OKLAHOMA
Active Transportation Plan

October 2023

ACKNOWLEDGMENTS

The Oklahoma Department of Transportation would like to thank the many staff, state and local partners, stakeholders, and citizens who provided valuable feedback and guidance throughout the development of this plan.

ODOT TECHNICAL ADVISORY COMMITTEE

Staff representatives from the following Divisions participated in the development of this plan:

Construction
Contract Compliance
Field Districts
Government Affairs
(Planning and Policy Branch, Tribal Coordination)
Local Government
Multimodal
Roadway Design
Strategic Communications
Traffic Engineering

CONSULTING TEAM

Toole Design
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ACTIVE TRANSPORTATION COMMITTEE MEMBERS

The following stakeholder groups are represented on ODOT's standing Active Transportation Committee which also served as an advisory group for this plan.

Association of Central Oklahoma Governments (ACOG)
Bike Oklahoma
City of Oklahoma City
City of Tahlequah
Community Advocate
Frontier Metropolitan Planning Organization
Indian Nation Council of Governments (INCOG)
Lawton Metropolitan Planning Organization
Oklahoma Department of Commerce
Oklahoma Department of Tourism
Oklahoma Highway Safety Office
Oklahoma State Department of Health
Oklahoma Tribal Representatives
Oklahoma University Institute for Quality Communities
Rogers County
Running Clubs
South Central Regional Transportation Planning Organization (SCORTPO)
Southwest Oklahoma Regional Transportation Planning Organization (SORTPO)
Tobacco Settlement Endowment Trust

Cover photo: River Parks Authority

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WHAT IS ACTIVE TRANSPORTATION?

For this plan, active transportation includes more than just people who walk and bike, but also people who use wheelchairs and mobility scooters, pedal and electric scooters, electric bikes, skateboards, and other similar wheeled vehicles. Basically, anything that could legally use the sidewalk, bicycle lane, or path!

Credit: River Parks Authority

CHAPTER 1. INTRODUCTION

Background and Purpose

Transportation is vital infrastructure that touches people's lives daily. It determines one's access to jobs, goods, services, and it affects each individual's safety, health, and well-being. ODOT is dedicated to supporting a safe and effective transportation system that provides multimodal opportunities for active transportation users of all ages, abilities, and backgrounds. Consisting of sidewalks, bikeways, multi-use trails, and other infrastructure, an active transportation system promotes safety and health while benefiting the environment and the economy. Simply put, increased access to multimodal transportation makes Oklahoma a better place to live, work, and visit.

This first-ever Active Transportation Plan (ATP) was developed with input from stakeholders and the public from across Oklahoma. The purpose of the ATP is to build a foundation for greater opportunities to safely and comfortably walk, bike, and use active modes for transportation in communities across the state. This plan recommends policies, programs, design tools, and other resources that will lead to more proactive consideration of active transportation needs in the planning and design of roadways and will help support local communities' active transportation planning, design, and implementation efforts.

In the State's 2045 Long Range Transportation Plan (LRTP), the Oklahoma Department of Transportation (ODOT) articulated the agency's strategic direction for the next 25 years, acknowledging that a vibrant *multimodal* transportation system is vital to Oklahoma's future economic viability and competitiveness. The LRTP set a broad vision for the agency: to *"[p]rovide a connected, multimodal transportation system that supports a thriving economy and improved quality of life for Oklahomans by providing for safe and efficient movement of people and goods."* The ATP builds on the LRTP and provides a vision, policy framework, and partnership opportunities for providing and promoting safe and integrated active transportation options across the state.

Before the development of this ATP, ODOT had not previously taken a comprehensive look at the experience of active transportation users across the state and the policies that impact their everyday experience. This plan was developed through a year-long process that included an analysis of existing plans and policies, national best practices, and conversations with ODOT staff, state partners, local governments, stakeholders, and the general public. The plan focuses on policy recommendations and strategies framed by the active transportation guiding principles and goals that were developed with project stakeholders and vetted with the public.

VISION FOR ACTIVE TRANSPORTATION IN OKLAHOMA:

Provide a safe, comfortable, and connected transportation network for people who walk, bike, and use other active modes to reach everyday destinations regardless of age, background, or abilities.

ACTIVE TRANSPORTATION GUIDING PRINCIPLES AND GOALS:

SAFETY

Provide a safe and secure multi-modal transportation system for pedestrians, bicyclists and other vulnerable users.

EQUITY

Ensure that people of all ages, abilities, backgrounds, and incomes have access to active transportation networks in both urban and rural areas.

MOBILITY

Increase the number of people who walk, bike, and use active modes.

LIVABILITY

Leverage active transportation to gain quality of life benefits such as personal, physical and mental health, community vibrancy, and economic development.

CONNECTIVITY

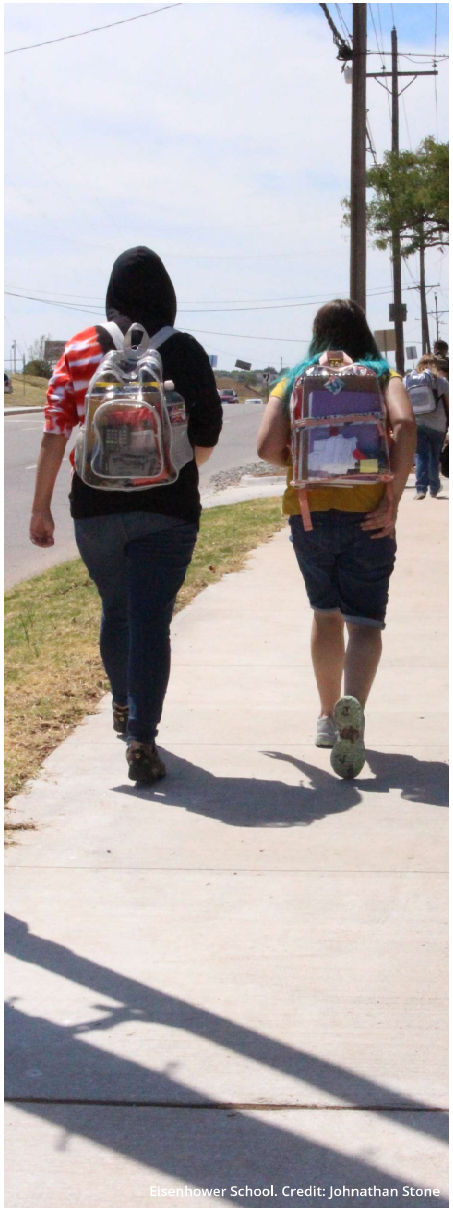
Create comfortable, convenient, and accessible active transportation networks.

COORDINATION

Collaborate across jurisdictions and levels of government toward the active transportation vision.

EDUCATION

Use education to promote greater acceptance and understanding of multimodal needs, encourage mode shift, and build enthusiasm for active transportation.



Eisenhower School. Credit: Johnathan Stone

Although most of the multi-use trails, bicycle routes, and sidewalks in Oklahoma are owned and maintained by partners of ODOT, ODOT plays an important role in setting underlying policy and providing design guidance, technical resources, and funding to support local governments and Metropolitan Planning Organizations (MPOs) in the planning, design, implementation, and maintenance of active transportation infrastructure in urban, rural, and suburban communities across the state. This plan sets the stage for greater collaboration between ODOT and local governments around active transportation needs and lays important groundwork for future improvements:

This plan is bold, but realistic. As the state's first Active Transportation Plan, the plan provides a clear vision for the future of active transportation in Oklahoma and identifies goals that reflect the needs and experience of a broad group of stakeholders.

This plan acknowledges that a one-size-fits-all approach doesn't match the state's mix of community sizes and varied needs. Oklahoma is made up of big cities, small towns, university towns, tribal areas, communities with large military bases, and sparsely populated rural areas. A varied approach to planning, funding, and implementing active transportation in these areas is needed.

The plan addresses new requirements and funding opportunities related to the federal Infrastructure Investment and Jobs Act (IIJA) also knows as the Bipartisan Infrastructure Law (BIL). This plan identifies and leverages increased active transportation funding available to Oklahoma communities.

The plan maximizes contributions from stakeholders and the broader public. ODOT worked closely with internal and external stakeholders and the broader public to better understand trends, challenges, and opportunities related to active transportation demand, needs, and safety across the state.

The plan provides policy recommendations that directly impact improvements in safety, health, connectivity, and access for current and future active transportation users. While this plan does not provide a detailed network plan of pedestrian and bicycling infrastructure locations, its focus on policy recommendations will directly impact safety and connectivity for people who choose to walk, bike, and roll for transportation in Oklahoma.

Benefits of Active Transportation

Walking and bicycling and the provision of safe and connected active transportation infrastructure in our communities benefit both individuals and the communities at large. Walking and bicycling are simple, affordable, and efficient means of transportation and, while not everyone may choose to walk or bike on a regular basis, almost everyone is a pedestrian for at least a portion of some of their trips, whether it be walking to the bus stop, down the street to a neighbor's house, or crossing the street to a restaurant or shop from their car. Active transportation has benefits for the economy, public health, quality of life, and community.

ECONOMIC BENEFIT

Projects that support walking, biking, and moving actively using assistive devices **COST OVER 75 PERCENT LESS** to build per mile compared to typical, car-focused transportation projects, they also can bring a broad range of economic benefits for local economies, local governments, and communities.

A 2012 study commissioned by the American Association of State Highway and Transportation Officials (AASHTO) and referenced in a Rails-to-Trails Conservancy report found that transportation improvement projects for greenways, sidewalks, and bikeways created more jobs than any other type of project at **17 JOBS PER $1 MILLION SPENT.**

Active friendly projects can increase property and sales tax revenue by up to 10 times.

Bicyclists and walkers, on average, spend similar amounts or more, and make more trips than those using automobiles at local retailers.

PHYSICAL AND MENTAL HEALTH BENEFITS

- ✓ Heart disease, cancer, stroke, and diabetes are all within the top ten causes of death in Oklahoma, the risk of which can be reduced by increased physical activity.
- ✓ Regular physical activity such as walking 30 minutes a day 5 days a week helps improve your overall health, fitness, and quality of life. It also helps reduce your risk of chronic conditions like obesity, type 2 diabetes, heart disease, many types of cancer, depression and anxiety, and dementia.
- ✓ Studies show a 4 to 15 percent increase in productivity, and 27 percent fewer task errors for physically fit employees and an easy way to promote that is through bicycling to work.
- ✓ An 18% lowered risk of depression was found among adults who got just half the recommended amount of physical activity per week—the equivalent of about 75 minutes of brisk walking—compared with adults who reported no physical activity.

CYCLISTS, ON AVERAGE, LIVE TWO YEARS LONGER THAN NON-CYCLISTS AND TAKE 15% FEWER DAYS OFF WORK DUE TO ILLNESS.

QUALITY OF LIFE AND COMMUNITY BENEFITS

More people walking and bicycling means more eyes on the street which improves safety, encourages more activity, and enhances community cohesion.

More people walking and bicycling for transportation means fewer vehicles on the road, reducing congestion and parking demand.

- ✓ A connected, safe system of active transportation infrastructure provides increased mobility options for getting around independently for those who can't drive including children, many seniors, people with disabilities, and low-income residents
- ✓ Communities designed to be bike and pedestrian-friendly draw people in and foster social connections among neighbors.

FOUR IN FIVE MILLENNIALS SAY THEY WANT TO LIVE IN PLACES WHERE THEY HAVE A VARIETY OF OPTIONS TO GET TO JOBS, SCHOOL, OR DAILY NEEDS.

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02 CHAPTER

CHAPTER 2. CURRENT TRENDS, NEEDS, AND ISSUES

Active Transportation Snapshot

EXISTING INFRASTRUCTURE

Oklahoma's active transportation system includes a network of multi-use trails, bicycle routes, sidewalks, shoulders, crossings, signals, lighting and other infrastructure. Most of this active transportation infrastructure is owned and maintained by local jurisdictions, however ODOT does own and maintain some active transportation infrastructure on the state highway system. This ATP does not include a comprehensive analysis of existing active transportation infrastructure beyond public input, however this section provides a high-level overview of the current infrastructure available.

While comprehensive data is not available for all of pedestrian and bicycle facilities on the local- and state-owned roadway system, the bicycle network includes an estimated 520+ miles of bike routes, bike lanes, and shared-use paths or trails located primarily in the MPO regions.[1] Comprehensive sidewalk data on state and local roadways is not currently available.

Oklahoma has approximately 116,000 miles of public roads, of which ODOT is responsible for the 12,254 centerline miles of the state highway system. While bicyclists and pedestrians are not permitted on the 933 miles of state-maintained interstate, there are approximately 11,000 miles of state highways that may serve bicyclists and pedestrians including those state highways serve as main streets or otherwise part of a community's street network. On many of these state highways, high speeds, long crossings, infrequent signals, and lack of sidewalks and ADA ramps make active transportation use challenging and often create unintentional barriers within communities.

1 Oklahoma DOT 2020-2045 Long Range Transportation Plan

EXISTING MILAGE OF BIKE ROUTES, BIKE LANES, AND SHARED-USE PATHS OR TRAILS

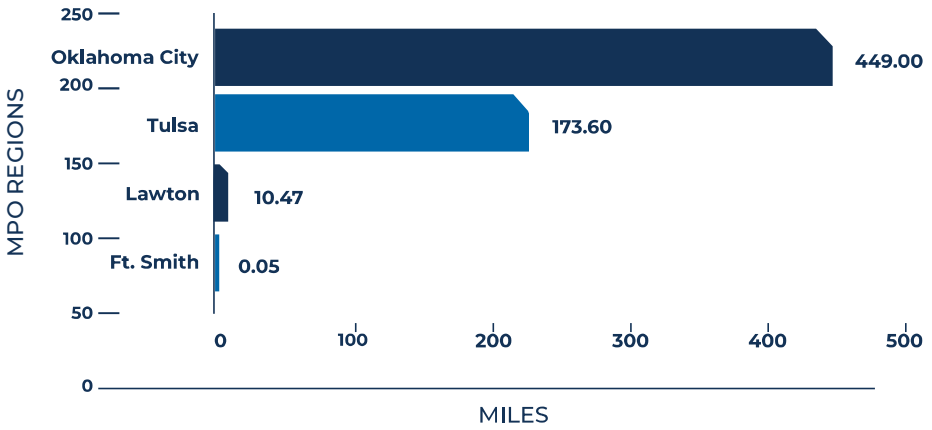


Figure 1: Existing Milage of Bike Routes, Bike Lanes, and Shared-Use Paths or Trails

BENEFITS OF PAVED SHOULDERS

Approximately 9,500 miles of the state system are rural two-lane highways with potential for longer distance bicycle travel for both transportation and tourism, however nearly 5,400 miles of these lack paved shoulders. The LRTP recommends adding shoulders to these rural roads where they are lacking or deficient. This would improve safety for all roadway users.

"Paved shoulders proved a recovery area for errant motor vehicles, and lengthen the lifespan of the roadway by providing pavement structure support, reducing edge deterioration, and improving drainage. Paved shoulders significantly reduce maintenance costs and are proven to reduce crashes. Paved shoulders provide space for pedestrian and bicycle travel, which facilitates safer passing behaviors and improves comfort for all users."

–FHWA Achieving Multimodal Networks

US BIKE ROUTE 66

The US Bike Route (USBR) System is a developing network that currently features 18,000 miles of bike routes across 34 states. The system aims to create a national network of bicycle routes that connect urban and rural areas across the country via on and off-street bike paths. USBRs create the opportunity for people of all abilities to bicycle for travel, transportation, and recreation.

In 2022, the Oklahoma Department of Transportation Commission approved the designation of historic Route 66 in Oklahoma as a new bicycle route. This historic route in Oklahoma is now a part of a national US Bike Route map, and more than 400 miles of bike route signage have been approved along the corridor. The bike route will pass through communities of all sizes including both Oklahoma City and Tulsa and include parts of state highways, city streets and county roads. It will also connect to segments in neighboring states that already have been designated as bike routes.

SAFETY

Pedestrian and bicyclist serious injury and fatalities have been increasing in Oklahoma in recent years even as the total of serious injury and fatality crashes overall has decreased. Due to the fact that bicyclists, pedestrians, wheelchair users, scooters and other active modes are largely unprotected by any sort of compartment or shield, these users are more vulnerable to injury and fatalities when they are involved in collisions and therefore, need greater protection. These users have been categorized as Vulnerable Road Users (VRU)[2] and as part of the federal Bipartisan Infrastructure Law (BIL), each state is required to complete a VRU assessment that studies safety trends related to VRUs and identifies opportunities to proactively improve them. The full VRU Assessment for Oklahoma roadways is provided as an appendix to the Strategic Highway Safety Plan (SHSP) and also included as Appendix A to this ATP. A brief summary of the finds is provided below.

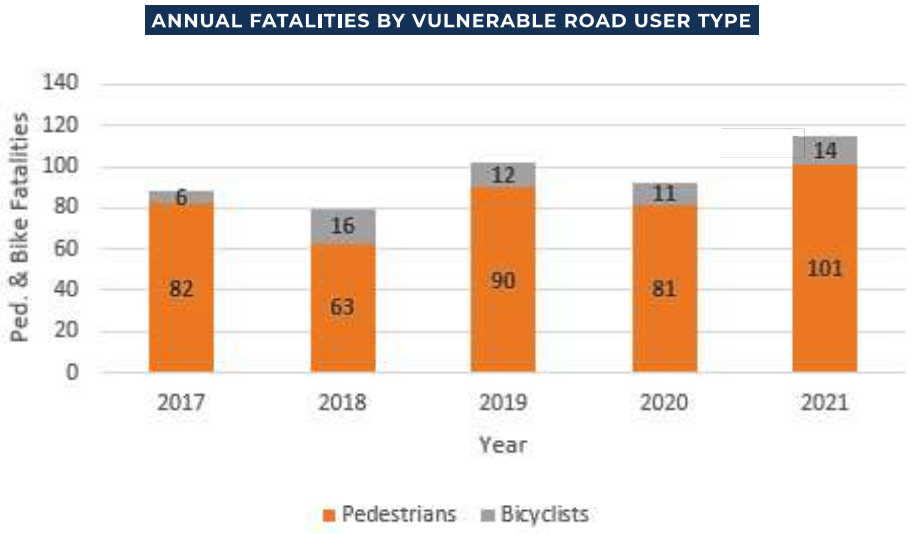
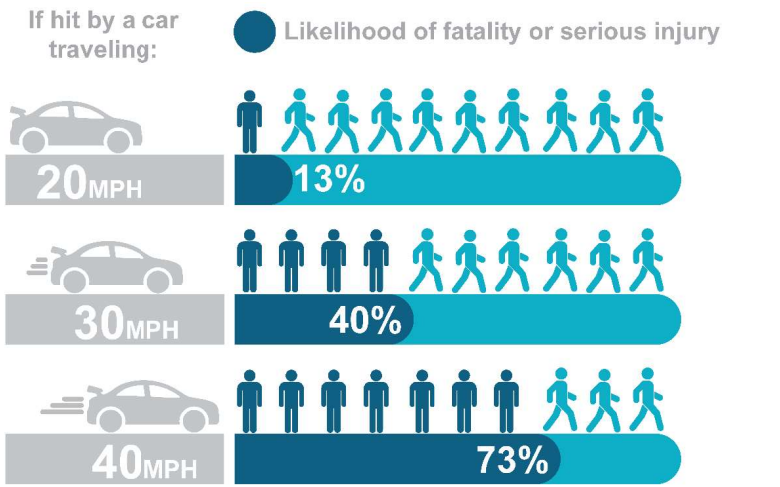


Figure 2: Annual Fatalaties by Vulnerable Road User Type

2 A vulnerable road user is a nonmotorist with a fatality analysis reporting system (FARS) person attribute code for pedestrian, bicyclist, other cyclist, and person on personal conveyance or an injured person that is, or is equivalent to, a pedestrian or pedalcyclist as defined in the ANSI D16.1-2007. (See 23 U.S.C. 148(a)(15) and 23 CFR 490.205). A vulnerable road user may include people walking, biking, or rolling. Please note that a vulnerable road user: • Includes a highway worker on foot in a work zone, given they are considered a pedestrian. • Does not include a motorcyclist.



Data Citation: Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.

Figure 3: Impact of Speed on Pedestrian Safety

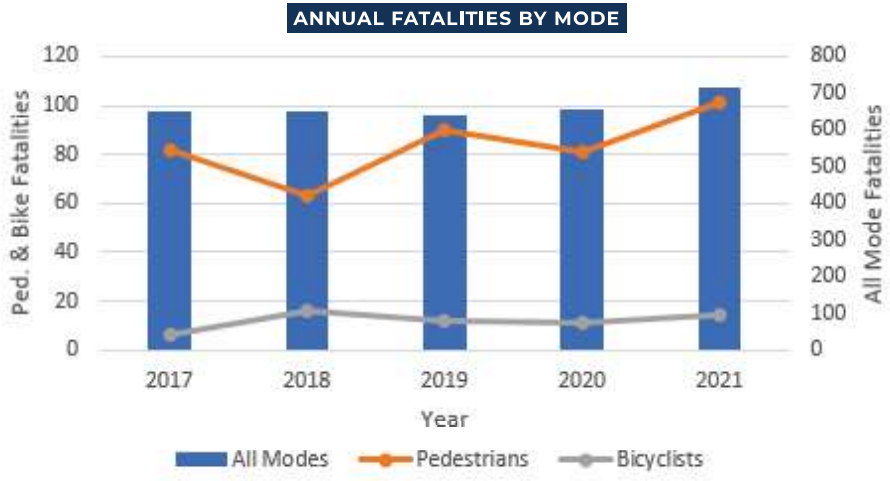


Figure 4: Annual Fatalities by Mode

Across Oklahoma, VRU fatalities and serious injuries have been on the rise, with a 23% increase in pedestrian fatalities across the state from 2017 through 2021. High density of crashes resulting in VRU deaths and serious injuries were found in urban areas, including Oklahoma City and Tulsa, but there were also high VRU fatalities and serious injury rates per 100,000 residents in smaller cities, including Norman, Lawton, and Muskogee. Additionally, given the greater number of American Indians living in Oklahoma and overrepresentation in pedestrian and bicycle crashes nationally, Tribal Communities were also a high-risk area. The VRU Safety High-Risk Areas are identified as the following:

- Oklahoma City and ACOG
- Tulsa and INCOG
- Norman
- Lawton
- Muskogee
- Tribal Communities

Analyses also identified an overrepresentation of these fatalities and injuries in disadvantaged communities across the state and particularly in our larger metro areas. Other key findings include higher rates of pedestrian fatalities and serious injuries, VRU fatalities and injuries in dark, unlit conditions, as well as a high rate of DUI and hit-and-run involvement. Analyses and consultations also noted the importance of focusing efforts and investments in communities with large indigenous populations, recognizing the unique needs and histories that the communities represent. These findings are key to informing Oklahoma authorities' decision making related to VRU safety and guiding the development of this VRU safety assessment. However, Oklahoma has made efforts to improve VRU safety in many existing policies, programs, and practices. This includes adding a new VRU Safety Emphasis Area in the 2023 SHSP, the 2045 LRTP, the ATP, the OHSO, safety awareness programs, such as Watch for Me OK program, and various policies underneath the Oklahoma Motor Vehicle Statues. However, more work needs to be done to reach zero VRU fatalities and serious injuries on all roads across Oklahoma.

The next steps in Oklahoma should include adopting a goal of zero VRU deaths or serious injuries by a target year in Oklahoma, moving towards fully embedding the Safe System Approach in all road safety decisions and prioritizing VRU safety across programs. This includes prioritizing resources and improvements in the identified VRU Safety High-Risk Areas and advancing the VRU Safety Strategies outlined, while also monitoring what improvements are working to prevent VRU deaths and serious injuries. Those improvements should be applied in similar conditions where crashes could occur to be sure that the state is utilizing a proactive approach to VRU safety.

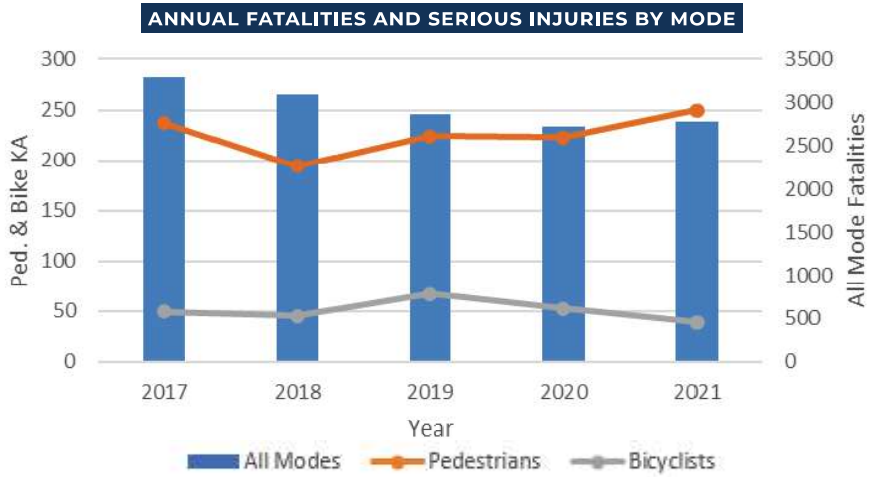


Figure 5: Annual fatalities and serious injuries by mode

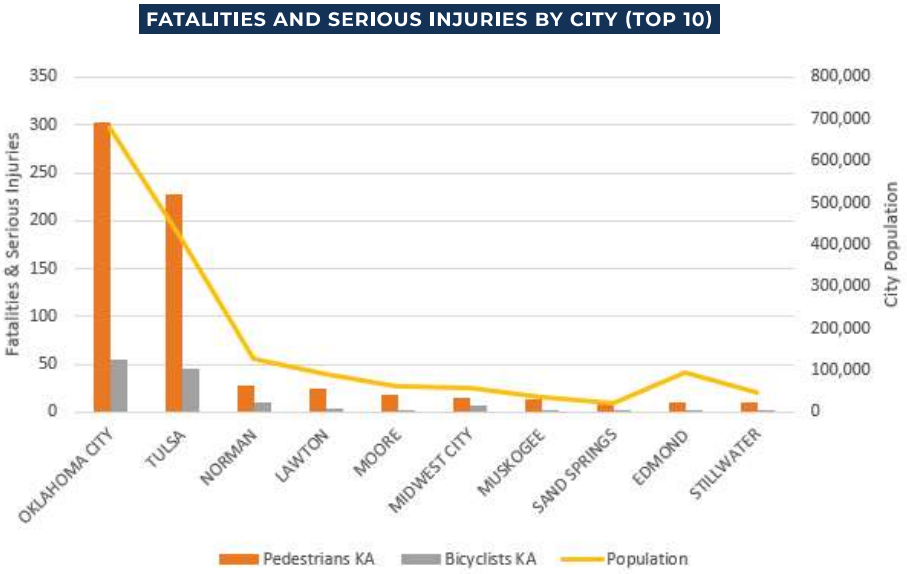


Figure 6: Fatalities and serious injuries by city (top 10)

Means of Transportation to Work

For nearly 70 years, most American communities have taken a car-centric approach to providing transportation infrastructure and many of the choices that Oklahomans make reflect that reality. As shown in Figure 8, nearly 86 percent of Oklahomans travel to work by car, truck, or van.[3] Only 0.2 percent currently commute by bike, 1.8 percent by walking, and 0.2 percent by public transportation. Over 10.4 percent of employees work from home in Oklahoma. This compares to national figures of nearly 76 percent commute by car, truck or van; 17.9 percent work from home; 0.4 percent commute by bicycle; 2.2 percent walking; 2.5 percent public transportation.

These data provide a snapshot of transportation habits; however, it is important to keep in mind that traveling to work is typically one of the longest trips that most people make on a regular basis and for many it may be simply too far to walk or bike to work. There are however many shorter trips that people make on a weekly basis that are prime opportunities for shifting to non-motorized trips.

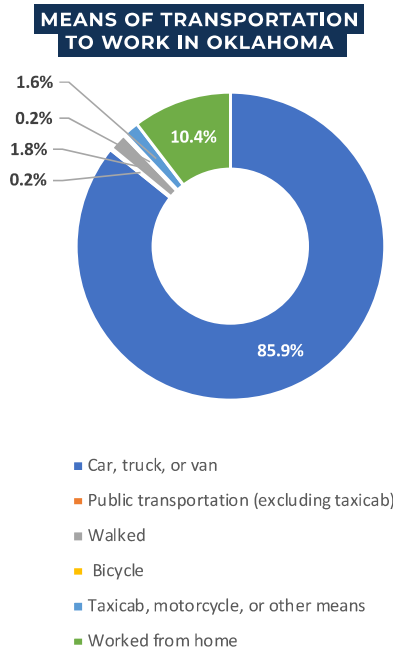


Figure 7: Means of Transportation to Work in Oklahoma (ACS 2021)

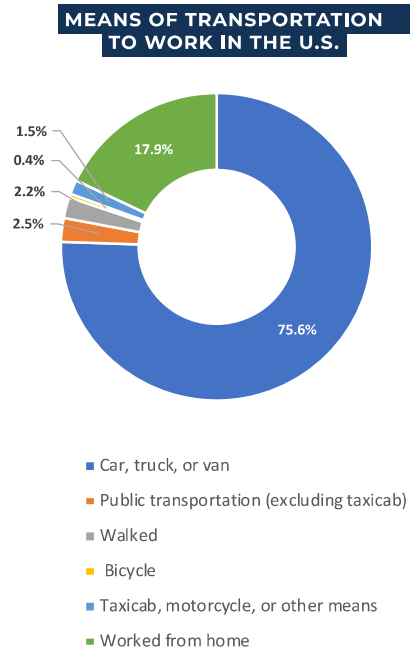


Figure 8: Means of Transportation to Work Nationally (ACS 2021)

3 2020 American Community Survey (ACS) 5-year estimates

Vehicles per Household

It is also useful to examine the number of households with limited car access who may walk or bike to destinations by necessity rather than choice. Five percent of Oklahoma households do not have access to a vehicle at all representing more than 80,000 households. An additional 483,106 households or 32% only have access to one car. This active transportation plan provides guidance to ensure that safe and connected networks are provided for those who do not have access to a vehicle, as well as encourage those who do have vehicles to choose active modes over driving for short trips of all types.

Vehicles per Household	Number of Households Estimate	Percentage of Households
No vehicle available	80,540	5.4%
1 vehicle available	483,106	32.3%
2 vehicles available	572,795	38.4%
3 vehicles available	240,434	16.1%
4 or more vehicles available	116,694	7.8%
Total Oklahoma Households	1,493,569	

Table 1: Vehicles per Household (ACS 2020)

Credit: Max Harris

ACTIVE TRANSPORTATION USER EXPERIENCE

Through multiple engagement opportunities, ODOT gathered input from the public to better understand the user experience from people who walk, bike and use other active modes on a regular basis or who would like to but do not feel safe or comfortable currently doing so. Engagement opportunities included an online survey housed on the project website, a series of ten virtual interactive workshops open to the public, and a focus group to gather information about school related travel. A full summary of the engagement opportunities and input gathered from the public is provided in Appendix B. Key takeaways are provided below.

Survey Key Takeaways

While nearly **93%** of respondents report getting around their community by driving, **42%** also walk and **36%** also bike. (Respondents could choose more than one mode.)

Many respondents use active transportation for health benefits and enjoyment.

Lack of infrastructure was the most commonly identified barrier to active transportation, followed by motor vehicle speeds and volumes.

NEARLY HALF of the respondents reported being involved in a near miss/close call while walking, bicycling, or using other active modes of transportation in Oklahoma.

Parks and trails were identified as the most important destination to reach by active transportation, followed by shopping, employment, and schools.

Sidewalk gaps were the top priority for improvements needed in respondents' neighborhoods.

Respondents indicated they were most comfortable biking on a multi-use trail and other facilities with separation from motor vehicle traffic, and the least comfortable biking in the street.

Online Workshop Takeaways

Nearly 170 attendees participated in the online public workshops which included 10 workshops over a in January 2023, one in each ODOT District plus additional workshops for the Tulsa and Oklahoma City Metro areas. Participants provided comments and built consensus around the following guiding principles of **Safety, Equity, Mobility, Connectivity, Livability, Coordination, and Education.** A full summary of survey comments is provided in Appendix C. A very high- level summary is provided below and organized by key themes:

SAFETY AND CONNECTIVITY CONCERNS

- High speeds
- Lack of sidewalks, shoulders, bike facilities
- Important destinations on busy streets with no sidewalk
- Long crossings or lack of crossings
- Conflicts with vehicles, trucks
- Lack of lighting, signage
- Low-income users disproportionately affected due to lack of vehicle access and other factors

EDUCATION AND AWARENESS

- Education is important for people to be proactive in their own safety.
- Add the protection of the vulnerable user, rights of bicyclists and pedestrians, laws and ordinance education.
- Need education for decision makers and the general public that these are valid uses of transportation, not just recreation.
- Promote Oklahoma as a destination/tourism.
- Maps of pedestrian/bicycle routes and signage with/in lieu of maps.

PLANNING, PROJECT DELIVERY, DESIGN & MAINTENANCE

- Keep pedestrian and bicycle needs at the forefront during typical transportation projects.
- Project prioritization methods are needed. Funding is heavily weighted towards highway projects.
- Need guide on how to plan and implement pilot projects.
- Active Transportation Plan at the regional level, grant program for funding, developing plans
- Serve diverse populations and people with multiple needs.
- Community input is valuable.
- Develop tools to measure equity.
- Address urban, suburban, AND rural needs.
- Need policies for highways that cross communities.
- Top-down policy and guidance would help to keep projects with amenities.
- Sidewalk maintenance falling on homeowners is a barrier to implementing more sidewalks.
- Tie recommendations to ODOT 8-year Construction Work Plan. Bundle projects where possible.
- Improved signage and maintenance (regular sweeping of bike lanes).

PARTNERSHIP AND COLLABORATION

- Sharing resources and collaboration is important.
- Need better coordination between local communities and ODOT.
- Work with communities to connect trails, sidewalks, and crossing barriers.

PLANNING AND POLICY FRAMEWORK

MULTI-JURISDICTIONAL ACTIVE TRANSPORTATION INFRASTRUCTURE PLANNING AND IMPLEMENTATION

Pedestrians, bicyclists and other active transportation users rely on a myriad of infrastructure that is planned, implemented, and maintained by a variety of jurisdictions. ODOT and city governments are involved in each of those steps. In addition, Metropolitan Planning Organizations (MPOs) also plan and fund infrastructure in urban areas and Regional Transportation Planning Organizations (RTPOs) educates local communities on funding opportunities in non-metropolitan areas. The Oklahoma Department of Tourism funds trails through the Recreational Trails Program (RTP).

While the greatest share of a community's active transportation network is often under local jurisdiction, connectivity to key destinations often includes access along and across US and State Highways as well. In Oklahoma, most US and State Highways are under the jurisdiction of ODOT and their primary function is to move people, goods and services long distances between cities. Different planning, design and maintenance policies may apply depending on the roadway's jurisdiction resulting in an increased need for multi-jurisdictional coordination as these roadways often serve a dual-function: state roads may serve as long-distance connections as well as small-town Main Streets where walking, on-street parking, and lower speed limits are important for active transportation safety, community vibrancy, and economic development. In other local communities, discount stores, grocery stores, and convenient stores that provide access to essentials such as food and medicine and are located along state roadways or at intersections along them.

ONGOING AND PREVIOUS PLANNING EFFORTS

The details of Active Transportation network planning largely occur at the local and regional level however, broader goals, strategies, and policies are often established at the state level through plans like this ATP, and other broad state transportation and safety documents like those summarized below. ODOT's internal policy directives, design standards, funding decisions, and state laws are other examples of how decisions at the state level can set an overall tone of support and impact local jurisdictions' ability to implement active transportation networks.

Credit: River Parks Authority

This section of the plan summarizes some of the most relevant plans at each level of government.

Long Range Transportation Plan (LRTP) 2045

The 2020–2045 LRTP is a policy document that guides ODOT in the development, management and operation of the state's transportation system for the next 25 years. The 2020–2045 LRTP provides strategic guidance for ODOT's long term vision referenced in the Introduction to this ATP – provide a connected, multimodal transportation system that supports a thriving economy and improved quality of life for Oklahomans by providing for safe and efficient movement of people and goods.

Chapter 10, Section 7 of the LRTP includes policies and strategies to address the needs of active transportation. This ATP incorporates and expands on those policies and strategies as indicated in the table on pages 29–31.

2023–2028 Strategic Highway Safety Plan

No more than every five years, Oklahoma Department of Transportation (ODOT) develops a multi-year Strategic Highway Safety Plan (SHSP) that focuses on all surface transportation modes, including highway, rail, transit, bicyclists, and pedestrians. The 2023–2028 SHSP was developed through a data-driven, comprehensive, multidisciplinary process that establishes statewide performance measures, goals, objectives, and several safety emphasis areas including Vulnerable Road Users (VRU) which includes active transportation. The SHSP describes a program of strategies to reduce or eliminate safety hazards using federal aid highway funds. The 2023–2028 SHSP includes a VRU assessment as described on pages 13–15 which identifies projects and strategies to improve VRU safety.

ODOT Action Plan for Implementing Pedestrian Crossing Countermeasures at Uncontrolled Locations

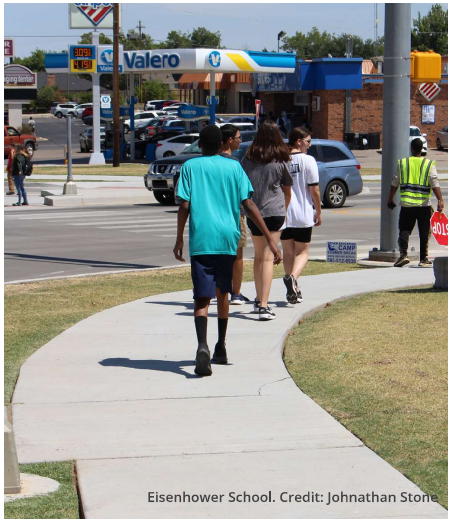
The ODOT Action Plan for Implementing Pedestrian Crossing Countermeasures at Uncontrolled Locations was developed as part of the Federal Highway Administration's (FHWA) Safe Transportation for Every Pedestrian (STEP) initiative and targets specific countermeasures for improving pedestrian safety at uncontrolled intersections. This document was tailored to Oklahoma and was developed with representatives from ODOT in coordination with the FHWA Division Office.

Credit: Zhao Wu

The Action Plan recommends actions that when implemented may reduce the number and rate of pedestrian crashes, fatalities, and injuries on Oklahoma and the nation's highways. If emulated by local transportation agencies, these benefits may also be realized on local roads. Many of the Action Plan recommendations are incorporated into the Chapter 3 Recommendation Strategies and Actions summarized in the tables on pages 29–31.

2018-2022 Statewide Comprehensive Outdoor Recreation Plan (SCORP)

The Oklahoma Statewide Comprehensive Outdoor Recreation Plan (SCORP) developed for the Oklahoma Department of Tourism provides an assessment of the state's recreational resources and management issues. SCORP provides Oklahoma decision-makers an analysis of the most significant outdoor recreation issues facing the people of Oklahoma and suggests strategies to address these issues during the next five years. The planning process found that Oklahomans want access to and provision of more recreational trails; the state lacks long trails that cross jurisdictional boundaries; and the state is missing out on health and economic benefits offered by trails. The SCORP recommends that Oklahoma update its now outdated statewide trail plan.



Eisenhower School. Credit: Johnathan Stone

Local and Regional Plans

While many communities in Oklahoma have developed bicycle, pedestrian, trail, safe routes to school, or active transportation plans, there is not a comprehensive inventory of these plans. However,Oklahoma's three MPOs and the Frontier MPO which covers the Ft. Smith, Arkansas region and portions of eastern Oklahoma have each developed regional active transportation plans:

- Oklahoma City Area Regional Transportation Study (OCARTS) Area Active Transportation Plan
- Indian Nation Council of Governments GO Plan Tulsa Regional Bicycle and Pedestrian Master Plan
- Lawton Metropolitan Planning Organization Bicycle and Pedestrian Plan Phase 1 Route Analysis & Feasibility Study
- Frontier Metropolitan Planning Organization Regional Pedestrian and Bicycle Plan 2016

State Laws

A summary of the most relevant laws affecting pedestrians and bicyclists is provided below. Appendix D includes general resources for active transportation planning, design, and implementation as well as model polices for pedestrian and bicycle laws:

- PEDESTRIAN RIGHT-OF-WAY IN CROSSWALKS (47 OK STAT § 11-502 (2022))
  - When traffic-control signals are not in place or not in operation, the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway within a crosswalk. Whenever a vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle.
- PEDESTRIANS CROSSING AT LOCATIONS OTHER THAN CROSSWALKS (47 OK STAT § 47-11-503 (2016))
  - Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway. Between adjacent intersections at which traffic-control signals are in operation pedestrians shall not cross at any place except in a marked crosswalk.


Bike Safety Class in OKC. Credit Bill Elliott

- PEDESTRIANS ON ROADWAYS OR BRIDGES (47 OK STAT § 11-506 (1986))
  - Where sidewalks are provided, it shall be unlawful for any pedestrian to walk along and upon an adjacent roadway. Where sidewalks are not provided, any pedestrian walking along and upon a highway shall, when practicable, walk only on the left side of the roadway or its shoulder facing traffic which may approach from the opposite direction and shall yield to approaching vehicles.
- SAFE PASSING LAWS (47 OK STAT § 47-11-1208 (2014))
  - When overtaking and passing a bicycle proceeding in the same direction, a person driving a motor vehicle shall exercise due care by leaving a safe distance between the motor vehicle and the bicycle of not less than three (3) feet until the motor vehicle is safely past the overtaken bicycle.
- SHARE THE ROAD LICENSE PLATES (47 OK STAT § 1135.3V1 (2022))
  - Authorizes to design and issue appropriate official special license plates to persons wishing to demonstrate support, interest, or membership to or for an organization, occupation, cause or other subject.
- DISTRACTED DRIVING LAWS (47 OK STAT § 11-901B (2022))
  - The operator of every vehicle, while driving, shall devote their full time and attention to such driving.
- MANDATORY USE OF SEPARATED FACILITIES (47 OK STAT § 47-11-1205 (2018))
  - Every person operating a bicycle or motorized scooter upon a roadway at less than the normal speed of traffic at the time and place and under the conditions then existing shall ride as close as is safe to the right-hand curb or edge of the roadway, except under specified conditions.
- BICYCLING UNDER THE INFLUENCE (47 OK STAT § 47-11-902V1 (2017))
  - It is unlawful and punishable as provided in this section for any person to drive, operate, or be in actual physical control of a motor vehicle within this state, whether upon public roads, highways, streets, turnpikes, other public places or upon any private road, street, alley or lane which provides access to one or more single or multifamily dwellings, who is under the influence of alcohol or any intoxicating substance other than alcohol.

- "IDAHO STOP" AND VEHICLE DETECTION ERRORS (47 OK STAT § 11-202 (2022))
  - A person operating a bicycle approaching a stop sign shall slow down, if required to avoid an immediate hazard, stop at the stop sign before entering the intersection, and cautiously enter the intersection and yield the right-of-way to pedestrians within an adjacent crosswalk and to other traffic using the intersection. If a person operating a bicycle determines there is no immediate hazard, he or she may cautiously make a right or left turn, or proceed through the intersection without stopping at the stop sign.
  - A person operating a bicycle approaching a steady red traffic-control signal shall make a complete stop at the steady red traffic-control signal before entering the intersection, and yield the right-of-way to all oncoming traffic that constitutes an immediate hazard during the time that he or she is moving across or within the intersection. If a person operating a bicycle determines there is no immediate hazard, he or she may proceed through the steady red traffic-control signal with caution.
- AUTHORIZATION FOR LOCAL REGULATION OF BICYCLES (47 OK STAT § 15-102 (2022))
  - Regulating the operating of bicycles and requiring the registration and licensing of same, including the requirement of a registration fee.
- DOORING LAW (47 OK STAT § 11-1105 (2022))
  - No person shall open the door of a motor vehicle on the side available to moving traffic unless and until it is reasonably safe to do so, nor shall any person leave a door open on the side of a vehicle available to moving traffic for a period of time longer than necessary to load or unload passengers.
- ELECTRIC BIKES AND OTHER ELECTRIC MICRO-MOBILITY DEVICES (47 OK STAT § 1-104 (2022))
  - A bicycle is a device upon which any person or persons may ride, propelled solely by human power through a belt, chain, or gears, and having two or more wheels, excluding mopeds. An electric-assisted bicycle is any bicycle with two or three wheels; and fully operative pedals for human propulsion and equipped with an electric motor with a power output of not more than seven hundred fifty (750) watts that meets the requirements of one of the three classes.

Oklahoma does not currently have the following statutes, but best practice and recommendations are provided for each in the appendix.

- Treatment as a Vehicle (N/A)
- Vulnerable Road User Laws (N/A)
- Sidewalk Riding (N/A)
- Helmet Law (N/A)

Peoria Ave and 67th St, Tulsa. Credit: Zhao Wu


Credit Bill Elliott

03 CHAPTER

Bike Safety Class in OKC. Credit: Bill Elliott

CHAPTER 3. RECOMMENDATIONS AND STRATEGIES

This Chapter provides an overview of recommended strategies organized by key themes that will help accomplish the Vision and Goals of the plan that were detailed in Chapter 1.

Planning Themes and Recommended Strategies

Since many of the recommended programmatic and policy strategies developed for this plan address multiple plan goals simultaneously, we have organized them below according to the following plan themes:

- Safety and Connectivity
- Planning, Design, Project Delivery, and Maintenance
- Education and Awareness
- Partnership and Collaboration

The tables below summarize the recommendations and the goals they address.

SAFETY AND CONNECTIVITY		Active Transportation Guiding Principles						
		SAFETY	EQUITY	MOBILITY	CONNECTIVITY	LIVABILITY	COORDINATION	EDUCATION
SC1	Use a systemic approach to active transportation safety that identifies and prioritizes sites for appropriate safety countermeasures based on crash risk factors	x	x			x		
SC2	Utilize the state's forthcoming Vulnerable Road User (VRU) Analysis to identify and prioritize projects and strategies to reduce safety risks for vulnerable road users in high-risk areas	x	x			x		
SC4	Support expansion of active transportation networks in both urban and rural areas	x	x	x	x	x		
SC5	Work with local communities to eliminate gaps and barriers in the active transportation network.	x		x	x	x		
SC6	Add shoulders on portions of the state highway system that lack them or have deficient shoulders. (Updated) LRTP	x		x	x			
SC7	Improve active transportation data collection (user volumes, exposure, facility inventories) to establish baselines for improvements to safety and connectivity						x	
SC8	Use the prioritization system in the ODOT ADA Self-Evaluation and Transition Plan to implement sidewalk, ramp, and marked crossing improvements at controlled and uncontrolled locations throughout the state.	x	x	x	x	x		
SC9	Cross-reference findings and recommendations from the VRU assessment and ADA prioritization system to create a comprehensive prioritization plan for all ODOT pedestrian safety projects.	x	x	x	x	x	x	
SC10	Continue to provide pedestrian signals, warning beacons, signage, striping, and lighting at intersections of state routes with high-volume pedestrian crossings. (Existing) LRTP	x						

PLANNING, DESIGN, PROJECT DELIVERY & MAINTENANCE		Active Transportation Guiding Principles						
		SAFETY	EQUITY	MOBILITY	CONNECTIVITY	LIVABILITY	COORDINATION	EDUCATION
PDM1	Support local planning for and documentation of active transportation needs through active transportation planning resources, technical assistance, and coordination		x				x	x
PDM2	Create an online map and database inventory of local active transportation plans to facilitate multijurisdictional collaboration		x				x	
PDM3	Institutionalize the consideration of active transportation users into the ODOT planning, design, project delivery and maintenance process through strategies such as: • Checklists/memos • Documentation of project delivery process • Monthly or Quarterly cross division meetings • Greater integration of active transportation in District 8-year plans	x	x		x		x	
PDM4	Centralize active transportation information and resources through a robust program webpage.						x	x

PDM5	Institutionalize and facilitate best practices in active transportation design at both the state and local level. Examples:
	• Development/Provision of Design resources/ toolkits
	• Review and update DOT existing manuals such as:
	  • Roadway Design Standards & Specifications
	  • Traffic Engineering Standards & Specifications
	  • 2009 Special Provisions
	  • Roadway Design Manual
	• Trainings for staff, consultants, locals partners
		x			x		x	x

PDM6	Develop maintenance guidelines that address active transportation user needs	x			x			x
PDM7	Assess and adjust project selection criteria for grant-based programs such as Transportation Alternatives and others to include points for existing active transportation plans, equity, rural vs. urban and other considerations		x					
PDM8	Increase percentage of Transportation Alternatives funds that are spent on active transportation related infrastructure.				x	x		

EDUCATION AND AWARENESS		Active Transportation Guiding Principles						
		SAFETY	EQUITY	MOBILITY	CONNECTIVITY	LIVABILITY	COORDINATION	EDUCATION
EA1	Coordinate with partners to disseminate safety educational information to the public						x	x
EA2	Develop active transportation communications/ promotion strategy around mode shift and increased awareness of benefits of active transportation use			x		x		x
EA3	Develop and promote ODOT's active transportation program and coordinator as resources for local communities and a clearinghouse for funding information and technical resources internally and externally.							x
EA4	Build capacity at the state and local level to leverage federal active transportation funding sources and deliver high-quality active transportation facilities across the state through the provision of trainings, webinars, toolkits, and other resources to a variety of audiences	x			x		x	x
EA5	Track and share progress on the implementation of the ATP and other gains for active transportation							x

PARTNERSHIP AND COLLABORATION		Active Transportation Guiding Principles						
		SAFETY	EQUITY	MOBILITY	CONNECTIVITY	LIVABILITY	COORDINATION	EDUCATION
PC1	Increase internal ODOT coordination						x	
PC2	Strengthen and continue ongoing coordination with other state agencies such as Tourism & Recreation, Education, Health, TSET, Department of Commerce/ Oklahoma's Main Street Program						x	
PC3	Support local communities', RTPOs' and MPOs' active transportation efforts						x	x
PC4	Integrate pedestrian and bicycle infrastructure to create more multimodal opportunities				x	x	x	
PC5	Work with ODOT legislative liaison to consider changes to state law to improve active transportation user safety and acceptance	x	x		x			x

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04 CHAPTER

Red Rock Canyon State Park, Hinton, Oklahoma. Credit: Bill Elliott

Credit: Zhao Wu

CHAPTER 4. IMPLEMENTATION

As Oklahoma looks towards the implementation of this first-ever Active Transportation Plan, it is important to recognize that building more statewide capacity for implementation of high-quality active transportation infrastructure and programs will require solidifying relationships with federal, state, and local government partners as well as private foundations; fostering a sense of true collaboration; and rolling out new policies and programs strategically to create the necessary building blocks for success. Some recommendations will take years to fully implement while others may already be partially underway or easily completed within the first couple years. This section of the plan identifies key partners for implementation and their roles and responsibilities as well as a brief overview of funding and immediate next steps towards implementation.

- Building Partnerships
- Funding Overview
- Immediate Next Steps

Building Partnerships

INTERNAL COORDINATION

ODOT should continue to strengthen partnerships within the agency including in particular between Government Affairs, Multimodal, Roadway Design, Traffic Engineering, and Local Government. These partnerships will help ensure that active transportation needs are considered early in the planning, scoping and design process; that design manuals reflect the latest in active transportation best practices; and funding is allocated to active transportation projects.

STATE PARTNERS

Many partners such as Tourism & Recreation, Education, Health, TSET, Department of Commerce/Oklahoma's Main Street Program also play an role in active transportation across the state. Continuing to work with these partners through the Active Transportation Committee and other efforts will be essential.

METROPOLITAN PLANNING ORGANIZATIONS AND REGIONAL TRANSPORTATION PLANNING ORGANIZATIONS

ODOT should continue to partner with Metropolitan Planning Organizations (MPOs) responsible for conducting urban transportation planning processes in Oklahona's metropolitan regions, and Regional Transportation Planning Organizations (RTPOs) that work to identify and address rural needs/issues. These agencies are important links between ODOT, the federal government and local jurisdictions of all sizes.

ADVOCATES AND PRIVATE GROUPS

Advocates and private organizations can also play an important role in identifying needs, supporting projects and identifying funding from alternative sources.

Funding Overview

Similar to other transportation modes, active transportation funding support comes from federal, state, local, and private funding sources, all of which have their own funding schedules, amounts, and eligibility requirements. This section summarizes existing federal and state funding programs that can help fund active transportation in Oklahoma.

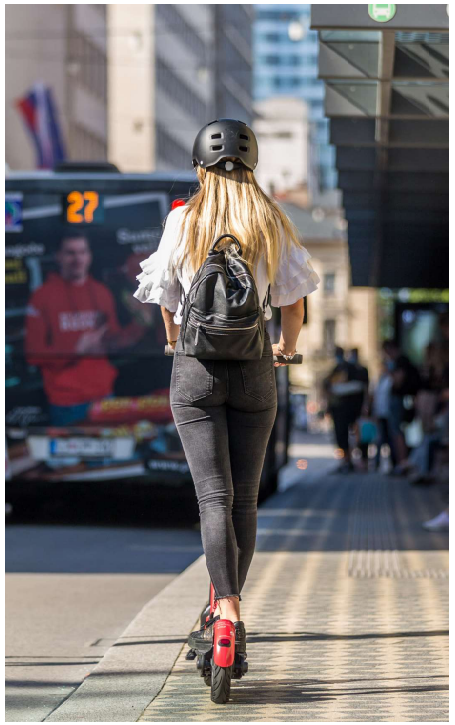
FEDERAL TRANSPORTATION PROGRAMS

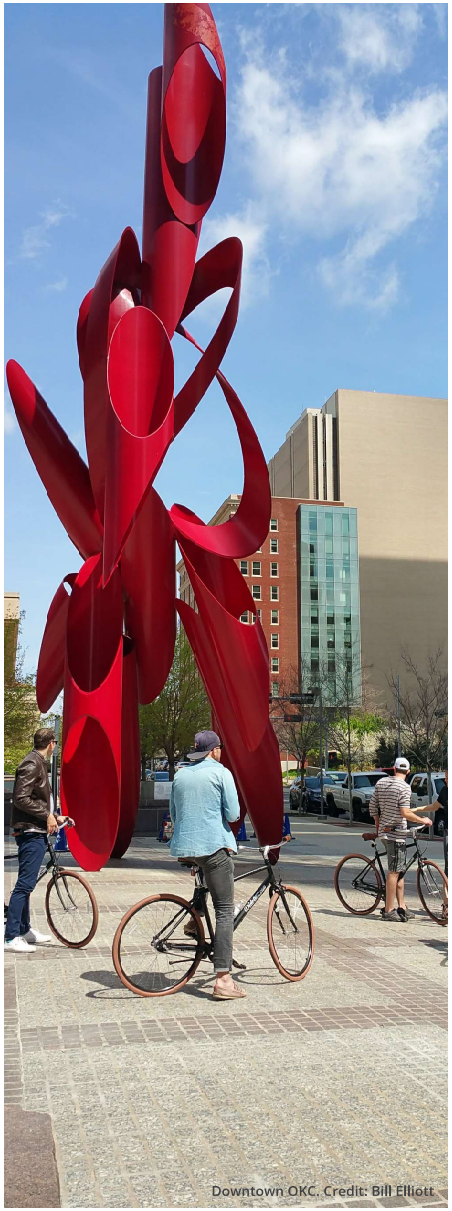
The Bipartisan Infrastructure Law (BIL), passed in November 2021, reauthorized many important surface transportation funding programs, with more funds available and more specific language on the importance of a balanced transportation system for all users. The legislation boosts existing programs that fund planning, implementation, maintenance, and programming around active transportation. The federal programs that are most critical to funding active transportation projects include:

- Active Transportation Infrastructure Investment Program
- Surface Transportation Block Grant Program (STBG)
- Transportation Alternatives STBG set-aside (TA)
- Recreational Trails Program TAP set-aside (RTP)
- Highway Safety Improvement Program (HSIP)
- Congestion Mitigation and Air Quality (CMAQ)
- Safe Streets and Roads for All Grant Program (SS4A)

ACTIVE TRANSPORTATION INFRASTRUCTURE INVESTMENT PROGRAM

The Active Transportation Infrastructure Investment Program (ATIIP) awards competitive grants to eligible organizations (a local or regional governmental organization, planning organization or council; a multicounty special district; a State; a multistate group of governments; or Tribes) to plan, design, and construct networks of safe and connected active transportation facilities that connect between destinations within a community or metropolitan region. Additionally, the program may fund projects to plan, design, and construct an active transportation spine, a facility that connects between communities, metropolitan regions, or States. Additional details on how to apply for this funding is available at fhwa.dot.gov/environment/bicycle_pedestrian/atiip/.





Downtown OKC. Credit: Bill Elliott

SURFACE TRANSPORTATION BLOCK GRANT (STBG)

On a national scale, BIL increased the overall formula funding for STBG from $12.1 billion to an escalating annual amount starting at $13.8 billion for projects that preserve or improve conditions and performance on any Federal-aid highway, public road bridge projects, facilities for nonmotorized transportation, transit capital projects, and public bus terminals and facilities. Shared micromobility was added as an eligible use.

TRANSPORTATION ALTERNATIVES (TA)

TA encompasses a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity. It is the nation's largest dedicated source of funding for trail and active transportation projects. The U.S. Department of Transportation Federal Highway Administration (FHWA) allocates funding to states where state departments of transportation and metropolitan planning organizations administer their own competitive process and deal directly with applicants. The BIL increased funding for the TA by nearly 70%. The program now is a 10% set-aside (annual average of $1.44 billion) from the STBG program. States are also now allowed to use up to 5% of available funds for technical assistance to administer grants and assist local governments in applying.

RECREATIONAL TRAILS PROGRAM (RTP)

The RTP provides funds to the states to develop and maintain recreational trails and trail-related facilities for motorized and nonmotorized recreational trail uses. Eligible projects include: maintenance and restoration of existing recreational trails; development and rehabilitation of trailside and trailhead facilities and trail linkages for recreational trails; purchase and lease of recreational trail construction and maintenance equipment; construction of new recreational trails (with specific requirements when federal land is involved); acquisition of easements and fee simple title for recreational trail corridors; and assessment of trail conditions. The U.S. Department of Transportation Federal Highway Administration (FHWA) allocates funding to states. States must use 30% of their funding for motorized trail uses, 30% for nonmotorized use trails, and 40% for diverse trail uses. Under the Bipartisan Infrastructure Law, annual funding for the program maintains at $84 million annually.

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

The purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. HSIP funds can be used for any transportation safety improvement project on any public road or publicly owned bicycle or pedestrian pathway or trail. With the passage of the Bipartisan Infrastructure Law, there were new and significant changes to the HSIP, which include increased overall funding, as well as a new reform for biking and pedestrian safety. This new policy mandates that in states, including Oklahoma, where 15% or more of the community's annual crash fatalities are biking or pedestrian fatalities, these states must spend 15% or more of their HSIP funds to address safety improvement for vulnerable road users (e.g., pedestrians, bicyclists and wheelchair users). Distribution of HSIP funds are to be data driven and related to the goals, objectives, and strategies indicated in the Oklahoma Strategic Highway Safety Plan.

CARBON REDUCTION PROGRAM (CRP)

The CRP will help fund a wide range of projects designed to reduce transportation emissions from on-road highway sources. Included as an eligible use of funds are Transportation Alternative-eligible projects, including the construction, planning, and design of on- and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation—a move that recognizes the role that trails and active transportation play in addressing and mitigating the climate impacts of the transportation sector, the largest carbon emitting sector in the U.S. Any other Surface Transportation Block Grant Program (STBG)-eligible projects are also eligible for CRP funding if a state can demonstrate to the Secretary of Transportation that the project reduces transportation emissions.

Other projects not listed as an eligibility may still be eligible for CRP funds if they can demonstrate a reduction in transportation emissions consistent with the CRP's goals. These include efforts that support mode shift and the increased safety and separation of motor vehicles from vulnerable road users and micromobility and electric bike projects. Projects that add lane capacity for single occupant vehicles use will not be eligible without demonstrating emissions reductions over the project's lifecycle.[4]

CONGESTION MITIGATION AND AIR QUALITY (CMAQ)

The CMAQ Program provides a flexible funding source to state and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas). In addition to continuing to fund activities that were previously allowed under CMAQ, under BIL, these funds are also eligible for spending on shared micromobility, including bikesharing and shared scooter systems.

SAFE STREETS AND ROADS FOR ALL GRANT PROGRAM (SS4A)

The Bipartisan Infrastructure Law (BIL) established the new Safe Streets and Roads for All (SS4A) discretionary program, with $5 billion in appropriated funds over 5 years, 2022-2026. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries. The SS4A program supports the U.S. Department of Transportation's National Roadway Safety Strategy and goal of zero roadway deaths.

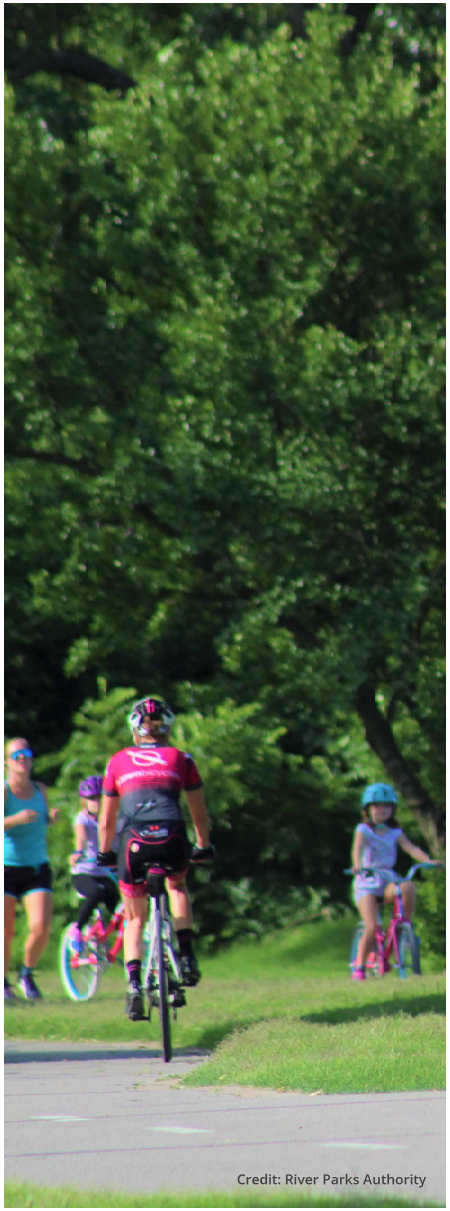
Counties, cities, towns, transit agencies, and other special districts that are political subdivisions of a State; Metropolitan planning organizations (MPOs); and federally recognized Tribal governments are eligible to apply for funds.

RECONNECTING COMMUNITIES AND NEIGHBORHOODS (RCN) PROGRAM

This program combines two major discretionary grants, Reconnecting Communities Pilot (RCP) and Neighborhood Access and Equity (NAE) into one Notice for Funding Opportunity (NOFO). Together, this combined program will be known as the Reconnecting Communities and Neighborhoods (RCN) Program. While they remain separate programs for the purposes of award, the programs share many common characteristics, including:

- Prioritizing disadvantaged communities;
- Aiming to improve access to daily needs such as jobs, education, healthcare, food, and recreation;
- Fostering equitable development and restoration;
- Reconnecting communities by removing, retrofitting, or mitigating highways or other transportation facilities that create barriers to community connectivity, including to mobility, access, or economic development.

4 https://www.railstotrails.org/policy/funding/climate/crp/



Credit: River Parks Authority

Immediate Next Steps

Implementing this Active Transportation Plan will require cooperation among many partners within ODOT, across state agencies, and with local partners and communities. Immediate next steps include adopting this plan, publishing to ODOT's website and beginning to prioritize and implement the recommendations listed on pages 29–31. ODOT should begin that this process be including recommendations into departmental work plans within ODOT and leveraging the ongoing support of staff and partners who were involved in the development of this plan. ODOT should also work to align the recommendations with existing performance measures.

GLOSSARY

There are many terms used to describe different components of the transportation system, treatments, and bikeway types. To promote consistency and ease of understanding, the following terms are used throughout this Active Transportation Plan.

Accessible: Able to be reached or used by people of all levels of abilities. Often used to describe a facility that is, at a minimum, compliant with the Americans with Disabilities Act (ADA, see below).

Active Transportation: An umbrella term for all the ways people can get around in an active manner, such as walking, biking, using mobility assistance devices (such as wheelchairs and scooters), in-line skating, skateboarding, and more.

Americans with Disabilities Act (ADA): The Americans with Disabilities Act (ADA) is a comprehensive federal statute that prevents discrimination and requires equal opportunity in the areas of employment, transportation, state and local services, programs and activities, public accommodations and communications. Federal standards provide guidance on accessible routes, curb ramps, transit shelters, and other elements of the built environment. For more info, visit www.ada. gov/index. html

Infrastructure: In the context of this plan, infrastructure refers to any type of physical treatment or facility designed to be used by active transportation modes (biking, walking, skateboarding, using a wheelchair, riding a scooter). Infrastructure examples could be linear, such as sidewalks, trails, or on-street bikeways, or they could be at specific locations, such as curb extensions, pedestrian crossing islands, or marked crosswalks.

Barrier: In the context of this plan, a barrier is some kind of obstacle that prevents movement or access via active transportation. Natural barriers could be lakes, rivers, or mountains, while unnatural barriers could be highways, walls, or fences.

Bikeway: Any type of bicycle facility, including paths in separate rights-of-way and on-street bikeways. Includes bike lanes, paved shoulders, signed bike routes, and sidepaths.

Bikeshare: A service made available by public or private entities where individuals may access shared bicycles on a short-term basis for a price or for free.

Capital Improvement Program (CIP): A short-range plan that identifies and plans for capital projects and related financing options.

Complete Streets: Streets that are designed to provide safe and convenient travel along and across streets for all users, including pedestrians, bicyclists, riders and drivers of public transportation, as well as drivers of other motor-vehicles, and people of all ages and abilities, including children, older adults, and individuals with disabilities.

Curb Extension: Treatment or application designed to visually and physically narrow the roadway in order to create safer and shorter crossing distances for pedestrians while increasing the available space for street furniture, benches, plantings, and trees.

FHWA: Federal Highway Administration. Gap - In the context of this plan, a gap is a break in continuity of infrastructure. An example could be a section of sidewalk that is missing between two other segments of sidewalks. Network: In the context of this plan, "network" refers to the system of active transportation infrastructure that are connected to enable access to a wide variety of destinations.

Infrastructure: In the context of this plan, infrastructure refers to any type of physical treatment or facility designed to be used by active transportation modes (biking, walking, skateboarding, using a wheelchair, riding a scooter). Infrastructure examples could be linear, such as sidewalks, trails, or on-street bikeways, or they could be at specific locations, such as curb extensions, pedestrian crossing islands, or marked crosswalks.

Micromobility: Transportation over short distances provided by lightweight, usually single-person vehicles (such as bicycles and scooters).

Mid-Block Crossing: Designated crosswalks away from an established intersection provided to facilitate crossings at places where there is a significant pedestrian desire line such as bus stops, parks, and building entrances.

Mobility: The potential for movement and the ability to get from one place to another using one or more modes of transport to meet daily needs. As such, it differs from accessibility, which refers to the ability to access or reach a desired service or activity.

Mode Split: The percentage of travelers using a particular type of transportation (e.g., driving, biking, walking, transit).

Multimodal: Refers to transportation and land use planning that considers diverse transportation options, typically including walking, cycling, public transit and automobile, and accounts for land use factors that affect accessibility.

Pavement Markings: Pavement markings are used to convey messages to roadway (or shared use path) users. They indicate which part of the road to use, provide information about conditions ahead, and indicate where passing is allowed.

Performance Measure: A metric used to determine progress or setbacks toward achieving a specific goal and objective. Performance measures are usually tracked regularly (e.g., annually) to understand trends.

Placemaking: Creating places and focuses on transforming public spaces to strengthen the connections between people and these places. Placemaking is a process centered on people and their needs, aspirations, desires, and visions, which relies strongly on community participation.

Raised Crosswalk: Traffic calming treatment at a pedestrian crossing or crosswalk that raises the entire wheelbase of a vehicle to encourage motorists to reduce speed.

Right of Way: A right to make a way over a piece of land, usually to and from another piece of land, for transportation purposes.

Separated Bike Lane: One or two way bikeway that combines the user experience of a sidepath with the on street infrastructure of a conventional bike lane. They are physically separated from both motor vehicle and pedestrian traffic.

Shared Lane Marking: Shared lane markings (or "sharrows") are pavement markings that denote shared bicycle and motor vehicle travel lanes.

Shared Use Path: Shared use paths, also commonly referred to as trails or greenways, are paths designed for and generally used by bicyclists, pedestrians, and other non-motorized users.

Speed Management: A set of measures to limit the negative effects of excessive and inappropriate speeds.

Traffic Calming: A strategy to slow the speed of motor vehicle traffic to a "desired speed" by incorporating physical features, such as chicanes, mini traffic circles, speed humps, and curb extensions.

Transportation Demand Management (TDM): A set of strategies aimed at maximizing traveler choices. Managing demand is about providing travelers, regardless of whether they drive alone, with travel choices, such as work location, route, time of travel, and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability

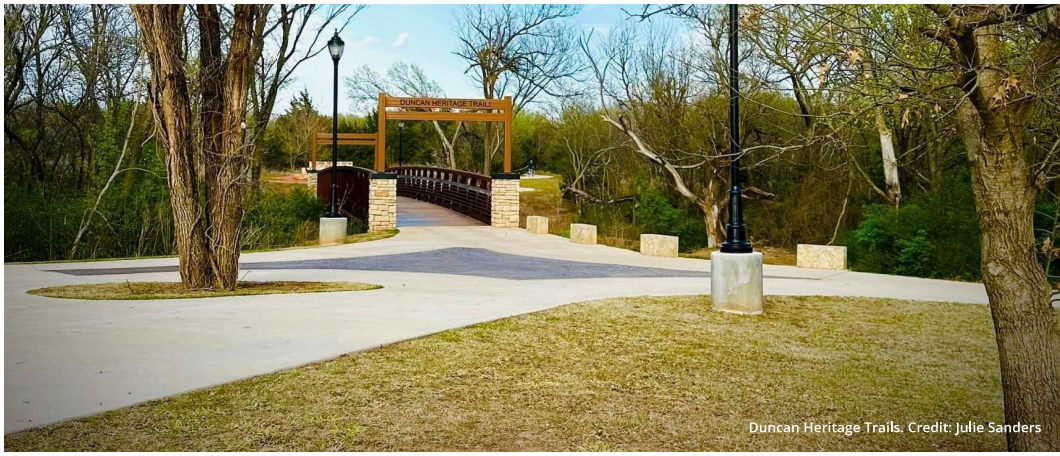
Vulnerable (Users and/or Modes): Non-motorists including pedestrians, bicyclists, other cyclists, and persons on personal conveyances.

Walkable: An area or a route that is suitable or safe for walking. Walking - Walking is an inclusive term that includes both ambulatory and non-ambulatory modes. Walking encompasses all forms of mobility devices, including using a wheelchair, cane, walker, or other mobility device that allows the user to travel at human speed.

Wayfinding: A system of directional signs along streets or paths that assist people in finding major destinations. Wayfinding can be designed specifically for drivers, bicyclists, or pedestrians.

Credit: Zhao Wu

APPENDICES



Duncan Heritage Trails. Credit: Julie Sanders

APPENDICES

VULNERABLE ROAD USER SAFETY ASSESSMENT

November 14, 2023

OKLAHOMA Transportation

CONTENTS

Disclaimers

Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, and commentary contained herein are based on limited data and information and on existing conditions that are subject to change. Further analysis and engineering design are necessary prior to implementing any of the recommendations contained herein. Geographic and mapping information presented in this document is for informational purposes only, and is not suitable for legal, engineering, or surveying purposes. Data products presented herein are based on information collected at the time of preparation. Toole Design Group, LLC makes no warranties, expressed or implied, concerning the accuracy, completeness, or suitability of the underlying source data used in this analysis, or recommendations and conclusions derived therefrom.

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INTRODUCTION

Purpose

A vulnerable road user (VRU) is defined as a person walking, bicycling, or rolling, using a mobility assistance device, or a roadway worker or first responder on foot per the Code of Federal Regulations, and are coded as a Pedestrians, Pedestrian Conveyance, Bicyclist, and Other Cyclist on the Oklahoma SAFE-T Database.[1, 2, 3]

In 2021, 115 people were killed while walking, bicycling, or rolling across all roads in Oklahoma, reaching the highest number in the last five years. From 2017 through 2021, 85% of VRU deaths were pedestrians (326 of 385 lives lost). Figure 1 below shows the annual VRU fatalities based on the mode used by the person killed.

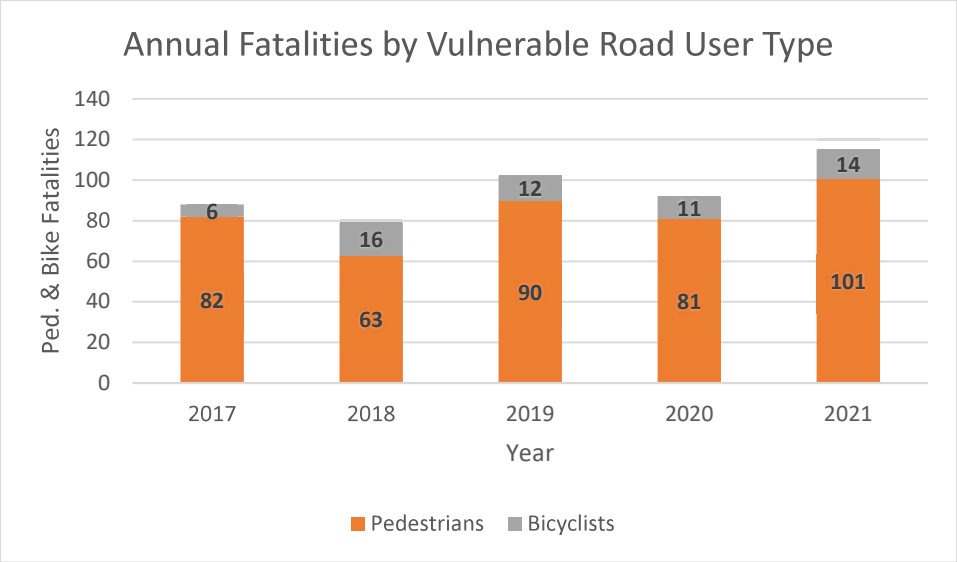


Figure 1. Annual fatalities by mode across Oklahoma (Source: SAFE-T Database 2017-2021)

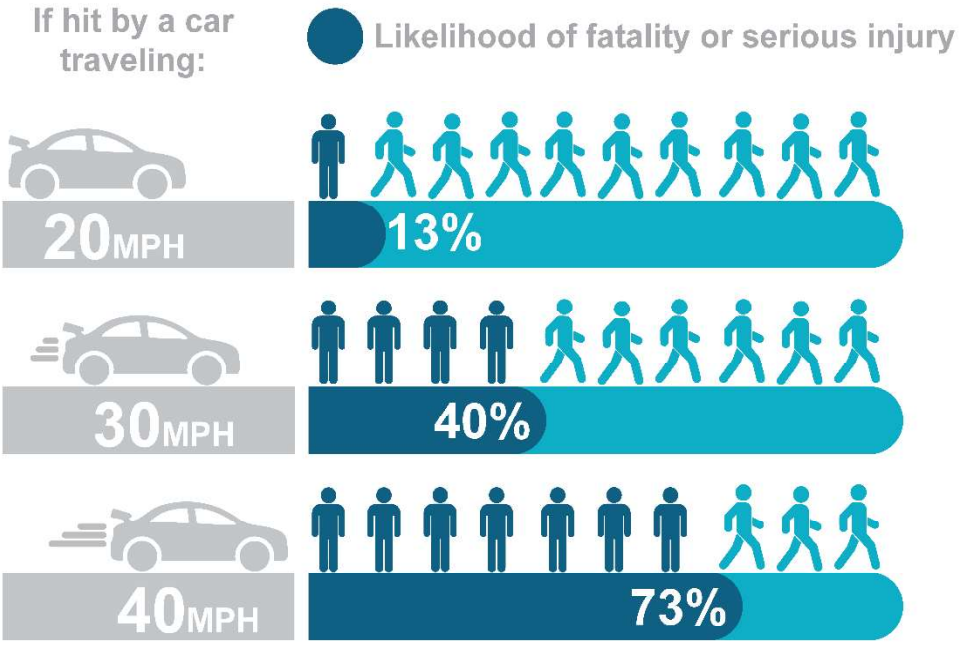
The first Oklahoma Department of Transportation (ODOT) VRU Safety Assessment (the "Assessment") and new Vulnerable Road Users Emphasis Area in the 2023-2028 Strategic Highway Safety Plan (SHSP) are focused on understanding historical factors of reported crashes impacting VRU deaths and serious injuries to inform future safety strategies and processes across all roads in Oklahoma. Preventing deaths

[1] https://highways.dot.gov/safety/hsip/hsip-special-rules

[2] https://www.odot.org/traffic/files/safe-t-training.pdf

[3] Motorcycles are not included as a VRU per the Federal Code of Regulations.

and serious injuries to people walking, bicycling, and rolling is critically important, especially as speeds and impact forces increase per Figure 2 below.[4]



Data Citation: Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.

Figure 2. Fatality or serious Injury risk compared to vehicle speeds (Figure source: Toole Design Group)

This Assessment meets the Federal Highway Administration (FHWA) VRU Safety Assessment Guidance, requirements that:

> As part of the Vulnerable Road User Safety Assessment, the State shall use a data-driven process to identify areas of high-risk for vulnerable road users. (23 U.S.C. 148(l)(2)(A)). The State must consult with local governments, metropolitan planning organizations (MPOs), and regional transportation planning organizations that represent a high-risk area (23 U.S.C. 148(l)(4)(B)) and develop a program of projects or strategies to reduce safety risks to vulnerable road users in areas identified as high-risk (23 U.S.C. 148(l)(2)(B)).[5]

The State of Oklahoma participates in various Federal road safety programs to receive funding for roadway safety projects that help prevent fatal and serious injury crashes across Oklahoma, including the FHWA Highway Safety Improvement Program (HSIP) and National Highway Traffic Safety Administration (NHTSA) funding. As part of the new HSIP requirements in the Infrastructure Investment and Jobs Act/Bipartisan Infrastructure Law (IIJA/BIL), "All states are required to complete an initial Vulnerable

[4] https://aaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/

[5] https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-10/VRU%20Safety%20Assessment%20Guidance%20FINAL_508.pdf

Road User Safety Assessment by November 15, 2023," and then update it every five years. The Assessment must be done on all roads across Oklahoma, not just State routes. Since ODOT is also updating the SHSP this year on the required five-year HSIP cycle, this Assessment will be made a part of Oklahoma's 2023 SHSP and a VRU Safety Emphasis Area will be included in the SHSP.

The IIJA/BIL also created a new 15% VRU Special Rule under the HSIP.[6] It requires that states must obligate at least 15% of their HSIP project funds for the following fiscal year toward improving safety for people walking, bicycling, and rolling if the total annual VRU fatalities is equal to or greater than 15% of the total annual crash fatalities in that state . States must also report on how the 15% VRU Special Rule funding is used annually until the VRU fatality rates are below 15%. Because Oklahoma had more than 15% VRU fatalities in 2022 and falls under VRU Special Rule, this Assessment should serve as a roadmap for where and how the VRU project funds are used to improve the safety of people walking, biking, and rolling across Oklahoma. The 15% VRU Special Rule funding projections are shown in Table 1 below.

Table 1. OK HSIP Annual Report Obligated Funding used to project 15% VRU Special Rule Obligated Funding (Source: FHWA OK 2022 HSIP Annual Report[7])

Fiscal Year	OK HSIP Annual Report Obligated Funding	Projected 15% VRU Special Rule Obligated Funding
FY2022	$33,290,446	$4,993,567
FY2023	$48,025,927	$7,203,889

While the ODOT SHSP is focused on surface transportation improvements for all modes, the Oklahoma Highway Safety Office (OHSO) develops a Highway Safety Plan (HSP) annually focused on road safety behavioral and education programs that reduce traffic-related fatalities and serious injuries.[8,9] The OHSO HSP includes a Non-Motorized (Pedestrian and Bicycle) Program Area that should be coordinated with this Assessment and the new HSIP VRU Safety Emphasis Area. In addition, ODOT is also completing its first statewide ATP this year.

The VRU Safety Assessment and Emphasis Area should be coordinated with other agencies involved in VRU safety and maximize resources across the HSIP, SHSP, HSP, and ATP as noted in the *Vulnerable Road User Safety Strategies* section. Additionally, the VRU Safety Assessment and Emphasis Area should be used to inform where VRU safety improvements can be implemented and how safety programs can best implemented to prevent people walking, bicycling, or rolling from being killed or seriously injured across all roads in Oklahoma.

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[6] https://safety.fhwa.dot.gov/hsip/rulemaking/docs/Section148_SpecialRule_Guidance.pdf

[7] https://highways.dot.gov/sites/fhwa.dot.gov/files/2023-08/OK-HSIP-2022.pdf

[8] https://ohso.ok.gov/

[9] https://ohso.ok.gov/strategic-planning-results

VRU Safety Projections

As noted in the vision, mission, and goal section of the 2023 SHSP, "the vision of the Oklahoma SHSP is to provide and promote the safest roadway transportation system for all travelers" and the goal is to "achieve reductions in fatalities and serious injuries in all Emphasis Areas on the path to zero." The 2023 SHSP notes that in 2022, ODOT began a goal of "annual 2% reduction in fatalities for the next five years" and below is a chart of what that would look like for the VRU Safety Emphasis Area over the next 5 years.

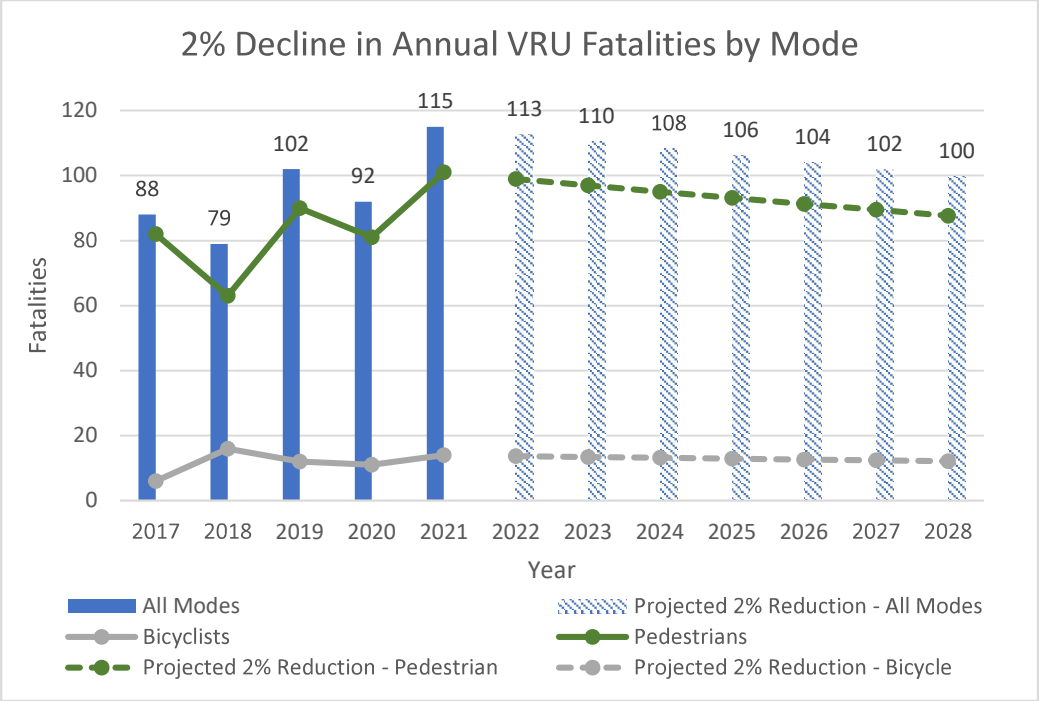

Figure 3. Projected annual fatalities with a 2% reduction by mode across Oklahoma (Source: SAFE-T Database 2017-2021)

TOWARD ZERO VULNERABLE ROAD USER DEATHS AND SERIOUS INJURIES

As noted in the 2023 SHSP, Toward Zero Deaths is a goal of achieving zero roadway deaths and serious injuries together on all roads and for all road users across Oklahoma.[10] Vision Zero is the goal to eliminate all traffic fatalities and serious injuries while increasing safety, health, and equitable mobility for all.[11] As FHWA states, Vision Zero is the goal, and the Safe System Approach is how we get there.

Figure 3. Vision Zero and the Safe System Approach phrase (Source: FHWA.)

We can do this by applying the Safe System Approach to policies, practices, and most importantly project decisions.[12] We must also advance programs that create a positive road safety culture through shared responsibility, as mentioned in the *Guiding Philosophy for 2023 SHSP* section of the 2023 SHSP.[13]

The Safe System Approach

The Safe System Approach takes a **comprehensive** and **holistic** approach to eliminating fatal and serious injuries for all road users. The Safe System Approach is **proactive** and provides **layers of protection.** It focuses on creating one transportation system that is safe for all road users. This must be done in such a way that should a crash occur, it cannot result in fatal or serious injury to the most vulnerable road user. It recognizes that **humans make mistakes** but that it takes **shared responsibility** to prevent people from being killed and seriously injured on our roadways. [14,15] Implementing a Safe System Approach across Oklahoma means focusing on infrastructure to reduce fatal and serious injury crashes, especially for

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[10] Also called Vision Zero or Road to Zero in the United States.

[11] https://visionzeronetwork.org/about/what-is-vision-zero/

[12] https://highways.dot.gov/safety/zero-deaths#:~:text=Applying%20the%20Safe%20System%20approach,a%20fatality%20or%20serious%20injury.

[13] https://www.towardzerodeaths.org/traffic-safety-culture/

[14] https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/FHWA_SafeSystem_Brochure_V9_508_200717.pdf

[15] safety.fhwa.dot.gov/zerodeaths

pedestrians and bicyclists, and may be a way to further reduce VRU deaths and serious injuries beyond the projected 2% annually.

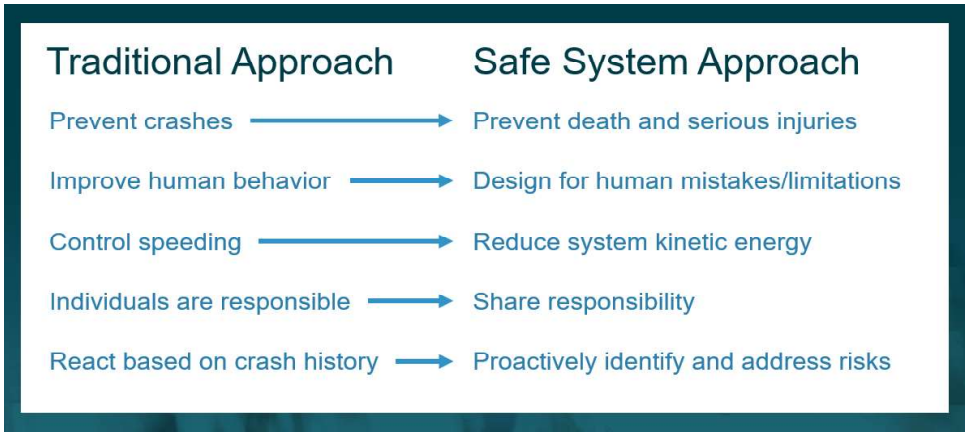

Figure 4. Comparison of the Traditional Approach and the Safe System Approach to Road Safety (Source: FHWA)

THE SAFE SYSTEM APPROACH FRAMEWORK

The Safe System Approach Framework is the lens through which all road safety decisions should be made. [16] In every road safety decision, the Framework should be used to ensure that policies are adopted, practices are followed, and streets are designed to ensure the safety of all road users. Especially on road design, the Framework should be used to ensure that decisions prevent people being killed or seriously injured should a crash occur.

Using the Framework flowchart shown in Figure 5, the more frameworks applied to each decision creates redundancy in the system to prevent fatal and serious injury crashes. How can you separate users in space and time, reduce speeds and impact forces, and increase attentiveness and awareness to decisions and projects? For example, if you cannot reduce speeds down to a level that is safe for all road users, you must separate them in space at a level that protects the most vulnerable road user that those speeds from being killed or seriously injured. This may require a separated bicycle lane with vertical separation at a level that prevents a motor vehicle from hitting a bicyclists should a crash occur, especially if vehicle speeds exceed the safe kinetic energy forces and injury tolerances of bicyclists.

[16] https://www.ite.org/pub/?id=C8B1C6F9-DCB5-C4F3-4332-4BBE1F58BA0D

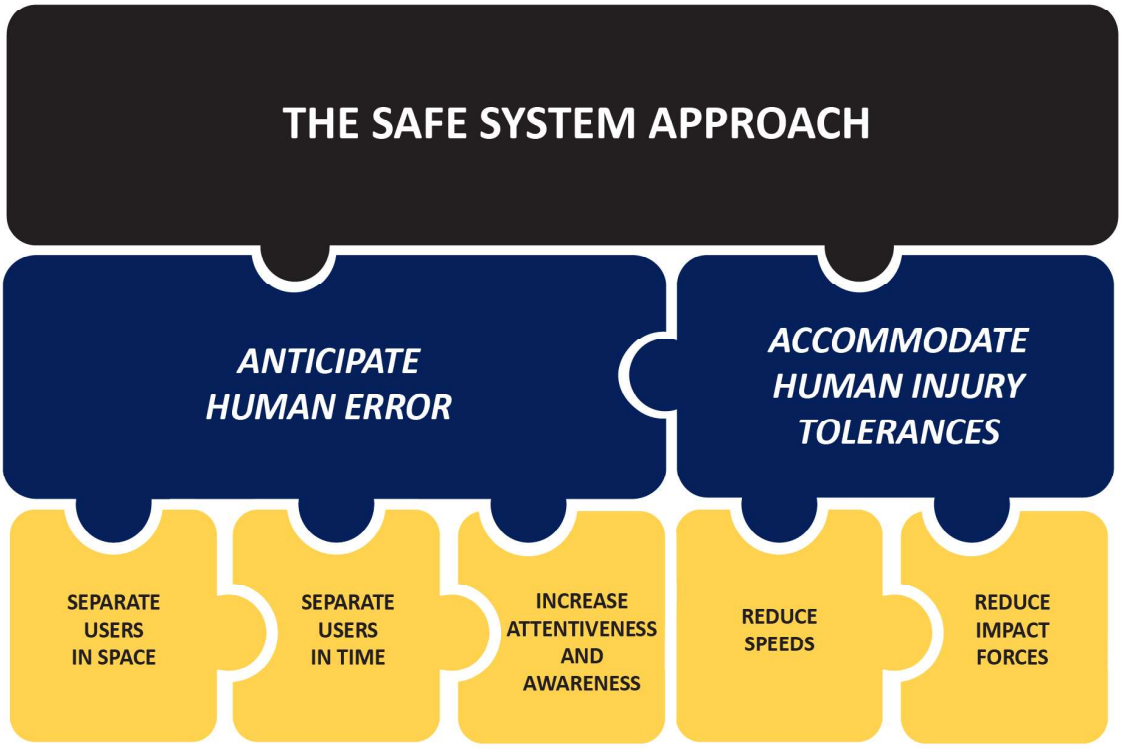

Figure 5. Flowchart of the Safe System Approach Framework (Source: Toole Design Group adapted from ITE)

VRU SAFETY AND EQUITY

Vulnerable road user safety and active transportation can also address equity issues due to transportation poverty. An equity analysis is one component of understanding social demographic vulnerabilities as they relate to transportation safety. Advancing safe and equitable transportation outcomes usually starts by understanding areas where higher fatal and serious injury crash risk and underserved populations both exist through demographic mapping. An analysis of areas where VRU safety risk and transportation poverty overlap often indicate the greatest need and should be prioritized. Transportation poverty includes both social demographic vulnerability and transportation disadvantage as shown in Figure 6 below.

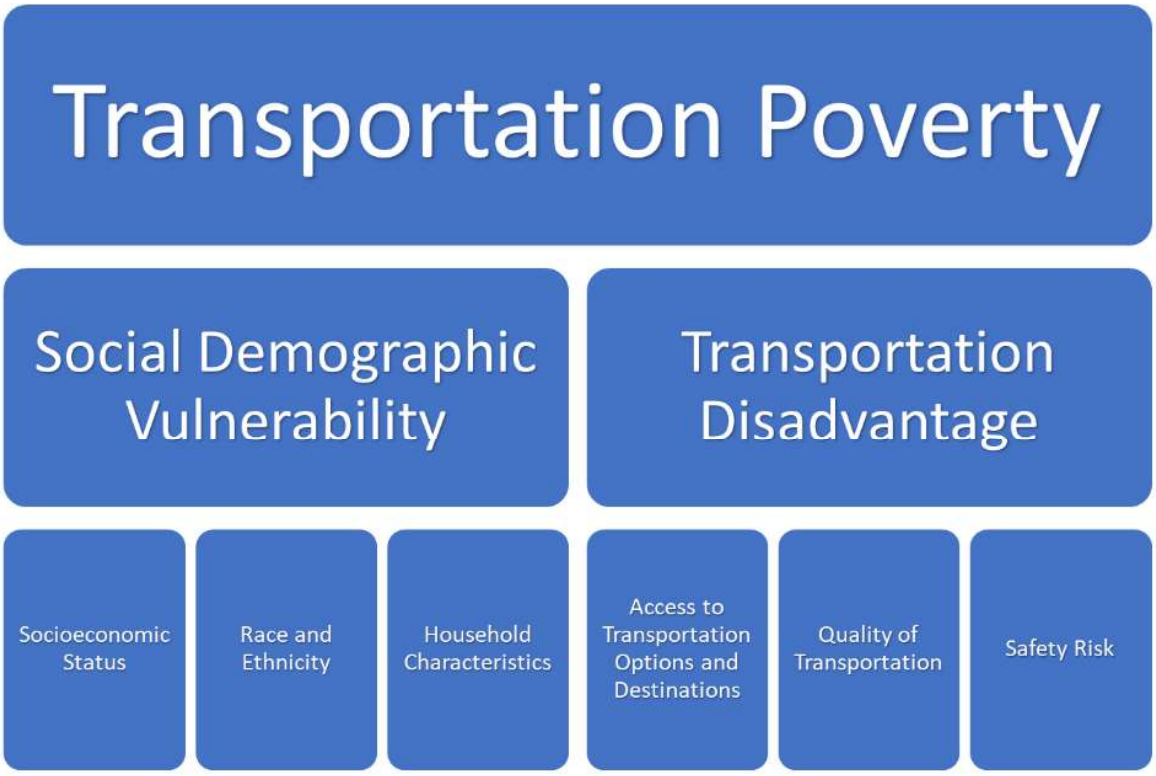

Figure 6. Transportation poverty is the confluence of sociodemographic vulnerability and transportation disadvantage; this transportation poverty framework shows how these two components can be characterized and the factors this analysis uses to quantify them.

There are other transportation impacts that have real and substantial effects on equity and a person's lived experiences. Impacts such as elevated safety risk, limited access to transportation options to desired destinations, and low quality of transportation can signify transportation disadvantage. When transportation disadvantage is paired with sociodemographic vulnerability, it creates a state of transportation poverty. Transportation disadvantages exist where people cannot reach basic necessary resources to meet their needs and their health, safety and welfare is at risk. Transportation disadvantages may limit access to work, healthcare, food, education, or social networks, and leads to social exclusion and diminished quality of life. Lack of sidewalks in a community that can only afford to walk to work or bus stops with long wait times on unsafe streets limiting people from accessing basic

community services are examples of transportation disadvantage. This Assessment provides a high-level overview of fatal and serious injury crash risk to underserved communities through the demographic mapping, however better understanding the relationship of transportation disadvantage and crash risk factors in the high-risk areas should be a future VRU Safety Emphasis Area strategy. A key strategy of the VRU is to implement VRU safety improvements in locations where low-income and persons of color, including Native Americans, are overrepresented in fatal and serious injury crashes and/or where people do not have access to a car or transit.

BACKGROUND

This section provides background on efforts to improve pedestrian and bicyclist safety in Oklahoma to date. It includes a summary of any mentions of pedestrian and bicyclist safety in the State's 2045 Long Range Transportation Plan (LRTP), the first ATP, HSIP and SHSP, regional safety efforts and more.[17] This section discusses the relationship between these documents and programs that aim to help prevent pedestrian and bicyclist fatal and serious injury crashes in Oklahoma.

Long Range Transportation Plan

The LRTP is a policy document that will guide ODOT in the development, management, and operation of a safe and efficient transportation system for the next 25 years.

A vibrant multimodal transportation system is vital to Oklahoma's future economic viability and competitiveness. To meet this challenge, it is imperative to have a vision for Oklahoma's 21st century transportation system that will support user needs for improved safety, infrastructure conditions, and system reliability to drive statewide economic investments.

As of 2018, Oklahoma's active transportation system included about 520 miles of multi-use trails, bicycle routes, and sidewalks, the majority of which are in the Oklahoma City and Tulsa metropolitan regions. Bicycle and pedestrian facilities are supported by federal and state legislation, policies, and practices, but many are owned by local partners. ODOT ensures that all state and federally funded projects comply with the Public Right-of-Way Accessibility Guidelines (PROWAG) and the Americans with Disabilities Act (ADA).

LRTP VRU Safety Strengths
Continue to pursue opportunities to bring state highways in small communities into compliance with PROWAG and ADA.
Develop a statewide bicycle plan that emphasizes safety and builds and expands upon the work of MPOs.
Improve modal choices and safety by incorporating pedestrian and bicyclist facilities in accordance with approved design standards.
Continue to provide pedestrian signals, warning beacons, signage, striping, and lighting at intersections of state routes with high-volume pedestrian crossings.
Support efforts by local governments, public transit providers, passenger rail systems, and others to expand and improve bicycle ways and walkway connections.

17 https://static1.squarespace.com/static/5cd1d280f9df7d00015c6297/t/5f5bbbb6785a5f69c44e3d04/1599847366823/Oklahoma+2045+LRTP+Final+August+2020.pdf

Assess and respond to needs for pedestrian and bicycle infrastructure on or adjacent to state highways concurrent with related highway improvements, and as a part of the project development process.
Promote and support public information outreach and education regarding safe and accessible transportation routes for bicyclists and pedestrians.
Continue to educate communities about sidewalk and trail requirements associated with the Americans with Disabilities Act.
Promote statewide and local-area education programs to make transportation users aware of pedestrian and bicyclist rights and responsibilities.
Support efforts by health departments, educational facilities, and public safety agencies to provide bicycle and pedestrian safety lessons/workshops.

LRTP VRU Safety Opportunities
Adopt a goal of zero VRU deaths and serious injuries in Oklahoma by a target year and chart a path to reaching that goal.
Install proactive pedestrian safety countermeasures, such as high visibility continental style crosswalks and leading pedestrian intervals, where pedestrians may be present.
Evaluate the presence of VRU when setting safe speed limits.

Active Transportation Plan

The first-ever ATP is currently under development with input from stakeholders and the public from across Oklahoma. The purpose of the ATP is to build a foundation for greater opportunities to safely and comfortably walk, bicycle, and use active modes of transportation in communities across the state. This plan recommends policies, programs, design tools, and other resources that will lead to more proactive consideration of active transportation needs in the planning and design of roadways and will help support local communities in active transportation planning, design, and implementation efforts.

ATP VRU Safety Strengths
Use a systemic approach to VRU safety that identifies and prioritizes sites for appropriate safety countermeasures based on crash risk factors.
Support expansion of active transportation networks in both urban and rural areas.
Work with local communities to eliminate gaps and barriers in the active transportation network.
Add shoulders on portions of the state highway system that lack them or have deficient shoulders.

Improve active transportation data collection (user volumes, exposure, facility inventories) to establish baselines for improvements to safety and connectivity.
Use the prioritization system in the ODOT ADA Self-Evaluation and Transition Plan to implement sidewalk, ramp, and marked crossing improvements at controlled and uncontrolled locations throughout the state.
Cross-reference findings and recommendations from this VRU Assessment and ADA prioritization system to create a comprehensive prioritization plan for all ODOT pedestrian safety projects.
Continue to provide pedestrian signals, warning beacons, signage, striping, and lighting at intersections of state routes with high-volume pedestrian crossings.
Institutionalize the consideration of active transportation users into the ODOT planning, design, project delivery and maintenance process through strategies such as: • Checklists/memos • Documentation of project delivery process • Monthly or Quarterly cross division meetings • Greater integration of active transportation in District 8-year plans
Institutionalize and facilitate best practices in active transportation design at both the state and local level. Examples: • Development/Provision of Design resources/toolkits • Review and update DOT existing manuals such as: – Roadway Design Standards & Specifications – Traffic Engineering Standards & Specifications – 2009 Special Provisions – Roadway Design Manual • Trainings for staff, consultants, local partners
Develop maintenance guidelines that address active transportation user needs.
Coordinate with partners to disseminate safety educational information to the public.
Build capacity at the state and local level to leverage federal active transportation funding sources and deliver high-quality active transportation facilities across the state through the provision of trainings, webinars, toolkits, and other resources to a variety of audiences.
Work with ODOT legislative liaison to consider changes to state law to improve active transportation user safety and acceptance.

ATP VRU Safety Opportunities
Incorporate the VRU Safety Assessment into the SHSP, HSP, and ATP.

Incorporate safety of all road users into roadway programs, policies, practices, and projects.

Highway Safety Improvement Program

The FHWA HSIP is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads.[18] States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. HSIP reports consists of five sections: program structure, progress in implementing highway safety improvement projects, progress in achieving safety outcomes and performance targets, and effectiveness of the improvements and compliance assessment.

2018 STRATEGIC HIGHWAY SAFETY PLAN

The SHSP is a collaborative plan between ODOT, the Oklahoma Highway Safety Office, the OK Highway Patrol, and the Oklahoma Department of Public Safety developed to harmonize the highway safety goals and strategies among these agencies; the SHSP is required by FHWA and includes projects funded by HSIP.

The 2018 SHSP notes that OK Safe Transportation for Every Pedestrian (STEP) was developed in 2017 to develop cost-effective countermeasures with known safety benefits.[19] Additionally, a Statewide Active Transportation Committee with representatives from local governments and MPOs was created.

2023 STRATEGIC HIGHWAY SAFETY PLAN

The 2023 SHSP (currently in draft form) was developed through a data-driven, comprehensive, multidisciplinary process that establishes statewide performance measures, goals, objectives, and several safety emphasis areas, including the new VRU Safety Emphasis Area. The SHSP describes a program of strategies to reduce or eliminate safety hazards using federal aid highway funds. Refer to the *Coordination with Other Transportation Plans* section of the 2023 SHSP draft.

2020-2022 HSIP ANNUAL REPORTS AND SAFETY PERFORMANCE TARGETS

States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. States are additionally required to set annual safety performance targets in the HSIP annual report for the number of fatalities, rate of fatalities per 100 million vehicle miles traveled (VMT), number of serious injuries, rate of serious injures per 100 million VMT, and number of non-motorized fatalities and serious injuries. The safety performance targets are based on 5-year rolling averages. States have the flexibility to use the methodology they deem most appropriate when establishing safety

[18] https://highways.dot.gov/safety/hsip

[19] https://oklahoma.gov/content/dam/ok/en/stic/Documents/stic-funded-reports/safe-transportation-for-every-pedestrian/PRINT-VERSION-step-innovation-report.pdf

performance targets. The safety performance targets should be data-driven, realistic, and attainable and should align with the performance management framework and legislative intent.

The 2021 Safety Performance Targets and the 2022 HSIP Annual Report show the number of non-motorized fatalities and serious injuries was 278, using a five year average.[20, 21] The five-year average target for 2021 was 251, so this target was not met. However, the five-year average is better than the 2015-2019 baseline of 284 and the 5-year averages are trending down.

SHSP VRU Safety Strengths
2018 SHSP
Prioritize pedestrian crossing improvement locations.
Improve signs, signals, and pavement markings at pedestrian crossing locations.
Improve road geometry (narrow lanes, reduce curb radii, provide refuge islands) to improve pedestrian safety.
Promote establishment of pedestrian safety zones on busy urban streets.
Implement sidewalk, trails, and lighting infrastructure improvements as part of the Transportation Alternatives Program.
Encourage local communities to implement STEP plan and/or policies.
Identify high pedestrian crossing locations and prioritize for adding crosswalks.
Improve driver, pedestrian, and bicyclist awareness of safety issues by conducting pedestrian and bicyclist safety campaigns.
Promote shared road behaviors through the adoption of safe passing laws.
Establish criteria for prioritizing signalized and unsignalized intersections for safety improvements.
Implement proven, low-cost systemic safety improvements to reduce intersection crashes.
Implement enhanced signing and striping standards to use on priority intersections, including considerations for VRUs.
Analyze and update signal timing, including pedestrian signal timing, and evaluate phase changes like protected turns to improve pedestrian safety.
Finalize Intersection Control Evaluation policy to systematically screen intersections for both operational and safety performance, including consideration of roundabouts.

[20] https://www.fhwa.dot.gov/tpm/reporting/state/safety.cfm?state=Oklahoma

[21] https://highways.dot.gov/sites/fhwa.dot.gov/files/2023-08/OK-HSIP-2022.pdf

2023 Draft SHSP
Establish criteria to incentivize HSIP funding on strategies, and or locations, prioritized in the SHSP Action Plan.
Implement systemic roadside safety improvements as applicable on priority corridors.
Create training program for Transportation Managers on how to identify and locate objects and encroachments within clear zone and right-of-way.
Work with districts and locals to remove natural objects currently inside right-of-way/clear zone.
Establish criteria for prioritizing signalized and unsignalized intersections for improvements.
Implement Enhanced Signing and Striping Standards to use on priority intersections; including considerations for VRUs.
Analyze and update signal timing and include evaluation of pedestrian facilities during signal timing field work. Expand scope to include evaluation of phase changes (protected turns) based on field observations of queues and crash data.
Realign Offset Left Turn Lanes.
Finalize Intersection Control Evaluation (ICE) policy to systematically screen intersections for both operational and safety performance.
Utilize ICE screening on State-owned/ managed priority intersections to determine where geometric and/or signal improvements should be prioritized.
Pursue intersection geometric and/or signal improvements.
Complete an Access Management Policy.
Evaluate and manage driveway access near priority intersections.
Committee to review national best practice procedures for setting speed limits based on highway or street characteristics. Include work zone speed limit setting with advisory speeds for curves and transitions.
Prioritize roadway segments to apply road design and/or engineering measures to obtain safe and reasonable speeds.
Establish criteria for road diets or lane reallocation.
Implement road design and engineering measures on priority corridors (road diets, medians, bump – outs, roundabouts, signal timing, lane narrowing, etc.).
Provide crash and/or speed data to jurisdictions for corridor enforcement based on speed related fatal and serious injury crashes.

Provide funding to enforce speeds within specified high speed fatal and serious injury corridors including work zones.
Pursue Legislation changes to allow for automated/camera speed enforcement, starting with school zones and/or work zones.

SHSP VRU Safety Opportunities
Move away from using a five-year rolling average to calculate HSIP safety performance targets that estimate increases in fatal and serious injuries to another proven method that outlines reducing and eventually preventing vulnerable road user deaths and serious injuries.
Provide pedestrian crossings at a reasonable walking distance apart when there are long distances between intersections or land uses that require pedestrians to cross.
Per the 15% VRU Special Rule, if the total annual VRU fatalities in a state exceeds 15% of the total annual crash fatalities in the state, at least 15% of HSIP funding must be allocated to VRU safety projects.
Prioritize vulnerable road user safety projects that have the greatest need and impact first based on data and community driven metrics.
Integrate road safety and active transportation funding to ensure VRU safety prioritized and maximized, especially HSIP, Transportation Alternatives, and OHSO programs.
Install pedestrian safety countermeasures on all road projects in Oklahoma where pedestrians may be present, both in VRU safety high-risk areas and proactively when road improvements are made.
Report key vulnerable road user safety statistics, key road safety improvements, new programs, and what is working to prevent pedestrians and bicyclists from being killed at least annually.
Integrate vulnerable road user safety education and awareness in other HSIP Emphasis Areas and OHSO programs.
Conduct systemic safety analysis to understand interconnected factors resulting in vulnerable road user fatal and serious injury crashes in Oklahoma.
Conduct project before and after crash analysis to understand effectiveness of vulnerable road user safety countermeasures across Oklahoma.
Collect additional data needed to conduct other vulnerable road user analysis, such as collecting pedestrian and bicycle volumes to do exposure analysis.

Oklahoma Highway Safety Office

The OHSO was established in 1967 by the Oklahoma Legislature, as a direct result of the National Highway Safety Act of 1966, to combat the alarming increase in the number and severity of traffic crashes and fatalities.[22] The OHSO is under the umbrella of the Department of Public Safety. The OHSO works closely with local governmental organizations, state agencies, law enforcement agencies, and others to develop the State Highway Safety Plan and programs to address highway safety issues. The programs are federally funded through the NHTSA. Most programs and activities fall into the areas of traffic safety education, training, and enforcement enhancement.

FY2021-2023 HIGHWAY SAFETY PLANS

OHSO has primary responsibility for managing safety programs designed to reduce traffic-related fatalities and serious injuries. The OHSO partners with NHTSA, FHWA, Federal Motor Carrier Safety Administration (FMCSA), and other national and local traffic safety partners to develop and fund statewide and community-level strategies and projects that will have the greatest impact on reducing fatalities and serious injuries resulting from roadway crashes. These strategies and projects are encompassed in annual OHSO HSP.[23] ODOT develops a multi-year SHSP that focuses on all surface transportation modes, including highway, rail, transit, bicycle/pedestrian.

As part of the ongoing process of ensuring coordination between Oklahoma's HSP, HSIP, and the SHSP, OHSO participates in the development and updating of these plans. Oklahoma's HSP includes National Program Areas identified by NHTSA and FHWA, including Impaired Driving, Occupant Protection, Police Traffic Services, Motorcycle Safety, Pedestrian and Bicyclist Safety, and Traffic Records.

The 2021-2023 HSPs include two countermeasure strategies related to VRUs. The first is the Pedestrian and Bicycle Public Information and Education Countermeasure Strategy relates to public information and education through paid or earned media. Through this strategy, information is shared at community events, training is provided to law enforcement officers, and a network of child restraint inspection stations is being set up across the state.

The second is the Pedestrian Safety Conspicuity Enhancement Countermeasure Strategy. This strategy relates to NHTSA's child education program including information about conspicuity messages. Through this strategy, OHSO is raising awareness of the benefits of retroreflective gear for pedestrians and bicyclists.

ANNUAL REPORT

NHTSA required OHSO to produce an Annual Report for the Federal Fiscal Year 2021 (October 1, 2020, through September 30, 2021).[24] This report contains a variety of crash data statistical references. The latest crash data currently available from the NHTSA Fatality Analysis Reporting System (FARS) database

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[22] https://ohso.ok.gov/

[23] https://ohso.ok.gov/sites/g/files/gmc751/f/ok_fy23_hsp.pdf

[24] https://ohso.ok.gov/sites/g/files/gmc751/f/ok_fy2021_ar.pdf

is from Calendar Year 2020 and the latest finalized crash data available from the State of Oklahoma crash database is FY2020. Due to corrections made in the FARS database not reflected in the Oklahoma database, occasional statistical differences related to actual numbers, use rates, and percentages appear. Except for the number of Serious Injuries (A) and the Seat Belt Use Rate, all the Core Performance Measures addressed in the report are FARS data.

The annual report outlines the Bicycle/Pedestrian Safety Program which includes the following programs:

- INCOG Pedestrian/Bicyclist Safety Program: Travel With Care Tulsa campaign is a safety educational campaign about the rules of the road.
- Watch for Me OK: a public awareness campaign to improve the safety of bicyclists and pedestrians in the ACOG region.[25]
- Oklahoma City Pedestrian Safety: an awareness campaign, done in partnership with ACOG, for the safety of cyclists, pedestrians, and drivers who share the road.
- SKO Bicyclist/Pedestrian Safety Program: Safe Kids Oklahoma is a program that hosts educational campaigns during back-to-school.

CRASH FACTS

The purpose of the OHSO Crash Facts is to provide a description of Oklahoma traffic crash, injury, and fatality data.[26] This document is a resource for local transportation, law enforcement, health, and other agencies charged with the responsibility of coping with the increasing number and cost of traffic crashes.

The document shows that pedestrian fatalities have generally increased in the past 10 years, from 67 fatalities in 2012 to 104 fatalities in 2021. Similarly, bicyclist fatalities have generally increased in the past 10 years, from five fatalities in 2012 to 13 fatalities in 2021. The highest number of bicyclist fatalities in a single year was 16 fatalities in 2018.

ANNUAL PERFORMANCE MEASURE SURVEY

In order to comply with NHTSA, OHSO commissions an annual performance measure survey to be conducted during the late spring/early summer months among licensed drivers over the age of 18 in the state of Oklahoma.[27] The survey does not include information specific to VRUs.

OHSO VRU Safety Strengths
The 2021-2023 HSPs include two countermeasure strategies related to VRUs. • The first is the Pedestrian and Bicycle Public Information and Education Countermeasure Strategy relates to public information and education through paid or earned media. Through this strategy,

[25] https://www.watchformeok.org/

[26] https://ohso.ok.gov/sites/g/files/gmc751/f/2021_s4_nonmotorists.pdf

[27] https://ohso.ok.gov/sites/g/files/gmc751/f/ohso_nhtsa_performance_measures_report_2021.pdf

information is shared at community events, training is provided to law enforcement officers, and a network of child restraint inspection stations is being set up across the state. • The second is the Pedestrian Safety Conspicuity Enhancement Countermeasure Strategy. This strategy relates to NHTSA's child education program including information about conspicuity messages. Through this strategy, OHSO is raising awareness of the benefits of retroreflective gear for pedestrians and bicyclists.
Incorporation of regional safety programs into the 2021 Annual Report that captures some of the VRU safety related efforts around the state.

OHSO VRU Safety Opportunities
Expand the annual performance measure survey to include questions specific to VRUs and consider expanding the survey participants to include people who do not drive.
Correct the differences between the FARS database and the Oklahoma database, that have resulted in occasional statistical differences related to actual numbers, use rates, and percentages appear in OHSO Crash Facts.
Whenever vulnerable road users could be present, use the Safe System Approach framework--separating users in space and time, reducing speeds and impact forces, and increasing attentiveness and awareness--to all road design decisions in a way that prevents a vulnerable road user from being killed or seriously injured should a crash occur.
Consider vulnerable road user safety using the Safe System Approach elements and principles when establishing road safety policies, programs, and practices.
Ensure vulnerable road users safety improvements are made where low-income and persons of color, including Native Americans, are overrepresented in fatal and serious injury crashes and/or where people do not have access to a car or transit.
Create and maintain a list of effective vulnerable road user safety countermeasures.
Develop design details, specifications, and installation training for new vulnerable road user safety countermeasures for state, regional, and local agencies to use across Oklahoma.
Improve nighttime lighting conditions and retroreflective signs and markings where vulnerable road users are present.
Determine safety countermeasures that will prevent collisions between vehicles going straight with pedestrian uncontrolled/mid-block crossings or with bicyclists riding with traffic, resulting in vulnerable road users fatal and serious injuries.
Create incentive programs and partner with insurance companies to encourage safe walking, bicycling, and driving.

Encourage Safe Routes to School (SRTS) programs that teach the rules of the road and ensure children can walk and bicycle to school safely.

Oklahoma Title 47. Motor Vehicle Statutes

A summary of the most relevant laws affecting vulnerable road user safety is provided below and are also provided in the ATP along with others more broadly related to active transportation.

- **Pedestrian Right-of-Way in Crosswalks (47 OK Stat § 11-502 (2022))**
  - When traffic-control signals are not in place or not in operation, the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway within a crosswalk. Whenever a vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle.
- **Pedestrians crossing at locations other than crosswalks (47 OK Stat § 47-11-503 (2016))**
  - Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway. Between adjacent intersections at which traffic-control signals are in operation pedestrians shall not cross at any place except in a marked crosswalk.
- **Pedestrians on roadways or bridges (47 OK Stat § 11-506 (1986))**
  - Where sidewalks are provided, it shall be unlawful for any pedestrian to walk along and upon an adjacent roadway. Where sidewalks are not provided, any pedestrian walking along and upon a highway shall, when practicable, walk only on the left side of the roadway or its shoulder facing traffic which may approach from the opposite direction and shall yield to approaching vehicles.
- **Safe Passing Laws (47 OK Stat § 47-11-1208 (2014))**
  - When overtaking and passing a bicycle proceeding in the same direction, a person driving a motor vehicle shall exercise due care by leaving a safe distance between the motor vehicle and the bicycle of not less than three (3) feet until the motor vehicle is safely past the overtaken bicycle.
- **Mandatory Use of Separated Facilities (47 OK Stat § 47-11-1205 (2018))**
  - Every person operating a bicycle or motorized scooter upon a roadway at less than the normal speed of traffic at the time and place and under the conditions then existing shall ride as close as is safe to the right-hand curb or edge of the roadway, except under specified conditions.
- **“Idaho Stop” and Vehicle Detection Errors (47 OK Stat § 11-202 (2022))**
  - A person operating a bicycle approaching a stop sign shall slow down, if required to avoid an immediate hazard, stop at the stop sign before entering the intersection, and cautiously enter the intersection and yield the right-of-way to pedestrians within an adjacent crosswalk and to other traffic using the intersection. If a person operating a

bicycle determines there is no immediate hazard, he or she may cautiously make a right or left turn or proceed through the intersection without stopping at the stop sign.

- A person operating a bicycle approaching a steady red traffic-control signal shall make a complete stop at the steady red traffic-control signal before entering the intersection and yield the right-of-way to all oncoming traffic that constitutes an immediate hazard during the time that he or she is moving across or within the intersection. If a person operating a bicycle determines there is no immediate hazard, he or she may proceed through the steady red traffic-control signal with caution.

In January of 2021, the ODOT and the Oklahoma Turnpike Authority launched a new, year-round safety education effort, declaring May Bicycle, Pedestrian Safety Month.[28] It is important for any safety education effort concerning VRUs to recognize the problems for those who walk or bike.

Motor Vehicle Statues VRU Safety Strengths
The Safe Passing Laws (47 OK Stat § 47-11-1208 (2014)) establishes how a person driving a motor vehicle must pass a bicyclist going the same direction, including due care, moving over into another travel lane if possible, or providing at least 3 feet if single lane.
The "Idaho Stop" and Vehicle Detection Errors (47 OK Stat § 11-202 (2022)) establishes that if a person operating a bicycle determines there is no immediate hazard, he or she may cautiously make a right or left turn or proceed through the intersection without stopping at the stop sign. At a steady red traffic-control signal, a person operating a bicycle may proceed through the steady red traffic-control signal with caution if he or she determines there is no immediate hazard.

Motor Vehicle Statues VRU Safety Opportunities
Analyze the effects of new vulnerable road user safety laws, such as House Bill 1770 allowing bicyclists to treat stop signs as yield signs and stop lights as stop signs.
Pedestrian Right-of-Way in Crosswalks (47 OK Stat § 11-502 (2022)): change from "vehicles shall yield" to "vehicles shall stop" for pedestrians.
Pedestrians crossing at locations other than crosswalks (47 OK Stat § 47-11-503 (2016)): this statute may be impractical in locations where marked crosswalks do not exist. Instead, prioritize marking crosswalks where pedestrians are crossing mid-block, or at unmarked locations, at high rates.
Implement vulnerable road user safety features for state, regional, and local agency fleet vehicle purchasing standards, such as smaller vehicles, side guards, sensors and cameras, pedestrian avoidance, high vision cabs, and blind spot detection.
Require education on how to look out for vulnerable road users in novice driver education and adjudication programs.
Create remedial training programs for drivers with multiple unsafe driving tickets that put vulnerable road users at risk, such as speeding or red light running.

[28] https://oklahoma.gov/odot/citizen/newsroom/2021/may/spinning-into-spring--bike-and-pedestrian-safety-main-focus-of-m.html

Increase enforcement and penalties for impairment and hit-and-run crashes resulting in vulnerable road users being killed or seriously injured.

Safety Awareness Programs

DEPARTMENT OF HEALTH MOTOR VEHICLE SAFETY INJURY PREVENTION

The Motor Vehicle Safety Injury Prevention program is housed within Oklahoma Department of Health Injury Prevention Service program.[29] Since its inception in 1987, the Injury Prevention Service has maintained a comprehensive injury prevention program guided by the following purpose: all people deserve lives free from injury and violence. The Motor Vehicle Safety program includes information related to ATVs, car seats, and teen drivers.

WATCH FOR ME OK

In 2020, Oklahoma ranked 16 for pedestrian fatalities per 100,000 people.[30] While local governments are working to provide safer infrastructure for bicyclists and pedestrians, there is a long way to go, and the high number of pedestrian deaths are a major concern. In the last five years, there were nearly 450 fatal and serious injuries to pedestrians and bicyclists traveling on Oklahoma roads. The Watch for Me OK education campaign was created to help raise awareness of all road users and educate the public on how to stay safe and prevent collisions.[31] The campaign outlines Oklahoma laws and safety tips for drivers, pedestrians, and bicyclists such as ceding the right-of-way, where to walk, and where to ride a bicycle.

Safety Awareness Programs VRU Safety Strengths
The Motor Vehicle Safety Injury Prevention program recognizes the interconnectedness of health, transportation, and roadway safety.
Watch for Me OK is raising awareness of VRU safety related statutes.

Safety Awareness Programs VRU Safety Opportunities
Expand the Safety Awareness Program to include safety information specific to VRUs.
Expand the Watch for Me OK education campaign efforts to watch out for each other and follow the rules of the road.

[29] https://oklahoma.gov/health/health-education/injury-prevention-service/motor-vehicle-safety.html

[30] https://www-fars.nhtsa.dot.gov/states/statespedestrians.aspx

[31] https://www.watchformeok.org/

Regional Safety Efforts

Oklahoma Department of Transportation is the Governor's designee to administer the transportation planning process for the MPOs, creating a connection between state and regional transportation coordination and reporting requirements to the Federal government. Oklahoma Department of Transportation currently coordinates planning efforts with four MPOs. In addition to the MPOs, several cities have VRU safety strategies of their own.

ASSOCIATION OF CENTRAL OKLAHOMA GOVERNMENTS (ACOG)

The ACOG includes 37 cities and the 4 counties (Canadian, Cleveland, Logan, and Oklahoma) in the Central Oklahoma region.[32] The general purpose of ACOG is to encourage and facilitate local governments in the region to cooperate with one another, with other levels of government, and with the private sector to plan development of the region, and thereby improve the health, safety, and general welfare of Central Oklahoma citizens.

The ACOG has Transportation Planning Services (TPS), which manages a $10 billion long-range transportation plan, as well as over $20 million in annual federal grants for local transportation improvements. ACOG, through TPS, supports active transportation through development of the Regional ATP, organizing area Bike Month events, and administering the Transportation Alternatives Program (TAP).

INDIAN NATIONS COUNCIL OF GOVERNMENTS (INCOG)

The INCOG serves Creek, Osage, Rogers, Tulsa, and Wagoner counties, more than 50 cities and towns located in those counties, and the Cherokee, Muscogee, and Osage Nations.[33] INCOG is the MPO for the Tulsa area. As such, INCOG facilitates a cooperative effort with federal, state, and local governments and other transportation agencies to assess the area's transportation requirements and to develop comprehensive, multi-modal plans and programs that address the needs and goals of the region.

The INCOG published a Local Road Safety Plan (LRSP) in 2022 to address safety on local roads in the INCOG region.[34] The LRSP incorporates the Safe System Approach and provides a data-driven framework to focus safety efforts. The goal of the LRSP is to reduce fatal and serious injury crashes by 25% by 2030. The LRSP includes crash data analysis for 2010-2019, including percentages for fatal and serious injury crash types, locations, and risk factors; stakeholder-identified Emphasis Areas; stakeholder-identified strategies and actions; and stakeholder-identified priority intersections and corridors for potential project locations for implementing strategies and actions.

The GO Plan is a Bicycle/Pedestrian Master Plan which provides a comprehensive regional plan for pedestrian and bicycle improvements; provides connectivity to the existing regional trail network using on-street treatments; improves pedestrian and bicycle safety; provides a more strategic approach to

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[32] https://www.acogok.org/

[33] https://www.incog.org/

[34] https://www.incog.org/Transportation/Documents/INCOG%20LRSP%20Final.pdf

competing for pedestrian and bicycle funding; and identifies barriers, with solutions, for residents to safely access destinations using walking or bicycling modes within the Tulsa region.[35] An update to this plan is expected in 2024.

The Tulsa Bicycle/Pedestrian Advisory Committee advises INCOG and the city governments in the INCOG area on projects, policies, and programs that improve and/or affect bicycling and pedestrian conditions in Tulsa.

LAWTON METROPOLITAN PLANNING ORGANIZATION (LMPO)

The LMPO's planning and program management functions are administered and implemented by the City of Lawton's Planning Division, which provides staff, technical and clerical support. [36]

The MPO is mandated by the state to increase the safety and security of the transportation system for motorized and nonmotorized users, but otherwise does not appear to have resources specifically related to VRU safety.

FRONTIER METROPOLITAN PLANNING ORGANIZATION (FMPO)

The FMPO serves as the regional transportation planning organization for the Fort Smith urbanized area in western Arkansas and eastern Oklahoma.[37] The FMPO is governed by the Technical Committee and Policy Board. The Technical Committee is comprised of local city planners, street department heads, and elected officials of each of the communities served. The Policy Board is comprised of local elected and city officials. The FMPO published a Regional Bicycle and Pedestrian Plan in 2016.[38]

Regional Safety VRU Safety Strengths
The ACOG published a Regional Active Transportation Plan in 2021 which includes crash statistics for the region, existing conditions, and planned network.[39]
The INCOG published a Local Road Safety Plan in 2022 which incorporates the Safe System Approach and provides a data-driven framework to focus safety efforts to reduce fatal and serious injury crashes by 25% by 2030.[40]

[35] https://www.incog.org/Transportation/transportation_bikeped.html

[36] https://www.lawtonmpo.org/

[37] https://www.frontiermpo.org/

[38] https://www.frontiermpo.org/wp-content/uploads/2017/08/Complete-Frontier-MPO-Regional-Bicycle-and-Pedestrian-Plan-2016.pdf

[39] https://www.acogok.org/wp-content/uploads/2021/05/OCARTS-Regional-Active-Transportation-Plan.pdf

[40] https://www.incog.org/Transportation/Documents/INCOG%20LRSP%20Final.pdf

The INCOG published the GO Plan: Tulsa Regional Bicycle/Pedestrian Master Plan in 2015 which includes community plans, existing conditions, and prioritization.[41]
The FMPO published the Regional Bicycle and Pedestrian Plan in 2016 which includes the active transportation vision for the region, existing conditions, and proposed routes.[42]

Regional Safety VRU Safety Opportunities
Create a resource page, either through ODOT's website or OHSO's website, to share regional safety efforts so that regional agencies beginning their safety journey have a pool of resources to refer to.
Ensure that the Oklahoma ATP under development aligns with and builds upon ACOG's Regional ATP, INCOG's GO Plan for the Tulsa Regional Bicycle/Pedestrian Master Plan, and FMPO's Regional Bicycle and Pedestrian Plan.

Local Safety Efforts

CITY OF EDMOND

The City of Edmond adopted a Vision Zero resolution in December 2022, committing to eliminating fatal and serious injury crashes by 2033.[43] Edmond has also published many resources for VRU safety, including EdmondShift, a document that provides bicycle and pedestrian toolboxes of quick build solutions to improve bicyclist and pedestrian safety.[44]

OKLAHOMA CITY

In partnership with ACOG and OHSO, the Watch for Me OK safety campaign was adapted to Watch for Me OKC.[45] As Oklahoma City grows and changes, more cars, pedestrians, and bicyclists are using city streets and the need to safely share the roadway increases.

In addition to Watch for Me OKC, Oklahoma City launched the Better Streets, Safer City package.[46] On Sept. 12, 2017, Oklahoma City voters approved 13 bond propositions and two sales tax initiatives known as the Better Streets, Safer City projects. Projects include roadway resurfacing, sidewalk construction,

[41] https://www.incog.org/Transportation/transportation_bikeped.html

[42] https://www.frontiermpo.org/wp-content/uploads/2017/08/Complete-Frontier-MPO-Regional-Bicycle-and-Pedestrian-Plan-2016.pdf

[43] https://www.edmondok.gov/1745/Safety

[44] https://www.edmondok.gov/DocumentCenter/View/8589/EdmondShift-Ped-Toolkit?bidId=

[45] https://www.okc.gov/departments/planning/current-projects/watch-for-me-okc

[46] https://www.okc.gov/residents/better-streets-safer-city-projects

trail construction, street enhancements, bicycle lane construction, intersection improvements, and road widening.

Oklahoma City is currently updating the bikewalkokc plan, the comprehensive bicycle and pedestrian plan originally adopted in 2018.[47] The 2018 bikewalkokc has been very successful as a tool for directing the city's capital investment programs into bicycle and pedestrian improvements across the city. The 2023 update of bikewalkokc addresses new issues that were identified in the process of implementation of the original plan. The update focuses on continuing the work by identifying the next set of priority projects. With the incorporation of a new round of public input and a new advisory board, the updated 2023 plan proposes the addition of new pedestrian priority areas, the reprioritization of bicycle and trail network, and many other improvements.

Finally, in late 2023 Oklahoma City will launch its Safe Streets and Roads for All (SS4A) Comprehensive Safety Action Plan which will include safety analysis, identification of a high-injury and high-risk network, and detailed safety countermeasure recommendations.

CITY OF TULSA

The City of Tulsa has five strategies that are relevant to VRUs. The first is Tulsa's Complete Streets resolution (2012) and procedural manual (2013).[48] The vision for Tulsa places an emphasis on coordinating transportation facilities' design with the land uses or context they serve. The second is Safely Moving and Riding Together, a compilation of safety and mobility tools curated by Walk Bike Tulsa, Vision Tulsa, INCOG, and Travel with Care.[49] The third is Tulsa's Work Zone Safety Program, an education program aimed toward drivers navigating construction zones.[50] The fourth is the transportation chapter of PlaniTulsa, which includes information on pedestrian and bicyclist infrastructure such as actions from the 2015 GO Plan.[51] Lastly, the Tulsa Bicycle and Pedestrian Advisory Committee hosted a series of Walk Audits in 2022 to identify issues that make walking, riding a bicycle, or driving unsafe or uncomfortable.[52] The issues will be documented, prioritized, and submitted to the City of Tulsa for repair or improvement.

In addition, INCOG will launch studies to update both the GO Plan and the Local Road Safety Action Plan in late 2023 or 2024.

Local Safety VRU Safety Strengths

[47] https://www.okc.gov/departments/planning/bikewalkokc

[48] https://www.cityoftulsa.org/government/departments/public-works/streets/complete-streets-program/

[49] https://www.cityoftulsa.org/safety-mobility-resources/

[50] https://www.cityoftulsa.org/government/departments/public-works/streets/work-zone-safety/

[51] https://tulsaplanning.org/docs/planitulsa/Chapter-3--Transportation.pdf

[52] https://tulsawalks.org/

The City of Edmond adopted a Vision Zero resolution in December 2022, committing to eliminating fatal and serious injury crashes by 2033.[53]
Edmond has published resources for VRU safety like EdmondShift, which provides quick build solutions to improve bicyclist and pedestrian safety.[54]
Watch for Me OKC launched a local safety campaign for the Oklahoma City metro area.[55]
Oklahoma City's bikewalkokc plan (2018) directs the city's capital investment programs into bicycle and pedestrian improvements across the city.[56]
Tulsa's Safely Moving and Riding Together, compiles safety and mobility tools curated by Walk Bike Tulsa, Vision Tulsa, INCOG, and Travel with Care.[57]
INCOG has ongoing planning and safety studies underway including updates to the GO Plan and the Local Road Safety Action Plan
Tulsa's Work Zone Safety Program, educates drivers navigating construction zones.[58]
Tulsa Bicycle and Pedestrian Advisory Committee hosted a series of Walk Audits in 2022 to identify issues that make walking, riding a bicycle, or driving unsafe or uncomfortable.[59]

Local Safety VRU Safety Opportunities
Create a resource page, either through ODOT's website or OHSO's website, to share local safety efforts so that local agencies beginning their safety journey have a pool of resources to refer to.
Perform walk audits in other cities similar to what Tulsa Bicycle and Pedestrian Advisory Committee did in Tulsa.
Encourage cities to adopt a Vision Zero resolution.

[53] https://www.edmondok.gov/1745/Safety

[54] https://www.edmondok.gov/DocumentCenter/View/8589/EdmondShift-Ped-Toolkit?bidId=

[55] https://www.okc.gov/departments/planning/current-projects/watch-for-me-okc

[56] https://www.okc.gov/departments/planning/bikewalkokc

[57] https://www.cityoftulsa.org/safety-mobility-resources/

[58] https://www.cityoftulsa.org/government/departments/public-works/streets/work-zone-safety/

[59] https://tulsawalks.org/

Background Key Findings

The following section outlines the strengths and opportunities identified in the Background Key Findings section.

Background Section VRU Safety Strengths
Build capacity at the state and local level to leverage federal active transportation funding sources and deliver high-quality active transportation facilities across the state through the provision of trainings, webinars, toolkits, and other resources to a variety of audiences.
Establish criteria to incentivize HSIP funding on strategies and or locations prioritized in the SHSP Action Plan.
Provide funding to enforce speeds within specified high speed fatal and serious injury corridors including work zones.
Improve driver, pedestrian, and bicyclist awareness of safety issues by conducting pedestrian and bicyclist safety campaigns.
Create training programs for agencies across the state on how to identify, locate, and remove objects and encroachments within clear zone and right-of-way.
Use a systemic approach to VRU safety that identifies and prioritizes sites for appropriate safety countermeasures based on crash risk factors.
Improve active transportation data collection (user volumes, exposure, facility inventories) to establish baselines for improvements to safety and connectivity.
Prioritize pedestrian crossing improvement locations.
Establish criteria for prioritizing signalized and unsignalized intersections for safety improvements.
Implement proven, low-cost systemic safety improvements to reduce intersection crashes.
Analyze and update signal timing, including pedestrian signal timing, and evaluate phase changes like protected turns to improve pedestrian safety.
Finalize ICE policy to systematically screen intersections for both operational and safety performance.
Utilize ICE screening on State-owned/ managed priority intersections to determine where geometric and/or signal improvements should be prioritized.
Complete an Access Management Policy that evaluates and manages driveway access near priority intersections.
Establish criteria for road diets or lane reallocation.

Provide crash and/or speed data to jurisdictions for corridor enforcement based on speed related fatal and serious injury crashes.
Institutionalize and facilitate best practices in active transportation design at both the state and local level.
Work with ODOT legislative liaison to consider changes to state law to improve active transportation user safety and acceptance.
Pursue Legislation change to allow for automated/camera speed enforcement, starting with school zones and/or work zones.
Implement sidewalk, trails, and lighting infrastructure improvements as part of the Transportation Alternatives Program.
Encourage local communities to implement STEP plan and/or policies.
Establish a committee to review national best practice procedures for setting speed limits based on highway or street characteristics. Include work zone speed limit setting with advisory speeds for curves and transitions.
Continue to pursue opportunities to bring state highways in small communities into compliance with PROWAG and ADA.
Develop a statewide bicycle plan that emphasizes safety and builds and expands upon the work of MPOs.
Add shoulders on portions of the state highway system that lack them or have deficient shoulders.
Continue to provide pedestrian signals, warning beacons, signage, striping, and lighting at intersections of state routes with high-volume pedestrian crossings.
Implement road design and engineering measures on priority corridors (road diets, medians, bump - outs, roundabouts, signal timing, lane narrowing, etc.).

Background Section VRU Safety Opportunities
Integrate road safety and active transportation funding to ensure vulnerable road use safety prioritized and maximized, especially HSIP, Transportation Alternatives, and OHSO programs.
Integrate vulnerable road user safety education and awareness in other HSIP Emphasis Areas and OHSO programs.
Develop design details, specifications, and installation training for new vulnerable road user safety countermeasures for state, regional, and local agencies to use across Oklahoma.

Encourage SRTS programs that teach the rules of the road and ensure children can walk and bicycle to school safely.
Require education on how to look out for vulnerable road users in novice driver education and adjudication programs.
Expand the Watch for Me OK education campaign efforts to watch out for each other and follow the rules of the road.
Evaluate the presence of vulnerable road users when setting safe speed limits.
Move away from using a five-year rolling average to calculate HSIP safety performance targets that estimate increases in fatal and serious injuries to another proven method that outlines reducing and eventually preventing vulnerable road user deaths and serious injuries.
Provide pedestrian crossings at a reasonable walking distance apart when there are long distances between intersections or land uses that require pedestrians to cross.
Per the 23 U.S.C. 148(g)(3) Vulnerable Road User Special Rule, if the total annual fatalities of vulnerable road users in a State represents not less than 15 percent of the total annual crash fatalities in the State, at least 15% of HSIP funding must be allocated to vulnerable road user safety projects.
Prioritize vulnerable road user safety projects that have the greatest need and impact first based on data and community driven metrics.
Install pedestrian safety countermeasures on all road projects in Oklahoma where pedestrians may be present, both in VRU Safety High-Risk Areas and proactively when road improvements are made.
Report key vulnerable road user safety statistics, key road safety improvements, new programs, and what is working to prevent pedestrians and bicyclists from being killed, at least annually.
Conduct project before and after crash analysis to understand effectiveness of vulnerable road user safety countermeasures across Oklahoma.
Collect additional data needed to conduct other vulnerable road user analysis, such as collecting pedestrian and bicycle volumes to do exposure analysis.
Create and maintain a list of effective vulnerable road user safety countermeasures.
Analyze the effects of new vulnerable road user safety laws, such as House Bill 1770 allowing bicyclists to treat stop signs as yield signs and stop lights as stop signs.
Pedestrian Right-of-Way in Crosswalks (47 OK Stat § 11-502 (2022)): change from “vehicles shall yield” to “vehicles shall stop” for pedestrians.
Incorporate the VRU Safety Report into both the SHSP and ATP and incorporate safety of all road users into roadway programs, policies, practices, and projects.

Expand the annual performance measure survey to include questions specific to VRUs and consider expanding the survey participants to include people who do not drive.
Whenever vulnerable road users could be present, use the Safe System Approach framework--separating users in space and time, reducing speeds and impact forces, and increasing attentiveness and awareness--to all road design decisions in a way that prevents a vulnerable road user from being killed or seriously injured should a crash occur.
Consider vulnerable road user safety using the Safe System Approach elements and principles when establishing road safety policies, programs, and practices.
Ensure vulnerable road users safety improvements are made where low-income and persons of color, including Native Americans, are overrepresented in fatal and serious injury crashes and/or where people do not have access to a car or transit.

OVERVIEW OF VULNERABLE ROAD USER SAFETY PERFORMANCE

As a first step toward understanding the safety of vulnerable road users across Oklahoma, it is crucial to study the high-level patterns of VRU crashes and persons injured on all roads across the state with a descriptive crash analysis. This section will explore crash causes, contexts, behaviors, demographics, and other factors contributing to vulnerable road users being killed or seriously injured. The FHWA VRU Safety Guidance requires this assessment to be done on all roads, not just state routes, and focused on fatal and serious injury crashes through the Safe System Approach.[60] The analysis for this Assessment was to understand reported crashes resulting in VRU being killed or seriously injured from 2017 through 2021.

Data and Methodology Overview

The descriptive analysis and crash mapping were both conducted using the most recent five-years of available crash data of reported crashes from 2017 through 2021, provided by ODOT. The historical crash data is derived from Collision Report Forms completed by responding law enforcement for all crashes reported to authorities.[61] Per Statute Title 47 Motor Vehicles Chapter 10 - Accidents and Reports Relating to Accident, the Oklahoma Department of Public Safety is responsible for collecting, tabulating, and analyzing crash reports, from which ODOT and OHSO provide further crash analysis related to FHWA HSIP and NHTSA FARS reporting.[62] Data was used as-is and interpreted based on provided documentation. All data sources used in the analysis are listed below:

- Historical Crash Data, 2017-2021, provided by ODOT (provided August 30, 2023)
- Equitable Transportation Communities Explorer Data, provided by United States Department of Transportation (accessed September 14, 2023)[63]
- Open Street Maps Roadway Inventory Data, provided by Open Street Maps (accessed September 7, 2023)[64]
- Oklahoma City Boundaries Layer, provided by ODOT GIS Open Data Portal (accessed September 7, 2023)[65]

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[60] https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-10/VRU%20Safety%20Assessment%20Guidance%20FINAL_508.pdf

[61] https://oklahoma.gov/dps/forms/computer-fillable-collision-report-form.html

[62] https://www.oscn.net/applications/oscn/index.asp?level=1&ftdb=STOKST47#Chapter10-AccidentsandReportsRelatingtoAccidents

[63] https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723/page/Homepage/

[64] https://www.openstreetmap.org/relation/161645#map=6/35.335/-101.470

[65] https://gis-okdot.opendata.arcgis.com/

Figures included in this chapter break out fatalities (K) and serious injuries (A) by mode per the Safe System Approach. For the purposes of these figures, pedestrians include all persons involved in crashes which were reported with a unit type of pedestrian or pedestrian conveyance while bicyclists include those reported with a unit type of bicyclist or other cyclist. Figures which display all modes include both motor vehicles, motorcycles, pedestrians, bicyclists, and other forms of conveyance. K and A injury values are based on reported injury severities between time of emergency response and 30 days of the collision. Further details on the definitions of crash severity using the KABCO scale are summarized in the table below which is based on FHWA's KABCO Injury Classification Scale and Definitions document.[66]

Severity Code	KABCO Rating	Description
5 – Fatal Injury	K	If the person is fatally injured (death occurs within 30 days of the date of the collision).
4 – Incapacitating Injury	A	Any injury, other than a fatal injury, which prevents the injured person from walking, driving or normally continuing the activities the person was capable of performing before the injury occurred. *Note: Also referred to as serious injury*
3 – Non-incapacitating Injury	B	Any injury, other than a fatal injury or an incapacitating injury, which is evident to observers at the scene of the accident in which the injury occurred.
2 – Possible Injury	C	An injury reported or claimed which is not a fatal injury, incapacitating injury or non-incapacitating evident injury.
1 – No Injuries	O	If the person has no injuries.
9 – Unknown	U	If injury severity is unknown.
0 – Not applicable		

Vulnerable Road User Crashes during the Study Period

Across the United States, VRU crashes have increased in recent years, representing an ongoing national tragedy.[67, 68, 69] According to the Governors Highway Safety Association (GHSA) 2022 Pedestrian Traffic

[66] https://safety.fhwa.dot.gov/hsip/spm/conversion_tbl/pdfs/kabco_ctable_by_state.pdf

[67] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813405

[68] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813322#:~:text=In%202020%20there%20were%20938%20pedalcyclists%20killed%20in%20traffic%20crashes,percent%20from%20859%20in%202019

[69] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813322#:~:text=In%202020%20there%20were%20938%20pedalcyclists%20killed%20in%20traffic%20crashes,percent%20from%20859%20in%202019.

Fatalities by State report, pedestrian fatalities have increased nationally from 6,075 in 2017 to 7,624 in 2021, an increase of over 25%.[70] Similarly, Oklahoma has seen an increase in pedestrian fatalities, from 82 in 2017 to 101 in 2021, an increase of 23%.

From 2017 through 2021, on all roads across Oklahoma there was an overall increase in annual fatalities for all modes, from 652 fatalities in 2017 up to 715 in 2021. Similarly, there was an increase in pedestrian fatalities occurred, from as low as 63 in 2018 up to 101 in 2021. This is somewhat consistent with the overall increase in fatalities seen. Bicyclist fatalities fluctuated over the five-year period but maintained a relatively steady average of around 12 fatalities per year.

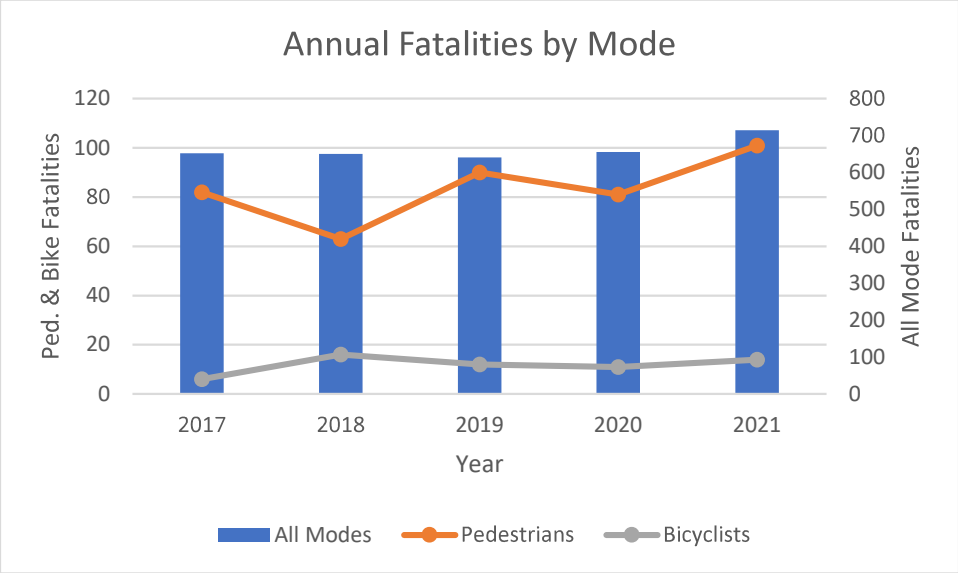

Figure 7. Annual fatalities by mode (Source: SAFE-T Database 2017-2021)

Expanding our view to include fatalities as well as serious injuries, there was a slight overall decrease for all modes across Oklahoma for the five-year study period, going from 3,300 in 2017 down to 2,788 in 2021. Despite this, a slight increase in pedestrian fatal and serious injury crashes was observed. From as low as 194 fatal and serious injury crashes in 2018, there were 250 fatal and serious injury pedestrian crashes in 2021 across Oklahoma. This contradicts the overall decrease seen across all modes. Bicyclist fatalities fluctuated over the five-year period with a peak of 67 in 2019 but maintained a relatively steady average of about 50 crashes per year.

[70] https://www.ghsa.org/sites/default/files/2023-06/GHSA%20-%20Pedestrian%20Traffic%20Fatalities%20by%20State%2C%202022%20Preliminary%20Data%20%28January-December%29.pdf

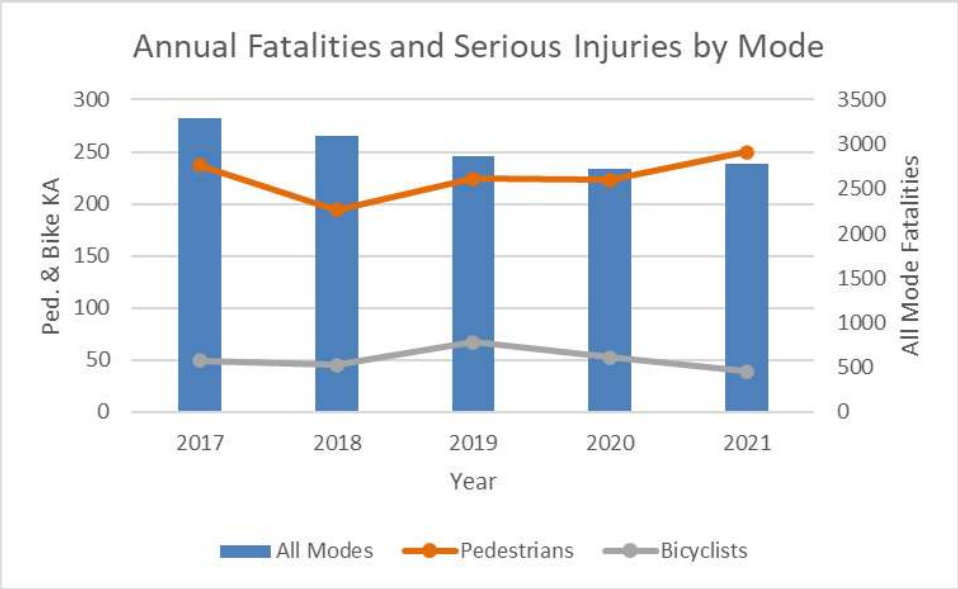

Figure 8. Annual fatalities and serious injuries by mode (Source: SAFE-T Database 2017-2021)

Crash Characteristics

CRASH TYPE

Understanding the actions of vulnerable road users is key to understanding what safety countermeasures would most appropriately address the hazards at hand. Looking at pedestrian fatal and serious injury crashes, the most prevalent pre-crash movement was crossing at an uncontrolled intersection, making up 28% of all pedestrian fatal and serious injury pre-crash actions. Other common actions included improper crossings (12%), walking with traffic (11%), and crossing at intersections (10%). Bicyclists were more frequently involved in fatal and serious injury crashes when riding with traffic, with that making up 32% of bicycle fatal and serious injury crashes. Other common actions include crossing at intersections (21%) and improper crossings (16%).[71]

[71] Due to incomplete data, selection of priority attribute values, and the varying number of units involved in each collision, percentage values may not add up to 100%.

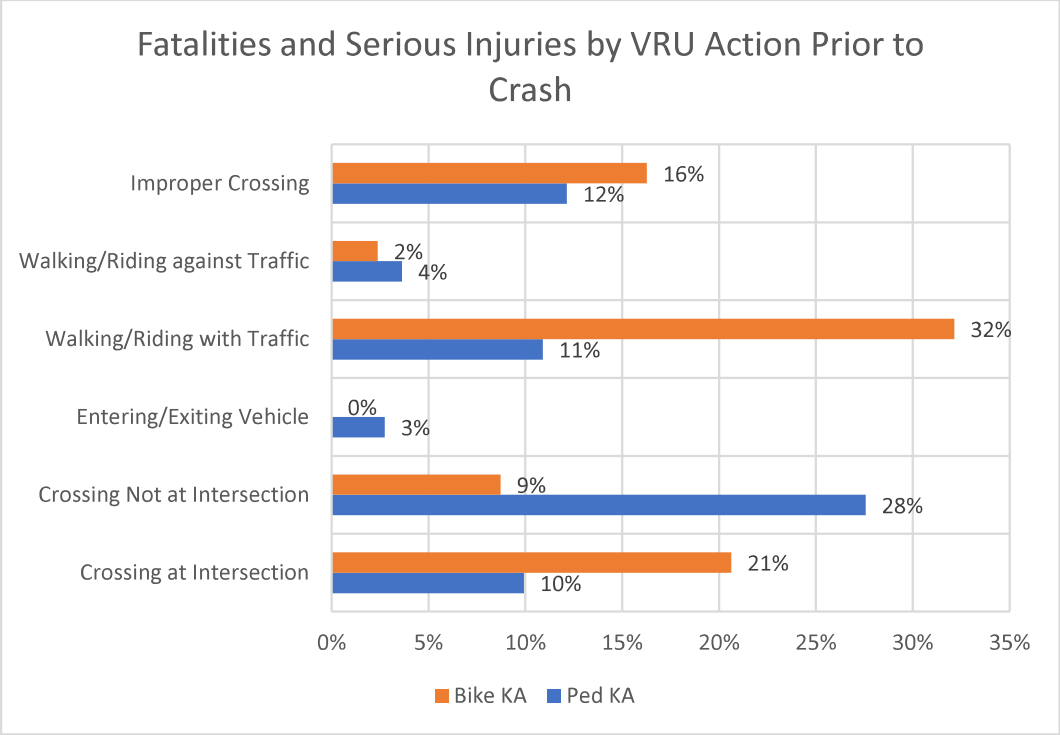

Figure 9. Fatalities and serious injuries by vulnerable road user action prior to crash (Source: SAFE-T Database 2017-2021)

Similarly, understanding patterns in actions of vehicles prior to a crash can provide additional valuable insights. The figure below illustrates the relative prevalence of common vehicle maneuvers prior to a crash. Notably, both pedestrians and bicyclists are most commonly hit by vehicles moving straight ahead.

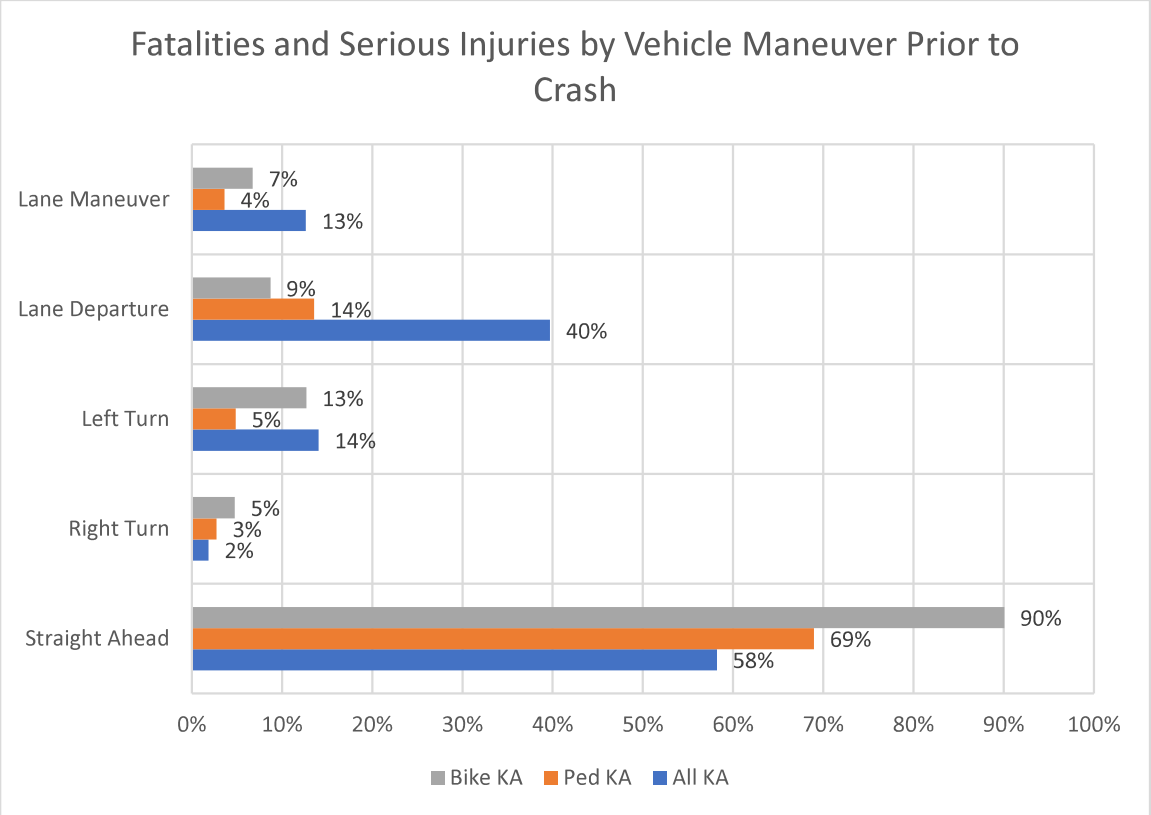

Figure 10. Fatalities and serious injuries by vehicle maneuver prior to crash (Source: SAFE-T Database 2017-2021)

ROAD USER BEHAVIORS

Impairment involvement and hit and run crashes are a major issue for vulnerable road users in the state of Oklahoma. Of all pedestrian fatalities and serious injuries, 21% involved alcohol and/or drug impairment, and 24% of crashes were classified by the reporting officer as hit and run. Bicyclist fatalities and serious injuries exhibit similar but slightly less elevated patterns, with 12% involving impairment and 21% being hit and run. These patterns may relate to the elevated frequencies of VRU being killed or seriously injured during late evening hours shown in the *Time and Day* section.

Fatalities and serious injuries occurring within defined work zones were also studied, noting approximately 2% and 1% of all pedestrian and bicyclist injuries occurring within work zones, respectively. Unusual traffic patterns in these work zones may contribute to these events, as well as the presence of workers, classified as pedestrians in the analyzed crash data, in vulnerable positions in work zones.

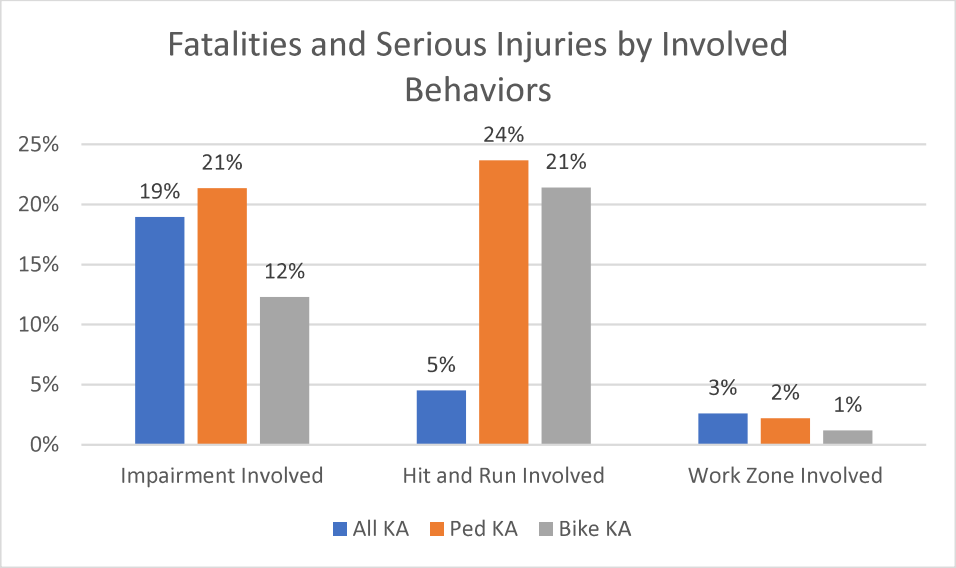

Figure 11. Fatalities and serious injuries by involved behaviors (Source: SAFE-T Database 2017-2021)

VEHICLE TYPE

The types of vehicles involved in VRU crashes can have a significant impact on outcomes. Larger, heavier vehicles tend to cause more severe injuries due to increased kinetic energy involved in crashes. For VRU crashes across Oklahoma, 44% involved passenger vehicles, even across both pedestrian and bicycle modes. Larger vehicles with a higher hood, such as SUVs, were involved in 26% of pedestrian fatalities and serious injuries, compared to 21% for bicyclists. Pickup trucks and motorcycles were involved in 27% and 1% of VRU crashes respectively. Heavy vehicles were involved in 8% of pedestrian fatalities and serious injuries and 5% for bicyclists.

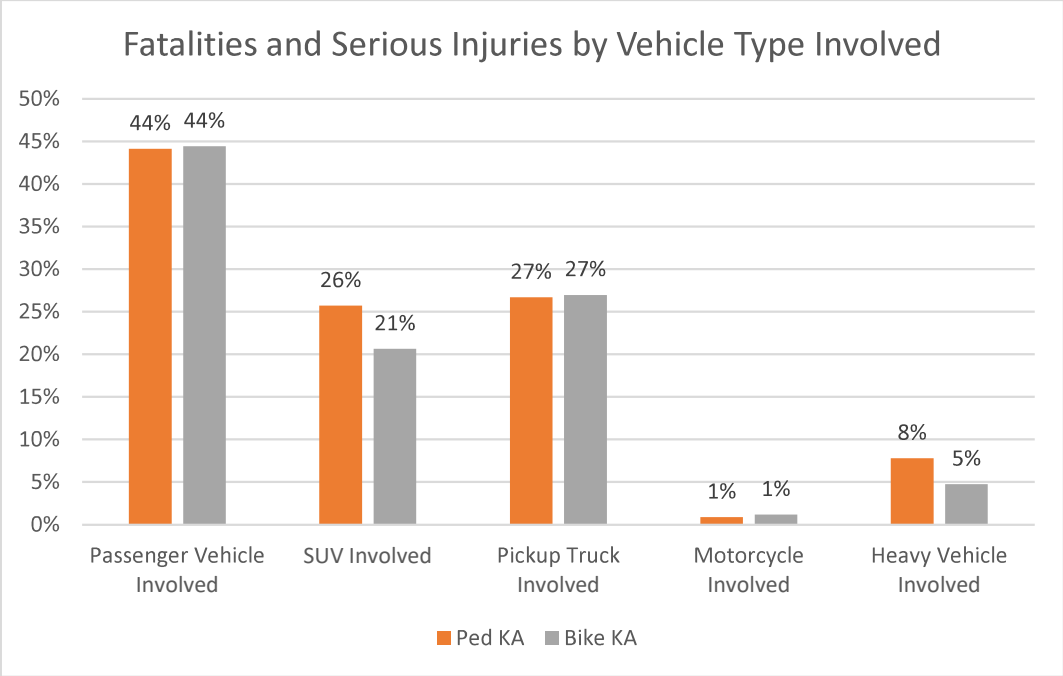

Figure 12. Fatalities and serious injuries by vehicle type involved (Source: SAFE-T Database 2017-2021)

VULNERABLE ROAD USER VICTIM AGE

In Oklahoma, approximately 20% of the population is below the age of 15. There were 76 children under the age of 15 killed or seriously injured during the 2017-2021 study period, representing approximately 7% of VRU fatalities and serious injuries across all ages. Though this is a relatively small proportion given their share of the population, it still represents a large number of children being killed or seriously injured while walking, bicycling, or rolling on roads in Oklahoma. Vulnerable road users aged 25-65 are consistently overrepresented in all age groups relative to their share of the population, likely reflecting higher numbers of trips traveled by these residents who may make frequent trips for daily commutes, errands, and more.

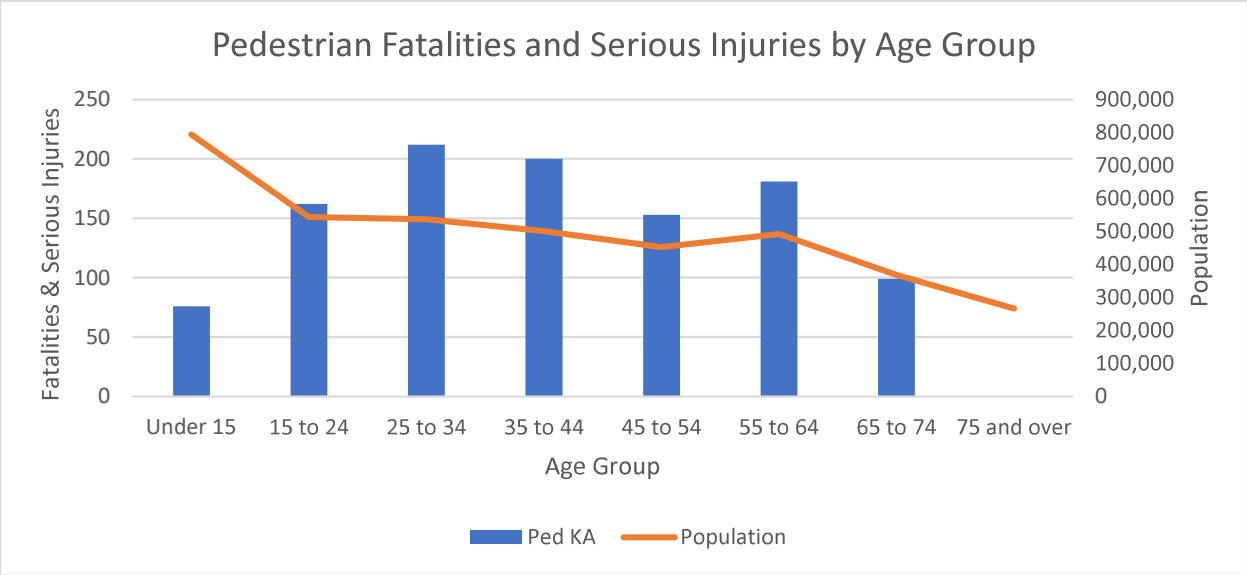

Figure 13. Pedestrian fatalities and serious injuries by age group (Source: SAFE-T Database 2017-2021)

Similar to pedestrians, there were 27 bicyclist fatalities and serious injuries among children under the age of 15 over the 2017-2021 study period, representing approximately 11% of fatalities and serious injuries across all ages. Though this is a relatively small proportion given their share of the population, it still represents a large number of children being killed or seriously injured while riding bicycles. Bicyclists aged 45-54 are particularly overrepresented in terms of crash frequency, with 49 fatalities and serious injuries during the study period, making up 20% of all fatalities and serious injuries despite only representing about 11% of the population in Oklahoma.

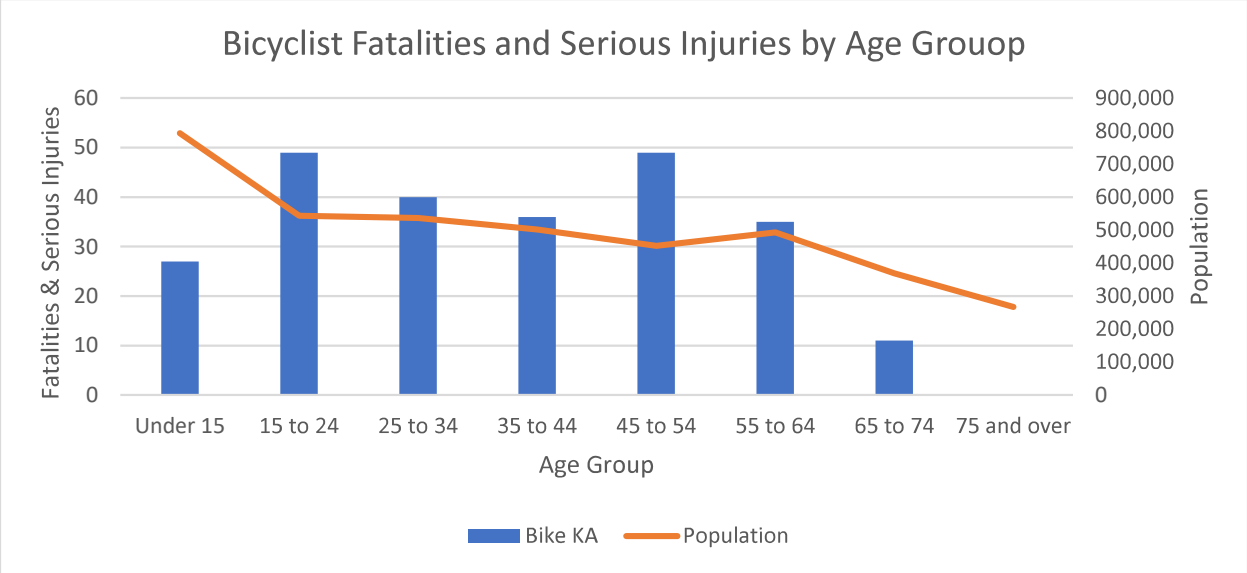

Figure 14. Bicyclist fatalities and serious injuries by age group (Source: SAFE-T Database 2017-2021)

Road Characteristics

CRASH LOCATION AND CONTROL TYPE

When there are long distances between intersections, pedestrians often choose to cross the road at midblock locations. Because there is no traffic control or physical protection for vulnerable road users at these locations, motorists may not anticipate pedestrians crossing. This increases both the likelihood and the relative severity of these crashes.

Bicyclist crashes are also most common at midblock locations where crashes with vehicles may occur due to sideswiping, overtaking, and many other causes. There is also a relative overrepresentation of bicyclist injuries occurring at unsignalized and uncontrolled intersections that may be due to inconsistent yielding behavior or other motorist and bicyclist behaviors.

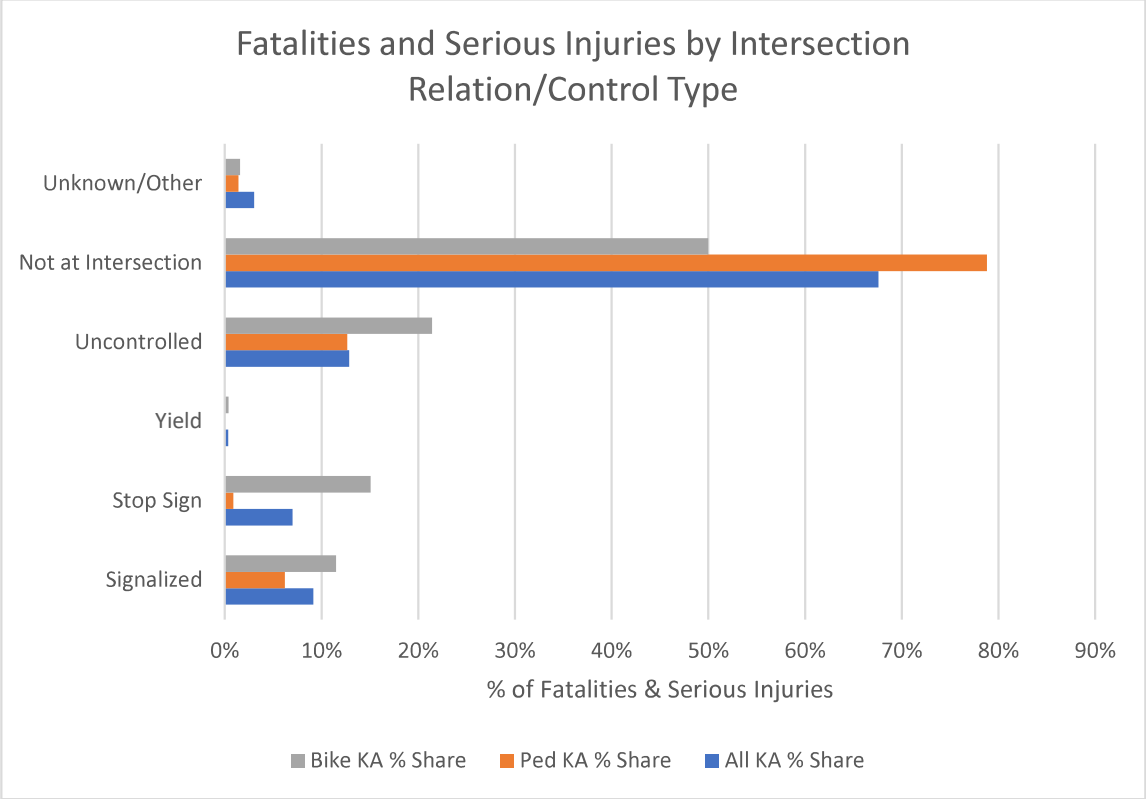

Figure 15. Fatalities and serious injuries by intersection relation and control type (Source: SAFE-T Database 2017-2021)

POSTED SPEED LIMIT

Crashes resulting in a VRU fatal and serious injury occur most frequently on facilities with speed limits of 25 MPH or lower.[72] However, this represents a large portion of the state's roadway network, including many neighborhood streets. Approximately 20% of VRU deaths and serious injuries occur on roads with speed limits of 40-45 MPH. This represents trips taken on higher functional class roads where roads may have higher volumes and wider cross sections.

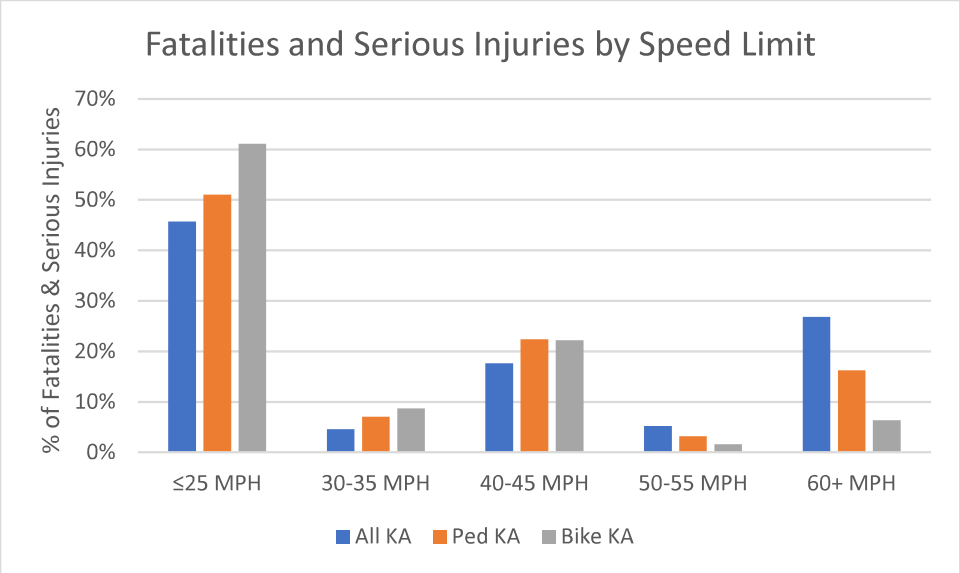

Figure 16. Fatalities and serious injuries by speed limit (Source: crash data from SAFE-T Database 2017-2021 and speed limit data from Open Street Maps)

[72] Reported crash locations were correlated to speed limits from Open Street Maps in GIS.

Environmental Characteristics

TIME AND DAY

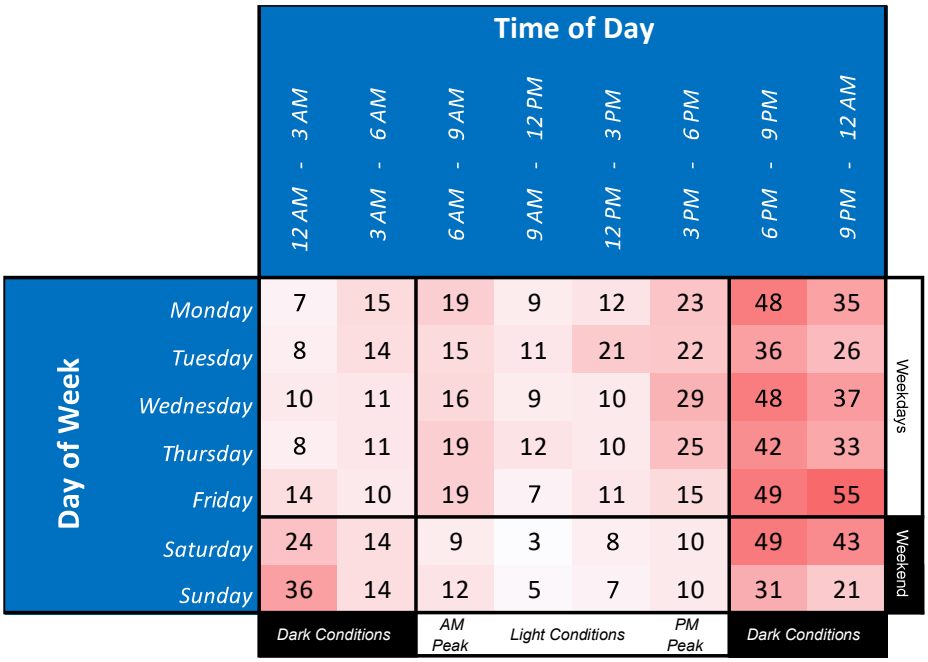

Figure 17. Pedestrian fatalities and serious injuries by day of week and time of day (Source: SAFE-T Database 2017-2021)

Looking at trends in the time and day of week on which crashes occur at can be important in understanding the context and behavior behind fatal and serious injury crashes. Between 2017 and 2021, pedestrian and bicyclist fatalities and serious injuries were most prevalent between 3pm to 12am during the week and 6pm to 3am over the weekend. This trend is consistent with other findings that show a high prevalence of severe pedestrian crashes in dark, unlit conditions in the *Lighting Conditions* section. Pedestrian and bicyclist fatalities and serious injuries also slightly increase from 6-9am and from 3-6pm during the week due to an increase in road user volumes and potential conflicts due to work commutes.

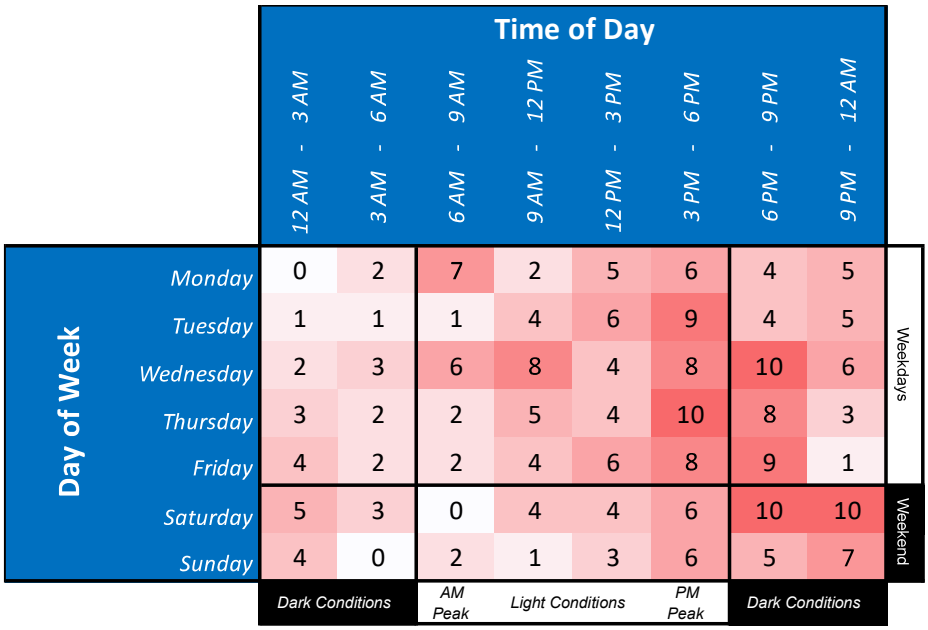

Figure 18. Bicyclist fatalities and serious injuries by day of week and time of day (Source: SAFE-T Database 2017-2021)

ROAD CONDITIONS

Between 2017 and 2021, 85% of all pedestrian fatalities and serious injuries occurred on dry roads, with only about 10% occurring on wet or ice/snow/slush roads. Between 2017 and 2021, 92% of all bicyclist fatalities and serious injuries occurred on dry roads, with only about 5% occurring on wet roads. These are generally consistent with expectations and does not reflect any elevated pattern.

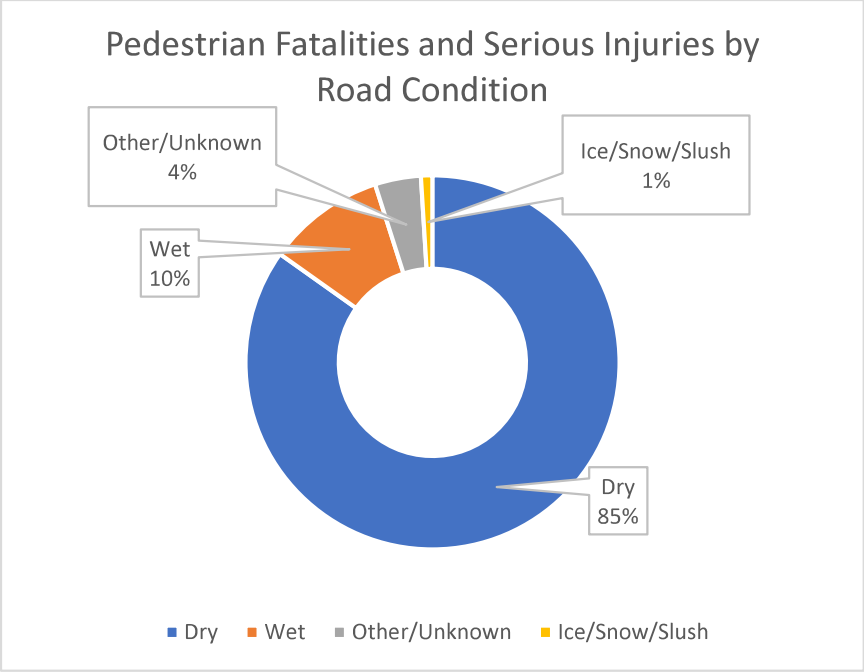

Figure 19. Pedestrian fatalities and serious injuries by road condition (Source: SAFE-T Database 2017-2021)

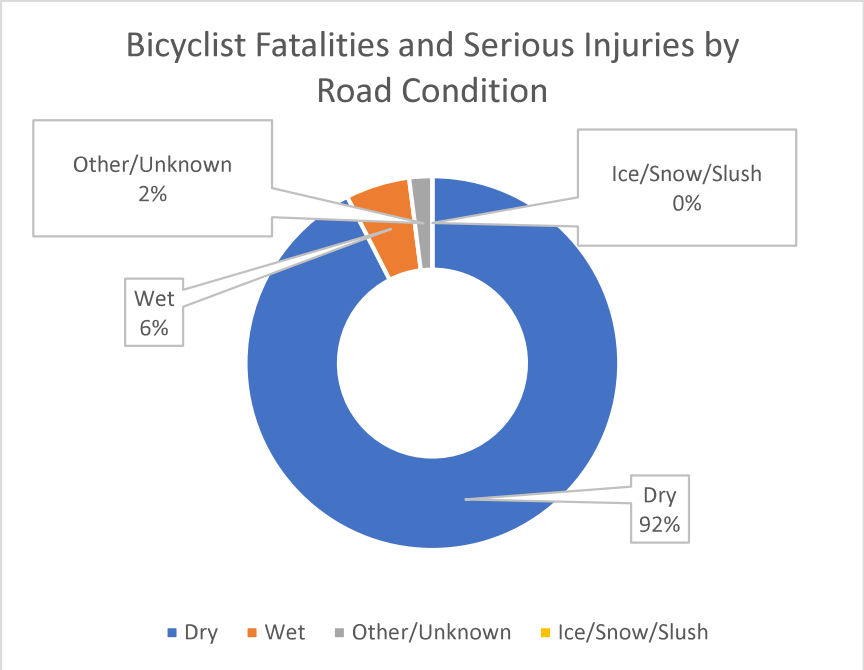

Figure 20. Bicyclist fatalities and serious injuries by road condition (Source: SAFE-T Database 2017-2021)

LIGHTING CONDITIONS

Between 2017 and 2021, 43% of all pedestrian fatalities and serious injuries occurred in dark, unlit conditions. An additional 24% occurred in dark conditions with lighting. This is consistent with the trend of vulnerable road user crashes being more frequent during the late night and early morning hours. Further, this indicates a strong overrepresentation of severe vulnerable road user crashes occurring under darkness where the presence of streetlighting may improve visibility and reduce these occurrences. With many pedestrian crashes occurring due to pedestrians crossing or traveling at uncontrolled midblock locations, dark conditions may further reduce motorists' ability to see and react to pedestrians in the road.

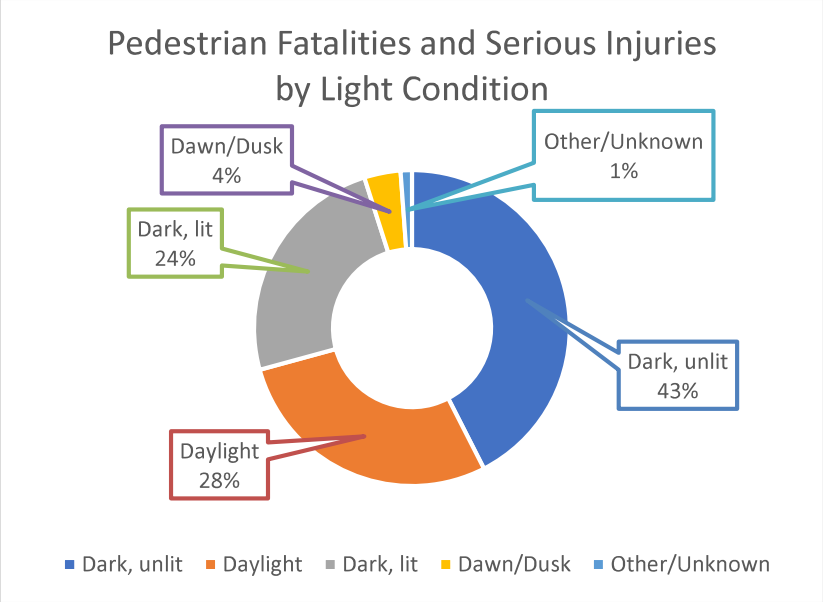

Figure 21. Pedestrian fatalities and serious injuries by light condition (Source: SAFE-T Database 2017-2021)

Between 2017 and 2021, 59% of all pedestrian fatalities and serious injuries occurred in dark, unlit conditions. An additional 16% occurred in dark conditions with lighting. This is consistent with the trend of vulnerable road user crashes being more frequent during the late-night hours. Similar to pedestrian crashes, this indicates a strong overrepresentation of severe vulnerable road user crashes occurring under darkness where the presence of streetlighting may improve visibility and reduce these occurrences.

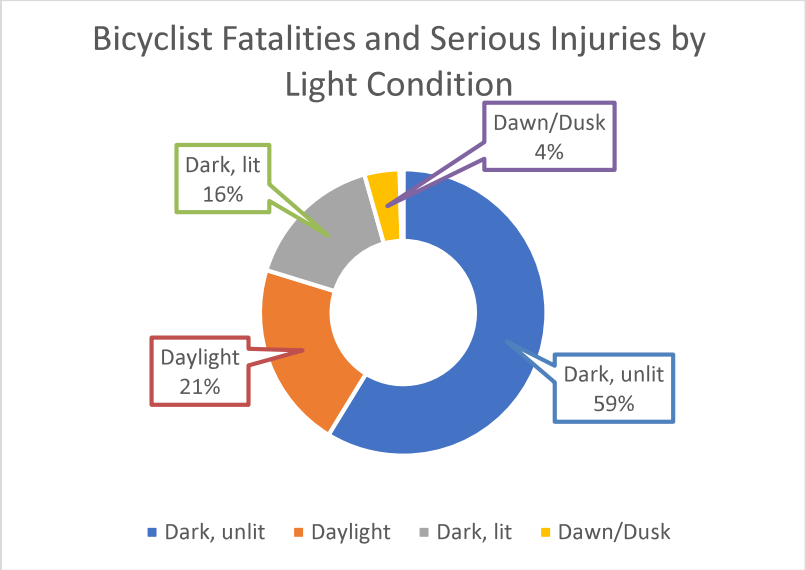

Figure 22. Bicyclist fatalities and serious injuries by light condition (Source: SAFE-T Database 2017-2021)

LAND USE CONTEXT

As may be expected, the vast majority of pedestrian and bicyclist fatalities and serious injuries occur in urban (population of 5,000 – 50,000) and urbanized (population of 50,000+) settings. This is due to larger volumes of pedestrian and bicyclist movements and the closer proximity between residential and commercial areas which encourages more active transportation modes.

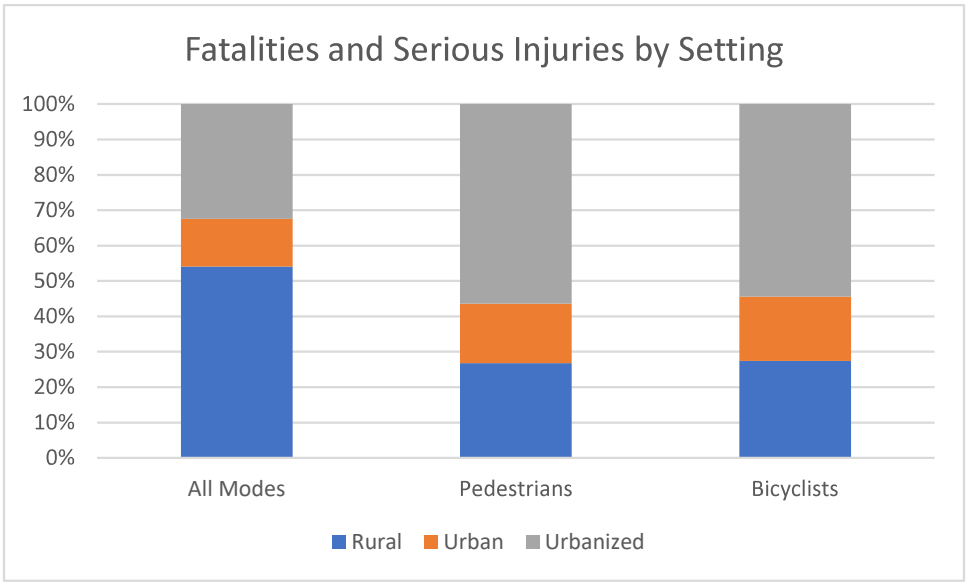

Figure 23. Fatalities and serious injuries by setting (Source: SAFE-T Database 2017-2021)

Fatal and Serious Injuries within Tribal Areas

The number of VRU deaths and serious injuries within Tribal Areas and outside Tribal Areas provides us only an estimate of VRU deaths and serious injuries, but is not enough information to determine impacts of road crashes involving American Indian populations in Oklahoma.[73] Demographic data for crash victims was also not available. Additionally, many factors contribute to potential confounding results of any further Indian American VRU fatal and serious injury crash analysis based on current data available. Populations living within each of the Tribal Areas in Oklahoma were not readily available and could not be accurately correlated to Census populations at the time of this analysis to determine the fatal and serious injury crash rates by population within each Tribal Area. Also, American Indian Census data usually has an undercount rate of 5.64%.[74] Additional data processing and analysis should be conducted in the future to evaluate the number of American Indians killed or seriously injured in road crashes while walking, bicycling, or rolling. Crash reports and demographic data from identification records of parties involved are needed to accurately determine the number and other contributing factors of American Indians being killed or seriously injured in road crashes across Oklahoma.

Table 2 Fatalities and serious injuries by Tribal Areas (Source: crash data from SAFE-T Database 2017-2021 and Tribal Areas from ODOT Open Data Portal)

Tribal Areas	Any KA (14,774)	Ped KA (1,128)	Bike KA (252)	Estimated Population (3,949,342)
Within Tribal Areas	66%	50%	44%	61%
Outside of Tribal Areas	34%	50%	56%	39%

Equity Considerations

Across the state of Oklahoma, approximately 34% of the population lives within a disadvantaged Census tract. This is based on the Equitable Transportation Community Explorer, developed by the United States Department of Transportation (USDOT) as part of the Justice40 Initiative, which uses climate and disaster risk burden, environmental burden, health vulnerability, social vulnerability, and transportation insecurity to determine an overall disadvantaged scores.[75]

Despite the baseline of 34% of the population in Oklahoma living in disadvantaged areas, these communities face an overrepresentation of fatal and serious injuries under all modes, and particularly for vulnerable road users, with 39% of fatalities and serious injuries occurring in disadvantaged areas.

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[73] https://gis-okdot.opendata.arcgis.com/datasets/okdot::tribal-boundaries/explore

[74] https://www.census.gov/newsroom/press-releases/2022/2020-census-estimates-of-undercount-and-overcount.html#:~:text=American%20Indian%20or%20Alaska%20Native%20alone%20or%20in%20combination%20populations,significant%20undercount%20rate%20of%205.64%25

[75] https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723/page/ETC-Explorer---State-Results/

Pedestrian and bicyclist fatalities and serious injuries represent much larger overrepresentations. With 52% of pedestrian and 51% bicyclist fatalities and serious injuries occurring in disadvantaged areas, this reflects overrepresentations of 18% and 17% respectively.

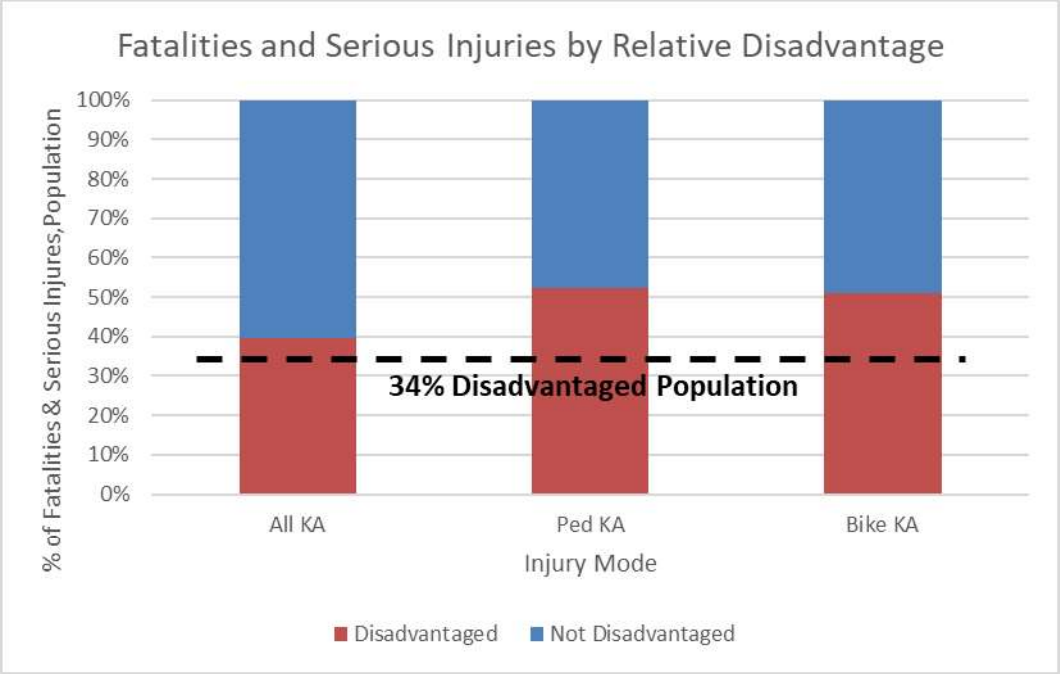

Figure 24. Fatalities and serious injuries by relative disadvantage (Source: crash data from SAFE-T Database 2017-2021 and disadvantaged data from USDOT Equitable Transportation Communities Explorer)

Descriptive Analysis Key Findings

With the data and resources maintained by ODOT, analysis was performed to better understand the unique and complex experiences of vulnerable road users across the state. This study identified several key insights to better understand the unique and complex factors of vulnerable road user crashes across Oklahoma. These key findings below are used to inform VRU safety strategies listed in the *Vulnerable Road User Safety Strategies and Projects* section of the Assessment.

Descriptive Analysis Key Findings
Oklahoma is experiencing an increase in pedestrian fatalities. Over the study period, a slight increase in pedestrian fatalities and serious injuries was noted, indicating a strong need for additional investment and effective planning. Bicycle fatalities and serious injury were found to be fairly steady during the study period. Though this may appear less urgent than the pedestrian safety concern, it is still highly important to invest in improvements to bicycle safety across the state to ensure that the numbers begin decreasing.
Opportunities to improve the safety of vulnerable road users in dark conditions. Analyses found a large number of pedestrian and bicyclist crashes occurring at night, with many occurring in dark, unlit

conditions. This points to a need to invest in infrastructure and policies that will help improve safety for these trips.
Many vulnerable road users are killed or seriously injured during hit and run events. Nearly a quarter of all vulnerable road user fatalities and serious injuries were found to involve hit and run crashes. This limits accountability for poor safety behaviors and may correlate to other unsafe behaviors leading up to the crash, such as impaired driving.
Pedestrians are crossing roads at unsafe locations. These unsafe behaviors may be indicative of road facilities which are not effectively serving vulnerable road users. Avoiding these behaviors may involve installation of additional crossing locations at busy pedestrian areas where the distance between crossing locations is long, improving motorist compliance with existing uncontrolled crossings, and providing traffic calming or reducing speed limits in pedestrian-heavy areas where these behaviors often occur to reduce the frequency and severity of these crashes when such crossings are made.
Bicyclists are being injured while riding along with traffic. Though this is generally the correct way to maneuver a bicycle in the presence of vehicular traffic, the prevalence of crashes under these conditions indicates a need for separated bicycle facilities on roads with histories of bicycle crashes or known popular routes.
Pedestrian and bicyclist fatalities and serious injuries are highly overrepresented in disadvantaged communities. Based on definitions in the Justice40 data set, disadvantaged communities represent higher frequencies of pedestrian and bicyclist fatalities and serious injuries. This may relate to lower rates of vehicle ownership and generally higher volumes of necessary active mode trips in these communities. This also means that the impacts of unsafe facilities may have stronger negative economic and social impacts on these communities which already experience other vulnerabilities.

Future VRU Safety Data Collection and Analysis Strategies

Throughout this initial Assessment, a number of additional datasets that either need to be collected and/or processed were identified that could be helpful to future analysis. Additionally, due to time limitations of this study, there are also additional analysis methods, including advanced hot spot and systemic analysis, that could be helpful as ODOT advances the VRU Safety Emphasis Area, identifies additional crash risks, and determines if programs and projects are positively impacting reducing vulnerable road user deaths and serious injuries across Oklahoma. Potential future data collection and analysis strategies include:

Future VRU Safety Data Collection and Analysis Strategies
Exposure data. Having access to more robust vehicle volumes as well as detailed pedestrian and bicyclist volumes could provide a greater understanding of the relative risk for vulnerable road users using different portions of the road network.
Additional road network data. Correlating safety performance to various additional road network characteristics could provide a more complete view of what risk factors are present which may impact

safety performance for vulnerable road users. Key road features include road functional classification, number of lanes, road width, turning lanes, lighting fixtures, and more.
Sidewalk and bicycle facility inventory. Asset management inventory of vulnerable road user facility types would provide understandings of safety performance as well as opportunities for infrastructure investments. These facility inventories should include sidewalks, crossings, bicycle facilities, pedestrian bridges, and more.
Pedestrian generator data. Similar to direct exposure data such as traffic volumes, pedestrian generator data can help fill in gaps to understand where vulnerable road users are traveling to and from, indicating key locations for safety investment. These facilities include schools, parks, commercial districts, and various public facilities.
Transit data. To further understand patterns of vulnerable road user movements, transit data, such as General Transit Feed Specification (GTFS), can tell us where pedestrians are moving at various times of day. Understanding where transit facilities are located and their relative use can help inform the types of facilities that receive investment and may present opportunities for partnerships with transit agencies.
Unsafe behavior information. Additional information on unsafe driver and road user behaviors, such as distracted driving, aggressive driving, and more can be valuable in diagnosing and responding to safety concerns, especially as it relates to vulnerable road users. Including and expanding on this information in crash reports and crash analysis systems will help eliminate these unsafe behaviors on roads.
Citation and near miss data. Crashes are relatively rare and represent only a portion of all events which impact the safety, security, and comfort of vulnerable road users. Additional data sets that capture near misses, citations for dangerous behaviors, and community-generated polling data can help to supplement crash data and provide a more nuanced understanding of the behavioral and infrastructural issues that impact safety performance in different communities. Conduct near miss video analytics analysis in the VRU Safety High-Risk Areas.
Tribal Communities. American Indians and Tribal Communities are a key part of Oklahoma's diverse population. Further data and analysis of American Indians involved in VRU fatal and serious injury crashes should be conducted to prevent American Indians from being killed or seriously injured while walking, bicycling, or rolling on roads in Oklahoma. This should be done in partnership with the Tribal Organizations and address existing safety concerns brought up during the VRU Safety High-Risk Area consultations. Future VRU Safety Assessment should include correlation of driver's license, identification cards, and/or death certificates to determine race/ethnicity and/or Tribal member or identification cards to crash records to determine to impact of VRU fatal and serious injury crashes on Indian Americans in Oklahoma.
Systemic Safety Analysis. Systemic safety analysis is proactive and identifies roadway, intersection, and context attributes correlated to the occurrence of target crash types. This can be used to prioritize facilities for safety investments where risk factors have been identified, regardless of crash history.

This is an important complement to standard hot spot network screening and project identification methods.
Investigate VRU Age. Studying the age of victims in VRU crashes can help us understand what underlying scenarios and issues may be impacting crashes and guide us to more effective safety programming.
Crash Clustering Analysis. To help capture corridor-level patterns of vulnerable road user crashes, crash clustering analysis can be performed, identifying broader patterns of crashes across commercial districts, residential neighborhoods, or other areas. This can lead to further prioritization of strategies and projects.
Project and Program Evaluation. To understand the effectiveness of VRU safety projects, periodic evaluation of countermeasures can be conducted. This analyzes before-after, or cross-sectional data for project locations, evaluating the safety impacts of investments and computing an estimated return on investment, crash modification factors, or other key metrics to quantify the effectiveness of safety investments both at the project and program levels.

SUMMARY OF QUANTITATIVE ANALYSIS

This section outlines the data and methods used to identify the VRU Safety High-Risk Areas which are central to this document and the basis for the stakeholder consultations. These VRU Safety High-Risk Areas include the ACOG, the INCOG, as well as Tribal Communities around the state of Oklahoma. Each of these three areas were found to satisfy the three factors defined in the following section, featuring high densities of pedestrian and bicyclist fatalities and serious injuries, large proportions of populations living in disadvantaged areas, and high proportions of indigenous populations.

Specific strategies and projects being recommended for future implementation are included in the *Vulnerable Road User Safety Strategies and Projects* section of this Assessment.

The initial VRU Safety High-Risk Areas where consultations were conducted as part of the SHSP included the following:

- Oklahoma City and ACOG
- Tulsa and INCOG
- Tribal Communities

Additional VRU Safety High-Risk Areas based on VRU fatalities and serious injuries per 100,000 residents where additional analysis, consultation, and most importantly resources to improve pedestrian and bicycle safety should also include the following:

- Norman
- Lawton
- Muskogee

Data and Methodology

The primary purpose for identifying VRU Safety High-Risk Areas for the vulnerable road user safety assessment is to help focus efforts and funding toward communities and locations that need them most urgently. This includes both communities with relative safety underperformance and elevated crash patterns as well as communities which are the most vulnerable to the economic, social, and other impacts of these crashes and safety concerns. To identify the most crucial of these locations, Oklahoma DOT focused efforts on three main factors:

- **Locations with relatively high geographic density of pedestrian and bicyclist fatalities and serious injuries.** Because these locations experience high numbers of vulnerable road user crashes and injuries within their boundaries, safety improvements may be expected to produce greater effects per dollar spent and per location addressed.
- **Locations with relatively high proportions of residents living in disadvantaged census tracts according to the Justice40 Equitable Transportation Communities Explorer.** Communities which experience a variety of economic and social disadvantages are particularly at risk to the impacts of underperforming transportation networks. For these communities, walking and biking may be more critical to their mobility, so unsafe networks may put them at elevated risk or may preclude them from taking some trips altogether.

- **Tribal Lands and locations with a greater number of American Indian populations walking and bicycling.** Due to overrepresentation of American Indians being killed or seriously injured walk walking and bicycling and the transportation inequities due to being historically underserved and marginalized, focusing safety funds and efforts at these locations can help produce more equal outcomes in the long term and improve safety performance for communities where safe active transportation systems may not be complete or accessible to all residents.

Geographic Crash Density Analysis

Vulnerable road user volumes tend to be the highest in more densely populated areas where walking and biking distances are shorter. Because of this, these areas tend to have the highest frequencies of pedestrian and bicyclist crashes as well. Heatmaps were developed using geospatial software and standard data density analysis tools, visualizing the relative density of pedestrian and bicyclist fatalities and serious injuries across the state of Oklahoma. As shown in the heatmaps below, both pedestrian and bicyclist fatalities and serious injuries are significantly concentrated in the Oklahoma City and Tulsa metro areas. There are also smaller clusters of crashes spread throughout the state in smaller cities and towns, such as Norman, Lawton, and Muskogee.

This analysis helps to capture a clearer understanding of the safety performance of Oklahoma's road network as it relates to pedestrians and bicyclists. As expected, pedestrian and bicyclist fatalities and serious injuries are highly concentrated in the urban areas, representing a great potential for safety improvement. Because of this concentration of crashes, the areas in and around Oklahoma City and Tulsa, captured by the ACOG and INCOG regions, were identified as VRU Safety High-Risk Areas.

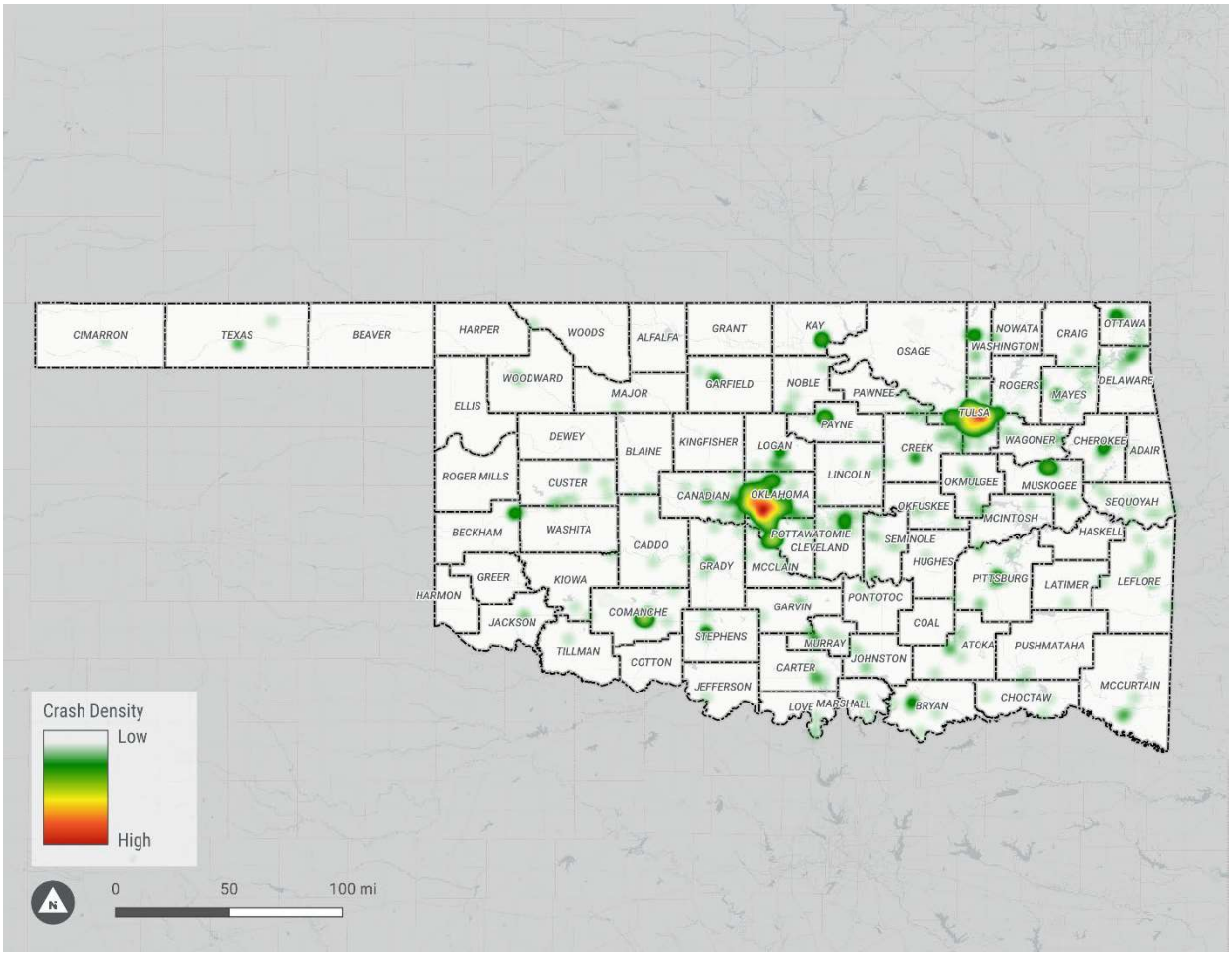

Figure 25. Heatmap of pedestrian fatalities and serious injuries across the state (Source: SAFE-T Database 2017-2021)

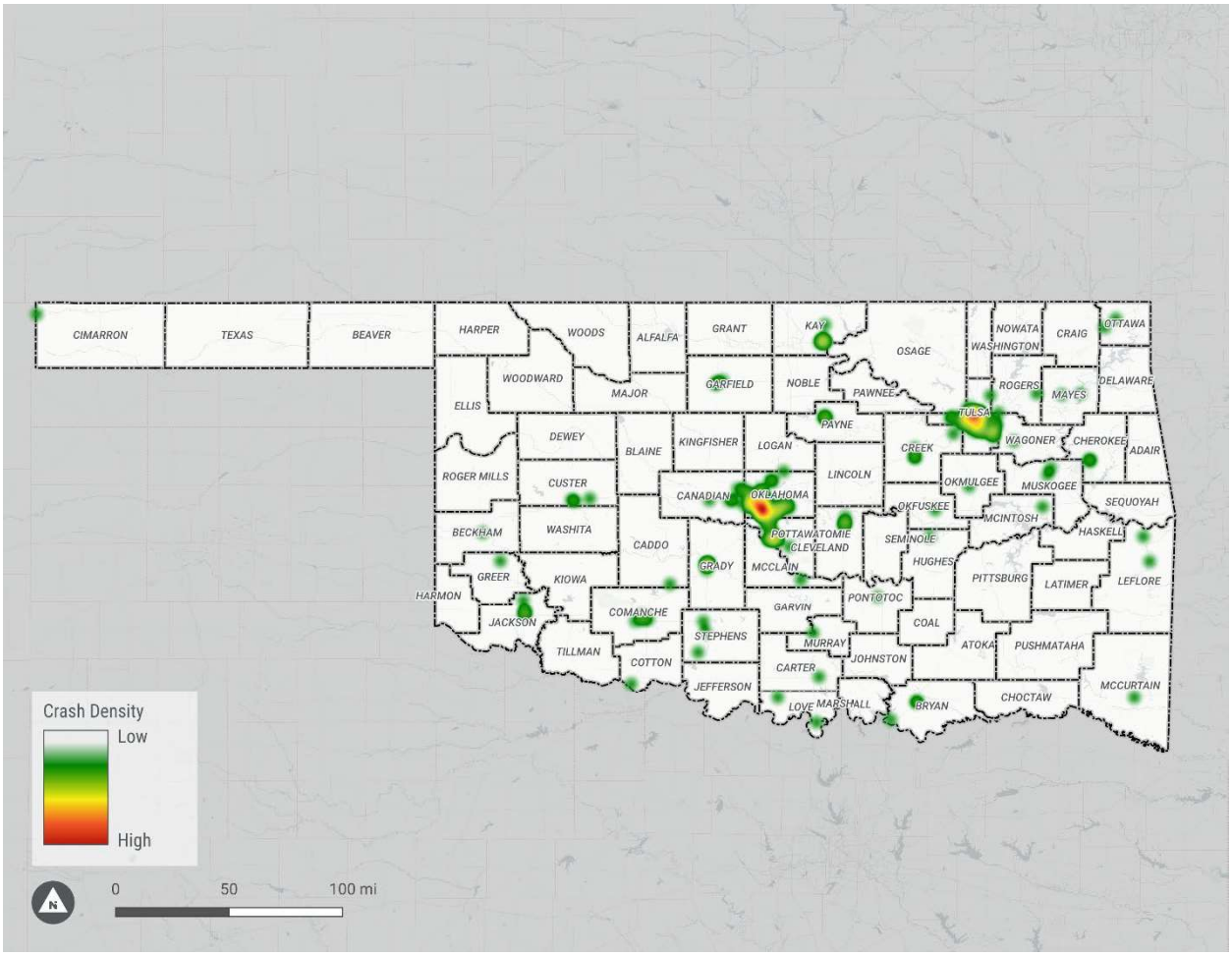

Figure 26. Heatmap of bicyclist fatalities and serious injuries across the state (Source: SAFE-T Database 2017-2021)

Disadvantaged Communities

As discussed in the section on *Equity Considerations*, the strong overrepresentation of vulnerable road user crashes in disadvantaged communities highlights the importance of considering equity when defining safety programming and policies. This ensures that adequate resources are being provided, at appropriately high levels, to our more vulnerable communities. Residents in these areas may have more limited access to reliable transportation, are economically strained, or are more vulnerable to the financial and societal repercussions of poor safety performance. For this reason, disadvantaged communities should be highlighted in future safety programming coming out of this effort.

The two VRU Safety High-Risk Areas of Tulsa and Oklahoma City are explored in more depth below, highlighting these communities as critical areas for the focus of this vulnerable road user safety assessment. Due to the high numbers of residents in these communities that live in disadvantaged communities, this further confirmed the selection of Tulsa and Oklahoma City as VRU Safety High-Risk Areas where the impacts of VRU crashes would be most significant.

TULSA

Looking further into Tulsa, 41% of the population has been identified as living in a disadvantaged Census tract, meaning that there is an overrepresentation in Tulsa compared to the statewide 34%. Citywide, only 25% of the population has been identified as being transportation insecure. However, despite this, 40% of traffic fatalities and serious injuries in Tulsa occur in these tracts. Census tracts in the northeast and western parts of the city were found to have the highest rates of transportation insecurity. Additionally, although some of these Census tracts were found to have lower rates of transportation insecurity, they were found to have a much higher share of the roadway fatalities despite not appearing to be transportation insecure. This was especially evident in communities along the south side of the Arkansas River.

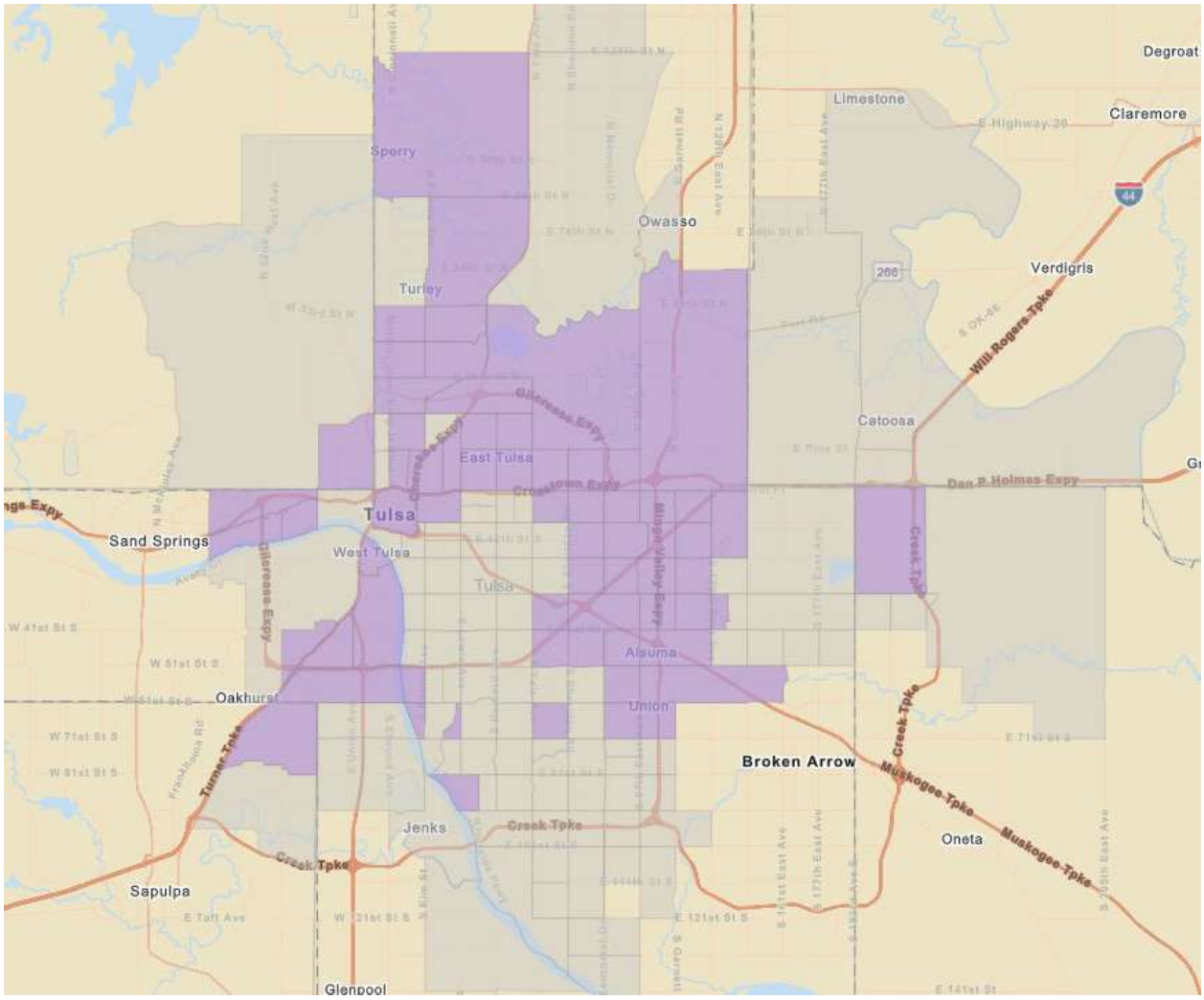

Figure 27. Tulsa's disadvantaged Census Tracts shown in purple (Source: [USDOT Equitable Transportation Communities Explorer](), 2023)

OKLAHOMA CITY

In Oklahoma City, 34% of the population has been identified as living in a disadvantaged Census tract. Overall, 32% of the City lived in a transportation disadvantaged Census tract, but there are tracts throughout the city that have a much higher percentage of transportation insecurity than other portions of the city. Specifically in the southwestern Oklahoma City, many of the Census tracts that may appear to have a low overall rate of transportation insecurity but have an extremely high rates of traffic fatalities. Some of the disadvantaged tracts that don't appear to be transportation insecure should be further investigated from the lens of traffic safety to provide for a more holistic understanding of the conditions in these Census tracts.

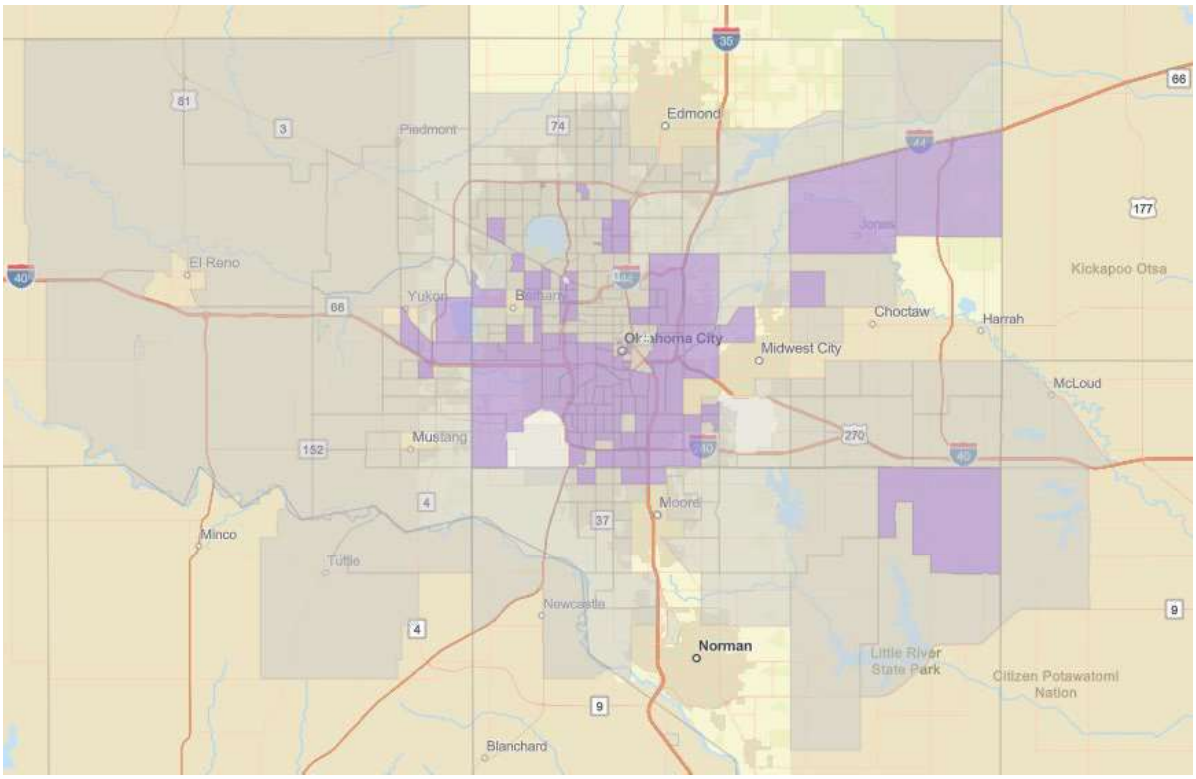

Figure 28. Oklahoma City's disadvantaged Census Tracts shown in purple (Source: USDOT Equitable Transportation Communities Explorer, 2023[76])

Tribal Communities

According to the Oklahoma Office of the Tribal Liaison, "38 federally recognized Oklahoma tribal nations have inalienable self-governance power over their citizens and territories, and possess unique culture, beliefs, value systems, and history as a sovereign nation."[77] The 2020 US Census date, 633,831

[76] https://experience.arcgis.com/experience/0920984aa80a4362b8778d779b090723/page/Homepage/

[77] https://oklahoma.gov/health/health-education/community-outreach/community-development-services/office-of-tribal-liaison.html

Oklahomans are American Indian, making up approximately 16% of the Oklahoma population.[78] Moreover, the Centers for Disease Control and Prevention (CDC) indicates motor vehicles crashes are a leading cause of American Indian deaths in the United States.[79] Additionally, NHTSA indicated 64% of Indian American road crash fatalities occur in rural areas.[80] Data from National Safety Council and GHSA indicate that American Indians experience the greatest pedestrian injury, built environment, travel activity, and social equity disparities and the greatest pedestrian and bicyclist fatalities per capita rates.[81, 82] Given the greater number of American Indians living in Oklahoma and overrepresentation of being killed in road crashes nationally, ODOT has added Tribal Communities as a VRU Safety High-Risk Area in this SHSP.

Additional analysis should be performed to evaluate the impact of VRU fatal or serious injury crashes in Tribal Areas and among American Indian populations as noted in *Tribal Communities* of the *Summary of Quantitative Analysis* section.

Additional High-Risk Area Identification

Beyond the goals and scope of this vulnerable road user safety assessment, there are more opportunities to identify, study, and invest in additional VRU Safety High-Risk Areas. Building on the factors which are the focus of this effort, additional considerations are presented below for expanding the assessment and consultations to more communities across Oklahoma.

Beyond the two major cities of Oklahoma City and Tulsa, smaller cities including Norman, Lawton, and Moore make up the top five cities by pedestrian fatal and serious injuries, followed by Midwest City, Muskogee, Sand Springs, Edmond, and Stillwater. When normalized for population, Tulsa and Sand Springs have relatively high rates of vulnerable road user fatalities and serious injuries per capita, with Norman, Lawton, and Edmond having relatively low rates per capita. This may indicate differences in the relative safety performance of transportation networks between these cities as well as differing levels of walking and biking among residents.

Despite lower relative densities of vulnerable road user crashes, comparing crash rates to resident population is an important analysis to understand crash rates. Though these smaller communities were not included in the initial VRU Safety High-Risk Area consultations, they represent a critical component

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[78] https://www.census.gov/library/stories/state-by-state/oklahoma-population-change-between-census-decade.html

[79] https://www.cdc.gov/transportationsafety/native/factsheet.html#:~:text=Motor%20vehicle%20traffic%20crashes%20are,Indian%20and%20Alaska%20Native%20people.&text=Motor%20vehicle%20traffic%20crash%20death,other%20racial%20and%20ethnic%20groups

[80] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813493

[81] https://injuryfacts.nsc.org/motor-vehicle/road-users/disparities-by-race-or-ethnic-origin/

[82] https://www.ghsa.org/sites/default/files/2021-06/An%20Analysis%20of%20Traffic%20Fatalities%20by%20Race%20and%20Ethnicity_0.pdf

of the state's pursuit of zero vulnerable road user fatalities and serious injuries and should be included in future consultations and receive funding and resources as a VRU Safety High-Risk Area.

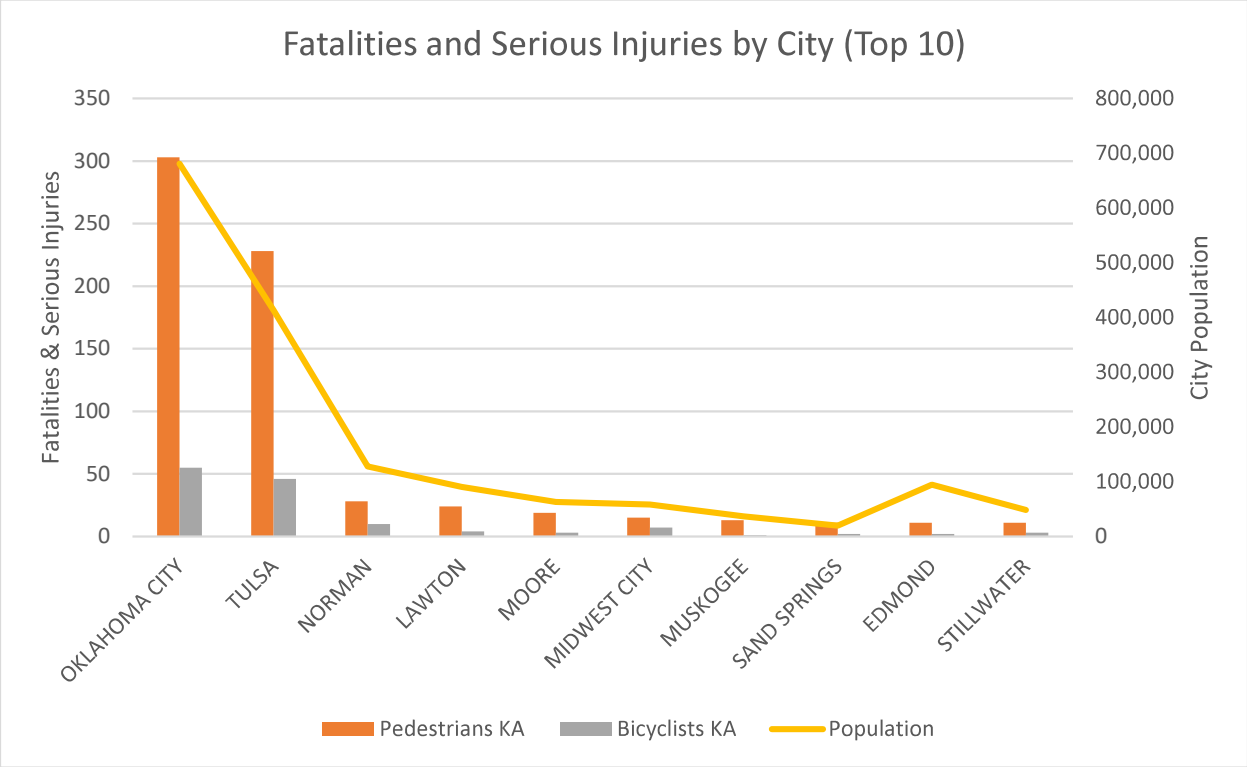

Figure 29. Fatalities and serious injuries by city (top 10 cities) (Source: SAFE-T Database 2017-2021)

Table 3. Fatalities and serious injuries per 10k population by city (top 10 cities) (Source: SAFE-T Database 2017-2021)

City Name	City Population	Pedestrian KA per 10k Population	Bicycle KA per 10k Population
OKLAHOMA CITY	681,054	4.4	0.8
TULSA	413,066	5.5	1.1
NORMAN	128,026	2.2	0.8
LAWTON	90,381	2.7	0.4
MOORE	62,793	3.0	0.5
MIDWEST CITY	58,409	2.6	1.2
MUSKOGEE	36,878	3.5	0.3
SAND SPRINGS	19,874	5.5	1.0
EDMOND	94,428	1.2	0.2
STILLWATER	48,394	2.3	0.6

VRU High Injury Intersection Potential Projects

A simple network screening was conducted to identify intersections where more than one vulnerable road user fatal or serious injury crash occurred within each of the initial VRU Safety High-Risk Areas. Then ODOT conducted a desktop audit of the high-injury intersections to identify possible vulnerable road user safety infrastructure issues. This list of high-injury intersections and possible improvements will help agencies within the VRU Safety High-Risk Areas prioritize vulnerable road user safety improvements to high injury intersections where need and impact are greatest.

OKLAHOMA CITY

- Martin Luther King Boulevard and Reno Avenue: Three crosswalks, bus station no pedestrian signals
- Council Road and 8th Street North: Gas station, no Crosswalks. Corner sidewalks on East side of street – no sidewalk on west side
- Rockwell Avenue and Melrose Lane: No sidewalks - one crosswalk exists – three crosswalks missing
- Rockwell Avenue and 7th Street North: No sidewalks - one crosswalk exists – three crosswalks missing
- MacArthur Boulevard and Reno Avenue: Pedestrian islands and three crosswalks. One crosswalk missing
- MacArthur Boulevard and 10th Street North: Four crosswalks with double lines, faded paint
- Harvard Avenue and Reno Avenue: Google Photo taken at night

- St. Clair Avenue and 23rd Street North: Sidewalks but no crosswalks
- Independence Avenue and Northwest Expressway: Medians but no sidewalks or crosswalks
- May Avenue and 42nd Street South: Nearest crosswalk is two blocks away
- May Avenue and 30th Street South: Only one sidewalk, no crosswalks
- Linn Avenue and Northwest Expressway: Medians but no crosswalks
- South Villa Avenue and Southwest 59th Street: No crosswalks
- Agnew Avenue and 15th Street South: One crosswalk
- Agnew Avenue and Exchange Avenue: Sidewalks but no crosswalks
- Pennsylvania Avenue and Highland Park Drive: Apartment complex – four crosswalks
- Western Avenue and 74th Street South (I-240): No crosswalks
- Lottie Avenue and 23rd Street North: No crosswalks
- South Sunnylane Road and Southeast 59th Street: Crosswalks but no sidewalks

TULSA

- 57 West Avenue and 31st Street South: Rural appearance, no sidewalks
- Peoria Avenue and 61st Street South: 4 crosswalks
- Trenton Avenue and 71st Street South: 4 crosswalks
- Harvard Avenue and Pine Street: 4 crosswalks
- Urbana Avenue and 15th Street South: 4 crosswalks
- Yale Avenue and 46th Street South: No crosswalks, 2 pedestrian islands
- Yale Avenue and Independence Street: Sidewalks but no crosswalks
- 69 E. Avenue and 15 Street South: Apartment complex, no crosswalks
- Garnett Road and 11 Street South: 4 crosswalks, 1 bike lane, 1 pedestrian island
- Garnett Road and 5 Street South: Residential area, no crosswalks

MUSKOGEE CREEK NATION (TULSA METRO)

- McKinley Avenue and Second St (Highway 97): 4 crosswalks, two way stop
- Sand Springs Expressway (14.17, 14.20, 14.49): Would make a good safety corridor
- Riverside Drive and 96th Street South: 4 crosswalks
- Peoria Avenue & 68th Street, 63rd Street, 61st street, and 60th street: Would make a good safety corridor
- Trenton Avenue and East 71st Street South: Two apartment complexes and Braum's but 4 crosswalks
- Lewis Avenue & 69th Street, 67th Street, 61st Street, 5th Place: Would make a good safety corridor
- Delaware Place and 51st Street: Two apartment complexes nearby, no crosswalk
- Harvard Ave and 51st Street, 49th Street, 46th Street, 41st Street: Would make a good safety corridor
- Yale Avenue and 51st Street South: 4 crosswalks including pedestrian islands
- Yale Avenue and 51st Street South: 4 crosswalks
- Braden Avenue and 47 Place South: 2 apartment complexes, no crosswalks
- Sheridan Road and 21 Street South: 4 crosswalks
- Sheridan Road and 11 Street South: 4 crosswalks and one bike lane
- 74 East Avenue and Admiral Place: No crosswalks

- Memorial Drive and 41 Street South: Medians but no crosswalks
- 89 East Avenue and Admiral Place: Motel, no crosswalks
- Garnett Road and 41st Street South: 2 crosswalks
- Garnett Road and 36th Street South, 34th Street South, 33rd Street South, 31st Street South, 29th Street South and 26th Street South: Would make a good safety corridor
- Garnett Road and 11th Street South: 4 crosswalks and one bike lane
- 129 East Avenue and 15 Street South: Residential area, church, no crosswalk

SUMMARY OF CONSULTATIONS

The purpose of consultations for the VRU Assessment is to gain local knowledge and perspective on the factors contributing to the safety concerns in VRU Safety High-Risk Areas and to identify potential projects or strategies to improve VRU safety.

Consultations with local communities on safety issues were conducted in two phases. The first phase included consultations in each of the eight ODOT Districts as part of the Active Transportation Plan (ATP) effort. In these sessions, participants discussed a variety of topics including vulnerable road user safety. As a part of a second phase with VRU focused consultations, ODOT and consultants presented findings from the ATP, preliminary findings from the VRU analysis, and an overview of potential safety countermeasures. Summarized input received from consultation participants is summarized below.

ACOG

Representatives from ACOG, ODOT, the City of Norman, and the City of Oklahoma City were present at the consultation on August 8, 2023, including:

- Traffic Engineer (City of Norman)
- Mobility and Planning Manager (ACOG)
- Maxton Harris (City of Oklahoma City)
- Transportation Planning Services Division Manager (ACOG)
- Deputy Director (ACOG)
- Transportation Planner- Safety (ACOG)
- State Traffic Engineer (ODOT)
- Active Transportation Coordinator (ODOT)
- MPO Coordinator (ODOT)
- State Highway Safety Engineer (ODOT)
- SHSP/VRU Planning Coordinator (ODOT)

KEY FINDINGS

Several key findings came out of the consultation with ACOG stakeholders. Oklahoma City, in partnership with ACOG, was awarded a SS4A safety action plan grant. Oklahoma City is wrapping up the Bike/Walk OKC Plan, and the Alternative Speed Abatement Program (ASAP) recently passed through the city's traffic commission which includes several of the countermeasures discussed during the consultation. The ASAP includes speed feedback signs and mini roundabouts, which were not mentioned in the consultation. Another key finding during this consultation is a plan for a fully electronic crash reporting system that will significantly reduce lag time for agencies accessing crash data, which ODOT is currently updating. Lastly, the State Obesity Plan was discussed, and how it ties into the ATP currently under development.

SAFETY CONCERNS

A large concern in the region revolves around the lack of capacity within smaller communities to design and implement safety improvements. Smaller communities often have state highways through their core

that lack sidewalks, lighting, and safe crossings. ODOT can be a partner for smaller communities with low capacity, especially where crash data indicates safety concerns.

Lack of experience with safety countermeasures is also a concern, since some recent safety improvements in Oklahoma City have had field adjustments. Consultation participants expressed details for implementing safety treatments are important to ensure complete and accurate design. Participants also expressed need for education around using the facilities as well through social media, advertising, outreach, and community events.

Expanding upon lack of experience, a safety concern example in Oklahoma City is around leading pedestrian intervals (LPIs). LPIs were approved throughout downtown but during the transition to implement LPIs, the automatic pedestrian phase was removed in favor of pedestrian actuation. This is actually a step back in terms of safety, since pedestrians are used to automatic pedestrian phases and often do not wait for the pedestrian signal that now requires actuation.

The last major safety concern noted are high intensity activated crosswalks (HAWKs). HAWKs are not easy to interpret, and several communities have voiced that these are less effective than RRFBs or a standard pedestrian signal. Drivers are unsure what to do with the flashing yellow lights on HAWKs and therefore yielding compliance is low.

POSSIBLE SOLUTIONS AND LOCAL PREFERENCES

Local safety preferences include chicanes, bicycle signalization concurrent with LPIs, mini roundabouts, dynamic speed feedback signs paired with rumble strips or speed humps (especially used as a gateway treatment), RRFB or pedestrian signals, and raised crosswalks.

In Oklahoma City, there is a preference for installing pedestrian refuge islands and median treatments on five lane arterials. This is an efficient preference since there are lots of medians throughout the city due to the old streetcar that is not operating any longer.

Oklahoma City is focusing on self-enforcing treatments that do not require manual enforcement of speeding. The purpose is two-fold: the police department has low capacity and reduced speeds without engineering treatments are not realistic.

INCOG

Representatives from INCOG, ODOT, and the City of Tulsa were present at the consultation on August 4, 2023, including:

- Transportation Planning and Programs Director (INCOG)
- Transportation Planner (INCOG)
- Traffic Operations Planning Manager (City of Tulsa)
- Senior Transportation Planner/ Bicycle and Pedestrian Coordinator (INCOG)
- Traffic Engineer/ Bike and Pedestrian Advisor (City of Tulsa)
- Structural Engineer (City of Tulsa)
- Traffic Operations Manager (City of Tulsa)
- MPO Coordinator (ODOT)
- Planning and Policy Branch Manager (ODOT)

- State Traffic Engineer (ODOT)
- Active Transportation Coordinator (ODOT)
- SHSP/VRU Planning Coordinator (ODOT)
- State Highway Safety Engineer (ODOT)

KEY FINDINGS

The two key findings from the consultation with INCOG were that many regional safety plans have been or will be published soon and a cultural shift is needed when it comes to VRU safety. INCOG recently published their regional safety plan, will update their GO Plan and conduct a Local Road Safety Action Plan in 2024. Despite regional efforts toward increasing VRU safety, a cultural shift is needed for stakeholders within the INCOG region. This can be simplified into designing the roadways for all users, rather than accommodating bicyclists and pedestrians on roadways.

SAFETY CONCERNS

The safety concerns within the INCOG region are multi-faceted. Speeding has increased since COVID, especially in the Tulsa area, which poses a serious threat to VRUs. Speeding, combined with the increase in transient populations in recent years, and the lack of sidewalks or walking facilities in the region has led to an increase in pedestrian crashes. The Sidewalk Gap Map shows where sidewalks are missing throughout the region. Pedestrian crashes have been noted at intersections when vehicles have permissive left turns (i.e., non-exclusive pedestrian phasing) – particularly at diamond intersections. There are also several incidents of road rage against bicyclists.

There are concerns about heavy truck traffic at intersections, particularly when making right turns at small-radius corners of intersections where a truck may off-track onto the sidewalk. A disabled pedestrian was killed in Tulsa in this scenario. It is important for engineers to evaluate the design vehicle for intersections and install truck aprons where they are needed.

Participants also noted that HAWKs are ineffective and pose a threat to pedestrians. Tulsa had issues with motorists passing inactive signals that were down due to electrical grid issues. Since the cost of a HAWK is similar to a pedestrian signal, Tulsa prefers to install pedestrian signals.

POSSIBLE SOLUTIONS AND LOCAL PREFERENCES

Local safety preferences include road diets, RRFBs, pedestrian signals, high-visibility crosswalk markings, pedestrian refuge islands, and rumble strips on roadways with shoulders to prevent lane departure. There was an emphasis on reducing speed limits only when the reduction is paired with changes to the roadway that naturally enforce the speed limit reduction. Participants also recommended doing a multimodal analysis for each project.

Tribal Communities

Representatives from The Chickasaw Nation, ODOT, and the Tribal Liaison for ODOT were present for the first consultation on August 3, 2023, including:

- Sr. Transportation Program Manager (Chickasaw Nation)
- Tribal Liaison (ODOT)

- Active Transportation Coordinator (ODOT)
- SHSP/VRU Planning Coordinator (ODOT)
- State Highway Safety Engineer (ODOT)

Representatives from the Cherokee Nation and ODOT were present for the second consultation on August 8, 2023, including:

- Transportation Planner (Cherokee Nation)
- Active Transportation Coordinator (ODOT)
- State Highway Safety Engineer (ODOT)
- SHSP/VRU Planning Coordinator (ODOT)

Both consultations are summarized below.

KEY FINDINGS

Key findings from the two consultations with tribal communities included community buy-in being a challenge, road ownership poses a challenge to implementation, limited funding for tribal community active transportation projects is a challenge, the Chickasaw Nation is developing a safety plan, and the Cherokee Nation has applied for SS4A action plan funding.

Participants shared that buy-in for safety improvements is a challenge. For recent curb extension and road diet projects, various agency staff and elected officials were hesitant. The first roundabout in the region was difficult to pass because people were generally unfamiliar with the facility type. In order for systemic safety to be successful, buy-in will be needed from counties and cities for new facility designs.

Road ownership is a challenge for tribal communities as well. Roads maintained by a tribal entity are on trust lands. Otherwise, tribal entities partner with non-tribal entities for road projects. This extra coordination can be a challenge for implementing projects.

Apart from safe routes to school and occasional TAP grants, there is very little funding to support active transportation users across Tribal communities. This poses a challenge for implementing VRU safety projects.

The Chickasaw Nation is developing a safety plan that includes seven Emphasis Areas as well as a safety countermeasure toolbox. The seven Emphasis Areas include: roadway/lane departure, safe speeds, occupant safety, VRUs, and bridge safety. The safety plan excludes state-owned highways. There are several Tribal entities that have safety plans developed, but many of the smaller communities may not have capacity to develop their own safety plan and will need support from regional or state partners.

The Cherokee Nation has applied for the upcoming SS4A safety action plan funding.

SAFETY CONCERNS

Safety concerns in tribal communities include distracted driving, lighting at dusk and dawn, limited and dangerous road crossings for pedestrians, and lane departure. The safety concern most noted by participants is the lack of pedestrian facilities, including a lack of shoulders on many roads. It was noted that even major urban areas are lacking walking facilities, so pedestrians are often seen walking in the street.

POSSIBLE SOLUTIONS AND LOCAL PREFERENCES

Local safety preferences include sidewalks, bicycle facilities, expanded transit service beyond high-density areas, increased transit service, traffic calming (i.e., speed humps, mini roundabouts, curb extensions, etc.), daylighting at corners, speed management, road diets (with clearly designed transitions on either end of the road diet limits), pedestrian refuge islands, and rumble strips.

Lawton and Muskogee

The preliminary analysis identifying high-risk areas determined that ACOG, INCOG, and Tribal Communities were the areas deemed high-risk due to actual number of VRU fatalities and serious injuries occurring. In order to create the most comprehensive safety assessment additional analysis was completed to determine any areas that may be high-risk based on alternative criteria. The lengthy, in-depth additional analysis determined based on population ratio there were two additional high-risk areas of the City of Lawton and the City of Muskogee.

An alternative strategy for consultation was used for these additional high-risk areas based on the time constraint of document deadlines and the time needed for the extensive efforts of analysis. Each entity has been provided the VRU analysis, along with the data associated with their area. Possible solutions and local preferences are an on-going process determined by comments from local officials and future individual meetings. These additional high-risk areas are of equal concern and will be provided the same opportunities for input.

Consultation Key Findings

Consultation VRU Safety Strengths
ACOG safety preferences include chicanes, bicycle signalization concurrent with LPIs, mini roundabouts, dynamic speed feedback signs paired with rumble strips or speed humps (especially used as a gateway treatment), RRFB or pedestrian signals, raised crosswalks, pedestrian refuge islands, and median treatments.
Oklahoma City is focusing on self-enforcing treatments that do not require manual enforcement of speeding.
INCOG safety preferences include road diets, RRFBs, pedestrian signals, high-visibility crosswalk markings, pedestrian refuge islands, and rumble strips on roadways with shoulders to prevent lane departure.
INCOG reduces speed limits only when the reduction is paired with self-enforcing treatments to the roadway.

Tribal community safety preferences include sidewalks, bicycle facilities, expanded transit service beyond high-density areas, increased transit service, traffic calming (i.e., speed humps, mini roundabouts, curb extensions, etc.), daylighting at corners, speed management, road diets (with clearly designed transitions on either end of the road diet limits), pedestrian refuge islands, and rumble strips.

Consultation VRU Safety Opportunities
Partnership between ODOT and small communities that have highways through their downtown core to supplement design and implementation capacity for safety enhancements such as sidewalks, lighting, and enhanced crossings.
Education for both agency transportation staff and the general public about designing and using new facilities (like bike lanes).
Systemically apply LPIs with APS on an automatic pedestrian phase.
Development of statewide safety treatment design and implementation guidance for agencies, for consistent facility design across the state.
Statewide safety treatment design guidance should include best practices for signalized intersections including protected left turns where pedestrian crashes exist.
Statewide safety treatment design guidance should include details for designing truck aprons and curb radii according to the design vehicle.
Statewide safety treatment design guidance should recommend pedestrian signals or RRFBs for enhanced crossings, instead of HAWKs.
Statewide safety treatment design guidance should include recommendations on spacing of enhanced crossings in urban, suburban, and rural settings.
Prioritize sidewalk implementation where need and impact would be greatest based on fatal and serious injury pedestrian crashes. Consider shoulder walkway or trail implementation in rural settings where sidewalks may not be contextually appropriate or prohibitively expensive.

VULNERABLE ROAD USER SAFETY STRATEGIES

The background document review, vulnerable road user safety analysis, and the high-risk area consultations were used to identify strategies that would contribute toward eliminating vulnerable road user deaths and serious injuries on all roads across Oklahoma. Specific and measurable strategies were provided both statewide and for each of the initial VRU Safety High-Risk Areas listed below:

- Statewide
- Oklahoma City and ACOG
- Tulsa and INCOG
- Tribal Communities

These strategies are specific and measurable and should be used as implementation instructions for the VRU Emphasis Area.

For goals, performance measures, and measurable objectives, see the Action Plan in the Appendix.

CONCLUSIONS

Across Oklahoma, VRU fatalities and serious injuries have been on the rise, with a 23% increase in pedestrian fatalities across the state from 2017 through 2021. High density of crashes resulting in VRU deaths and serious injuries were found in urban areas, including Oklahoma City and Tulsa, but there were also high VRU fatalities and serious injury rates per 100,000 residents in smaller cities, including Norman, Lawton, and Muskogee. Additionally, given the greater number of American Indians living in Oklahoma and overrepresentation in pedestrian and bicycle crashes nationally, Tribal Communities were also a high-risk area. The VRU Safety High-Risk Areas are identified as the following:

- Oklahoma City and ACOG
- Tulsa and INCOG
- Norman
- Lawton
- Muskogee
- Tribal Communities

Analyses also identified an overrepresentation of these fatalities and injuries in disadvantaged communities across the state and particularly in our larger metro areas. Other key findings include higher rates of pedestrian fatalities and serious injuries, VRU fatalities and injuries in dark, unlit conditions, as well as a high rate of DUI and hit-and-run involvement. Analyses and consultations also noted the importance of focusing efforts and investments in communities with large indigenous populations, recognizing the unique needs and histories that the communities represent. These findings are key to informing Oklahoma authorities' decision making related to VRU safety and guiding the development of this VRU safety assessment. However, Oklahoma has made efforts to improve VRU safety in many existing policies, programs, and practices. This includes adding a new VRU Safety Emphasis Area in the 2023 SHSP, the 2045 LRTP, the ATP, the OHSO, safety awareness programs, such as Watch for Me OK program, and various policies underneath the Oklahoma Motor Vehicle Statues. However, more work needs to be done to reach zero VRU fatalities and serious injuries on all roads across Oklahoma.

The next steps in Oklahoma should include adopting a goal of zero VRU deaths or serious injuries by a target year in Oklahoma, moving towards fully embedding the Safe System Approach in all road safety decisions and prioritizing VRU safety across programs. This includes prioritizing resources and improvements in the identified VRU Safety High-Risk Areas and advancing the VRU Safety Strategies outlined, while also monitoring what improvements are working to prevent VRU deaths and serious injuries. Those improvements should be applied in similar conditions where crashes could occur to be sure that the state is utilizing a proactive approach to VRU safety.

Oklahoma Active Transportation Plan

Appendix B: Engagement Survey

Background

The Oklahoma Department of Transportation is dedicated to supporting a safe and effective transportation system that provides multimodal opportunities for active transportation users of all ages, abilities, and backgrounds. Oklahoma's first Active Transportation Plan will include statewide policies and resources to support and guide local communities' active transportation efforts.

This survey was created to gain input from residents, workers, and visitors of Oklahoma on their perceptions about active transportation. This survey was opened December 2022 and closed in March 2023. The survey link was made available through the project website, Oklahoma DOT social media platforms, and email correspondence between ODOT districts and local governments. The survey gained 893 responses and was made available online and via physical copies by request. The survey also collected the email addresses of hundreds of Oklahomans interested in project updates and future engagement opportunities.

Key Takeaways

Each question asked in the survey is summarized within this report. The following are a few key takeaways from the survey responses:

- The majority of respondents have at least one car available in their household.
- While nearly 93 percent of respondents report getting around their community by driving, 42 percent walk and 36 percent bike. (Respondents could choose more than one mode.)
- Many respondents use active transportation for health benefits and enjoyment.
- Lack of infrastructure was the most commonly identified barrier to active transportation, followed by motor vehicle speeds and volumes.
- Nearly half of the respondents reported being involved in a near miss/close call while walking, bicycling, or using other active modes of transportation in Oklahoma.
- Parks and trails were identified as the most important destination to reach by active transportation, followed by shopping, employment, and schools.
- Sidewalk gaps are the top priority for improvements needed in respondents' neighborhoods.
- Respondents indicated they were most comfortable biking on a multi-use trail and other facilities with separation from motor vehicle traffic, and the least comfortable biking in the street.

Questions about Active Transportation

The following section summarizes the responses for each question asked about active transportation in the survey. These questions were asked with the intention to gain an understanding of respondents feelings, experiences, and priorities for walking, biking and rolling in Oklahoma.

How many motorized vehicles are available for use in your household? (Including cars, trucks, and motorcycles)

The majority of survey respondents, nearly 75 percent, responded that they have 2 or more vehicles available in their household. Nearly 25 percent responded they have 1 vehicle, and 3 percent responded that they have no vehicle available. Although the majority of respondents have access to more than one vehicle in their household, 26 percent have only one vehicle, or no vehicle available in their household.

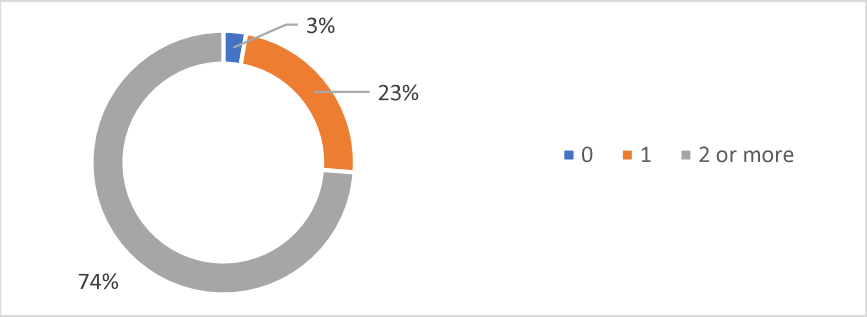

Figure 1. Number of vehicles per household

How do you typically get around your community? Select all that apply.

the most common way to get around is to drive (93 percent) followed by walking (42 percent) and bicycling (36 percent).Those who selected "Other: were able to write in modes, some of those included using a manual wheelchair, mobility scooter, and by golf cart.

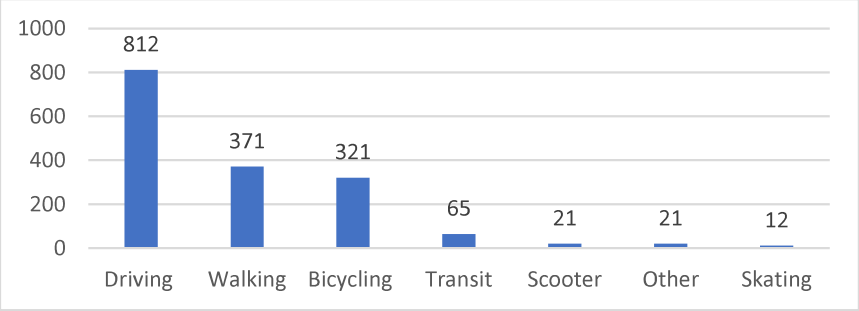

Figure 2. Typical mode choice for respondents

Do you typically use a mobility aid, such as a wheelchair, scooter, or cane?

Nearly 5 percent of respondents indicated they typically use a mobility aid.

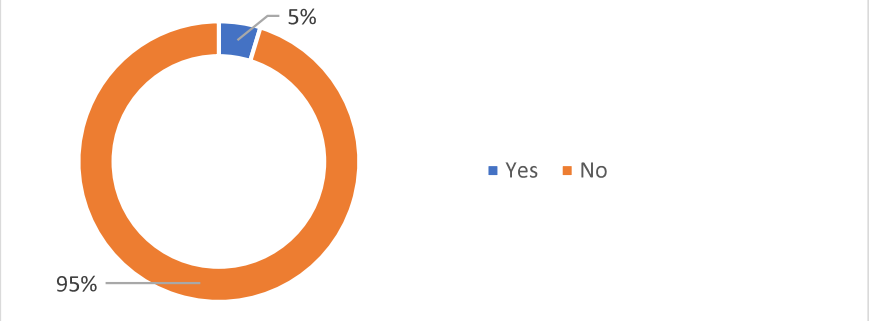

Figure 3. Use of mobility aid for respondents

If you currently use active transportation (walk/wheelchair, bicycle, scoot, or skate), what are your reasons for doing so? Select all that apply.

The top reasons why respondents use active transportation are health benefits (86 percent), followed by enjoyment (79 percent) and environmental benefits (43 percent). Some of the "Other" reasons included that their disability does not allow them to drive, and not having to worry about parking at their destination.

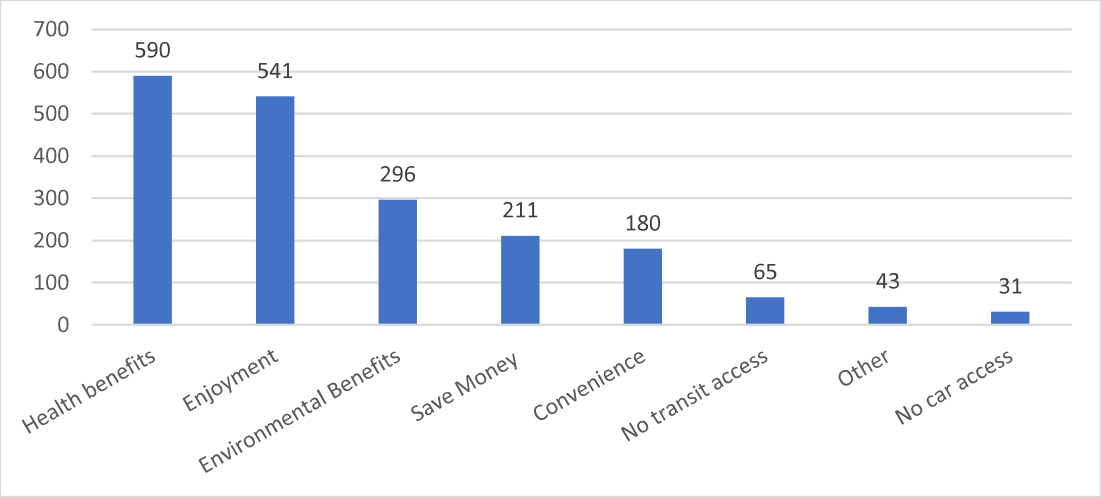

Figure 4. Respondents' reasons for using active transportation

Do your children use active transportation?

For those respondents with children, 29 percent indicated their children use active transportation.

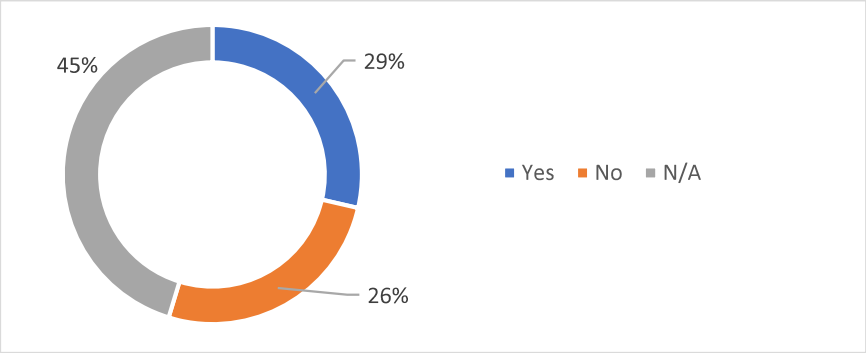

Figure 5. Children's use of active transportation

What barriers prevent YOU from using active transportation or using it more often? Select all that apply.

The most common barriers to using active transportation were a lack of infrastructure (77 percent), high motor vehicle speeds/volumes (52 percent), distance between destinations (45 percent), and poor infrastructure conditions (43 percent). "Other" barriers included: bad/unsafe driver behavior and feeling as though the community they live in is not structured to be able to use active transportation.

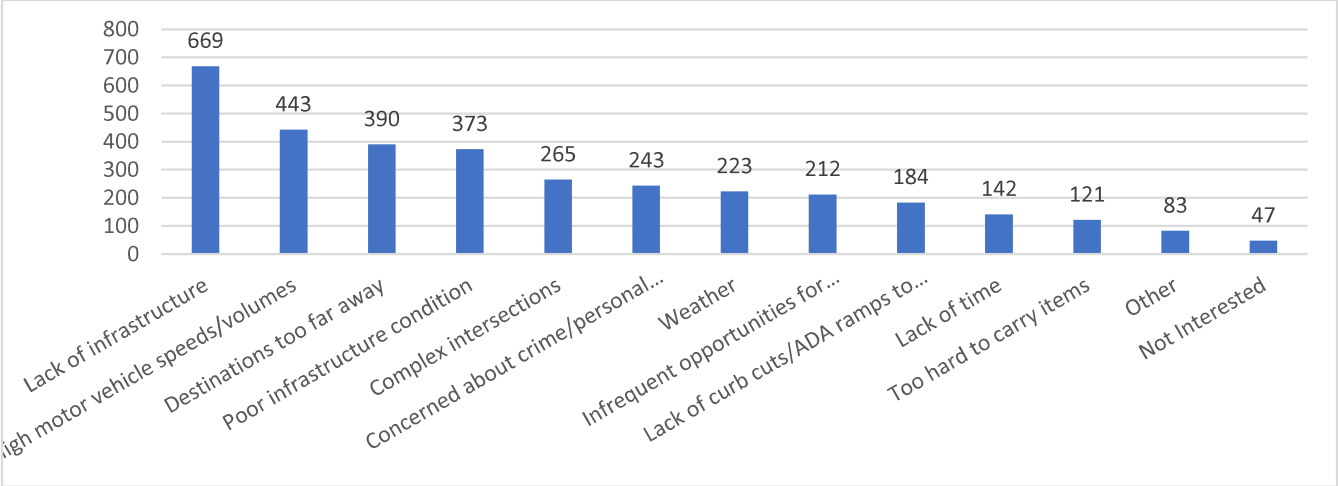

Figure 6. Active transportation barriers

What barriers keep YOUR CHILDREN from using active transportation at all or from using it more often? Select all that apply.

The most common barriers for children using active transportation were a lack of infrastructure (61 percent), high motor vehicle speed/volumes (48 percent), distance between destinations (43 percent), and concern about crime/personal safety (32 percent). The most common reason someone selected "other" was because their child is too young to walk or bike.

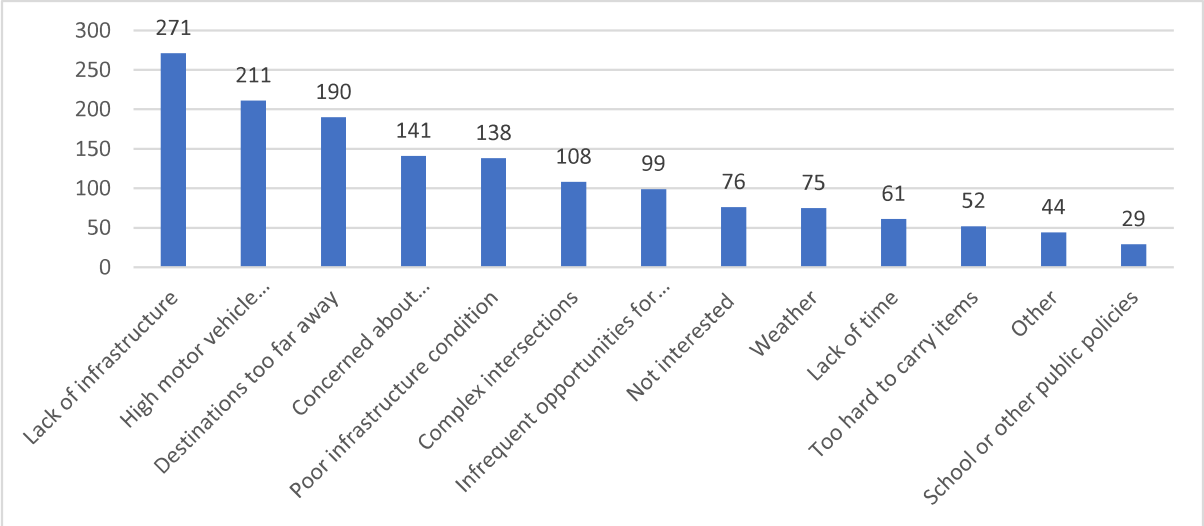

Figure 7. Active transportation barriers for children

Please check any of the following descriptions that would accurately fill in the blank to describe your personal experience. I have been involved in a _____ while walking, bicycling, or using other active transportation in an Oklahoma community. (Check all that apply.)

Nearly half of respondents, 45 percent, reported being involved in a near miss while bicycling, walking, or using other active transportation in Oklahoma. Nearly of the respondents selected other, severe, and less-severe crash while using active transportation. Some of the "other" responses included: encounters with rude drivers, loose dog attacks, and self-injury from falling while walking or biking due to poor or lack of infrastructure.

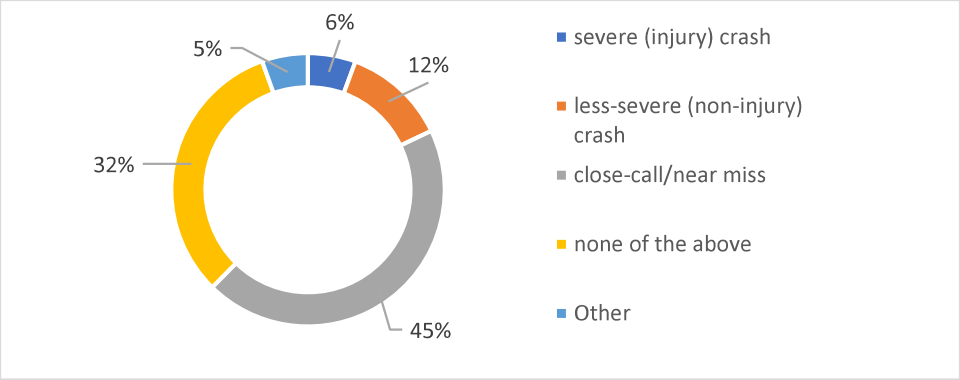

Figure 8. Respondents' involvement in an traffic collision or crash

Do you live within a ¼ mile of any of the following? (Check all that apply)

One-quarter of a mile is considered a typical walking distance for most able-bodied individuals. The most common responses were recreation (45 percent), friends/family (43 percent), shopping (42 percent), and bus stops (34 percent). There were only 6 percent of respondents that live within a quarter of a mile from work.

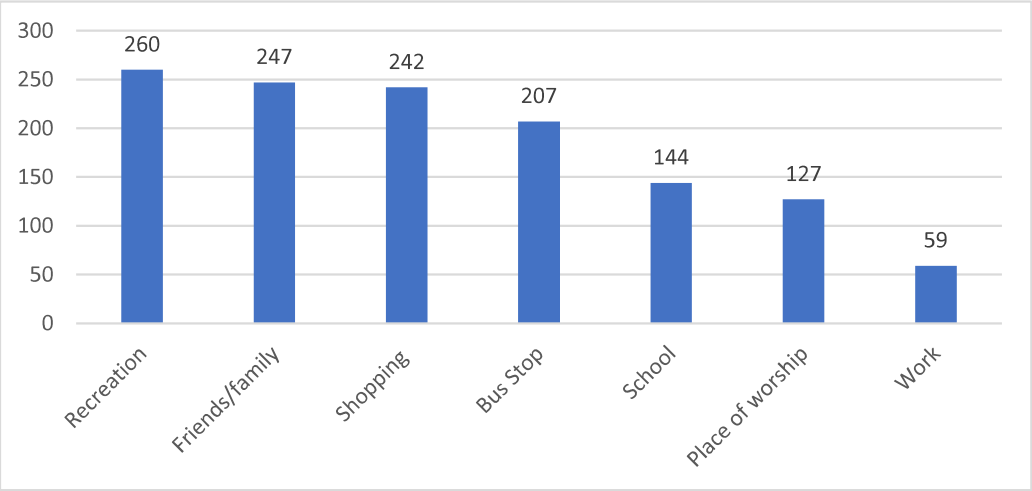

Figure 9. Respondents live within a quarter mile of these destinations

Do you live within 2 miles of any of the following? (Check all that apply)

For bicycling trips, around 2 miles is considered a typical distance to travel. Nearly 24 percent respondents selected that they live within 2 miles from work, and 76 percent indicated that they live within 2 miles of shopping. Over 58 percent indicated they live within 2 miles of recreation, and friends/family.

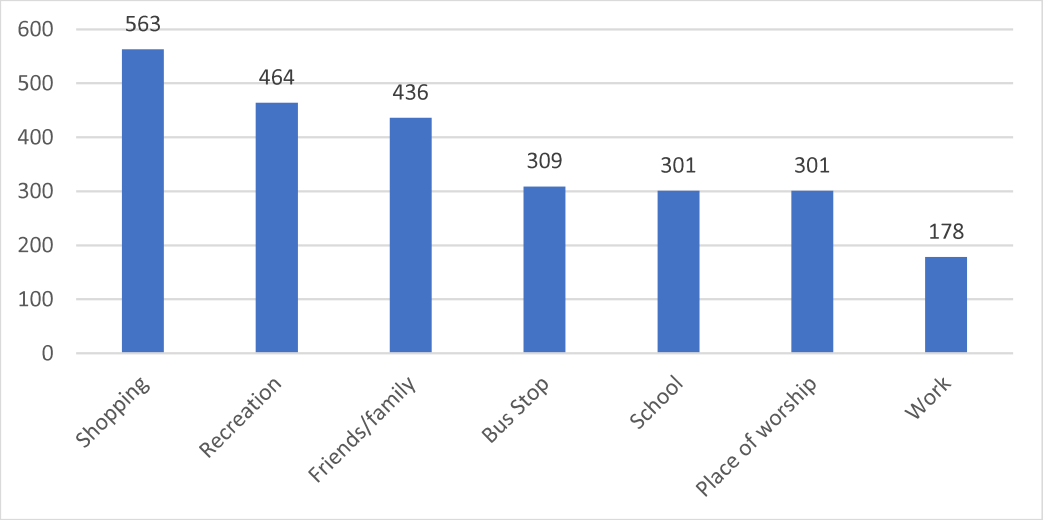

Figure 10. Respondents live within a 2 miles of these destinations

What places are most important to be able to reach using active transportation? Select up to 3.

Nearly half of responses indicated that parks/trails was the most important destination to be able to reach using active transportation followed by shopping, employment areas, schools and restaurants.

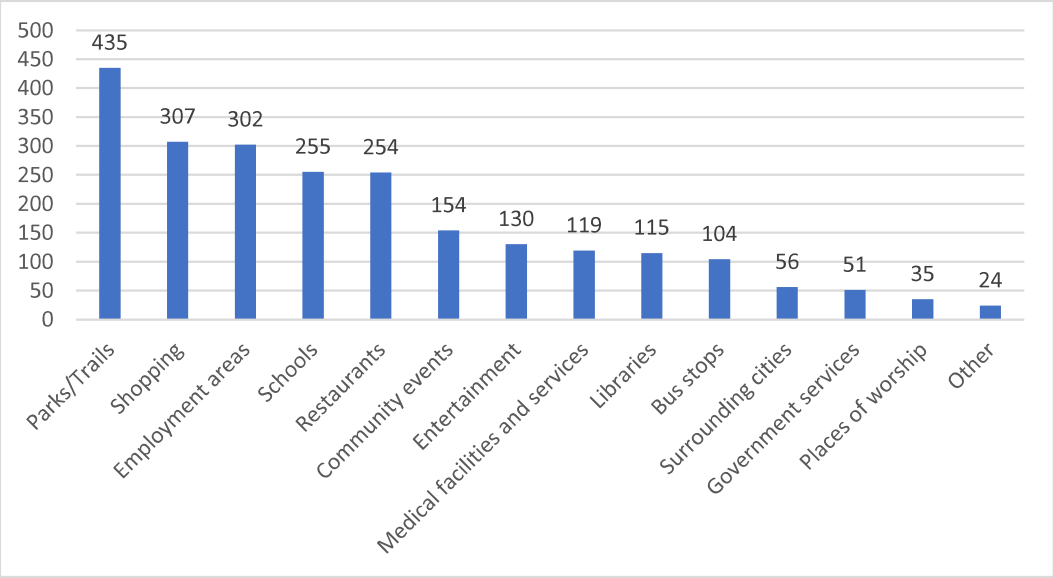

Figure 11. Important destinations to reach by active transportation

Which of the following pedestrian improvements are needed in your neighborhood? (Check all that apply)

The top desired improvement selected was installing new or infilling gaps in the sidewalk network. This was followed by repair sidewalks and installing marked crosswalks.

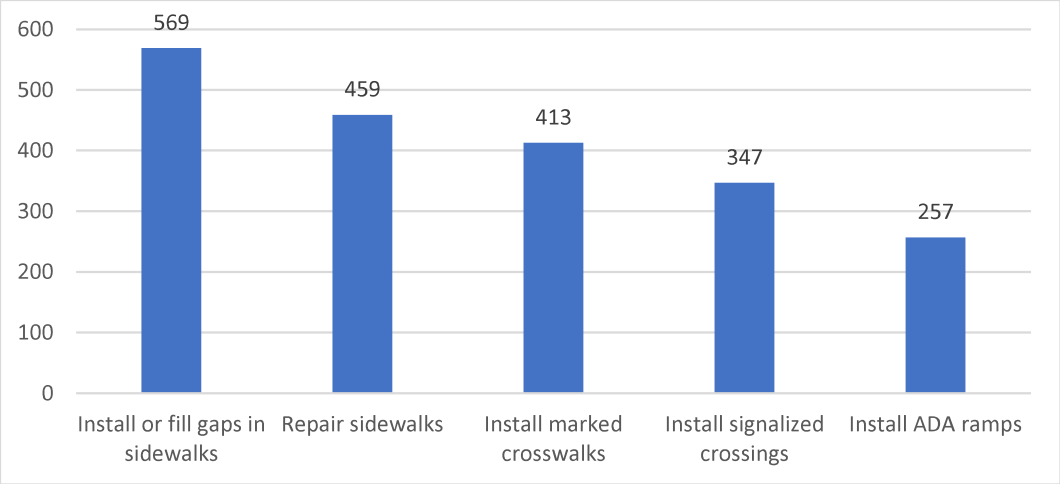

Figure 12. Pedestrian improvement priorities

How comfortable do you feel biking on the following facilities.

This question was accompanied by photos of each type of bike facility listed. The darker the box, the more responses. Most respondents felt the least comfortable with the idea of biking in mixed traffic and most felt most comfortable with the idea of biking separated from motor vehicle traffic. This is aligned with national statistics which indicate that the majority of the population feel more comfortable the higher degree of separation between bicycles and motor vehicle traffic.

Table 1. Respondents comfort level with different bike facilities and contexts

	Very Uncomfortable	Uncomfortable	Neutral	Somewhat Comfortable	Very Comfortable	N/A
Bike lane protected by bollards 	7.2%	3.9%	6.1%	24.0%	48.8%	9.9%
Bike lane buffered by striping 	10.7%	17.0%	11.3%	37.1%	14.1%	9.8%
Bikeable road shoulders	24.6%	27.1%	14.1%	19.3%	5.7%	9.2%

 Multi-use, paved trail						
 Neighborhood greenway	4.7%	2.1%	4.5%	9.9%	66.1%	12.6%
 Rural road	10.8%	18.6%	17.8%	27.9%	15.5%	9.5%
 Urban/Suburban Street, high traffic volumes	43.6%	25.8%	8.5%	9.6%	3.3%	9.3%
	72.7%	11.8%	2.8%	1.7%	1.2%	9.8%

Demographics

The following questions were asked to respondents to gain an understanding of who is being represented, and who is not being represented in the responses summarized above. The demographics will be compared to statewide census data when applicable to gauge how representative the survey is of the statewide population. In instances of a lack of representation, other engagement efforts will target those underrepresented populations.

Which category best describes you? Select all that apply.

The great majority of respondents were residents of Oklahoma. About half also indicated that they were property owners or workers in Oklahoma. Those who responded “Other” identified themselves as students, cyclists, and journalists.

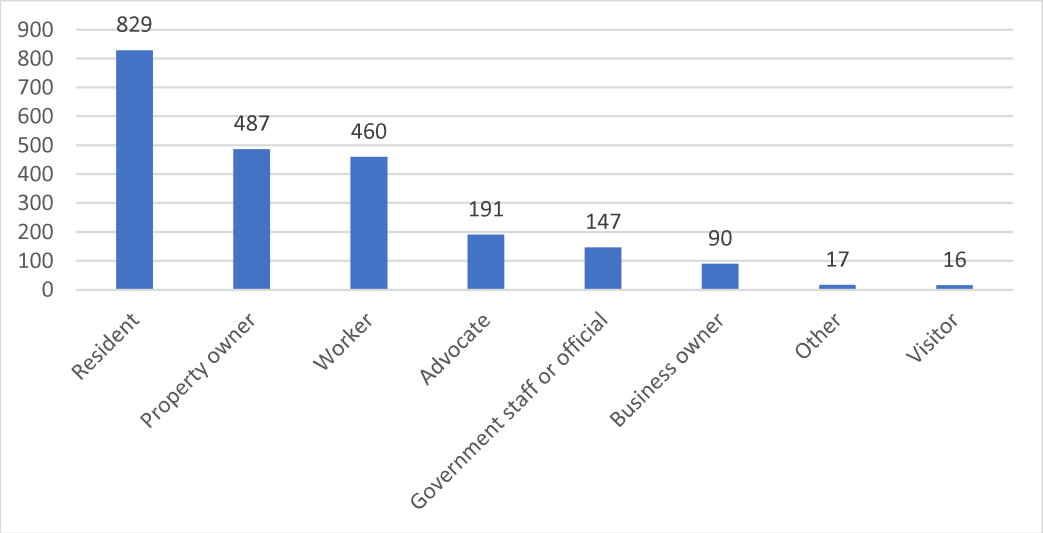

Figure 13. Respondents relationship to Oklahoma

What is your zip code?

Comparing the zip code responses to the statewide zip codes, we received responses from 204 zip codes out of the 646 zip codes that make up Oklahoma. That is 32% of zip codes in Oklahoma represented in the survey responses.

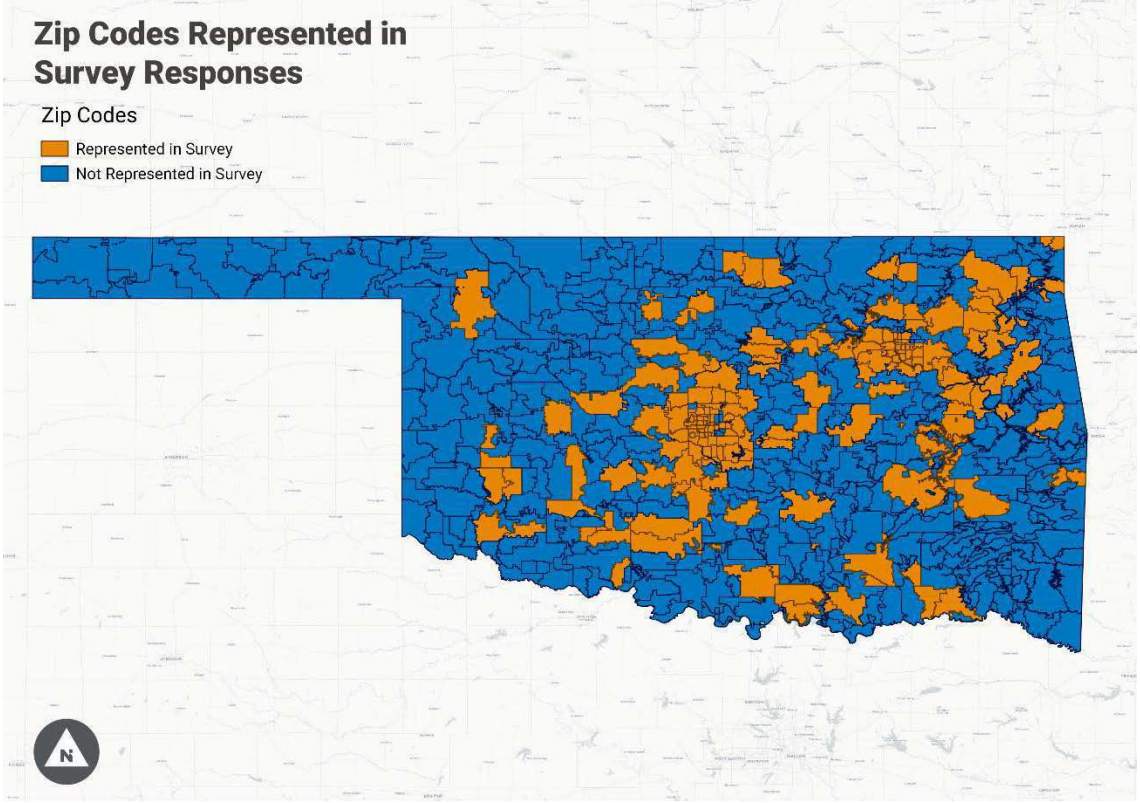

Figure 14. Map of zip codes represented in survey responses

What is your age?

The majority of responses are from those between 25 and 65 years of age. The most common age selected was 35-44. The greatest underrepresented group would be those younger than 18, there was only one respondent that indicated they were younger than 18, while over a quarter (27 percent) of Oklahoma's population is younger than 18 according to the 2021 American Community Survey (ACS) 1-year estimates. Understanding the travel behavior of those younger than 18 is critical as a majority of those who make up this cohort are unable to drive.

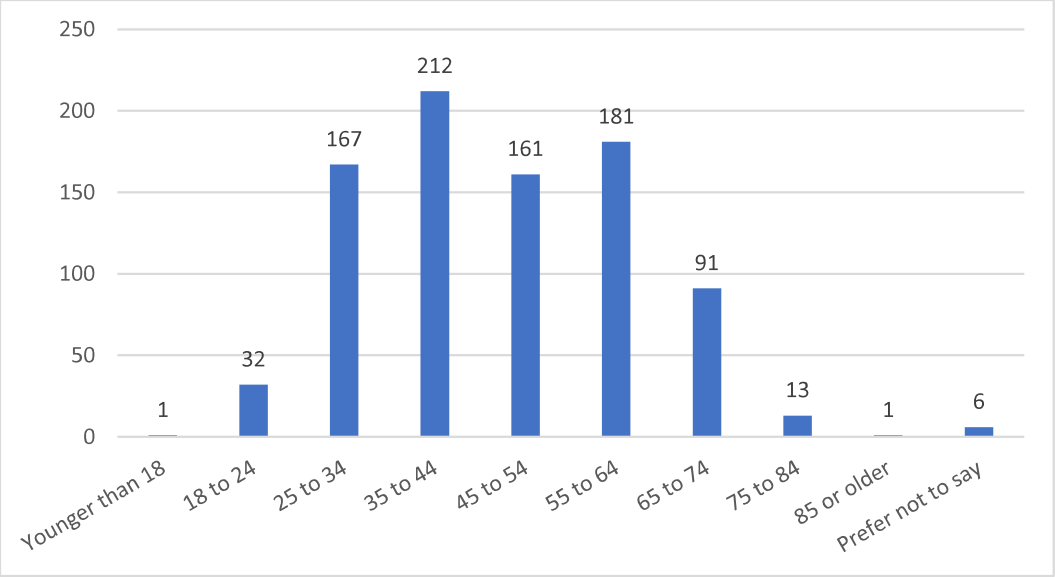

Figure 15. Age of respondents

What is your gender?

The gender split for the survey is nearly even, with 48 percent identifying as male and 49 percent identifying as female. There were 3 percent of respondents that did not identify with either male or female. According to the 2021 ACS 1 year estimates report that the Oklahoma population is split evenly, with 50 percent being male and 50 percent being female.

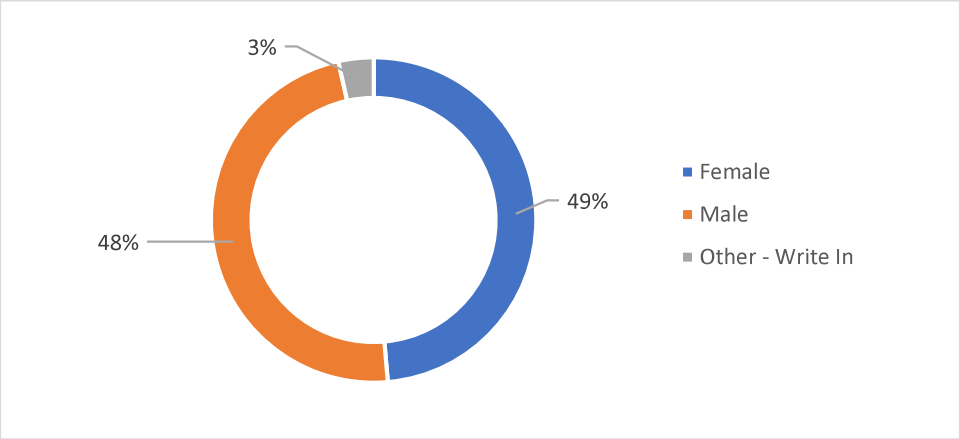

Figure 16. Gender on respondents

What races or ethnicities do you most strongly identify with? Select all that apply.

The great majority of respondents identified themselves as white, this aligns with the Oklahoma population, which is majority white, at 59 percent according to the 2021 ACS. The American Indian or Alaska Native population is the only minority group that had the same percent of population in the survey as statewide census data at 10 percent. All other minority groups were underrepresented.

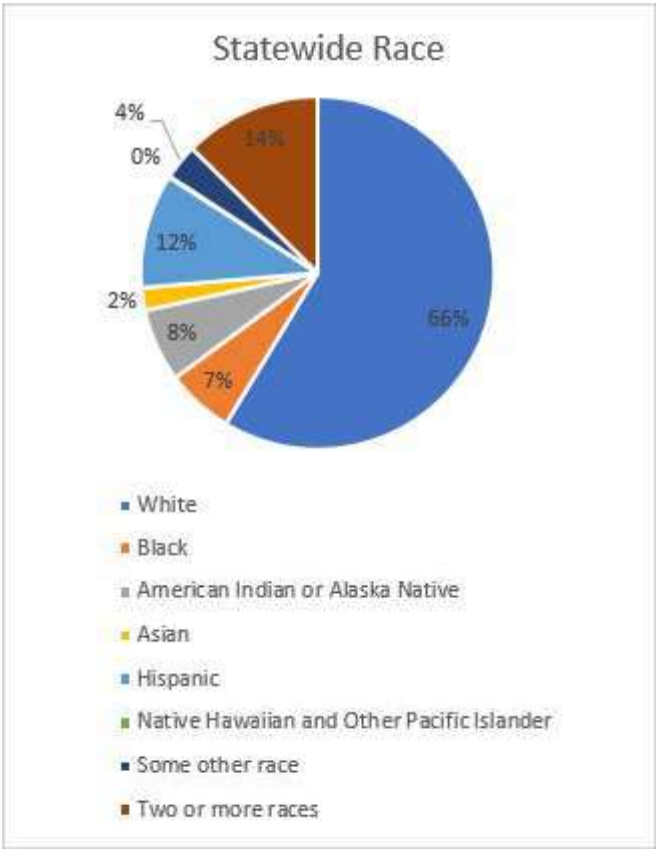

Figure 17. Race of Oklahomans according to the 2020 Census

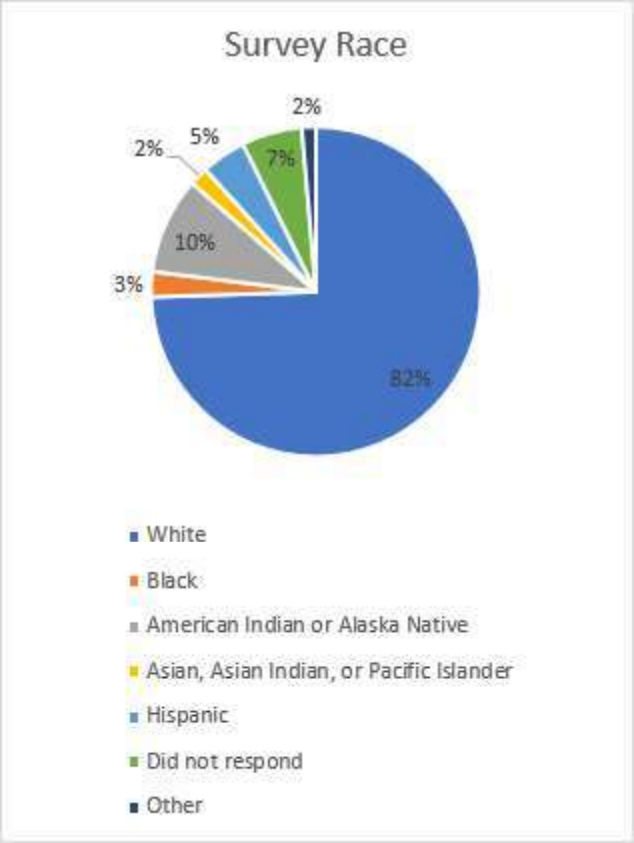

Figure 18. Races represented in the survey

Income

The most common response for income was $50,000 to $74,000, this aligns well with statewide data, with the median household income being $55,826. Incomes lower than $34,000 are underrepresented in the survey, with over 6 percent of the population reporting having less than $10,000 household income, 2 percent of the survey respondents reported being at that level of income. It is important to understand the needs of those at the lowest end of the income scale as this population is the most transportation cost burdened.

Figure 19. Income levels of respondents

Oklahoma Active Transportation Plan

Appendix C: Online Public Workshops

Nearly 170 attendees participated in the online public workshops which included 10 workshops over a in January 2023, one in each ODOT District plus additional workshops for the Tulsa and Oklahoma City Metro areas. Participants provided comments and built consensus around the following guiding principles of Safety, Equity, Mobility, Connectivity, Livability, Coordination, and Education.

District 1 01/25/2023

Vision and Goals

- Like that both transportation and recreation are included
- Like all ages, all abilities
- Vision should specifically call-out Accessibility, Education, Safety, and Equity
- Simplify the wording for a broad audience: Not everyone understands “legibility” and “connectivity”
- Need quantifiable goals to measure success
- Include a focus on the environment, emphasizing health benefits, and having equitable access to other public transportation routes
- Incorporate all users, including rural users, such as equestrians
- Should call out needs of people with disabilities
- Include a focus on economic development, marketing, and tourism
- Make the ATP an “action-based” plan that is given priority within KDOT
- Normalize active transportation
- Connect to major destinations
- Think more broadly about safety. Not just crashes: theft prevention, shade, and wildlife diversion can further protect users and improve their active transportation experience
- Provide more structured wording of goals.
- Incorporate these ideas into KDOT’s everyday way of doing business
- Should address vibrancy, sustainability, connect to essential services.

District 1 – Improvement Ideas, Connectivity and Access

- Characteristics: Safe, open, well-lit.
- Clear and open, no visual obstruction infrastructure.
- Considerations: crosswalks, because if you see a crosswalk that doesn't work it will be concerning.
- Good signage, such as showing routes on map and via arrows (wayfinding), where facilities are and stating they are.
- Connectivity characteristics: One where Sidewalks exist.

District 2 01/25/2023

Vision

- Risk and Assumptions missing
- Fairly well-rounded vision and goal, but difficult to achieve. Deal with communities spending all monies keeping systems working well, so funding is a problem.
- Focus on water and sewer structure

- Economic Solutions might be a need

Goals

- Really like active mobility section, reenforce walking. Having more people involved
- Like mode shifting.
- Do we have people not involved because we don't have infrastructure or no infrastructure because no people involved?
- Like active mobility. Education is an important piece. Promotion of active mobility is important. perception of AT not understood. negative thoughts around people choosing to walk. Education needed around people needing different modes of transportation.
- What about the order? Is listing a problem? Listing is fine. Order is dependent on where you are in state. Connectivity importance depends on where you live within the town.
- More wording around the differences between urban and rural needed. McAlester regional hub and smaller towns outside have a different perception of urban and rural.
- Education - Connect with TSET program to help get education out about active mobility. Partnership. Also TSET focused on health benefits of the goals. Bike advocates can help with education on safety.
- Drive because necessary - Metro areas - Education more important

Equity

- Equity-What does it mean? Accessible as possible for people that choose AT for their mode choice. Should not be a fall back. Make it a viable choice, not just a fall back or last resort. Not just viable, but desirable for people. Agree
- Insure input from different levels and sizes of gov, nonprofits, multiple ways of reaching people to measure these indicators. Different people see needs differently. Ensure we are getting information from different ages, ethnicities, people groups.
- Indicators. Gov departments getting inquiries, reacting to marketing
- Think in terms of indicators and then think how to measure indicator.

Connectivity and Access

- Back and forth to work, and retail areas. sidewalk projects have connected to these destinations.
- This time of year, good lighting because it gets darker sooner. Adds to safety of the route.
- Footpaths selected based on safety; but also shortest route.
- Depending on length of trail, visual interest, places to rest, shops/stores/parks. Inviting making them want to come out more often.
- Parks, recreational places, lakes, water, nature and scenic use areas.
- Groceries, shopping, work and school trails have connected mostly to schools medical districts - health department, clinics,
- Footpaths good indicators of where sidewalks needed.
- Aesthetically pleasing. colorful, clear pathways
- Shelters along the route, protect from hail, rain.
- Accessible trail heads, what's included in them (restrooms, etc.)
- Surface types, aggregate trails (preference depending on use - biking, jogging, walking). Also consider pets on the trails. feeling safe is diminished by unleashed or even leashed pets.

Project Types

- Connectivity between smaller communities surrounding McAlester.
- More regional connectivity. More bike trails. More technology integration. Meter lights, lights that change based on year, signage that changes
- Community divided by highways, pedestrian tunnels or underpasses to get across highways. mobility group trying to get across Highway 69.

- Pilot projects are great for gaining acceptance where change is difficult to embrace, maybe include a guide on how to plan and implement them.

District 3 01/26/2023

Vision

- Like that it says not just recreation but that it says "everyday destinations"
- Like "all people"
- Would like to see reach everyday destinations before recreation
- Need more options than just walk/bike called out (add rolling or other option)
- Change "and use other active" to be "and use EVERY active mode"
- Convenient is missing
- Access for all types of people. Difficulty is in areas w/o sidewalks and bike lanes
- Like "connected for all people" need to focus on the equitable piece, maybe focus more on areas where people don't have vehicles. For example no connections between trailer park and grocery stores/destinations. This occurs across the state. Need to focus on equity.
- I appreciate the inclusion of sidewalks. I live in a historic district where the sidewalks were installed during Indian Territory. They are in dire need of improvement, as they lead to Walmart and a commercial area.
- "Comfortable" didn't resonate. "Safe, consistent, and high-quality" seem more important.
- Maybe "accessible" instead of "comfortable" comfortable likely referring to things like buffers. Maybe there's a different way to say it.

Goals

- Needs to be more measurable/ accountable
- Tie them to a timeline
- Connectivity should move above active mobility
- Would like to see "accidents/ collisions" instead of crashes, accidents could be linked directly to quality of facility
- "Non-motorized" crashes reduce -> eliminate
- "Reliability" might be a word that's missing. Maintenance is really important for these facilities
- On active mobility or mode shift--not really loving those words. All the other words make sense to me, but neither of those make sense to me. Don't have a good alternative. Like the goal behind it.
- Active participation for active mobility goal?
- maybe "physical activity" for active mobility goal?
- Equity- think it's good. Ages, abilities, background, income, urban, rural
- Comfortable: Maybe “accessible” or “safe” would be better
- Health – wordsmith increase. Maybe the second one should be ”improve” instead of increase.
- Education should be next to wherever we land on active modes/mode shift. These two things are definitely connected. Need education to promote change.
- Doesn't seem like there's priority, but maybe putting in alpha order would make it seem like less priority ranking. Could also make an acronym
- Bike paths /walkways connecting bike paths and recreation pathways
- Move Education after Safety
- What do you mean by "vulnerable"? Should be defined.
- Accessible seems better than comfortable.
- To increase number of people under AM, we'll have promoted it well.
- It's good to have safety first.
- Maybe "exposed" instead of "vulnerable".

- Comfortable is a passive word. Not sure it's a good word to pair with Connectivity Maybe "Inviting" instead.
- What about adding encouragement... generating enthusiasm to increase walking and bicycling.
- Replace comfortable with desirable

Equity, Connectivity and Access, Important Destinations

- Grocery store access (stores being on the edge of the town but not having sidewalk/facility access to them)
- Safe & accessible for all (thinking of the 5%) - all modes (walking, biking, scooting)
- Infrastructure that doesn't separate the/a neighborhood
- Recognize the inability to drive, ensuring those people have the ability to access all places
- Provide accessibility to all modes (wheelchair accessibility to transit & other modes)
- Measure the infrastructure (miles of sidewalk, transit routes/miles provided)
- Quality of infrastructure (cracks, breaks, lighting, etc.)
- Socioeconomic status/ geography & presence of infrastructure
- Focus groups from different communities
- Variable across the state. In some communities multiuse path might be more important than sidewalks.
- Bike paths paralleling route 66 aren't feasible then use signs and walking signals that use equity and safety.
- Can we use some of measurement tools talked about in presentation? GIS data
- Measure visually-- talk to local leader, gov officials. where do you see people walking
- Freedom of choice
- Ensuring that it benefits all demographics
- Must be wide enough for wheelchairs and other users. Facilities should be distributed throughout the community
- Regarding Equity and Mobility, it needs to be "functional".
- Do we see an increased use of the facilities?
- Important to measure that those who can use AT the most are given priority (can often be those more reliant on ped/bike travel
- Providing a facility that is maintainable. Many times, we build something that can't be or isn't maintained long-term
- We should be willing to look at innovative approaches for AT, that allow for multi-use of infrastructure across modes. Some repurposing.
- Ratings / surveys after construction for people to report issues with the use
- New AT infrastructure doesn't meet the needs of all users in some cases. We don't ask or measure this after it's built.
- Parks (driving to a park to take a walk is counter intuitive) - grocery stores & restaurants
- Recreational areas/lakes - routes/facilities to get from the town/city to those areas
- Work, gathering places, library
- Parks
- Offset from road - good lighting/well lit
- Amenities - benches, activities (games/kid attractions)
- Attractiveness, shade & trees, comfortable
- Important for routes to be safe (feel safe and be safe)
- Embark in OKC-- access to those stops
- Evidence shows that if there is access to transit network--more people walk to the stops coordination!
- Grocery, parks, schools, rec centers/comm unity centers

- Transit and bus stops. transit riders are walkers, wheelchair users and bicyclists at the begin and end of every trip.
- Access to Amtrak and Greyhound bus
- Connections within regions? Lincoln County no access to regional bus connections. here are a couple services that will connect you to a doctor, but that's it.
- For recreational cyclists – one of most important things is avoid stopping and to have highways with shoulders and other safety features.
- Walkers/wheelchairs- shade in the summer; reliable lighting
- Wayfinding/ signage-- OKC and Tulsa have long trails for example Sand Springs to Jenks. Would be good to develop connections on key corridors.
- Grocery, Library, Parks, or outdoor recreational sites
- School (Elementary, Middle, High, Vocational/Technical schools and colleges)
- Separation and protected crossings
- Well-lit facilities
- Dog-height water fountain for pets and service animals
- Amenities like benches, restrooms, etc.
- 2. Aesthetics
- 2. Wayfinding signage to provide direction or location
- 2. Solar benches, little bike workshops with tools or an air pump
- 2. Audible signals for crossings
- 2. No trip hazard, no fear of dogs
- 2. For protected crossings, need adequate crossing times
- Someone as young as 8 and as old as 80 should be able to use AT without issue.
- Low tolerance speed zones (preventive vehicle enforcement areas

Project Types

- NE OKC sidewalk/active facility to cross Interstate 235
- West side of airport has no shoulders, high speed - no facility for active/bike. More sidewalks, bike lanes connecting neighborhoods.
- Sidewalks, in Purcell. Schools have off-campus lunch and don't have improved crosswalk access to those food places. Have to cross high speed roadway to access restaurants.
- Chandler to/from Davenport has no shoulders, narrow, but is destination for people across the US/world. Scared to come over a hill and see a group of bicyclists on the road (would like to provide them shoulders.
- Facilities to access recreational areas (funding responsibility/access is in between /unclear)
- Traffic calming, dedicated/ protected bike lanes - roundabouts for speed, traffic calming, safety measures.
- Sidewalks around schools & neighborhoods
- Grocery stores on edge of town need sidewalks/access to/from
- Crossings-- trails over state highway
- Bare minimum we need more sidewalks, fixing old sidewalks
- Have people in wheelchairs in middle of road Noble needs sidewalks or shoulders on major roadways to connect out low-income areas to central parts of town for access to grocery stores.
- Lot of places with this same issue not just Noble
- https://www.nwarpc.org/bicycle-and-pedestrian/northwest-arkansas-bicyclepedestrian-master-plan/
- If bike paths paralleling Route 66 are not feasible, then use signs and warning signals, and put feedback boxes along the way to include equity and safety.
- Bike trails, sidewalks (new and rehabilitated)
- Need to cross Interstate 40 in Shawnee with no safe non-vehicle route ped. grade crossings
- Bike crossing over bridges / under bridges Sometimes cheaper to go under bridges

- Recreational trails designated for active hiking and biking
- Projects need to be connected to resources or key destinations
- More recreational facilities designed for wheelchair, service animal users, and other users (give them "hiking" options)
- Realistic and consistent funding for master plan projects in cities and rural communities

District 4 01/24/2023

Vision

- WORK, destinations
- Add accessibility or accommodation language for individuals with disabilities. Infrastructure as well as access to information (braille, captioning, etc.)
- Audio and visual aids to any information posted. Mobility devices should be considered. Wheeled devices, service animals
- Add "to provide safe comfortable and accessible transportation network"
- Missing – Accessible
- Does the vision address connection across Oklahoma?
- Add "in Oklahoma" in the end of the vision, after "destination" to make it more personal to the state.
- Does it include people of all mobility?
- Transportation that fills in the gaps. Inclusive, include those who can use all mobility. All around services: something that is fully meeting the needs of the individuals. Can tie in together with connected mobilities and active transit. Supports the whole trip, not just the main part of it. 360 mobility solution!
- Feature complete streets
- Specifically mention, such as people with disabilities, or use phrase "of all abilities."

Goals

- Could mode shift be used in the definition--begin to educate people to what mode shift means
- I think Mode Shift makes more sense based on the definition given
- Could with mode shift be active living--use more everyday terminology
- Appreciate ODOT's vision to improve pedestrian safety
- I think active living is broader than what we are looking at here personally. Basically that definition tells me we are looking to shift our mode of transportation from vehicular to active modes.
- Like mode shift, but too wonky/technical, but like what it means. Like that we are trying to get people to do one thing over another
- Good to be broad for health. encompasses physical health, mental health, and more
- Change education to increasing education and awareness of facilities. Awareness could be a separate bullet.
- Consistency between communities like signage other projects. Could be part of equity or on its own
- environment? Localized air pollution, climate effects sustainability-that word can also capture asset management, maintenance
- Environment also important for funding
- There can be language added around accidents, accidents different than crashes. See more accidents such as people running red lights or not paying attention to ped - may not be hitting a car, reactive person being the one who ends up having the issue. Near misses would be considered an accident
- Like all ages, abilities, backgrounds, income language under equity. I think it is good as is
- Needs to be specific language about connectivity between modes, a true, well-working system. also to ensure that all modes receive equal consideration and value.

- Consider all aspects of safety in the plan - education, infrastructure, build environment. FHWA has listed some proven safety countermeasures that are a great start.
- Safety isn't always about crashes, could involve lighting, steep grading for wheelchair users. Make verbiage on safety goal broader. More than just the crashes. Feeling safe and comfortable.
- Safety- Succinct - good, doesn't need anything else. Safety is a two part - you have to think as safety for crime, too.
- Equity - Equity might be hard to measure. Don't see a racial group represented in this goal - as saw in the survey. it is very statistical - you have to know to who and for what you address the issue.
- General - this ones are Long term goals - to reach the long-term goals you need to create short-term ones. Broad statements to measure - We need to create best practices inside of each goal to be able to measure each goal.
- Active Mobility- Active mobility better - because it is a forward terminology - easier to understand. Active part includes the health component of the goal. Mode shift - people set their life around. Active Mobility - incremental changes.
- Connectivity - Like the term comfortable - long stretch, with no trees, etc. it make very uncomfortable. the terms is good as you can get - since the terms are related to comfort and convenience. Add the word safe to this goal. Personal safety, lighting, etc.
- Health - Good goal - no change
- Education- Like "active mobility" instead of "mode shift.
- Is there a positive spin to reduces crashes?
- Wider roadways, more lighting
- If I ride a bike, concerns are with other vehicles on the road. We hear a lot on the news about ped and bike involved crashes. The is hesitation to ride due to safety concerns.
- Some places to cross are so dangerous that no one hardly crosses there, and there are few/no crashes, yet a crossing is sorely needed.
- Is there a better performance measure for safety that just reducing crashes?
- Infrastructure that makes you feel safe, not just be safe.
- if you are tying measurable to the goal of measuring crashes, there may be other criteria? that would indicate how safe a place is.

Equity

- When you talk about equity, you are really talking about prioritizing. Looking at prioritizing resources in communities with the most need first.
- Level playing field
- Address needs in neighborhoods w/low income, low vehicle access first
- Use funds in rural areas where they make the most sense--in places where needed the most
- Sata collection-- need more resource
- Can include accessibility within equity, but you don't have to
- Measure equal access to walking path Vs. bike lane
- Inventory of the system to measure equity
- Make the system safe and well connected for all users.
- Making sure routes are usable for wheeled users
- It's important to add a focus on the community/areas specific needs here. Don’t want to implement things the community doesn’t want.
- Routes for convince and routes for pleasure, need both, have different purposes
- It is hard to measure since there is too much to cover in equity - it is a lot of pieces
- It is hard because of development pattern.
- Individual was not able to access the sidewalk. Need sidewalks to connected to bus stops. Need ramps and curb cuts for people w disabilities
- Equity: make sure that a person with disability can get to the bus stop.

- Communities with more financial means/support and access to engineering have more opportunities than others. There is not a lot of progress that has been made.
- Rural towns do not have as many resources as urban ones.
- Sidewalk, a lot of progress has been made. But sidewalk may not be available in all areas. All areas meaning sidewalks near arterials, people in certain parts of town having to walk on gravel.
- More than just sidewalks, even streets. Do they have proper lighting? You also need good street to ride on.

Connectivity and Access

- Parks, schools, bus stops grocery stores, government services, high ped generating land uses
- I don't have the answers but I'm so glad the unsheltered population was brought into consideration. We have a transient/unsheltered pop in Enid as we
- Additional considerations for unsheltered community? Shelters and transit stops are places you KNOW people need to walk.
- Schools, have many kids who walk to school want to know they have safe facilities to walk and bike. Attention to students with disabilities and access
- Walking to school at all hours - have meetings or events in the evening
- Entertainment areas, places people want to go, not just need to go. People need access to enjoyment and pleasure activities.
- Schools, parks, shopping areas, employment centers, and all busy activity areas.
- Work hubs - large employment areas public transportation hub
- ACOG maintains a database of activity centers

Project Types

- Make sure that modeling safety. If we are trying to improve severity of crashes -- should have photos/videos with helmets, etc. Safety in everything we put out.
- I would love to have a trail system that avoids going through main areas of vehicular traffic. We have a trail system that extends through most of Enid, but at one point it cuts through downtown Enid and isn't the "trail" as we see it through other portions of the community. Safety for sure - having proper lighting, panic buttons, or phones. Particularly in areas where things are more secluded
- More visible crosswalks and stop lines? Colored crosswalks? Lighted crosswalks in heavy pedestrian areas. Pedestrian activated signals.
- Definitely think my community needs education on pedestrian travel - whether through signage or other means.
- ADA accessible trails around natural areas open eyes to the public what is possible. Be more mindful about creating inclusive places.
- Bikes for kids, education on how to ride/safety/ maintenance
- Universal design for ADA trail system. make it so anyone can use it, don't separate out those with disabilities.
- Work with communities that connect trails, sidewalks, crossing barriers like highways.
- In Oklahoma City, we are creating a crosstown connection of bike facilities (east to west and north to south), building trails and creating connections between trails.
- We also have missing sidewalk connections, both missing links in existing sidewalks and areas without any sidewalks.
- The most important thing is to see specific goals and a plan to fund existing needs. That's the greatest need in OKC.
- Anything that mentions wayfinding/signage? could use more of this in OK
- PEAT training - highly recommend
- Projects that make state highway intersections better in small town downtowns (like Guthrie), connect to downtown, add traffic calming devices. Crosswalk: crosswalk that prioritizes pedestrians, where

you don't need to feel you have to run to get through it. Signal ped prioritization. Traffic being able to better see ped traffic.
- That are accessible to all mobility devices. trails connecting parks to major business areas.
- Trail system completion for Garfield County.
- More connectivity with sidewalks, more multi-model trails; agree with others on accessibility, lighting, etc.
- Some educational outreach to remind motorist how about peds having the right-of-way over cars and about other safety around motorists; some ped safety education needed too.
- More audible crossing technology
- Decrease the crossing distances at some crosswalks, like with "bump outs" at corners where on-street parking is allowed.
- A flashing notification light that triggers when a pedestrian is crossing the street. -OH
- Wheelchair charging stations for electric wheelchair
- Annual meetings like this to discuss active transportation would be great
- More connectivity with sidewalks, more multi-model trails; agree with others on accessibility, lighting, etc.

District 5 01/23/2023

Vision

- Likes that "connected transportation" is listed front and center in the vision statement. Sometimes shoulder and other general transportation infrastructure needs attention to serve all users.
- Connected is important word and speaks to gaps that need to be addressed. And connection across modes.
- Connection occurs from the ground up. ODOT is working with INCOG, ACOG, SWODA, etc. Connection is twofold.
- Connectivity should be carried through ODOT Work Plan - needs to happen ASAP and doesn't get pushed out as a lower priority. Review existing projects in the Work Plan to ensure connectivity.
- Add the word accessible somewhere in the vision
- Add recreation AND for work purposes
- Missing the word health

Goals

- Safety - is important because of vulnerability of these users.
- Safety - "reduce the number and severity of crashes..." seems like just a feel-good statement. Needs to be more strongly worded as to what the goal actually is - a number or percentage. Get more specific.
- What is "mode shift"? "Active transportation" is more intuitive.
- How is the growing homeless population going to be captured and addressed going forward? It's a more difficult population to "track". ODOT is working with Health Dept. partners on this while also attempting not to single out a specific population group.
- "Coordination" may be its own goal? Or at least a more prominent piece of current goals. Woven throughout. Replace "Create" to "Coordinate" under Connectivity or somehow include coordination in the Connectivity goal. Very important and an opportunity to improve.
- Parties to be coordinated with should include organizations like PSO in Tulsa. Ped/Bike safety is critical. Non-lit sidewalks and corridors are an issue. ODOT doesn't have direct control in most cases. Much of the lighting quality is driven by franchise agreement.
- A lot could be added or covered with coordination.
- "Mode Shift" is jargon. Don't use that term
- In SW Oklahoma, especially in rural areas, collecting crash data is a challenge. Know not all data is recorded. If we don't have reliable data how can we make sure it's measurable - crashes not reported

unless someone is severely injured. Bumps and near misses aren't often recorded. Riding your bike and ran off the road - wouldn't typically be recorded.
- Measurable is always good, reduce by a certain percentage.
- Agree to not use mode shift, maybe introduce both terms to start educating people that they are similar terms. Rural areas are not aware of the term “mode” not everyday language.
- The word "comfortable" may not be intuitive, could use a different word. Would rather use the word safe if that is what we are trying to convey.
- Mode shift in education goal: Need to educate what mode means, stay consistent with terminology, "active mobility”.
- Educate people on the use of devices for visually impaired and other assistive devices for transportation.

Equity

- Describe - accessible by all/everyone
- Measure equity - Can be difficult especially in rural, less diverse areas.
- Multimodal Transportation Plan - some challenges with data for non-auto-based trips. There have been challenges with acquiring good data for rural areas. Measuring crashes is doable and evident.
- The Center for Individuals with Disabilities may have info/data for Tulsa area.
- Accessibility and availability. In a rural setting run into issues, no access to rideshare service.
- Investment, types of investment happening in urban areas may not be the same in rural areas, different design standards, opportunity to share resources
- Look at environmental justice, cost analysis based upon population in the area.

Connectivity and Access

- In OK, most people don't live close enough to bike or walk to work.
- Daily tasks. Grocery store or convenience store or retail. Schools, food, and public services (hospitals, municipal, doctor, food bank, homeless shelter, etc.)
- Ideal route includes buffers from vehicular travel. Make people safe and comfortable. Safe sidewalks that are well lit at night. Include Crosswalks and connect to destinations.
- Safe crossings in general.
- Work and healthcare
- Food sources, grocery stores, shopping, school
- Issue is that we don't have taxi companies or a good transportation system in some of these rural areas that would allow people to get to school, jobs, healthcare. Sometimes have to beg companies established in other areas to come to our area. Grant opportunity for service expansion into rural areas. Mobility issues only adds to this.
- In some rural communities with university or hospital, lack of sidewalks and safe trails, linking to these destinations is a challenge.
- Little coordination between transit and active living, more coordination needed
- Considerations and characteristics include: sidewalk width, signage, lighting, places you can cross safely not a lot of sidewalks, have to walk in the street on heavily traveled thoroughfares.
- It would help to have walkability audits to help people understand the different needs of community member.

Project Types

- Sidewalks that connect neighborhoods to neighborhood parks.
- Repairs to sidewalk and new sidewalks to make connections.
- Crossing Signals - high cost but imperative
- Wide highways/barriers can divide communities and be a barrier to access.
- Active transportation plan at the regional level, grant program for this, develop plans methodically.
- RTPOs: 5 in the state, range from 8-16 counties

- Get a network to help connect rural communities within and to each other.
- Huge need for medical transportation. hospitals sometimes won't release someone to a cab, some people don't have family network to call on. build communication with medical partners and transportation.
- Complete streets projects
- Wider sidewalks, accessible sidewalks for those with vision or other disability
- Not a lot of sidewalks, have to walk in the street on heavily traveled thoroughfares.

District 6 01/24/2023

Vision

- Push to be able to take longer road bike rides, more than recreation/exercise, need shoulders in rural areas
- Recently made it so bicycles can travel over the rumble strips on some routes
- Most people in this district do not have strong opinions on bicyclists.
- Walking and biking opportunities existing within the communities rather than on highways

Goals

- Like safety being first on this list people who are dependent on walking have to walk along highways, gaps between commercial and residential land uses. Migrant worker population.
- Convenience and availability of facilities is critical. If people could walk they probably would. Needs to be safe, easy task to accomplish without fear.
- Easy: wouldn't have to drive, can get from your home to your destination, and back without having to take intermediate steps. Easy is being well connected.
- Convenient is a good word under connectivity.

Connectivity and Access

- Walking facilities to trails in neighborhoods
- Lack of pedestrian or bike infrastructure

Project Types

- Wide walking trails with a stripe indicating bicycle and pedestrian lanes
- Guidance for local communities
- Some locations need lighting, people feel safer
- HAWK signals, help to cross barriers such as highways
- Could use more maintenance guidance for active transportation facilities
- Anytime a project goes through a town have to meet ADA requirements. do what is required.
- A lot of times even if a town has sidewalk it isn't in good condition
- Sometimes communities do have sidewalk but it isn't ADA compliant
- ADA coordinator looks for any signs of foot traffic, goat paths, desire lines, if they find that they prioritize putting as sidewalk in.
- Tie back ATP recommendations to the existing 8- year plan. Bundle projects where applicable.

District 7 01/23/2023

Vision

- Well thought out
- Add "accessibility". being in rural areas, people need to access transportation. Agree that recreation could be removed. Need to be accessible to all walks of life.
- Should we talk about PROMOTE, not just provide? May not be true in Tulsa and OKC may not be as true. Colorado has impressive examples of promoting. This seems too passive, should be more proactive

- We want to go beyond just providing facilities such as 11th street. We want people to use these facilities
- Emphasize value add. Lifestyle change. I'm from Dallas and there's bike lanes everywhere. Grassroots effort to trails everywhere
- Healthy people 2030 physical activity goal: Improve health, fitness, and quality of life through regular physical activity
- Great idea to promote encourage physical activity
- New objective in healthy people 2030. federal document. Goals regarding physical activity. https://health.gov/healthypeople/objectives-and-data/browse-objectives/physical-activity

Goals

- Like active mobility better than mode shift
- Safety - cars and peds or? Do people know who vulnerable users are? Is there better wording?
- Discussion of safety - crashes - defining who involved.
- Education - uses mode shift - could be confusing – consistency.
- Health Goal - includes all – good.
- Healthy 2030 could apply here as well
- Reduce number of crashes seems like there will still be crashes.
- Safety needs some work, be more positive
- Reducing number of crashes is too vague. Would be delighted if we had a percentage up there. Reduce by 10% every year
- Who have stakeholders been so far. Would be good to have all 3 major bike clubs engaged Tulsa, OKC, and Lawton.

Equity

- Equity - stakeholders - pp may/may not use it
- How does it affect all citizens
- Affordable for all to use & ability to use
- Available for everyone - for all
- Accessible to all
- Measure by utilization
- Measures - taught - urban/rural - many definitions - w/in org - rural areas also have representation
- Having the same type of nice walking and biking trails regardless of neighborhood
- access to schools regardless of income levels
- Measure with surveys or counts
- How many communities have access to any active transportation infrastructure
- Very few trails or sidewalks in Ardmore if we do have them cracked
- Survey assets. don't ignore unincorporated areas. No recreational options.
- Maintenance of sidewalks and roadways. Many people in rural communities are income challenged and rely on walking and biking.
- Survey/inventory of facilities.
- PHIO. TSET and state health departments have incredible data and outreach.
- Pathways could help with data
- Data collection outside urban areas

Connectivity and Access

- Get to doctor, grocery, etc. - other considerations that all can use and run consistently - multiple routes to grocery
- Connecting recreational trails - if fragmented - need to connect

Project Types

- Accessibility - ADA standards
- Rural areas - lighting in some areas - roadways/bridges
- Schools - place to walk - need sidewalk/ramps, may be cracked, etc
- State park walkability - safety signals. Connections from parking areas
- Sidewalks, walking trails
- Road improvements

District 8

Vision

- Vision says for all people, but not calling out demographic factors. Do we need to be more specific? - Use lots of different words for mobility and quality of life so need to think about it.
- Concerned about safe and connected. need to make sure we provide safe connections for everyone. Peds/bikes need to interact with other users. connectivity can be concerning. Areas of city lack connectivity (Broken Arrow)
- (Delaware County) Lacks infrastructure. Lot of people can't get from A to B. Connectivity is important. Safety also important--see wheelchairs using lane of roadway/highway
- Feel like covers main points. Lack of infrastructure big issue. Some examples – no sidewalk so someone using walking stick in roadway. Some individuals have no choices, but also people with stroller or walking for pleasure also issue
- Emphasize all abilities aspect
- Agree with all abilities. Had people who were considered "shut-ins" due to disabilities. Build Safe Routes To School sidewalks and those sidewalks allowed many more people to walk/wheel more b/c of sidewalk availability
- For small rural communities, the vision needs to speak to the practical AT trips. To grocers, clinics, and schools
- "Cowboy boot" mentality - I have a truck/horse for that. I don't walk. Most of those who are out walking are doing so out of necessity.
- Emphasis needs to be made to not just fund new AT facilities, but we must maintain the existing facilities and maintain any new facilities that come online.

Goals

- The education piece is essential. Important to educate those in community. Focus on education will increase AT.
- Missing – should explicitly talk about safe routes to schools. It deserves its own space.
- Missing – health goal - is right language and terminology being used. We could add calling it health practices. Choosing healthier ways to do things, or things that help your body. Like the word access, but that's already included in equity. But goals look good overall.
- Like all of the goals. Would prefer Active mobility over mode shift, not layman's term
- Active mobility makes more sense than mode shift. Think of mode shift as part of changing how we get about. May be some distinction, but no real idea of word to use.
- Like inclusion of everyone.
- Education important-- Razorback Trail area traveling public was very aware of peds/bikes. Need to increase education to build respect for other users.
- Northwest Arkansas is good example, inspiration. Mindful, aesthetics, trees, ADA accessibility part of everything they are doing. That's what we are missing in our county. Lacking the cohesiveness, not planning for all of these things. Stone's throw away is Northwest Arkansas, but not what we have available.

- Agree with these thoughts. Have also traveled to Northwest Arkansas to see as an example. In Rogers County, very nervous to see people riding in the road, worried that something will happen to them. updated sidewalks-- support these
- Separation between user groups. Facilities /buffers
- Health is important, but not always a driving factor. Connectivity, safety, equity more important for many of these communities.
- Walking groups, health interest, but connectivity important path from housing to daycare for example. Access to parks, etc.
- Deen on both sides of health issue. Northwest Arkansas visit sparked cyclist in me and made big changes. would love for more people to understand health benefits and education.
- Equity: Measure equity by quality, implementation and outcome. Does this work for the ENTIRE audience statewide?
- Safety: Crashes or accidents? Accidents would cover more and include more multimodal transportation interactions.
- If the goals are external facing it should be Active Mobility
- Glad to see the education part there
- Compared list to SMARTIE
- Education can be moved closer to the top of the list
- Equity might need to come before safety
- Active Mobility: "people who walk, bike and use OTHER active modes....
- Active Mobility - Tough goal to overcome, especially in smaller towns. Doesn't see someone giving up vehicle to bike/walk to the store. Weather is an issue -- unpredictability.
- Connectivity needs to be moved up. If the facility isn't in place, then we won't have the AT users. Need better facilities to separate modes physically, to improve comfort and encourage mode shift. Modes don't mix very well.
- In Owasso, disabled persons in wheelchair have to roll along streets and go into intersections because of inadequate sidewalks. Seeing this is really scary
- Education - important to educate AT users on how to get from Point A to Point B. On a bike or walking. Students/children and others.
- Safety - Safety is paramount. Should be listed first in goals.
- Education should be moved up higher on the list. Education/personal mental shift is necessary for potential AT users and drivers - related to safety and education. - What safe options exist?
- Perhaps maintenance need to be a goal

Equity

- Measure: TSET has lots of information - easier to understand what type of groups and what areas are lacking - goes to measurement
- Measure - Tulsa bikeshare board tracks where racks and bikes are placed, parts of towns, what groups, making bikes available for seniors.
- Ways to measure ? - Keeping track of the programs and what's being accomplished
- Any qualitative way to measure? How are we changing culture versus data and what's on the ground,
- New development does bring more focus on providing trails, but important to think about what we already have/existing neighborhoods and bring same infrastructure to existing built environment.
- Fairness, but also paradigm shift in the use. All are open to being equitable. Not just people using cars.
- Think about all groups of people and possible users. The goal is being made to ensure everyone having access to different modes of travel.
- Definition: Fairness. fair access to active transportation.
- Brain shift, old and new neighborhoods have access and infrastructure

- How do you measure? Amount of sidewalks or trails being measure. What part of town are we implementing. The actual amount of infrastructure and where geographically.
- Equitable infrastructure, have it all over town whether it's upper end housing or low-income housing, everyone has infrastructure.
- People with disabilities. Lots of people out there who could do more and have better quality of life if we have good infrastructure.
- Equity in who your appealing to. Appeals to everyone.
- Allowing everyone to be part of the community.
- Comparison might be way to measure. Inventories.
- Look at where populations where people live. Won't be able to make everything equal but look at populations and try to get people connections.
- Accessibility for EVERYONE *including senior citizens, people with disabilities
- For Nowata, the way the town was laid out was divided racially. The divisions are still there as far as accessibility and having good, consistent connections (past underinvestment). Equity to be gained from addressing gaps and accessibility across town. North side of town didn't get sidewalks that rest of town got.
- Perception can be that older parts of towns don't get the AT funding & attention that newer parts get. This is more about new subdivisions and private projects, and others where funding comes from other places (often private).
- City's should not get too comfortable with the amount of ped/bike improvements they have made.

Connectivity and Access

- Destinations - Employment, food access, schools, health care, parks, entertainment, libraries, community buildings and offerings, governmental services like court.
- When court was mentioned it reminded me of other related community meetings, services or attending meetings.
- What about the routes? What characteristics? - No cracks in sidewalk or provide a sidewalk. Also lighting, manicured/well taken care of, address perceived and actual safety, signage, wayfinding,
- Recreation, business, job opportunities, pretty much anything, food access is a big one, health resources, community services (health, libraries).
- School children use sidewalks and passageways more than anyone. prioritize those youth, others that don't have transportation.
- Long distance routes
- Safety--important-- lighting on existing passageways important. Connectivity routes important, but also need lighting
- A lot of trails system in Northwest Arkansas is lighted
- Audio – all abilities network. audible technology and tools for elderly and people with hearing impairments. indicators of change in environment/
- Updated sidewalks-- support these
- Design
- Lighting
- Safety
- Location /connectivity
- Having a wider sidewalk for bike/pedestrian /multimodal
- 2. Slower speed limits.
- Ease of access of people to get to
- Provide parking access for people
- 2. Well- maintained facilities.
- 2.Wayfinding signage and marking, maps, etc.

- For small rural communities, the vision needs to speak to the practical AT trips. To grocers, clinics, and schools

Project Types

- Funding for trail heads with benches, water fountains, and meet different needs. Tourist, bikers, walkers, and AT users
- Site furnishings, trash cans,
- What about highway improvements? Highway 82, schools are right on highways with no or small shoulders. Also exists on our main streets. Need to feel safe enough to walk. bump outs, ped heads, lighting to make it obvious to car drivers that people are walking here.
- Town of Pryor streetscape for main street - includes updated crosswalks, pedestrian heads and bump outs. Funding for this type of improvement is necessary across the board.
- Parks project upgrades. Funding for active transportation to these parks. Sidewalks or trails that allow access to the parks without driving.
- An overlooked area is maps. Maps are overlooked and really helpful. Maps will increase transportation and usage in general. Local community walking and biking maps specifically.
- Wayfinding would also help or serve as alternative to maps or alongside maps. Helps newcomers to community and visitors.
- Safe Routes to School
- Light existing passageways
- Audible every 1/2 mile or so
- More sidewalks in areas where there are none
- Facilities in rural communities coming into town
- There's a point on edge of town where infrastructure usually disappears so those out of town don't have much access. people on outskirts of town are cut off.
- So many cities and towns that need a lot of work! What even is the best starting point?
- Connectivity in rural areas
- Teaming up with schools and cities and making sure parks, schools, grocery stores are accessible
- Jenks has quite a few trail projects. New sidewalks and filling gaps. Arterial street projects are at least getting sidewalk on both sides. No bike lanes yet (public is not really asking for them yet); more trail focus so far.
- In some smaller towns like Nowata, the priority is connecting low income, food insecure folks to grocery stores, clinics, schools, and other resources. Needs better crosswalks, longer sidewalks and crosswalks for State highways. Low-income housing areas need good AT networks to resources. Ones out west a couple of miles from the heart of town especially.

ACOG 01/26/2023

Vision

- Freedom to choose modes is important. Choosing to ride bikes or walk seems to be politically aligned/centered discussion but it shouldn't be
- Connectivity - important. Define what we are connecting. Connecting neighborhoods to other areas or other cities - connections to surrounding communities.
- Walk should be pleasing, interesting, beauty. more than safe - comfortable = close, but not exactly all maybe enjoyable, like comfortable, enjoyable

Goals

- For historically disinvested communities equity is not the same as providing infrastructure to historically underserved communities - "I really like all of these goals, but I think equity should be expanded to include environmental justice so that communities that have historically been deprived of

AT amenities will be prioritized. Different from equity because it does focus on bringing environmental issues to communities.

- Affordability is missing - cities don't have the budget to fund, rely on county to make investments- especially in a timely manner. Not specifically that it should address affordable living of residents, but that cities could build this infrastructure without taking out a bond. - lack of communication, especially at the federal level or when dealing with railroad improvements.
- Equity: The region/state needs more mid-block vehicular signalized crossings (stopping motorists), or more midblock crossings with blinking lights activated by pedestrians.
- Education - cultural shift of inclusion of bike/ped shift. Perception change for the community. Potentially a different goal
- Coordination.... statewide, among jurisdictions & mode types should it be a separate goal - or incorporated into the other goals.

Equity

- Freedom to choose how you commute, not own a car, or be disqualified from society if you don't own a car or the ability to walk.
- Being able to safety reach any destination regardless of abilities, age, or other constraint.
- Indicator would be community health index. Measure how research incidents of cancer, obesity - health problems associated with too many cars, too many pollutants, measure neighborhood by neighborhood - are they getting ability to move around.
- Measure- access to transit routes.
- Neighborhood health vs community health vs city/statewide health outcomes (cancer, obesity, etc.)
- Measure - priority of concern in Environmental Justice areas
- Measure - comparing times between different modes (e.g. 20-minute drive vs 3-hour bus ride)
- Equity - creates true mode choice - provide opportunity to choose. Can choose - do not feel restricted, functionality
- Many people benefit from - kids/elderly = equitable
- Measure - increase in mode share, not including POV
- Measure access to ATP - difficult to measure. (ex: 1 block from sidewalk)
- Measure - low traffic area w/o sidewalk - feel safe. If high traffic flow - difficult to cross - do not feel safe.

Connectivity and Access

- Characteristics needed of routes - Safety is big. Be on street if did not feel cars were so aggressive. Prefer a sidewalk or something to separate themselves from the cars.
- Small wall or median as a separator. Lightweight bollards not stable enough - Scissor tail
- I wholeheartedly agree about needing protected bike lanes. For example, I live on a street with bike lanes on both sides, but they are often not used because it feels so unsafe and uncomfortable trying to ride a bike in the unprotected bike lane. When I was biking to work, I would go through neighborhood streets with low traffic even though it was a more circuitous route because the unprotected bike lanes felt so unsafe.
- Safety - Drivers don't have good clear vision - shrubs, trees, block view of pedestrians. What's adding to distraction of drivers.
- Cell phones interfere with driver attention and dashboard
- Walking tour with disabled resulted in ideas like low hanging trees, or barriers to ramps. Keeping sidewalks clear/even is crucial for visually impaired.
- Destinations - Grocery shopping, no infrastructure or transit support to these destinations. Have to use Uber or drive share. Close networks or access to infrastructure
- Our low-income neighborhoods need more AT infrastructure. These are the neighborhoods where people often don't have cars or can't drive and need to be connected to nearby schools and work.
- Access to transit/bus shelters

- When choosing route - look at turn radius and frequency of driveways and curb cuts. No sidewalk in neighborhood because another driveway is being installed. Environment is so anti pedestrian so not even expecting a pedestrian = defensive bike riding.
- Some places - noise so loud - not safe - noise affect equity. Affect health, sleep, etc. ripple effect is learning disability.
- Sea of parking lots at shopping centers and schools. Provide access then more bike/pedestrian
- Many shopping centers OKC - not accessible by ped/bike - not safely - NW expressway = example barriers - stop accessibility to all.
- Buffered trails - separated from roadway - raised or elevated trails. Sidewalks w/b multiuse paths - not at street level
- Chair - shade if possible. Have infrastructure w/ green space OR use existing green space. Smaller setbacks, needed in OK. Many times only in DT areas. In winter - raised crosswalks for ideal experience.
- Have benches, resting areas

Project Types

- Putting up misleading signs, but dedicated bike path with slower speed limits
- Bike lane - really changing the built environment to accommodate. More dedicated programming to include safety, educate drivers on what to look for, how to share the road.
- More dedicated bike paths to major parks and major places. Seen in Omaha. Can't compete with automobiles.
- ODOT bridges over freeways and interstates. Major barriers. Village is cut off from Lake Hefner a great recreation area.
- Retrofitting bridge - for bike access
- Bike paths. Less enthusiastic users of AT are more likely to bike. Certain roadway or streets, don't put bike paths where streets have high speeds. Not comfortable with mixing bikes with high-speed traffic. Concerned about high fatality rate.
- What's the speed cutoff? NACTO may have good guidance on safety measures. If 35 or greater speeds, separated lanes with bollards.
- Bike paths and side paths are most encouraging for other riders (i.e. children).
- PROJECT: The Bryant/12th Street Commuter Bikeway is a new idea that has been surfacing. It is about a 15-mile route through four cities proud that starts as a “share the road” and road diet treatment and evolves in the future as protected bike lanes and separate parallel bike paths. It connects Rock Creek Rd. (or even Heritage trail) in Norman to almost Interstate 40 in Del City. The whole alignment is a relatively “lower” volume vehicular traffic route today, and so can more easily be “claimed” for AT. Will require a lot of collaboration in the future.
- MAINTENANCE: On-street bike lanes and buffered lanes should be “swept” on regular basis (4/year?)
- Bike lanes in the gutter - many people not comfortable in the streets
- Maintenance of roadways for trash removal, snow removal, etc.

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Vision

- Destinations piece important. Anything from home, work, medical facilities, school, everywhere people need to go
- Like the safe aspect, can have all the sidewalks in the world but doesn't matter if they aren't safe
- Safe from crime, and safe infrastructure
- Opportunities for making longer AT trips
- Mention that we can use AT to get to work specifically. A lot of people see walking and biking as recreational.

Getting to work needs to be a stronger element in the statement

- If we are to promote AT for work purposes, we have to look at land use and development to allow the complete transportation network to develop. Manage land use density. It affects transportation choices and how active transportation is accommodated. Suburban and east Tulsa has fairly low densities.
- Promoting AT for work trips in higher density areas is lower hanging fruit.
- Add the word "multimodal"

Goals

- Safety goal is measurable, while education goal is vaguer. What is measurable about the education goal?
- Connectivity could be more specific. Not giving enough guidance in terms of how, what improvements
- ODOT: Safety is always at the forefront. Good to have this as a goal, but also can interweave into all of the goals
- Active mobility paints a better picture
- Mode shift is very jargony, the public may read it and think this plan isn't for them
- "Mobility options", easier and more approachable term
- Equity: It is charging us with a task to consider and accommodate all people. What could be an alternative to ensure that has the same charge?
- What do we mean by comfortable, is this different than safe?
- Like using the word comfortable, it explains the experience of what it is like to stand on the road- would you bike here.
- Comfort is personal, not everyone is comfortable on the same facilities. Creating for all comfort levels
- Like that health is measurable, have a baseline to work off of.
- Word increased is used twice under health. not sure if increasing is a guarantee. Encourage may be a better word at the beginning of the goal.
- 1/3 of teens & adolescents are overweight- need to encourage healthy life cycles.
- Move cars from top priority to lowest; reducing number, speed, size, and usage of cars as a deliberate goal.
- Consider separation of modes in safety statement. Maybe limiting bike, ped, and vehicle interaction.
- Equity - All those people should have access AND be engaged in the process. We need to reach out to everyone and involve in decision making.
- Active Mobility - need to start them young. Increase Safe Routes to Schools and other outreach and educational programs that will reach the younger generation. Leverage education. Tie education to Active Mobility.
- Connectivity & Education - more visible and prominence to active trans. Choices and available options.
- Safety - Rarely sees strollers and small bikes. Safety issues can be a barrier to young vulnerable users. We train people from a young age to "stay away from" AT. Define vulnerable users more in the plan.
- Safety - define other vulnerable 'road' users
- Goal for connectivity - seems vague. create comfortable and convenient between origins and destinations.
- Education – encourage different types of transportation
- Could coordination be w/ connectivity. Potential coordination on all goals.

Equity

- Start with the concept of access for all.
- Access is different for different people/ communities. make sure we are meeting their needs
- Accessibility over mobility.

- All income levels, all abilities
- The number of HH without cars are dwarfed by the number who cannot drive (young, elderly, disabled, those who shouldn't be driving)
- All age ranges should be included in equity
- Measure - what percentage of ALL users can meet daily transportation needs without relying on others?
- Equitable would be people in cars waiting a bit longer (prioritize other modes) due to their availability of other modes and choices.
- Measure - amenities & facilities between zip codes (measure by areas)
- What cost is to do something and what does it take to make it happen? true cost of active transportation - provide opportunities for options - efficiencies. Measure - how?
- Need data to measure. do i feel comfortable w/ me - 4yr old or one w/ a walker?
- Equity - in NE Oklahoma - Amish pop - see buggies/horse - cross 412 - frightening - statewide plan - must have - vulnerable population. County roads, even in Tulsa, see buggies. Make sure in state plan - ROW user - do not leave anyone out.

Connectivity and Access

- City of Bixby wants to connect to Tulsa's trail network
- Use active transportation for recreation. sometimes lack of infrastructure such as
- Bike racks or showers at your destination
- Bike to the park with kids bike to downtown
- Existing transportation system makes it challenging to do anything beyond recreation.
- Heat and cold weather is an impact
- A lot of bedroom communities
- Convenience stores, gym, small retail
- Completely ideal would be no cars at all
- Completely separated facilities with high-speed vehicles, or slow vehicles
- Dedicated bike facility on roads 35 mph or less
- Better intersections: better signals, visibility. Especially in areas with key connectors
- 15-minute neighborhoods are connected. E.g. Grocery, pharmacy, schools, parks, entertainment, shopping & retail.
- Affordability & being able to live near to work should be attainable
- Safety is the reason people don't walk/bike today. lighting and built environment play big roles. Leash laws for dogs.
- Speed limits & enforcements play huge role. "Speed kills" - education should focus on statistics about pedestrian survival rate in crashes at 20mph vs 40mph
- Walking audits pick up the as-built issues but point out the "as- designed" issues regarding walkability in design (Hoboken NY, Carmel IN).
- Characteristics- 15 minutes is your travel time (either walkshed or bikeshed), providing networks to facilitate safe connectivity throughout those nodes. Density would be key
- Completing cycling network in Broken Arrow
- Emphasize role of attractiveness in walkability and likelihood to walk
- Wayfinding also very important in making sure the users understand the system
- Where I live, 9th graders daily walked in a ditch or on the arterial - missing half-mile of sidewalk. Yet even elementary buses don't run for 1 mile from schools, yet crossing an arterial is hazardous
- Ideal Routes - similar to street network, having short route connections to denser and longer and higher-quality bike/ped facilities is key. Have good feeder routes.
- Important Destinations - places like schools, libraries, or districts, shopping centers, schools, workplaces, etc. Major active traffic generators. Also neighborhood centers.
- Neighborhood commutes

- Well-maintained and kept up. Well lit. All of these are ideal.
- Considerations/Characteristics - Recently made trip to FL. Widespread use of golf carts. Wider routes can seem more accommodating and may encourage more usage. Golf cart trips reduce vehicular trips but may be source of conflict on paths.
- Characteristics - Need to be well signed and signalized for major crossings. Ways to enhance awareness and conspicuity.
- Church, local shopping, recreational trails - most important
- Work, local entertainment district. Think regional too. - city to city
- Well-lit, easy to follow, signage, clean, efficient - direct routes
- Efficient w/ direct routes, as a ped, do not stand thru 2 signals before able to walk. Safe buffer between high-speed vehicles - a few feet or buffer. More on-street bicycle infrastructure or safety/buffer.
- Considerations - safety - do not put signed bike path along dark alley personal safety.

Project Types

- Sidewalks in Tulsa are in bad conditions, not connected to each other, narrow, often things obstructing the path like light poles
- Need things to connect. have bike lanes that don't connect to things, big gaps in the sidewalk network. infrastructure that serves everyone.
- AT is more along the lines of recreational. too far from work to walk or bike there. not a lot of infra for AT in Bixby
- AT is any type of transportation that you have to expend energy to move. for commuting or for recreation
- Make BA more like Netherlands. Safety is the #1 Goal - Simple arterial crossings need to have some car restrictions
- Sidewalk gaps exist in grandfathered areas, as well as ADA gaps
- completing cycling network in BA
- Rose District is success story, but still car centric due to lack of connectivity & vehicle speeds. Use it as a starting destination (e.g. 104th Street & local school)
- More sidewalks & connectivity around schools- safe routes to schools & address health/obesity concerns - importance of physical activity, education campaigns and basics of walking and other safety items. - simple painting of sidewalks to make them more visible is a viable strategy. Adequate lighting is also important.
- Unleashed dogs can be safety and comfortability concern for users.
- Being reactive to safety issues/concerns is not appropriate course of action. Need to be proactive about concerns. Safety as first priority, not afterthought
- Audible indications at signalized intersections to be more inclusive in design and accessibility
- Like scramble crossing (Barnes Dance) specifically for children visibility
- 15-minute districts/areas- specifically fill in the amenities needed for Rose District. Connectivity can be supplemented by proximity.
- Would like to get feedback from all groups- school age included.
- Would like to see more grade-separated bike lanes. Could be curb- separated or any hard physical barrier rather than plastic dividers. Painted buffers or "turtle" plastic dividers aren't adequate/ideal.
- Provide horizontal and vertical separation. Seems like a missed opportunity.
- Combination of facilities and accommodate mixing of modes and opportunities to use various modes.
- Bike routes that are longer. Look for opportunities to take advantage of bike-oriented tourism. Route 66 bike route is starting up. An opportunity.
- Identify incentives in policies to increase active trans. facilities and usage.
- See more road diets, on street facilities, cycle tracks, buffered - physical barrier, sidewalks no less than 6' sidewalk - NACTO - comfortable width. still need buffer

- Rural area should be comprehensive shoulder preferred rumble strip strong. ck
- Non-arterial, add more sidewalks, bike routes-more city where more use. more infrastructure to make safe
- More mid-block crossings, policies for highways that cross communities

OKLAHOMA
Active Transportation Plan

October 2023