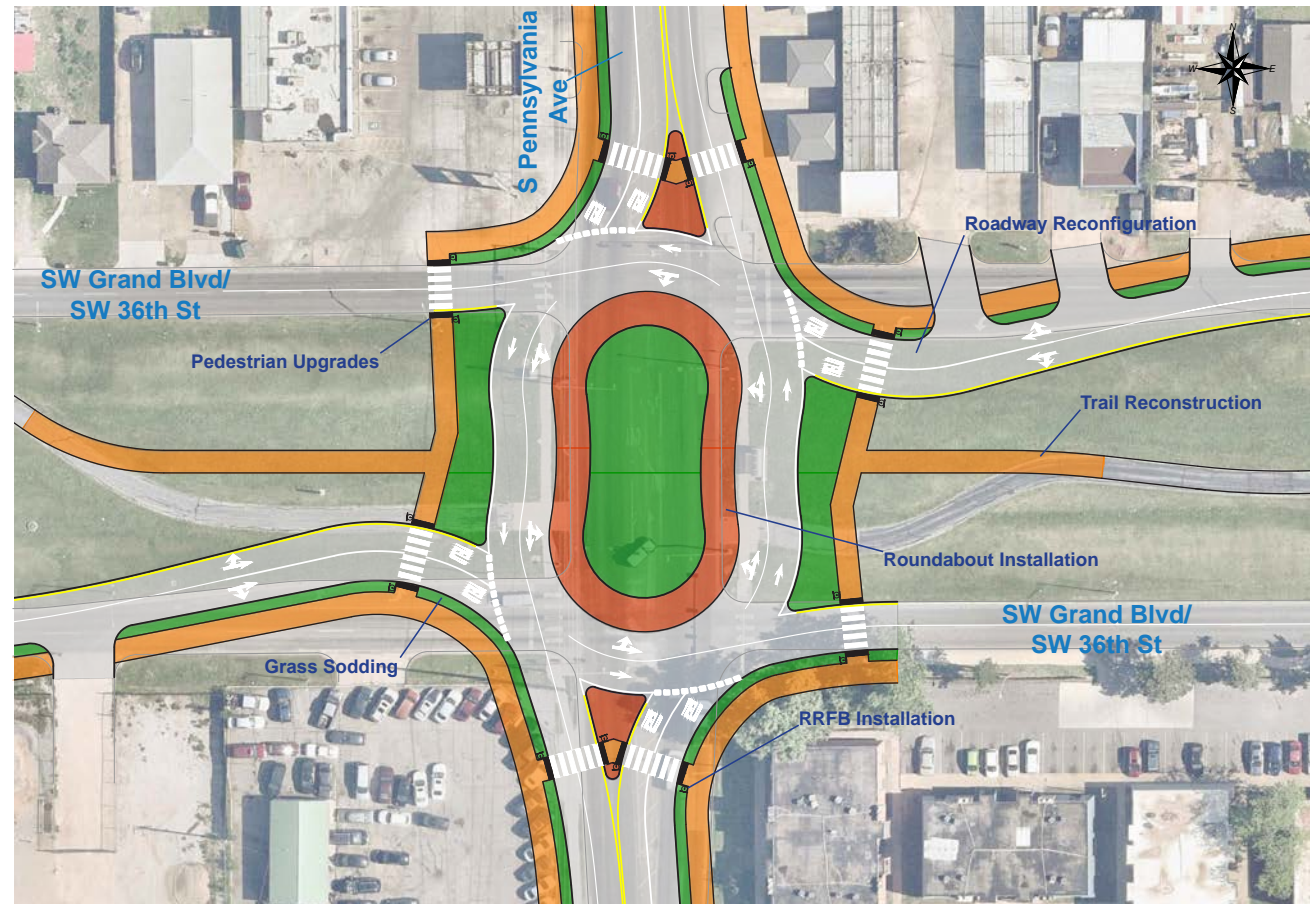


Key Map - Oklahoma City Limits



Legend

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- Ground Mounted Sign





S PENNSYLVANIA AVE & U.S. GRANT HIGH SCHOOL – SIGNALIZED INTERSECTION

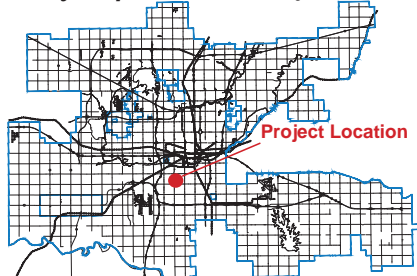
The upgrade of the current pedestrian signal to a fully signalized intersection is recommended. Currently, a pedestrian signal is active approximately 30' north of a main entrance to U.S. Grant High School. Signalizing this entrance to the school will maintain a safe pedestrian crossing locations, as well as providing drivers attempting to enter and exit this entrance with signal protected movements. Relocating the commercial driveway across the street to align with the U.S. Grant High School entrance is necessary to create a proper 4-leg intersection. Upgrades of all pedestrian facilities, including new pavement markings, ADA compliant curb ramps, and pedestrian signals will provide safe pedestrian movements at all sides of this new intersection.

SAFETY COUNTERMEASURES

S Pennsylvania Ave & U.S. Grant High School - Signalized Intersection

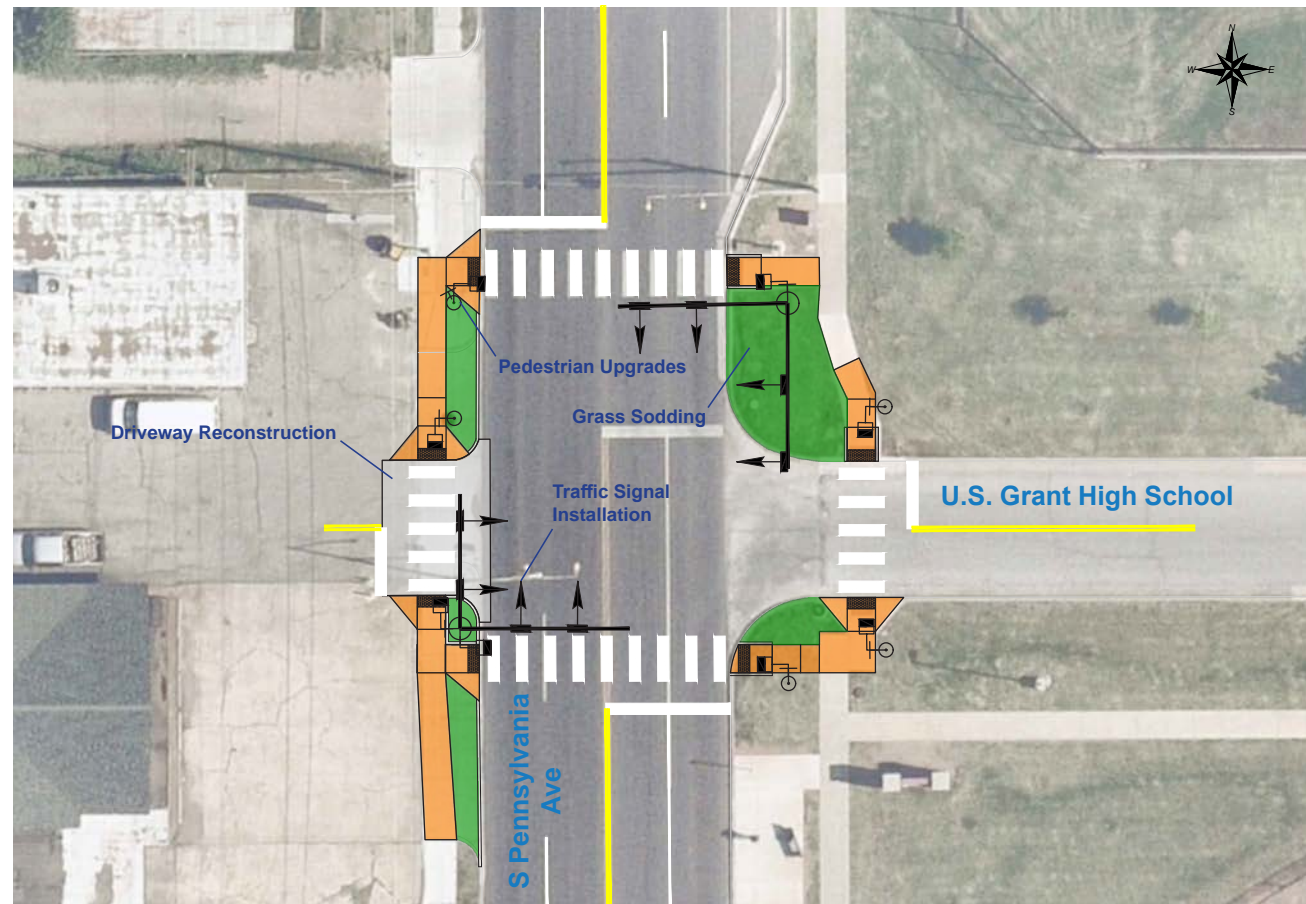


Key Map - Oklahoma City Limits



Legend

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- Traffic Signal Pole
- Rectangular Rapid Flashing Beacon
- Ground Mounted Sign





S PENNSYLVANIA AVE & SW 51ST ST – SIGNALIZED INTERSECTION

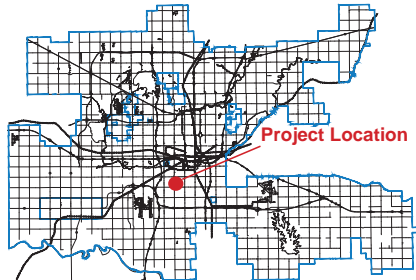
The realignment of the east-west approach along SW 51st St and the creation of a signalized intersection will improve the operations and safety at this location. The current roadway configuration results in several conflicting traffic patterns, including drivers attempting to travel east-west along SW 51st St and drivers attempting to turn left on to SW 51st St from S Pennsylvania Ave. The realignment and reconstruction of SW 51st east of S Pennsylvania Ave will utilize the vacant land currently owned by Oklahoma City Public Schools. This reconstruction will extend the yards and driveways of the homeowners along the south and construct new sidewalk on both sides of the street. This intersection is also a location where the closest pedestrian crossing across S Pennsylvania Ave is over 500 ft away, and where fatal crashes including drivers, pedestrians, and cyclist have occurred. Providing a realigned, signalized intersection with new pedestrian facilities, including pavement markings, ADA-compliant curb ramps, and pedestrian signals, will provide a much safer and accessible intersection for all users.

SAFETY COUNTERMEASURES

S Pennsylvania Ave & SW 51st St - Signalized Intersection (1 of 2)

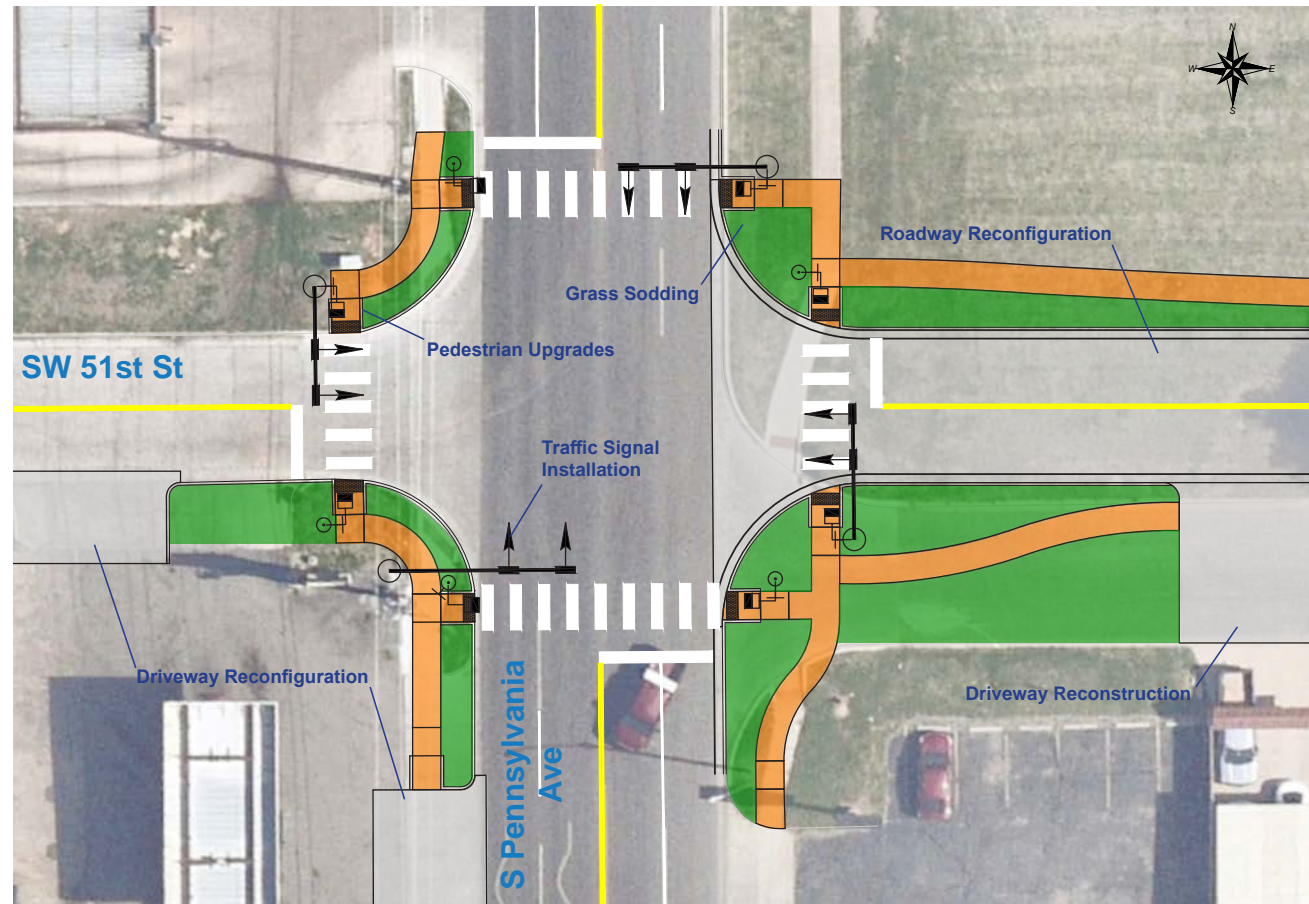


Key Map - Oklahoma City Limits



Legend

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- Sidewalk
- Landscaping (Sod)
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- Traffic Signal Pole
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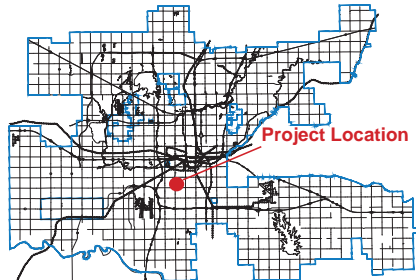


SAFETY COUNTERMEASURES

S Pennsylvania Ave & SW 51st St - Signalized Intersection (2 of 2)

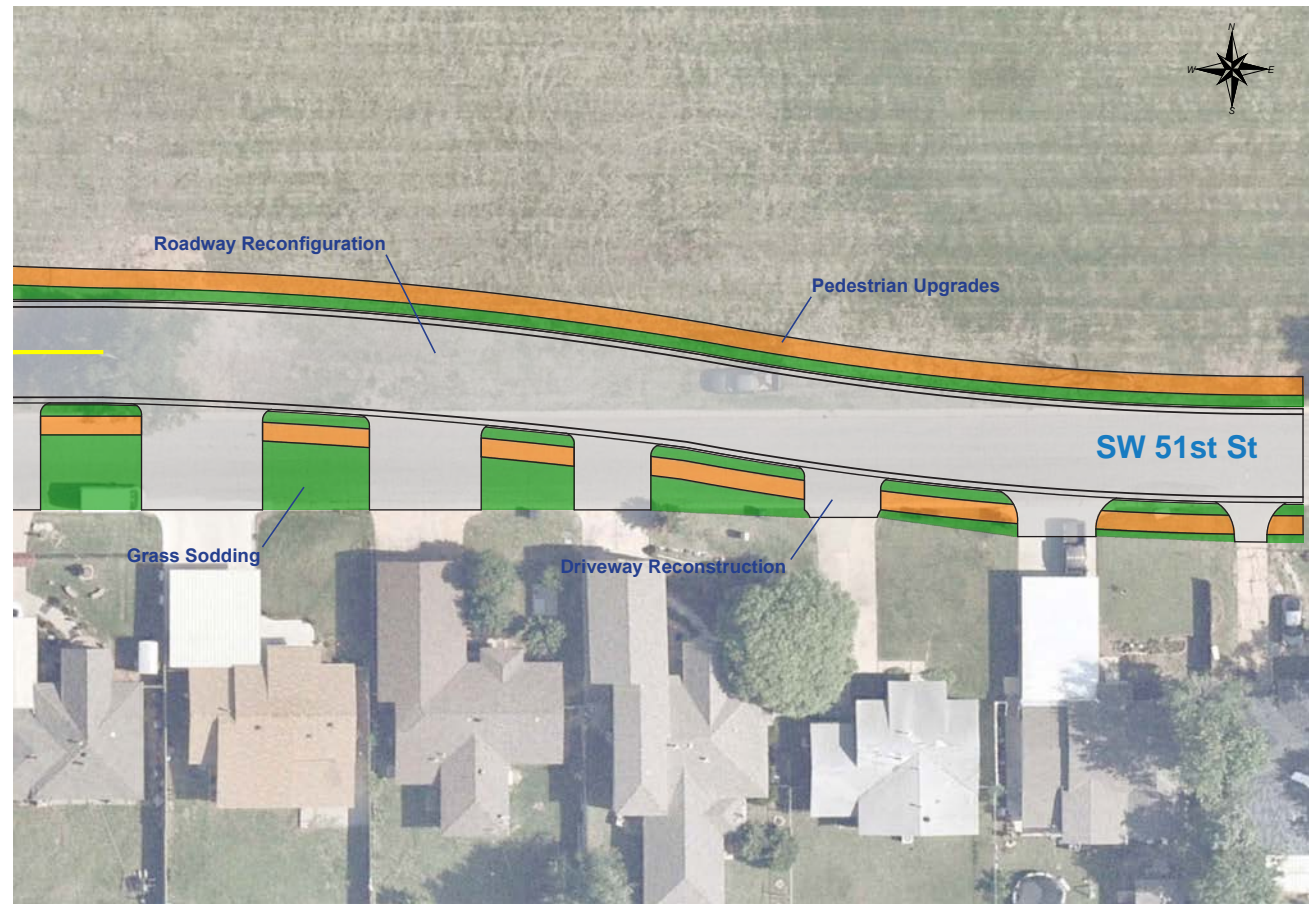


Key Map - Oklahoma City Limits



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NW 10TH ST – TRAIL & ROAD RECONFIGURATION

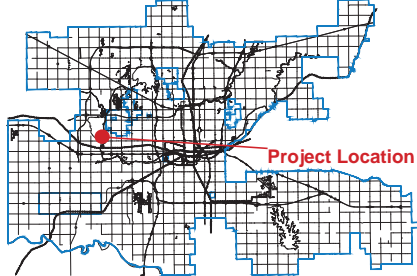
Reconfiguration of the road on NW 10th St between County Line Rd and N Council Rd will provide better pedestrian and cyclist access along the corridor, while also helping mitigate the current high speeds of the corridor. The West River Trail is a popular bicycle trail that crosses NW 10th St at N Eagle Ln, just east of the Canadian River. The current pedestrian accommodations on the crossing the Canadian River is a narrow, approximately 3.5' wide sidewalk. It is recommended that a 12' multi-use path be installed between County Line Rd and N Eagle Ln on the north side of NW 10th St; this will include the removal of one eastbound lane and the installation of a parapet wall to provide protection for trail users. Driveway consolidation and reconstruction will aid in access control for properties along this corridor. A road diet between N Eagle Ln and N Council Rd with protected bike lanes and a center two-way left-turn lane will provide additional bicycle connection and speed mitigation for the corridor.

SAFETY COUNTERMEASURES

NW 10th St - Trail & Road Reconfiguration (1 of 6)

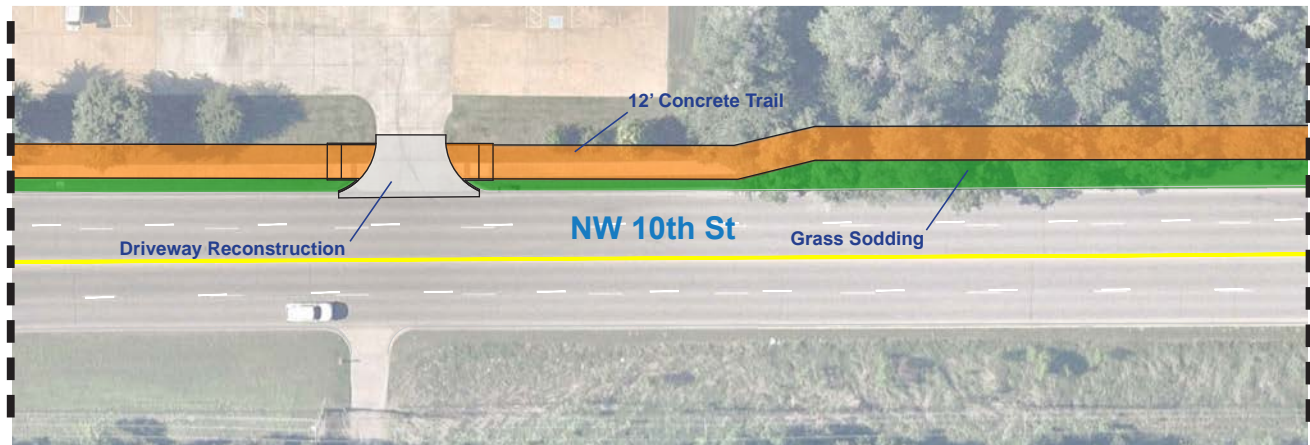
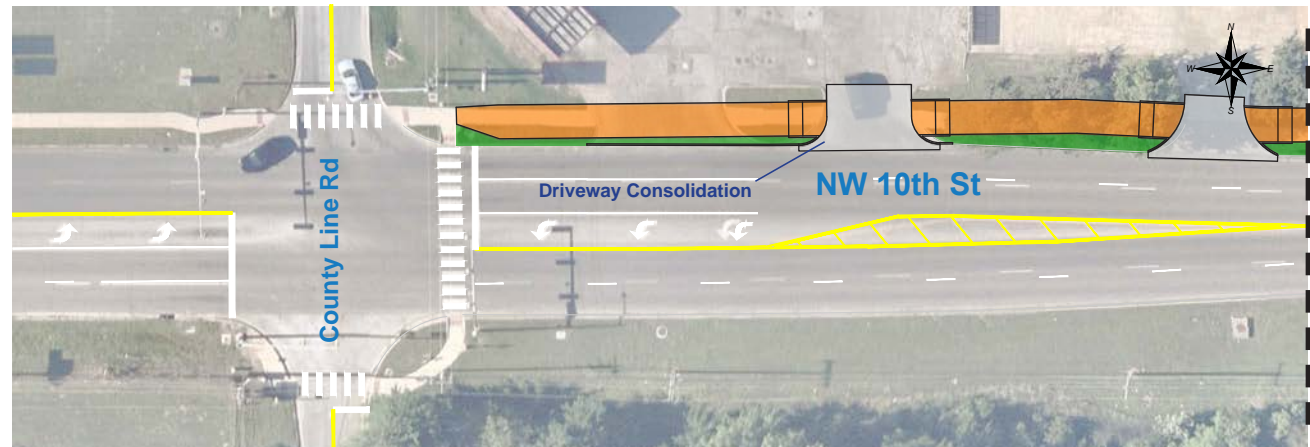


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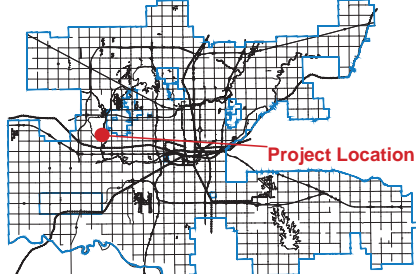


SAFETY COUNTERMEASURES

NW 10th St - Trail & Road Reconfiguration (2 of 6)

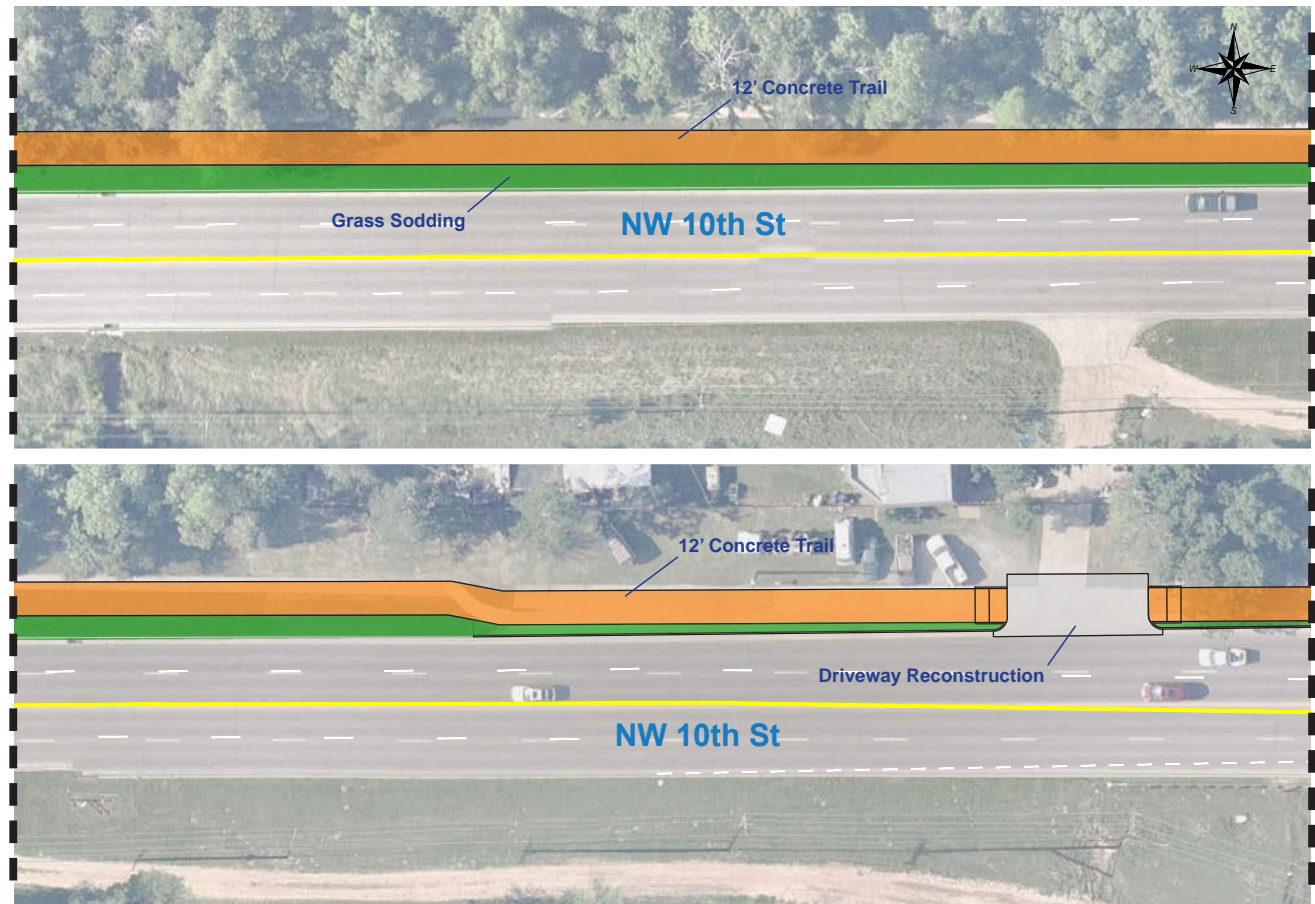


Key Map - Oklahoma City Limits



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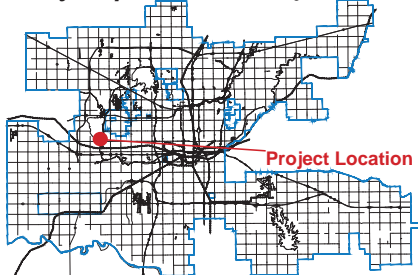


SAFETY COUNTERMEASURES

NW 10th St - Trail & Road Reconfiguration (3 of 6)

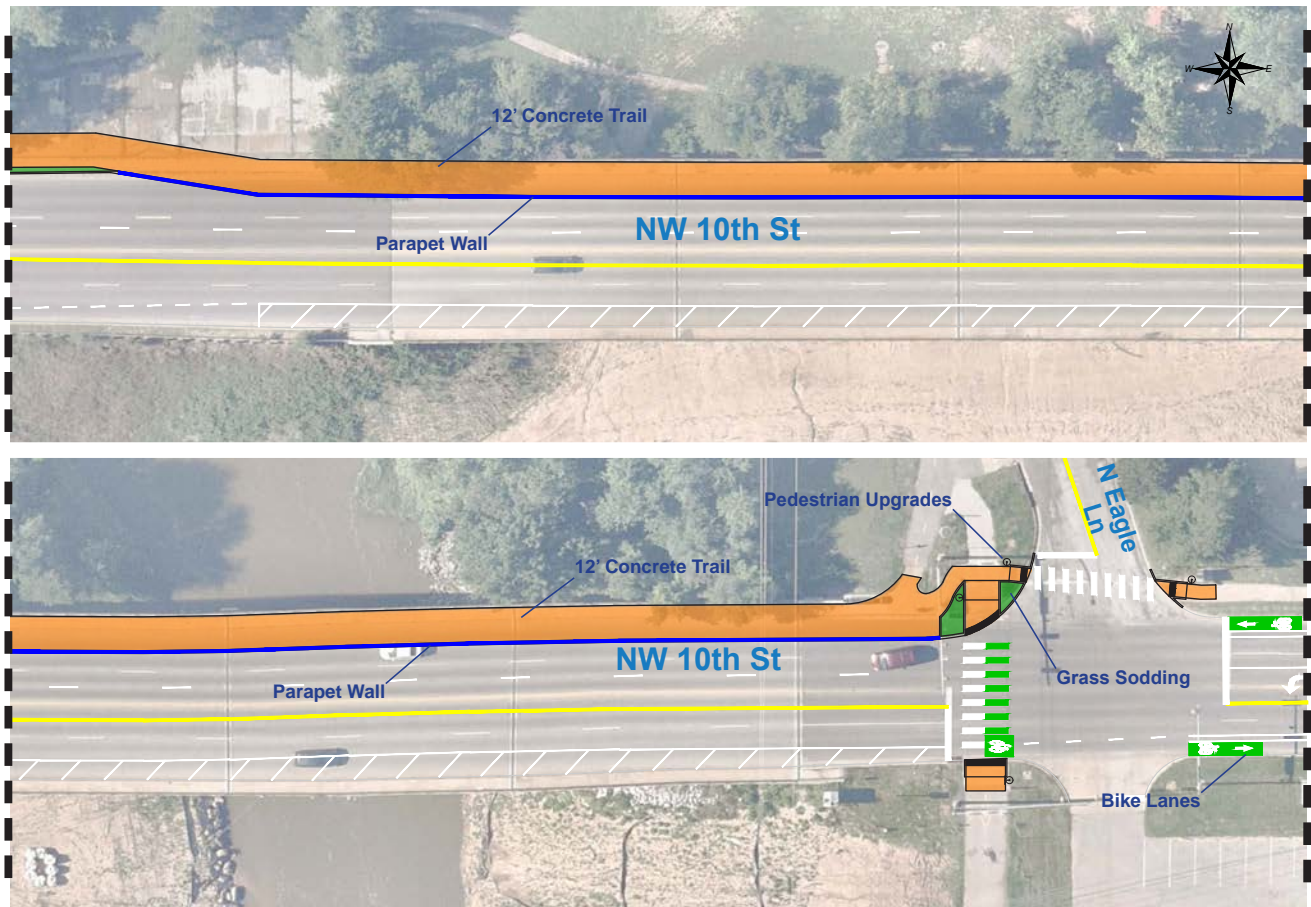


Key Map - Oklahoma City Limits



Legend

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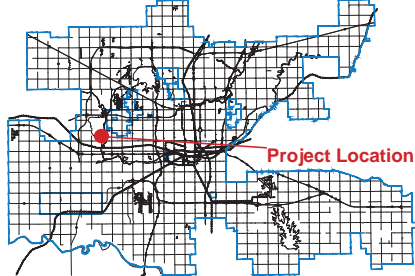


SAFETY COUNTERMEASURES

NW 10th St - Trail & Road Reconfiguration (4 of 6)

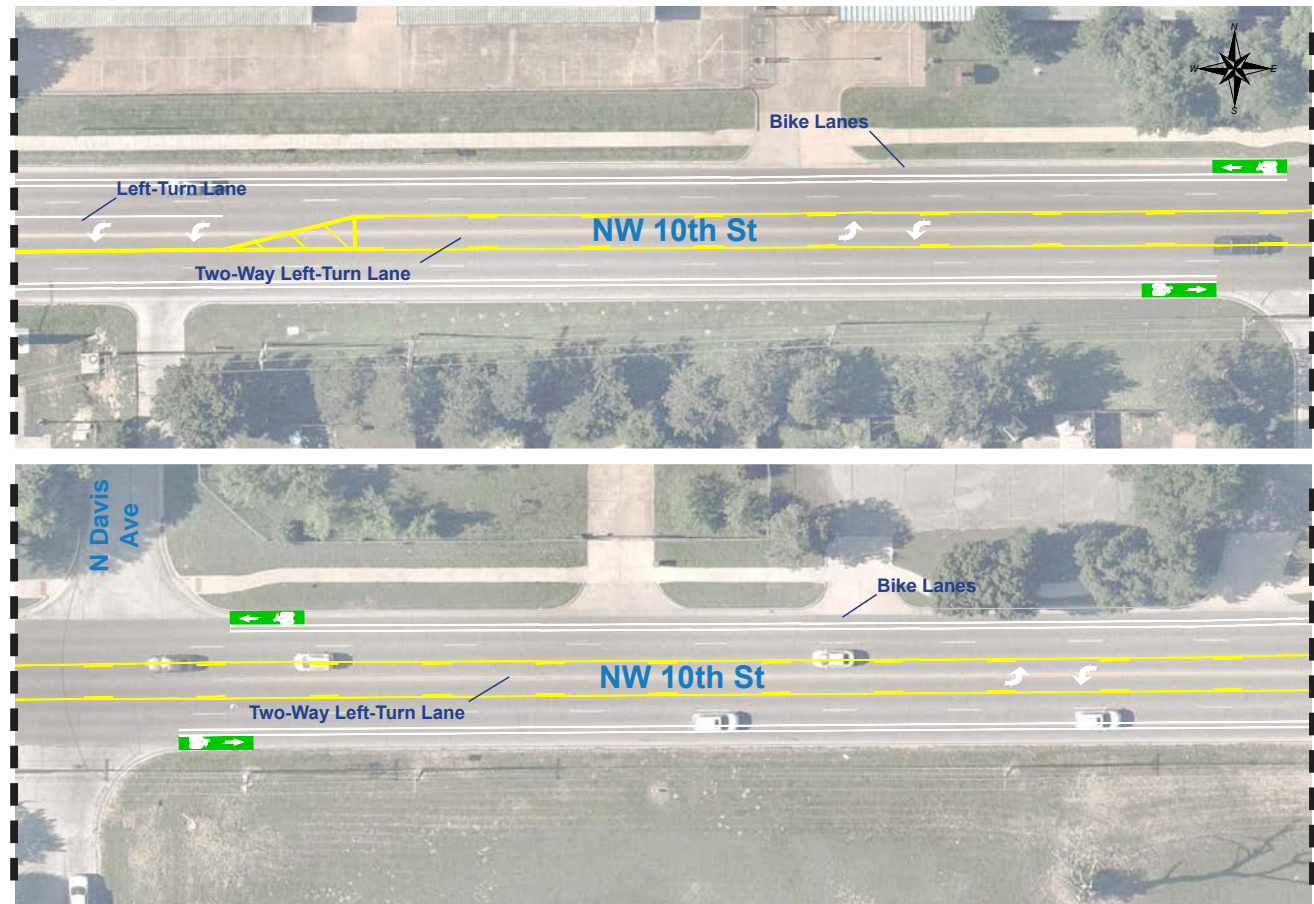


Key Map - Oklahoma City Limits



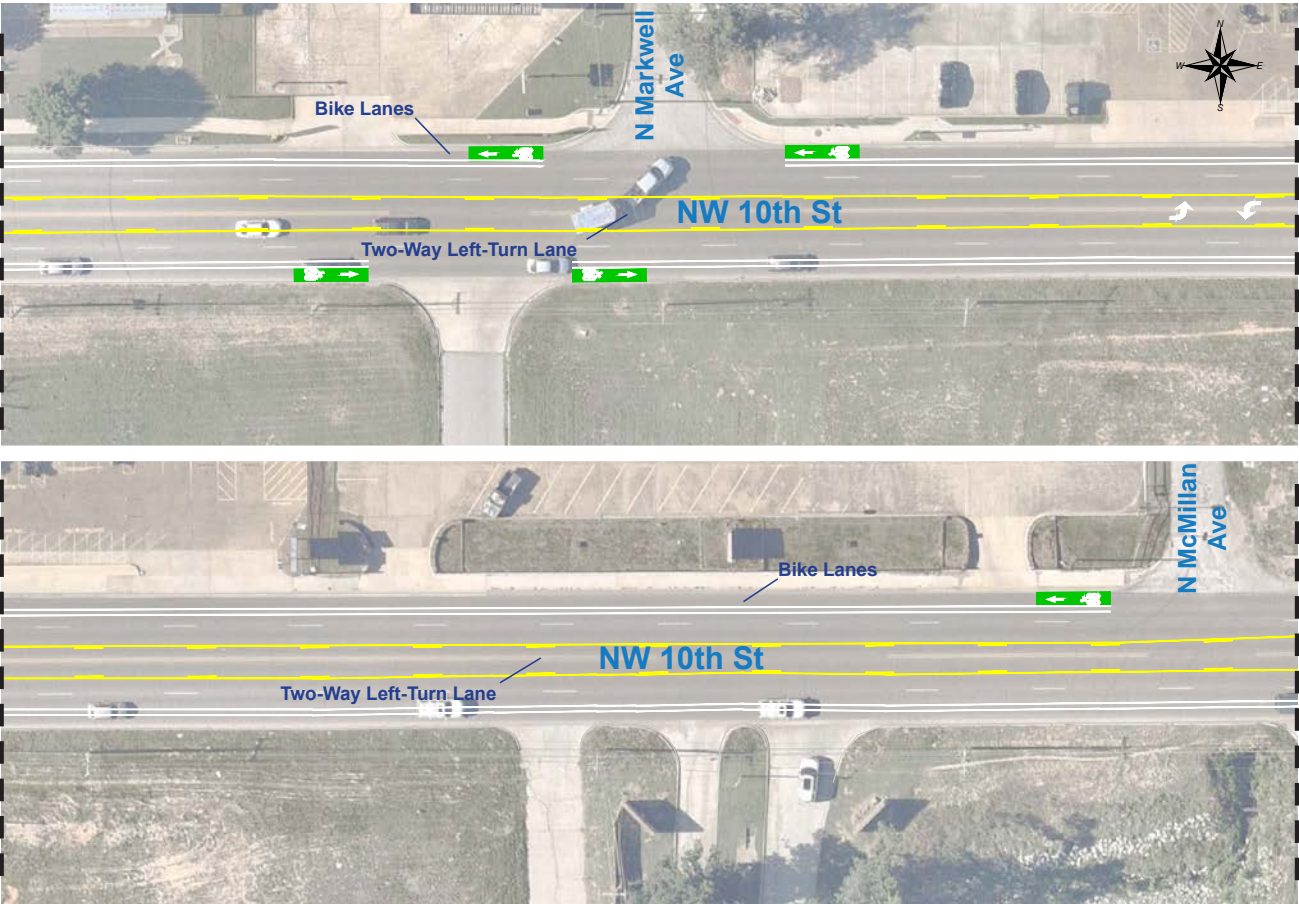
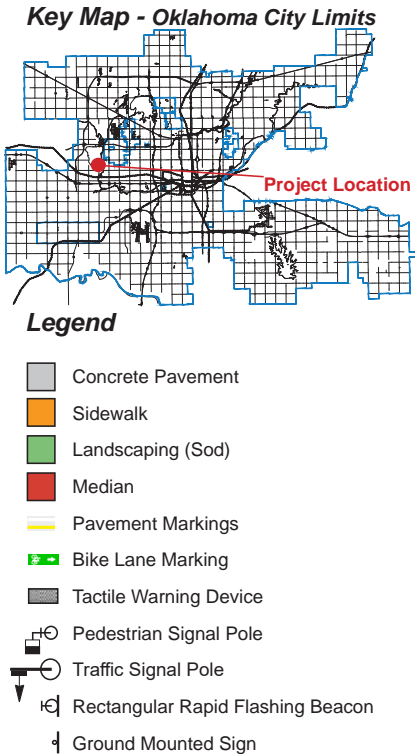
Legend

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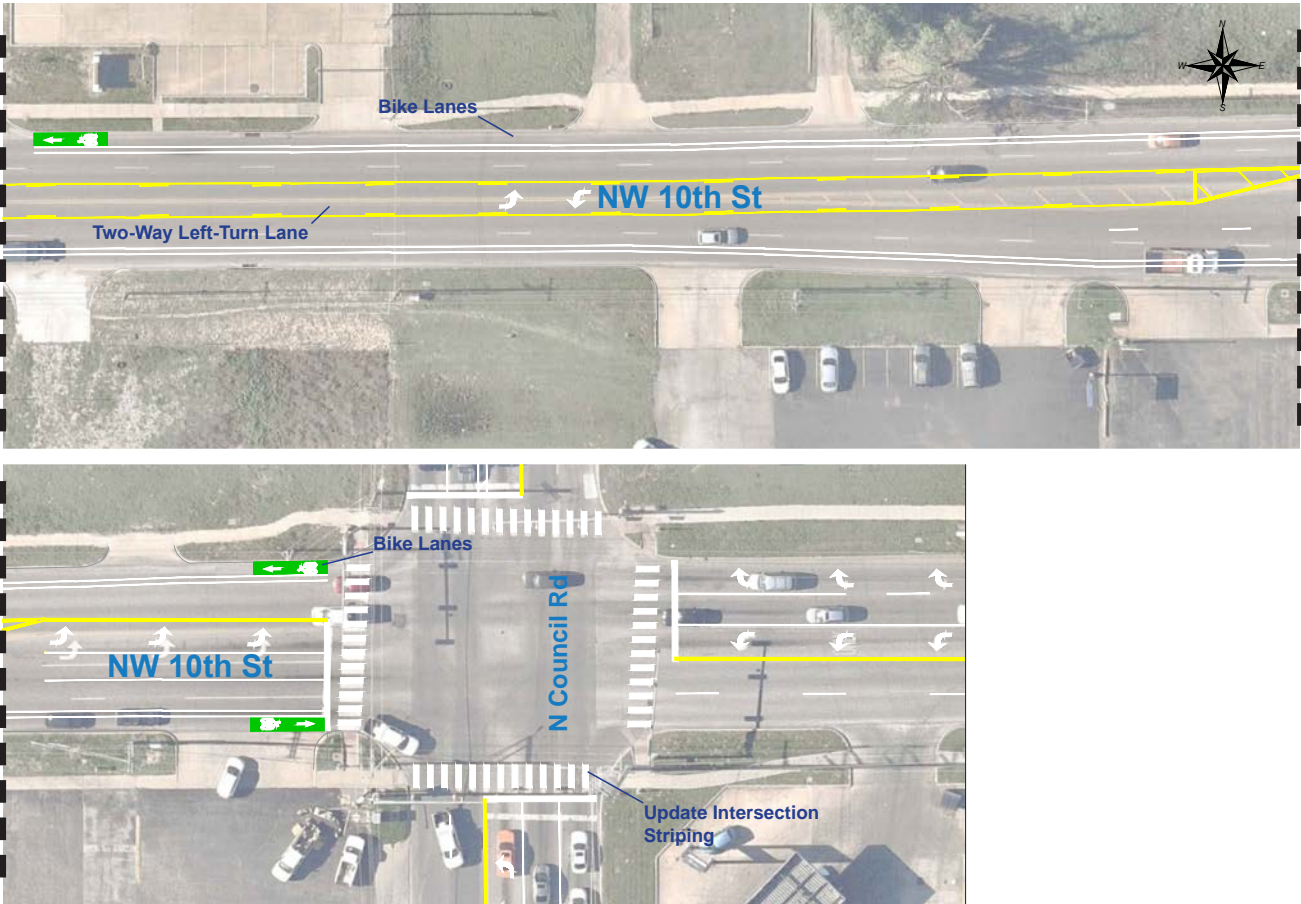
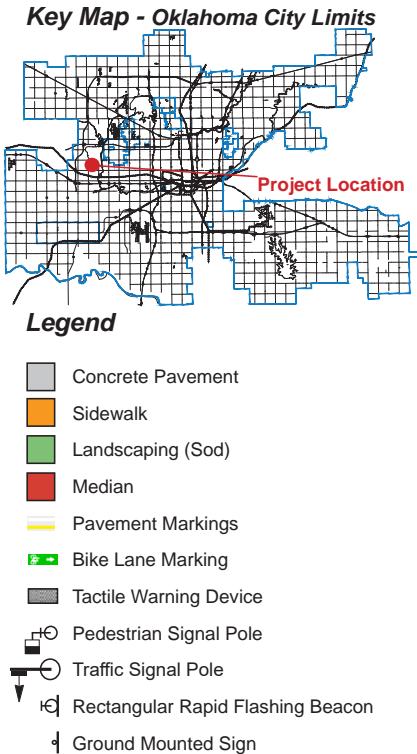
SAFETY COUNTERMEASURES

NW 10th St - Trail & Road Reconfiguration (5 of 6)



SAFETY COUNTERMEASURES

NW 10th St - Trail & Road Reconfiguration (6 of 6)





NW EXPRESSWAY & N COUNCIL RD – SIGNALIZED INTERSECTION

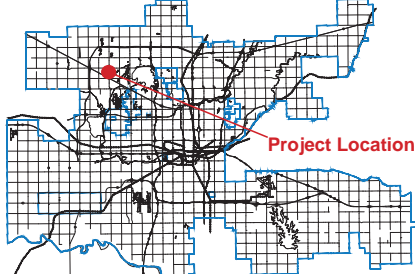
Targeted improvements to this signalized intersection could to improve vehicle and pedestrian safety. Due to the current geometry of the intersection, channelized right-turning on to NW Expressway have difficult sight lines to safely yield and merge onto the main roadway. Installing right-turn acceleration lanes for both northbound and southbound movements will allow drivers to merge onto NW Expressway safer. With the current intersection lacking adequate pedestrian facilities, it is recommended to add new pedestrian facilities, including new pavement markings, ADA compliant curb ramps, and pedestrian signals. These improvements will provide safe pedestrian movements at all sides of this intersection.

SAFETY COUNTERMEASURES

NW Expressway & N Council Rd - Signalized Intersection

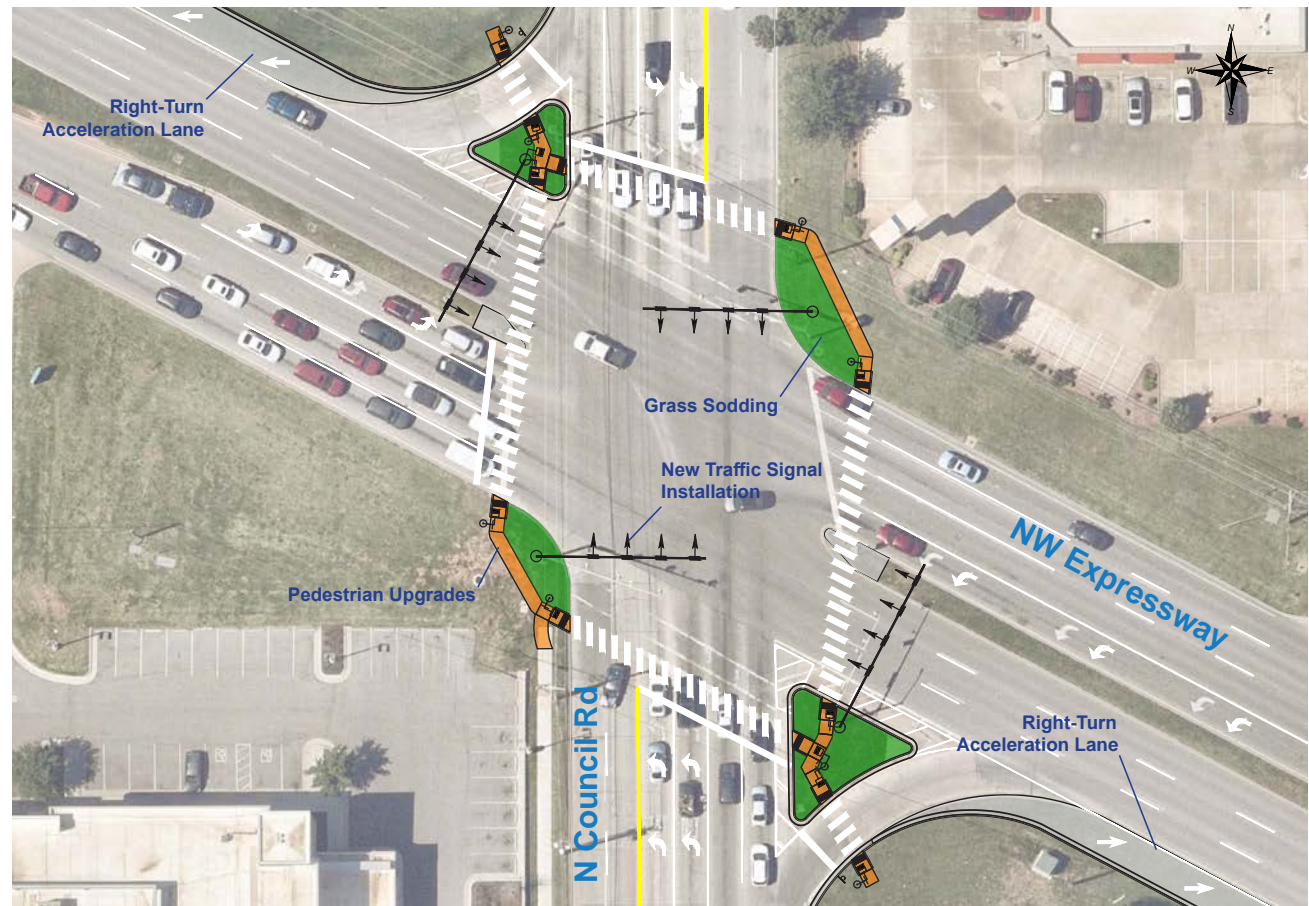


Key Map - Oklahoma City Limits



Legend

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CHAPTER 5: GETTING TO ZERO

...a safe systems approach also recognizes how engineering, enforcement, and education decisions are an outcome of planning, design, and policy guidelines in place when the decision are made.

While infrastructure investments are vital to eliminating future severe and fatal injury crashes, a Safe Systems Approach also recognizes how engineering, enforcement, and education decisions are an outcome of planning, design, and policy guidelines in place when the decision are made. This Vision Zero Action Plan provides an opportunity to amplify elements that support a safer system and suggest new actions, policies, and procedures that are currently missing or could benefit from updates based on state of the practice.

PAST PLANS REVIEW

The plans, standards, and programs were rated based on the strength of reference to each pillar.

A blank cell indicates that there is little to no reference to this pillar in the document reviewed.

① Indicates there are opportunities to build on referenced actions in the document via the Vision Zero Action Plan.

● Indicates that the document includes actions that will strengthen this pillar.

TABLE 31: VZAP POLICY REVIEW

	Safer Vehicles	Safer Roads	Safer Speeds	Safer People	Post-Crash Care
<i>bikewalkokc</i> 2024 Updated		●	①	●	
<i>connectokc</i> Transportation		●		①	
2023 OKC Moves Bus Study		①	①	①	
2023 ODOT Highway Safety Plan	①	●	●	●	
2023 ODOT Active Transportation Plan			①	①	
2023 Alternative Speed Abatement Program			①	①	
2024 Bike Lane Standards		①	①		
50/50 Sidewalk Program		①		①	
ADA and Accessibility				①	
2015 Watch For Me OKC				●	
Internal Coordination with Police Traffic Safety Unit		①	●	●	①
Intersection Enforcement Cameras			●		

THE FIVE PILLARS



SAFER VEHICLES



SAFER ROADS



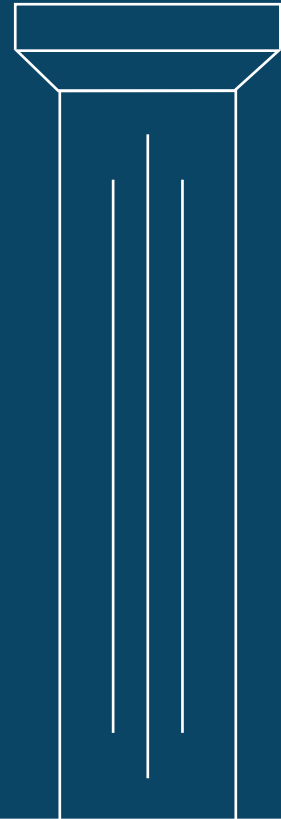
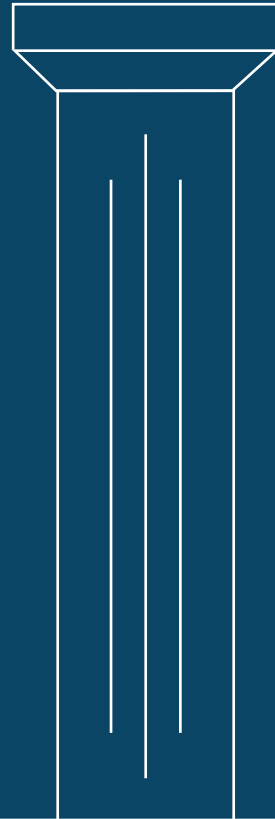
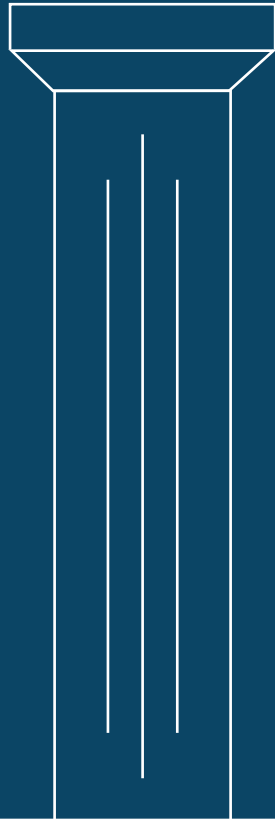
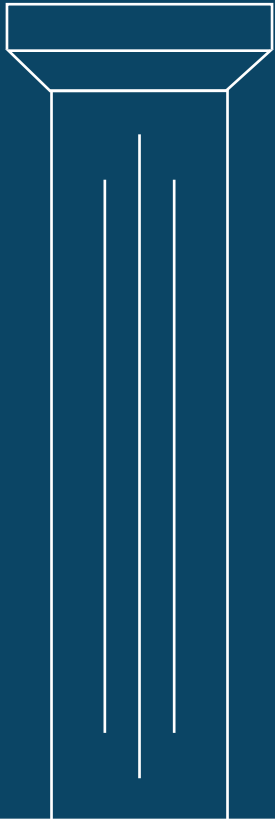
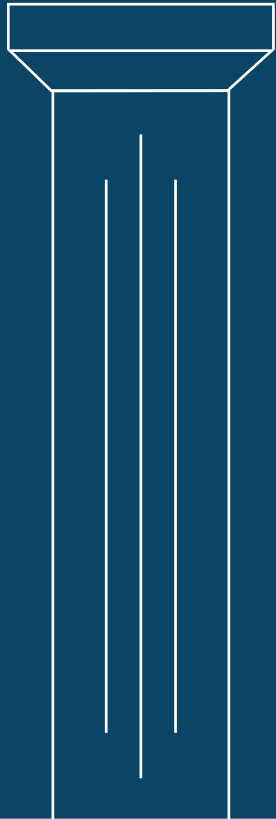
SAFER SPEEDS



SAFER PEOPLE



POST-CRASH CARE



PLAN REVIEW

The plan and policy review assesses the effectiveness of current initiatives using the Safe Systems Approach, highlighting areas of progress, and identifying opportunities for further advancements in achieving the City’s vision of a safer, more connected urban environment. The review was completed with the Safe Systems pillars in mind. For each pillar, we asked:



How does the document acknowledge the importance of this pillar in achieving safety outcomes?



Can the plan element be strengthened to amplify the Safe Systems approach?



Should a plan element be modified because it blocks the Safe Systems approach?

A review of the findings was presented to the Vision Zero Advisory Board on August 6, 2024. The Board’s input is incorporated in the action tables in the Recommendations section of this document.

POLICY RECOMMENDATIONS

This section outlines recommended actions that build on previous planning efforts to address current challenges, optimize performance, and align with best practices. Some recommendations reflect proposed changes to policies and standards related to sidewalk infrastructure and other active transportation investments to assure connected continuous facilities. Other recommendations explore code or program incentives that support the adoption of active transportation by making it more convenient for residents to bike or walk as part of their daily routines.

These recommendations will require a concerted effort that may include new partners, such as the Code Update team or the Municipal Counselor’s office to review and adjust elements of the City code that impact traffic safety and transportation infrastructure. Together, these policy and regulatory updates will enhance the City’s efforts to achieve Vision Zero by creating a safer and more supportive environment for all modes of active transportation.

To enhance the safety and accessibility of Oklahoma City’s streets in alignment with Vision Zero, it is crucial to evaluate the impact of infrastructure projects on vulnerable populations and health outcomes over time. Adjustments to implementation should be made if evaluation efforts show that positive health and safety outcomes are not spread equitably across diverse community groups such as low-income residents, seniors, people of color, and individuals with disabilities.

The actions in the tables below amplify or recommend changes to actions documented in other Oklahoma City plans and draw from best practices within each pillar. An asterisk (*) before the action statement indicates a priority action. **In total there are 27 actions recommended across the five pillars.**



SAFER VEHICLES

The safer vehicles pillar can feel daunting to make recommendations in, because vehicle manufacturing regulations are made at the federal level. However, local actions are important too. They range from adjusting municipal policies around fleet procurement, to encouraging the use of additional safety features on bicycles and cars, to developing information campaigns to increase understanding of the risks of driving large vehicles.

Safety measures built into vehicles can protect people both inside and outside of a vehicle. They can prevent crashes from happening and reduce the impact of a crash on occupants. Active safety measures to prevent crashes include autonomous emergency braking and lane change alerts. Seatbelts and airbags are more passive measures that support occupants when crashes do happen. While vehicle manufacturers are a key stakeholder in vehicle safety, individuals and organizations can also prioritize purchase and use of vehicles that offer safety features.

TABLE 32: ACTIONS FOR SAFER VEHICLES

Actions to Support Safer Vehicles	Emphasis Area(s)		Timeframe	Implementation Partners	Funding
*Support National Highway and Transportation Administration proposed rules that advance Federal Motor Vehicle Safety Standards related to occupant and all-party survival in crashes including blind spot and back-up cameras, lane departure, driver visibility, speed limiters, pedestrian head survival and other emerging technology.	• Lane Departures		Short (<2 years)	• Planning • Municipal Counselor • Municipal Code Team	Existing Funds
*Develop procurement strategies that specify minimum safety requirements on municipal fleet vehicles and include multimodal alternatives in the fleet.	• Commercial Motor Vehicle Crashes and Work Zones		Short (<2 years)	• Planning • Public Works	Grant Acquisition
Encourage recumbent bicycles to be fitted with a flag or other visual element to account for the low-profile nature of the vehicle. Enhances the visibility and safety of low-profile bicycles.	• Vulnerable Road Users		Ongoing	• Planning • Public Information & Marketing	Existing Funds
Expand Pilot Program for Advanced Warning of Emergency Vehicles.	• Lane Departures • Occupant Protection		Short (<2 years)	• Planning • Public Works • Fire • EMSA	Grant Acquisition

Fleet Management and Use

The City can undertake a pilot project to use pedestrian safety panels, also called sideguards, on garbage trucks or other oversize vehicles in its fleet and require them for the issuance of oversize freight permits. Furthermore the city can transition to a safer fleet by changing its own procurement policies to specify the latest active and passive safety measures, require small trucks or bicycles be considered, and monitor driving using intelligent speed assistance to help drivers comply with the speed limit or otherwise context appropriate speeds.

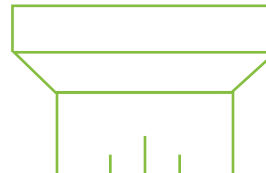
Setting a Legislative Agenda

Because vehicle design is regulated at the federal level and can be driven by market demands, national advocacy and consumer education are important strategies to advance rules that make vehicle occupants and parties outside of the car safer.



SAFER ROADS

Safe roads are designed and operated to prevent crashes and to keep impacts on the human body at tolerable levels when crashes do occur. Crashes can be prevented by separating people traveling at different speeds and in opposing directions through either space or time.



Examples of Spatial Separation include:

- Sidewalks
- Bike Lanes
- Turn Pockets

Examples of Time Separation include:

- Separate phasing for protected turns
- Pedestrian head start phases (leading pedestrian intervals)



TABLE 33: ACTIONS FOR SAFER ROADS

Safer Road Actions	Emphasis Area(s)	Timeframe	Implementation Partners	Funding
*Update intersection design and operations guidelines to: eliminate conflicting simultaneous movements of people walking and drivers turning at high injury intersections; consider lane reconfigurations instead of additional turn lanes at new traffic signal locations; standardize a context sensitive approach to implementing leading pedestrian intervals, all red phase extensions, and pedestrian recall at existing signals; adopt an uncontrolled marked crosswalk decision-making process.	<ul style="list-style-type: none">• Vulnerable Road Users• Intersections	Medium (2–5 years)	<ul style="list-style-type: none">• Planning• Public Works	GO Bond
*Establish a neighborhood street program and proactive traffic calming program that focuses on improving the safety of local streets for all users by reducing speed and cut through volumes.	<ul style="list-style-type: none">• Lane Departures• Impaired Driving• Occupant Protection• Unsafe Speed• Vulnerable Road Users• Intersections <ul style="list-style-type: none">• Commercial Motor Vehicle Crashes and Work Zones• Motorcycle Crashes and All-Terrain Vehicles	Medium (2–5 years)	<ul style="list-style-type: none">• Planning• Police• Public Works• Public Information & Marketing	Grant Acquisition
Study the feasibility of the statewide adoption of red light and speed enforcement cameras, coupled with information about the safety benefits.	<ul style="list-style-type: none">• Unsafe Speed	Short (<2 years)	<ul style="list-style-type: none">• Planning• Public Works• Police	Grant Acquisition
Implement quick-build projects, such as bike lanes, road narrowing, curb extensions, high-visibility crosswalks, stop bar alignment improvements, and speed limit reductions, using temporary materials, such as plastic bollards, flexible bollards, planters, textured paint, high-visibility paint, CMS boards, or other materials.	<ul style="list-style-type: none">• Unsafe Speed• Vulnerable Road Users	Short (<2 years)	<ul style="list-style-type: none">• Planning• Public Works	Grant Acquisition

TABLE 33: ACTIONS FOR SAFER ROADS (CONTINUED)

Safer Road Actions	Emphasis Area(s)	Timeframe	Implementation Partners	Funding
Update the City's Public Works standards and City ordinances, as needed, to incorporate insights from piloted projects and emerging best practices that support multimodal roads, prevent red light running, excessive speed, and rear end collisions.	<ul style="list-style-type: none"> Vulnerable Road Users 	Medium (2–5 years)	<ul style="list-style-type: none"> Planning Public Works Municipal Counselor Municipal Code Team 	Reallocation of Funds
Revise subdivision regulations to: include access management tactics for safety; connectivity standards and guidelines that require greater street connectivity; allowances for pedestrian and bicycle connections when street connectivity cannot be made; set aside right-of-way for bicycle and trail facilities; revise the fee-in-lieu-of system for sidewalk variances granted by the Board of Adjustment.	<ul style="list-style-type: none"> Vulnerable Road Users 	Medium (2–5 years)	<ul style="list-style-type: none"> Planning Public Works Development Services Municipal Counselor Municipal Code Team 	Development Charges/Fees
Develop crosswalk guidelines to aid in selecting locations and treatments for mid-block and uncontrolled crosswalks.	<ul style="list-style-type: none"> Vulnerable Road Users 	Short (<2 years)	<ul style="list-style-type: none"> Planning Public Works 	Existing Funds
Add raised crosswalks to promote safer roads by improving visibility and slowing down vehicle speeds. These elevated structures serve as a physical cue for drivers to reduce speed and increase awareness of pedestrians, particularly in high-traffic or school zone areas.	<ul style="list-style-type: none"> Unsafe Speeds Vulnerable Road Users 	Long (5+ years)	<ul style="list-style-type: none"> Planning Public Works 	GO Bond

Revising Subdivision Regulations

To ensure safe roads, a comprehensive approach to infrastructure development and maintenance is essential. This includes the scoping and budgeting of bike and pedestrian facilities into new and existing developments. Ordinances should mandate that new and redevelopment projects allocate right-of-way for bicycle and trail facilities in alignment with the *bikewalkokc* plan. Furthermore the subdivision regulations will be revised to include access management strategies that reduce the rear end and broadside risks associated with driveway access onto and across roadways. Development standards should mandate ADA upgrades for pedestrian and trail facilities, concrete transit stop pads along transit routes, and accommodations on bridges, underpasses, and interchanges. Additionally, exploring the feasibility of the City assuming responsibility for sidewalk maintenance would ensure consistent and comprehensive care of pedestrian infrastructure.

Supporting Mode Shift

Bikewalkokc addresses infrastructure gaps and improved accessibility as a key safety theme. Design standards for bus stops and transit stations should ensure safe, comfortable, and attractive waiting areas that connect seamlessly to sidewalks and bicycle routes. Traffic signals along bicycle facilities need to be upgraded to automatically detect cyclists, while construction zones must include same-side pedestrian facilities and alternative bike routes to maintain access. The implementation of effective street design and connectivity strategies is vital. A street typology concept should be adopted to design streets that cater to all users, including separating local traffic from major arterials and creating multi-modal corridors. The development of a destination-based priority bike network and removal of barriers to continuity in the bike network are crucial for enhancing connectivity. Furthermore, coordinating the design of new trails with multimodal streets and green infrastructure will integrate transportation modes and improve overall safety. A major pedestrian system plan should be developed, alongside clear funding and responsibilities for sidewalk maintenance, to support these objectives effectively.

Quick Build Programs

A quick build program is a project implementation program focused on a suite of short-term, low-cost projects known as quick-build projects. These projects include but are not limited to protected bike lanes, road narrowing, curb extensions, high-visibility crosswalks, improving stop bar alignments, and reducing speed limits. Quick-build projects use temporary materials, meaning that the elements can be installed quickly and adjustments can be made to support expected project outcomes. Materials for quick-build projects include but are not limited to plastic bollards, flexible bollards, textured paint, planters, high-visibility paint and/or tape, and Changeable Message Sign (CMS) boards. Quick-build projects can have an immediate safety impact, with some cities finding significant reductions in crashes after project implementation. Quick-build projects also demonstrate the effectiveness of a potential long-term solution requiring major construction or funding.



SAFER SPEEDS

There is a direct connection between safe speeds and our ability to survive a crash. Slower speeds reduce crash impact forces, provide additional time for drivers to stop, and improve the ability to see what's around us. We must be creative and equitable in slowing our streets down through strategies including speed limit designations, roadway design practices, education, advocacy at the state level, and by aligning enforcement strategies and the justice system to focus on behaviors most likely to result in serious injury or death.



TABLE 34: ACTIONS FOR SAFER SPEEDS

Safer Speed Actions	Emphasis Area(s)	Timeframe	Implementation Partners	Funding
*Make amendments to the Alternative Speed Abatement Program including: sliding scale financial contribution; removing option for applicant to request a specific solution; and adding traffic calming tools such as chicanes, speed cameras, diverters, radar speed feedback signs, roadway lighting, and pedestrian crossing islands.	<ul style="list-style-type: none"> • Unsafe Speed • Vulnerable Road Users 	Short (<2 years)	<ul style="list-style-type: none"> • Planning • Public Works 	Reallocation of Funds
Separate modes, using solid barriers where speed differentials are high.	<ul style="list-style-type: none"> • Occupant Protection • Unsafe Speed • Vulnerable Road Users 	Long (>5 years)	<ul style="list-style-type: none"> • Planning • Public Works 	GO Bond
Conduct an access management plan and adopt access management standards that prevent crashes such as driveway consolidation, driveway closures near intersections, and medians.	<ul style="list-style-type: none"> • Occupant Protection • Vulnerable Road Users • Intersections 	Long (>5 years)	<ul style="list-style-type: none"> • Planning • Public Works 	GO Bond
Adopt alternative speed limit setting strategies to reduce reliance on 85th percentile.	<ul style="list-style-type: none"> • Unsafe Speed • Vulnerable Road Users 	Short (<2 years)	<ul style="list-style-type: none"> • Planning • Public Works 	Existing Funds
Reducing speed violations across the city using collision data analysis to deploy resources.	<ul style="list-style-type: none"> • Unsafe Speed • Vulnerable Road Users 	Short (<2 years)	<ul style="list-style-type: none"> • Planning • Police 	Existing Funds

TABLE 34: ACTIONS FOR SAFER SPEEDS (CONTINUED)

Safer Speed Actions	Emphasis Area(s)	Timeframe	Implementation Partners	Funding
*Establish an Arterial Traffic Calming Program.	<ul style="list-style-type: none"> • Unsafe Speed • Intersections • Vulnerable Road Users • Commercial Motor Vehicle Crashes and Work Zones • Motorcycle Crashes and All-Terrain Vehicles 	Short (<2 years)	<ul style="list-style-type: none"> • Planning • Public Works 	Reallocation of Funds
Implement a Street Tree Ordinance to contribute to Traffic Calming and the City's existing beautification efforts.	<ul style="list-style-type: none"> • Unsafe Speed • Intersections • Vulnerable Road Users 	Medium (2–5 years)	<ul style="list-style-type: none"> • Planning • Public Works • Parks & Recreation 	Reallocation of Funds
Adding raised crosswalks can promote safer speeds by acting as a natural traffic calming measure. When drivers encounter a raised crosswalk, they are typically forced to slow down to navigate the elevation change safely.	<ul style="list-style-type: none"> • Unsafe speeds • Vulnerable road users 	Long (>5 years)	<ul style="list-style-type: none"> • Planning • Public works 	GO Bond

Building on Past Planning Efforts

By setting level of service goals specifically for pedestrian and bicycle facilities, *bikewalkokc* led the way to establishing performance metrics that ensure facilities are safe, effective, and conducive to maintaining appropriate travel speeds. This approach helps to balance the needs of all road users and prevents the unintended consequence of increased vehicle speeds that could endanger pedestrians and cyclists. Future projects aimed at enhancing vehicular traffic flow will be carefully evaluated to avoid creating conditions that could negatively affect pedestrian and cyclist safety.

PlanOKC directly supports the safe speeds objective by addressing factors that influence vehicle speeds and safety outcomes during rehabilitation and maintenance of streets. By incorporating traffic calming strategies, drivers will adhere to safe speeds. These measures include the design of roadways, implementation of view corridors, appropriate lighting, and clear communication of speed limits and safety features. Design measures that support safe speeds with slower target speeds, and corridor enhancements that increase visibility such as lighting and appropriate view corridors, significantly influence driver behavior, promoting slower, more controlled speeds and enhancing overall safety.

Equitable Solutions

Amendments to the Alternative Speed Abatement Program and an arterial traffic calming program will lead with a data driven approach to obtain slower speeds for all city residents, not only those with sufficient information, power, and financial resources. In addition, we will move forward legislative action to support the legalization of speed enforcement cameras, with income-qualifying lower fines for people living with low incomes.

Arterial Traffic Calming Programs

Arterial traffic calming programs are initiatives designed to reduce vehicle speeds and improve safety on arterial roadways that handle large volumes of traffic, provide access to intense land uses, and connect major destinations. These programs focus on deemphasizing traffic speeds by implementing strategies that make these roads safer for all users, including pedestrians, cyclists, and motorists. Methods used in arterial traffic calming can include physical changes to the roadway such as narrowing lanes, adding raised crosswalks, installing speed bumps or traffic circles, synchronizing signals to progress traffic at slower speeds, and enhancing signage and lighting. The goal is to create a safer, more pedestrian-friendly environment while maintaining efficient traffic flow.

Raised Crosswalks

A raised crosswalk is a pedestrian crossing that is elevated above the level of the surrounding roadway, typically made from materials such as asphalt or concrete. This design feature serves to increase the visibility of pedestrians and requires drivers to slow down as they approach the crossing. They are typically used in high pedestrian areas and school zones. Many agencies are installing them on arterials to address persistent safety issues. Research has shown that raised crosswalks can reduce pedestrian crashes by up to 45% in certain areas, demonstrating their effectiveness in preventing accidents (Source: U.S. Department of Transportation, Federal Highway Administration).



SAFER PEOPLE

In the Safe System approach, people who walk, bike, drive, ride transit, and travel by other modes are considered equal. Instead of prioritizing the flow of vehicles, the safety of all users is the primary consideration. That said, each road user has a responsibility to operate, to the best of their ability, within the boundaries set by system managers, and education and enforcement can help to modulate user behavior.

Examples of Safer People include:

- Crossing the street at a signalized intersection during the “walk” phase
- Riding a bicycle with the direction of traffic
- Knowing how a dark traffic signal requires you to treat it like a 4-way stop
- Not running for a transit vehicle
- Wearing proper protective equipment when riding a motorcycle
- Obeying pedestrian traffic laws



TABLE 35: ACTIONS FOR SAFER PEOPLE

Safer People Actions	Emphasis Area(s)	Timeframe	Implementation Partners	Funding
*Develop a process that would support the installation of more midblock crosswalks.	<ul style="list-style-type: none"> Vulnerable Road Users 	Medium (2–5 years)	<ul style="list-style-type: none"> Planning Public Works 	GO Bond
*Work with community partners and schools to provide highest quality driver, youth, and older adult training focused on safety and crash prevention.	<ul style="list-style-type: none"> Lane Departures Impaired Driving Occupant Protection Unsafe Speed Vulnerable Road Users Intersections 	Ongoing	<ul style="list-style-type: none"> Planning Police Public Information & Marketing 	Grant Acquisition
Work with the Code Update team and the Municipal Counselor's office to determine elements of the code that should be added, amended, or removed to improve safety.	<ul style="list-style-type: none"> Lane Departures Impaired Driving Occupant Protection Unsafe Speed Vulnerable Road Users Intersections 	Short (<2 years)	<ul style="list-style-type: none"> Planning Public Works Municipal Code Team Municipal Counselor 	Reallocation of Funds
Continue Bond and MAP investments in sidewalk and bicycle infrastructure.	<ul style="list-style-type: none"> Vulnerable Road Users 	Ongoing	<ul style="list-style-type: none"> Planning Public Works 	GO Bond
Support the state in strengthening the rigor of driver's license testing.	<ul style="list-style-type: none"> Occupant Protection Commercial Motor Vehicle Crashes and Work Zones 	Ongoing	<ul style="list-style-type: none"> Police, Planning Public Works 	Other
Increase police resources to allow for more officers to focus on traffic safety and to have a more visible police presence.	<ul style="list-style-type: none"> Occupant Protection Vulnerable Road Users 	Medium (2–5 years)	<ul style="list-style-type: none"> Police Planning Public Works 	Reallocation of Funds
Enforce improper lane changes and turns.	<ul style="list-style-type: none"> Commercial Motor Vehicle Crashes and Work Zones 	Short (<2 years)	<ul style="list-style-type: none"> Planning Public Works Municipal Counselor 	Reallocation of Funds

Midblock Crosswalks

When there are long distances between enhanced crosswalks, or transit stops are located across from each other without a safe crossing, people walking have to decide whether to cross mid-block or travel a long distance out of direction to cross the street. The extra time and distance can lead to people taking calculated risks to get across the street mid-block. By creating a process to request, evaluate, and install new mid-block crossings, the City can support safer road user behavior.

Working with Community Partners

Bikewalkokc identifies the need to strengthen partnerships with schools, youth organizations, and community groups to advance educational and encouragement programs that focus on bicycle and pedestrian safety. This is important in promoting awareness and fostering safer behaviors among road users. By educating students and community members about safe practices and providing motivation to adhere to them, these programs can significantly reduce the likelihood of collisions involving pedestrians and cyclists. Vision Zero will continue to engage and learn from residents, workers, and visitors as this plan is implemented. Public trust is essential to reach zero serious injuries and fatalities, and our actions will be planned with community input and equity impacts in mind.

Increasing Access to Information

Creating and maintaining an informative website that provides details on bike routes, active projects, and safety resources will further enhance public awareness and support safe practices. This digital resource empowers road users with the knowledge they need to navigate the streets safely to ensure that all individuals can travel without harm. Additional promotion of these materials would assure this resource was accessible to more people.



POST-CRASH CARE

When crashes do happen, parties involved rely on first responders to quickly locate them, stabilize their injury, and transport them to medical facilities. Other actions at the scene are needed to secure safety for others and to prevent additional crashes. A quick response and investigation by police and road managers is essential to document the factors in the crash, which creates a better understanding of the holistic safety landscape at the scene and can inform the response by justice, design, program, and policy experts. Through our actions we will support people affected by crashes, provide the highest quality medical care to those involved, and learn rapidly from crashes that do happen to prevent future incidents.

TABLE 36: ACTIONS FOR POST-CRASH CARE

Actions to Support Post-Crash Care	Emphasis Area(s)	Timeframe	Implementation Partners	Funding
Conduct advanced analyses on all reports of fatal and serious injury collisions.	<ul style="list-style-type: none"> • Vulnerable Road Users • Commercial Motor Vehicle Crashes and Work Zones • Motorcycle Crashes and All-Terrain Vehicles 	Ongoing	<ul style="list-style-type: none"> • Planning 	Existing Funds
Analyze safety data regularly to identify priority locations, contributing factors, and focus areas to inform safe system strategies.	<ul style="list-style-type: none"> • Vulnerable Road Users • Commercial Motor Vehicle Crashes and Work Zones • Motorcycle Crashes and All-Terrain Vehicles 	Ongoing	<ul style="list-style-type: none"> • Planning • Police 	Reallocation of Funds
Develop a citation and charges data exchange between the City and Courts.	<ul style="list-style-type: none"> • Vulnerable Road Users • Commercial Motor Vehicle Crashes and Work Zones • Motorcycle Crashes and All-Terrain Vehicles 	Medium (2–5 years)	<ul style="list-style-type: none"> • Planning • Police 	Reallocation of Funds
Study time from crash to trauma center and implement methods to shorten time from collision to hospital care (examples include issuing lifesaving equipment to all first responders and deploying a mobile EMT force in small vehicles).	<ul style="list-style-type: none"> • Vulnerable Road Users • Commercial Motor Vehicle Crashes and Work Zones • Motorcycle Crashes and All-Terrain Vehicles 	Ongoing	<ul style="list-style-type: none"> • Planning 	Reallocation of Funds
*Establish a post-crash multi-disciplinary evaluation team to review fatal and severe injury collision locations and recommend safety interventions.	<ul style="list-style-type: none"> • Vulnerable Road Users • Commercial Motor Vehicle Crashes and Work Zones • Motorcycle Crashes and All-Terrain Vehicles 	Medium (2–5 years)	<ul style="list-style-type: none"> • Planning • Police • Public Works 	Reallocation of Funds
Expand and update the use of emergency vehicle preemption technology.	<ul style="list-style-type: none"> • Lane Departures • Occupant Protection 	Medium (2–5 years)	<ul style="list-style-type: none"> • Planning • Public Works • Fire • EMSA 	Existing Funds
Continue Oklahoma City Police Department partnership with OHSO to improve road user behavior and advance educational safety campaigns.	<ul style="list-style-type: none"> • Vulnerable Road Users 	Ongoing	<ul style="list-style-type: none"> • Police 	Grant Acquisition

Crash Response Team

Emergency response personnel are capably trained to complete crash report forms, for the general purpose of assigning blame. But there is so much more to be learned from crashes. A multi-disciplinary crash response team can utilize a standard practice of collecting information at the scene of fatal and serious injury crash locations, examining the information, and identifying common crash factors, to gain insights that can be used to improve traffic safety.

VISION ZERO PEER REVIEW

In this section, we explore key lessons learned from the implementation of the Vision Zero approach in cities like Fort Worth, TX, Indianapolis, IN and Kansas City, MO. Vision Zero, which aims to eliminate traffic-related fatalities and serious injuries, has been adopted in various cities with unique strategies and challenges. By analyzing the experiences of these cities, we can gain insights into effective policies, successful interventions, and areas where further improvement is needed in the pursuit of safer roadways for all users. The following presents a brief summary of each city's efforts and then highlights the key takeaways from their efforts and what can be applied to City of Oklahoma City.

FORTH WORTH

Fort Worth, Texas, in 2018 adopted a Vision Zero approach to road safety, aiming to eliminate all traffic-related fatalities and severe injuries within the city. Vision Zero is crucial for Fort Worth due to the city's high rates of pedestrian fatalities and serious injuries. Designated as a Focus City by the Federal Highway Administration (FHWA) in 2016, Fort Worth has experienced alarming increases in pedestrian deaths and injuries, with pedestrian fatalities rising by 100% over five years. From 2014 to 2018, over 96,000 crashes occurred, resulting in more than 1,000 deaths and almost 7,000 serious injuries.

The city is focusing on high-risk areas, such as intersections with frequent crashes, and schools with measures such as signs and revised signal timing and sequence, markings and beacons, better lighting, and redesigning dangerous intersections to enhance pedestrian and cyclist safety. Additionally, Fort Worth is working to improve public transportation options, hoping to reduce the number of cars on the road and, consequently, lower the number of collisions. The city is also emphasizing collaboration with community stakeholders, including law enforcement, public health professionals, and advocacy groups. The city is committed to data-driven strategies that analyze crash data to identify patterns and develop targeted interventions. Public education campaigns on issues like distracted driving, speeding, and impaired driving are integral to the effort, alongside a focus on the cultural shift needed to ensure all road users, whether in vehicles, on foot, or on bicycles, prioritize safety.

INDIANAPOLIS

The Indianapolis Metropolitan Planning Organization (IMPO), in Indianapolis, Indiana, adopted a Vision Zero toolkit for Central Indiana communities. The toolkit contains data-driven benchmarks; planning, policy, and design strategies; and other resources and communications. Benchmarking entails longitudinal collection and analysis of crash data, public engagement data such as interactive mapping data, high injury network and high crash intersection data, and risk data.

Planning strategies include the implementation of:

- Vision Zero Plans
- Comprehensive/Land Use Plans
- Bike and Pedestrian Plans and Transportation Plans
- Highway Safety Improvement Plans and Highway Safety Plans, and
- Transit Plans

**Policy solutions include:**

- Education programs for problem drivers,
- School programs,
- Training for agency staff and vendors
- Community-based active transportation programming,
- Encouragement of helmet use for bicyclists,
- Bike headlight programs,
- Snow removal,
- Updating construction standards,
- Design regulations
- Zoning reforms,

State legislation includes:

- Hands free ordinances,
- Seat belt enforcement
- Helmet laws for motorcyclists

- Art in the public right-of-way and tactical urbanism,
- Complete streets ordinances,
- Updating budgeting practices,
- Better reporting of traffic crashes,
- Crash review groups, crash thresholds,
- Banning right turns on red,
- Enforcement on illegal parking in sidewalks, bike lanes and trails
- Alcohol control programs in workplaces,
- Place of last drink studies, and
- Travel demand management.

- Reducing drunk driving, and
- Automated enforcement

Design strategies include a matrix of safety countermeasures categorized by strategy (general, pedestrian, bicycle, or automotive), with indications on the applicable approaches (temporary, site specific, risk-reduction, or system-wide). Categorized cost explanations are also provided for each safety countermeasures.

KANSAS CITY

Kansas City, Missouri, has a fatal crash rate of over 16 fatalities per 100,000 people, based on 2019 NHTSA FARS and 2015-2020 ACS data, which is among the highest with respect to its peer cities in terms of crash fatalities. Fatal and severe injury crashes in Kansas City have impacted people walking or biking disproportionately compared to people driving, based on crash data from 2010 to 2019, and this disparity has grown since 2016. People identifying as Black or African American are overrepresented among traffic fatalities compared to people identifying as white, and the representation of fatal and severe injury traffic collisions is twice as high in disadvantaged areas compared to areas that are not disadvantaged. Kansas City passed a Vision Zero resolution in 2020 and developed an action plan to outline the steps to be taken to realize measurable reductions in traffic-related fatalities and serious injuries.

After the Vision Zero resolution passed, Kansas City adopted policy to decriminalize walking and bicycling, such as legalizing jaywalking and disallowing police from inspecting a bicycle upon reasonable cause. Kansas City also implemented quick-build projects throughout the city, focusing on protected bike lanes, Vision Zero intersections, leading pedestrian interval (LPI) signals, and neighborhood traffic calming, resulting in dozens of short-term, low-cost, and high-impact safety projects to be implemented. Kansas City integrated Vision Zero as a key ranking factor for rating Capital Improvement Plan (CIP) projects, to prioritize projects near the High Injury Network, and particularly those that add Vision Zero-inductive safety countermeasures.

<https://www.kcmo.gov/home/showpublisheddocument/9018/637987454485900000>

<https://reports.mysidewalk.com/febe9fb0fb>

<https://reports.mysidewalk.com/f27b5ebe91>

KEY TAKEAWAYS/LESSONS LEARNED

1

Shift from traditional approach to Safe System approach.

3

Maintain an approach that is data-driven and transparent.

2

Shift from the piecemeal approach to a more holistic and proactive approach.

4

Foster a sustained commitment to the goal that encourages ongoing innovations and collaboration across agencies, stakeholders, and community members.



IMPLEMENTATION PROGRAM

Safety is the primary consideration in road design, construction, maintenance, operations, and enforcement in Oklahoma City. Barriers to safety can take various forms including policy, financial, cultural, organizational and infrastructural ones. The actions recommended in this plan will be supported by elevating the importance of safety in all decision-making. The following implementation policies guide us:

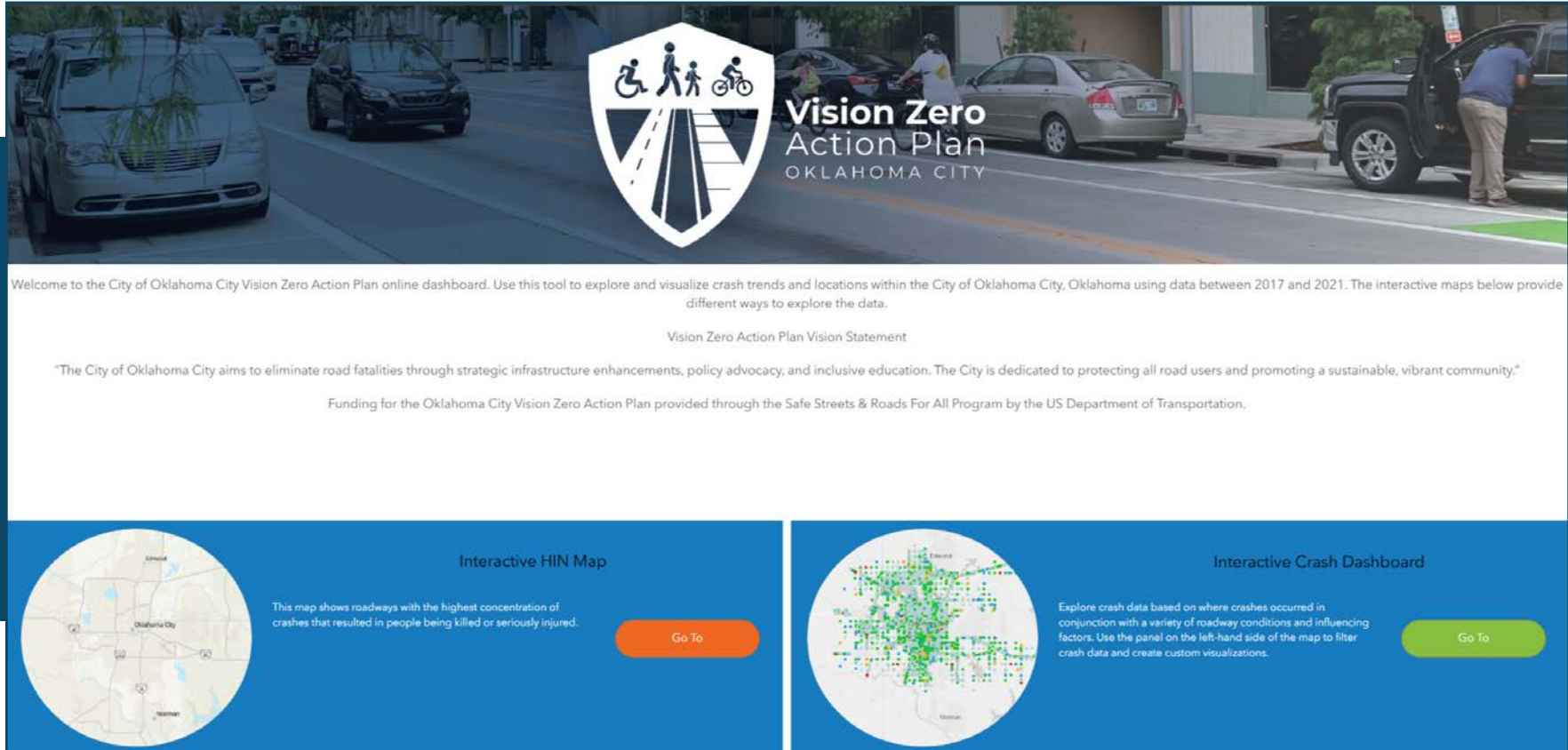
- A data driven approach will be used to develop suitable safety concepts for maintenance, capital, and educational projects.
- Safety countermeasures will be scoped and budgeted in all projects.
- Our communications will normalize the conversation about safety and capacity tradeoffs, increase awareness of the relationship between geometric design and speed, and to improve comprehension of the impact of proven safety countermeasures on reducing the frequency and severity of collisions.
- Transportation infrastructure will continue to be prioritized and pursued by acquiring funding through existing grants in future cycles such as the GO Bond, to make shared roadway space safer for all.
- Public Works, Planning, Police, Transit, and Administrative agencies will continue to increase dedicated budget to coordinate and collaborate on safety solutions including technological safety solutions and capital projects.

PLAN ADMINISTRATION

The City of Oklahoma City and its partners are responsible for administering this Plan. City staff will oversee the day-to-day implementation, monitoring, and amendments of the Plan. This section details the administration activities.

- ➔ **City Departments:** Through the safe system approach all City of Oklahoma City departments will be involved to some extent, the Planning Department will primarily oversee the administration and annual updates to the City Council.
- ➔ **City Council:** The City Council will play a pivotal role by providing continuous guidance and direction to staff and other boards and commissions, as well as making decisions on budget allocations and regulatory modifications as specified in the Implementation Program.
- ➔ **Other Boards, Committees, & Commissions:** Oklahoma City's boards, committees, and commissions are tasked with reviewing and guiding specific initiatives, each contributing to the successful implementation of recommendations within the Implementation Program that fall within their respective focus areas. Their active involvement will be essential in driving progress on key initiatives.
- ➔ **Vision Zero Advisory Board and Other Partners:** The VZAB is instrumental in the plan's implementation, guiding actions and initiatives to ensure that goals are achieved efficiently and effectively. This committee offers ongoing support to implementing agencies, tracks progress and adapts to new challenges as they arise. In addition, the VZAB fosters collaboration among stakeholders—including residents, regional partners, and external departments—encouraging open communication and community involvement to maintain accountability and momentum.
- ➔ **Monitoring Progress:** Throughout the planning process, significant effort was invested in engaging a diverse range of external stakeholders to align the Plan closely with the broader community vision. To maintain public involvement and enthusiasm, transparency on implementation progress is essential. An annual progress report will effectively communicate updates, detailing the status of implementation strategies and showcasing achievements from the previous year. The Planning Department will lead the creation of this report, presenting it to the City Council. Annual reporting will be supported by the Power BI Dashboard, which monitors crash trends and identifies various behavioral, design, and environmental factors. As new data is entered, the Dashboard will visually depict and explain these evolving trends. **Figure 47** displays the Dashboard Homepage that will be featured on the City of Oklahoma City website.

FIGURE 47: DASHBOARD





AMENDING THE PLAN

Oklahoma City's VZAP reflects a specific point in time, anticipating adjustments as the city evolves. To ensure the long-term viability of the vision, the implementation approach must be flexible and responsive to changing crash patterns. The Planning Department will deliver annual updates to the City Council on the progress of the Implementation Program, including adjustments to the High-Injury Network as trends shift. Additionally, a comprehensive review and update of the Plan should take place every five years to stay aligned with these trends and reassess the relevance of the action plan strategies.

Table 37 below outlines the procedures by how often each task is expected to be completed:

TABLE 37: PLAN UPDATES AND TIMEFRAMES

Plan Update Level	Recommended Frequency	Approved By
Minor Revision – text or wording changes, not affecting the recommendations	As Needed	Vision Zero Advisory Board
Major Revision – any change substantively changing a recommendation	As Needed	Vision Zero Advisory Board
Vision Zero Implementation Progress Report	Annually	City Council
Full Plan Update	Every Five Years	City Council

TABLE 38: PERFORMANCE MEASURES

Goal	Performance Criteria	Data Source
Reduce the number of fatalities resulting from traffic collisions	Number of Traffic Fatalities	Oklahoma Highway Safety Office
Reduce the number of serious injuries resulting from traffic collisions	Number of Serious Injuries	Oklahoma Highway Safety Office
Implement the recommended corridor-wide and intersection countermeasures per the Oklahoma City Vision Zero Action Plan	Number of Study Corridors with Safety Upgrades Received	Oklahoma City Vision Zero Action Plan
Embrace the recommended policy provisions and updates per the Oklahoma City Vision Zero Action Plan	Number of Vision Zero Plan Policies Adopted	Oklahoma City Vision Zero Action Plan



Vision Zero

Action Plan

OKLAHOMA CITY

