

bikewalkokc

moving toward a healthy future
2024 Update



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Adopted by the City Council 06/18/2024



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“To have the city we all want, we have to prioritize pedestrians and cyclists in ways that we didn’t for a long time. There are a lot of residents and potential residents who want those options, and it is important that we provide them, for any number of reasons. Yes, it can be challenging for a 620-square-mile city, built around the automobile as we are. But we are making the transition. Unprecedented investments are underway with more to come. It will require patience and persistence, but we will ultimately be a city that offers options and meets the needs of pedestrians and cyclists.”

- Mayor David Holt



Major Taylor Cycling Club of Oklahoma City and Students from FD Moon Middle School

EXECUTIVE SUMMARY

The desire to have a walkable, bikeable city for both leisure and transportation has been gaining momentum over the past decade. Although we have a great start with a significant number of facilities already constructed, Oklahoma City is still young, and has a way to go to build a comprehensive, connected, and safe bicycling and pedestrian network. This plan, **bikewalkokc**, aims to transform the bicycling and walking experience within Oklahoma City to substantially improve the quality of life and health of our residents.

One of the goals of the City's comprehensive plan, **planokc**, is for Oklahoma City to be a community that offers people many safe options to travel to where they want to go - by foot, bicycle, or motorized vehicle. This requires investment in building and maintaining a multi-modal transportation network, complete with high quality trails, bicycle facilities, and sidewalks. With these improvements, residents and visitors to Oklahoma City will be able to get where they need to go while enjoying an active lifestyle.

Since its adoption by the City Council in 2018, **bikewalkokc** has been very effective as a tool for directing and prioritizing funds for bicycle and pedestrian improvements across the city. This 2023 update of **bikewalkokc** adds new projects and addresses new issues identified in the process of implementing the original plan. The analyses in the 2018 plan still being relevant, this 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, this updated 2023 plan proposes the addition of new pedestrian priority areas, the reprioritization of bike and trail network, and many other improvements.

Purpose

The need for this plan and its associated projects is articulated in **planokc**, which calls for a bicycle and pedestrian master plan that addresses the needs of users of all skill levels. **bikewalkokc** is Oklahoma City's

bicycle and pedestrian master plan. **bikewalkokc** fulfills **planokc**'s directive to prioritize bicycling and walking as a favored form of transportation needing considerable attention. This plan guides the long-range construction of cycling and sidewalk networks. These future networks consist of prioritized projects, which will be built as funding allows.

A focus on active transportation infrastructure will bring a healthy balance to our transportation system, allowing people to comfortably travel or recreate on our trails, bike lanes, and sidewalks. The human, economic, and environmental benefits to this future will be substantial.

Outcomes

The expected outcomes that drove the planning process include:

- Neighborhoods connected to jobs, schools, and services via bicycle and pedestrian infrastructure
- Residents empowered to choose an active lifestyle
- Sidewalks that are useful, accessible, and connected
- Trails used for commuting and recreation
- Safe streets that support transportation options

Bicycle and Trails Plan

bikewalkokc consists of two interrelated plans in one: the Pedestrian Plan and the Bicycle and Trails Plan. The Bicycle and Trails Plan details a transformative expansion and improvement of the city's network. The objective is to create a safe and comfortable bicycle network between homes, businesses, schools, parks, and other destinations most frequented.

The proposed projects in this plan will give residents the opportunity to cycle safely to a destination in or

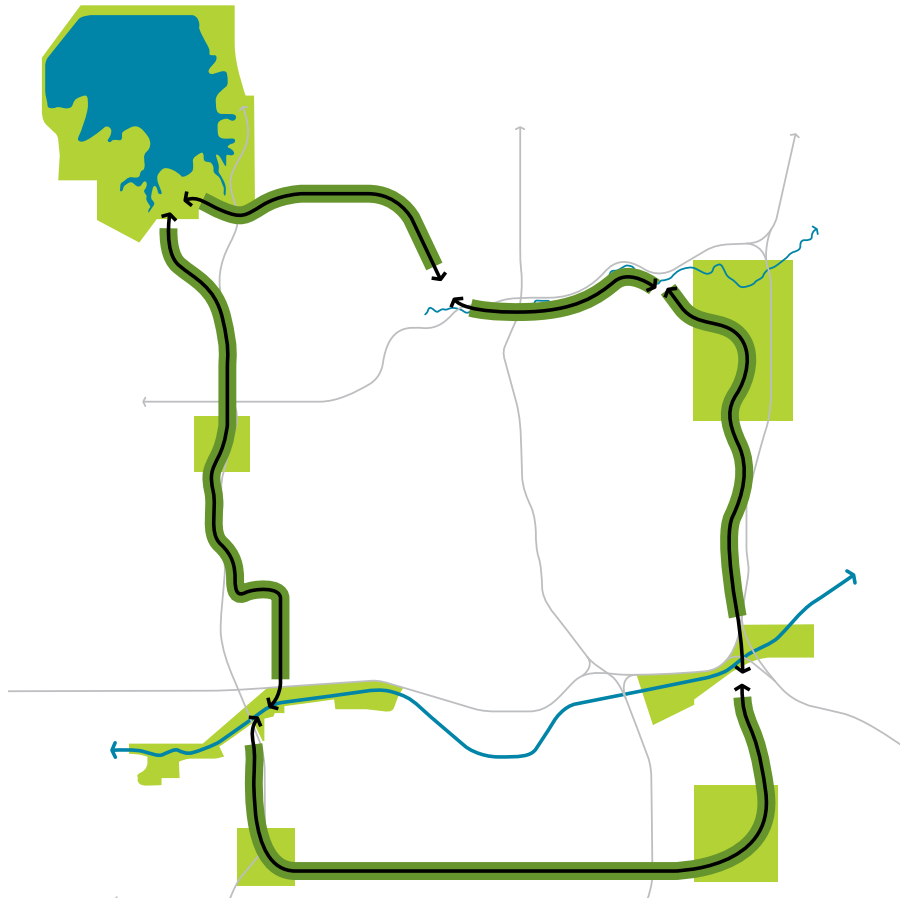
near their neighborhood, while also allowing them to comfortably and safely reach regional destinations.

Pedestrian Plan

The Pedestrian Plan was developed to facilitate comfortable, safe walking to destinations within or close to neighborhoods, such as schools, parks, businesses, transit stops, and friends. It focuses on areas of greatest need so that truly walkable environments can benefit the large group of people – including children, senior citizens, and those with low incomes – who cannot or choose not to rely on automobile transportation. Efforts will be focused on 20 identified Pedestrian Priority Areas and on transit stops, schools, and parks.

Integral Projects

The following pages describe projects or groups of projects that together form the framework of this plan and the future bicycle and pedestrian networks. These projects will deliver a greatly enhanced quality of life for our community while contributing to the city's attractiveness as a destination and place to call home.



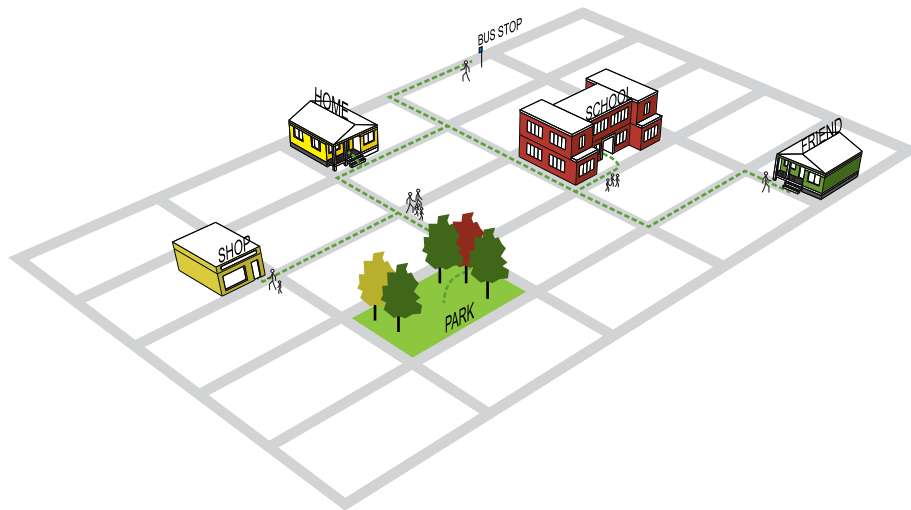
GRAND BOULEVARD LINEAR PARK

The completion of the Grand Boulevard Linear Park will “close the loop” by constructing and enhancing a seamless belt-line of trail around central Oklahoma City. This trail will enhance residents’ quality of life by connecting neighborhoods via a dedicated trail to other parts of the city. Residents in proximity to this historic resource will be able to go for short or extended runs, bicycle rides, or just walk their dog in a relaxing green environment. A substantial portion of the Grand Boulevard Linear Park is constructed; however, the loop needs to be completed by constructing the Deep Fork Creek Trail, upgrading the southwest section from sidewalk to trail, and including safe crossings of I-35 and the Oklahoma River. The Grand Boulevard loop is discussed further in Chapter 2, page 36.



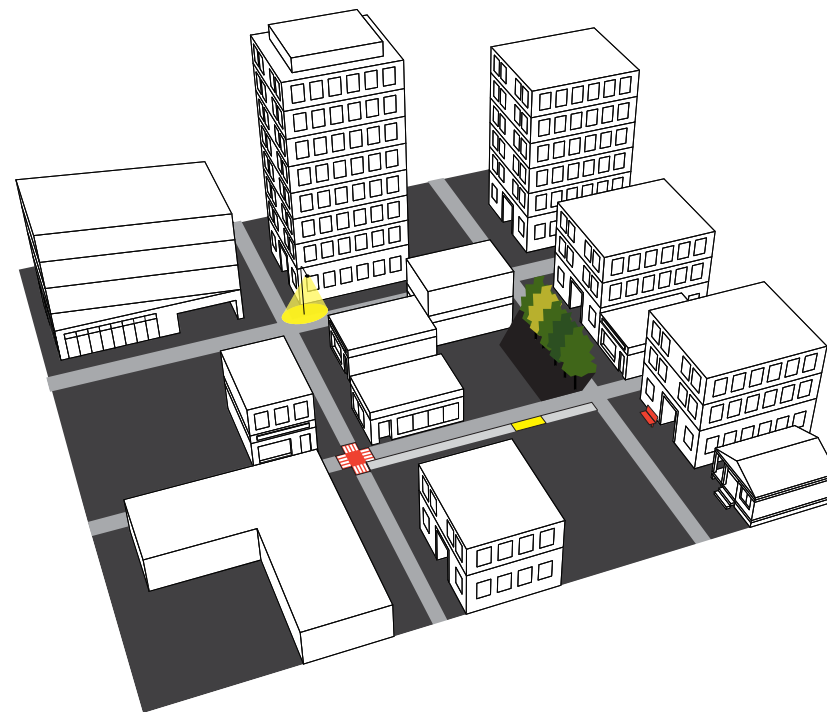
CROSTOWN CORRIDORS

Specific improvements on existing roads across the city will create two crosstown corridors for cycling—one east-to-west and one north-to-south. These safe, comfortable and continuous corridors will connect people to a variety of daily or weekly destinations, which are now only accessible by car. The corridors will serve as cycling arterials, allowing people of all skill levels to cycle to near and far destinations. The corridors will connect to local cycling facilities to provide seamless routes to a myriad of locations throughout the city. The Crosstown Corridors are discussed in more detail in Chapter 2, page 38.



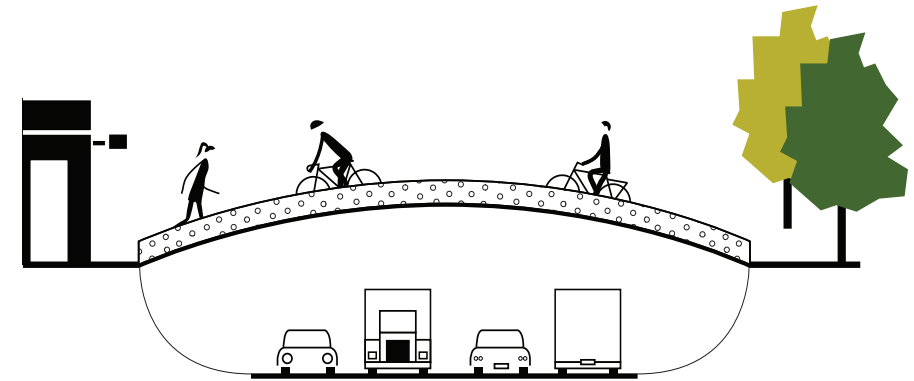
PEDESTRIAN PRIORITY AREAS

This plan identifies twenty Pedestrian Priority Areas (PPAs) based on an analysis that examined a variety of criteria. The PPAs represent the best opportunities in Oklahoma City to create walkable areas that facilitate lifestyles not reliant on automobiles as the primary means of transportation. New sidewalks and improved intersections will afford residents, especially those with disabilities, the opportunity to get to nearby destinations safely and comfortably. Additional details about the PPAs are presented in Chapter 3, page 70 and Chapter 4, page 102.



STREET ENHANCEMENTS AND PLACEMAKING

Following up on the success of bikewalkokc to address major network gaps throughout the downtown area, this updated plan considers how street enhancement projects can be designed to address the needs of the surrounding districts and neighborhoods. Based on experiences with street enhancement projects in commercial districts, such as Automobile Alley, the new approach will involve incorporating commercial districts into a new Street Enhancements and Placemaking pedestrian component plan. Further details can be found in Chapter 3, page 74.



REGIONAL AND NEIGHBORHOOD TRAILS

Trails constructed since 1997 have created a strong foundation for moving Oklahoma City to the next level of a connected recreational and transportation trail network. This plan includes upgrades of existing trails along with 163 miles of new multi-use trails for walking, running, and cycling. A new recreational trail will soon be complete along the Oklahoma River connecting to Katy Trail, and new trails will eventually connect to the neighboring communities of Edmond, Mustang, Yukon, and Del City. While many trails are located in natural areas, others are located in urban areas along streets to provide safe, convenient transportation along important corridors. Other proposed trails are located in areas of opportunity, including abandoned rail corridors or highway right-of-way. The trail network is discussed further in Chapter 4, page 98.

BICYCLE AND PEDESTRIAN BRIDGES

Oftentimes barriers such as interstates, highways, rivers, railroads, or creeks make it impossible, difficult, unsafe or uncomfortable for residents to walk or cycle to nearby parks, shops, or schools. In these cases, a bicycle and pedestrian bridge may be the only feasible solution. Surveys and analysis identified several locations for bicycle and pedestrian bridge projects. In addition to removing barriers within our pedestrian and bicycle network, these bridges can also be noticeable, attractive statements about the value our community places on active living. More information about the topic is available in Chapter 4, page 100.

BICYCLE AND PEDESTRIAN SAFETY ENHANCEMENTS

Important as the basic bike and pedestrian infrastructure is, there is often more work to be done to improve overall safety and comfort of the street for people outside of motor vehicles. Chapter 1 of this plan includes a section calling for safer street designs that will not only complement sidewalk and bike lane projects, but also decrease safety risks and make streets more walkable and bikeable altogether. In 2023, Oklahoma City received a \$800,000 federal grant under the Safe Streets and Roads for All (SS4A) program to develop its first “Vision Zero” safety plan. The goal of Vision Zero plans is to achieve a roadway system with no traffic related fatalities and serious injuries.

Crossings at both intersections and mid-block should be as painless as possible for those walking or rolling along city streets. A number of design elements, such as highly visible crosswalks, curb bumpouts, tight turning radii, and pedestrian refuge islands work together to significantly improve safety and comfort levels for crossing pedestrians.

Bike routes that require cyclists to share the same space as cars can often be less safe and comfortable than desired. In those cases where traffic speeds are too high for a shared route, traffic calming elements may be used to lower vehicle travel speeds. In a similar vein, striped bike lanes that are not protected also benefit from traffic calming devices.

In general, traffic calming enhancements serve all road users by decreasing serious and fatal collisions for pedestrians, cyclists, and drivers alike. Different streets may require a unique set of traffic calming elements, but all will benefit from a combination of tools. Street lighting and reflective paint increase visibility, road diets and medians reduce speeds and create space for other purposes, and street trees and urban vegetation provide shade and permeable space for pedestrian comfort, improved drainage, and lower urban temperatures during extreme heat events.



National Association of City Transportation Officials (NACTO) graphics show the before (top) and after (bottom) examples of a neighborhood commercial corridor street design.

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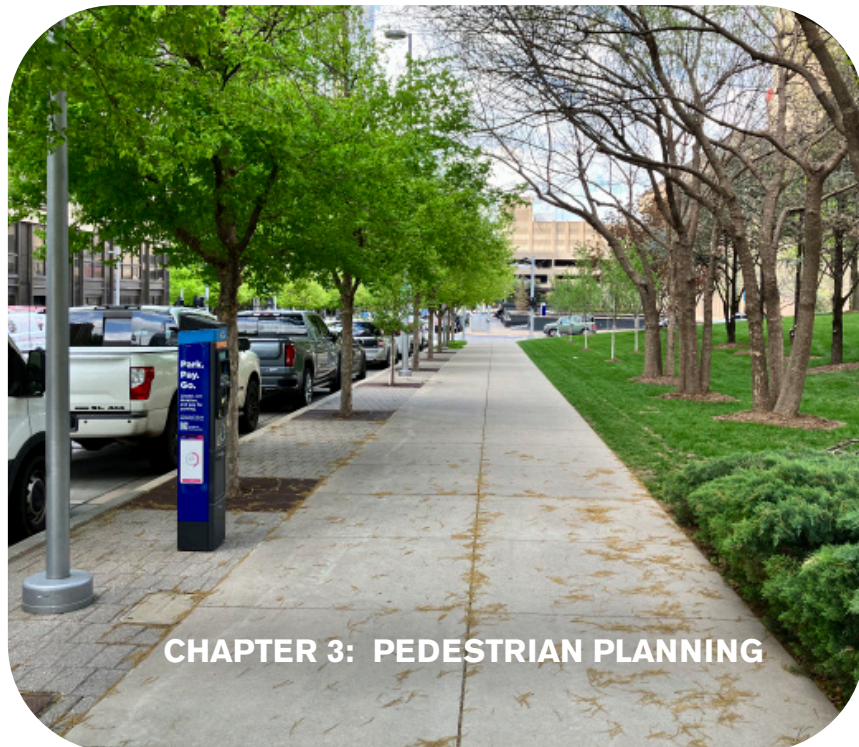
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CHAPTER 1: INTRODUCTION

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*“I thought of that while riding my bicycle.”
- Albert Einstein on the Theory of Relativity*

CHAPTER 1: INTRODUCTION

Our Plan

The adoption of plan**okc** in 2015 has been a crucial step in making Oklahoma City a more competitive city among its peers, being a desirable place for businesses to invest and for people to live, work and play. plan**okc** called for the creation of a bicycle and pedestrian master plan to address the needs of users of all skill levels. Furthermore, connect**okc**, the transportation element of plan**okc**, introduced 43 policies to address transportation design standards, as well as 15 initiatives related to active transportation. Active transportation refers to any form of human-powered transportation, such as walking, cycling, and using a wheelchair. plan**okc** prioritizes active transportation as a form of transportation that needs considerable attention, and this plan, bikewalk**okc**, addresses this priority.

bikewalk**okc** serves as the bicycle and pedestrian master plan for Oklahoma City, and as the foundation for future active transportation development and planning efforts within Oklahoma City. The City adopted three previous plans, the 1997 Trails Master Plan, the 2008 Oklahoma City Bicycle Transportation Plan, and the 2012 MAPS 3 Sidewalk Plan, which were used in the formation of bikewalk**okc**. The 2018 bikewalk**okc** replaced these previous plans as the City's first comprehensive plan addressing both bicycle and pedestrian infrastructure. This updated 2023 version of bikewalk**okc** replaces the original plan adopted in 2018.

bikewalk**okc** is also the City of Oklahoma City's response to keeping up with current transportation regulations. Since its adoption in May 2018, bikewalk**okc** has been very successful as a tool for directing the Citywide capital investment programs into bicycle and pedestrian improvements. Paired with available funding opportunities, such as the City's general obligation bonds and Metropolitan Area Projects (MAPS), as well as various federal programs, the plan has helped to guide investment to address bicycle and pedestrian needs. This 2023 update of bikewalk**okc** addresses needs that emerged during the process of implementing the original plan.



Nationally, bicycling and walking as means of transportation have been gaining momentum over the past 15 years. Oklahoma City has a great start with a significant number of trails, bike facilities, and sidewalks already constructed, but there is still a long way to go in developing a comprehensive, connected, and safe active transportation network. bikewalk**okc** aims to transform the transportation landscape for bicycling and walking in Oklahoma City.

The city has been built in a way that reflects people's primary dependence on the automobile for transportation, but growing interest in using active modes of transportation within Oklahoma City is reflected in the bikewalk**okc** survey (discussed later in this plan).

To meet the public demand for world-class active transportation infrastructure, this plan proposes bicycle and pedestrian projects and policy changes, with the broader goal of improving residents' quality of life and transforming how we get around in Oklahoma City.

.....
Above: 4th Street and Robinson Ave., streetcar stop protected bike lane.

bikewalk**okc** is organized into the following chapters:

- 1. Chapter 1: Introduction** – Discusses the plan's goals and initiatives, public outreach efforts, accomplishments since the adoption of the 2018 document, and the focus on safety.
- 2. Chapter 2: Bicycle and Trail Plan** – Includes descriptions of the transformative bicycle and trail projects identified through the planning process.
- 3. Chapter 3: Pedestrian Plan** – Includes pedestrian planning analysis and identifies immediate needs for pedestrian infrastructure.
- 4. Chapter 4: Implementation** – Describes project priorities, funding opportunities, and performance goals.

Goals and Initiatives

Bikewalk**okc** created goals with associated initiatives and policies to guide future planning and implementation of bicycle, pedestrian and trail facilities in Oklahoma City. These goals, initiatives, and policies guided the direction of the planning team and steering committee in developing bikewalk**okc**.

Our Goals

1. Walking and Cycling is Safe in Oklahoma City

Safety for residents who walk and bicycle in our community is the highest priority goal of this plan. We reach this goal by ensuring that infrastructure exists, and that said infrastructure is sufficient to provide actual safety during interactions with automobiles, as well as perceived safety to keep residents encouraged to choose an active form of transportation.



Above: Cyclists participate in the Full Moon Bike Ride starting at the Myriad Gardens (Photo by Nate Billings, The Oklahoman, Copyright 2013)

2. Greater Numbers of People Are Walking and Cycling For Transportation

While residents of downtown Oklahoma City and some of the surrounding neighborhoods presently walk and bicycle at rates comparable with large cities, it is the goal of this plan to increase these levels, not only in the most urban areas of the city, but in all areas. This requires investment in new infrastructure, as well as policy changes and educational efforts.

3. Neighborhoods Are Connected to Jobs, Transit, Commercial Districts, Schools, and Parks

The sidewalk and bicycle network of Oklahoma City has many gaps. The approach of this plan is to leverage existing facilities by filling in gaps and growing the

networks so that residents can safely get to the places they need and want to get to. As gaps are filled, new areas will become accessible to a greater cross-section of Oklahoma City residents.

4. Barriers to Walking and Cycling are Removed

One of the most often stated reasons for not walking or cycling in Oklahoma City is the difficulty associated with crossing major barriers. Whether these are interstates, major arterials, railroads, or bodies of water, this plan focuses on ensuring that there are safe and convenient places for pedestrians and cyclists to cross.



Our Initiatives

1. Increase the availability of pedestrian and bicycle infrastructure.

The crux of this plan is a capital improvements strategy that identifies where the greatest need for pedestrian and bicycle improvements are. These improvements are prioritized to ensure the most efficient use of funding as it becomes available in the future.

2. Provide education for residents related to safe walking, cycling, and driving.

What cannot be achieved by simply building infrastructure for pedestrians and cyclists can be addressed through marketing campaigns that seek to educate residents to learn safe driving, cycling, and walking skills. This should include training for City staff and police officers, so that the City is united in its efforts to promote safety on our streets.

3. Ensure that all new infrastructure is ADA accessible, and identify locations that require retrofitting.

Standards for pedestrian infrastructure have changed since a great deal of the sidewalks and crossings in Oklahoma City were constructed. This plan emphasizes the importance of accessible design by ensuring those infrastructural elements needed for Americans with Disabilities Act (ADA) compliance, such as ramps and push buttons, are accounted for, and gaps are identified for improvement.

4. Empower residents to be a part of active transportation decision-making.

The residents of Oklahoma City already know where they need and want to walk and bicycle; it's the City's responsibility to identify those needs and wants and ensure that what we do addresses these desires in a meaningful and transparent manner. Including stakeholders from the community during the planning process as well as the project implementation process will ensure that residents feel ownership for new infrastructure, which will in turn ensure better

Table 1. bikewalkokc Goals and Initiatives

bikewalkokc Initiatives	bikewalkokc Goals			
	1	2	3	4
1. Increase the availability of pedestrian and bicycle infrastructure.	■	■	■	■
2. Provide education for residents related to safe walking, cycling, and driving.	■	■		
3. Ensure that all new infrastructure is ADA accessible, and identify locations that require retrofitting.	■			■
4. Empower residents to be a part of active transportation decision-making.		■	■	
5. Increase bicycle and pedestrian connections from neighborhoods to the places people want and need to go.	■	■	■	■
6. Add safe crossings over interstates, major arterials, and water bodies.	■	■	■	■
7. Provide the needed investment to tip high-opportunity areas toward walkability.		■	■	
8. Identify ordinances, statutes, and other regulations that need to be updated to better facilitate a robust active transportation culture.	■			■

maintenance and justification of future projects.

5. Increase bicycle and pedestrian connections from neighborhoods to the places people want and need to go.

Results from the bikewalkokc survey, input from the steering committee and the general public all inform the planning process, ensuring that popular destinations are included. Increasing access to jobs, public transit, commercial districts, schools, and parks will result in a greater return on the City's investments in these areas.

6. Add safe crossings over interstates, major arterials, and water bodies.

Connectivity across barriers is critical to the success of an active transportation network in Oklahoma City. Presently, there are too many locations that cause potential pedestrians and cyclists to choose to drive because they do not seem to be traversable. Additionally, for those who do not own automobiles, we must ensure

that the public infrastructure is usable.

7. Provide the needed investment to tip high-opportunity areas toward walkability.

There are areas of the city with great opportunity to become fully walkable with relatively minimal investment in the pedestrian infrastructure. Areas with high amounts of jobs, transit ridership, schools, parks, and multi-family residential development are great opportunities for improvement.

8. Identify ordinances, statutes, and other regulations that need to be updated to better facilitate a robust active transportation culture.

In order to facilitate safe walking and cycling in Oklahoma City, there are regulations that need to be updated. These include definitions, ordinance amendments, and more to ensure that equal protection is given to pedestrians, cyclists, and drivers on our roads.

Benefits of an Active Community

Increasing bicycle and pedestrian friendliness can substantially benefit a community's health, safety, economic performance, and environmental health.

HEALTH

Easy access to active transportation options has many health benefits for individuals and communities. Active transportation increases individuals' physical activity levels, reducing the risks for obesity, cardiovascular disease, diabetes, degraded bone health, cancer, and depression.¹ Creating a citywide active transportation system will allow residents to more easily incorporate physical activity into their daily lives. Additionally, providing transportation options other than automobile travel can have profound impacts on the health of the population and the environment. For example, the motor vehicle-miles traveled (VMT) are directly correlated to the proliferation of air pollutants such as ozone and particulate matter.² This leads to increased rates of respiratory and cardiovascular diseases.³

Other concerns associated with a transportation system dominated by automobile travel include: greater risk for debilitating or fatal vehicle collisions, lower amounts of physical activity, and a greater percentage of household income used for transportation costs. This illustrates the need for a transportation system that provides options

that can meet the individual needs of a wide spectrum of transportation users.

Active transportation also carries various benefits to mental health. A 2020 study found that "older people have a heightened risk of social isolation and loneliness; walkable neighborhoods and using different modes of transport (bicycle, public transport) can significantly reduce loneliness in older people",⁴ while the Centers for Disease Control articulates the benefits of physical activity and active transportation in reducing, among other things, the risk of depression and anxiety in children.⁵ A more recent 2023 study in Spain drew a connection between driving, and long commute times, with poorer mental health outcomes.⁶

In short, active transportation builds the benefits of physical activity into the daily lives of individuals. While gyms and wellness centers are valuable community amenities, many struggle to commit the time and money required for their regular usage. Providing alternative transportation choices can help break down socio-economic barriers to more active and healthy lifestyles.

"A city is successful not when it's rich but when its people are happy. Creating bikeability and walkability shows respect for human dignity. We're telling people 'You're important - not because you're rich, but because you're human.'"

-Meik Wiking



SAFETY

Improving the safety and comfort of active transportation is a key component of bikewalkokc. Historically, Oklahoma City, along with most cities across the U.S., constructed roadways specifically to accommodate an increasing number of automobiles. With the resurgence of active transportation, cities are reconsidering the way roadways are configured in order to accommodate all modes of transportation. By installing appropriate bicycle and pedestrian facilities, greater separation is created and conflict points with automobile traffic are reduced. These facilities also improve the predictability of bicyclist and pedestrian behavior, which leads to better communication and coordination between modes. Communities with bicycle and pedestrian infrastructure, policies, programs, and enforcement are able to improve safety for all modes of transportation.

According to the Oklahoma Department of Transportation (ODOT), there were 2,421 unique reports of pedestrians being hit by motor vehicles between 2003 and 2020 in Oklahoma City, and 232 of these incidents resulted in death. Ninety-four percent of the fatalities occurred on roads with speed limits above 30 miles per hour. Pedestrians are twice as likely to be fatally injured on streets without sidewalks. And while pedestrian trips make up less than 2% of total trips made in the city, nearly 15% of traffic fatalities are pedestrians.

There were 962 reported automobile/cyclists collisions between 2003 and 2020, 19 of which resulted in fatality. Nearly two-thirds of the collisions occurred on streets with speed limits above 30 miles per hour. While the statistics for cyclist collisions are less dramatic than those of pedestrians in Oklahoma City, providing cyclists with safer, protected facilities can help to bring that figure down over time.

An important reference for street safety is Smart Growth America's annual Dangerous by Design report.⁷ This report provides valuable crash data analysis and abundant evidence that, in fact, the way streets are designed have a profound impact on crashes and fatalities. While it documents that fatal pedestrian collisions are increasing year-over-year nationwide, it also dives into more of the attributes and patterns of those incidences.

According to the 2022 report, the pandemic magnified what was always known: Our nation's streets are dangerous by design, designed primarily to move cars quickly at the expense of keeping everyone safe. The result in 2020 and 2021 was a significant increase in all traffic fatalities, even with less driving overall. 2020's record high also marks an astonishing 62 percent increase since 2009, the year these deaths first started increasing after years of improvement. In that time period drivers struck and killed a total of 64,073 people while walking (Figure 1.1).

Although everyone is affected by dangerous street design in some way, not everyone shares this burden equally. Despite other changes, the pandemic perpetuated existing disparities in who is being killed: Black and Native Americans (Figure 1.2) and people walking in low-income neighborhoods (Figure 1.3) were also struck and killed at much higher rates than other populations in 2020, as in past years.

Figure 1.1 US Pedestrian Fatalities (2009-2020)
Source: <https://smartgrowthamerica.org/dangerous-by-design/>

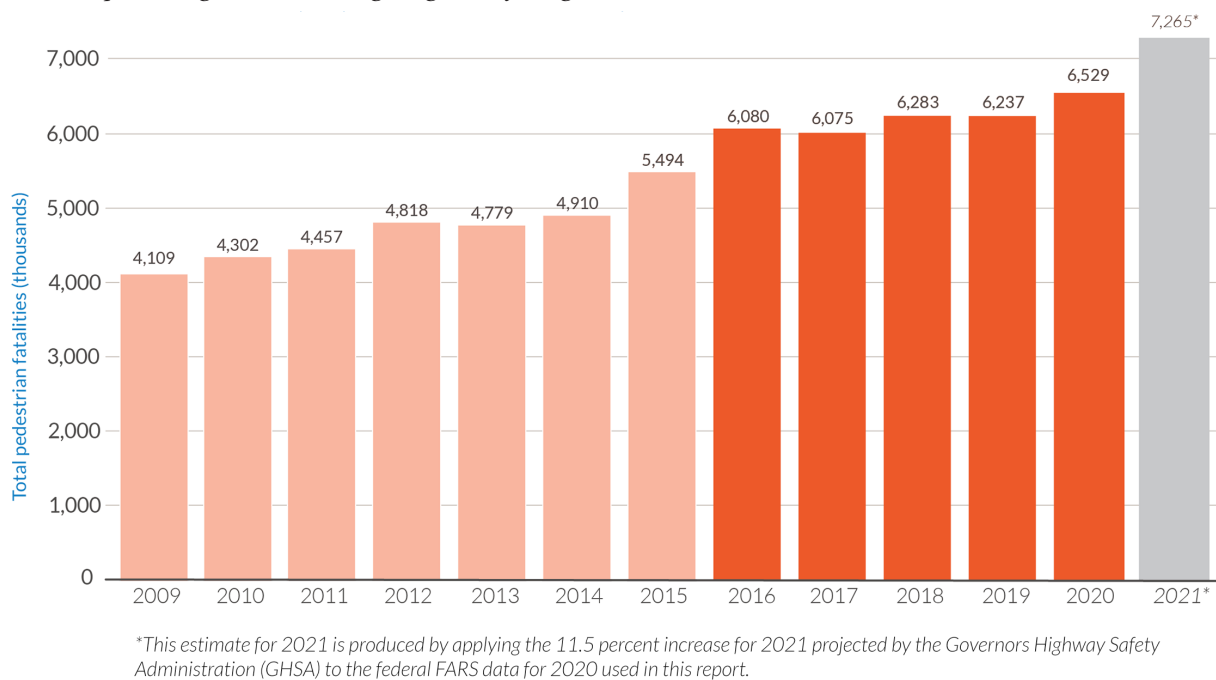


Figure 1.2 Pedestrian Deaths per 100,000 by rate & ethnicity (2016-2020)
Source: <https://smartgrowthamerica.org/dangerous-by-design/>

People of color, particularly Native and Black Americans, are more likely to die while walking than any other race or ethnic group
Pedestrian deaths per 100,000 by race & ethnicity (2016-2020)

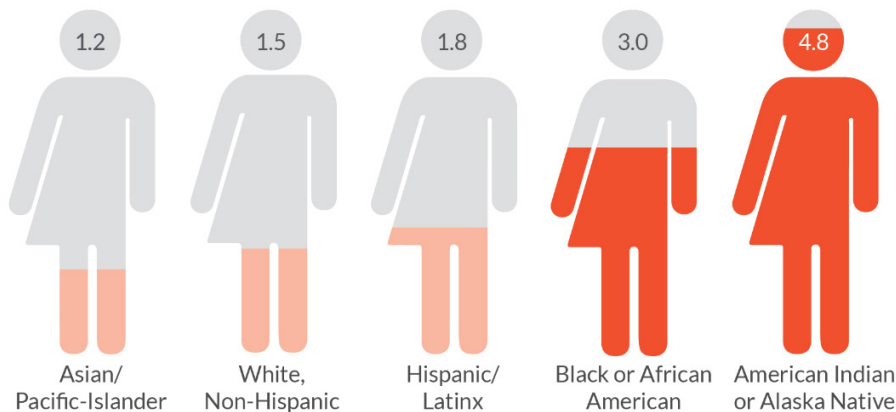
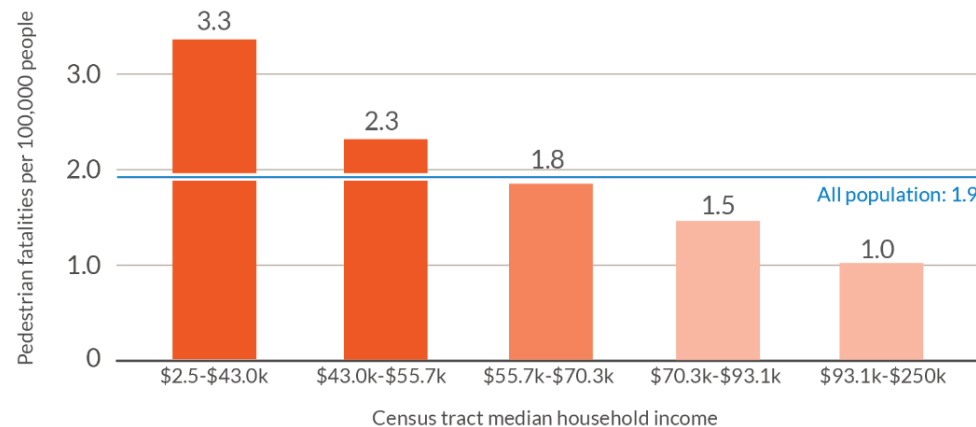


Figure 1.3 Pedestrian Fatalities per 100,000 people by income (2016-2020)
Source: <https://smartgrowthamerica.org/dangerous-by-design/>

People walking in lower-income areas are killed at far higher rates
Pedestrian fatalities per 100k people by census tract income



ECONOMIC PERFORMANCE AND DEVELOPMENT

Oklahoma City has untapped potential in utilizing active transportation for economic development. According to the FHWA white paper, “Evaluating the Economic Benefits of Non-Motorized Transportation,”⁸ there are multiple potential economic benefits from bicycle and pedestrian investments. These benefits include the following:

- Commute cost savings for bicyclists and pedestrians;
- Direct benefits to pedestrian, bicycle, and tourism-related businesses;
- Indirect economic benefits due to changing consumer behavior, such as lower transportation expenses leading to more disposable income); and
- Individual and societal cost savings associated with health and environmental benefits.

While the indirect and societal benefits are difficult to express in dollar amounts, direct benefits include a job creation rate of approximately 11-14 construction jobs per \$1 million in spending on bike and pedestrian infrastructure as compared to only approximately seven jobs per \$1 million in roadway infrastructure spending. This is due to the high labor to materials ratio that bicycle and pedestrian projects typically require.

Additional findings from the FHWA white paper on the economic impacts of non-motorized transportation include the following:

- Bicyclists and pedestrians who have more disposable income due to reduced travel expenses are more willing to spend a greater portion of their income on local goods and services.
- Bicycle and pedestrian infrastructure may make a commercial corridor more accessible to foot traffic, increasing consumers’ browsing opportunities and encouraging more access to local goods and services.

- Bicycle and pedestrian infrastructure, along with other forms of traffic calming, make commercial streets more attractive to visitors and increase visitors’ perceptions of safety.

The limited amount of active transportation infrastructure and low mode share within Oklahoma City show the economic benefits are not yet realized. Studies like FHWA’s indicate that business revenues improve in areas with great walkability and bikeability, and bicyclists and pedestrians generate more sales tax revenue on local goods than those who travel by car. The bicycle and pedestrian network improvements in this plan are economic development opportunities.

ENVIRONMENT

While reliance on the automobile for transportation brings negative impacts on the environment. The increase of active transportation commuting can lead to a reduction in regional motor VMT, which reduces vehicle emissions, particulate mater, and improves air quality. Additionally, while providing ample surface parking is essential to the success of a business or public facility, vast amounts of impervious surface are required. Presently, about 87 of Oklahoma City’s 621 square miles is impervious, the largest portion of that being surface parking lots. This leads to contaminated run-off that negatively impacts the quality of our soil and water bodies.

Impervious coverage refers to land covered by hard surfaces, preventing the ground from naturally absorbing rainwater. According to planokc, when 10% of a watershed has been converted to impervious surface, significant ecological damage has already been done. In Oklahoma City, 16 of the 40 sub-watersheds already have greater than 10% of their area covered by impervious surfaces, while eight more are close to that level. Additionally, in Oklahoma City today roughly 70% of the water bodies are considered “impaired” by the Environmental Protection Agency (EPA). This illustrates the importance of minimizing additional impervious surface construction, and active transportation systems can help in this effort.

Another negative impact of motor vehicle traffic is the degradation of air quality associated with automobile emissions. According to the website stateoftheair.org, Oklahoma City is ranked 24th in the country for worst air quality by ozone amounts, with a score of F for the number of “orange ozone days”. Ground-level ozone is not emitted directly into the air by automobiles, but is the result of chemical reactions between nitrogen oxides (NOx) and volatile organic compounds (VOCs) with sunlight. Motor vehicle emissions and gasoline vapors are major sources of NOx and VOC, and the resultant ground-level ozone can exacerbate or trigger respiratory conditions such as asthma, especially among the elderly population and young children.



“Active transportation systems foster economic health by creating dynamic, connected communities with a high quality of life that catalyzes small business development, increases property values, sparks tourism and encourages corporate investment that attracts a talented, highly educated workforce.”

-Partnership for Active Transportation

bikewalkokc

Accomplishments

(2018-2023)

Since the adoption of bikewalkokc in 2018, the City has reached important milestones related to becoming more walkable and bikeable. Examples include the adoption of policies and the completion of projects. Some of them are discussed in this chapter. In addition, in 2021 the Planning Department grew its transportation planning program by adding a new senior planner position dedicated to working on the update and implementation of bikewalkokc.

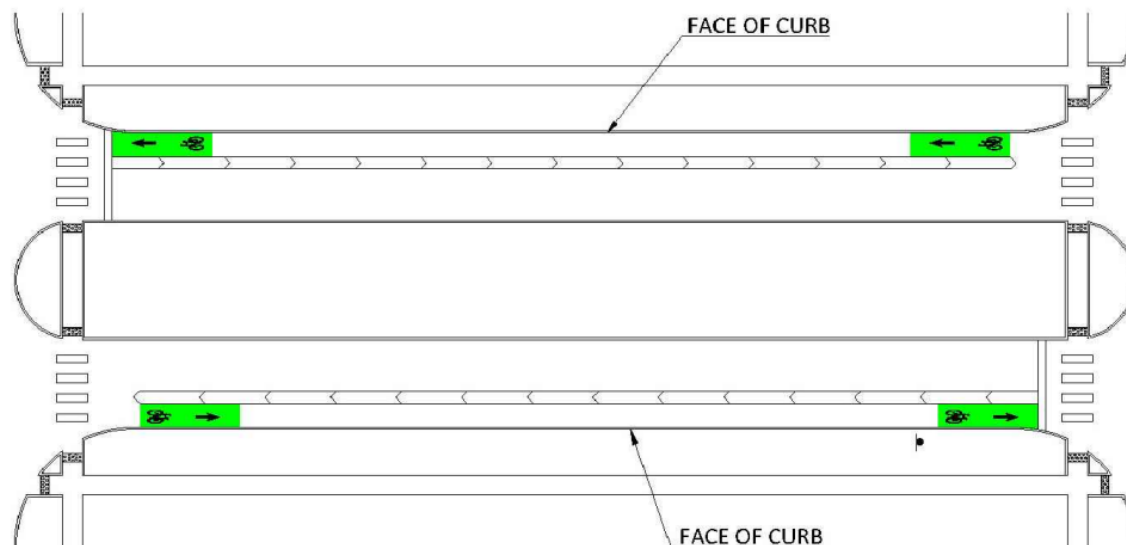
PUBLIC WORKS DEDICATED BIKE LANE MAINTENANCE CREW

The City has a well-organized facility maintenance program in place. The mission of the Public Works Department is to provide infrastructure construction and maintenance, private construction review and inspection, and emergency first response services to the public, so they can live, work, and play in a safe environment. Currently, the Streets, Traffic, and Drainage Maintenance Division maintains over 3,900 miles of public streets with 794 signalized intersections and 90,000 traffic signs throughout the City. With the addition of new bicycle lanes and sidewalks, the City recognized the need to maintain the new facilities. Three new positions were added in the Public Works Department in the fiscal year 2021-2022 budget for the purpose of maintaining the City's bike infrastructure.

BIKE LANE DESIGN STANDARDS

In November 2020, the Public Works Department approved bike lane design standards for the City to adhere to.

The City's standards define the roadway treatment type and speed range for each bike tier level. According to the standards, bike lane symbols shall be at every intersection. Shared bike lane symbols should be placed with a maximum of 250' spacing. Shared bike lane symbols should only be used on roadways of 35 mph or



Above: Image from the OKC bike design standards showing a marked on-street bike lane with a bike buffer.

less. Green pavement markings are only to be used on bike lanes. Shared lane pavement markings shall have black contrast pavement markings behind the symbol.

IDAHO STOP

In 1982, the State of Idaho passed a law, commonly known as the Idaho stop, that allows cyclists to treat a stop sign as a yield sign, and a red light as a stop sign.

While the best safety measure is safe infrastructure, the timescale of infrastructure inherently leaves a lot to be desired. While waiting for ideal infrastructure to be built, the Idaho Stop is a proven measure that provides some immediate safety benefits.

In November 2021, the State of Oklahoma amended 47 OK Stat. § 11-202.1 to allow bicyclist to cautiously make a right or left turn or proceed through the intersection without stopping at the stop sign, if they determine that there is no immediate hazard. The amendment also allows bicyclists, in the absence of an immediate hazard, to proceed through the steady red traffic-control signal with caution.



Above: Downtown OKC street sweeper, credit downtownokc.com

NO PARKING IN BIKE LANES

On March 2, 2021, Mayor Holt signed ordinance No. 26,674 to disallow parking in bike lanes. The new ordinance forbids standing, parking or driving a motor vehicle in a bicycle lane except in the following cases: “(a) to park where parking is permitted, (b) to enter or leave the roadway, (c) while executing a turn, (d) when a motor vehicle is disabled, and when no other means are available to park the motor vehicle on the side of the road; or (e) when a motor vehicle is actively loading or unloading passengers or materials.” Further, the ordinance limits the parking of disabled vehicles within a bicycle lane to two hours.



LEADING PEDESTRIAN INTERVAL (LPI) IMPLEMENTATION

According to the FHWA, a leading pedestrian interval (LPI) gives pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before vehicles are given a green indication. Pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn right or left. LPIs provide the following benefits:

- Increased visibility of crossing pedestrians.
- Reduced conflicts between pedestrians and vehicles.
- Increased likelihood of motorists yielding to pedestrians.
- Enhanced safety for pedestrians who may be slower to start into the intersection.
- Costs for implementing LPIs are very low when only signal timing alteration is required.

The City of Oklahoma City has deployed LPI at intersections in commercial districts and Downtown.



Above: Rendering of parking protected bike lanes on N. Lottie Ave.

PARKING PROTECTED BIKE LANES

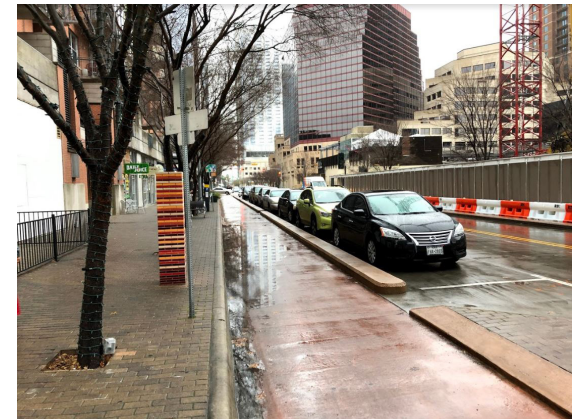
In October 2020, the City was awarded a federal grant under the Air Quality Small Grants Program to implement a bicycle infrastructure project on N. Lottie Ave. from NE 4th St. to NE 23rd St., then north to E. Madison St. and east to N. Kelly Ave. The grant was made possible through Congestion Mitigation and Air Quality (CMAQ) funds and the City provided a local match through the Better Streets, Safer City program.



Above: Parking protected bike lane sign in Pittsburg, PA

When completed, the route will feature the first parking protected bike lanes in Oklahoma City.

Parking protected bike lanes offer an additional safety feature to bicyclists, allowing them to bike on the right, non-passenger side of parked vehicles, between the sidewalk curb and the parking lane. Parking protected bike lanes make streets safer and less stressful to all street users.



Above: Parking protected bike lane in Austin, TX

MICROMOBILITY

Micromobility is defined as transportation over short distances provided by lightweight, usually single-person vehicles, such as bicycles and scooters. Micromobility has rapidly proliferated in cities nationwide, proving to be a popular transportation option for many users.



The City actively participates in the national trend towards implementing micromobility programs. Since the adoption of the original bikewalkokc plan in 2018, the City amended § 32-1. Definitions of the Municipal Code to include the definition of electric bike. According to article 32-1.20, electric-assisted bicycle means any bicycle with: (a) two or three wheels; and (b) fully operative pedals for human propulsion and equipped with an electric motor with a power output of not more than 750 watts that meets the requirements of one of the following three classes:

1. Class 1 electric-assisted bicycle shall mean an electric-assisted bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 miles per hour,
2. Class 2 electric-assisted bicycle shall mean an electric-assisted bicycle equipped with a motor that may be used

exclusively to propel the bicycle, and that is not capable of providing assistance when the bicycle reaches the speed of 20 miles per hour, and

3. Class 3 electric-assisted bicycle shall mean an electric-assisted bicycle equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 28 miles per hour.

EMBARC's Spokies program launched in 2012 as the city's only bike share program in Central Oklahoma at the time. The service offers a convenient and healthy way to commute downtown. Funding for the E-bikes came from the Federal Transportation Alternative Program (TAP) grant program. In 2022, EMBARK's Spokies Bike Share program introduced the addition of 53 new electric bikes to their existing fleet. The system expansion introduces new bike technology while growing the overall fleet to 112 total dockless bicycles.

Spokies Electric is equipped with an electric motor to assist riders when pedaling. The motor turns on automatically when pedaling starts and stops running when riders stop pedaling. When the battery is fully charged, the pedal-assist feature can operate for as many as 25 miles or two hours of sustained use. Once the battery is depleted, the bike is still rideable without the motor's pedal assistance. With the new E-bikes, customers can expand their trip length and make the trip with ease. The electric bikes can be more comfortable to operate than pedal-only bikes, especially when going uphill. Our vision is to create a transportation system that all want to access. No gears are required for the E-bikes.



WATCH FOR ME OKC

Watch for Me OKC is a program to help teach pedestrians, cyclists, drivers, and police officers how to reduce the risk of serious injuries and death from collisions on our roadways. The program includes components related to safety, education, encouragement, enforcement, and demonstration. It is a multifaceted outreach effort to everyone who uses the City's roadways. As Oklahoma City grows and changes, more cars, pedestrians, and bicyclists are using its streets and all need to safely share the roadway.

Watch for Me OKC partners with local governments and advocacy groups to get their help in reaching the widest audience. The City's Planning Department is working with the Oklahoma City Police Department to disseminate information to cyclists and drivers.

The program includes marketing through radio, bus advertising, a website, flyers, brochures, sidewalk decals, and videos. Additionally, City staff has worked at multiple health fairs and various other events to educate individuals on how to be safe as a cyclist or pedestrian, and how drivers should respect other modes.

Classes for bicycle and pedestrian safety complement handouts, marketing, signs, events and more about the best ways for cyclists, pedestrians and drivers to navigate Oklahoma City's streets. Watch for Me OKC is also building bicycle lanes demonstrating the latest innovations in safe street construction.

In partnership with the Association of Central Oklahoma Governments (ACOG) and the Oklahoma Highway Safety Office (OHSO), the Watch for Me safety campaign has been revamped to include the entire metro area. More information about the broader campaign is available at watchformeok.org.

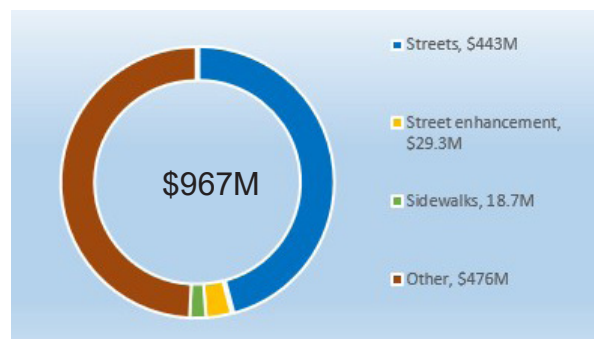
BETTER STREETS, SAFER CITY (BSSC)



In 2017, the voters of Oklahoma City approved an unprecedented investment in streets, traffic infrastructure and sidewalks known as Better Streets, Safer City. It included two sources of funding for sidewalks, bike projects and street improvements:

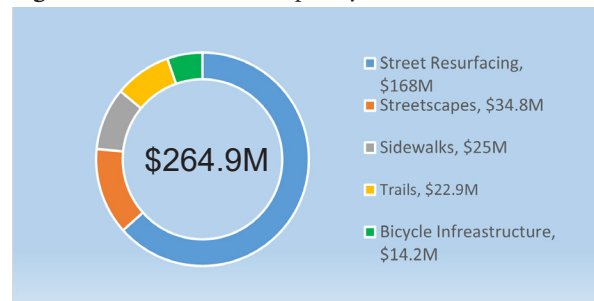
- A 10-year, \$967 million general obligation bond authorization (Figure 1.4).

Figure 1.4. Better Streets, Safer City General Bond Obligations Program



- A temporary, 27-month sales tax to fund \$264.9 million for street resurfacing, streetscapes, trails, sidewalks and bicycle infrastructure (Figure 1.5).

Figure 1.5. 27-Month Temporary Sales Tax



More information is available at: www.okc.gov/residents/better-streets-safer-city-projects.

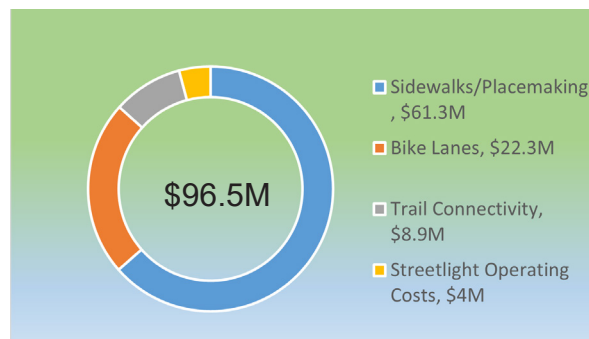
Projects funded with Better Streets Safer City can be found on Map 1.1.

METROPOLITAN AREA PROJECT 4 (MAPS 4) FUNDING



MAPS 4 is a public improvement program funded by an eight-year penny sales tax that will raise a projected \$1.1 billion. A total of \$96.5 million are budgeted for sidewalks, bike lanes, trail connectivity to Lake Stanley Draper and the Oklahoma River in south Oklahoma City, and 10 years of operating costs for 1,000 new streetlights, as shown on Figure 1.6. In addition, \$25 million are budgets for Innovation District connectivity.

Figure 1.6. MAPS 4 Sidewalks, Bike Lanes, Trails, Streetlights



MAPS 4 allows for the City to invest in the construction of sidewalks, sidewalk amenities and placemaking. The amenities potentially include trees, sustainable infrastructure, landscaping, drainage and public art. Priorities are given to the Pedestrian Priority Areas and schools identified by the bikewalkokc plan and other districts and community assets. MAPS 4 also enables the construction of bicycle lanes and related bicycle facilities, taking into consideration the guidance of the bikewalkokc plan.

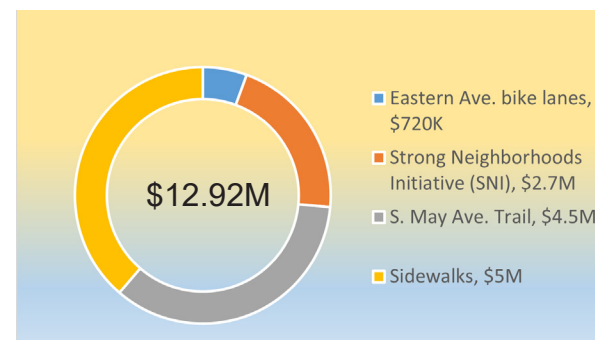
More information is available at: www.okc.gov/government/maps-4.

AMERICAN RESCUE PLAN ACT (ARPA)

The American Rescue Plan Act of 2021 includes \$30.5 billion in federal funding to support the nation's public transportation systems as they continue to respond to the COVID-19 pandemic. The funds are distributed nationwide to fund various formula and competitive programs for urbanized and rural areas and tribal governments, transit grant recipients with additional pandemic-associated needs, the Capital Investment Grants Program, and the Enhanced Mobility of Seniors and Individuals with Disabilities formula program.

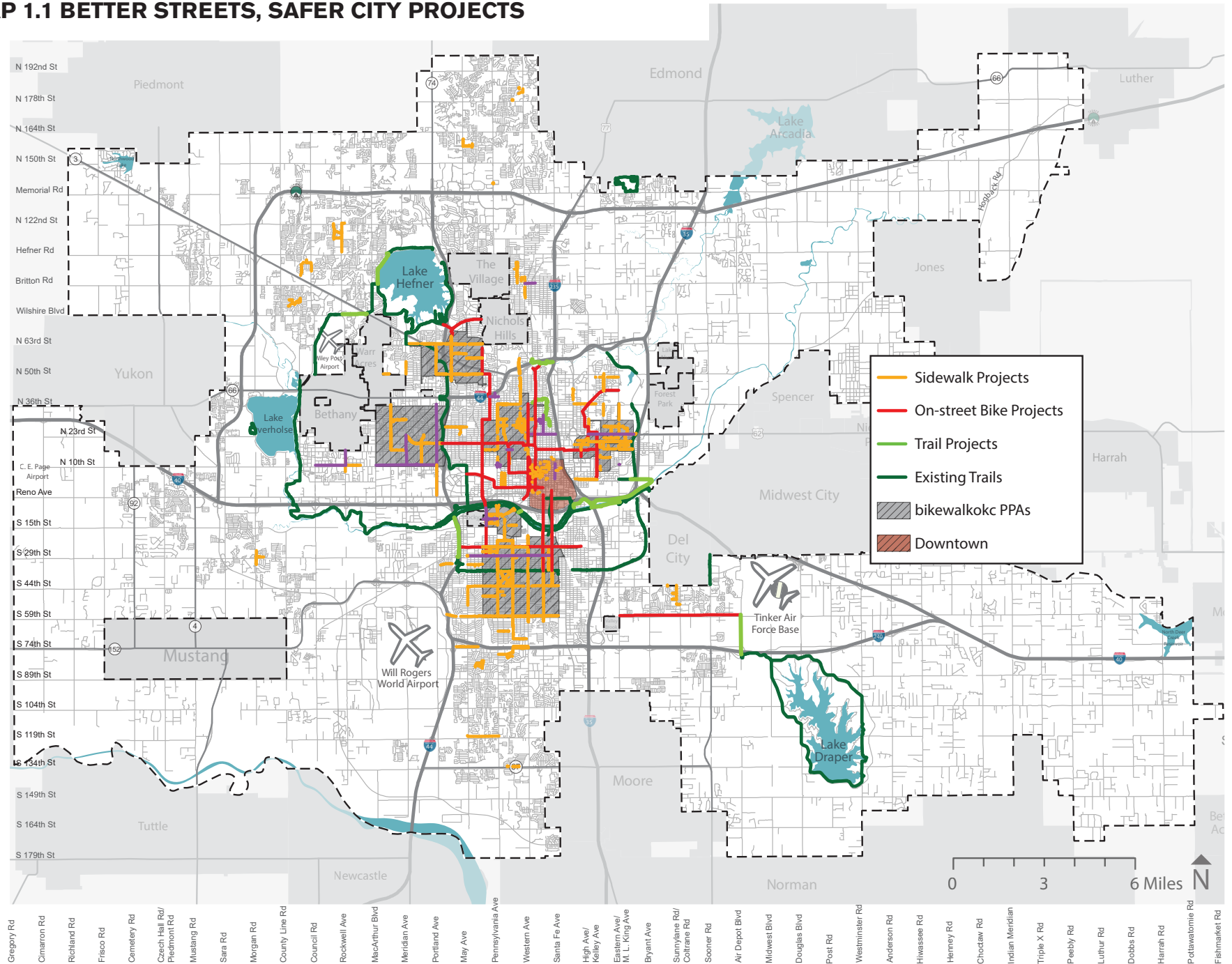
The City of Oklahoma City received over \$122.5 million of ARPA funds. The amount has been split among three project categories – Public Health Response, Negative Economic Impact of COVID-19 and City Projects Revenue Loss. The latter category accounts for the most sizeable share of the funding and includes funds for several transportation projects. The bike and pedestrian projects that have been funded with ARPA funds include bike lanes on Eastern from S. Grand to SE 59th Street, S. May Ave. Trail (aka Airport Trail), sidewalks projects and the Strong Neighborhoods Initiative (SNI), as shown on Figure 1.7.

Figure 1.7. American Rescue Plan Act (ARPA)

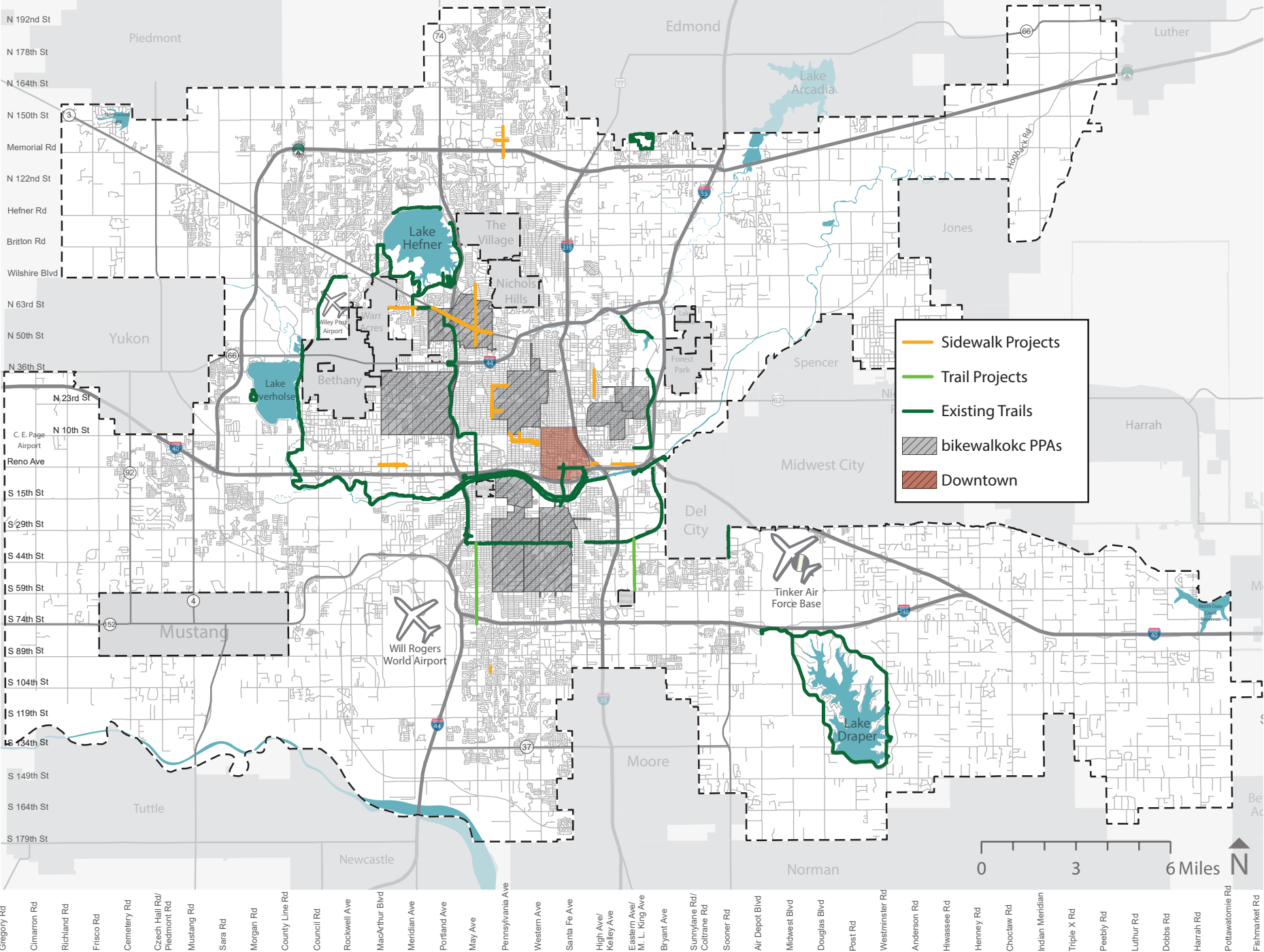


Projects funded with ARPA funds are listed in Map 1.2.

MAP 1.1 BETTER STREETS, SAFER CITY PROJECTS



MAP 1.2 ARPA PROJECTS



Public Engagement

bikewalkokc 2023 UPDATE AND PUBLIC ENGAGEMENT

connectokc, the transportation component of the City's comprehensive planokc, calls for the development of a bike and pedestrian plan. In 2018, bikewalkokc was developed to serve this purpose. The City has been very strategic with identifying and allocating funding for bicycle, trail and sidewalk projects. Many of the projects identified in bikewalkokc have been completed since 2018.

ADVISORY GROUP FEEDBACK

This 2023 bikewalkokc update was informed by the advice and expertise of an Advisory Group comprised of elected and appointed officials, local partners and stakeholders from bike and walk advocacy groups, as well as City staff from several departments. The Advisory Group was tasked with evaluating the plan's Performance Measures, making technical edits and advising on the plan refinements, updating data and maps, the feasibility of the remaining projects and prioritization, and identifying new projects based on public input, trends and needs. The development of this updated project list helps prioritize projects for implementation under MAPS 4 and other funding sources in the future.

City staff collected feedback and recommendations on the Pedestrian Priority Areas (PPA) boundaries and new pedestrian projects within these boundaries from the Advisory Group and public feedback surveys (Map 1.3).

The Advisory Group engages in discussions related to the plan implementation. Topics included funding opportunities, ongoing system maintenance, staffing resource needs, performance measures, and action plans. Consideration was given to the inclusion of a Safe Corridors and Crossings Component to the plan, which resulted in identifying the need of a separate Vision Zero plan to address transportation safety issues citywide.

The Advisory Group convened four times and provided review and recommendations that guided the

bikewalkokc update. Members completed worksheets that went into depth about each section and chapter of the plan and provided recommendations based on their specific expertise and representations.

PUBLIC FEEDBACK

As part of the bikewalkokc update, the City conducted a survey to collect feedback from the community regarding topics and issues that needed to be addressed in the period between the adoption of the original plan and the update. The survey was posted online at the bikewalkokc page on the City website and staff received over 300 responses. Respondents were encouraged to share their opinion on whether their City is doing enough to become a modern bicycle and pedestrian-friendly city in the near future. They were also asked

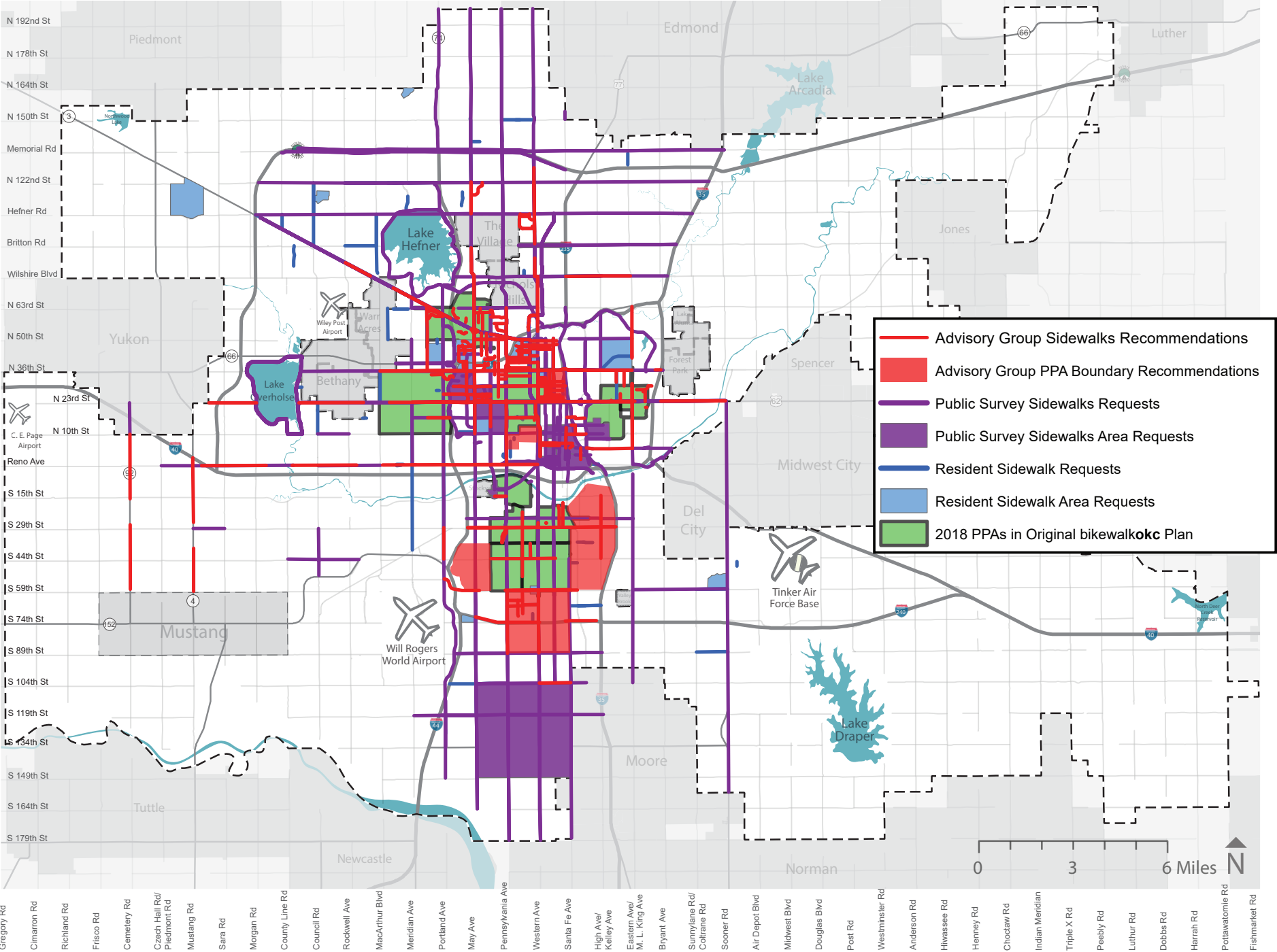
what types of projects they would invest in, if they were tasked with the decision making. In addition, the survey inquired on locations where the respondents believed there is a need of pedestrian, on-street bike and multi-use trail infrastructure, as well as safer pedestrian and bike crossings.

City staff summarized the feedback received through the outreach efforts. Maps 1.3 and 1.4 show the sidewalks and bike facilities, respectively, that were requested or identified as needs in the public engagement process.

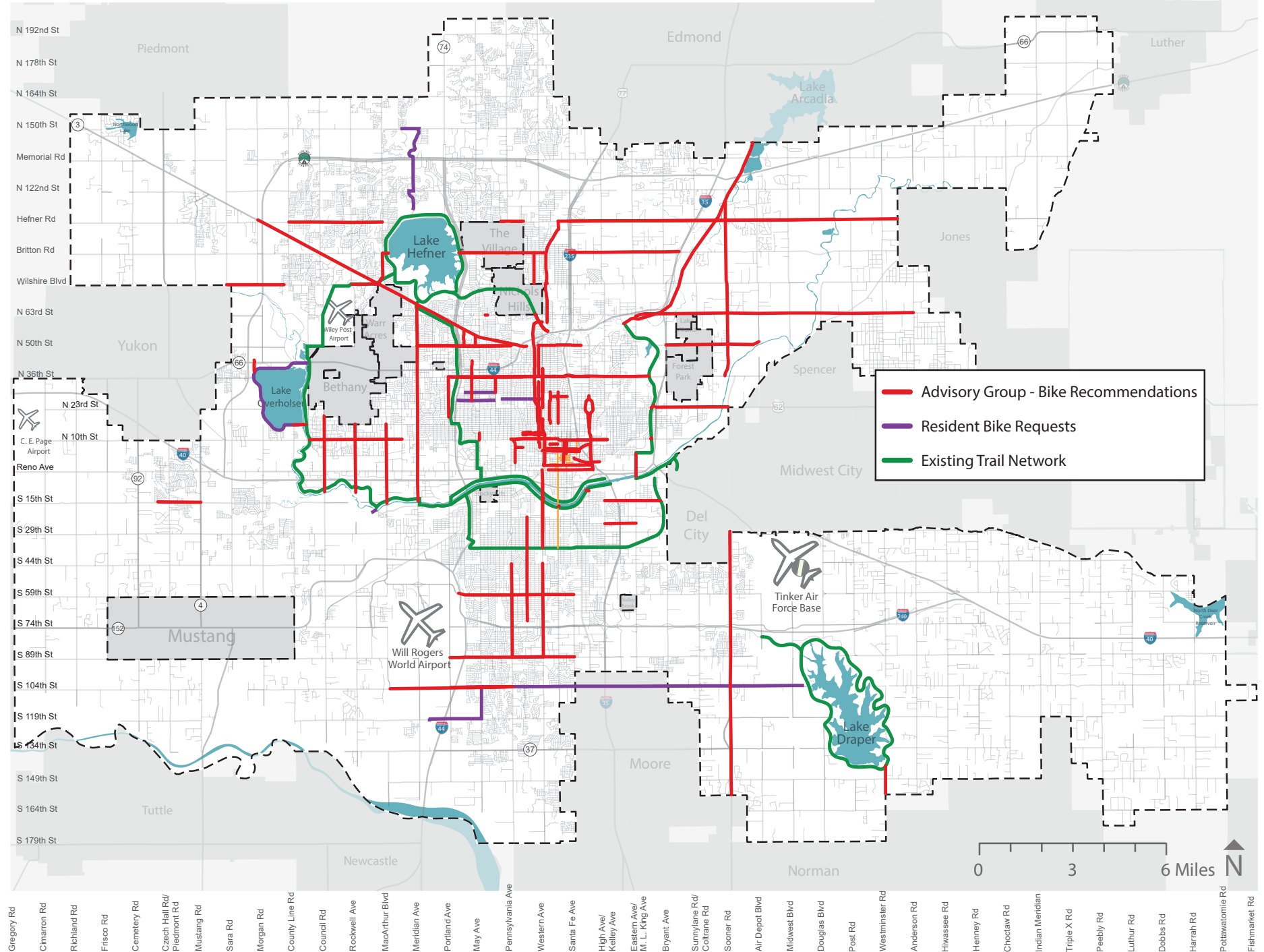
.....
Ward 2 Town Hall meeting, July 26, 2022, Will Rogers Garden Exhibition Center.



MAP 1.3 SIDEWALK REQUESTS-ADVISORY GROUP AND RESIDENTS



MAP 1.4 BICYCLE AND TRAIL REQUESTS - ADVISORY GROUP AND RESIDENTS



PROJECT ENGAGEMENT

For complex projects, there is typically a certain level of public engagement that is conducted before and simultaneously with the project’s construction.

Projects with bike facilities can vary in the level of engagement. For example, bike routes that require sharrows or conventional bike lanes without any changes to on-street parking may have only minimal engagement, while bike lanes that change how the street is designed and functions may entail more robust community input. Similarly, where sidewalks are constructed along major arterial streets, or where they may be filling in existing gaps or replacing sidewalks in disrepair, public engagement may be limited to notifying residents and property owners.

Another good example is the City’s “Street Enhancement” category. A light street enhancement project may consist of sidewalks, ADA upgrades, street lighting and other visibility improvements. The approach to this kind of project can be contrasted with street enhancement that focus on neighborhood commercial districts. Improvements to places like Paseo Arts District, Capitol Hill, and NE 23rd St involve extensive community outreach and collaboration, and programs like the Commercial District Revitalization Program and the Strong Neighborhoods Initiative are well-suited to facilitate these discussions.

Example of a postcard sent out by the Public Works department in advance of project construction.



UPCOMING PROJECT:
NEIGHBORHOOD
STREETS

Project will include:
repair and resurface streets
curb and gutter repairs

Construction details:
\$3.6M budget
Atlas Paving Company
begins August 2023
estimated completion end of 2023

Funded by Better Streets Safer City Bond Program

Contact:
Ty Ellis
ty.ellis@okc.gov
(405) 297-2310



COMMERCIAL DISTRICT
REVITALIZATION PROGRAM (CDRP)

For over 20 years, the City has been working with business and property owners to transform their areas, attracting more patrons to work, shop and play in their district. The City’s CDRP provides opportunities and assistance for local business districts to create vibrant destinations. As part of the Better Streets, Safer City and MAPS 4 programs, many commercial districts were identified for street enhancement projects. Beyond the basic infrastructure of sidewalks, these projects aimed to increase walkability with the inclusion of amenities, such as better lighting, improved crossings, public art, traffic calming elements, transit stop upgrades, and trees and landscaping. Each District’s improvements are customized to the needs and preferences of the district, and each project includes a public engagement process.

Community meeting held for the N Lottie Ave bike project at Amos Memorial CME Church.

STRONG NEIGHBORHOODS
INITIATIVE (SNI)

The SNI program started in 2012 to address the need for a more comprehensive and coordinated approach to neighborhood revitalization. The program supports the physical revitalization of housing and infrastructure in participating neighborhoods, and the expansion of economic and citizen opportunities to improve their quality of life. Walkability and accessibility to transit and services are SNI priorities. City staff works closely with neighborhood residents, local stakeholders and city departments to develop and implement revitalization strategies. Key indicators are measured annually and shared with the community and stakeholders.

Safety Focus

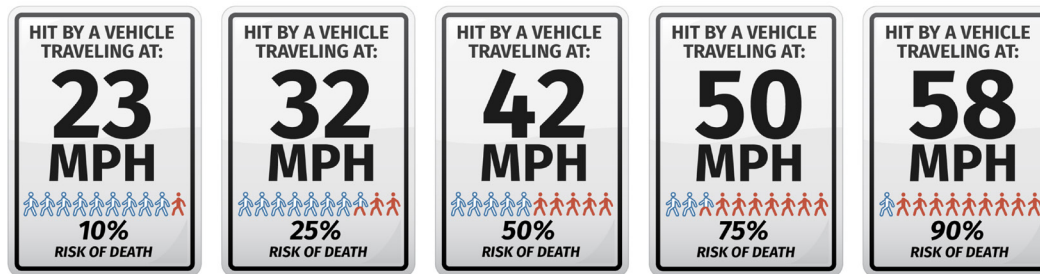
SAFETY CULTURE

Safety is a priority in current transportation legislation and desired federal practices. The Federal Highway Administration (FHWA) defines safety culture as the shared values, actions, and behaviors that demonstrate a commitment to safety over competing goals and demands. Safety culture involves understanding the risks associated with transportation and choosing to make safe choices.

In 2020, 38,824 people lost their lives on American roads - the highest number since 2007. This national crisis is both unacceptable and preventable. Zero is the only acceptable number of deaths on the Nation's roads. The FHWA embraces a Safe System Approach, which builds multiple layers of protection around road users and is based on the reality that although people make mistakes, those mistakes do not have to be fatal.

“VISION ZERO”

The zero deaths vision acknowledges that even one death on our transportation system is unacceptable and focuses on safe mobility for all road users. This idea was first adopted in Sweden in 1997 as “Vision Zero” and since then has spread around the world. Reaching zero deaths requires the implementation of a Safe System approach. Applying the Safe System approach involves anticipating human mistakes by designing and managing road infrastructure to keep the consequences of those mistakes low; and so that when a mistake leads to a crash, the impact on the human body doesn't result in a fatality or serious injury. Road design and management should encourage safe speeds and manipulate appropriate crash angles to reduce injury severity.



Source: <https://www.transportation.gov/NRSS/SaferSpeeds>

The Infrastructure Investment and Jobs Act (IIJA) established a new Safe Streets and Roads for All (SS4A) discretionary program with \$5 billion in appropriated funds over 5 years. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.

bikewalkokc supports the Federal goal of zero deaths on the roads and the efforts of implementing safety countermeasures. In 2023, the City of Oklahoma City received an \$800,000 grant under the Safe Streets and Roads for All (SS4A) program. The funding will enable the City to develop a Vision Zero Plan.

SAFE STREET DESIGN AND COUNTERMEASURES

Speed matters to safety, when it comes to crash frequency and severity outcomes. The fatality risk of pedestrians increases as the impact speed increases. When a vehicle is traveling 23 mph, the fatality risk of a pedestrian is approximately 10 percent. However, when a vehicle is operating at 58 mph at the time of impact, the pedestrian's fatality risk is approximately 90 percent.⁹

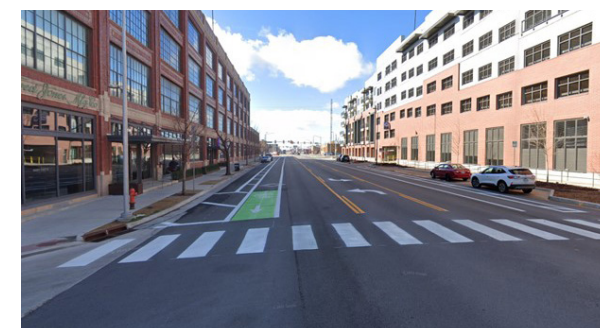
The FHWA has made available a list of 28 Proven Safety Countermeasures (PSC) effective in reducing roadway fatalities and serious injuries. They are grouped into five categories, including Speed Management, Pedestrian/Bicyclist, Roadway Departure, Intersections, and Crosscutting. Transportation agencies are encouraged to consider implementation of the the PSC to accelerate the achievement of local, State, and National safety goals.

A roadway reconfiguration known as a Road Diet offers several high-value safety improvements at a low cost. The primary benefits include enhanced safety, mobility and access for all road users and a “complete streets”

environment to accommodate a variety of transportation modes. A classic Road Diet typically involves converting an existing four-lane, undivided roadway segment to a three-lane segment consisting of two through lanes and a center, two-way left-turn lane. The resulting benefits include a crash reduction of 19 to 47 percent, reduced vehicle speed differential, improved mobility and access by all road users, and integration of the roadway into surrounding uses that results in an enhanced quality of life. A key feature of a Road Diet is that it allows reclaimed space to be allocated for other uses, such as turn lanes, bus lanes, pedestrian refuge islands, bike lanes, sidewalks, raised crosswalks, curb bulb-outs, bus shelters, on-street parking or landscaping.



Road Diet: W. Main Street, Oklahoma City, OK - Before



Road Diet: W. Main Street, Oklahoma City, OK - After

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CHAPTER 2: BICYCLE AND TRAIL PLANNING

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*“She who succeeds in gaining the mastery of the bicycle will gain the mastery of life”
- Susan B Anthony*

CHAPTER 2: BICYCLE AND TRAIL PLANNING

Introduction

Over the last 20 years, great strides have been taken in Oklahoma City to improve the bicycle and trail networks, creating momentum that will lead to even greater progress in the future. This chapter discusses the future of bicycle and trail infrastructure in Oklahoma City, and recommends projects needed to make Oklahoma City a world class place to ride a bike on streets and on trails.

The methodology for developing the bicycle and trail plan was to study current conditions and identify opportunities to build a bicycle and trail network that meets the needs and desires of the community. Planners analyzed the existing bicycle network to determine where people currently ride and determined through technical analysis, steering committee input, and public surveys what portions of the network need improvement. This plan proposes bicycling opportunities for cyclists of all skill levels.

The plan proposes expansion of the existing bicycle network and improvements to current facilities, resulting in more than 100 new or upgraded facilities totaling greater than 300 miles of on- and off-street bicycle facilities. Proposed improvements meet the following goals:

- Connect existing bicycle facilities: Tie existing facilities and close gaps between them.
- Connect people to destinations: Connect residential, shopping, and recreational areas to trails and on-street facilities.
- Create safe cycling experiences: Design facilities with safety as a main priority.
- Create barrier crossings: Cross natural and man-made barriers.

WHY RIDE A BIKE?

People choose to ride a bike when it is faster and more convenient than walking, riding the bus, or driving a car. Additionally, people choose to ride a bike for recreation or exercise. The distance people cycle is dependent on their confidence and experience. Many people will choose to cycle to nearby destinations, such as a school, local park, corner shop, or friend's house. This is especially true when they can get there safely and conveniently. If it is an easy ride, people are more comfortable riding further distances for destinations

such as high schools or colleges, shopping districts, large parks, sports facilities, libraries, and for entertainment such as movies, theaters, restaurants, and bars. Additionally, commuting longer distances to work is attainable when convenient and comfortable facilities are present. One of this plan's goals is to make it possible for Oklahoma City residents to choose to cycle to these destinations.

Figure 2.1 displays the relationship between destinations and cycling distances.

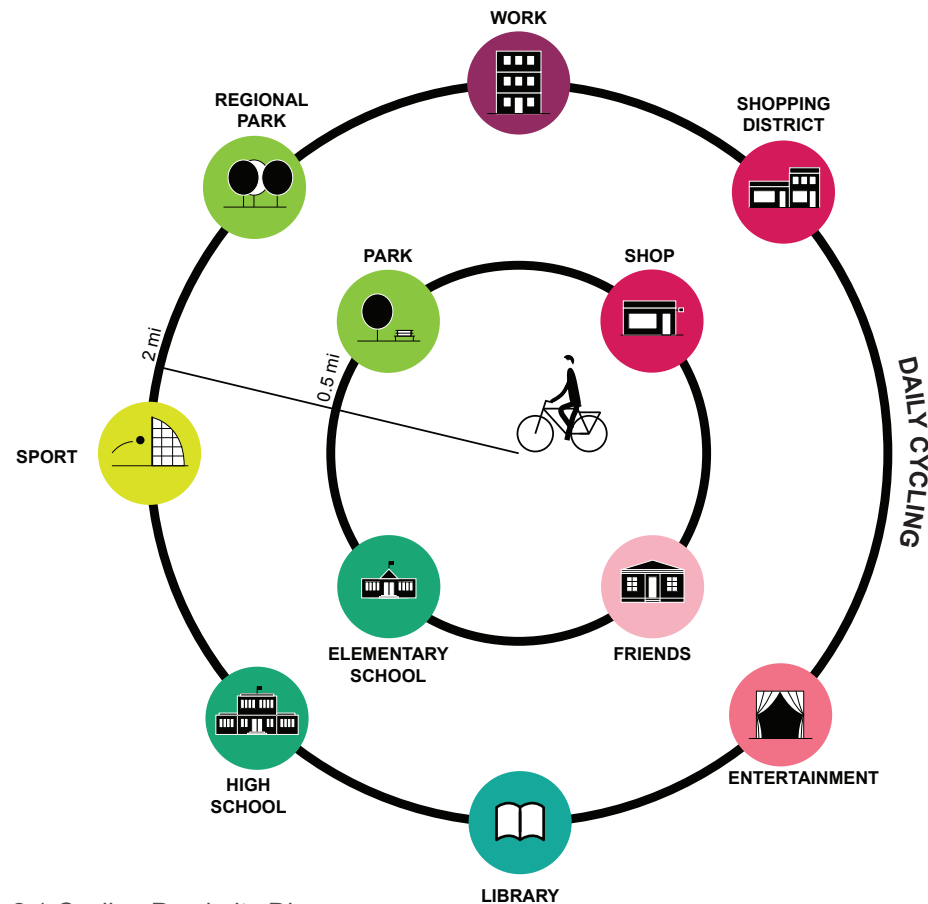


Figure 2.1 Cycling Proximity Diagram

Existing Bicycle and Trail Facilities

Existing bicycle infrastructure within Oklahoma City includes a combination of on-street and off-street facilities. Existing on-street facilities consist of designated bicycle routes and striped bicycle lanes. Bicycle routes typically include signage and sharrow symbols, indicating that cyclists share the travel lane with automobiles. Bicycle lanes provide a dedicated and delineated space for cyclists to ride alongside of automobiles. Existing off-street bicycle facilities include multi-use trails. Map 2.1 shows the locations of these facilities.

Oklahoma City's bicycle infrastructure has been constructed using a variety of funds. These include federal funds, GO Bond funds, and MAPS sales tax funding.

ASSETS AND CHALLENGES

Oklahoma City has many opportunities to improve cycling in the community, as well as several challenges. These assets and challenges are outlined below.

Assets

- Implementation of projects outlined in the 2018 bikewalk**okc** plan has resulted in many good bicycle routes that cyclists use extensively.
- The city's **grid network allows** many options for cycling and reaching destinations.
- **New bicycle parking** areas have been installed in downtown and midtown.
- All fixed-route public transportation **buses are equipped with bicycle racks**.
- The local bike share service, **Spokies™**, converted its fleet to e-bikes and has seen an increase in ridership.
- Cycling is growing in popularity, meaning Oklahoma City **motorists are becoming more accustomed to sharing the road**.
- The City received funding through the

Watch For Me OKC demonstration project to construct protected bike lanes downtown, which will expand the network and provide additional safety for cyclists.

- **The trails network** currently reaches many areas of the city and allows for transportation and recreational cycling, jogging, and walking.
- Currently, over **12 miles of trails** are in the design or construction phases.
- The trail system is well-connected to **existing recreational resources**, and the Parks and Recreation Department is rolling out a new signage and wayfinding package.
- The completion of the Deep Fork Trail will finish the Grand Boulevard **loop around central Oklahoma City**.
- The City's first protected bike lanes have been constructed, including a pilot project for the first parking-protected design.

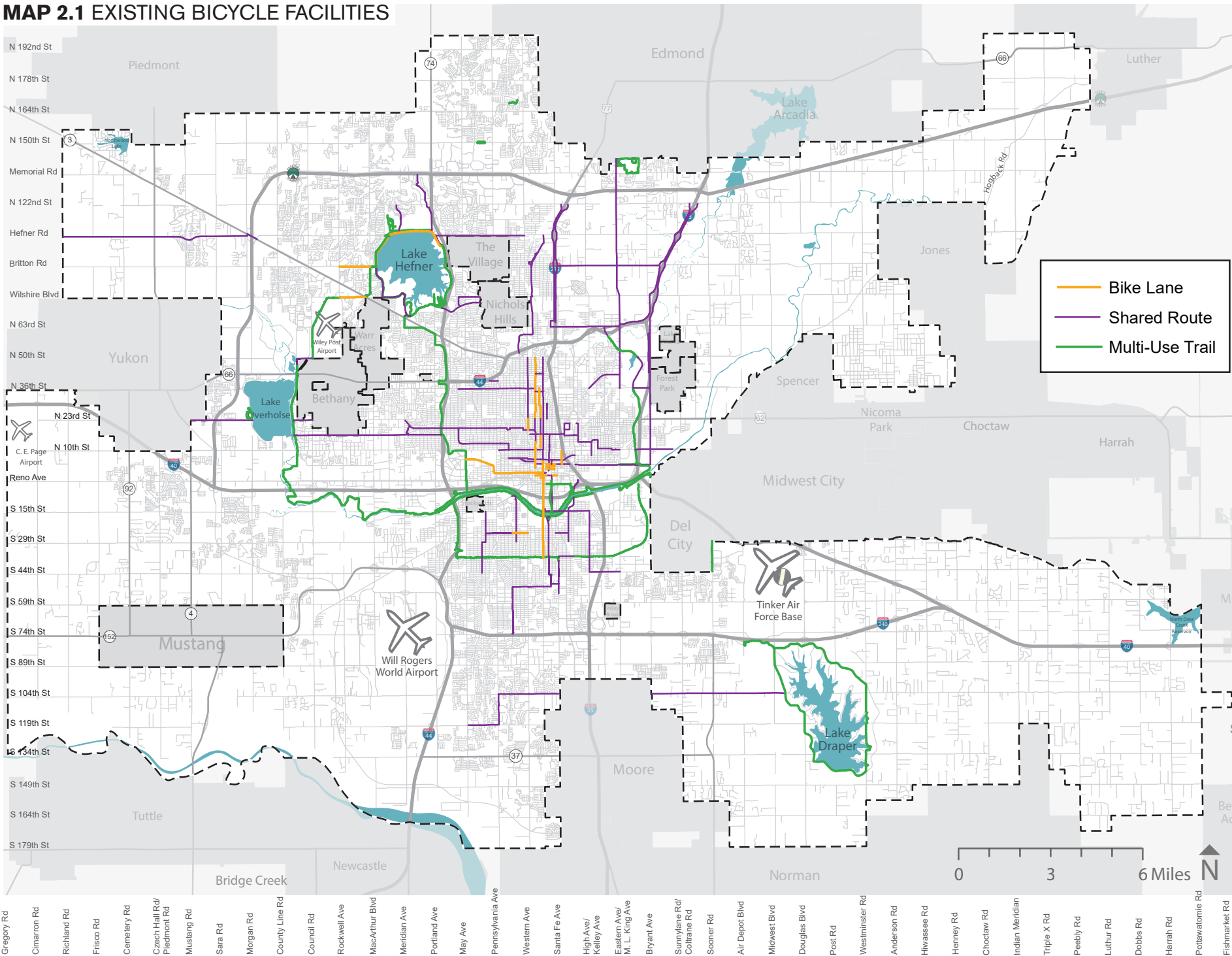
Challenges

- Outside of sign-only designated bike routes, **on-street infrastructure for bicycles is limited**.
- **Less than 1%** of the total street network consists of marked bicycle lanes.
- **Connectivity** within the transportation network drops off outside of the central city, causing cyclists to utilize arterial streets, which are less safe and uncomfortable.
- The **surface condition and debris** on some roadways make it difficult to cycle.
- **Bicycle parking facilities** are limited throughout the city.
- The trail network has **few access points**.
- Limited space on existing streets create conflict between car parking and bike facilities.
- **Only 36%** of Oklahoma City residences are **within one mile of a trail**.

Below: Cyclists using the new protected bicycle lane on S Walker Ave during an Urban Land Institute group ride.



MAP 2.1 EXISTING BICYCLE FACILITIES



Bicycle and Trail Analysis

ROADWAY SUITABILITY

In order to analyze and understand bicycling conditions on every roadway in Oklahoma City, bikewalkokc uses a model that examines and scores every roadway segment. The score provides the existing cycling conditions along those segments. The following sections provide an explanation of each analysis, the results, and the meaningfulness of the results. This type of analysis is a good first step for identifying potential bicycle improvements, but as with all projects, must be followed up by a more extensive analysis for feasibility of construction.

Bicycle Level of Traffic Stress (BLOTS)

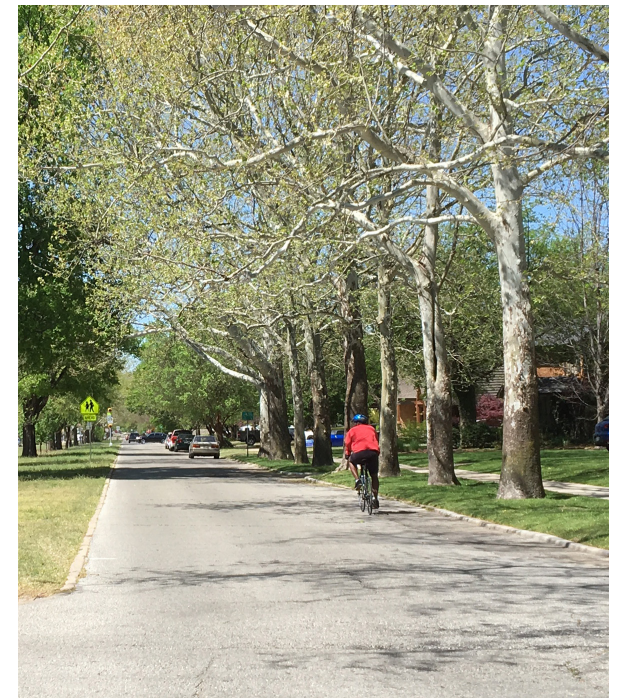
The BLOTS analysis reviews components of cyclists' safety and comfort and provides a score for every roadway. The initial analysis found roadways appropriate for cycling according to model inputs. The model takes into account four variables to produce a composite score for each roadway segment:

1. **Number of Lanes** - The number of vehicular travel lanes impacts safety, comfort, and the ability to turn left onto a connecting street. Roadways with two or fewer lanes received the highest score. The score decreases as the lanes increase, with four or greater lanes receiving the lowest score.
2. **Roadway Speed** - Speed impacts cyclists' safety and comfort. Roadway segments received scores based on speeds ranging from less than 25 MPH to above 45 MPH.
3. **Present Bicycle Facility** - A score was assigned to roadway segments that have an existing bicycle facility. The score is dependent on the type of facility and the level of safety offered. Trails are the safest and thus receive the highest score while bicycle routes receive the lowest score. If no facility was present, then no points were given.
4. **Motor Vehicle Traffic Volume** - Existing traffic volume affects cycling comfort and safety. Higher traffic volume results in lower model results.

Map 2.2 shows BLOTS analysis for Oklahoma City. The map shows the streets as graduated colors from blue to red. Blue represents a road segment that has a low BLOTS score. A low BLOTS score means the segment is potentially safe and comfortable for cycling. A high score means the road segment is uncomfortable and potentially dangerous for cycling. This is a first step for identifying candidate roadways for cycling corridors. Each candidate must be further analyzed and field-verified before determining bicycle suitability.

An additional outcome of this analysis is the identification of barriers for cyclists that arise as a part of street design. Nearly all major arterials in the city limits pose difficulties for cyclists, illuminating a preferred approach to identifying cycling facility locations. A focus on safe crossings of major arterials and highways has been built into the plan. Similarly, avoiding major arterials and selecting parallel streets with lower levels of traffic and speed can largely accomplish the same goals of connectivity, while also reducing costs associated with designing and building bicycle facilities that offer an appropriate level of protection.

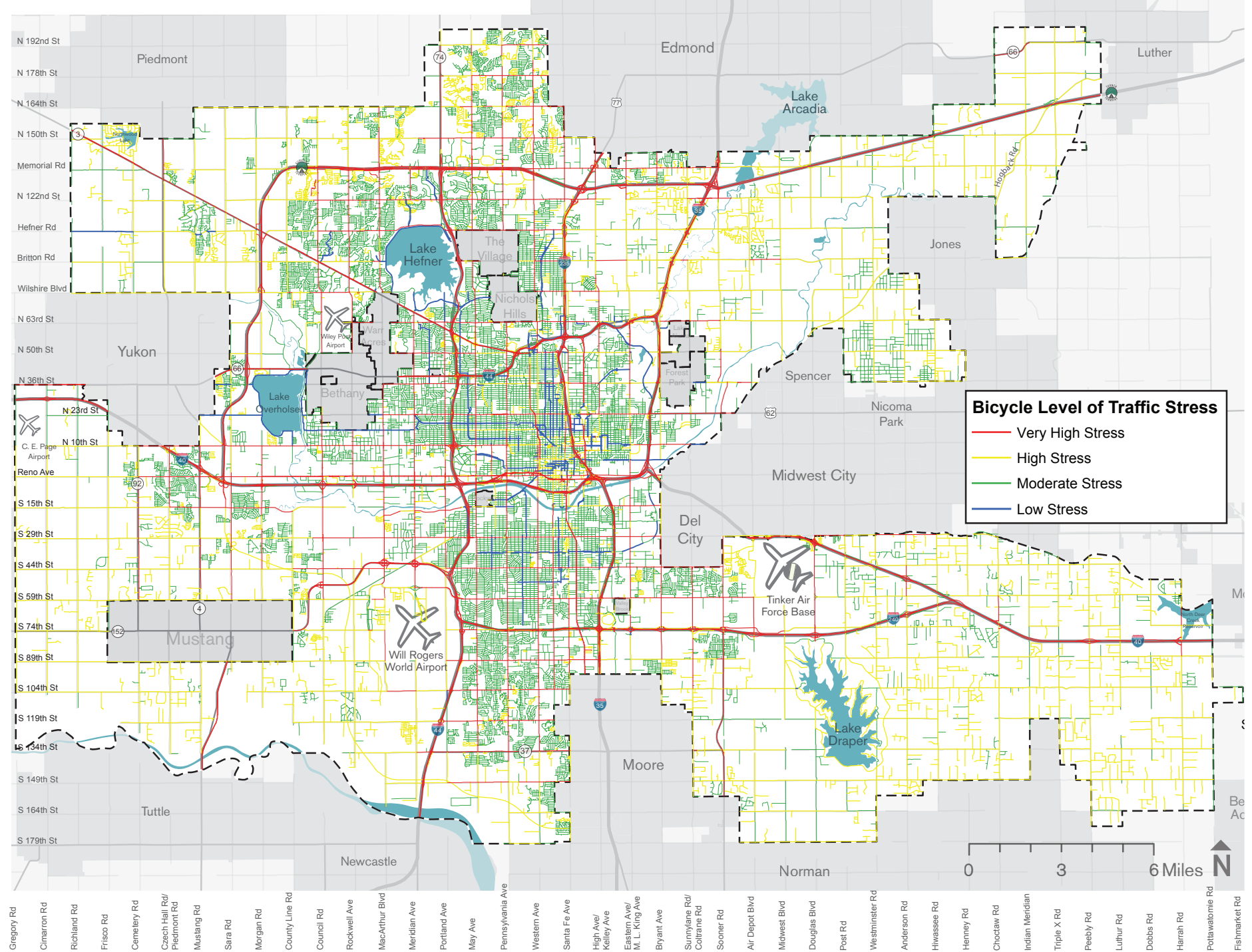
There is a higher concentration of streets that score well in the inner city, especially where the street grid has been well preserved. Former streetcar routes, such as N. Drexel Blvd. and NW 19th St. are well-suited to accommodate bicycling because of their low speeds, low traffic volumes, and the fact that they are currently bicycle routes with signage and sharrows. There are far fewer streets in suburban areas that are presently suitable for bicycling, indicating that improvements will need to be more substantial, and this type of retrofit will cost more.



Top: Low-stress cycling environment.

Bottom: High-stress cycling environment.

MAP 2.2 2018 BICYCLE LEVEL OF STRESS



Excess Roadway Capacity Analysis

One potential limitation of the BLOTS analysis is that it defines streets with excessive number of lanes as high stress. Depending on traffic levels, that excess width can provide prime opportunity for safer designs, reallocating excess space for more comfortable walking and biking. Planners conducted a second analysis called an Excess Roadway Capacity Analysis to identify potential bicycle corridors. This analysis identifies roadways that have more lanes than needed to carry the current volume of daily traffic. These roadways are candidates for lane reconfiguration to a safer, multimodal facility that carries bicycles and pedestrians and provides a turning lane for automobiles. bikewalkokc reviewed roadways with 4+ vehicular lanes and an Average Annual Daily Traffic (AADT) count of less than 16,000 cars per day.

Of particular note in the results of this analysis is the density of streets in the downtown area that have extra capacity. With cycling for transportation being a primarily urban activity, this extra capacity is ripe for conversion to bicycle facilities. These interventions will impact a greater number of residents due to the higher levels of residential density in the inner city.

While AADT is often used to evaluate when a road widening should occur, it is also valuable to look at peak hour traffic data to determine which streets have been designed around a specific time of day. Streets that are below the AADT threshold and below the peak-hour threshold are prime candidates for retrofitting to accommodate bicycle infrastructure. As projects from this plan are funded and enter into engineering and design, this information will be vital in ensuring that the most effective approach to the project is followed. Where there is substantial excess capacity, traffic studies should be less of a priority. The money that would be spent on those studies can be used to improve the facility further, fund a maintenance program, or support any other aspect of the project.

Figure 2.2 Basic Lane Reconfiguration

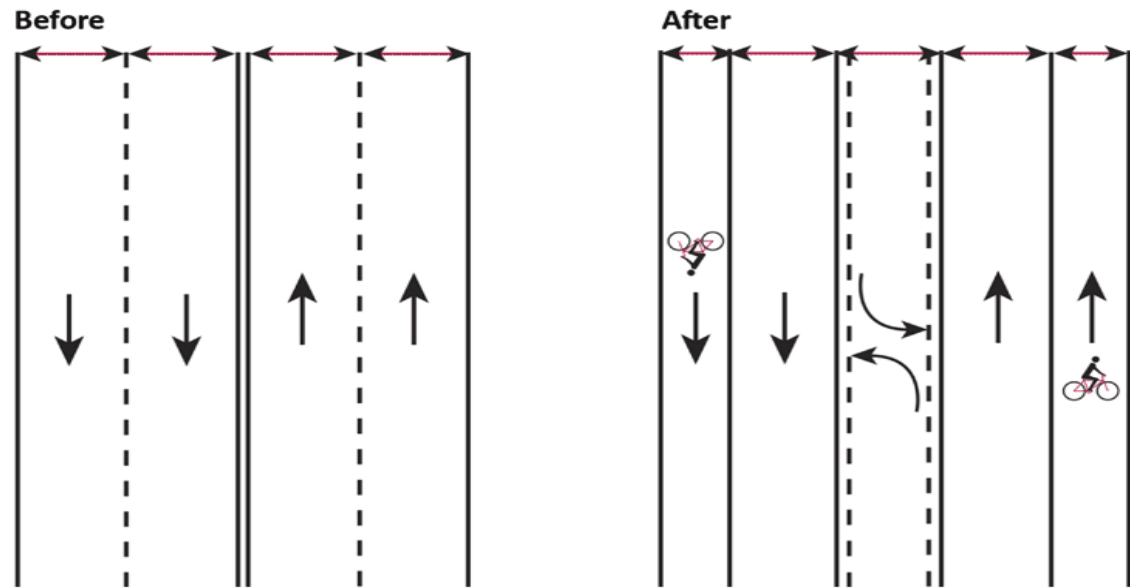
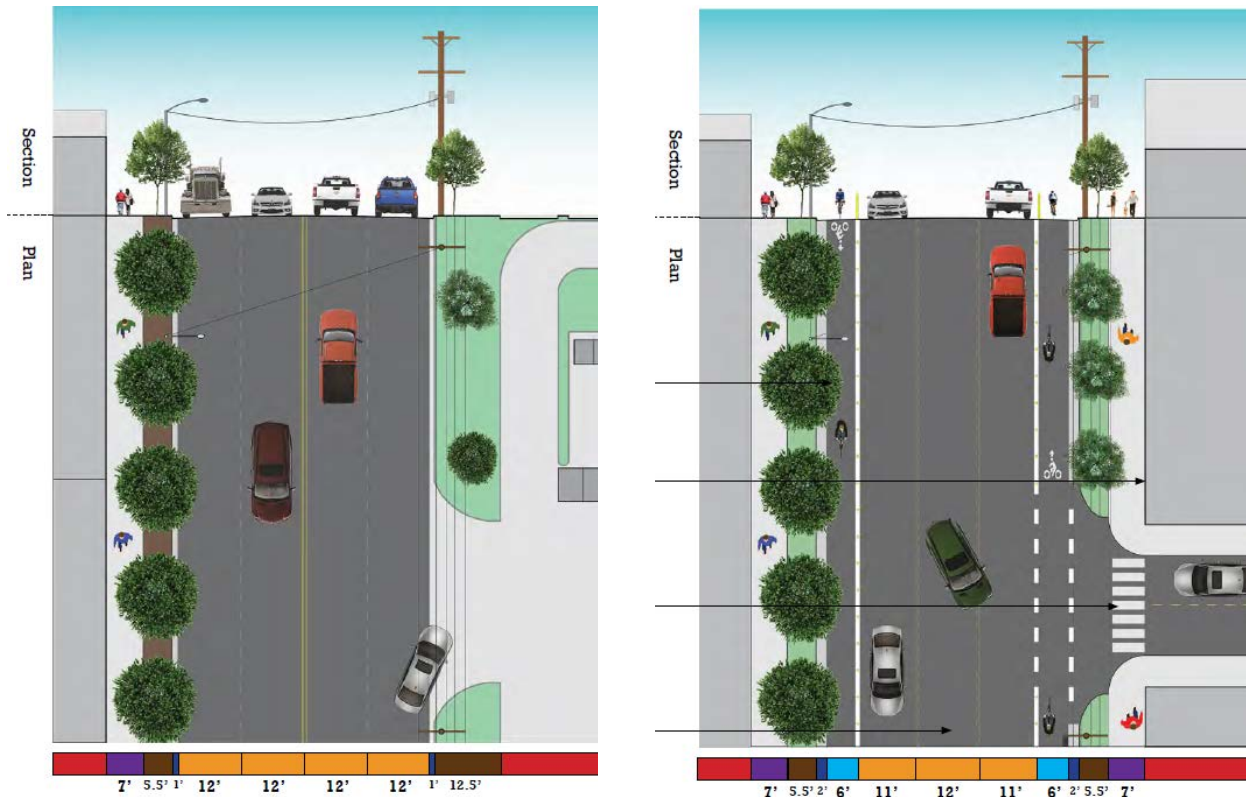


Figure 2.3 Lane Reconfiguration Cross-Section



Below: N Western Ave between NW 18th St and NW 23rd St in 2014 as a four-lane road.



Below: N. Western Ave. between NW 23rd St. and NW 18th St. during reconstruction to reduce lanes, add bicycle facilities, add a median, and add other pedestrian safety features such as lighting, curb ramps, and refuge islands.



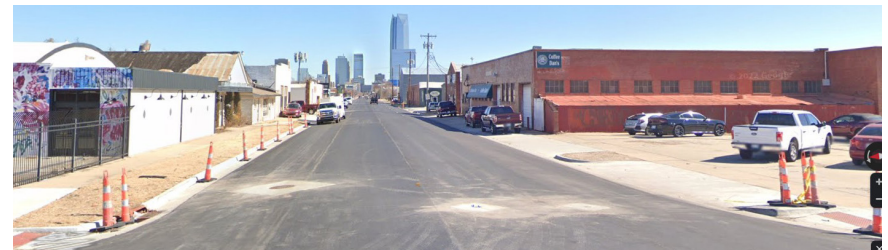
Below: N. Western Ave. and NW 19th St. after the reconstruction.



LESSON LEARNED: BIKE LANES VS. PARKING

The Issue: Most of the on-street bike facilities built since the adoption of bikewalkokc were implemented by reducing the amount of lanes on streets. Sometimes, the repurposing of outside automotive lanes into bike lanes has come at the cost of reducing the amount of on-street parking. This reduction is often necessary when the street's striping is updated to meet current standards, such as being set back a minimum distance from each driveway. However, the process of working with adjacent property owners to configure parking in a way that minimizes disruption has been very time-consuming for recent projects.

The Lesson: To maximize efficiency, staff should prioritize exploring the possibility of parking reconfiguration and the process of working with adjacent property owners to reconfigure parking should occur simultaneously with the design process to mitigate potential delays before construction.

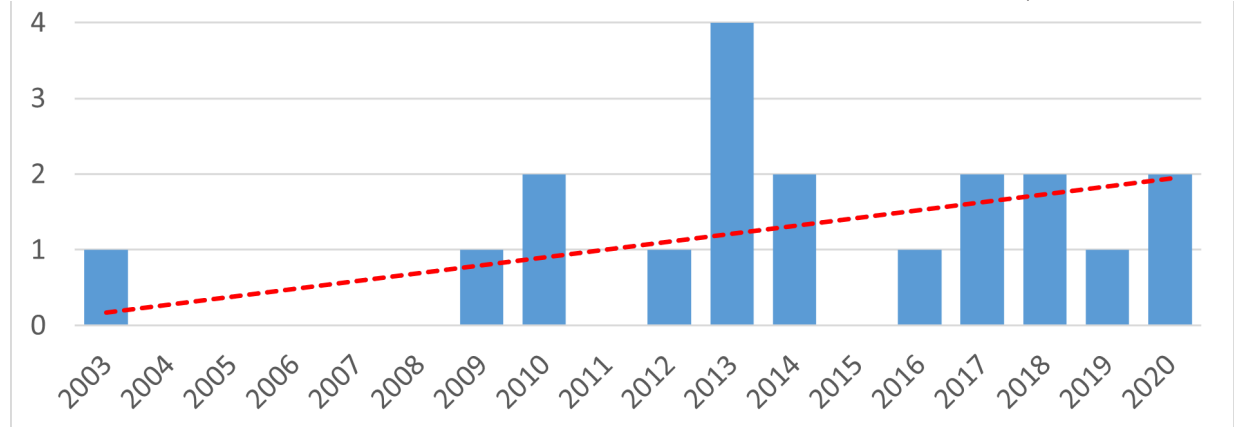


COLLISIONS ANALYSIS

The dangers of sharing the road with automobiles is one of the most common reasons given as to why people do not bicycle for transportation. Table 2.1 shows when the bicycle-automobile collisions occurred in the last 18 years based on the month of the year and the time of day. January is the month with the fewest collisions on average, while September has the highest average number. Collision rates are noticeably higher in the warmer months, particularly between April and October. This is most certainly due to the fact that cycling in the cold winter months can be very unpleasant, so fewer cyclists are on the streets. There is a noticeable trend of collisions occurring between the hours of 2:00pm and 7:00pm, which could be due to children or adults bicycling for recreation after school or work, or potentially cyclists getting hit on their commute home. There is less of a trend of cyclists being hit after sunset, which is a significant issue with pedestrians. This could be due to the fact that cyclists are required by law to have lights on their bicycle to indicate to drivers that they are present.

One key takeaway shown in Map 2.3 is that the density of collision occurrences, while a significant concern, is not necessarily tied to the locations of fatal collisions. Fatal bike and pedestrian crashes are almost exclusively attributed to high-speed arterial streets throughout the city, and many have occurred where the density of

FIGURE 2.4 FATAL BICYCLE COLLISIONS IN OKC PER 100,000 PEOPLE



documented collisions is not high. This indicates that when collisions occur on major arterial streets, the results are much more likely to be fatal than other streets. In addition to updating the maps in bikewalkokc, Planning staff felt it was important to illustrate this data set over the same time period. While total collisions per capita appear to be slightly growing over time, the more striking pattern is that pedestrian and bicycle fatalities per capita have been growing significantly over the almost two decades of reporting (Figure 2.4).

In addition to constructing dedicated infrastructure for cyclists, safety campaigns to educate drivers and cyclists alike about safe habits for sharing the road could be

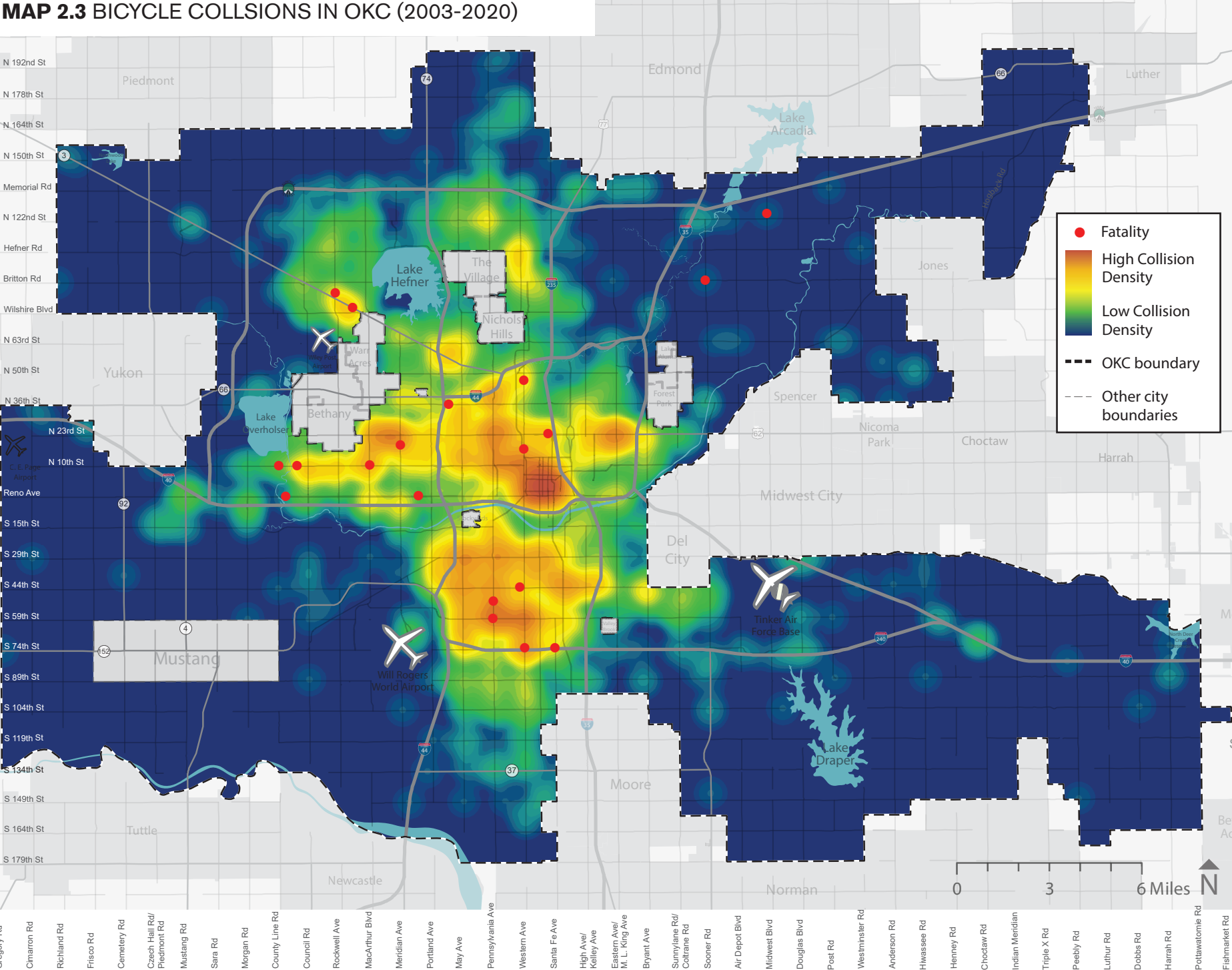
conducted during the summer months. Key locations with multiple collisions that need intervention include:

- NE 23rd St and Martin Luther King Ave
- E Reno Ave and Martin Luther King Ave
- SW 59th and Pennsylvania Ave
- SW 44th and Western Ave
- I-240 from Western Ave to Shields Blvd
- NW Expressway from Wilshire to Britton
- NW 10th St and County Line Rd
- NW 23rd St and N Pennsylvania Ave
- W Reno Ave from Meridian to MacArthur

Table 2.1 - Bicycle Collisions by Month by Hour of the Day 2003-2020

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
January	0	0	1	0	1	0	2	2	1	1	1	1	4	2	2	3	5	5	5	5	1	3	2	0
February	2	0	1	0	0	0	1	1	1	2	1	3	2	3	3	2	6	7	6	3	2	1	2	0
March	2	0	2	1	0	1	1	1	3	1	2	2	2	1	6	6	5	10	3	6	1	6	3	1
April	4	0	0	0	0	0	1	2	2	1	2	2	3	9	5	12	4	9	14	9	10	3	9	2
May	5	1	1	1	0	0	1	1	1	1	3	1	10	9	11	6	6	10	14	5	3	6	5	3
June	0	2	1	0	0	1	0	2	1	1	6	3	5	6	14	3	8	6	12	11	7	8	7	3
July	3	0	1	1	0	1	0	3	4	2	2	4	5	5	8	2	7	6	14	9	7	14	7	4
August	3	1	3	0	0	1	3	3	3	2	2	6	4	4	10	5	7	14	14	14	7	8	5	5
September	3	1	1	0	1	3	2	4	11	7	4	2	7	5	10	7	14	9	13	7	9	4	2	0
October	2	0	2	1	1	5	3	3	6	2	4	1	3	2	5	4	15	13	6	15	10	9	6	1
November	1	1	0	0	0	1	2	1	2	0	3	4	4	2	3	7	11	15	7	3	7	2	3	1
December	0	0	0	0	0	0	0	2	1	0	2	4	4	3	3	5	5	3	6	6	1	2	3	0
Grand Total	25	6	13	4	3	13	16	25	36	20	32	33	53	51	80	62	93	107	114	93	65	66	54	20

MAP 2.3 BICYCLE COLLISIONS IN OKC (2003-2020)



Facility Type Selection

Choosing the correct facility for bicycle infrastructure depends on many different criteria. Consideration of the interaction with motor vehicles with regard to traffic volume and speed should determine the level of protection required for safe and comfortable cycling. Additionally, costs associated with the implementation of any proposed project are a major limiting factor. Therefore, cost efficiency is crucial. Taking advantage of existing roadway capacity and choosing improvements that are affordable ensures that the available money is spent efficiently, effectively, and responsibly, and improves cycling in Oklahoma City as much as possible.

The City uses four featured types of bike facilities, which are further detailed on pages 45-49:

- Tier 1 - Protected Bike Lane, Multi-use Trail
- Tier 2 - Bike lane
- Tier 3 - Shared Route, Road Shoulder

FACILITY SELECTION PROCESS

The following graphics illustrate the methodology for selecting an appropriate bicycle facility for a given road. These tables indicate the **minimum** standard for safety and comfort. Any facility that offers a higher level of security for cyclists is appropriate, but often cost prohibitive.

This approach expands upon the approach taken by the Association for Central Oklahoma Governments' (ACOG) standards for bicycle facility selection, which focuses on the stress level for cyclists. The ACOG standard determines the appropriate facility based on traffic volume and speed. This criteria is utilized to rank bicycle projects for federal funding eligibility; therefore, ensuring that Oklahoma City uses the same standard will lead to greater performance in the application for federal funds in the future.

The bikewalk**okc** approach takes into account existing curb-to-curb width. Many of the streets in Oklahoma City do not have enough capacity to accomodate bike lanes without widening the street, which is cost

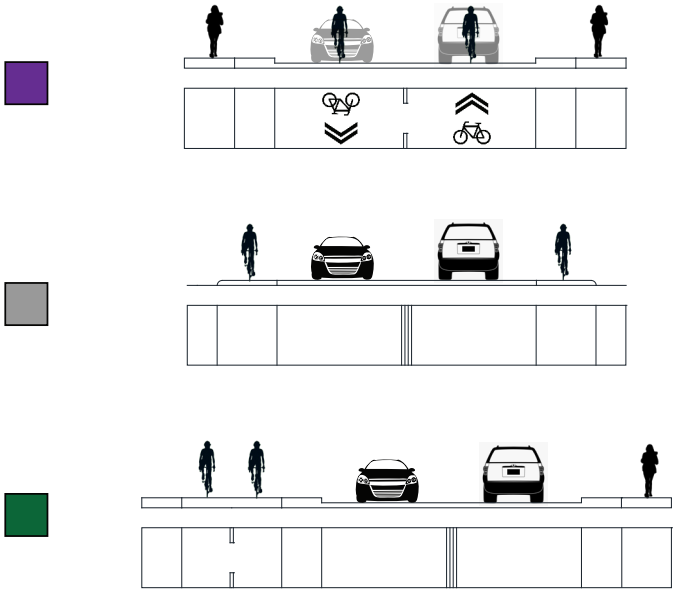
prohibitive; therefore, the following graphics are broken into three categories based on available curb-to-curb width that could be converted to serve the needs of bicyclists.

In order to choose an appropriate facility for a street, planners, engineers, project managers, and any other decision-makers involved in the process should first determine how much curb-to-curb width exists. This will point to one of the three adjacent tables. Then, based on the curb-to-curb width of the road, the traffic volume and speed will lead to a facility type for that street. At this point it can be determined if the relative cost per mile for the facility is prohibitive, potentially leading decision-makers to consider alternative routes, or to seek additional funding.

< 32' Curb to Curb

SPEED	VOLUME		
	< 2000	2000 - 10000	> 10000
< 30 mph	Shared Route	Shared Route	Off-street Trail
30-40 mph	Shoulder / Traffic Calmed	Shoulder / Traffic Calmed	Off-street Trail
40-50 mph	Shoulder / Traffic Calmed	Off-street Trail	Off-street Trail
> 50 mph	Off-street Trail	Off-street Trail	Off-street Trail

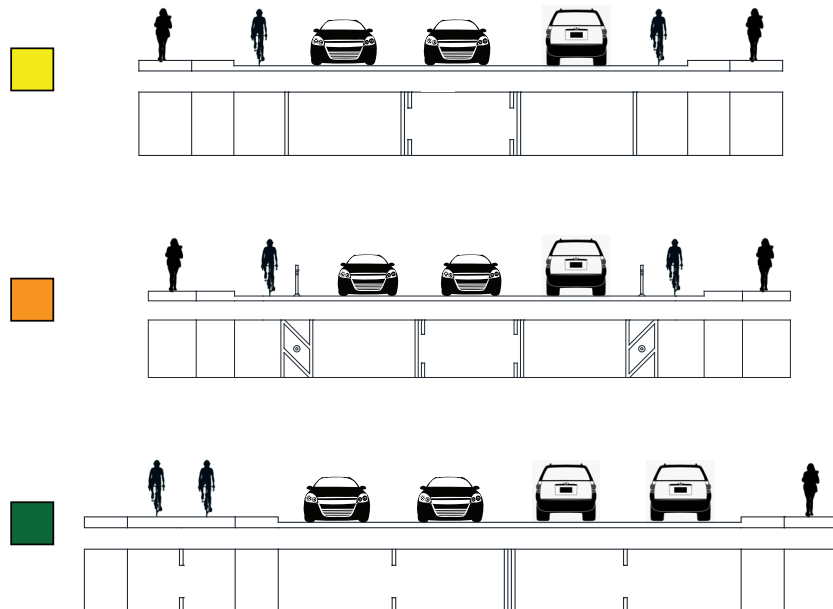
Cross-section Options



32' < x < 45' Curb to Curb

SPEED	VOLUME			
		< 2000	2000 - 10000	> 10000
< 30 mph		Yellow	Yellow	Orange
30-40 mph		Yellow	Orange	Orange
40-50 mph		Orange	Green	Green
> 50 mph		Green	Green	Green

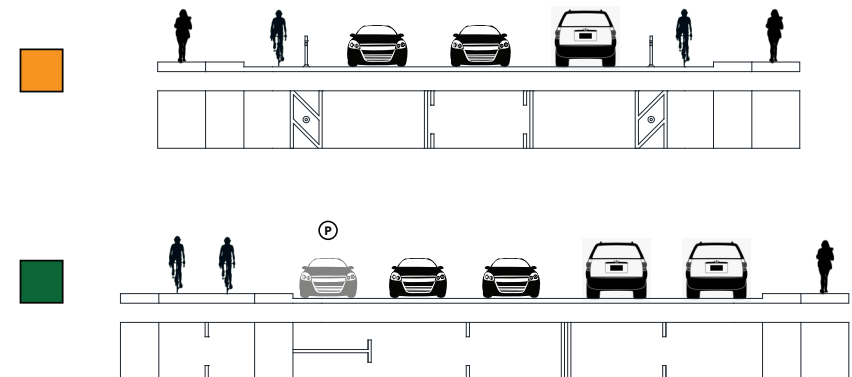
Cross-section Options



> 45' Curb to Curb

SPEED	VOLUME			
		< 2000	2000 - 10000	> 10000
< 30 mph		Orange	Orange	Orange
30-40 mph		Orange	Orange	Orange
40-50 mph		Orange	Green	Green
> 50 mph		Green	Green	Green

Cross-section Options



Bicycle and Trail Plan

bikewalkokc's bicycle plan consists of several approaches to long-range capital improvement planning that will lead to a complete, connected, and coherent network of bicycle facilities that meet the transportation and recreation needs of the residents of Oklahoma City. These approaches are individually organized into "Component Plans", each of which is described in the following sections. Map 2.4 is an overview map of these component plans.

GRAND BOULEVARD LOOP

The Grand Boulevard bicycle and pedestrian loop that wraps around the central city is nearly complete. Sections of this loop need to be completed or enhanced, so that cyclists have a seamless path that encompasses the city. A facility of this length is a rare asset for a city to have, and should be celebrated for what it provides, as well as what it could mean for future growth of the city. Completion of the loop could leverage investment already made along major portions of the alignment and spark development/redevelopment opportunities. In addition, completion of this loop could create a nationally-recognized facility comparable to the Beltline project in Atlanta, GA.

Plan Overview: Pages 36-37

CROSTOWN CONNECTIONS

Oklahoma City has an extremely large land area, currently only traversable from edge to edge by automobile. The main focus of crosstown connections are to provide safe bicycle facilities that traverses the city north, south, east, and west. This project provides the opportunity to create recognizable bicycle "spines" in the city that people know and understand.

Plan Overview: Pages 38-39

NEIGHBORHOOD GREENWAYS

In areas of the city where there is insufficient capacity on existing roadways to convert space to bicycle infrastructure, it is necessary to find alternative alignments to accommodate safe travel by cyclists. This is especially crucial in those areas where connectivity between neighborhoods is sparse, and traffic is concentrated almost exclusively along major arterials. Where vegetative or riparian corridors exist, there are opportunities for greenway trails. The neighborhood greenways plan identifies preferred locations for these facilities, ensuring that each is connected to the citywide bicycle and trails network.

Plan Overview: Page 40

REGIONAL TRAILS

Multi-use trails have regional significance, as they are typically several miles long and often tie into surrounding cities' bicycle and trail networks. These regional trails are designed for long-distance cycling and jogging and provide benefits to multiple areas of the city. Recently built or funded regional trails include the West River Trail, Draper Trail, and Will Rogers Trail.

Plan Overview: Pages 41

BICYCLE AND PEDESTRIAN BRIDGES

One of the primary limiting factors to cycling as a transportation option in Oklahoma City is the inability to cross major barriers such as interstates, bodies of water, railroads, and major arterial streets. In some cases there is no way to re-design a street to safely accommodate all modes without degrading one or more modes in the process. The bicycle and pedestrian plan addresses this condition by identifying those locations where there is no safe alternative to the construction of a bicycle and pedestrian bridge. These bridges also present an opportunity to create iconic structures across our interstates that send a message about the importance of walking and cycling to this community.

Plan Overview: Page 44

MICROMOBILITY RIDESHARE

Micromobility is defined as the use of shared-use fleets of small, fully or partially human-powered vehicles such as bikes, e-bikes and e-scooters. These vehicles are generally rented through a mobile app or kiosk, are picked up and dropped off in the public right-of-way, and are meant for short point-to-point trips. The rapid growth in the number of shared micromobility trips and the introduction of e-scooters has required cities to focus new attention on how best to regulate these new services in order to achieve the best public outcomes. This component plan recommends ways the City can accommodate and manage micromobility systems.

Plan Overview: Page 45

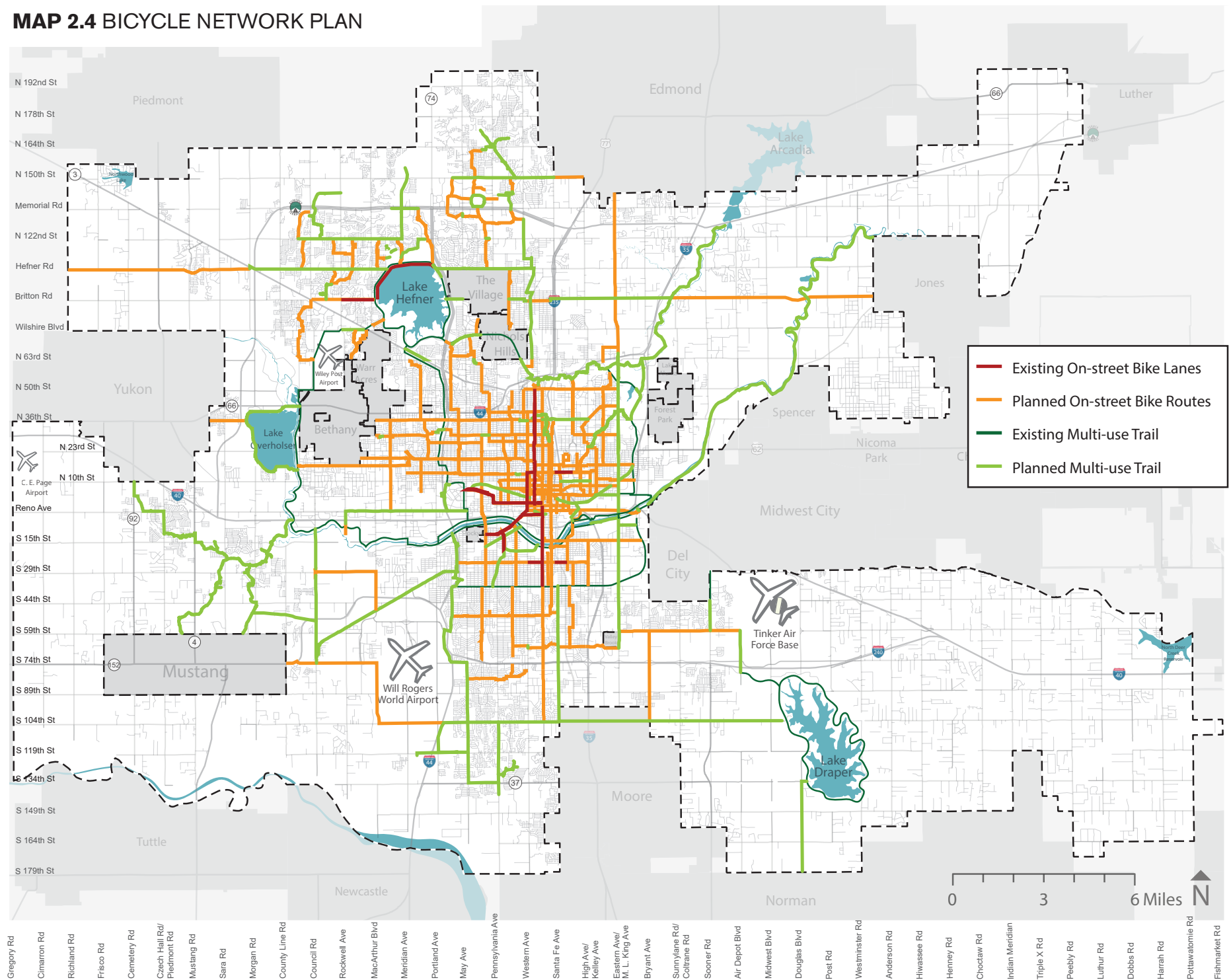
CITYWIDE BICYCLE NETWORK

While the preceding component plans will have far-reaching implications for walking and cycling in Oklahoma City, there is still a need to ensure that there is a well-connected and safe network of bicycle facilities throughout the city. A citywide bicycle network is essential in ensuring that there is an equitable distribution of access for all residents who may want or need to use a bicycle to accomplish their personal goals, health and wellness, and economic mobility.

Plan Overview: Pages 46-51

"Every time I see an adult on a bicycle, I no longer despair for the future of the human race."
- H.G. Wells

MAP 2.4 BICYCLE NETWORK PLAN



COMPONENT PLAN: Grand Boulevard Loop

CONNECTS:

66,000 Residents

TO:

35 Parks

17 Schools

170 Transit Stops

MAJOR DESTINATIONS

The completion of the Grand Boulevard Loop connects multiple destinations. These destinations include the following:

- Will Rogers Park
- Lake Hefner
- Oklahoma River
- State Fair Park
- Woodson Park
- Trosper Park
- Lincoln Park

HOW DO WE BUILD THIS?

The completion of the Grand Blvd Loop requires the construction of several smaller but significant subprojects.

- Deep Fork Trail
- Bridge over Oklahoma River
- Bridge over I-35
- Existing S. Grand Blvd Trail Improvements
- Amenitize the trail with water fountains, restrooms, trees, and more.

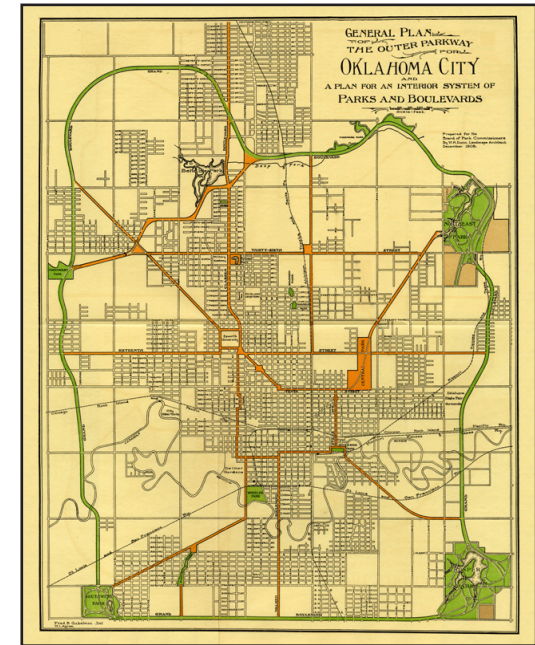


Concept rendering of Grand Boulevard Loop.

DESCRIPTION

Completing the Grand Boulevard Loop will result in a seamless beltline of trails around central Oklahoma City. This trail will enhance residents' quality of life by connecting neighborhoods to other parts of the city. Additionally, this asset will make it easy for residents to choose an active lifestyle.

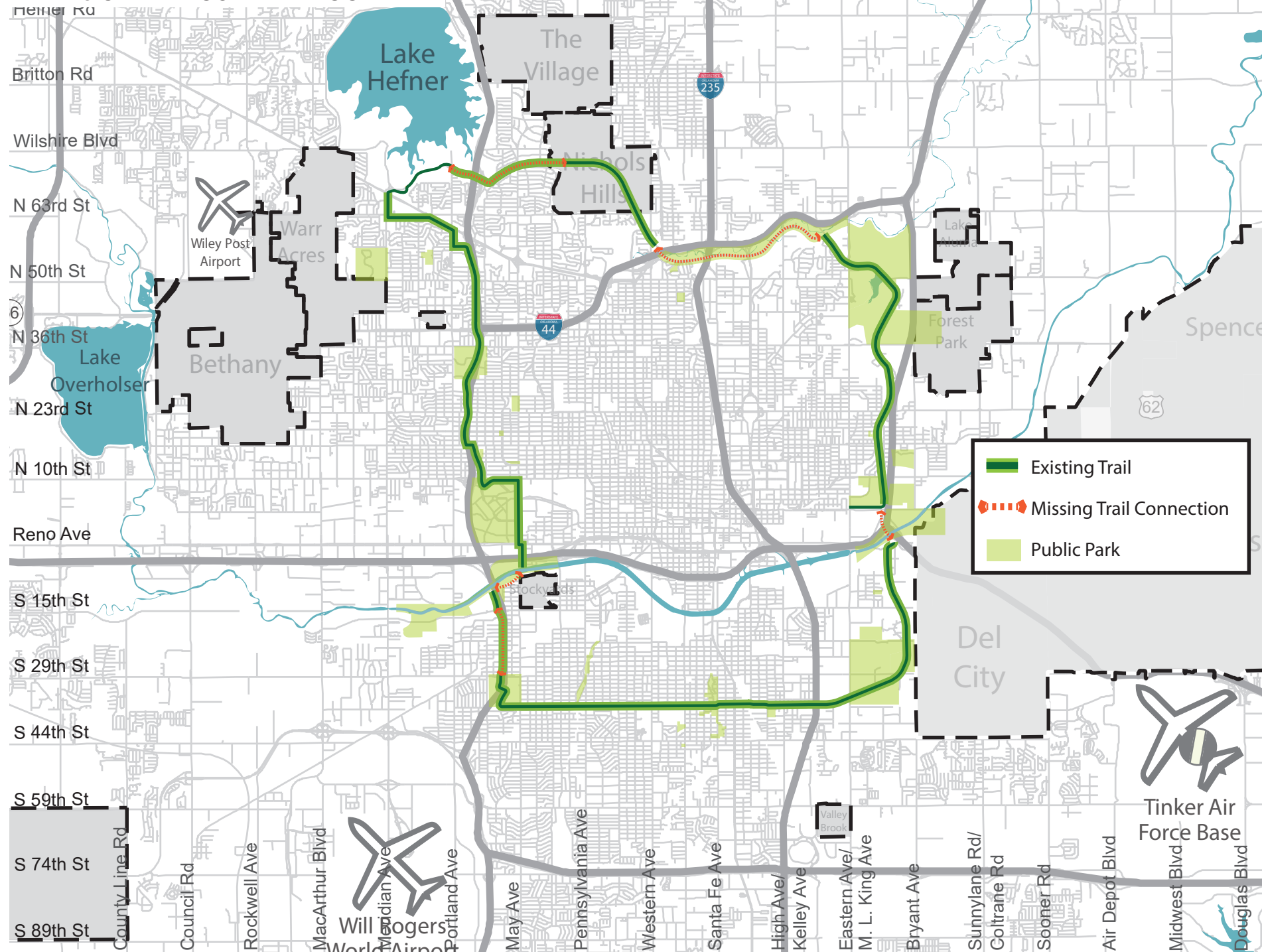
The original 1910 plan for Grand Blvd was to serve as a beltline for the city and connect several regional parks. When the interstate highway system was constructed, much of the Grand Boulevard alignment was utilized. While improving automobile-based transportation, this was detrimental to other modes. The proposed completion of the Grand Blvd Loop will restore the alignment to its original intent by connecting people to recreational opportunities.



Historic Map of Grand Boulevard and central OKC.

The completion of this project will give about 66,000 residents easy access to a world-class recreational and commuter facility. Additionally, the project connects 28 neighborhood parks, 7 regional parks, and 17 schools. From a broader transportation perspective, this project is impactful by connecting to 170 bus stops. The completion and enhancement of the trail could be a tourist attraction that enhances the experience visitors have when visiting the community. This project bears similarities to the ongoing initiative in Atlanta, GA - the Beltline - which set out to create an active transportation corridor around Atlanta to spur affordable housing and other development.

MAP 2.5 GRAND BOULEVARD LOOP



COMPONENT PLAN: Crosstown Connections

CONNECTS:

110,000 Residents

TO:

57 Parks

39 Schools

457 Transit Stops

DESTINATIONS

The construction of crosstown connections provides access to multiple destinations across the city. These destinations include the following and more:

- Downtown
- Asian District
- Capitol Hill District
- Lake Overholser
- Grand Boulevard Loop
- Deep Fork Creek
- Katy Trail

HOW DO WE BUILD THIS?

This project will require the construction or improvement of safe bicycle facilities north, south, east, and west across major barriers. There are several potential alignments in each direction that may be appropriate based on other factors. This flexibility will allow for the strongest possible product that, in concert with the completion of the Grand Boulevard Loop, will form the skeleton of the greater bicycle network in Oklahoma City.

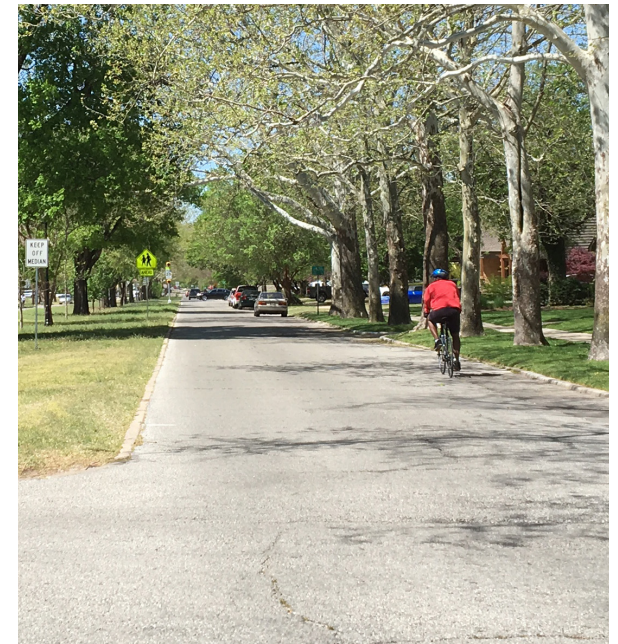


Concept rendering of Crosstown Connections.

DESCRIPTION

This component plan calls for specific improvements on existing roads across the city to create two perpendicular crosstown corridors for cycling. The goal of these corridors is to connect people to a variety of daily or weekly destinations. Facility design along these corridors will be to the highest feasible safety level to ensure that riders of all types are comfortable using bicycling for transportation. Being able to choose to cycle to a park, school, shop, restaurant, coffee shop, church or regional recreation area will respond to the public input received from countless residents of Oklahoma City.

One leg of this project runs from north to south, and the other runs east to west through the most dense neighborhoods in Oklahoma City. Additionally, these corridors pass through some of the most visited commercial districts.

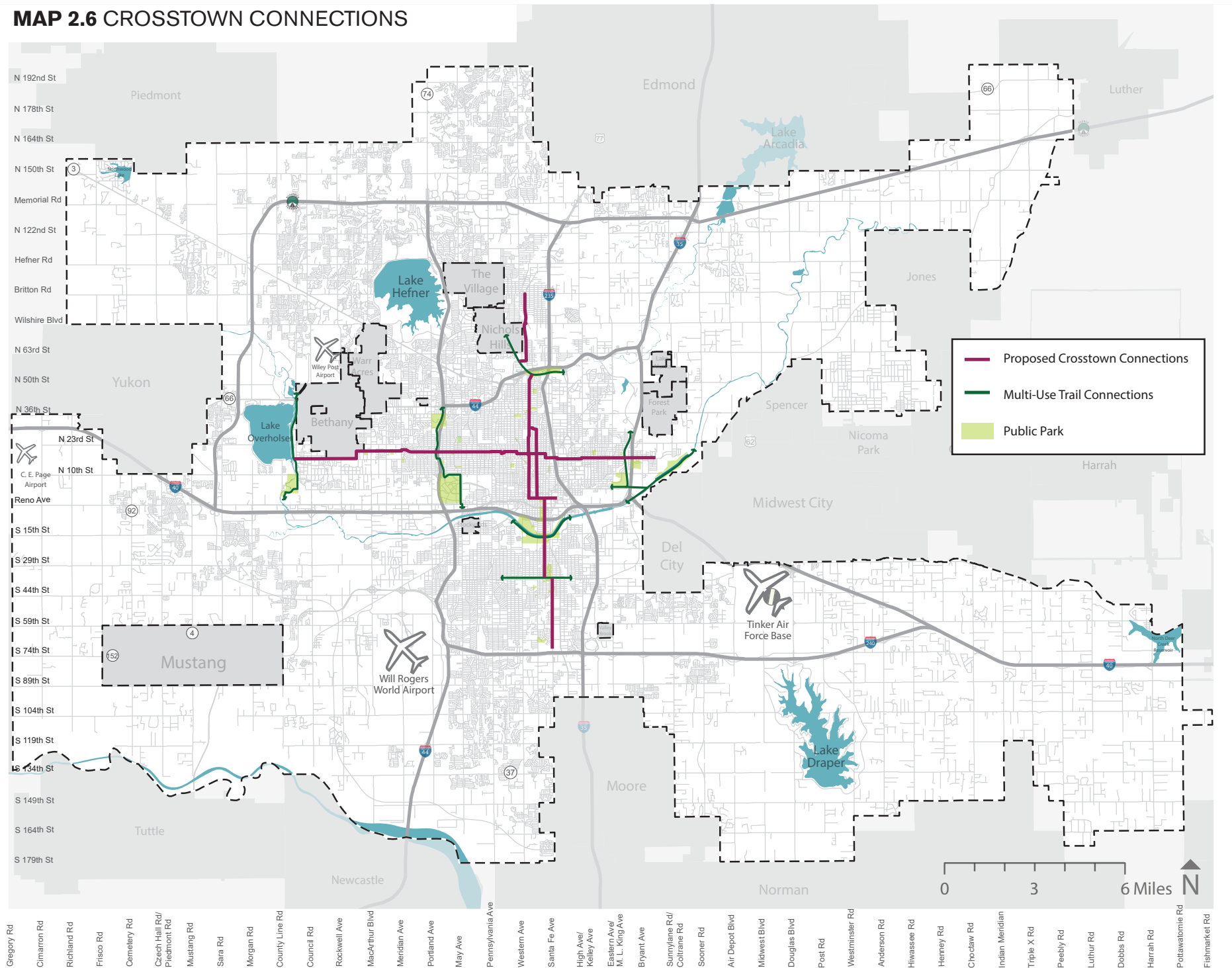


View of cyclist on NW 19th St.

The north-south crosstown connection runs from the historic main street of Britton Town in the north to I-240 in the south. The corridor follows stretches of far north N. Classen Blvd., N. Shartel Ave. and S. Robinson Ave., and S. Santa Fe Ave. Presently, most of these connections are cyclable and/or designated as bike routes. This project aims to improve the corridors by adding designated bicycle lanes and implementing traffic calming elements to draw more riders of all confidence levels.

The east-west crosstown connection runs from Lake Overholser Park in the west and follows NW 16th St. to NW 19th St. to NW 18th St. and back to NW 16th St. as it works its way east. This corridor provides an important alignment for recreation and transportation and is adjacent to thousands of households.

MAP 2.6 CROSTOWN CONNECTIONS



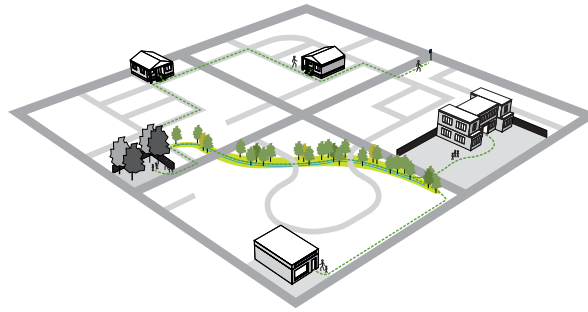
COMPONENT PLAN: Neighborhood Greenways

DESTINATIONS

The construction of neighborhood greenway trails provides access to schools, parks, regional trails, and commercial areas. These facilities provide an active transportation option to residents in suburban locations.

HOW DO WE BUILD THIS?

The construction of Neighborhood Greenways will require trail construction during the development of new neighborhoods. Additionally, floodplains and other greenways through existing neighborhoods can be utilized by the neighborhood greenway network.

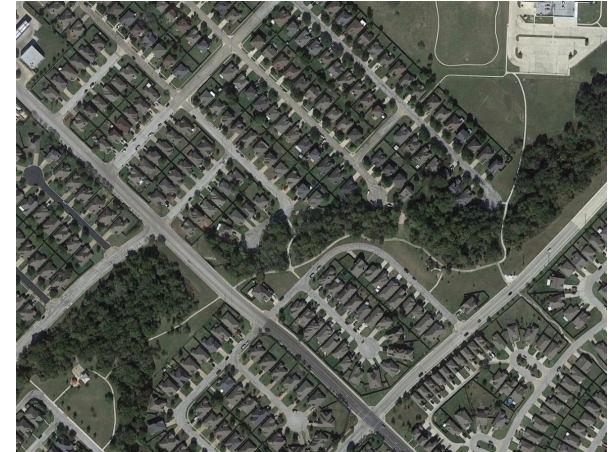


Above: Neighborhood trail connection concepts.

DESCRIPTION

This component plan proposes several neighborhood greenways to provide off-street bicycle or pedestrian paths from residential areas to schools, parks, libraries, and commercial areas. Many of these greenways could utilize undevelopable floodplains, drainage channels, or other easements. A large portion of Oklahoma City's residential development is suburban in style with neighborhood access taken directly off of a major or minor arterial. This makes accessing the nearest school, park, or commercial area by any mode other than an automobile potentially difficult or dangerous. The Neighborhood Greenways component plan can be applied to existing neighborhoods, where retrofitting would be required, as well as within future subdivisions, where the greenways can be designed into the project in the beginning of the planning process as an acceptable form of open space.

What differentiates the neighborhood greenways from other multi-use trails is both the design standards and intended purpose. Where non-greenway multi-use trails are 10' to 12' in width with a wide clear zone



Above: Example neighborhood greenway connecting a neighborhood, park, and school.

that facilitates high-speed cycling, the concept for neighborhood greenways differs. The design standards call for a facility that is 8'-10' in width with a narrower clear zone; this is intended to control cycling speeds so that the facility is safe for residents of all ages to access. Additionally, the narrower clear zone will make the greenways feel more incorporated into the natural features that surround it.

COMPONENT PLAN: Regional Trails

DESTINATIONS

Many of the smaller municipalities in the metro area, as well as many major recreational assets, create natural endpoints along Oklahoma City's recreational trail network. Some of these include:

- Mustang, Edmond, Moore, Del City, Spencer, Jones, Yukon
- Lake Stanley Draper
- Lake Overholser
- Lake Arcadia

HOW DO WE BUILD THIS?

The construction of Regional Recreation Trails builds off of the existing trail network. The trails identified to complete this project include the following:

- Adventure Trail
- Scissortail Trail
- S. May Ave. Trail
- Wildhorse Trail
- 104 Trail
- Lake Overholser Trail



Above: Recreational trails offer a chance to escape to nature.

DESCRIPTION

Multi-Use trails have been a popular attraction over the last 20 years in Oklahoma City. Trails constructed since 1997 have created a strong foundation for moving forward into the next phase of recreational and transportation trails. This plan proposes the addition of 168 miles of multi-use trails to the current trail network. These trails include connection to the neighboring communities of Edmond, Moore, Mustang, Yukon, Spencer, Jones, and Del City. Multi-use trails will provide safe facilities along streets such as S. May Ave. and S. 104th St. These are locations with limited bicycling opportunities; however, they serve as important connections to the overall bicycle and trail network.

- The Adventure Trail connects the Katy Trail to Lake Arcadia, where the City of Edmond is constructing a lake trail.
- The Scissortail Trail is an extension of the



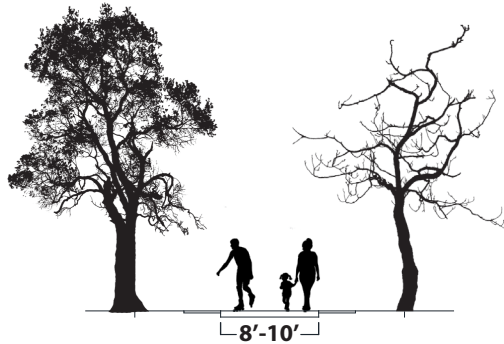
Above: Picture of the Katy Trail at dusk.

Oklahoma River Trail. Cyclists can ride northeast and connect to another bicycle facility on E. Hefner Rd.

- The S. May Ave. Trail connects the Will Rogers Trail near the Oklahoma State Fairgrounds south along May Ave. to the Oklahoma City Community College and thousands of residents that live along the corridor.
- The Wild Horse Trail connects the West River Trail to Mustang.
- The 104 Trail connects Earlywine Park to Lake Stanley Draper along SW. and SE 104th St.

Trail Types

NEIGHBORHOOD GREENWAY

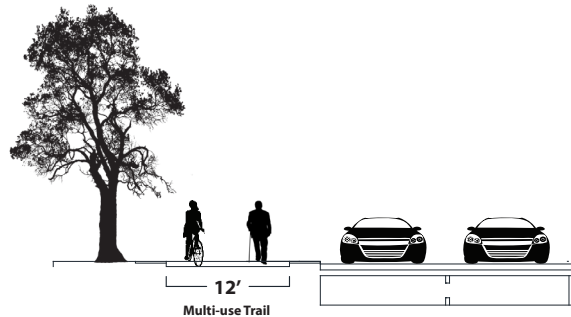


Neighborhood Greenways are intended to use existing greenspace, like riparian corridors or railroad easements, to connect residents to schools, parks, and other local destinations. A width of 8'-10' is sufficient, since the intended user should be traveling at slower speeds than on regional trails. Speed limitations on cyclists are appropriate to maintain a family-friendly experience. These facilities will also serve as neighborhood amenities and recreational opportunities for Oklahoma City residents.

Below: Will Rogers Trail running through open greenspace in a neighborhood

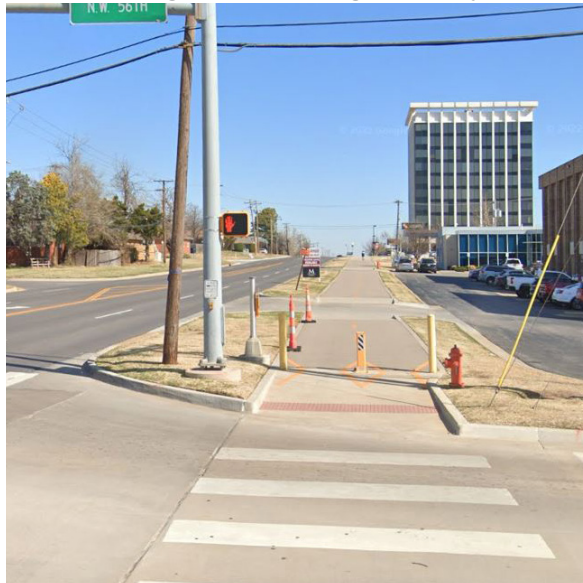


OFF-STREET MULTI-USE TRAIL

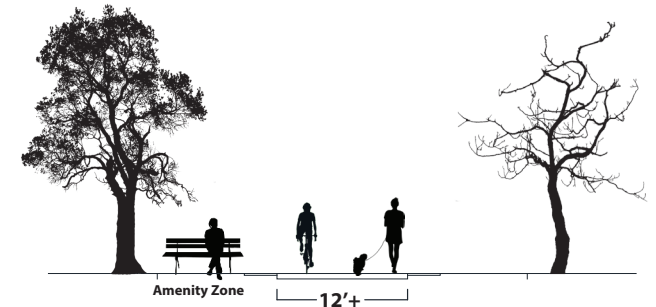


Multi-use trails are intended to provide safe facilities for micromobility users in urban and suburban areas. Unlike Neighborhood Greenways, many of these trails will serve as paths along major streets that may contain high auto traffic and high speeds, and where on-street bikeways are not feasible. Unlike Regional Trails, they are more urban and primarily, but not solely, serve a transportation function. The standard width for a multi-use trail is between 10' and 12' in order to accommodate multiple user types.

Below: Will Rogers Trail abutting a roadway



REGIONAL TRAIL



Regional trails serve multiple users, including cyclists, pedestrians, roller bladers, pedestrians with strollers, and more. While these trails can be used for transportation, many are connected along large water bodies like lakes and rivers, and become popular recreational facilities.

If a regional trail has become popular enough that there are frequent conflicts between users, widening the trail, or providing separation between the pedestrians and bicyclists is appropriate. This approach has been used to great success at the multi-use trails that surround Lake Hefner. Because of the anticipated speeds, it is important to minimize blind corners. Where potential conflicts exist between users, etiquette signage can help to minimize any trouble.

Below: Bert Cooper Trail at Lake Hefner



Trail Amenities

Certain amenities are necessary in order to plan a trail facility that accommodates different users of all age groups. These components are necessary to create successful facilities that everyone can enjoy. Trails may include the following amenities:

- Seating and trash cans
- Water fountains
- Shade trees
- Lighting
- Public restrooms
- Signage and maps
- Fix-it stations and bicycle parking

SEATING AND TRASH CANS

A bench placed on a beautiful spot with an amazing view can change how people see their environment. Benches are places where hikers and cyclists can take a break, meet other people, and decide whether they want to continue onward or return home. A trash can or recycling bin next to the bench will keep the trail clean. Benches and trash cans should not be placed directly on the trail, but at least 10 feet away to avoid conflicts between people sitting and trail users. Benches should be oriented so that users have the best possible view when seated.

WATER FOUNTAINS

Water fountains are a necessity along trails, especially since many trails are rather remote and trail users can become dehydrated easily. Water availability will make trails more pleasant, safe, and inviting to use. Fountains should not be placed at the end of a water line, since water is not moving and can become stale.

SHADE TREES

Trees are the most appealing way to provide shade, since they also improve the appearance of the trail. A well-placed tree or a well-designed shelter can make it more comfortable to use a bench. Trees should not be placed too close to the trail (distance depends on tree species)

so that roots don't damage the asphalt, but they should be close enough to provide necessary shade, especially in the late afternoon when temperatures are the highest. Trees should also be placed in open areas as screening for unattractive views. Concentrate trees along south and west edges of trails to provide maximum shade.

LIGHTING

Lighting along trails increases the number of viable hours for users, particularly in the winter when the sun sets earlier. Lighting should be consistent and functional, lining the entirety of a trail, so that there are no dark areas that will discourage riders. Lighting can be enhanced between neighborhoods and trails, so residents can safely make the journey to their closest trail.

PUBLIC RESTROOMS

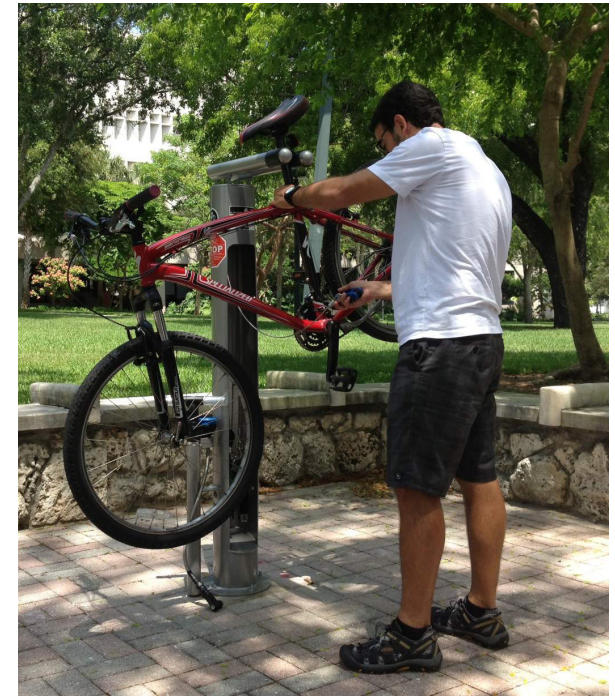
Restrooms make it possible for people to stay longer in an area, but they are expensive. The level of success of restroom amenities depends highly on placement. Frequently used and highly visible restrooms are safer and less subject to vandalism. Restrooms should be located at trail heads or where trails cross through parks.

SIGNAGE AND MAPS

Signage and maps assist in wayfinding along the trails network. This trail component is necessary to provide information to visitors and new users of the facility. Signage can assist a user in planning a trip, or timing use of the facility. Signage is appropriately placed at mile markers, at junction points, or where the trail interacts with the street. Larger maps and information kiosks are necessary at trail heads and access points.

FIX-IT STATIONS AND BICYCLE PARKING

Cyclists need the ability to repair a flat tire and also to park their bicycle along the trail. Cyclists may be several miles from their origin or destination at any given time on a ride, and a flat tire can ruin the experience and leave a cyclist stranded. Fix-it stations are appropriate at each grouping of trail components.



Top: Example of a fix-it station.

Bottom: Example of grouping of amenities.

COMPONENT PLAN: Bike & Pedestrian Bridges

BARRIERS CROSSED:

Oklahoma River
Deep Fork Creek
Interstates
Turnpikes
Northwest Expressway

DESTINATIONS

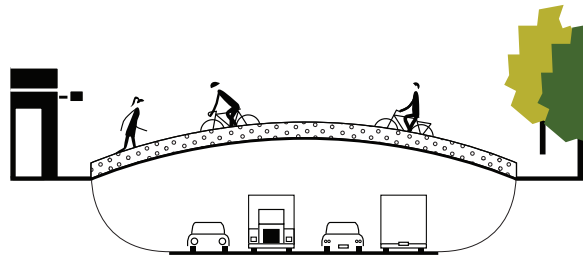
The construction of bicycle and pedestrian bridges connects multiple destinations across physical barriers. These destinations include the following:

- Grand Boulevard Loop Completion
- Wheeler Park to Downtown
- Hefner-Overholser Trail to Lake Hefner
- Southern neighborhoods to north of I-240

HOW DO WE BUILD THIS?

This project proposes six bicycle and pedestrian bridge projects. The list below coincides with Map 4.12 for approximate bridge location:

1. Two new bridges over highways and major road barriers
2. Four new bridges over rivers and water bodies
3. Upgrading existing bridges to ADA standards and adding beautification elements
4. Expanding capacity on existing road bridges to provide bike and pedestrian access

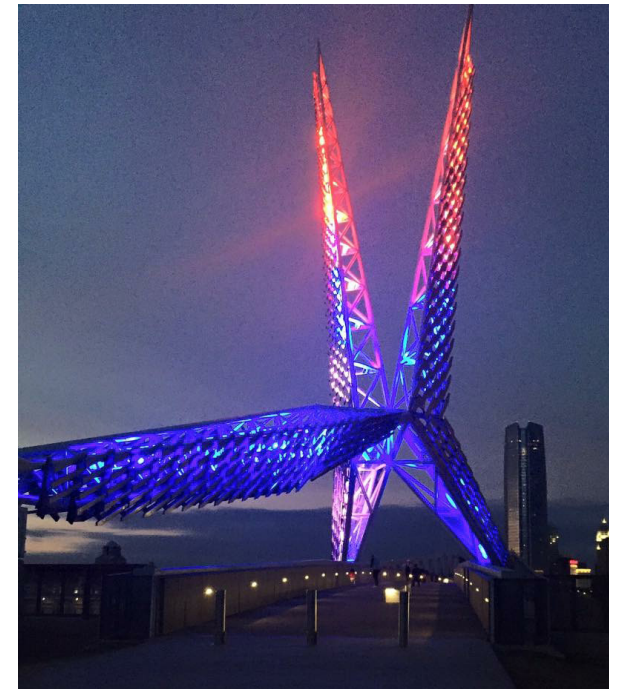


Concept Rendering of Bicycle and Pedestrian Bridge Locations

DESCRIPTION

Sometimes parks, shops, and schools are inaccessible to residents because of physical barriers such as streams, roads, or highways. A bridge can create the shortest connection between where people live and where they would like to go, as well as be a safer connection than having to use an arterial road bridge. Additionally, a bridge can be iconic and memorable for people traveling through a place by automobile. These types of impressions are what people communicate to one other and can generate further interest and tourism.

Surveys and analysis conducted for this plan identified several barriers as problematic for the active transportation network. This component plan proposes the construction of six new and the upgrade of eight existing bike and pedestrian bridges to provide safe, convenient, comfortable, and attractive crossings of these barriers. A map of these bridge locations can be found in Chapter 4 of this plan. The following list provides a description of the proposed new bridges:



Skydance Bridge across I-40

- **Railroad Bridge over Oklahoma River:** This bridge repurposes an abandoned rail bridge into a bike and pedestrian crossing to provide access across the river.
- **I-44/Deep Fork Creek Bridge:** This bridge provides a connection across the creek to the Deep Fork Creek trail for both trail riders and transportation cyclists.
- **Oklahoma River at First Americans Museum:** This pedestrian bridge connects the First American Museum (FAM), the Oklahoma River Trails and the Downtown Oklahoma City area.
- **Wiley Post Park Bridge over Oklahoma River:** This pedestrian bridge connects the South Scissortail Park to Wiley Post Park and improves accessibility from the city center to Capital Hill District and the city's greater south side.
- **Lake Hefner Parkway at Britton Road:** The project improves bike and pedestrian access to the eastern neighborhoods and the Britton District.
- **NW 10th St. at Lake Overholser:** This bridge provides access from the existing trails along the east side to the lake road and future trails to the west.

COMPONENT PLAN: Micromobility Planning

USERS AND SERVICES:

Spokies OKC Bike Share

Private E-scooter and E-bike Companies

377,182 Average Annual Trips

729 Median Trips Per Day

ROUTES AND DESTINATIONS

The City is utilizing micromobility data to show where the most ridership and destinations are being frequented. The data show the highest activity occurring along the following locations:

- Reno Ave and Sheridan Ave through Bricktown
- Robinson and Hudson from Scissortail Park north to Midtown
- Areas surrounding Downtown districts - Bricktown, Midtown, Scissortail Park

HOW DO WE BUILD THIS?

There are several ways the City can continue to support micromobility growth and safety. Some of the following investments include:

- Micromobility stations to reduce clutter and ADA conflicts
- Continued bike lane network buildout in and around the core
- Intersection safety improvements to accommodate e-scooters and e-bikes
- Continued coordination with Spokies and Downtown OKC Partnership



DESCRIPTION

With multiple companies deploying rental scooters and E-bikes around the city, problems have emerged with how these devices are stored within the public right of way. Without designated areas to store such devices, sidewalks can often become cluttered and accessibility issues have risen. Some of our peer cities have begun to experiment with micro-mobility stations in underutilized spaces to provide a more orderly way to store these vehicles.

Oklahoma City should construct micro-mobility stations at a few high-profile locations downtown and potentially some neighborhood commercial districts as well. These sites could then be tested and monitored to see how well they are utilized and if they meaningfully reduce the sidewalk clutter of such devices, while simultaneously providing more bike parking availability.

Because riding e-scooters and e-bikes are prohibited along sidewalks in business districts, it's important to ensure they are safely accommodated on city streets. Fortunately, on-street bicycle infrastructure is well suited for this task. At the very least, micromobility rideshare compounds the need for bike lane infrastructure to provide safe street space for all modes of transportation.



Top Left: E-scooter clutter in Bricktown, OKC
Top Right: Example of a painted sidewalk marked for dockless rideshare parking

Middle Right: Example of a street corral created for micromobility, including dockless e-scooters along with standard bike racks.

Below: E-scooter users on Walker Ave bike lanes



COMPOSITE PLAN: Citywide Bicycle Network

CONNECTS:

495,000 Residents

TO:

Schools

Parks

Libraries

Transit Stops

HOW DO WE BUILD THIS?

The completion of the City Wide Bicycle Network requires the construction of several bicycle facilities. The full network of bicycle facilities includes the following:

1. 190 Miles of Multi-Use Trails and Neighborhood Greenways
2. 90 Miles of Protected Bicycle Lanes
3. 70 Miles of Bicycle Lanes
4. 125 Miles of Bicycle Routes

DESCRIPTION

In addition to the projects discussed in previous pages, bikewalkokc plans a citywide bicycle network building off of the existing bicycle and trail network. The citywide network consists of all of the projects previously discussed and additional facilities necessary for a robust, complete network of bicycle facilities. The goal of a citywide network is to create a safe, comfortable, and connected series of bicycle facilities that accommodate riders of all skill levels. A description of each facility type is provided in the following pages.

The citywide network was identified through extensive outreach and surveying conducted as part of the planning process. Additionally, a series of analyses helped identify roads that are safe and conducive to cycling. These analyses include the following:

- Lane Reduction (p. 28)
- Bicycle Level of Traffic Stress (p. 26)
- Collisions Analysis (p. 30)

The proposed bicycle network is the long-range plan for implementation as funding allows. The network map should be updated regularly to reflect any new bicycle facilities constructed. As the City continues to grow and develop, additional roadways not included in the bicycle network may generate bicycle demand, and can be evaluated and added as part of the plan updates.

NEW BEST PRACTICE: UPGRADING EXISTING FACILITIES

EXISTING BIKE ROUTES BEFORE BIKEWALKOKC ADOPTION

There are still many older bike routes throughout OKC that fail to provide adequate levels of safety and comfort for cyclists of all ages and abilities. This update will determine which of those routes can be improved to provide safer facilities, and which ones may need to be diverted to an alternative route. For example, the photo to the right shows a bike route along NW 36th St that is identified as a street in need of a more protected bike facility.



IMPROVED OR NEWLY ADDED BIKE ROUTES AFTER BIKEWALKOKC ADOPTION

As part of the 2018 bikewalkokc plan, many streets have been converted to a safer design that allows for a more protected space for cyclists. As mentioned in Chapter 1, a road diet can have added safety benefits for all road users, including automobiles. The image on the left shows new Tier 1 bike lanes on S Walker Ave, where cyclists are now better connected from south OKC to the downtown area.

On-Street Bicycle Facility Types and Design

BICYCLE LANE/PROTECTED BICYCLE LANE

This facility type allocates a portion of the right-of-way exclusively for cycling, thereby separating cyclists and motorists into individualized spaces. The intent is to allow cyclists to safely use streets that often have higher speeds than those on designated bike routes. Because of the effectiveness of separating cycling from motorist lanes, fewer rules are required to make bike lanes an effective strategy. Ideal design guidelines for bicycle lanes and protected bicycle lanes include the following:

Bike lanes should allocate a minimum of 4' of seamless pavement.

Bicycle lanes should be wide enough to facilitate safe movements of cyclists. Bicycle lane width range should be 4 to 8 feet wide with a preferred width of at least 6 feet. Cyclists avoid riding near seams in the pavement by shifting closer to automobile traffic. Therefore, seams should be minimized or eliminated where possible to ensure well-functioning bicycle facilities. This issue is most commonly seen when a gutter pan encroaches into the bike lane, effectively narrowing bicycle lanes.

Physical separation should be utilized where greater protection from automobiles is recommended.

Where protected bicycle lanes are recommended on streets with high volume and high speeds, physical barriers, preferably raised curbs, should be installed to separate the bike lane from traffic. This helps ensure that automobiles do not drive in bike lanes, and increases cyclists' feelings of safety. Protected bicycle lanes have been shown to provide a more comfortable experience for cyclists who have the least experience and confidence sharing the road with automobiles. If raised curbs are not feasible for a given project, another form of vertical delineation should be placed in a buffer area width between 6 inches and 2 feet (see New Best Practices on page 49).

Bicycle facilities should accommodate left-hand turning motions.

Left-hand turning motions are often difficult and a source of anxiety for cyclists. There are several ways to accommodate left-hand turns, such as bicycle boxes or two-phase turn boxes. These types of approaches provide clarity to cyclists and motorists on multi-modal interactions at intersections. Additionally, bicycle-specific traffic lights at key intersections could ensure safer movements, but at a higher capital cost.

Conflict areas between automobiles and cyclists should be clearly marked.

Bicycle facilities and automobile facilities coexist, and thereby create potential conflicts where they intersect. Clearly marking these areas with green paint or other approaches to indicate the mixing of modes increases awareness for motorists and cyclists, leading to a safer bicycle facility.

Bicycle lanes should be located along the curb line and on the passenger side of on-street parking and behind bus stops where possible.

Bicycle facilities located on the driver side of on-street parking create a greater risk of “dooring” for cyclists. Additionally, conflicts may occur when vehicles that are parking on street have to cross the bicycle lane to park. Moving the bicycle lane to the curb and on-street parking beyond the bike lane keeps motorists from driving through the bicycle lane. This makes it safer to cycle next to parked cars, and reduces the risk of dooring. This same approach can be applied to bus stops, as shown in Figure 2.5.



Figure 2.5 Bus Protected Bike Lane



Top: Example of a Tier 1 curb-protected bike lane.

Bottom: A new Tier 2 bike lane on W Main St.

Left: Example of a floating bus stop that protects the bike lane and prevents automobiles and cyclists from crossing paths. It also creates a pedestrian island and provides a safer crossing at the intersection.

For more information, please reference the following sections of the NACTO (National Association of City Transportation Officials) [Urban Bikeway Design Guide](#): [Bike Lanes: Conventional Bike Lanes; Buffered Bike Lanes](#) [Cycle Tracks: One-Way Protected Cycle Tracks](#)

LESSON LEARNED: DIFFICULTIES OF MARGINAL FACILITIES

The Issue: As the city has begun to deliver some of the newer bike facilities such as dedicated and protected lanes, some of the weaknesses of earlier bike lanes and bike routes have become more obvious. Examples of this are bike routes on arterial streets without dedicated facilities such as shoulders, or early bike lanes that are too narrow or partially in a gutter pan. While there is often limited available right-of-way or budget to have built a higher tier facility, these marginally useful and more dangerous facilities may pose risks that require further reexamination.



The Lesson: Planners should review existing signed bike routes to determine whether they should be upgraded, eliminated, or rerouted. Examples such as bike routes on high-speed arterials that offer no space or protection require particular attention. The City should consider upgrading inadequate or unsafe bike lanes that provide important connections to other facilities and have the roadway space and feasibility to be upgraded.

SHARED BICYCLE ROUTE

Bicycle routes indicate that cyclists and drivers must share the same lane, rather than have a dedicated portion of the road for cyclists. These facilities offer the lowest amount of protection to cyclists in their interactions with automobiles. The following design guidelines ensure that the facility is useful and safe for both cyclists and motorists:

Bike routes are appropriate on two-lane streets with a speed limit of 25 MPH or less.

In order for cyclists to be able to integrate safely into automobile traffic, a low speed limit is required. This allows the cyclists the opportunity to keep up with traffic, and allows drivers to not be concerned about a sharp reduction in speed when driving behind cyclists. A slower speed decreases the risk of collisions, increases the awareness of drivers to the existence of cyclists, and reduces the risk of severe injuries in the event of a collision. Multi-lane streets are typically higher speed corridors for automobiles. Therefore, keeping bike routes on two-lane streets, where a center-turn lane is acceptable, will ensure that cyclists are not put at risk.

Center lines on bike routes should be legally crossable.

The intent of a bicycle route is for motorists and cyclists to use the same facility, where both modes of transportation are viewed as equal vehicles on the road. However, cyclists often travel at a speeds lower than drivers who follow them, and drivers will pass cyclists on the left. In order to make this maneuver legal, bike routes should not be located on streets with a double-yellow centerline. This makes neighborhood streets ideal for bicycle routes.

Bike routes should connect to higher intensity bicycle facilities.

Bicycle routes are appropriate when there is no sufficient right-of-way to accommodate a separated bicycle facility. Bicycle routes should not stand alone, but rather should connect neighborhoods to bicycle facilities that offer a greater level of protection from automobiles.



Example of a new bike sharrow marking in Oklahoma City.



Example of a mini roundabout used to calm traffic to make cycling more safe and comfortable.

For more information, please reference the following sections of the NACTO (National Association of City Transportation Officials) [Urban Bikeway Design Guide](#): [Bikeway Signing & Marking](#); [Shared Lane Markings](#); [Bike Route Wayfinding Signage and Markings System](#)

Traffic calming should be used to reduce design speed.

Drivers tend to drive at a speed which feels appropriate and safe, which is sometimes higher than the posted speed limit. In cases where the actual traffic speed is significantly higher than the posted speed limit, traffic calming measures should be utilized to help reduce automobile speeds to a safe level for bike riders.

Sharrows should be high visibility.

The public outreach process of this plan revealed that many drivers do not notice sharrows when driving on bicycle routes. Therefore, to improve driver awareness and cyclist safety, sharrows should be designed to be high visibility through techniques such as green paint backing, reflectors, or dashed outlines.

Sharrows should be painted in the middle of the lane.

Since cyclists are allowed to use the full lane on a designated bicycle route, sharrows should be placed in the middle of the lane, rather than on the right-hand side of the lane. This will ensure that cyclists and drivers know that the full lane is available to the cyclists, and sharrows will not be obscured by on-street parking.

Sharrows should be spaced frequently.

In order to improve cyclist and driver awareness that a street is a designated bicycle route, sharrows should be spaced so they are highly visible to road users. At a minimum, three sharrows should be located per block: one at each end and one in the middle. A good rule of thumb is to space sharrows 80 to 100 feet apart.

“Bike May Use Full Lane” signage should be used.

Drivers and cyclists have expressed confusion about the “Share the Road” signage; therefore, the more direct “Bike May Use Full Lane” sign is preferred.

Bike routes on non-local roads should have shoulders.

Bike routes on non-local streets are an exception to the two-lane/25 MPH speed limit rule discussed above, because these roads will likely have higher speed limits. These routes should have paved shoulders so cyclists and motorists can safely pass each other.

NEW BEST PRACTICES: DIFFERENT WAYS TO PROTECT BIKE LANES

The Issue: bikewalkokc called for the city’s first ever protected bike lanes and the City has followed through by creating its first ever protected bike lanes on General Pershing Blvd and S Walker Avenue. These protected bike lanes use flexible delineator posts to create a vertical separation. While these are highly visible, they are easily knocked down, which can be a continual maintenance issue. While being relatively affordable, this style of separator also does not create the same feeling of protection for cyclists as some other more intensive applications, which can be important, especially on relatively high speed streets.

The Lesson: Many other communities have diversified their type of bike lane delineation, including the use of planters and curb separation. Both of those have potential applications in Oklahoma City, as well as drawbacks and limitations that need to be studied by staff. Where it is possible, perhaps the separation style that creates the most protection for all users at the lowest cost is parking-protected bike lanes.

Parking-protected bike lanes benefit from having a wall of vehicles to separate the cyclists from the automotive traffic, increasing safety. The use of a buffer space between on-street parallel parking and cyclists can also help avoid issues with car door clearance. The limitation of this design style is that it requires additional right of way that may not be commonly available on city streets. This year Oklahoma City will be installing its first ever parking protected bike lanes on N Lottie Ave.

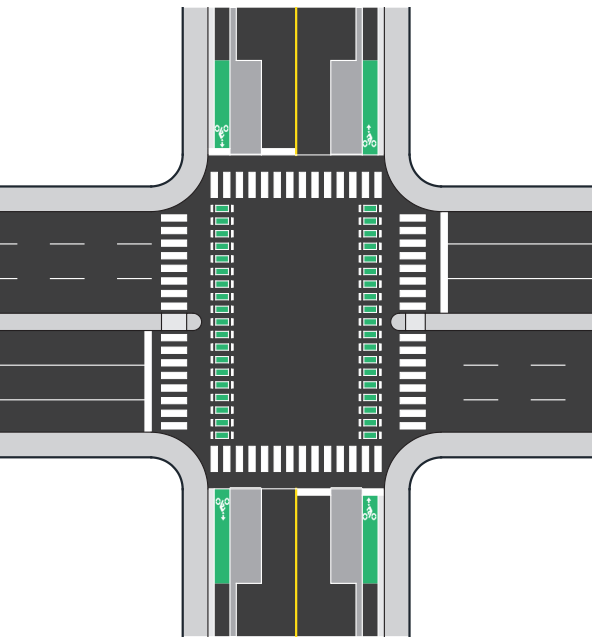


Bicycle Intersection Types

TYPE 1 - PASS-THROUGH

An intersection application aimed at guiding cyclists through an intersection rather than facilitating a turn onto an intersecting street is called a Pass-Through Intersection. This type of intersection treatment encourages cyclists to continue straight. This treatment is recommended when the intersecting street is high volume and typically high speed, and doesn't have a bicycle facility present. This discourages cyclists from turning onto a street that is less appropriate for on-street cycling and also communicates to automobiles that cyclists may be present. Figure 2.6 below illustrates a possible pass-through intersection. The design of an intersection and the amount of paint used will vary based on field conditions.

Figure 2.6 Example pass-through intersection

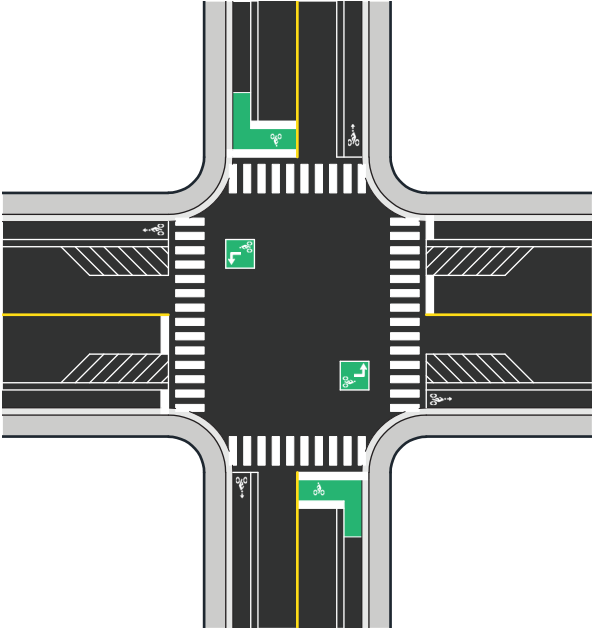


TYPE 2 - TURN-THROUGH

An intersection that provides less protection to cyclists than the “protected intersection” (see next page) is appropriate in areas where traffic volumes and speeds are less dangerous to cyclists. These facilities can be implemented in many ways, but the most important concepts should transcend context and be applied at all applicable intersections. Those concepts include:

- Left-hand turn motions for cyclists should be accommodated by the installation of bike boxes (see Figure 2.7), or two-phase turn boxes (also shown in Figure 2.7).
- Conflict areas should be demarcated with high-visibility applications to decrease the risk of collisions. Green paint, white paint, pictographic paint, and signage can draw the attention of drivers and cyclists to one another.

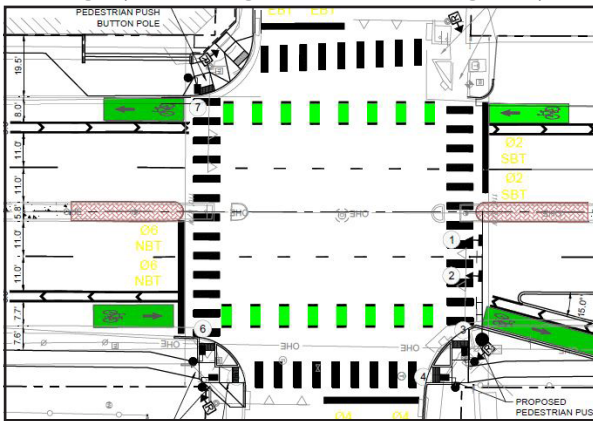
Figure 2.7 Example bike box & 2-phase turn box



Above: Example of a bike box, where drivers must stop at the first white stop bar and a designated area at the head of a traffic lane provides bicyclists with a safe and visible way to get ahead of queuing traffic.



Above: Example two-phase turn box
Below: N Classen Blvd bike lane engineering plans showing a pass-through intersection with green paint



TYPE 3 - PROTECTED

In order to safely facilitate bicycle movements through an intersection, techniques that increase awareness between drivers, cyclists, and pedestrians are required. The level of needed protection is dependent on the volume and speed of traffic on the intersecting streets. The highest level of protection at intersections is needed when two protected bicycle lane facilities intersect perpendicularly. The appropriate approach is what is commonly known as a “protected intersection.” Protected intersections are being implemented across the United States after great success in Europe.

A protected intersection provides a dedicated portion of the intersection to cyclists and uses some form of vertical delineation whether bollards, planter boxes, or a curb line, to protect cyclists from turning motions. This type of intersection also allows cyclists to move further forward into the intersection, becoming more visible to drivers. This separation allows cyclists to make right-hand turns safely without needing to stop at the intersection if there are no conflicts with pedestrians (Figure 2.8). Pedestrians also benefit from a protected intersection design because it decreases the distance required to cross the street. Left-hand turns for cyclists are broken into two phases as shown on Figure 2.9.



Above: Protected intersection in Davis, CA.

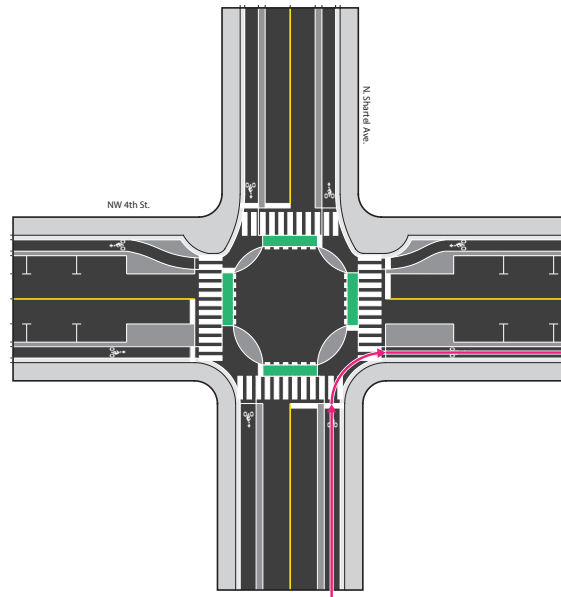


Figure 2.8 Red arrow demonstrates a right turn

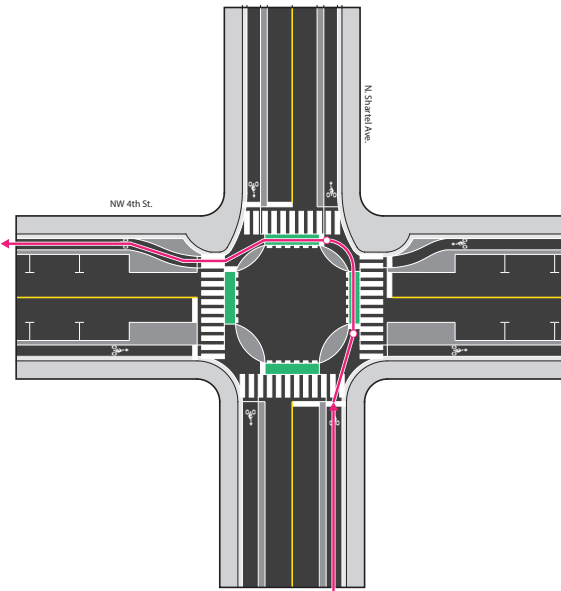


Figure 2.9 Red arrow demonstrates a two-phase left-hand turn

Above: Protected intersection design

LESSON LEARNED: PROTECTED INTERSECTIONS

The Issue: Intersections tend to be the most dangerous locations for bicyclists, and more protection is especially needed where two bike lanes intersect, since a variety of turning motions and vehicle conflicts are more likely. The City piloted its first protected intersection at W Main St and N Western Ave. Because this was a pilot project, permanent curb islands were avoided, so instead the City opted to install small lane dividers called “armadillos” to create physical separation for cyclists navigating through the intersection.

The Lesson: Throughout a timeline of 1-2 years, the armadillos were often driven over by turning vehicles, and they were not proven to be strong enough to withstand the impacts they were faced with, causing constant maintenance issues. The City has now removed the armadillos and is looking for alternative interventions.



As a permanent solution, curb islands should be used to fully integrate protected intersections, as illustrated in bikewalk**okc** and shown in multiple FHWA-recommended guidebooks.

An alternative solution could be the standard flexible delineators used to create protected bike lanes along linear routes. This form of intervention is now a common municipal practice, used to increase intersection safety for all modes by tightening up turning radii and slowing vehicle speeds where conflicts occur.



CHAPTER 3: PEDESTRIAN PLANNING

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Lowly, unpurposeful and random as they appear, sidewalk contacts are the small change from which a city's wealth of public life must grow.

Jane Jacobs

CHAPTER 3: PEDESTRIAN PLANNING

Introduction

The citywide comprehensive plan, *planokc*, describes a vision for Oklahoma City to be a walkable city with a strong pedestrian network that connects people to places they want to go. “Walkability” is a measure of how convenient, easy, and safe an area is for people to walk. A fully walkable area should allow a pedestrian to safely travel along both sides of a street, and safely cross back and forth between the two sides.

The pedestrian plan chapter of *bikewalkokc* serves as a guide to implement the vision of becoming a walkable city. This plan focuses on identifying projects that address the greatest needs of our community with an emphasis on efficient intervention to ensure that scarce resources are utilized to the greatest possible effect. The methodology for identifying priority projects in *bikewalkokc* utilized the following criteria from *planokc*:

1. **Responsive Populations** – Prioritize improvements that serve people without access to a motor vehicle (low to moderate income, elderly, disabled, etc.) within areas that connect them to the transit system.
2. **Connectivity to Schools and Parks** – Prioritize opportunities to connect the existing sidewalk network to schools and parks.
3. **Connectivity to Existing Networks** – Prioritize opportunities to join existing networks.
4. **Neighborhood Revitalization** – Prioritize improvements in neighborhoods identified for revitalization.
5. **Urban Commercial Districts** – Prioritize improvements in Urban Commercial Districts that need pedestrian connectivity.

With these priorities, a highly walkable experience is achievable in Oklahoma City, and as funding becomes available, this plan will provide the guidance for capital improvements far into the future.



Existing Pedestrian Facilities

When Oklahoma City was first settled in 1889, primary modes of transportation did not include the automobile. Streets were places for pedestrians, bicyclists, horses, and trolleys. Correspondingly, the urban form of the city in its early years was designed to accommodate people on foot. As automobiles became the predominant means of transportation in the first half of the 20th century, far less pedestrian infrastructure was developed within the built environment. As this trend continued over the decades, the remaining pedestrian network deteriorated as development extended outward from the inner city.

By the turn of the 21st century, city leaders, planners, and residents recognized the need for growing a healthy pedestrian network, and regretted the loss of valuable pedestrian infrastructure. In response, the City reinstated requirements for new subdivisions to build sidewalks, both internally and externally along arterial corridors. However, this has created a situation where many of the newer developments in suburban areas of the city are equipped with sidewalks, while large gaps in the sidewalk network prevent connectivity in older areas.

In 2009, Oklahoma City residents approved a penny sales tax to construct multiple capital improvements projects through the MAPS 3 program. It included \$39.5 million for the construction of trails, and \$18.1 million for the construction of an additional 60 miles of sidewalks across the community. In 2015, the City began a cost-sharing program with residential property owners called the Sidewalk Repair and Replacement Program, which splits the cost of repairing or replacing dilapidated sidewalks in front of personal property. And, as described in Chapter 1, the City continued this momentum by voting for many new pedestrian investments with Better Streets Safer City and MAPS 4. These actions, as well as other initiatives to improve walkability, have helped implement transportation goals in planokc and helped projects from bikewalkokc into construction.

Map 3.1 shows the existing sidewalk network. Sidewalk connectivity is most prevalent in the city core and newer

suburban areas, while second and third ring suburbs lack substantial sidewalk infrastructure.

ASSETS AND CHALLENGES

Oklahoma City has made important strides toward building a more pedestrian-friendly community. These efforts have addressed challenges to walkability, but many challenges still persist, needing continued focus into the future.

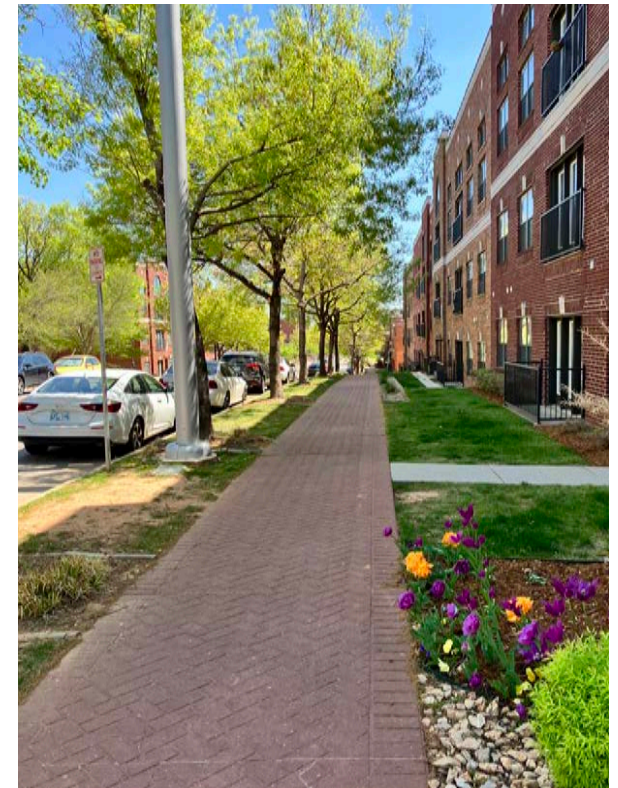
Assets

- The majority of the city is laid out on a grid. This provides **good connectivity opportunities** for the pedestrian network.
- **MAPS 3 and MAPS 4** sidewalk and intersection improvements are filling in major network gaps.
- **2007 & 2017 GO Bond** projects led to many new sidewalks across the city.
- The street and sidewalk network is well-connected in the **downtown, midtown, and uptown** areas. Project 180 made significant streetscape and pedestrian enhancements in downtown. Many existing streets are walkable and easy to cross in these areas, and minimal improvements are needed to complete the downtown pedestrian network.
- **Standards for constructing new crosswalks** include high visibility continental crosswalk striping and appropriately-placed push buttons for crossing signals.
- A City **residential sidewalk program** allows cost sharing for the City and property owners to repair or replace existing dilapidated sidewalks.
- The **City's comprehensive plan**, planokc, highly prioritizes improvements that accommodate pedestrian activity.
- **Elected officials** and their constituents highly value pedestrian improvements, and walkability advocacy has grown substantially since bikewalkokc was first adopted.

- The ongoing **Development Code Update** is slated to require future developments that favor walkable communities.

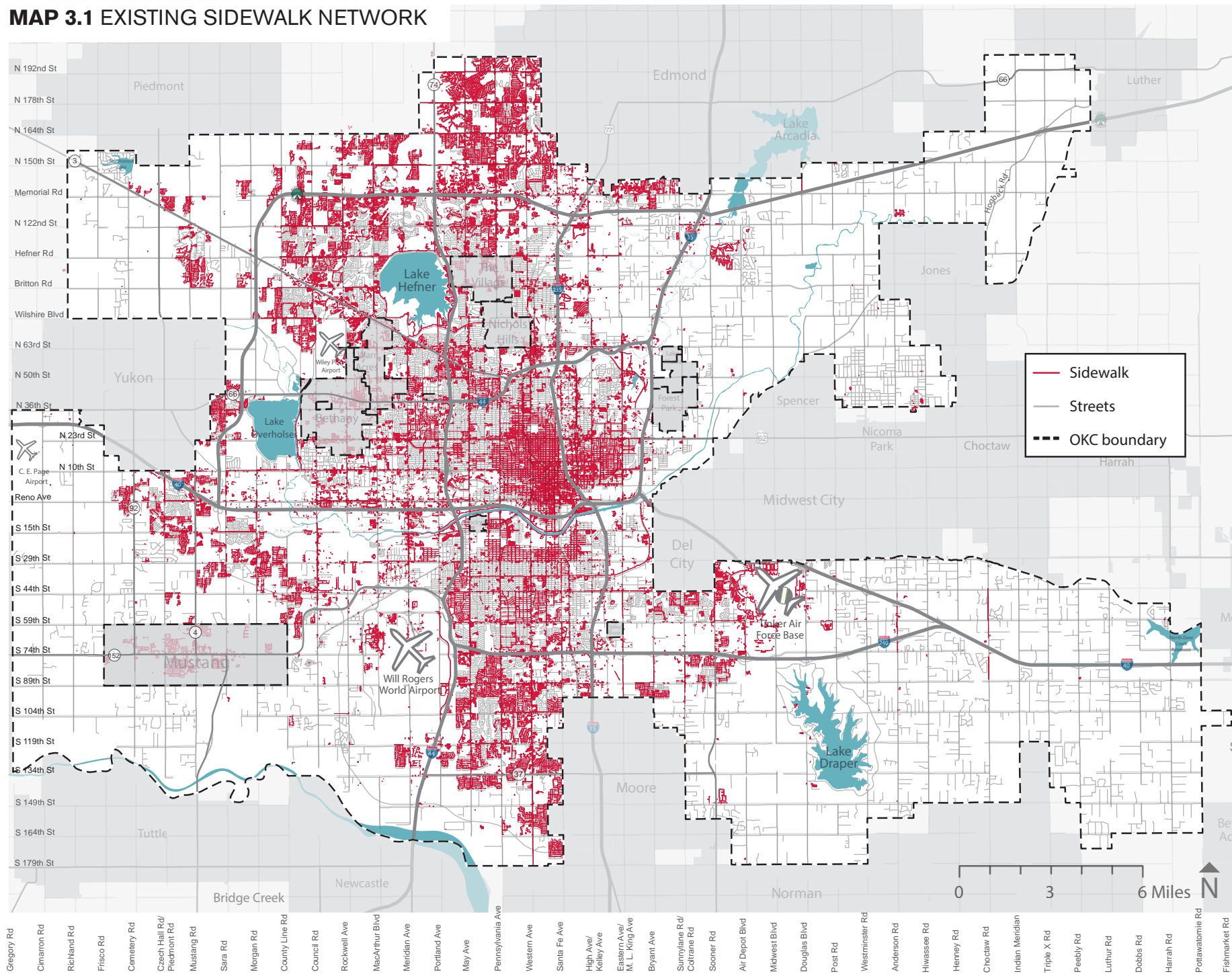
Challenges

- The majority of existing **development is designed around the automobile**, making it difficult, unsafe, and uninviting for pedestrians.
- **Pedestrian connectivity declines** dramatically beyond the older, "traditional" areas near the city's core.
- Major arterials, interstates, and natural features where safe crossings have not been established act as **barriers for pedestrians**.
- The existing sidewalk system includes **gaps in connectivity** to public transportation, and much is **not ADA-compliant**.



Walkable environment in the Deep Deuce neighborhood of downtown Oklahoma City.

MAP 3.1 EXISTING SIDEWALK NETWORK



Pedestrian Analysis

Effective planning begins with analysis, and in a city as large as Oklahoma City, data analysis is crucial to creating priority areas. To better understand pedestrian conditions on every roadway segment in Oklahoma City (43,907 segments), several models were created that examine and score them all. The scores provide the existing conditions for pedestrians. The following sections provide four types of citywide pedestrian analysis: Pedestrian Level of Service (PLOS), Intersection Analysis, Pedestrian Demand Generation, and Demographics Analysis. Included is an explanation of each model, the results, and the meaningfulness of the results.

1. PEDESTRIAN LEVEL OF SERVICE

The Pedestrian Level of Service (PLOS) model takes into account multiple variables to generate a score of walking comfort, safety, and accessibility along every roadway segment in Oklahoma City. The score is helpful to identify important roadways that are not currently suitable for safe, comfortable walking. Additionally, PLOS shows areas with strong pedestrian walkability that are separated by short stretches of unsafe or impassable segments. The following variables were included in the analysis:

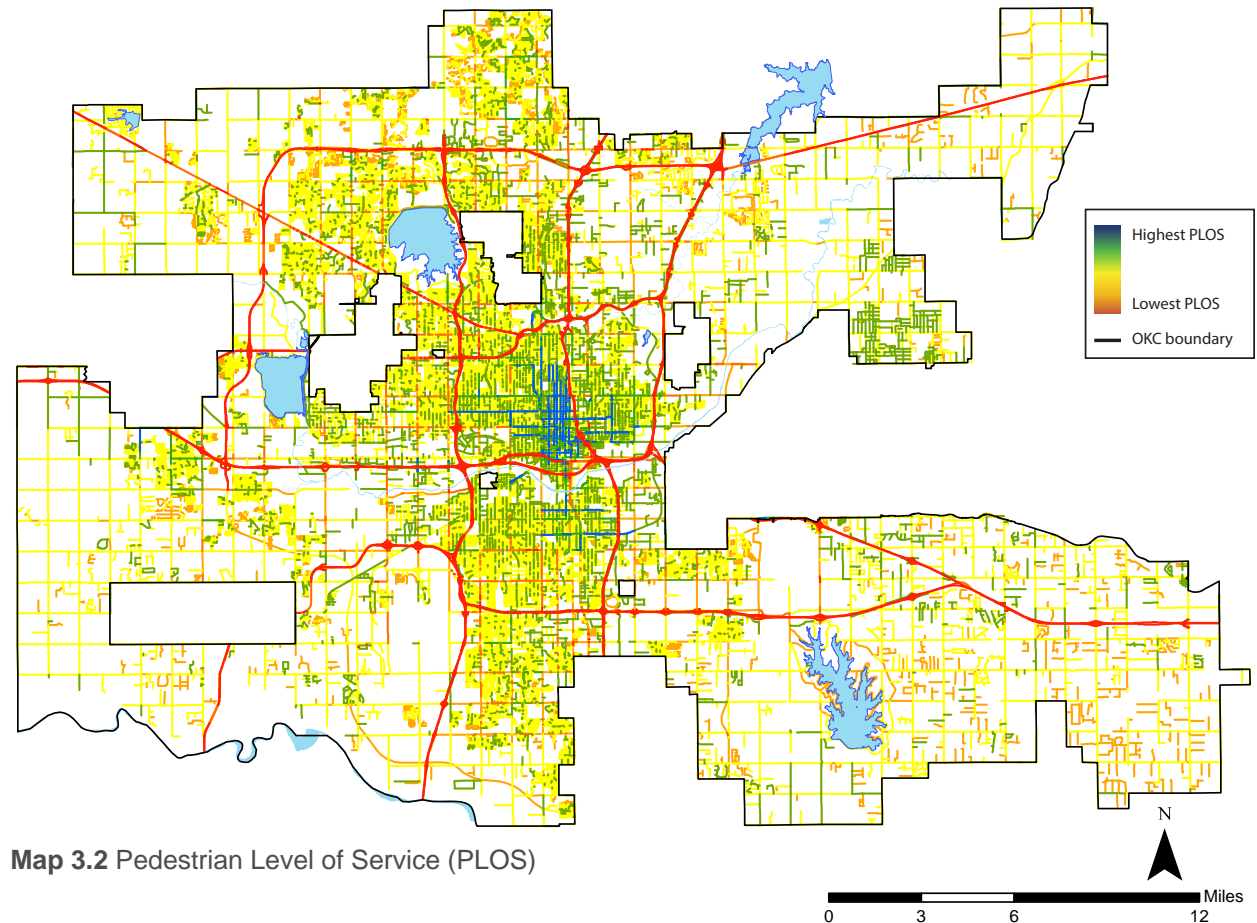
- Sidewalk – The basic component of a walkable roadway. Roadway segments were scored based on whether the segment had a sidewalk present on one, both, or no sides.
- Sidewalk Buffer – A grass or landscaped space between the road and the sidewalk adds to comfort and safety of walking. Segments were scored on the presence or absence of a sidewalk buffer.
- Number of Driveways – High numbers of driveways along a roadway reduces the safety and comfort of walking. Roadway segments with less than 15 driveways per quarter mile received a higher score than those with more than 15.
- Roadway Speed – Speed impacts safety, comfort, and ease of crossing. Roadway

segments received scores based on speeds ranging from less than 25mph to above 45mph.

- Number of Lanes – The number of vehicular travel lanes affects safety and street “crossability” Streets with fewer lanes received a higher score.

Map 3.2 shows the PLOS for Oklahoma City. The map shows streets on a graduated color scale from blue to red. Blue represents a high PLOS score, meaning the segment is potentially comfortable, safe, and accessible. A low score means sidewalks may not be present, and travel speeds, the number of lanes, and the number of driveways are high, or a combination of factors.

General observations of the analysis show section line roads, such as major and minor arterials, are consistently



Map 3.2 Pedestrian Level of Service (PLOS)

low scoring. This is problematic as transportation connectivity is poorer in more suburban areas, where pedestrians have little choice but to use arterials for mobility. The inner core of the city has the highest density of high-scoring road segments, indicating that improvements made to facilities in these areas will be more cost effective, and are likely to improve walkability where people desire to walk.

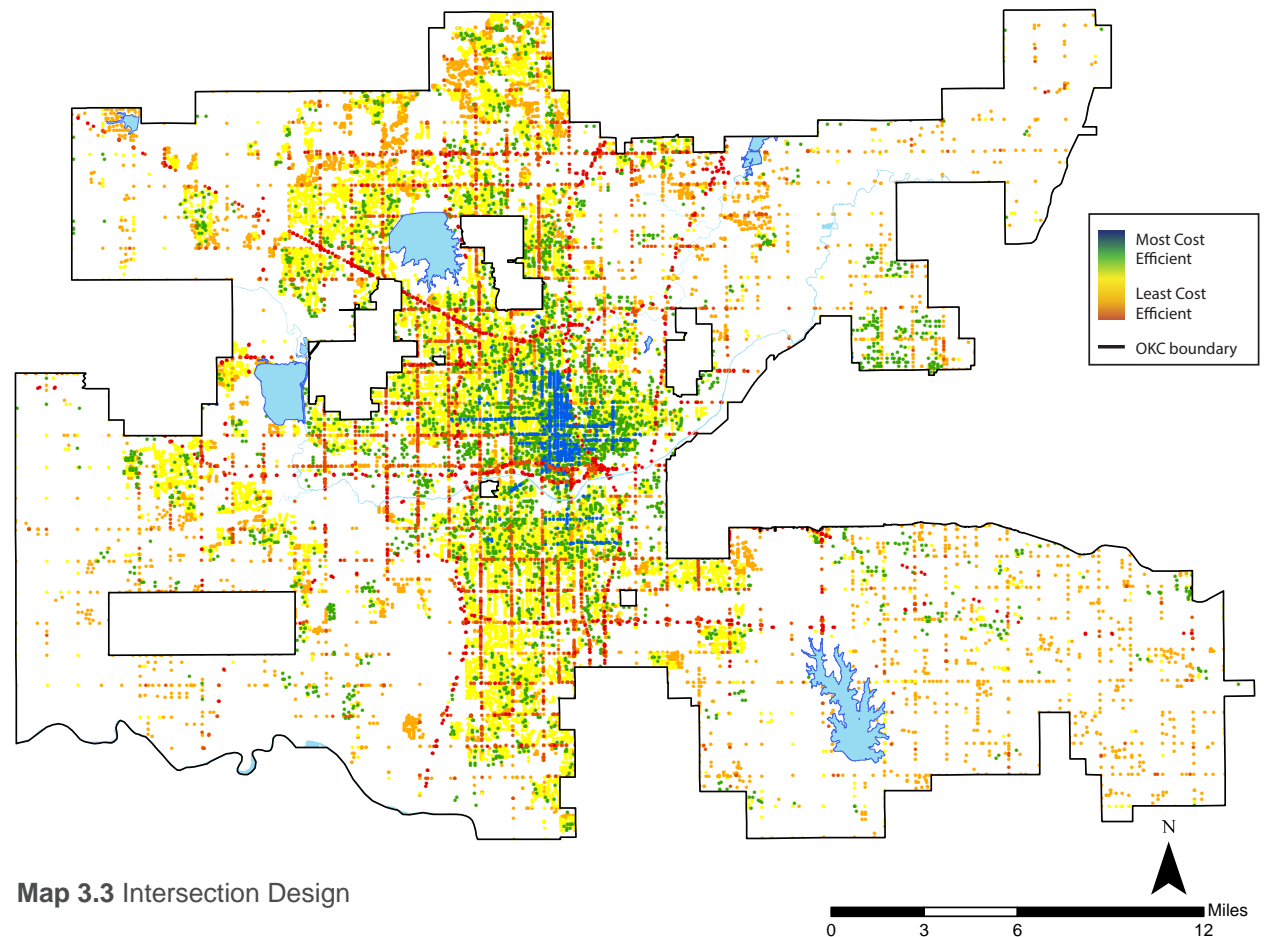
In more suburban areas of the city, the proliferation of low-scoring segments indicates that the attributes of the transportation network are not well-suited to accommodate needs of pedestrians. Improvements in these areas impact fewer households per dollar spent due to lower levels of residential density. Efficiency is found in the most urban areas of the city, making these areas a top priority. This is consistent with planOKC's focus on redevelopment and revitalization in the urban core.

2. INTERSECTION ANALYSIS

An integral component of pedestrian mobility is the ability to cross streets safely. Intersection analysis generates a score to identify intersections in need of pedestrian infrastructure improvements. The results indicate the likely amount of investment needed to improve pedestrian infrastructure to a level that provides all of the necessary safety precautions that the City is capable of providing, and to take necessary steps to improve accessibility in compliance with the Americans with Disabilities Act (ADA). The intersection design score took into account the following variables:

- Signals – A higher score was assigned to intersections that have signals. Signals are important along major and minor arterials because these roadways typically form barriers for mobility.
- Crosswalks – Many intersections exist without marked crosswalks. Marked crosswalks are important for identifying the pedestrian space and communicating to vehicles the space is for pedestrians. Intersections with crosswalks received a higher score than those with no crosswalk.
- Ramps – ADA-compliant ramps are necessary for people with disabilities. Intersections containing ADA-compliant ramps received a higher design score.
- Collisions – Ten years of pedestrian and bicycle collision data was analyzed to determine those intersections that have safety issues. Intersections with fewer collisions received higher scores.
- Speed – Intersections with low speed streets received a higher design score than those with high speeds.
- Lanes – More lanes means a greater distance for pedestrians to cross. Streets with fewer lanes received higher scores.

Map 3.3 shows the results of the analysis incorporating the variables of the intersection design score. Here, like the PLOS map, we see that the inner core of the city is



Map 3.3 Intersection Design

more well-suited for pedestrians than the suburbs, and major arterials are especially low scoring. Pedestrian infrastructure improvements in the low-scoring areas are likely to be more expensive than in high-scoring areas, due to the fact that they need improvements to several of the variables, while the high-scoring areas may only need small changes.

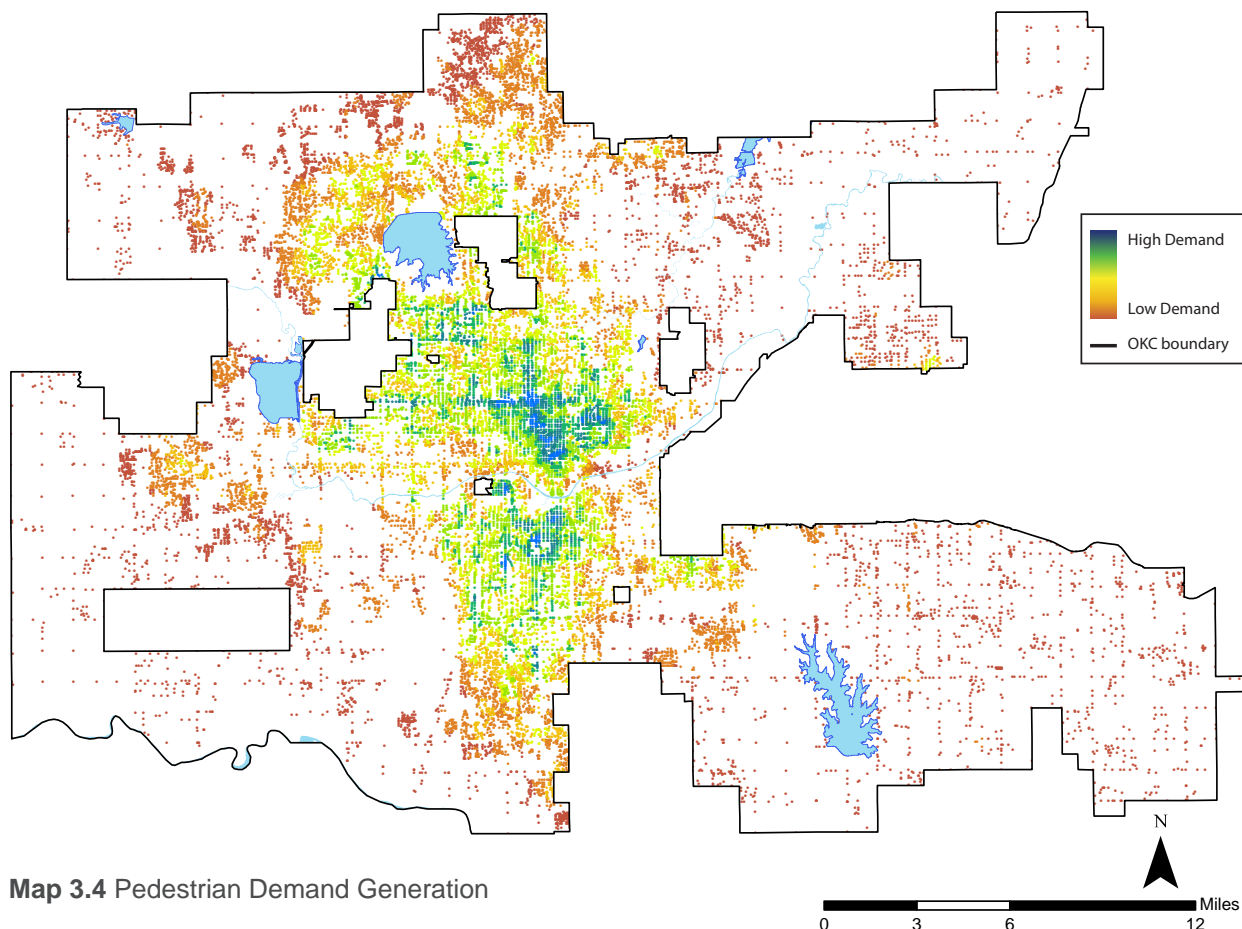
This map also illustrates the way that the major arterials in Oklahoma City can be barriers to pedestrians. The vast majority of pedestrian collisions that result in injury or death occur on major arterials. There are numerous conflict points at the intersection of major arterials, which will require a high level of pedestrian infrastructure investment. Pedestrian refuge islands, leading pedestrian intervals, signal phasing patterns to

reduce conflicts, signage, and clearly defined crosswalks are just some of the approaches taken by Oklahoma City and other municipalities around the country.

3. PEDESTRIAN DEMAND GENERATION

In order to prioritize pedestrian improvements across the city, it was important to look at land uses and other factors that generate pedestrian activity. A score was assigned to every intersection based on the proximity of pedestrian-generating land uses within a ¼-mile distance. These include:

- Transit stops – There are more than 1,300 bus stops in Oklahoma City.
- Schools – There are 206 schools in Oklahoma City.
- Parks – Points of access into parks (rather than general park locations) were used, since it is possible to live adjacent to a park but still be a long distance from an entrance to the park.
- Trails – Points of access were used for all of the existing trails.
- Supermarkets – Supermarkets were found in the InfoUSA national business registration data.
- Grocery stores – Grocery stores were separated from supermarkets because they are not full-service, and fill a different role than supermarkets.
- Healthcare facilities – This includes all medical facilities in the city, such as hospitals, doctors, and dentists.
- Government facilities – Government facilities are the primary location criteria for ADA improvements according to the standards laid out in the Americans with Disabilities Act. This includes federal, state, and local facilities.
- Multi-Family housing – High-density housing is more likely to generate high levels of pedestrian activity than single-family housing. This category includes apartments and multi-unit housing, such as duplexes and triplexes.
- Population Density – Points from a raster heat map were extracted at every intersection to determine the population density value.
- Employment Density – Points from a raster heat map were extracted at every intersection to determine the employment density value.



Map 3.4 Pedestrian Demand Generation

- Activity Density – Points from a raster heat map were extracted at every intersection to determine the activity density value. Activity density is an aggregate measure of where people live, work, and play.

Scores were generated for all of the previous factors at each intersection and then summed to get a total “Demand Score.” Map 3.4 illustrates that the areas of the city with the highest demand score correlate with the highest amount of pedestrian-generating land uses, and these conditions. Scores tend to decrease further from the city center and closer to the city limits. The lower density and relative distance to pedestrian-generating land uses causes these areas to be scored lower than those in the inner city.

“Finally, in their quest to become more sustainable, cities need to remember that, for the typical pedestrian, the most mundane storefront is still more interesting than the most luxuriant landscape.”
- Jeff Speck

INTERSECTION ANALYSIS

Intersection Design/Demand/ Demographics

The next step in the process was to take all of the previous analysis and form it into an equation that would generate an overall score of priority for all of the intersections in the city. To accomplish this, the Pedestrian Level of Service (PLOS) score was combined with the aforementioned “Intersection Design” score (see Maps 3.2 and 3.3). This new combined PLOS and Design score could then be incorporated with the Demand Score (see Map 3.4); the intent being to evaluate which intersections had the highest proximity to pedestrian-generating land uses, and are in need of design improvements. The equation used was:

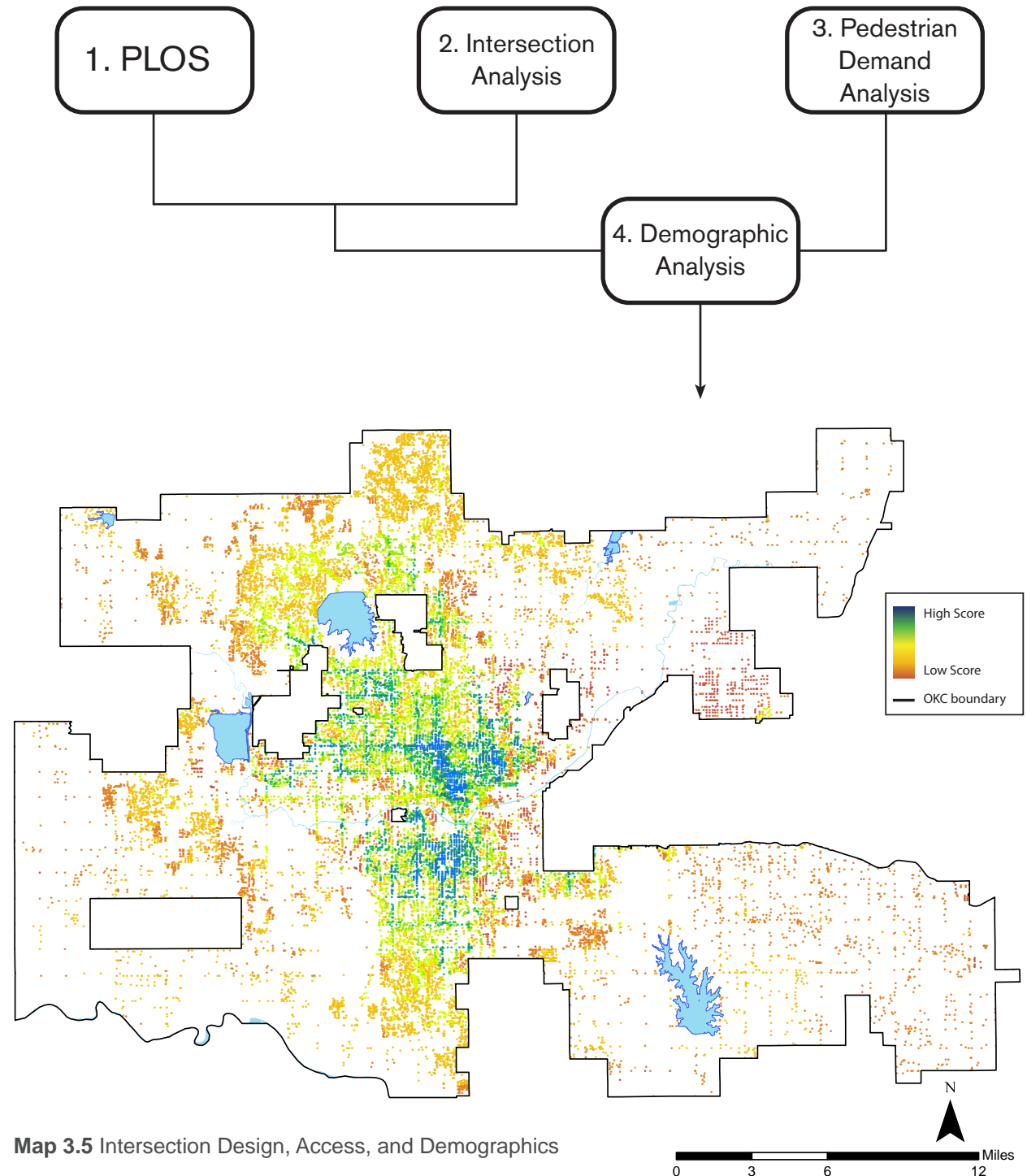
$$(2 * \text{Demand}) - ((\text{PLOS} + \text{Design}) / 2) = \text{Priority Score}$$

This means that an intersection near a lot of pedestrian-generating land uses that does not have much pedestrian infrastructure is the highest priority.

The result of this equation was then balanced by Demographics to ensure an equitable distribution of improvements that focuses on the needs of the people who rely on being a pedestrian the most. These include:

1. Those without access to a motor vehicle
2. Those in poverty
3. Those with a disability
4. Historically underserved populations

All of this analysis identified hot spots across that city that led to the selection of 20 high-priority areas within which to plan improvements for the pedestrian realm. Based on these areas this plan lays out the methodology for conducting pedestrian planning. Each of these 20 areas were analyzed in detail resulting in project lists for sidewalk and intersection improvements. Planning staff continues this planning strategy into the future for areas of the city that did not reach as high of a priority.



Map 3.5 Intersection Design, Access, and Demographics

Cumulative Results

While the preceding sections of this pedestrian plan address the populations and places that have the greatest need for pedestrian improvements, many other areas fall below the level of highest priority. This section explains the approach to prioritize the remaining urban areas in Oklahoma City.

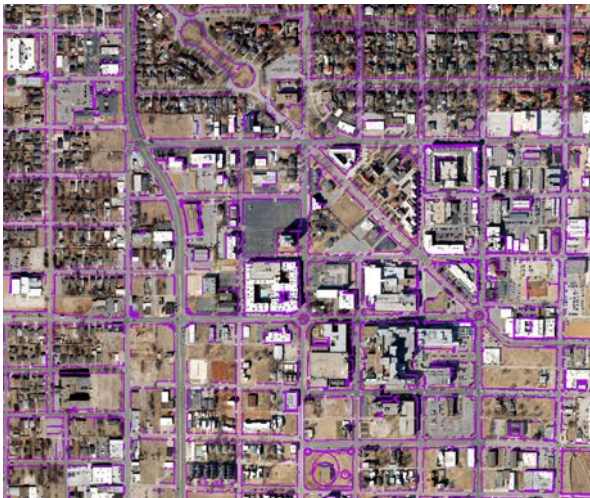
URBAN VS. RURAL

Presently in Oklahoma City, sidewalks are not required for subdivisions with lots greater than one acre in rural areas (Oklahoma City Municipal Code 59-12100G). This intention complements the prioritization process in this plan by requiring developers to construct sidewalks in areas where they are feasible and most needed, while alleviating the obligation in rural areas where there is low traffic and where preserving open space is a Planning priority.

In a city of 621 square miles, the distinction between urban and rural character allows for prioritization of areas that have higher residential densities and long-range planning goals of increased walkability. Excluding rural areas from the process by focusing on planokc's land-use typology areas reduces the total area for pedestrian planning by 46% to an area of 333 square miles.

QUARTER-SECTION ANALYSIS

The total pedestrian planning area of Oklahoma City



is still very large. Therefore, a smaller modular unit was required to prioritize projects within these 333 square miles. The township and range system utilized in Oklahoma and other states by the Public Land Survey System (PLSS) dices the city into a 1 square mile grid separated by section-line roads. This regular layout is ideal for comparing one area to another, but the square mile size is often too large to account for dramatic changes in land use that occur at half-section line roads. A 1/2-mile distance corresponds with about a 10-minute walk, and is a commonly used distance for estimating how far the average person is willing to walk. Therefore, splitting each one square-mile section into four quarter-mile sections gives a grid by which to compare different areas of the city at a more walkable scale.

PRIORITIZATION STRATEGY

The same prioritization strategy used to determine the Priority Pedestrian Areas (PPAs) was utilized to differentiate among the 1,829 individual quarter sections that fall within the urban area of the city. To do this, all of the intersection points with their associated prioritization score (based on intersection design, intersection pedestrian demand, and demographics) were averaged within their corresponding quarter section. This assigns a single value to each quarter section, thereby creating a prioritization list based on scores from highest to lowest. The PPAs are discussed in detail later in this plan.

IMPROVEMENT APPROACH

In areas where overlap exists between the quarter sections and specially planned areas, such as the PPAs, downtown, transit stops, parks, and schools, the area within the quarter section that is not a part of the specially planned area is a lower priority for improvement. However, after the PPAs have been implemented, this map of quarter sections should be utilized to determine where to begin planning the next Pedestrian Priority Areas. In the meantime, parks, schools, and transit stops should be improved following the prioritized lists associated with each. Over the next few decades, this approach will improve walkability around the places people want to go, and the gaps between these areas will begin to close.

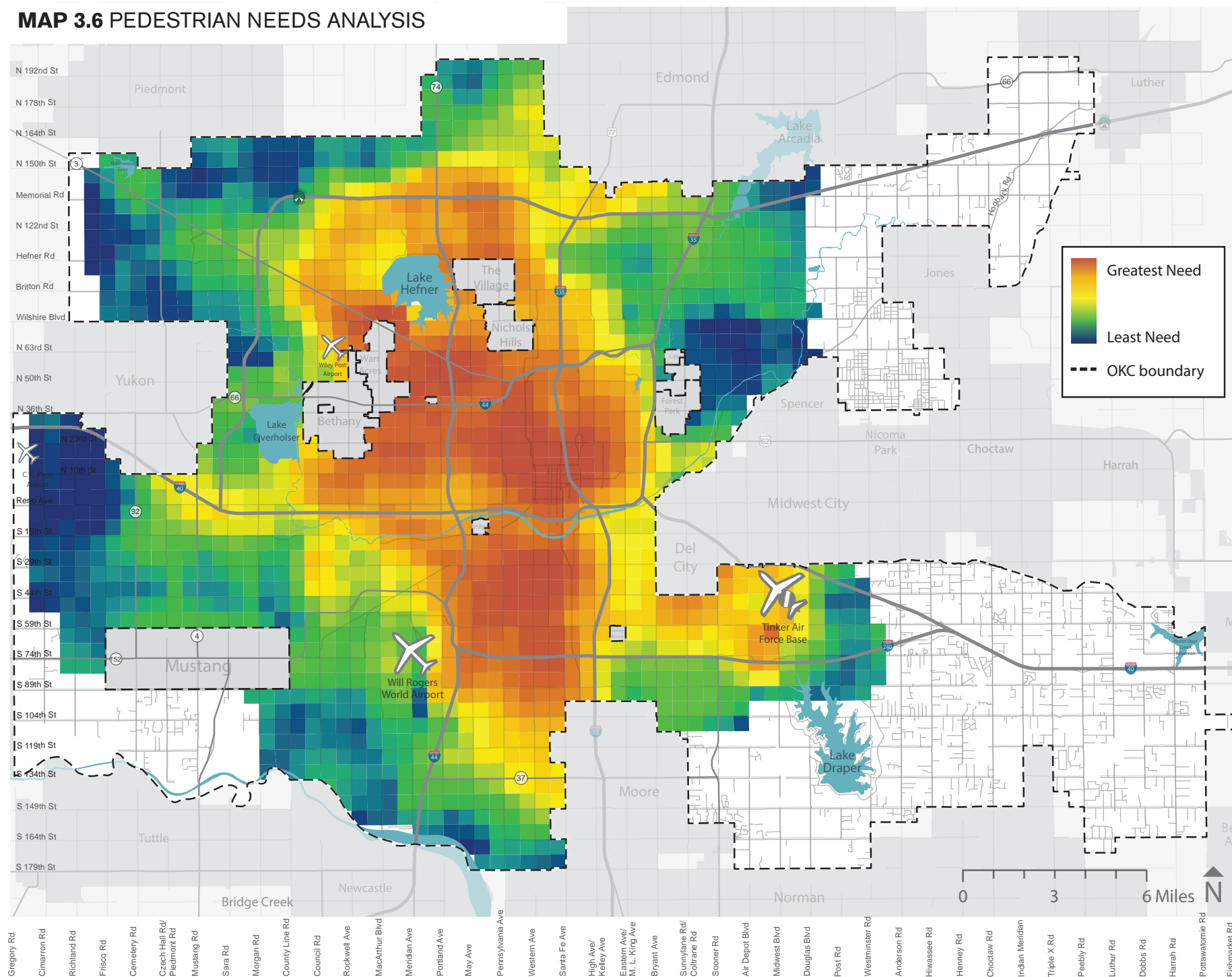
LESSONS LEARNED: ARTERIAL STREETS OUTSIDE OF PPAS

The Issue: In the five years of implementing bikewalkokc projects since its adoption in 2018, the Prioritization Strategy has significantly progressed the sidewalk network development throughout the urban core. While several projects outside of the PPAs have included sidewalks to schools, parks, and public transit locations, there remains a real need to address pedestrian safety issues along major arterial streets outside of the PPAs. Many suburban developments lack proper sidewalk connections to adjacent streets. This means that while neighborhood streets have less auto traffic, arterial roads have more intense levels of traffic than the established grid of the urban core. While the need for sidewalks on residential streets may not be as urgent for many residents in suburban areas, the pedestrian safety concerns on arterial streets are especially high.



The Lesson: The prioritization strategy as laid out in bikewalkokc remains the most effective and equitable way to develop a network of sidewalk infrastructure on a large scale. However, the lack of pedestrian walkways along arterials outside of the PPAs remain a significant safety concern, and there is a need to address those issues strategically. Since these areas have major safety implications, the City's forthcoming Vision Zero plan (described on p. 19) could be a viable option to address many of these pedestrian safety issues. Another option is the annual Surface Transportation Block Grant (STBG) program, through which the City can receive street resurfacing funds that are also eligible to construct sidewalks as part of the projects.

MAP 3.6 PEDESTRIAN NEEDS ANALYSIS

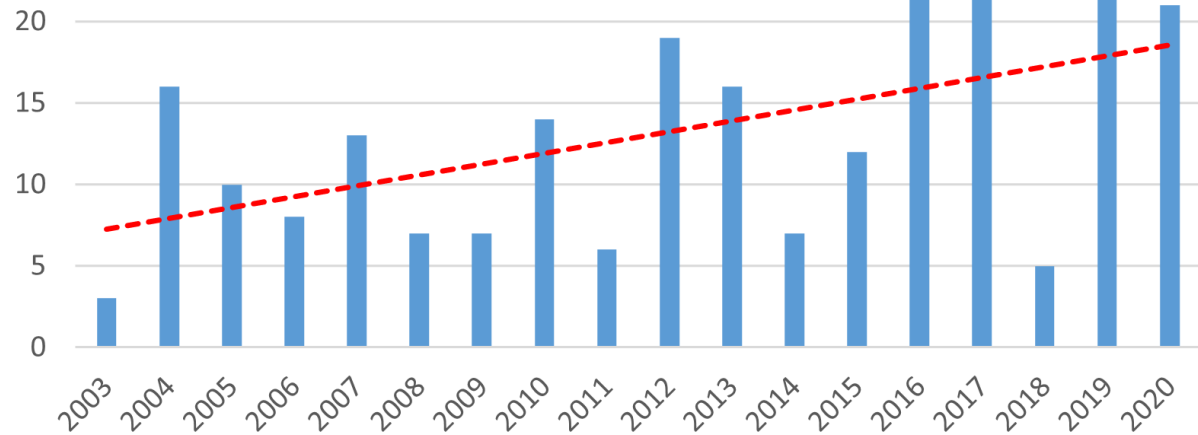


Collision Analysis

One of the largest barriers to walkability is the unavoidable interaction between pedestrians and motorists on city streets. On average, more than 100 collisions between motorists and pedestrians occur each year in Oklahoma City. Ten or more of those collisions result in a pedestrian fatality (ODOT Safe-T). While many of these collisions are due to human error, a major contributor to this problem is the lack of adequate pedestrian infrastructure. Pedestrians are twice as likely to be killed on streets that lack sidewalks, and 94% of pedestrian fatalities occur on streets with speed limits of 30 mph or higher (planokc Health Impact Assessment p. 118). In order to combat these preventable deaths in our community there must be sufficient pedestrian infrastructure, especially in areas that have already seen numerous tragic collisions.

Pedestrian collision data from the Safe-T database administered through ODOT and the Oklahoma Highway Safety Office, in partnership with law enforcement agencies around the state, allows for a variety of interpretations of the pedestrian collision situation in our city. For example, though pedestrian trips only account for roughly 2% of all trips made in Oklahoma City, nearly 29% of transportation-related fatalities are pedestrians, and 28% of those fatal collisions

Figure 3.1 Pedestrian Fatalities per 100,000 in OKC



are hit-and-runs. Figure 3.1 shows that fatal collisions per 100,000 people have been increasing in Oklahoma City over the last couple decades. This is comparable to the national pedestrian fatality trend, and it underscores the need to invest in safe pedestrian infrastructure as the the number of people walking or rolling and the number of cars on city streets continues to grow.

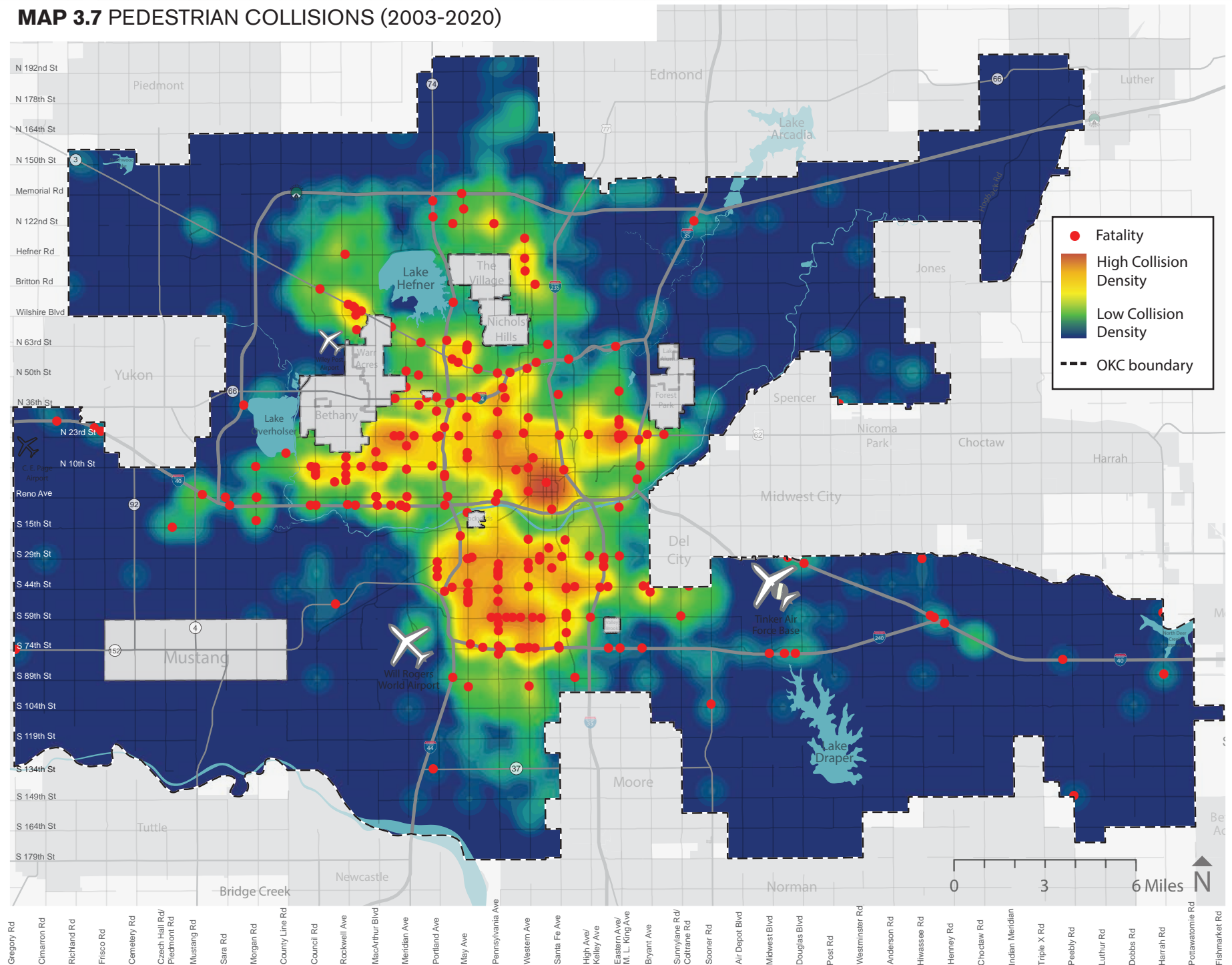
Table 3.1 shows trends that demonstrate the major causes of pedestrian-vehicle collisions. Year-round, pedestrian collisions increase in the afternoon as rush hour begins. This corresponds with an overall

increase in all automobile collisions; however, though motor vehicle collisions slow down as rush hour ends, pedestrian collisions continue to stay high until late in the evening. In addition to increased traffic volume, the most dangerous thing for pedestrians is poor visibility. Pedestrian collisions are highest in hours where the sun has set or is setting. The Safe-T data show that around 66%, or 531 fatal or serious injury collisions, occurred on darkly-lit streets in Oklahoma City. This is particularly bad in the winter months when Daylight Saving Time creates shorter days where the time of sunset coincides with evening commute times.

Table 3.1 Pedestrian Collisions by Month by Hour of the Day 2003-2020

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
January	7	3	5	4	2	2	9	11	6	5	3	6	0	6	14	12	10	14	38	15	13	10	9	4
February	6	5	5	0	0	3	4	3	4	0	2	5	10	5	8	12	14	11	13	24	18	12	5	14
March	8	5	5	1	1	1	4	6	6	3	4	4	12	6	8	10	13	9	15	21	29	22	16	10
April	10	6	5	1	1	2	4	10	6	1	4	2	7	4	13	15	19	15	9	20	12	26	12	12
May	10	8	7	1	2	4	0	5	3	3	5	9	6	3	10	16	14	14	9	19	9	16	13	13
June	10	5	5	4	2	3	3	2	5	6	8	4	8	16	10	13	13	13	11	6	9	15	14	16
July	14	6	6	5	4	6	5	5	3	3	6	5	4	7	7	9	6	11	9	5	4	21	24	12
August	13	4	9	6	1	3	9	9	7	7	6	4	6	9	8	17	7	11	13	10	13	22	22	8
September	14	7	6	3	1	8	9	15	20	8	4	9	7	10	8	11	22	17	12	16	31	19	13	7
October	6	7	7	2	2	3	9	16	11	6	5	4	5	10	11	15	21	19	11	36	33	29	8	15
November	5	9	5	1	4	2	7	10	7	4	7	5	7	3	7	17	19	21	38	32	19	10	7	8
December	3	4	5	2	0	4	2	8	6	1	4	7	9	11	7	18	17	18	48	31	20	14	11	7
Grand Total	106	69	70	30	20	41	65	100	84	47	58	64	81	90	111	165	175	173	226	235	210	216	154	126

MAP 3.7 PEDESTRIAN COLLISIONS (2003-2020)



PEDESTRIAN SAFETY STRATEGIES

As was discussed in Chapter 1 (p. 18), safety issues create the most important and challenging role in this plan. The FHWA recommends safety infrastructure solutions in its Safety Countermeasures guide. They are focused on all modes of transportation, but there are many countermeasures proven to increase pedestrian safety. Some of these countermeasures are straightforward, such as building sidewalks and improving lighting in dark areas where people are walking. Other proven safety countermeasures, like reconfiguring road striping or constructing median refuge islands, can be more complex, but they are often more effective in creating safer streets for all road users.



Project 180 street with wide crosswalks and pedestrian-scale lighting

This section provides an overview of how Oklahoma City can best implement these safety strategies, along with other best practices, through local processes.

Many of the countermeasures are already standardized in the City's standards, and just need more funding to implement on a broader scale to address the vast needs across the city. Other infrastructure strategies, such as an increased focus on the installation of pedestrian-scaled lighting and wide continental crosswalks, were used in the Project 180 street designs downtown and may be issued to address other locations where there are enhanced safety needs.

Traffic Calming

Many of the prescribed bicycle and pedestrian infrastructure projects in bikewalkokc are located along arterial and collector streets with relatively high-speed traffic. As discussed in the previous chapters, high speed automotive traffic around pedestrians and cyclists can create dangerous conditions. As Planning and Public Works staff have worked through the design of some of these projects, it has become clear that many projects should contain automotive traffic calming elements.

The Planning and Public Works Departments recognize the need to study and implement traffic calming measures as part of the design and construction of many of the City's pedestrian-related projects.

In January 2023, City Council approved the City's Alternative Speed Abatement Program (ASAP). This program currently includes four traffic-calming interventions: street alerts, driver feedback signs, speed humps or speed cushions, and mini-roundabouts. With this program in place, City-initiated traffic calming projects may be able to take advantage of the established process to implement some of the safety countermeasures with greater ease.

ASAP gives residents the opportunity to directly participate in addressing traffic speed concerns within their neighborhoods. Participation in this City cost-sharing program is entirely voluntary and subject to eligibility requirements including neighborhood involvement. As the name implies, the program was created to give residents a local alternative to adding stop signs or requesting speed enforcement.



Example of a mini roundabout in a neighborhood.



Students using a pedestrian refuge island.

Outside of ASAP, there are several safety interventions that are less established or completely new to Oklahoma City. However, some of these safety interventions, like pedestrian refuge islands and raised crosswalks, are recommended in the FHWA's Safe Transportation for Every Pedestrian (STEP) guide, and should be considered as possible solutions in Oklahoma City.

Another important traffic calming element is the integration of bump-outs, which are strategic extensions of curbs used to narrow street widths, decrease pedestrian crossing distances, and ultimately slow auto traffic down to safer speeds. There has also been significant progress in the realm of immediate street interventions, sometimes referred to as "tactical urbanism". Many cities across the US are using these kinds of interventions to deploy paint and/or flexible bollards that can achieve these goals in an inexpensive way.



Example of an intersection narrowing using paint and flexible bollards.

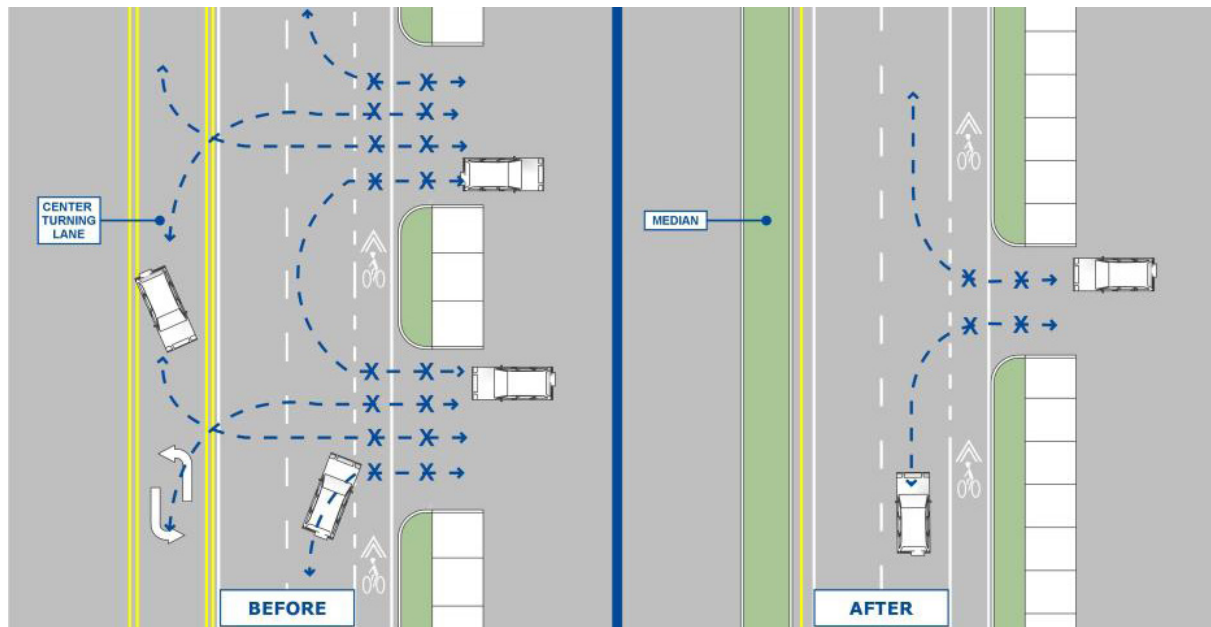
Access Management and Safety

Access management is the process of minimizing the number of driveways to create less conflict points for the safety of all road users. One of the most common hazards to pedestrians is when an automobile needs to turn across the sidewalk or pedestrian pathway, especially onto or off of a high-speed street.

In the most ideal scenario, access management is performed at the beginning of the development process. Many older properties in Oklahoma City have several points of access and very wide driveways. In some cases, access from the street may be unsafe and duplicative for pedestrians, cyclists and automobiles.

For older properties where a complete redevelopment may occur, reducing unnecessary driveways is encouraged. For City-initiated street projects, access management will require working with the current property owners to address their needs, while ensuring an outcome that provides a safer, more comfortable environment for people walking or rolling along the street. Like many of the goals in this plan, this one is incremental but adds up to meaningful change over time.

.....
Example of access management techniques that reduce the number of conflict points for pedestrians and cyclists.



Fixed-time vs. Actuated Signalization

Fixed-time signals follow a predetermined sequence of signal operation, always providing the same amount of time to each traffic movement at any given intersection. According to the National Association of City Transportation Officials (NACTO), fixed-time signals are the general rule in downtown urban areas. They benefit pedestrians by ensuring regularity, network organization, predictability, and by reducing unnecessary delays for all road users. In some cases, a “green wave” fixed time can be set to encourage slower traffic speeds.

- Fixed-time signals are recommended for downtown and urban areas with a lot of pedestrian activity and low vehicular speeds.
- Actuated signals (push buttons, radar detectors) are appropriate for areas with less vehicle and pedestrian traffic.

As part of making Oklahoma City more functional and livable, it's necessary to transition to fixed-time signals in the downtown area and in areas with higher volumes of foot and wheelchair traffic. Automatic pedestrian walk cycles can work well with signals at these locations. Pedestrian signals are as important to all road users because they play a key role in assigning the right-of-way at intersections, and the time countdown can clarify signal change expectations.



Automated Pedestrian Detection and Leading Pedestrian Intervals (LPIs)

There are many benefits to using automated pedestrian detection devices. These devices are able to sense the presence of pedestrians waiting at a crosswalk and send a signal to switch to a pedestrian WALK phase. In some cases, they are also able to detect if a pedestrian needs more time to cross the roadway and lengthen the WALK phase to provide a longer crossing interval. The devices are set up to activate the WALK signal when a pedestrian remains within the detection zone for a certain amount of time.

Leading Pedestrian Intervals (LPIs) typically give pedestrians a 3-5 second head start when entering an intersection with a corresponding green signal in the same direction of travel. According to NACTO, LPIs have been shown to reduce pedestrian-vehicle collisions as much as 60% at treated intersections. Oklahoma City continues to implement LPIs throughout the city.



Pedestrian Plan

This pedestrian plan targets areas of greatest need and greatest potential to make strategic improvements that can build a truly walkable environment for people who cannot or choose not to rely on the automobile as the primary means of transportation. This plan breaks up pedestrian projects into several different components that target specific walkability needs: Pedestrian Priority Areas (PPAs), Street Enhancements, Access to Transit, Access to Schools, and Access to Parks.

PEDESTRIAN PRIORITY AREAS

The methodology for creating the pedestrian plan is based on the identification of key Pedestrian Priority Areas (PPAs) around the city, including downtown. Twenty PPAs were selected through a comprehensive analysis that took into account a variety of criteria, such as land use, public transit, infrastructure conditions, public safety concerns, demographics and more. The plan assesses the individual contexts and conditions within each of the PPAs and downtown, and makes recommendations for improvements to allow pedestrians to safely and efficiently access key destinations, like public transit, schools, and parks.

Analysis and Example: Pages 76-79



STREET ENHANCEMENTS AND PLACEMAKING

Oklahoma City has been changing rapidly over the past two decades, due to improvements from the MAPS and Bond programs, Project 180, and numerous infill and redevelopment projects throughout the City's core, urban neighborhoods and revitalizing commercial districts.

Through close coordination with the Commercial District Revitalization Program (CDRP) and the Strong Neighborhoods Initiative (SNI), this component of the pedestrian plan will focus on some of the most important walkability investments the City can make. CDRP supports commercial areas that include some of the first walkable streetcar suburbs in Oklahoma City, and SNI focuses on neighborhoods that have experienced disinvestment.

This component also prioritizes walkability elements that go beyond sidewalks and intersection crossings. Street enhancements can refer to any street infrastructure that makes people walking or rolling feel safer and more comfortable, from lighting and shade trees to public seating and public art.

Process and Analysis: Pages 80-83

ACCESS TO TRANSIT

Transit users are pedestrians by necessity; therefore, establishing walkable corridors that correspond to transit routes is imperative to achieve higher levels of ridership and rider satisfaction. A well-functioning transit system takes users where they need to go. This means that ADA accessible sidewalks should exist wherever transit users need to walk; bus stops should be in good repair and provide protection from the elements; and users should be able to safely cross the street to access transit stops.

Pedestrian improvements that support the transit network were identified by prioritizing improvements at transit stops that scored highest based on many different criteria.

Analysis and Example: Pages 84-85



ACCESS TO PARKS AND SCHOOLS

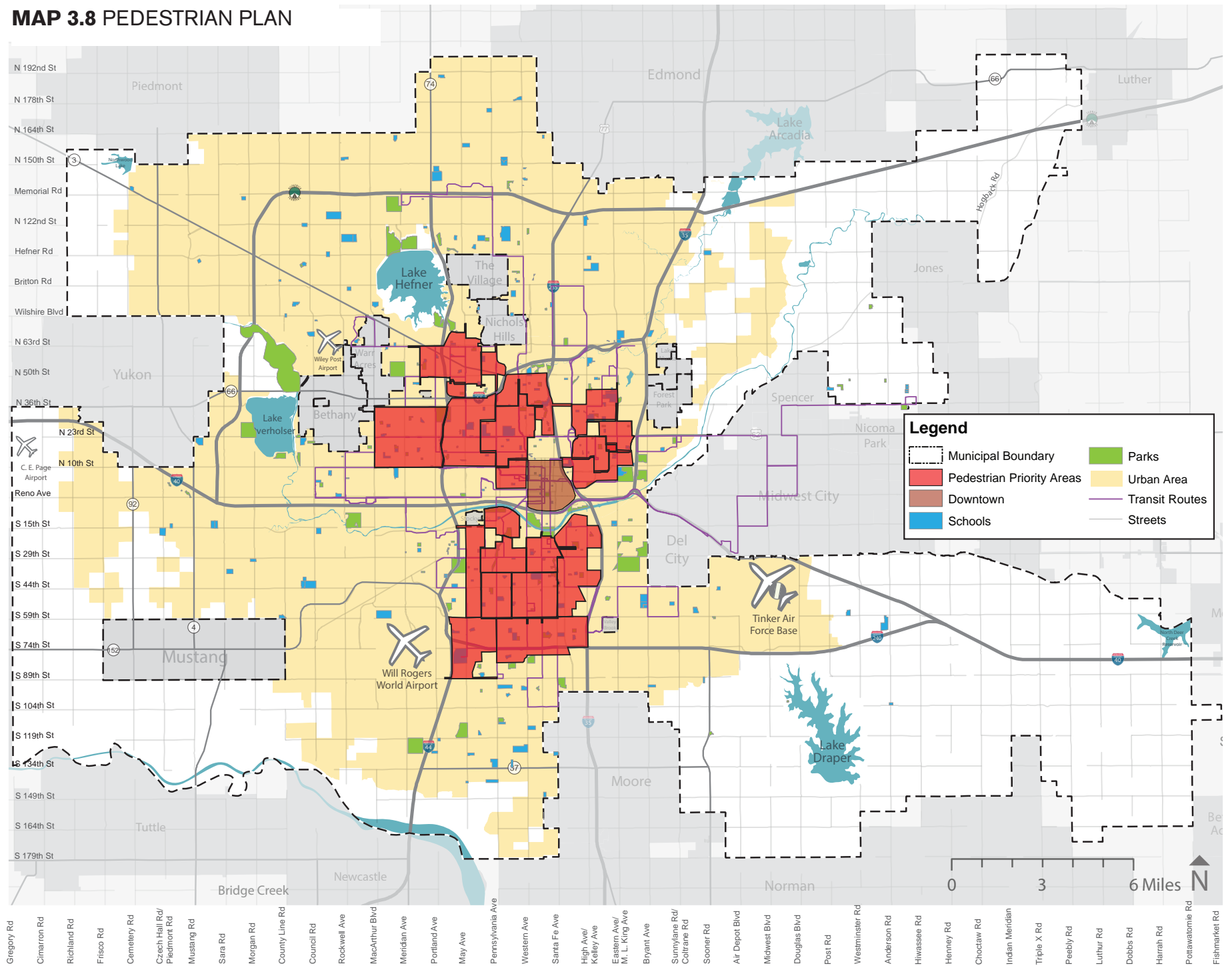
Physical activity opportunities and education are two of the most important elements of a healthy and successful community. Many parents would like their children to be able to walk to school, and to utilize nearby schools as community centers, gyms, and safe community gathering and meeting spaces. This plan ranked the more than 150 parks and greater than 180 schools in the city to create a prioritization list of pedestrian improvement projects connecting people to these facilities.

Analysis and Example: Pages 86-89

The following pages, provide an overview of the component plans and show examples of these plans in certain areas. They provide the concepts that the implementation chapter (Ch. 4) lays out as project lists for future funding opportunities. Each category is focused on addressing accessibility issues and prioritizing locations with the greatest need.

“Disability only becomes a tragedy when society fails to provide the things we need to lead our lives...”
- Judy Heumann

MAP 3.8 PEDESTRIAN PLAN



COMPONENT PLANS: Pedestrian Priority Areas

Goal:

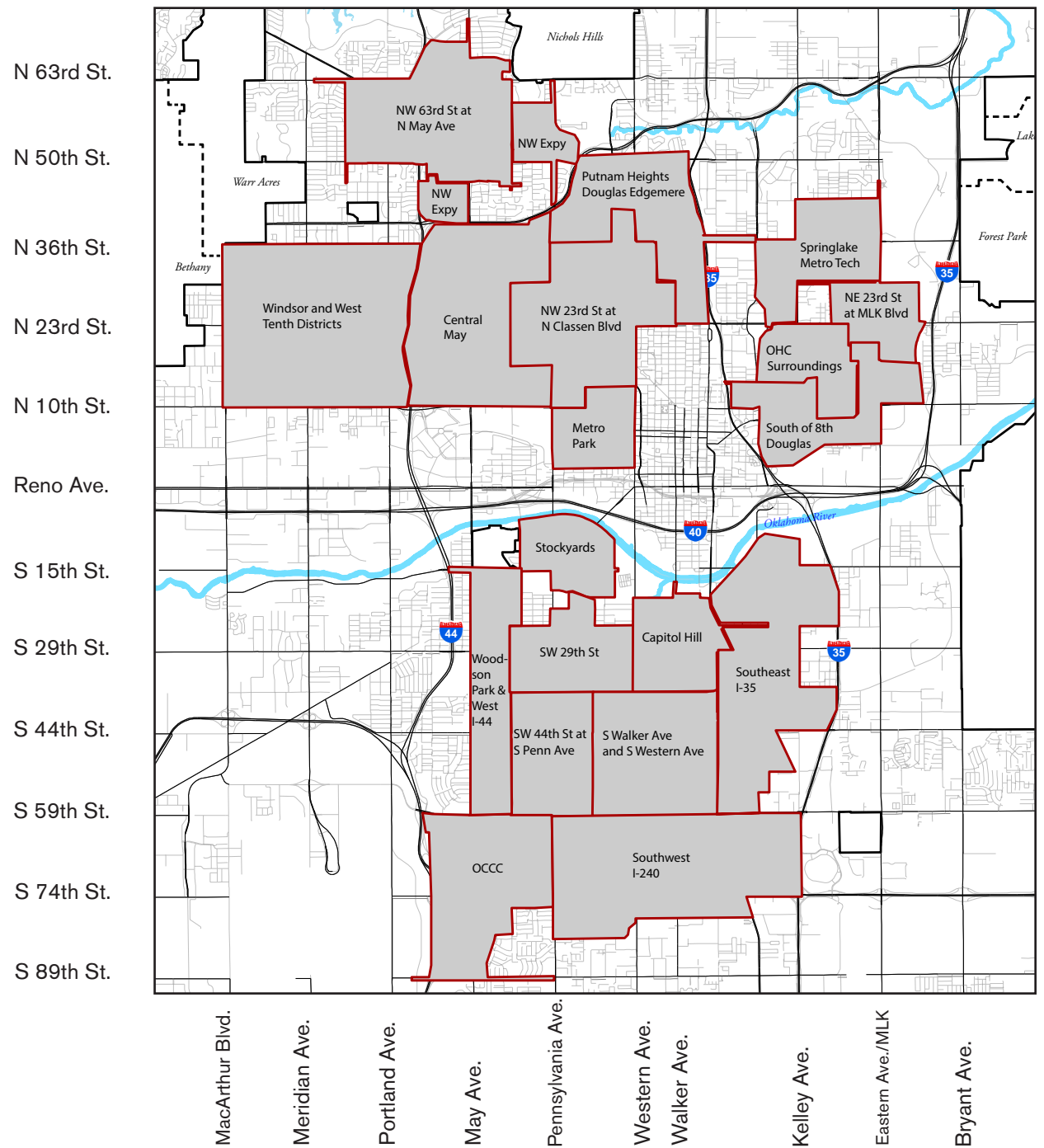
“Create walkable areas that connect people to their daily needs.”

Responsive populations:

- Households without access to an automobile
- Households with disability needs
- Households with older and younger members
- Households in poverty
- Transit riders
- School students, teachers & parents
- Park users
- House of worship goers
- Shoppers/Customers

Funding sources:

- General obligation bonds
- Sales tax initiatives
- Federal grant opportunities



Map 3.9 Pedestrian Priority Areas

PEDESTRIAN PRIORITY AREAS (PPAS)

The City's original 10 Pedestrian Priority Areas (PPAs) were generated based on the density of high-scoring intersections from the analysis detailed on pages 64-71. Once these areas were identified, the boundaries of the PPAs were determined based on detailed site investigations and strategic approaches to maximize the improvement to walkability. The PPAs (in no particular order) are named for familiar areas of the city, which are identified by key commercial districts and major corridors, identifiable places that the PPA boundaries encompass.

In the original 2018 bikewalkokc document, 10 PPAs were identified and planned out in detail for sidewalk improvements. Due in large part to funding from the Better Streets Safer City program, many of the PPA sidewalks projects have been completed. This fact, along with other existing pedestrian needs and sidewalk gaps beyond the PPA borders, has prompted the creation of ten new areas in this 2023 update that extend the reach of sidewalk infrastructure to adjacent neighborhoods, commercial areas, and important public services like schools, parks and public transit stops. Another important factor in determining the boundaries



of the new PPAs is the set of recommendations put forth by community members. The bikewalkokc Update Advisory Group consisted of representatives of various civic organizations, appointed and elected officials, and several residents who have been advocates for advancing bicycle and pedestrian infrastructure in Oklahoma City. A series of meetings was held over the course of the plan update to discuss particular areas in need of pedestrian infrastructure, along with the criteria and categories that might best address the large-scale need in an effective and equitable way. The ten new PPAs build upon the momentum of the original ones, and they represent a combination of the Advisory Group's feedback, staff analysis, and years of residents' sidewalk requests.

With the general goal of providing a more holistic walkability improvements in relatively small areas and neighborhoods, PPA projects need to meet the needs of districts and neighborhoods they are meant to serve. While the projects within each PPA are very specific, identifying the most important streets to provide accessibility and even which sides of the street should receive sidewalks, there is still a level of flexibility that needs to be built into each project. One type of flexibility needs to account for the design feasibility to ensure

that sidewalks can be realistically constructed in a given location, or if there would be too much harm done in the process and an alternative design would be needed. Another type of flexibility is the community engagement process. If, for example, in the process of engaging with a neighborhood or district, there is an expressed need for sidewalks or other pedestrian infrastructure on an adjacent street that provides an important community connection, then the ability to adjust the project's scope accordingly is important for the project team to maintain. While pedestrian safety along the arterial and collector streets are more urgent, residential streets are inherently more localized and should be allowed more breathing room for design changes.

*You could start at a path leading
nowhere more fantastic than from
your own front steps to the sidewalk,
and from there you could go... well,
anywhere at all.*

Stephen King

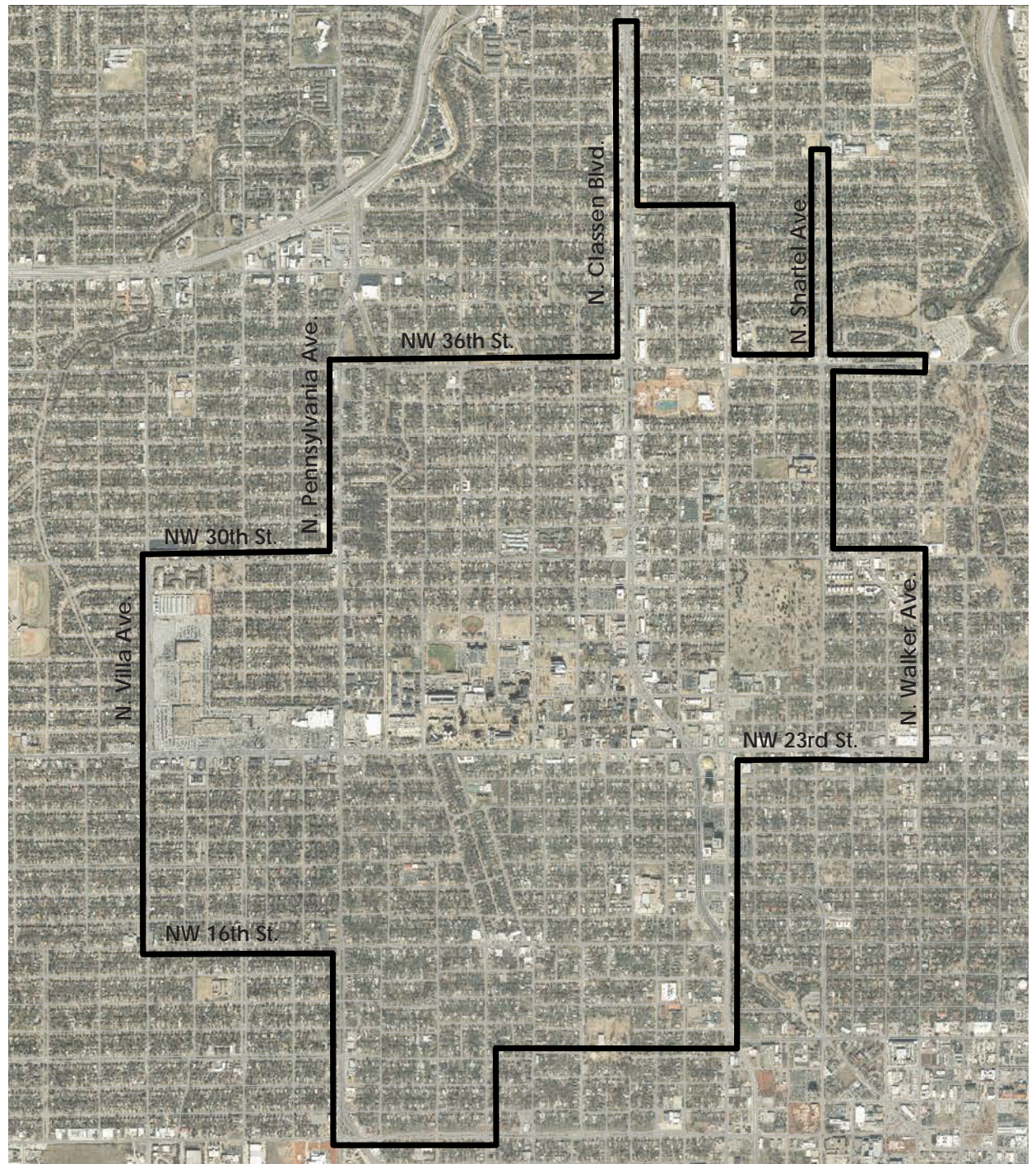
EXAMPLE PPA PLAN: NW 23rd St. at N. Classen Blvd.

Of all the areas of the city analyzed to determine the potential for walkability, the area surrounding the intersection of NW 23rd St and N Classen Blvd shows the greatest level of potential. This area includes a great number of land uses that generate pedestrian activity, but there are also many barriers to safety and walkability. Expanding safe convenient pedestrian access to this area provides opportunities for economic development, healthier lifestyles due to active living, and cost savings to those who live and work nearby by lowering the need to own and operate a motor vehicle for their daily needs. Because of its close proximity to downtown and being bolstered by a growing culture of the inner city toward a more urban lifestyle, this area should be a high priority for investments that will be effectively utilized and will realize numerous benefits.

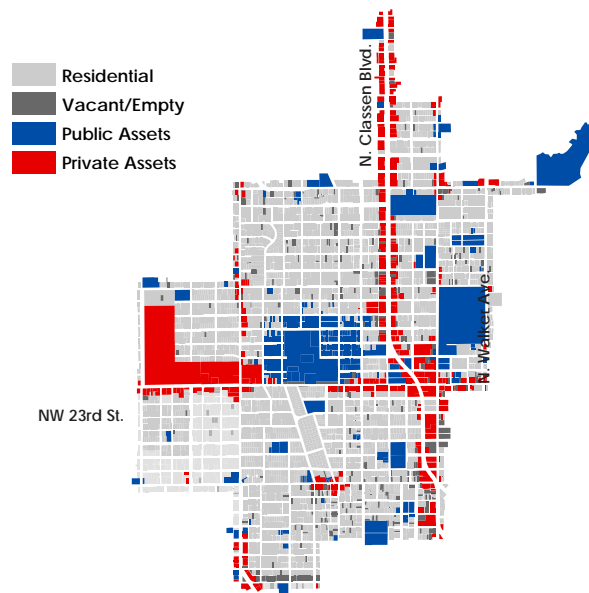
The analysis on the following page was created in the 2018 bikewalkokc plan. It summarizes the process that lead to the established PPA characteristics, which helped to identify built environment needs, assets and priorities for the area.



Above: Aerial view of N Classen Blvd. and NW 23rd St.



Map 3.10 NW 23rd St. at N. Classen Blvd. PPA

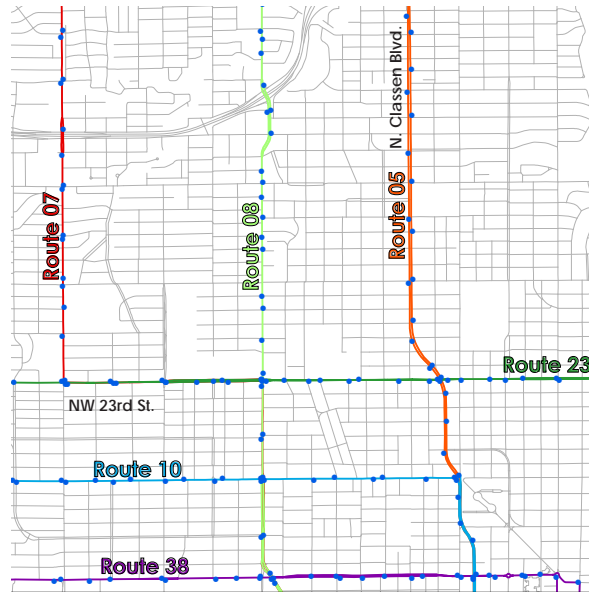


Map 3.11 NW 23rd and Classen PPA Land Use

LAND USE

61.6% of the land use in this area is occupied by residential, making up the largest land use type in the PPA. Public assets (education, government, recreation, churches, etc.) make up 18.5% of the land uses in this area - most of which are located in the OCU campus, Fairlawn Cemetery, and the large Trinity School property on NW 36th St. Private assets (retail, commercial, office, mixed use, etc.) make up 14.7% of the land uses in this PPA. These assets are primarily located along the N Classen Blvd corridor and the NW 23rd St corridor, but Paseo, Asian District, and Plaza District are all important pedestrian destinations as well. The Shepherd Mall parcel, though split between public and private assets, is quite large, and is out of scale with the rest of the private assets in the PPA. Only 5.2% of land is vacant or empty in this PPA. The Classen-Ten-Penn neighborhood has the highest density of vacant land.

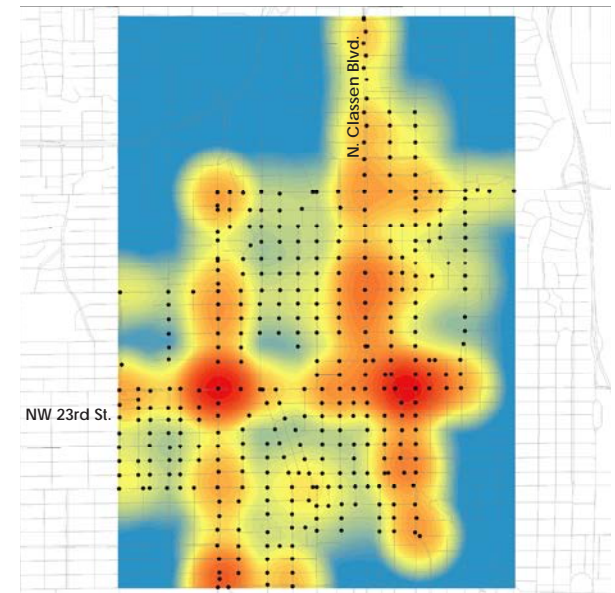
Considering the density of pedestrian-generating land uses that flank both sides of N Classen Blvd and NW 23rd St, ensuring safe crossing of the street and closing the gaps between existing crossings is of the utmost importance in order to create a walkable environment.



Map 3.12 NW 23rd and Classen PPA Transit Routes

TRANSIT

Six transit routes traverse this area: Routes 5, 7, 8, 10, 23, and 38. These routes are aligned with N Classen Blvd, N Pennsylvania Ave, NW 10th St, and NW 16th St. Along these routes are 83 separate bus stops, evenly distributed along the primary roads. The stops with the highest rates of bus riders either boarding or alighting are located at the intersection of NW 23rd St and N Classen Blvd as well as the intersection of NW 23rd St and N Pennsylvania Ave. Routes 5 and 23 have the highest ridership in the entire transit system, making this PPA one of the busiest transit regions in the city. This highlights the importance of filling in the gaps in the sidewalk network and increasing safety and accessibility with regard to crossing the major streets in the area.



Map 3.13 NW 23rd and Classen PPA Collision Analysis

COLLISIONS

The intersection of NW 23rd St and N Classen Blvd, as well as the intersection of NW 23rd St and N Pennsylvania Ave have the highest rates and most dangerous instances of motor vehicle collisions, making it essential to consider their design for the sake of pedestrians. The intersection of NW 10th St and N Pennsylvania Ave is also a hot spot with regard to the number and severity of collisions. The arterial corridors of N Classen Blvd, N Pennsylvania Ave, and NW 23rd St all present challenges to safety for pedestrians, cyclists, and drivers alike.

Between the years of 2003 and 2015, reports indicate that 71 pedestrians and 42 cyclists were struck by motor vehicles in this area. Only one pedestrian fatality occurred during the same time period, though severe injury was common. 10 of the 71 pedestrian collisions occurred at the intersection of NW 23rd St and N Pennsylvania Ave, which is widely known to be a dangerous intersection.

COMPONENT PLANS: Street Enhancements and Placemaking

Goal:

“Enhance walkability and support placemaking efforts in the City’s core commercial districts and neighborhoods.”

Responsive populations:

- Visitors
- Business owners and employees
- Neighborhood residents
- Transit riders
- Special event attendees

Funding sources:

- General Obligation Bonds
- Sales Tax Initiatives
- Tax Increment Financing allocations
- Federal funds

2023 DOWNTOWN APPROACH

The downtown area is made up of several smaller districts including:

- Central Business District;
- Midtown;
- Automobile Alley;
- Bricktown;
- Deep Deuce; and
- West Village

The 2018 bikewalkokc plan recommended sidewalk projects to address major network gaps throughout the downtown area, and those projects were implemented as part of the Better Streets Safer City program. Because of this success, a new approach to downtown is needed. Based on experiences with street enhancement projects in downtown districts, like Automobile Alley, the new approach involves incorporating all downtown districts into a new Street Enhancements and Placemaking pedestrian component plan. This section considers the different types of street enhancement projects and how they can be designed to address the needs of the surrounding districts and neighborhoods.



E Sheridan Ave in Bricktown featuring a streetcar stop, bike racks, an e-scooter, street trees and lighting.



As important as it is to provide sidewalks, preserving existing street trees should also be accomplished wherever possible.

CITY-WIDE STREET ENHANCEMENTS

Street enhancements largely focus on the walkability needs of a particular corridor. Whether the project is specifically centered around an established commercial district or an arterial street with severe safety issues and a lack of pedestrian elements, the goal of this project type is to make the corridor feel more comfortable and attractive for walking or rolling.

In addition to sidewalks, bike lanes, crossing, and bump-outs, various other enhancement elements, such as street trees, lighting, furniture, and art, play a significant role in streetscape projects. Many streets lack basic sidewalk infrastructure, but the need for corridors to provide visibility at night, safe crosswalks, or places to sit and rest is often just as important.

On the economic development side, public investments often bring private investments, and walkability is especially important for the health of small businesses. During its recent street enhancement efforts, the City has recognized its role in the appearance, functionality and safety of its streets.

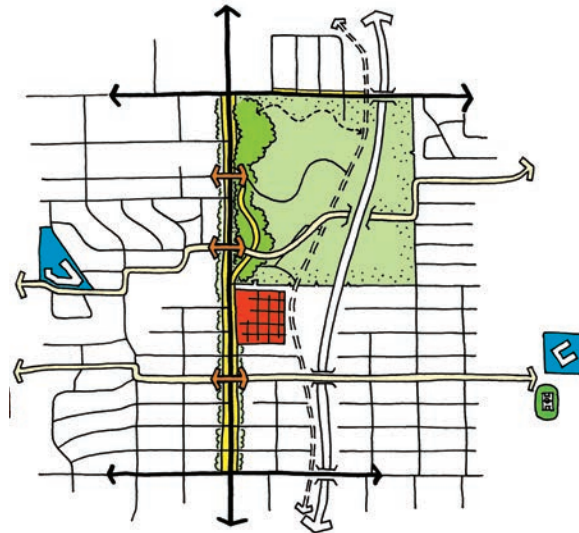
LESSONS LEARNED: COMPROMISING BETWEEN A STREET'S ADJACENT OWNERS AND USERS

The Issue: When retrofitting a street to accommodate additional modes, City staff takes into consideration the requests voiced by street-adjacent property owners. In some cases, striving to accommodate property owners' requests might mean making compromises with the initial design. A common example of such issues is that on-street parking may have to be reduced to allow for other modes to be serviced, which can have important implications for adjacent property owners.



The 39th District project provided both a bike route and the on-street parking desired by the district.

The Lesson: It is important to find a balance between users of different transportation modes when designing such projects. The City employs experienced project managers, who work with the property owners to find acceptable solutions. This may consist of offering multiple alternatives, until a workable design is achieved. The main balance here is ensuring a holistic design that creates a more walkable, people-centered place, while at the same time meeting people where they are and addressing their current needs.



Conceptual drawing of the Portland Ave Street Enhancement project, which will create better access to Will Rogers Park, among other places.

Major Corridors with Multiple Needs

There are many major streets across the city that are not only lacking essential pedestrian or bicycle infrastructure, but also have urgent safety issues, high levels of existing pedestrian activity, or simply a combination of needs that one category of street project cannot cover alone.

Through the Better Streets Safer City program, there was a need to install bike lanes along N Western Ave from Reno to NW 13th, but because the street also had sidewalk gaps and lacked ADA infrastructure, it was identified as a Street Enhancement project as a way to address multiple issues. Another example may be a street that needs basic sidewalk and ADA infrastructure, but also more lighting for safe walking in the evenings and more shade for less heat exposure in the afternoons. A Street Enhancement project can include such characteristics in the scoping process.

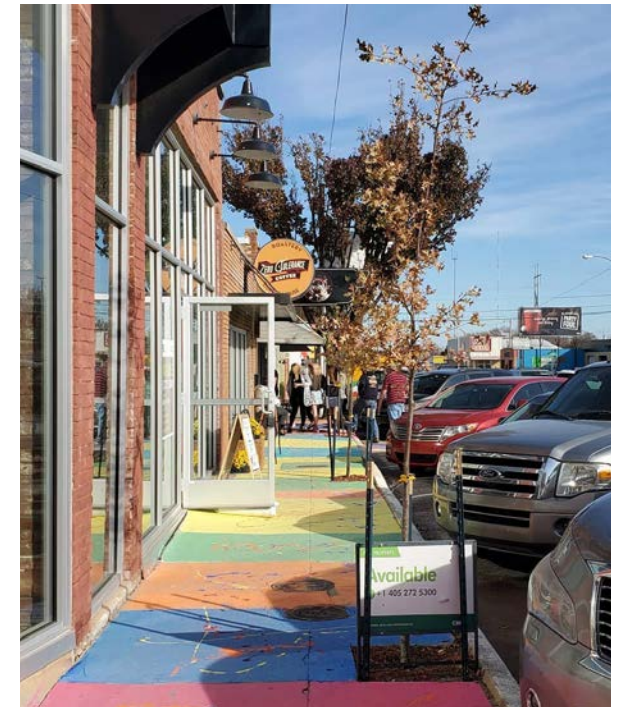
"Cultures and climates differ all over the world, but people are the same. They'll gather in public if you give them a good place to do it."
- Jan Gehl

Commercial Districts and Placemaking

Street Enhancements are tailored to the specific needs of the people who use it. If an organized business district or neighborhood is present, the project will have a strong public engagement component. The Planning Department is well-suited to facilitate the multiple discussions, meetings and events necessary to ensure the community's vision is realized.

Street Enhancement projects are also able to facilitate placemaking efforts. As defined by the organization Project for Public Spaces, "Placemaking is the process of creating quality places that people want to live, work, play and learn in." Thus, it's important to invest in quality public spaces that are safe, connected, welcoming, accessible and sociable. This type of Street Enhancement project can range from a large new plaza for people to gather to a single parking space reused as a pocket park.

Colorful sidewalk paint is one way to activate the pedestrian space during an event in the Britton District



COMPONENT PLANS: Access to Public Transit

Goal:

“Make the pedestrian component of transit ridership convenient, safe, and dignified.”

Responsive populations:

- Households without access to an automobile
- Households in poverty
- The elderly and the young
- General transit riders
- Potential transit riders

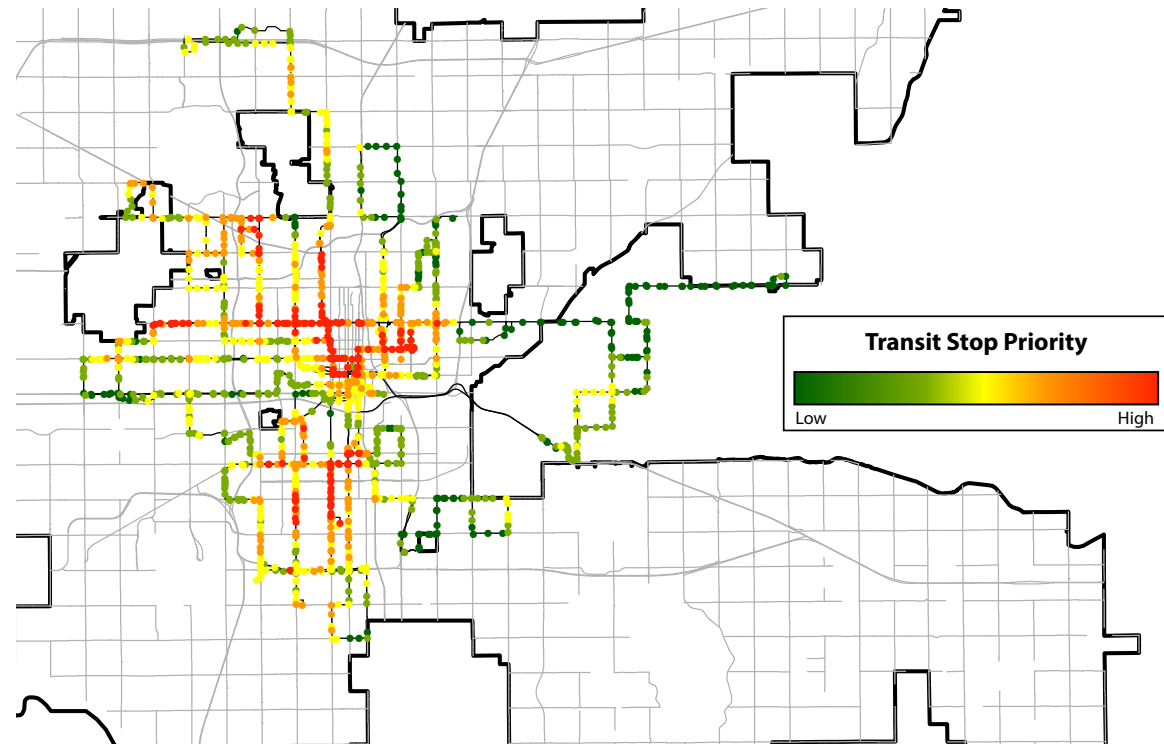
Funding sources:

- General obligation bonds
- Sales tax initiatives
- Tax Increment Financing allocations
- Federal funds

RATIONALE

Transit routes and stops need sufficient pedestrian infrastructure in order to be best utilized. When transit stops are disconnected from pedestrian infrastructure, riders are placed at higher risk of collision with automobiles, those with disabilities are limited in their ability to utilize the transit system, and people who do not currently use public transit are less likely to choose to do so because it is more difficult to use. With this in mind, public transit routes and stops were primary criteria in the Pedestrian Priority Areas (PPAs). 509 transit stops have been addressed through in-depth sidewalk and intersection planning in each of the PPAs. This accounts for 37.7% of the 1,350 transit stop locations in the EMBARK bus system.

Map 3.14 Transit Stop Prioritization Score



TRANSIT STOP PRIORITIZATION

In addition to the transit stops already addressed in the PPAs, the remaining stops in the system have been prioritized for improvements by using a score generated from a number of criteria. Those criteria include:

1. Boarding and alighting
2. Population density
3. Employment density
4. Activity density
5. Proximity to supermarkets and grocery stores
6. Proximity to healthcare facilities
7. Proximity to parks
8. Proximity to trails
9. Proximity to schools and colleges
10. Proximity to government facilities

11. Proximity to multi-family residential
Each transit stop location was ranked based on these criteria, which together illustrate the significance and potential of each of the stops to be as useful to riders as possible.

Map 3.14 shows the scoring of each of the transit stops in the EMBARK system. The stops in red represent the highest priority for pedestrian improvements based on transit stop criteria. The red hotspots are primarily located within the PPAs, adding further justification to the PPA selection process (see pages 64-71).

*Equal access to public transportation
is as important to the U.S. economy
as equal access to public education.*

*-Association of Pedestrian and
Bicycle Professionals*

Transit Access Analysis Example

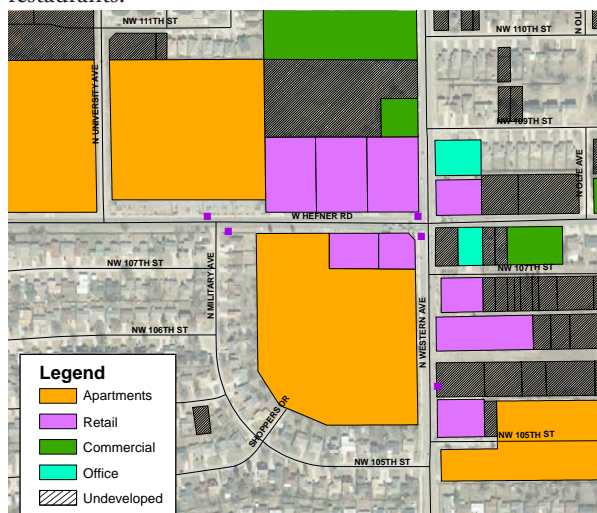
N WESTERN AVE. & NW HEFNER RD.

For each sidewalk component outside of PPAs, the project locations will be analysed as funding becomes available. This page shows one example of how the transit sidewalk needs are assessed for a priority location.

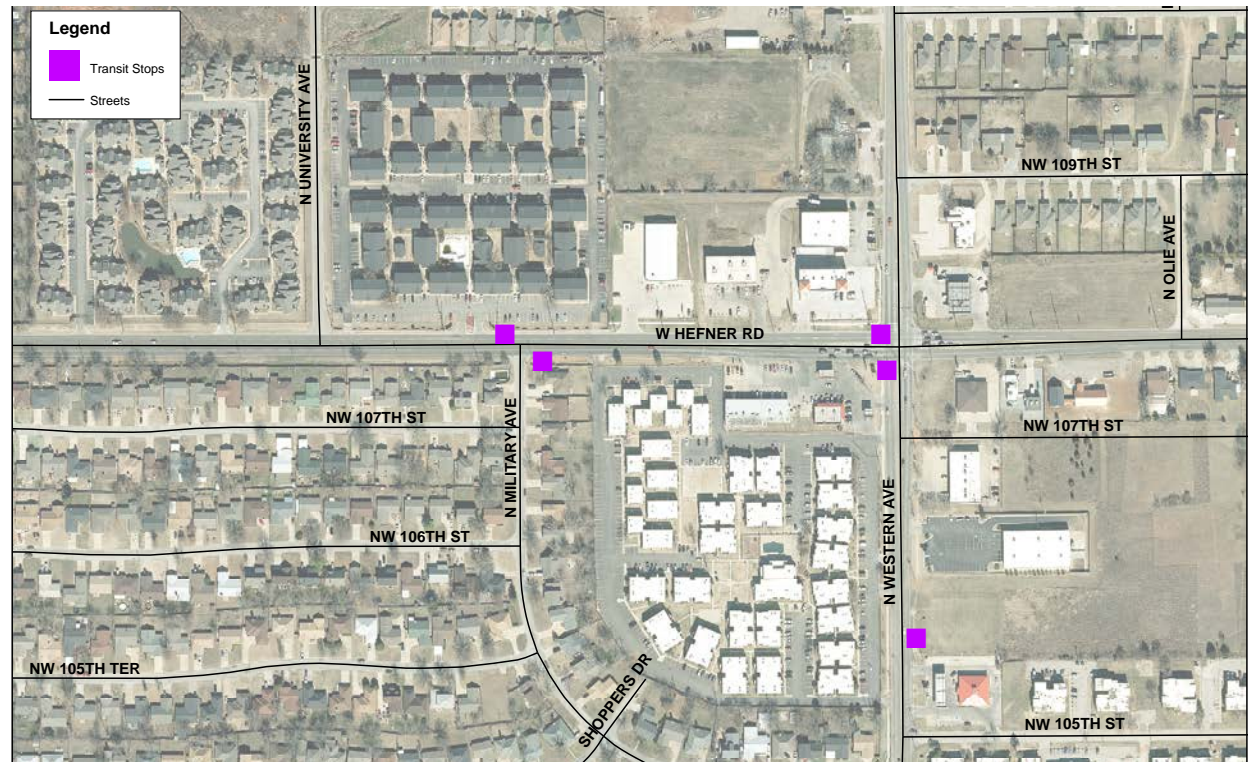
A hotspot of transit activity exists around the intersection of N Western Ave and W Hefner Rd, where six transit stops service more than 150 transit boardings and alightings per day.

Four large apartment complexes are within close proximity to the intersection, while retail, commercial, and office uses inhabit the lots surrounding the intersection. The four apartment complexes house 715 residential units and thousands of residents. Presently, a MAPS 3 sidewalk is constructed on the west side of N Western Ave south of the intersection, and three businesses have sidewalks along their street frontage.

By filling in the gaps in the sidewalk network, not only would the numerous residents in this area be better and more safely connected to the EMBARK transit system, but they would also have increased access to useful retail establishments like the grocery store, daycare, salon, and restaurants.



Map 3.15 Parcels Within a 1/4-mile Walk



Map 3.16 N. Western Ave. at W. Hefner Rd. - Transit Stops

RECOMMENDATIONS

Based on staff analysis and site investigation, the following recommendations will lead to a more walkable environment for transit riders in and around the intersection of N Western Ave and W Hefner Rd.

1. Connecting the two apartment complexes on the north side of W. Hefner Rd. to the intersection by filling in the gaps in the sidewalks will increase safety for and accessibility.
2. Adding sidewalks along N. Western Ave. north of the intersection with W. Hefner Rd. will provide a safer connection to the transit stops in the area for the single-family neighborhoods to the northwest.
3. Adding sidewalks along W. Hefner Rd. east of the intersection will connect the existing retail, commercial, and office land uses. Additionally,

it could stimulate the development of the undeveloped parcels along this stretch of road.

4. Completing the sidewalk network on N. Western Ave. south of the intersection will connect another apartment complex, and will capitalize on the improvements completed during the MAPS 3 sidewalk project.
5. Safe crossings for transit users should be introduced in two locations.
 - a. The intersection of N. Military Ave. with W. Hefner Rd.
 - b. The intersection of NW 105th St. and N. Western Ave.

By making these changes thousands of local residents will be better connected to their surrounding land uses, as well as the Embark transit system, which will facilitate non-motorized travel across the city (Map 3.16).

COMPONENT PLANS: Access to Schools

Goal:

“Create a safer environment for children and families to walk to neighborhood schools.”

Responsive populations:

- Children
- Families
- School faculty and staff
- Neighborhood residents

Funding sources:

- General obligation bonds
- Sales tax initiatives
- Safe Routes to Schools funding
- Transportation Alternatives Program (TAP)

RATIONALE

Children and families should be able to walk to and from neighborhood schools on safe, convenient, and comfortable facilities. A walkable area around a school provides many benefits, such as less dangerous traffic around schools, more options for physical activity for children, and improved use of the school’s athletic facilities by all neighboring residents.

Because schools are an important part of the PPA component plan, all schools outside of PPAs have been prioritized according to the following methodology.

SCHOOL PRIORITIZATION PROCESS

Schools are prioritized for pedestrian improvements using the following process:

Step 1: Identify all existing schools within the city limits of Oklahoma City.

Step 2: Group the schools based on the likelihood of students walking to the school.

1. Elementary and Middle Schools
2. High Schools
3. Charter Schools, Magnet Schools, and Private Schools
4. Colleges, Technical Schools

Step 3: Create ¼-mile, ½-mile, and 1-mile buffers from school sites using the street network.

Step 4: Rank schools by the number of households within the buffer distances.

Step 5: Use this list as the prioritization strategy for pedestrian improvements near schools.

Using this approach, projects can be identified for improving walkability to public schools, and to form the basis of a Safe Routes to School plan for Oklahoma City. Table 3.2 includes the top 20 highest ranking schools based on the process described above. See Appendix P.2 for a complete ranking of schools in Oklahoma City.

I’m not going to buy my kids an encyclopedia. Let them walk to school like I did.

Yogi Berra

Table 3.2 School Prioritization

Rank	School Name
1	James L Dennis ES
2	Rollingwood ES
3	Bodine ES
4	Rockwood ES
5	Fisher ES
6	Parkview ES
7	Mustang Trails ES
8	Nichols Hills ES
9	Tulakes ES
10	Greenvale ES
11	Sooner ES
12	Western Heights MS
13	Winds West ES
14	Wayland Bonds ES
15	Barnes ES
16	Stone Ridge ES
17	Millwood ES
18	Eisenhower ES
19	Holy Trinity Lutheran School
20	Kipp OKC College Prep



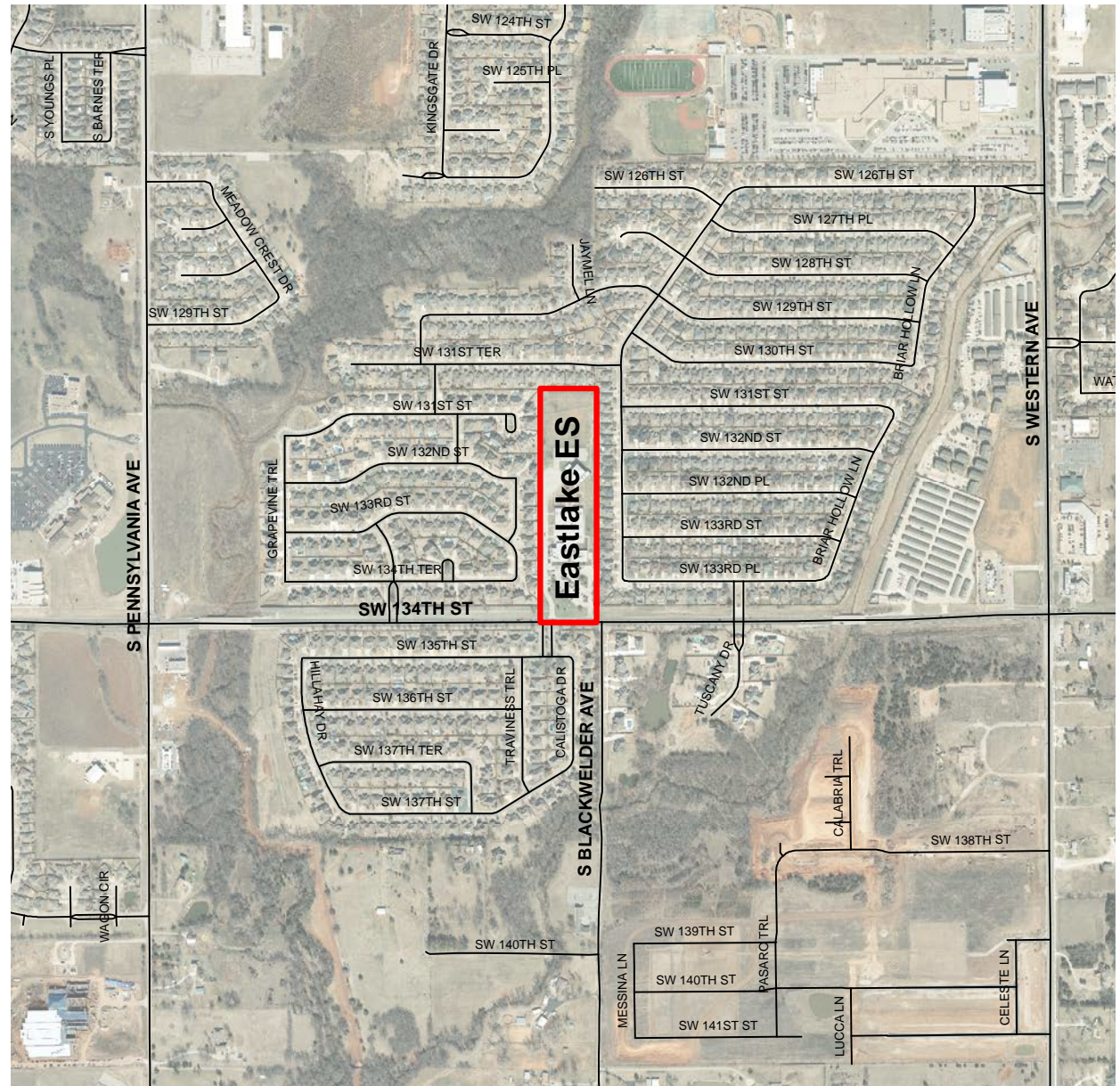
Special safety features are often included in pedestrian improvements near sensitive uses like schools and parks.

School Access Analysis Example

EASTLAKE ELEMENTARY SCHOOL

Eastlake Elementary School is located at 1301 SW 134th St in far south Oklahoma City. It is situated halfway between S Pennsylvania Ave and S Western Ave on the north side of SW 134th St, surrounded by single-family residential subdivisions, some of which are located across SW 134th St. (see Map 3.17). Staff analysis resulted in the following findings:

1. No sidewalk connections exist on SW 134th St. from the surrounding neighborhoods.
2. All of the subdivisions that surround the school have fully built sidewalk networks as required by development; however, these networks are not connected to each other or to any surrounding land uses as the sidewalks stop abruptly at the neighborhood entry points.
3. Eastlake Elementary School has two pedestrian access points:
 - a. A cut-through on the west side of the school between two single-family homes; and
 - b. A cut-through on the northeast corner of the school between two single-family homes.
4. The subdivision entrances on the north side of SW 134th St. are each located 800' or more from the school entrance, which could cause many children to have to exit the subdivision in order to get to SW 134th St and access the school.
5. The subdivision across from the school entrance on Calistoga Dr. does not have a safe crossing for children who attend Eastlake Elementary to walk to school.



Map 3.17 Eastlake ES Aerial

COMPONENT PLANS: Access to Parks

Goal:

“Create opportunities for physical activity by connecting people to neighborhood parks.”

Responsive populations:

- Children
- Families
- Neighborhood residents
- Visitors and Special Event Attendees

Funding sources:

- General Obligation Bonds
- Sales Tax Initiatives
- Parks and Recreation Department
- Transportation Alternatives Program (TAP)

RATIONALE

Oklahoma City has high rates of chronic illnesses such as diabetes and obesity. These diseases are linked to a lack of physical activity; therefore, providing residents with safe and convenient access to their closest neighborhood park may help improve health outcomes.

Because parks are an important part of the PPA component plan, all parks outside of PPAs have been prioritized according to the following methodology.

PARK PRIORITIZATION PROCESS

Parks are prioritized for pedestrian improvements using the following process:

Step 1: Identify all existing parks within the city limits of Oklahoma City.

Step 2: Create ¼-mile, ½-mile, and 1-mile buffers using the street network.

Step 3: Rank parks by the number of households within the buffer distances.

Step 4: Use this list as the prioritization strategy for pedestrian improvements for parks.

Using this approach, projects can be identified to improve pedestrian access to all of the parks in the city as funding becomes available. Table 3.2 includes the top 20 highest ranking parks based on the process described above. See Appendix P.3 for a complete ranking of parks in Oklahoma City.

Table 3.3 Parks Prioritization

Rank	Park Name
1	Earlywine Park
2	Woodrun Park (East & West)
3	Mackleman Park
4	Lorraine Thomas
5	Edwards Park
6	Mayview Park
7	Lela Park
8	J.B. Black Park
9	Burton/Britton Park
10	Brookwood Park
11	N Highland Park
12	Lytle Park
13	Straka Soccer Fields
14	L.D. Lacy Park
15	Redlands Park
16	Lightning Creek Park
17	Shallowbrook Park
18	Crossroads Sports Complex
19	Melrose Park
20	Mark Twain Park



Better Streets Safer City sidewalk project that created better access to E.W. Perry Park in NE OKC.



Scissortail Park, completed through MAPS 3 in 2019.

Park Access Analysis

Example

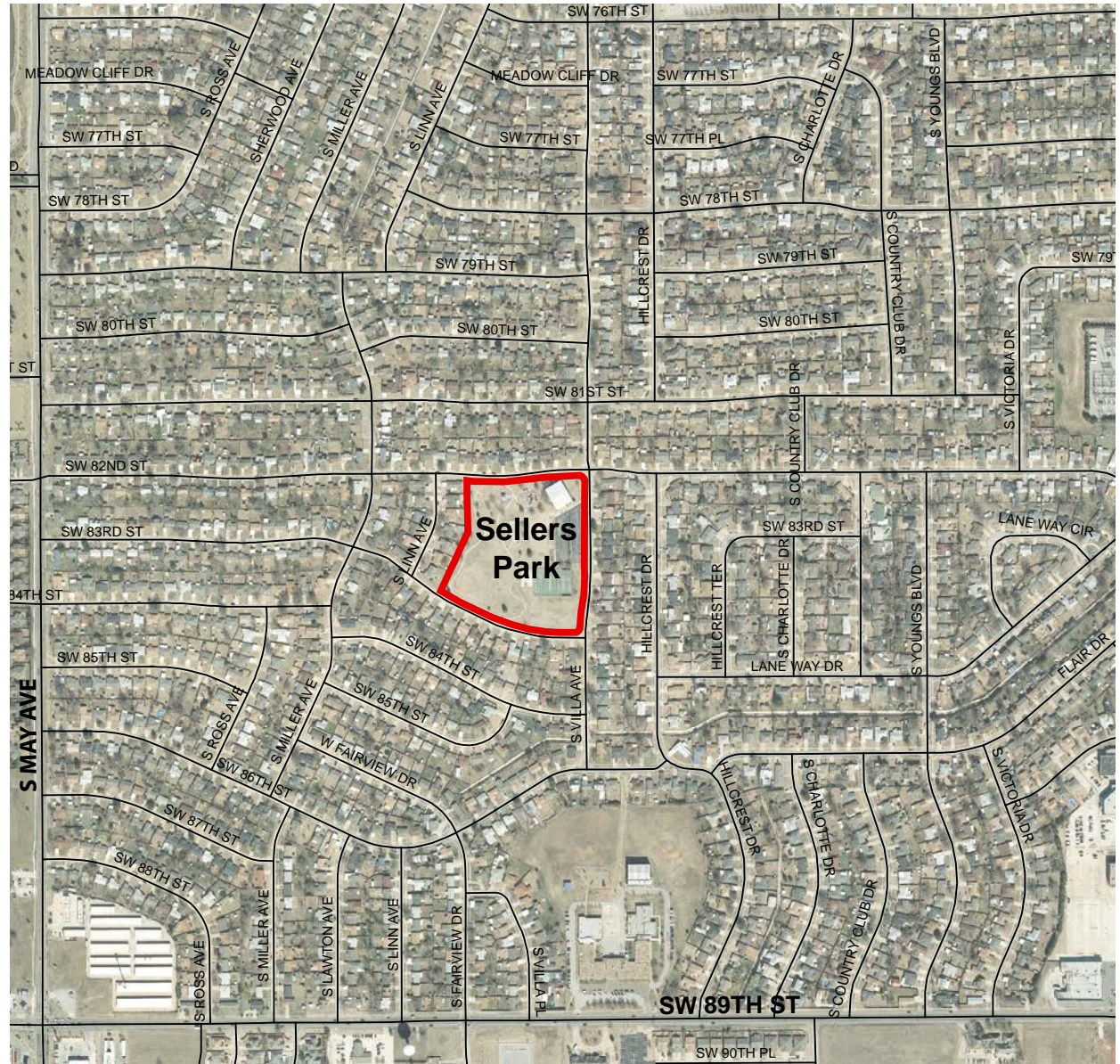
SELLERS PARK

Sellers Park is an example of a park that needs pedestrian improvements to connect neighborhoods to the park. Sellers Park is on the south side of Oklahoma City, at the corner of S. Villa Ave. and SW 82nd St. The park is surrounded by single-family residential and is near Fairview Elementary School. Staff analysis resulted in the following findings:

1. No sidewalks exist on the perimeter of the park, nor are there sidewalks on the other side of the street that flank the park.
2. The residential areas south and east of the park have ample sidewalks.
3. An opportunity exists to connect large numbers of residential parcels with a minimal amount of sidewalks connecting to nearby existing sidewalks that lead to the park.
4. Residential areas to the north and west of the park do not have existing sidewalks, meaning that improvements to the sidewalk network will require a complete build-out.

Greater physical activity, access to green spaces, and services and programming that promote better health outcomes lead to less reliance on medication, fewer trips to the hospital, and lower healthcare costs.

-National Recreation and Park Association (NRPA)



Map 3.18 Selllers Park Aerial



CHAPTER 4: IMPLEMENTATION PLAN

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To plan is human; to implement, divine.

Jerold Kayden

CHAPTER 4: IMPLEMENTATION PLAN



Introduction

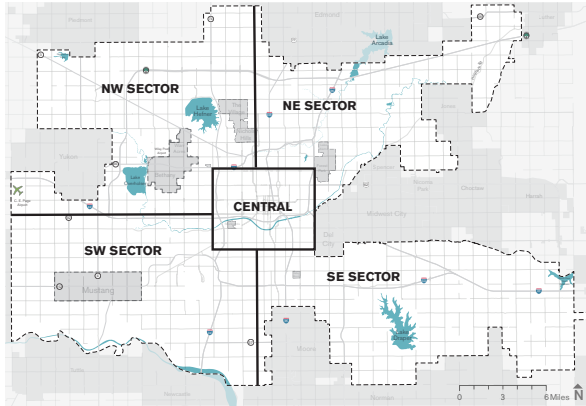
This chapter outlines the facility selection and prioritization process of each bike and pedestrian project category. The resulting maps and tables illustrate the new lists of ranked projects for future funding opportunities.

One of the keys to achieving a successful, well-used network is to prioritize the construction of bicycle and pedestrian facilities that provide the most benefit to the most residents. This chapter details the prioritization process and ranks the importance of each according to cost and benefit.

The bikewalk**kckc** 2024 update builds on the original methodology in 2018 that selected bicycle and pedestrian facilities for the most benefit to the most residents. As was outlined in previous chapters, many of the high-ranking projects have since been funded or completed altogether, and various social and environmental conditions have changed since the plan's adoption in 2018. This means that many mid-to-low ranking projects have moved up in their prospective lists, but it also means that many new, high priority projects have been added, and are prioritized appropriately.

This chapter also includes an updated Action Plan, which makes recommendations on a policy level for the City's infrastructure investments. Specific changes in code ordinances, design standards, policies and procedures were adopted over the last few years to facilitate efficient and legal execution of the pedestrian and bicycle capital improvement projects. The Action Plan identifies the remaining recommendations.

Bicycle Network Selection & OKC Sector Maps 2023



Map 4.1 Sector Map Guide

Because Oklahoma City is so geographically large, the sector map was created in the 2018 plan to focus on five different sections of the city. The sector maps in the next several pages were revised to show new projects and make adjustments in the alignments of existing projects. The goal of a citywide network is to create a safe, comfortable, and connected series of bicycle facilities that accommodate riders of all skill levels. To accomplish this goal, a tier system was created to establish the appropriate level of protection for any given street.



TIER 1 - PROTECTED BIKE LANE

A Tier 1 protected bicycle lane offers the highest level of safety for cyclists with regard to on-street bicycle facilities. These facilities are appropriate when cyclists

require protection from higher levels of automobile traffic volume or traffic speed. Key design guidelines for this facility include:

- Vertical barriers to create separation between cyclists and automobiles. This can be accomplished with curbs, bollards, or planters.
- Accommodate left-turning motions.
- Conflict areas between automobiles and cyclists are clearly marked.
- Bicycle lanes are located along the curb line and on the passenger side of on-street parking.
- Bike lanes allocate a minimum of 5' of seamless pavement.



TIER 2 - BIKE LANE

The standard bicycle lane designates a portion of the street for cyclists' exclusive use. This Tier 2 facility type is appropriate where curb-to-curb width allows for a bicycle lane to be added, or where there is sufficient space based on a street reconfiguration that has minimal impact on the ease of flow of automobile traffic. The difference between this facility and a Tier 1 protected bike lane is the lack of vertical delineation from the automobile lanes. Key design guidelines for this facility type include:

- Accommodate left turn motions.
- Conflict areas between automobiles and cyclists are clearly marked.

- Bicycle lanes are located along the curb line and on the passenger side of on-street parking wherever possible.



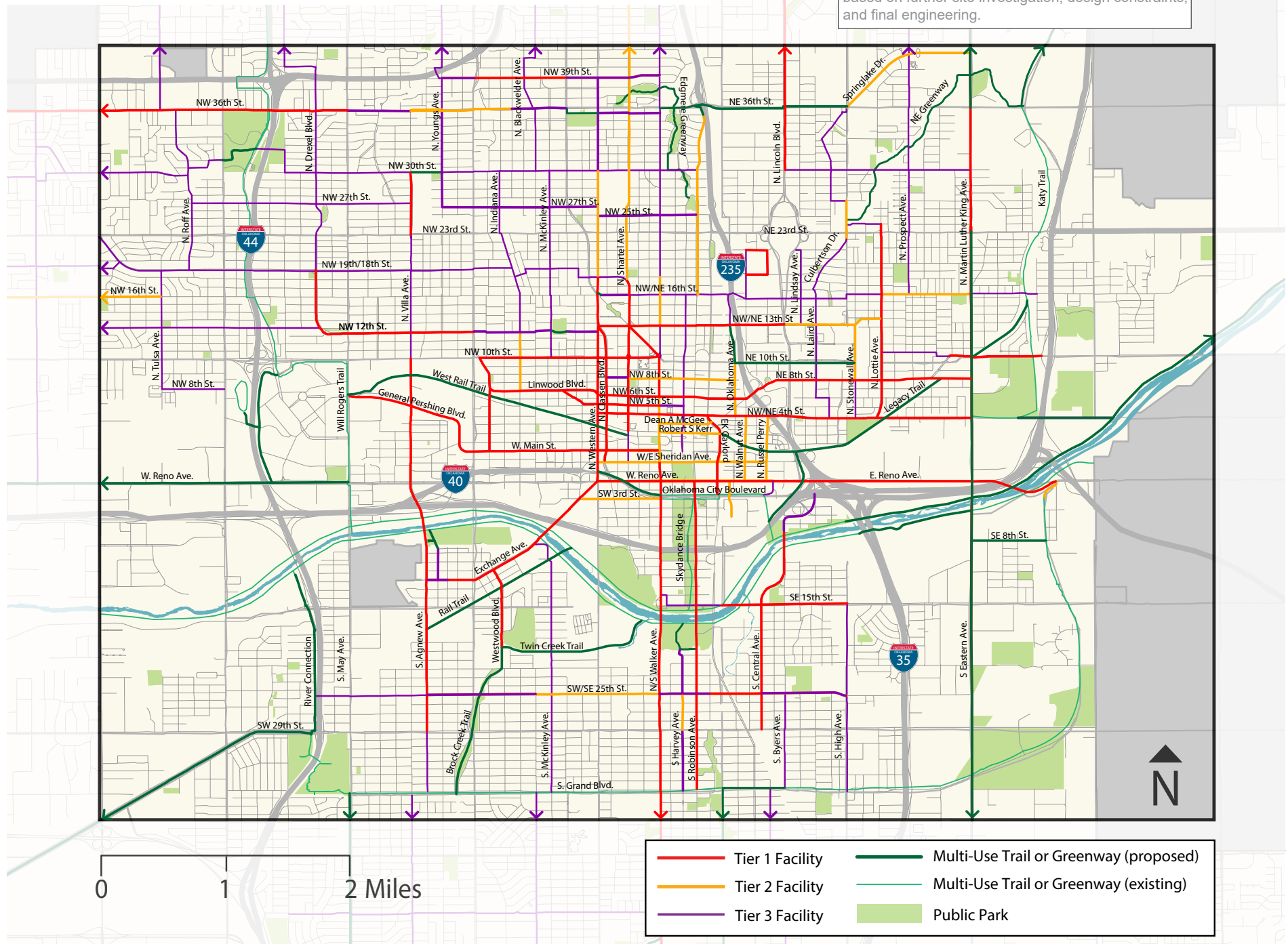
TIER 3 - SHARED ROUTE

Shared bike routes indicate that cyclists and drivers must share the same lane, rather than having a dedicated portion of the road for cyclists. The following design guidelines ensure that the Tier 3 facilities are useful and safe for both cyclists and motorists:

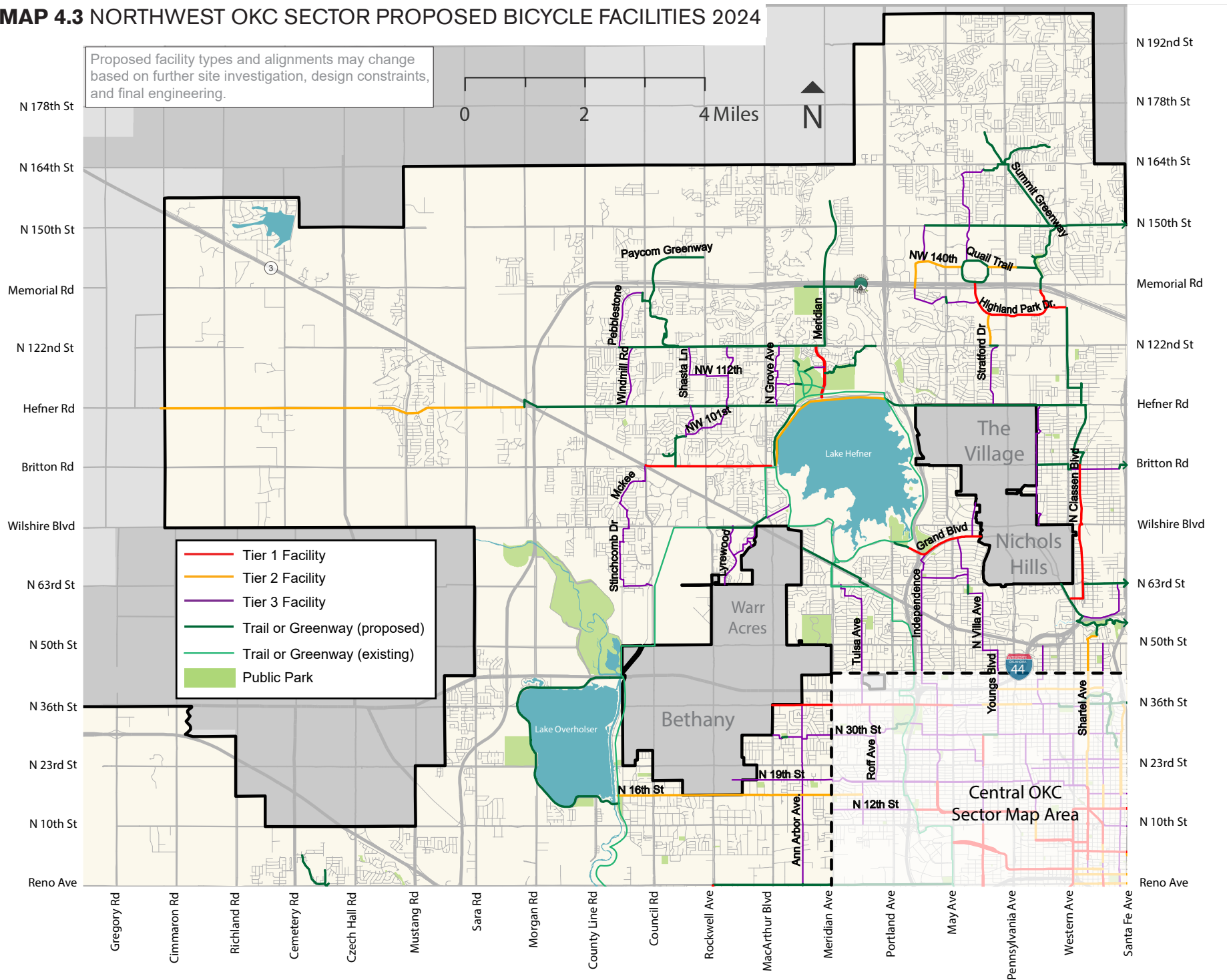
- Shared routes are most appropriate on two-lane streets with a speed limit of 30 MPH or less.
- Bike routes connect to higher intensity bicycle facilities.
- Sharrows are high-visibility.
- Sharrows are painted in the middle of the lane.
- Sharrows are spaced frequently.
- "Bike May Use Full Lane" signage is used.
- Rural bike routes are on streets with shoulders.
- Traffic calming is used to reduce design speed. This infrastructure can include speed humps/cushions, mini-roundabouts, or less expensive devices like driver speed feedback signs. Street context is evaluated to determine the most appropriate traffic calming options.

MAP 4.2 CENTRAL OKC SECTOR PROPOSED BICYCLE FACILITIES 2023

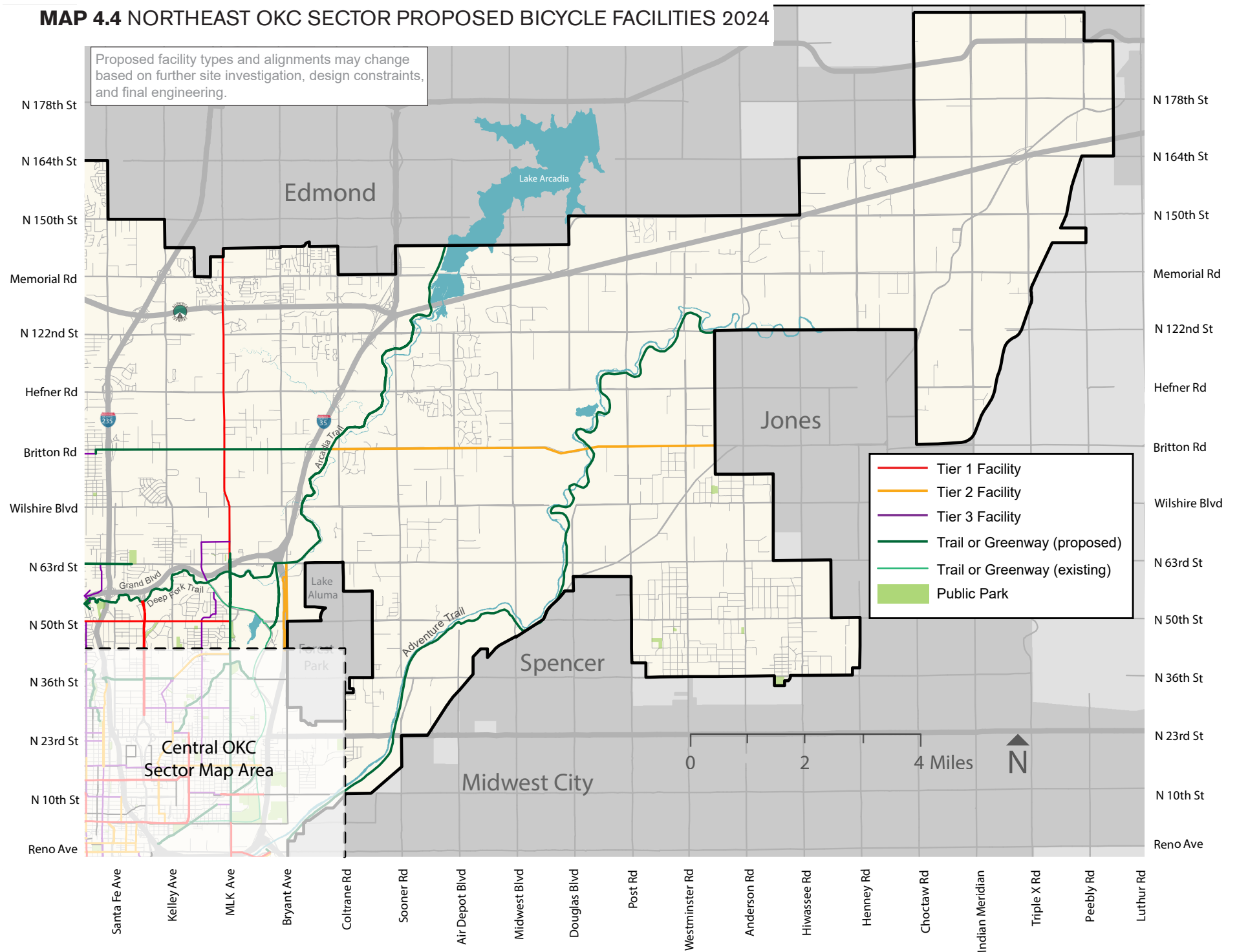
Proposed facility types and alignments may change based on further site investigation, design constraints, and final engineering.



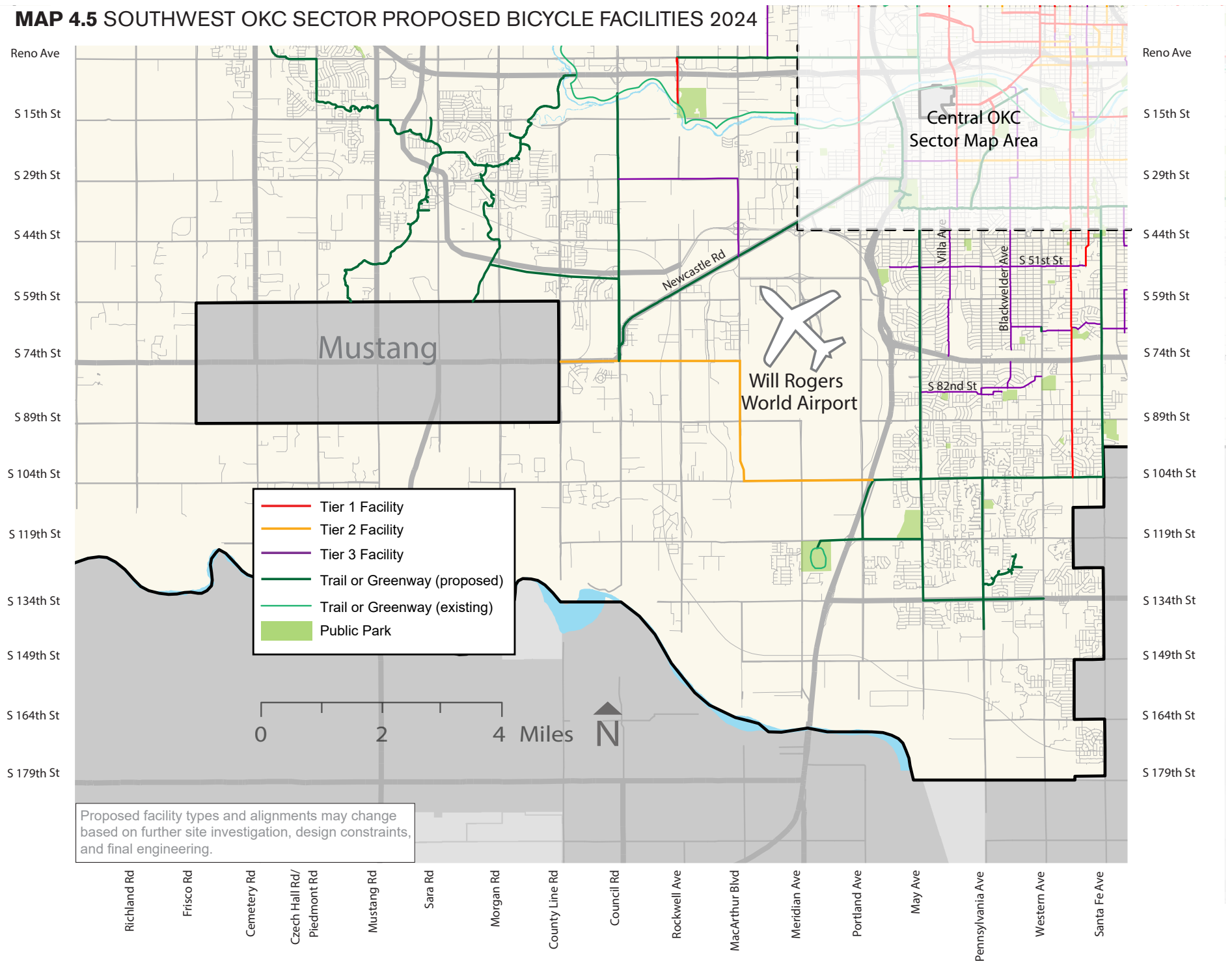
MAP 4.3 NORTHWEST OKC SECTOR PROPOSED BICYCLE FACILITIES 2024



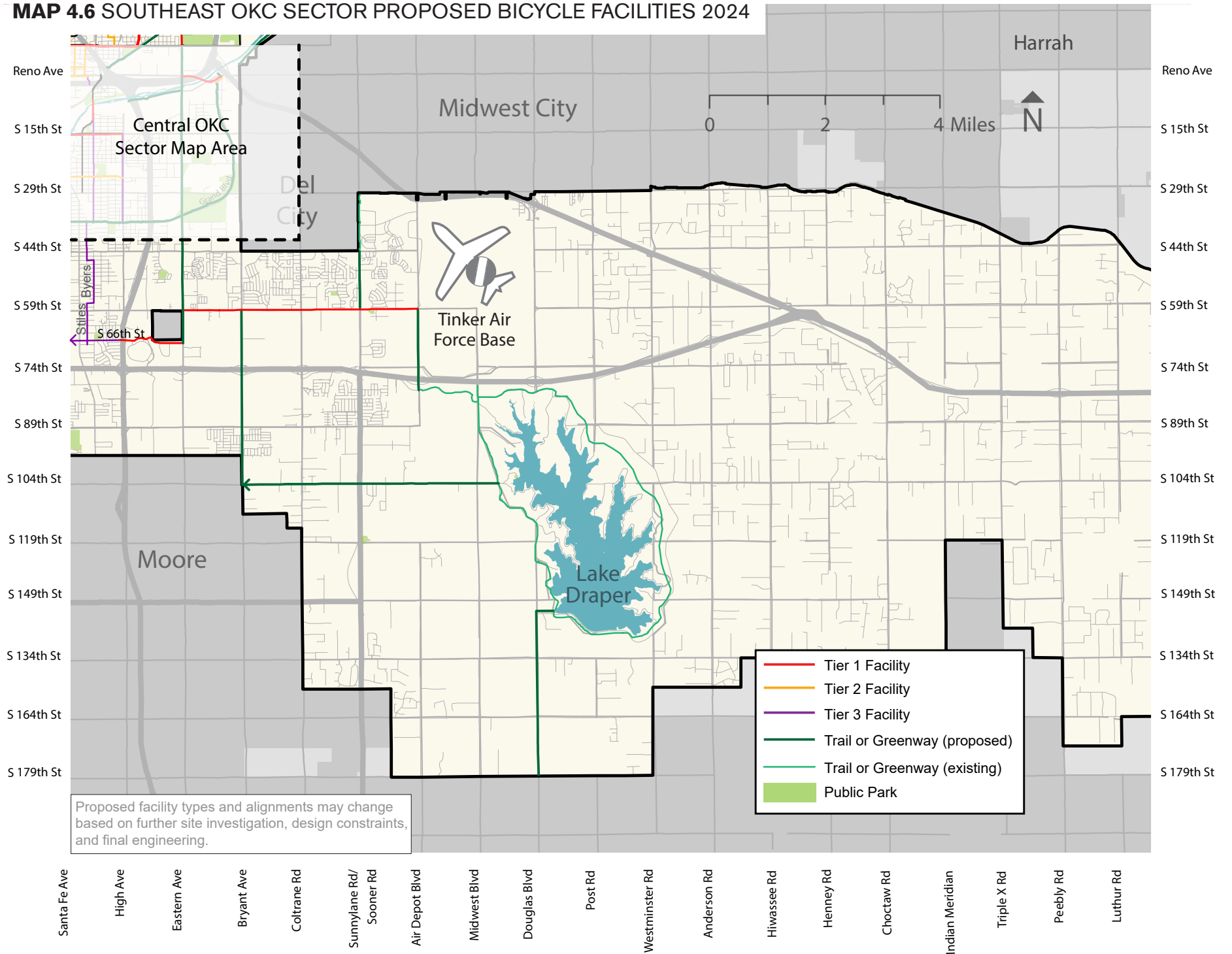
MAP 4.4 NORTHEAST OKC SECTOR PROPOSED BICYCLE FACILITIES 2024



MAP 4.5 SOUTHWEST OKC SECTOR PROPOSED BICYCLE FACILITIES 2024



MAP 4.6 SOUTHEAST OKC SECTOR PROPOSED BICYCLE FACILITIES 2024



Bicycle Network

Prioritization

The bicycle network is prioritized to take into account many different criteria, including:

1. **Number of households served** - Locations that serve the greatest number of people with the greatest need.
2. **Cost per household** - Fiscally efficient implementation ties directly into the number of households served, and also includes the preliminary cost estimate of the facility.
3. **Destinations** - Bicycle facilities that connect schools, parks, and commercial or recreational areas are prioritized over those that do not.
4. **Barriers** - Bicycle facilities that provide access over barriers such as highways, water bodies, and arterial streets are important to establish a well-connected transportation network.
5. **Component Plan Project** - Bicycle facilities identified as part of a “component plan project” from the Bicycle Plan in Chapter 2 are prioritized because they contribute to a more comprehensive and strategic system of active transportation options.

Proposed projects in this chapter are prioritized according to the above criteria in order to build a continuous network in a strategic and thoughtful manner. The projects are not meant to be implemented in consecutive order, but rather to be identified by relative importance. Prioritizing projects by groupings allows grant opportunities to be awarded to certain projects that rank well when combined. Resurfacings and other streets projects that may not have otherwise included bike facilities are also important to coordinate with planned bike projects. Additionally, categorizing project priorities can allow City officials to make more informed decisions and be provided with multiple options for ever-changing scenarios.

The next five maps illustrate this prioritization, starting from the City’s bike infrastructure that existed in 2018



before bikewalk**okc** and showing various funded projects through programs like Better Streets Safer City, and then laying out the prioritization phases that will build a robust citywide bike network. These maps define three bike network prioritization phases: Priority 1, 2, and 3.

MAP 4.7 EXISTING AND FUNDED BIKE FACILITIES

MAP 4.7 illustrates the conditions of bike facilities existing prior to the adoption of bikewalk**okc** in 2018.



These include MAPS trails and shared routes as on-street facilities. Map 4.7 also shows what has been funded since the start of bikewalk**okc**. Many of the bike and trail projects are now complete, and with the remaining funded projects well underway, a more substantial bike network has started to come to fruition.

MAP 4.8 PRIORITY 1 BIKE NETWORK: 2023 URBAN CORE & CROSSTOWN CONNECTIONS

As an outcome of all five criteria, the core Oklahoma City area is Priority 1 in the overall bike network to connect the highest number people to the most destinations possible. Mostly within the core highway loop, this category establishes the foundation of a coherent system, upon which network expansions can subsequently be built.

A few extended bike routes are also included in the urban core network that define connections into the suburbs in all directions. These corridors are known as the Crosstown Connections component of bikewalk**okc**.

MAP 4.9 PRIORITY 2 BIKE NETWORK: PRIMARY SUBURBAN AND RURAL ROUTES

The Priority 2 category extends the bike and trail network into the suburban areas and identifies key rural roads that support inter-city cyclist travel.

Because many subdivisions weren't built with a well connected street grid, retrofitting bike and trail networks is more difficult and expensive. However, the street discontinuity makes creating a connected network that much more important. Some shared roads can be utilized where connections between neighborhoods do exist, but much of these networks require multi-use trails alongside arterial streets that are heavily trafficked and have relatively high speeds. Outside of suburban environments, many roads are more rural in character, and, while bike lanes or trails may not be feasible, projects that add shoulders to rural roads can provide a safer cycling condition and provide additional space for vehicles to pull over if needed.

Priority 2 also identifies several regional trail connections. While most of these trails may not traverse high populations, they do provide important links between trails systems, and they support long-distance bike travel and cycling tourism efforts.



MAP 4.10 PRIORITY 3 BIKE NETWORK: REMAINING SUBURBAN AND RURAL ROUTES

The Priority 3 category is intended to make the bike and trail network more robust and far-reaching. It will expand on suburban connections identified in Priority 2, and help create a strategy for providing bike infrastructure in areas where population is currently low but expected to grow in the coming years.

LESSONS LEARNED: PRIORITIZATION, SCOPING, AND CONNECTIVITY

The Issues:

Prioritization - federal grants and other streets projects provide opportunities to build bike facilities that may not have been prioritize in the plan. Additionally, bike projects listed out in very specific criteria may not account for the shifting dynamics of projects and developments in the urban area.

Scoping - Often, bike projects will not account for other issues on the street, like poor pavement conditions, outdated traffic signals, or utility conflicts.

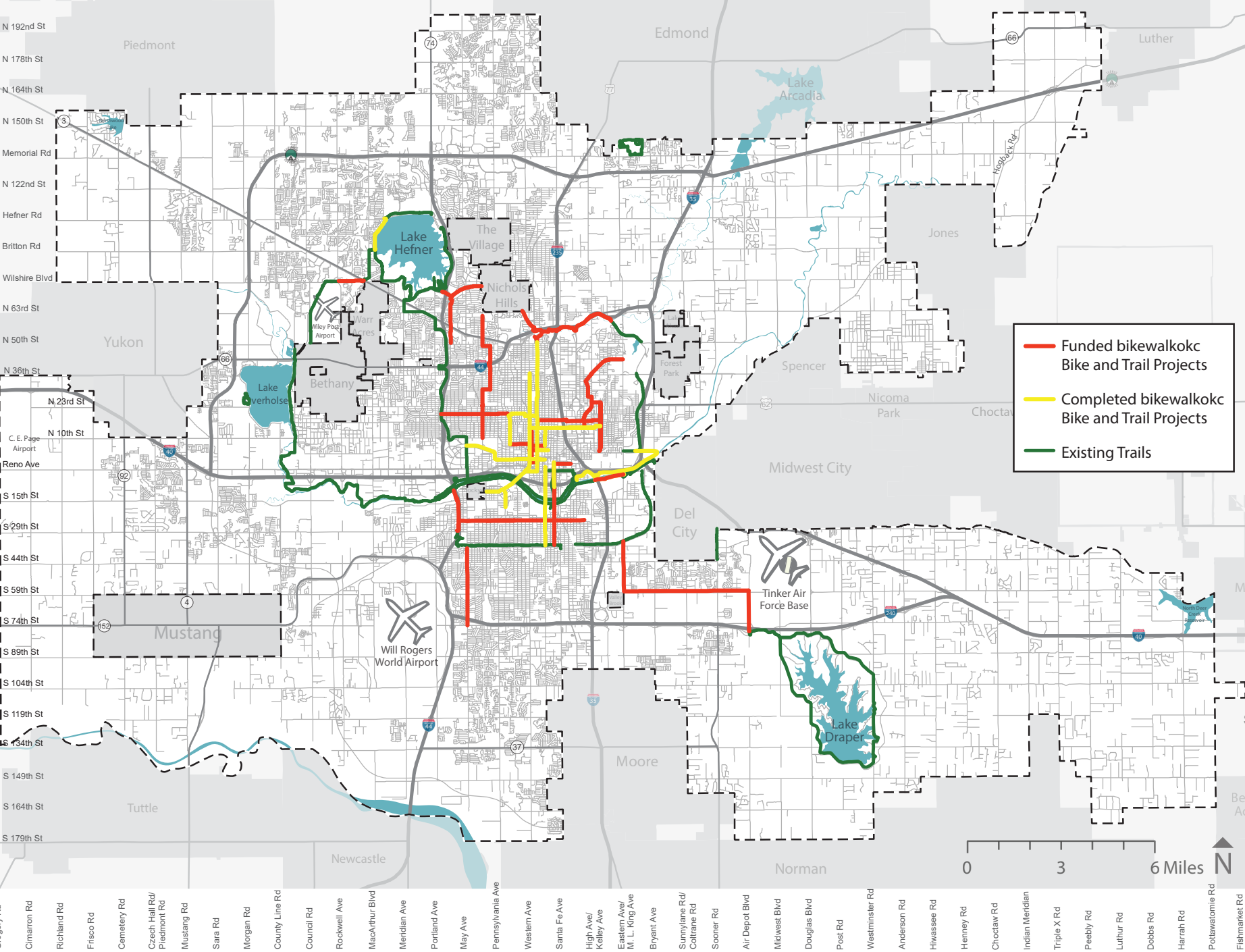
Connectivity - The issue of a “bike lane to nowhere” can arise when a bike project doesn’t connect to existing infrastructure. Sometimes, this is necessary until a succeeding bike project can be built, but nearby connections should be made if possible. It’s also important to ensure that the project’s design is compatible with the connecting facilities.



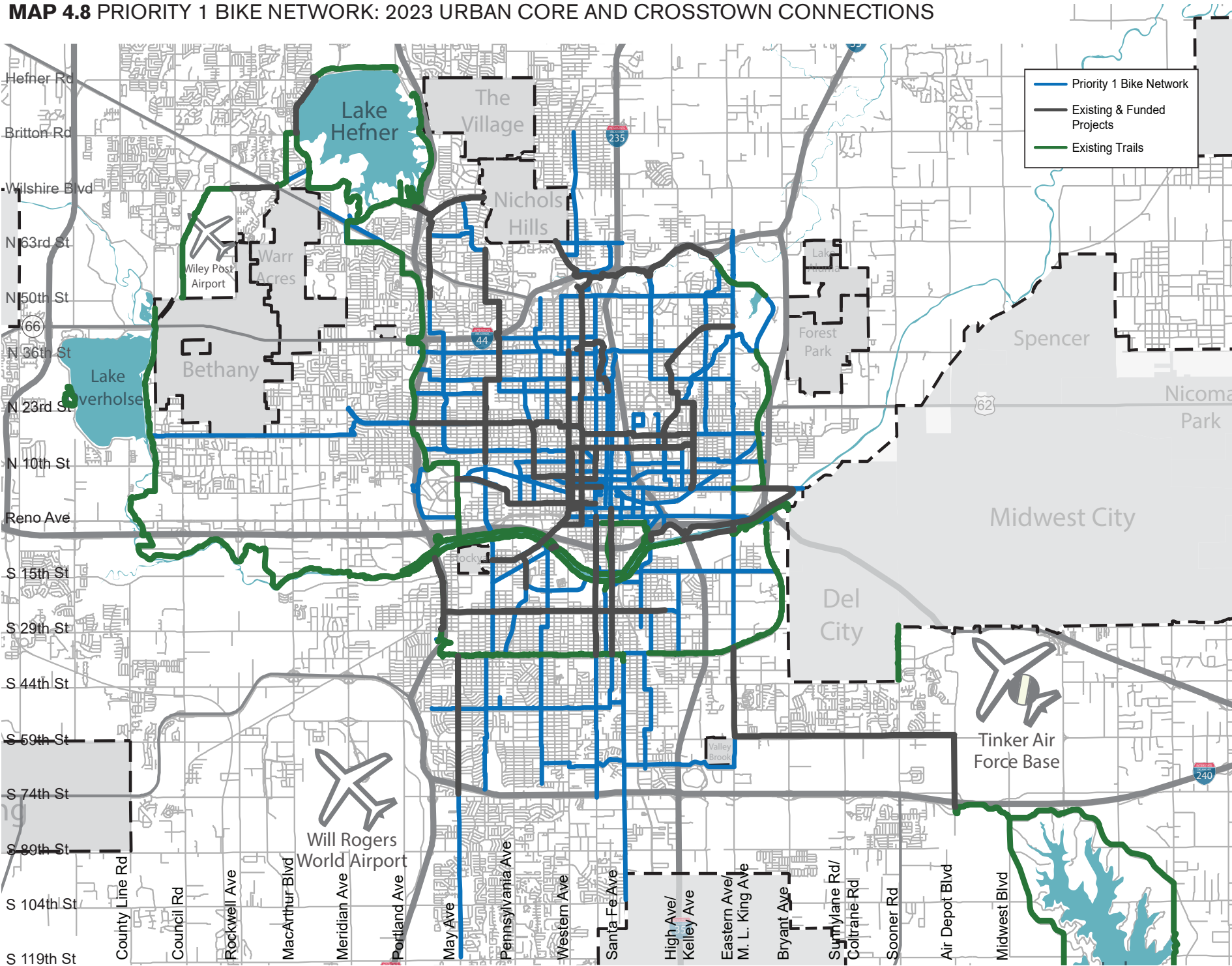
The Lesson:

Simplification and project opportunity seizing are important parts of the planning process. Simplifying bike projects can bring them into a more manageable scale and build in better budget management to account for any unforeseen challenges. Likewise, prioritizing bike projects in a way that makes room for future funding opportunities can add in flexibility for shifting community needs.

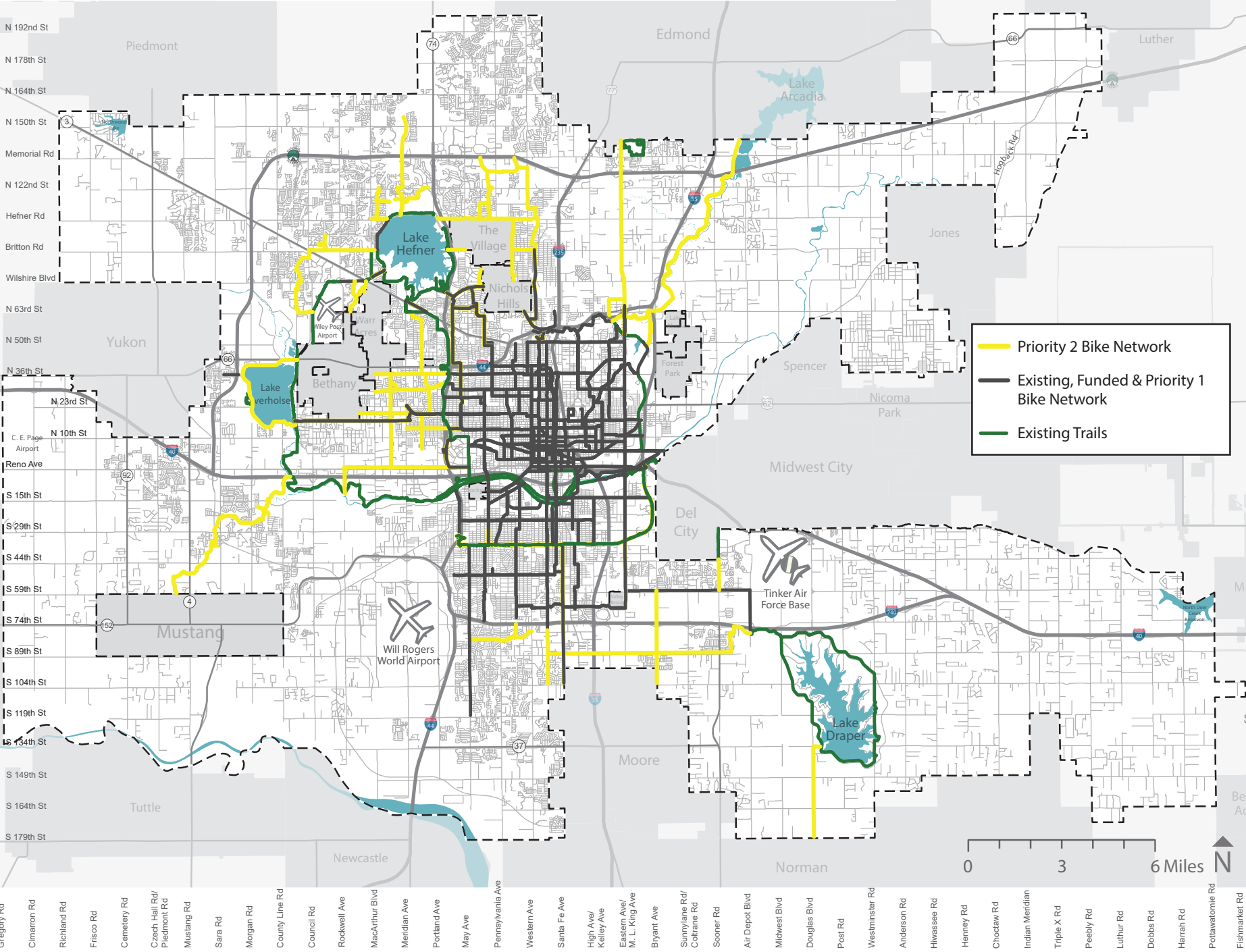
MAP 4.7 2023 EXISTING AND FUNDED BIKE AND TRAIL FACILITIES



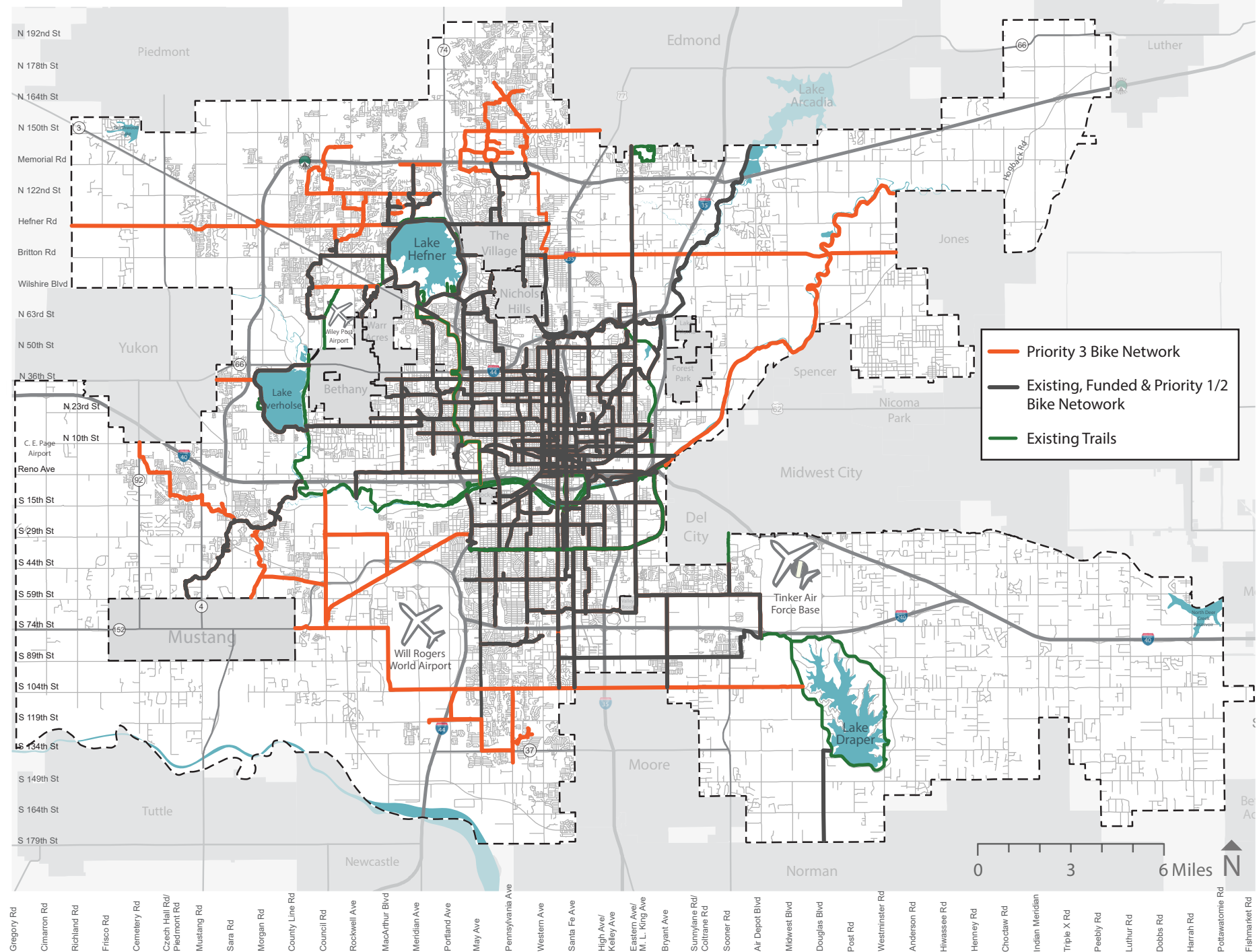
MAP 4.8 PRIORITY 1 BIKE NETWORK: 2023 URBAN CORE AND CROSSTOWN CONNECTIONS



MAP 4.9 PRIORITY 2 BIKE NETWORK: PRIMARY SUBURBAN AND RURAL ROUTES



MAP 4.10 PRIORITY 3 BIKE NETWORK: REMAINING SUBURBAN AND RURAL ROUTES



Trail Network

Prioritization

Proposed new trail facilities were prioritized using several criteria to weight each project in terms of impact, feasibility, and greatest need. Similar to the bicycle network prioritization, identifying and prioritizing those facilities that offer the most financial efficiency was part of the process. The factors considered include the following:

- **Population & Employment** – The number of residents and employment centers in proximity to projects was identified; the higher the number, the greater the priority.
- **Equity** – If the project is in an area where people are more likely to utilize trails facilities because of economic, physical, age-related, or other circumstances (e.g. children, seniors, lower income populations, etc.).
- **Cost per Household** – Using a unit cost per mile and adding additional cost for water body crossings, the total cost for each proposed trail alignment was divided by the number of households identified in the first criteria.
- **Connection to Existing Facilities** – Connecting into the existing trail network will ensure that the facility is useful to as many residents as possible.
- **Addresses Major Barriers** – Trail projects that cross a major barrier to pedestrians and cyclists like a highway, turnpike, or waterway.

Table 4.1 and Map 4.11 show the ranked trail projects that have not received funding.

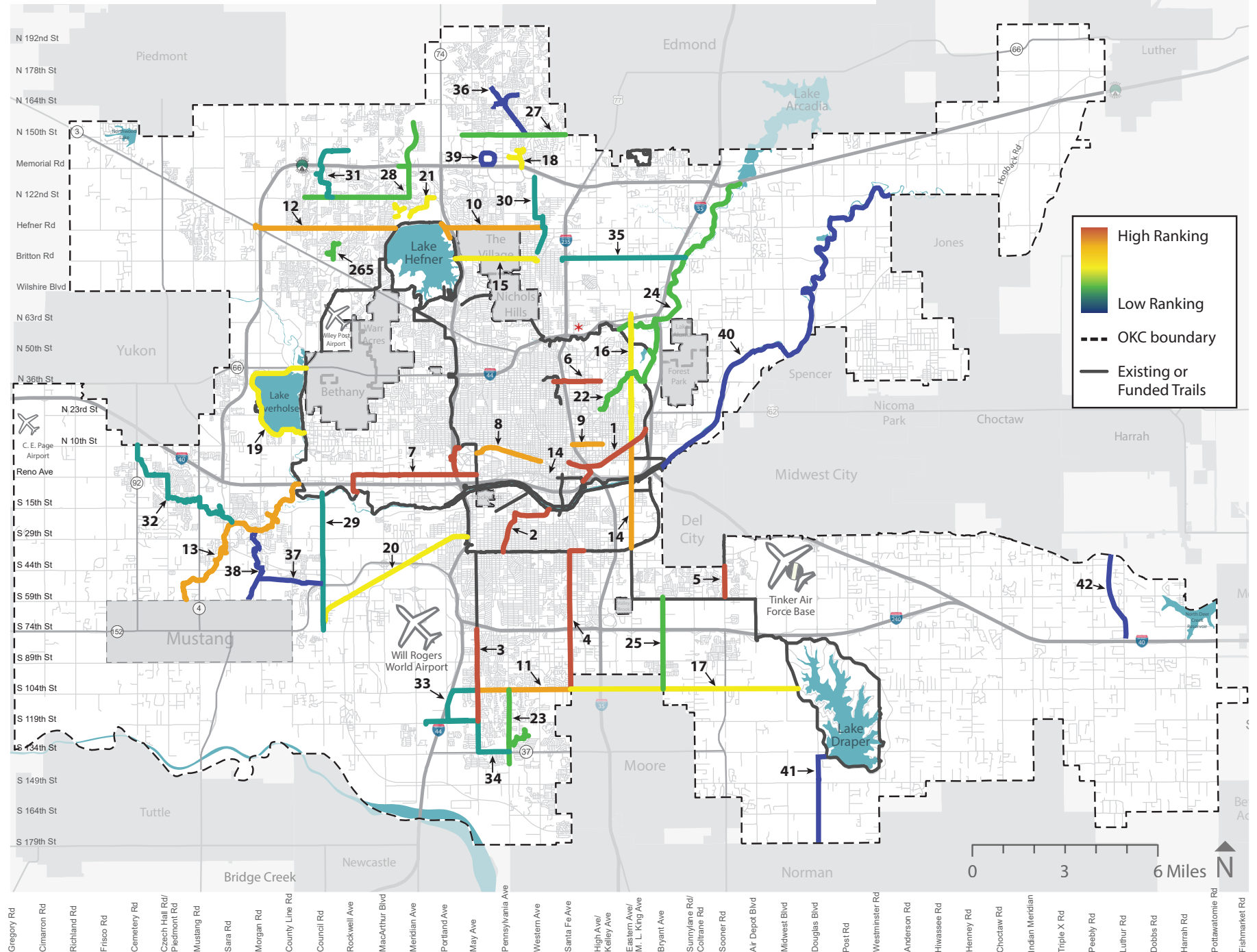
Table 4.1 Trail Project Prioritization

Rank / Map ID	Project Name	Mi.
1	Legacy Trail	3.5
2	Twin/Brock Creek Trails	2.6
3	S May Ave Trail	3.0
4	S Sante Fe Trail	4.9
5	Sooner Trail Connection	1.0
6	NE 36th Trail Connector	1.6
7	Reno Trail	5.9
8	West Rail Trail	2.2
9	NE 10th St	1.0
10	Hefner Trail	3.9
11	SW 104th Trail	3.0
12	W Hefner Trail	4.4
13	Mustang Trail	8.1
14	South Eastern Trail	3.4
15	Britton Trail Connector	0.9
16	MLK Ave Trail	6.1
17	E 104th Trail	7.4
18	Redlands Park Trail	1.3
19	Overholser Trail	5.2
20	Newcastle RD	5.7
21	Bluff Creek Trail Connections	1.9

* In addition to the ranked projects, the Deep Fork Trail remains a high priority as a funded trail project where more financial support is still needed.

Rank / Map ID	Project Name	Mi.
22	NE Greenway	3.5
23	S Pennsylvania Trail	3.6
24	Arcadia Trail	9.2
25	S Bryant Trail	3.0
26	NW OKC Greenway	1.0
27	150th Trail	3.3
28	Martin Nature Park Connection	4.7
29	S Council	4.4
30	Chisolm Creek Connection	2.8
31	Paycom Trail	2.9
32	Yukon Trail	6.0
33	Earlywine Trail	4.2
34	SW 134th Trail	2.0
35	E Britton Trail	4.1
36	Summit Greenway	3.3
37	SW Turnpike Greenway	2.1
38	E Mustang Trail	3.1
39	Quail Trail	1.4
40	N Canadian East Trail	15.7
41	Norman Draper Connection	3.0
42	Kickapoo Trail	2.9
Total Planned Trail Mileage		163.2

MAP 4.11 UNFUNDED TRAIL PROJECT PRIORITIZATION



Bicycle and Pedestrian Bridge Projects

Where major barriers exist that keep pedestrians and cyclists from being able to get to where they need to go, a bridge can close the gap and create an opportunity for a safe crossing. Many bridge projects were identified in the 2018 plan, and many bridge projects have already received funding. As funding becomes available the remaining projects can be implemented.

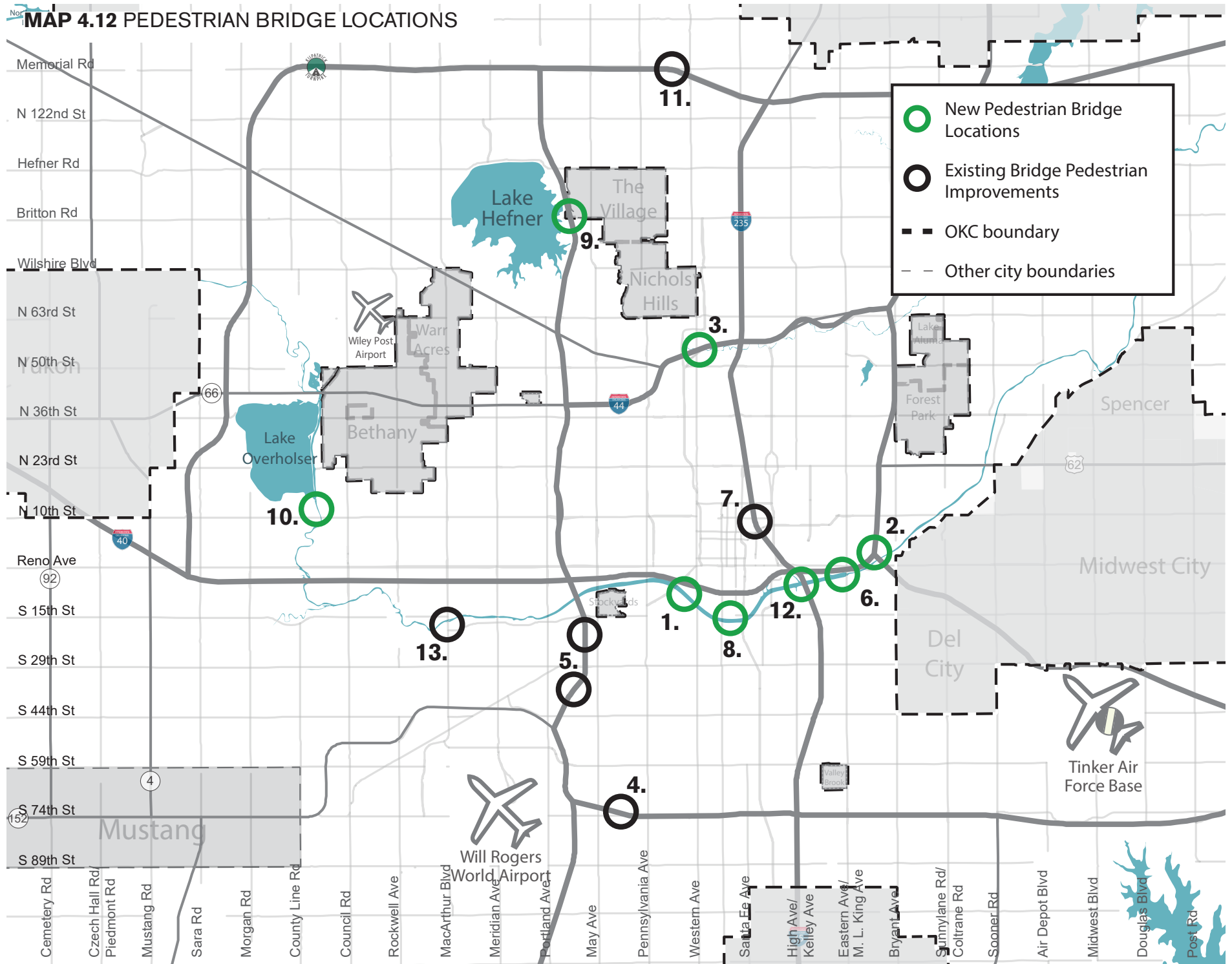
Table 4.2 Original Pedestrian Bridge Projects

Map ID	Project Name	Funded?
1	Rail Trail Bridge	Yes
An abandoned rail bridge that crosses the Oklahoma River provides a great opportunity to add a safe crossing.		
2	Interstate 35 Bridge	Yes
The bridge on NE 4th St. that presently cross over the I-35 corridor do not have any accommodation for bicyclists and pedestrians. This project will fund improvements to facilitate safe crossings for trail users.		
3	I-44 / Deep Fork Creek Bridge	Yes
As part of the Deep Fork Creek trail project a bridge is needed to connect riders across the creek in proximity to N. Western Ave. This will improve access for trail riders as well as transportation cyclists.		
4	I-240 Bridge	No
This project will make improvemetns to the existing pedestrian bridge near S. Blackwelder Ave to better facilitate crossing I-240.		

Table 4.3 New Pedestrian Bridge Projects

Map ID	Project Name	Funded?
5	Pedestrian Bridges over I-44 at Woodson Park and SW 24th St.	No
There are currently two pedestrian bridges over I-44 at these locations, but the bridges are not ADA compliant and are also uncomfortable to cross. Investing in improvements to these structures would help to reconnect the east and west sides of a regional park and give students better access to Rockwood Elementary School on SW 24th.		
6	Oklahoma River at First Americans Museum	Yes
This pedestrian bridge is included as a connection point between the First Americans Museum (FAM), the Oklahoma River Trails and the Downtown OKC area.		
7	NW/NE 8th and 10th St Bridge Extentions	No
The 8th St and 10th St bridges over I-235 are the two major access points between Downtown OKC and the Innovation District. This project would extend the pedestrian realm to add amenities and beautification elements, and it is also identified in the MAPS 4 program.		
8	Wiley Post Park Bridge over Oklahoma River	No
This pedestrian bridge will connect the recently completed South Scissortail Park to Wiley Post Park across the Oklahoma River. It will also ensure better accessibility from the city center to Capital Hill District as well as the greater south side of OKC.		
9	Lake Hefner Parkway at Britton Rd	No
With the huge and growing popularity of the Bert Cooper trails around Lake Hefner, there has long been a need to provide better bike and pedestrian access across Lake Hefner Pkwy to the eastern neighborhoods and districts.		
10	NW 10th St at Lake Overholser	No
While the planned trails around the west side of Lake Overholser are not yet funded, the lake road still serves as an important way for residents to bike, walk, or roll around the lake. A pedestrian bridge across the Canadian River will provide the much needed access from the existing trails along the east side to the lake road and future trails to the west.		
11	Pawnee Rd over Kilpatrick Turnpike	No
The area around Chisolm Creek and Quail Springs is growing very quickly and there is a heightened need for better access across the Kilpatrick Turnpike. This project will make bike and pedestrian improvements to the existing bridge at Pawnee Rd.		
12	Bridge alongside I-35 over Oklahoma River	No
This bridge would provide an additional pedestrian crossing over the river and would be included in a proposed ODOT highway interchange project.		
13	MacArthur bridge access over Oklahoma River	No
This project would provide bike and pedestrian access to the MacArthur Blvd bridge over the Oklahoma River.		

MAP 4.12 PEDESTRIAN BRIDGE LOCATIONS



Pedestrian Priority Areas (PPAs)

The following pages show the current funding status for each of the original Pedestrian Priority Areas (PPA) projects, followed by the implementation strategy for each of the pedestrian plan components – original and new. Many of the original PPA projects have been funded through several different programs, and this section identifies remaining projects in original PPA areas and introduces new PPAs for future funding opportunities.

ORIGINAL PPA PROJECTS

For the PPA projects to better harmonize with existing sidewalk improvement strategies used by the City, each of the Phase 1 and Phase 2 sidewalk improvement packages were assembled into manageable projects. Breaking out projects in these two phases allowed for more areas of the city to be addressed simultaneously. This has allowed incremental completion of the PPA projects over the past few years.

Nearly all of the original Phase 1 PPA projects have been funded, and all remaining original projects are identified for expected funding sources in the coming years. Once each project acquires dedicated funding, it is then placed



on track to start the engineering and design process, which can take about a year. If a project is funded through a federal grant, this process can take somewhat longer. However, once the funding is acquired, it is only a matter of time before the project gets transformed from idea to reality.

CREATING NEW PPAS

Pages 130-139 illustrate 10 new PPAs that expand upon the original areas to help provide greater coverage and connectivity throughout the urban core of Oklahoma City. In the original bikewalkokc document, 10 PPAs were identified and planned out in detail for sidewalk improvements. Due in large part to the Better Streets Safer City program, many of the PPA sidewalks projects have been completed. This fact, coupled with other existing pedestrian needs and sidewalk gaps beyond the original PPA borders, has prompted the creation of new areas that extend the reach of sidewalk infrastructure to adjacent neighborhoods, commercial areas, and important public services like schools, parks and public transit stops. As was laid out in Chapter 3, the bikewalkokc Advisory Group played a significant role in identifying core areas with great walkability needs and where investing in a more wholistic walkability approach is justifiable with the City's resource constraints. Part of this approach was to make sure the recommended expansions will meet the same "Responsive Populations" criteria from Chapter 3, meaning these projects will be focused on populations with the following characteristics:

- Households without access to an automobile
- Households with disability needs
- Households with older and younger members
- Households in poverty
- Transit riders
- School users
- Park users
- House of worship goers
- Shoppers/Customers



In Map 4.13, these additional PPAs are shown together. The following pages provide a context map for each PPA to show their specific characteristics, sidewalk needs, and priorities.

MAP 4.13 PEDESTRIAN PRIORITY AREAS

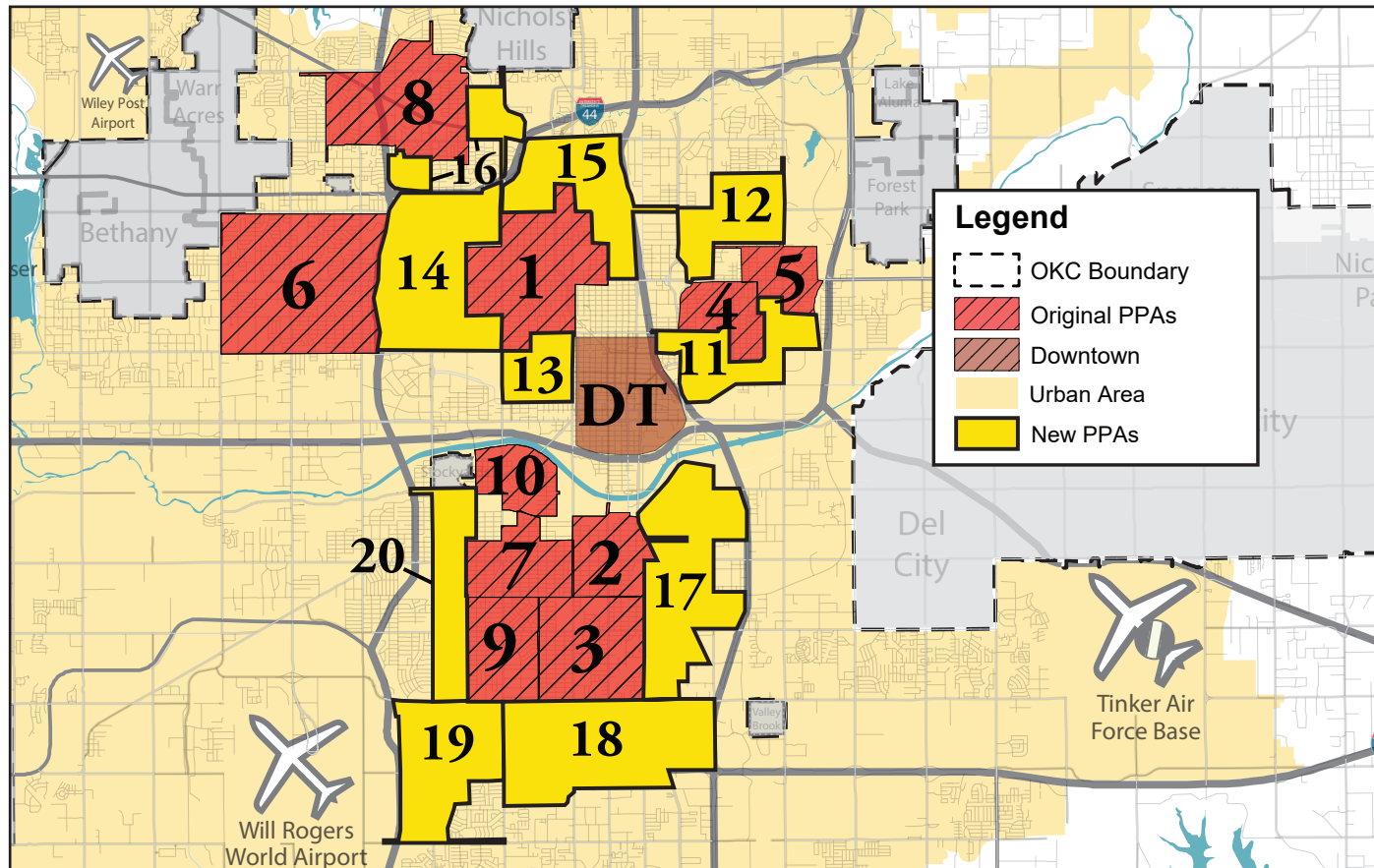


Table 4.4 Original Pedestrian Priority Areas

Label	Pedestrian Priority Areas (PPAs)	Phase 1 Mi	Phase 2 Mi
1	Classen and 23rd	10.6	15.1
2	Capitol Hill District	5.2	9.4
3	S. Walker Ave. and S. Western Ave. Corridors	10.0	20.3
4	OHC Surroundings	3.8	5.7
5	N. Martin Luther King Jr. Ave. at NE 23rd St.	7.7	7.8
6	Windsor District and West 10th St. District	13.7	14.7
7	SW 29th St. District	6.9	18.6
8	NW 63rd St. at N. May Ave.	15.9	26.8
9	SW 44th St. at S. Pennsylvania Ave.	5.2	15.1
10	Stockyards City	5.1	7.7
	Total miles	84.1	141.2

Table 4.5 New Pedestrian Priority Areas

Label	2023 Pedestrian Priority Area (PPA)	Phase 1 Mi	Phase 2 Mi
11	NE OKC South of 8th Douglass	4.4	3.3
12	NE OKC Springlake Metro Tech	6.6	5.1
13	Metro Park Linwood	2.4	3.2
14	Central May	10.2	17.4
15	Putnam Heights & Douglas Edgemere	5.8	12.9
16	NW Expressway	3.4	4.6
17	Southeast I-35	14.7	11.6
18	Southwest I-240	10.1	11.6
19	OCCC	6.2	9.1
20	Woodson Park and West I-44	4.2	8.7
	Total miles	68	87.5

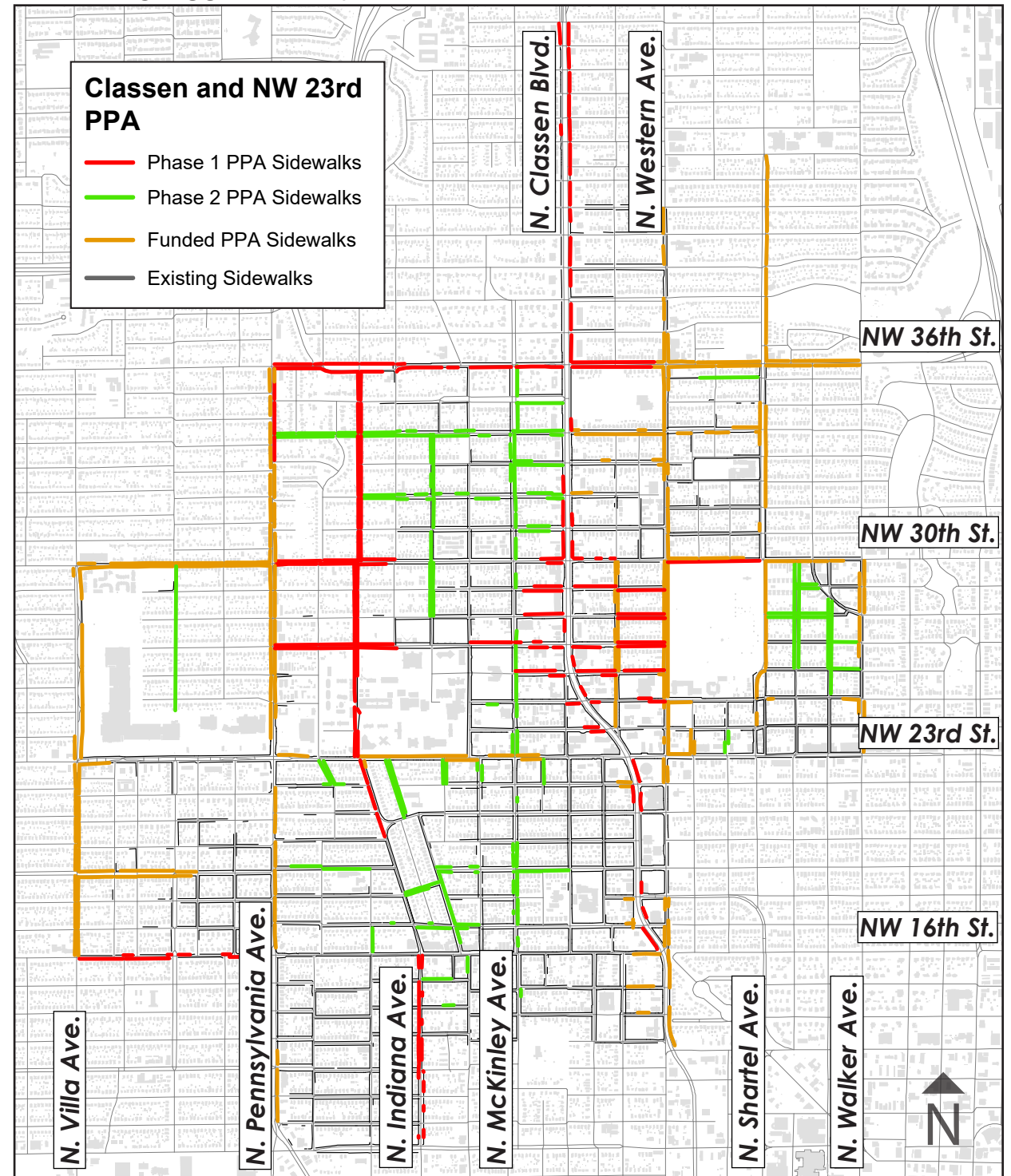
ORIGINAL PPA - CLASSEN AND 23RD PPA

Sidewalks currently funded in this PPA are filling in gaps in the sidewalk network on primary streets: NW 23rd St, N Classen Blvd, NW 36th St, and N Pennsylvania Ave. Additionally, connecting key resources, such as the Asian District, the Plaza District, Paseo Arts District, Oklahoma City University, Memorial Park, the Western Avenue district, and the Uptown 23rd district, is a high priority. These improvements have the added benefit of completing the sidewalk network along transit corridors, making transit a more viable option, and expanding accessibility for those with disabilities.

The remaining unfunded sidewalks in this PPA will continue this connectivity trend, adding sidewalks along residential connector streets, as well as reestablishing a grid where most homes are no more than a block away from the sidewalk network. These sidewalks will also help strengthen neighborhood access to the primary corridors and districts.

The Classen and 23rd area will undergo several other major street enhancement projects. The Plaza District recently completed a streetscape project, and construction on the Paseo and Uptown 23rd districts streetscape projects will commence in in 2023 and 2024. The newly operational NW Bus Rapid Transit (BRT) service brings high-quality transit service and provides pedestrian and bike infrastructure in several locations. The BRT line runs from downtown and up Classen to NW Expressway where its terminus is N Meridian Ave.

MAP 4.14 CLASSEN AND 23RD PPA



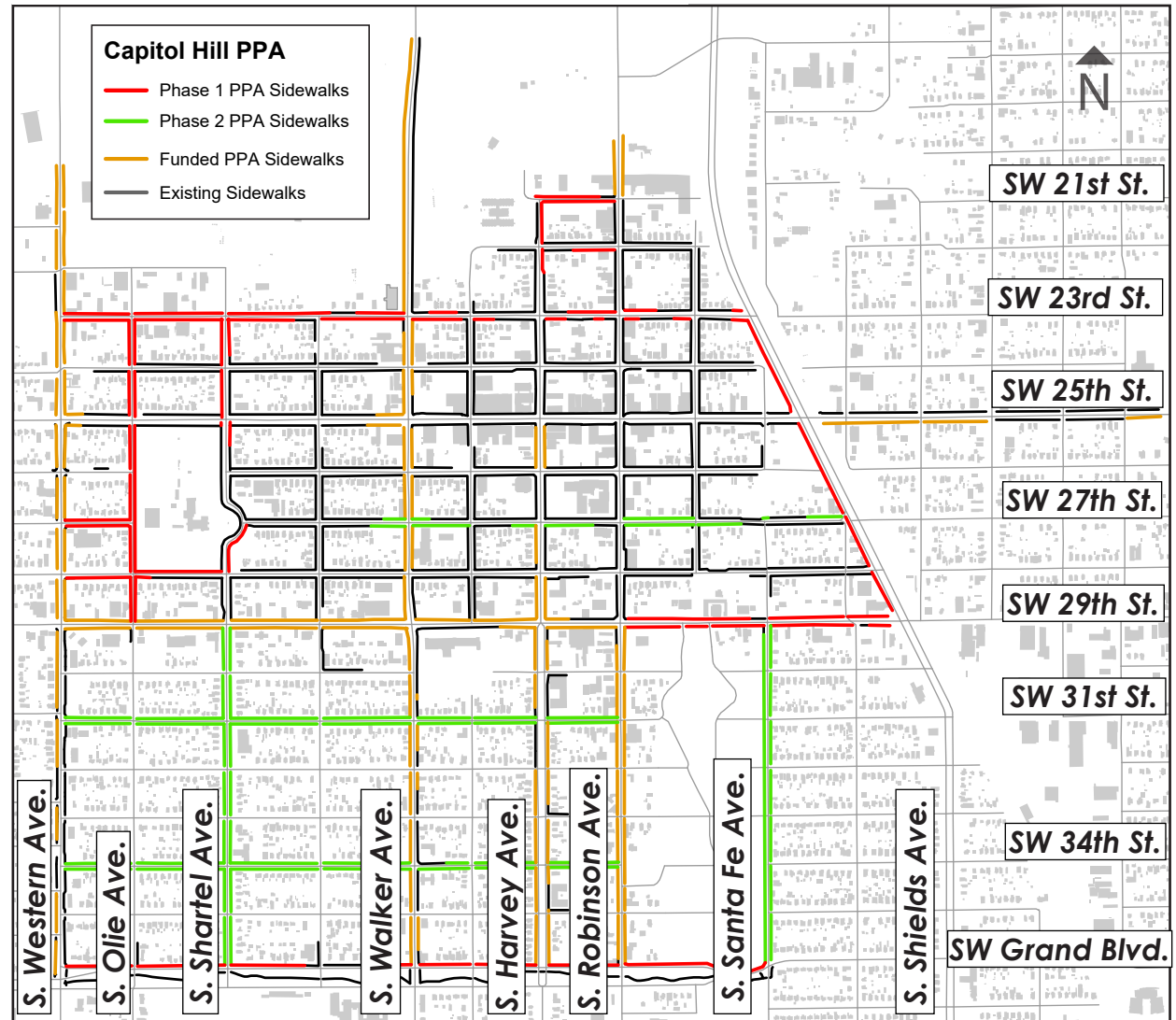
ORIGINAL PPA - CAPITOL HILL DISTRICT

The Capitol Hill area of Oklahoma City is the most traditionally urban area of the city south of the Oklahoma River. The dense mixture of residential, retail, and commercial land uses is well-suited for walkability. Presently, much of the area has sidewalks; however, there are significant gaps in the network, particularly along major streets that are most dangerous for pedestrians.

The funded sidewalk improvements are focused on filling gaps on major streets including S Western Ave, SW 29th St, S Walker Ave, and S Robinson Ave. These projects will better connect the area to the Oklahoma River and trails, and Wiley Post Park, and will improve access across the river into the downtown area. The unfunded sidewalk improvements are intended to fill gaps in the sidewalk network in the residential areas that need access to the major commercial corridors and arterials. All projects improve connectivity to the S Grand Blvd. multi-use trail, which connects people to and from Capitol Hill with a high level of safety and effectiveness. These improvements will provide residents with a greater level of opportunity to participate in the economic, civic, and community realms of Oklahoma City, and are part of a necessary step to bring Capitol Hill up to a level comparable to many other areas.

As with the Classen and 23rd PPA, these projects are operating in the background of major improvements in the area. The City's Strong Neighborhoods Initiative (SNI) worked with Capitol Hill stakeholders to design a central plaza to act as a multi-purpose community space in the heart of Capitol Hill District. Additionally, La 29 District along SW 29th St is currently undergoing a street enhancement project. Meanwhile, a new south OKC BRT route is being planned as part of the MAPS 4 program, and the Regional Transit Authority (RTA) is advancing its efforts to implement a commuter rail line, which will provide service to the district and several neighborhoods in this area.

MAP 4.15 CAPITOL HILL DISTRICT PPA

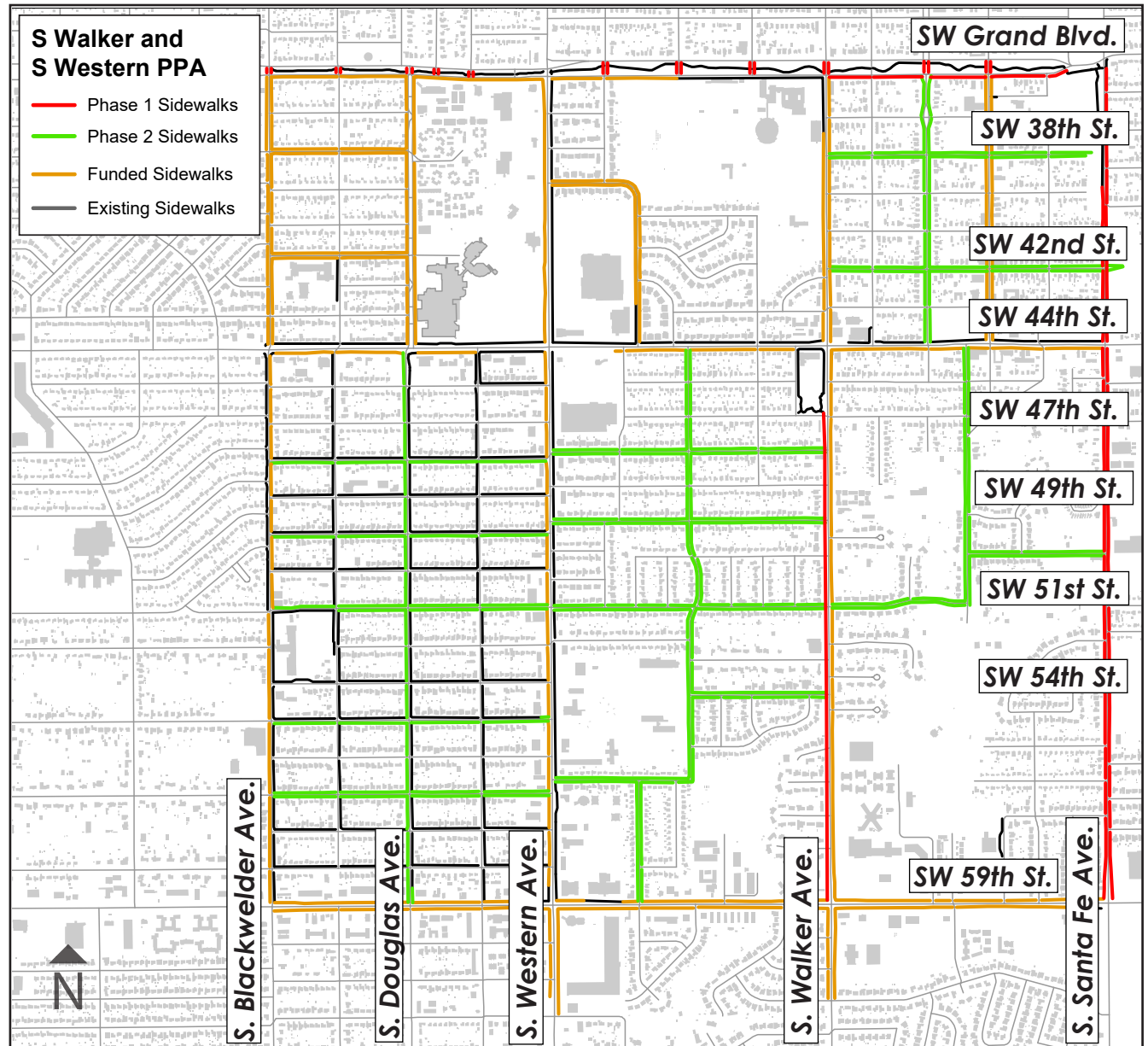


ORIGINAL PPA - S WESTERN AND S WALKER CORRIDORS

South of S. Grand Blvd. several major arterial commercial corridors generate a great deal of pedestrian activity. Paired with a high level of residential density and demographics that suggest high rates of pedestrian travel, such as high levels of transit and many public schools, this PPA is a prime candidate for sidewalk improvements.

While much of the street network in this PPA is a regular grid, there are several locations where the street grid loses connectivity, creating a barrier for all modes of transportation. Since these distances impact pedestrians to a greater degree than automobiles, ensuring that there are safe and convenient routes for pedestrians is paramount. Funded sidewalk improvements in this area are primarily focused on major arterials, most of which are also public transit routes. This includes S Western Ave, S Walker Ave, SW 44th St, SW 59th St, and S Blackwelder Ave. Sidewalk improvements yet to be funded will serve to provide residential-scale connections to and from the major commercial and transit corridors, as well as creating a sidewalk network grid that ensures residents are able to access a safe pedestrian facility within a couple of blocks.

MAP 4.16 S WESTERN AND S WALKER CORRIDORS PPA



ORIGINAL PPA - OKLAHOMA HEALTH CENTER (OHC) SURROUNDINGS

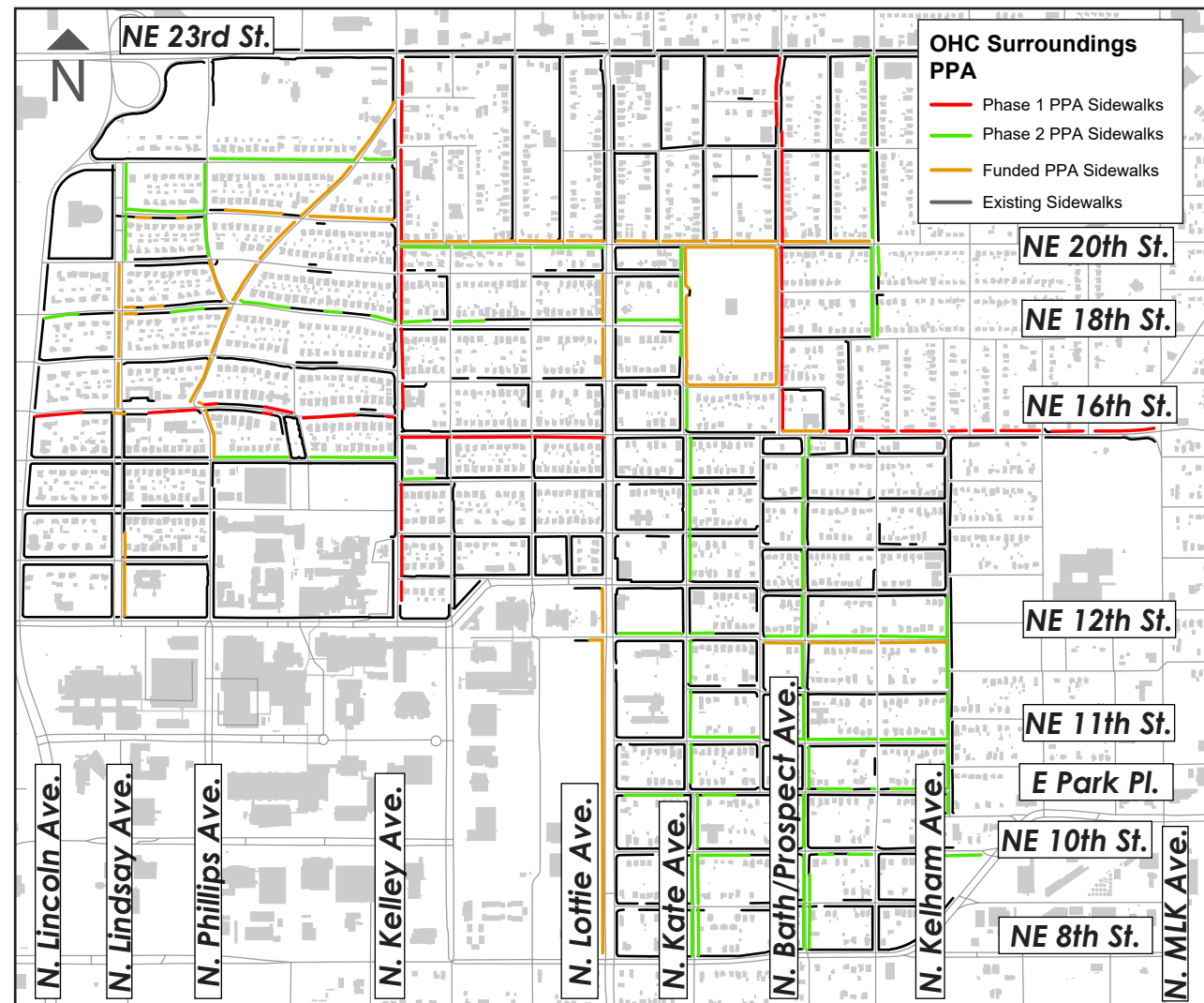
Due to the proximity of major employment centers in this area, including both the Oklahoma Health Center (OHC) and the Oklahoma State Capitol complex, there is a substantial opportunity to facilitate active transportation for residents in the area. In the area around N Lottie Ave, much of the neighborhood lacks sidewalks to OHC and local commercial destinations.

Most of the first phase of this PPA was funded in the Better Streets Safer City program, with improvements focusing on the major streets lacking in safe pedestrian facilities. These improvements are located on N Lottie Ave, NE 16th St, NE 20th St, N Prospect Ave, N Kelley Ave, and N Lindsay Ave. In particular, ensuring a more permeable threshold between the OHC campus and the surrounding neighborhoods was a high priority. The unfunded sidewalk improvements seek to create a useful sidewalk network between the neighborhoods and the primary streets in the area.

MAPS 4 will also help implement these projects. The Innovation District program includes \$27.8 million for creating better connectivity in and around the Innovation District, including sidewalks, bike lanes, and other streetscape elements. Investments in bike and pedestrian infrastructure from bikewalkokc aid in the implementation of the Innovation District program by supporting its investment in bike and pedestrian infrastructure in the area.

Additionally, a report called So8th: A Community Vision was developed to guide the Oklahoma City Urban Renewal Authority (OCURA) on how the area south of NE 8th St can be approached with equitable redevelopment efforts for OCURA and privately-owned properties. While this area is south of the PPA, it is important to be referenced here to help create connections and access north and south.

MAP 4.17 OHC SURROUNDINGS PPA



ORIGINAL PPA - MLK AND NE 23RD

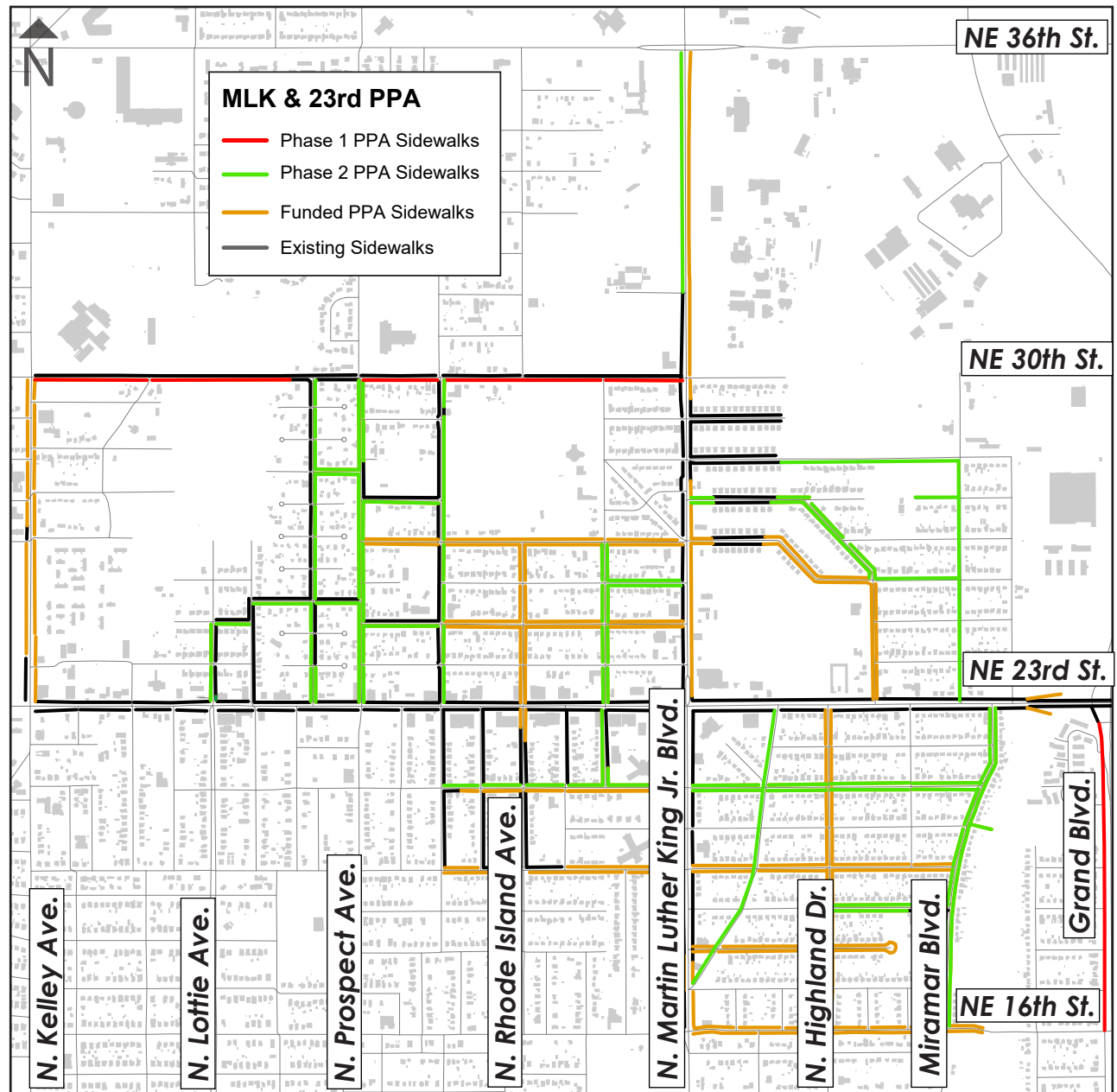
The funded sidewalks in this PPA fill in the gaps on the area's major arterials. N MLK Ave is a major street where sidewalk gaps are still present, and these PPA sidewalks will connect the area around MLK Blvd from NE 16th St up to NE 36th St, where a completed MAPS 3 sidewalk project has made better connections to the Adventure District.

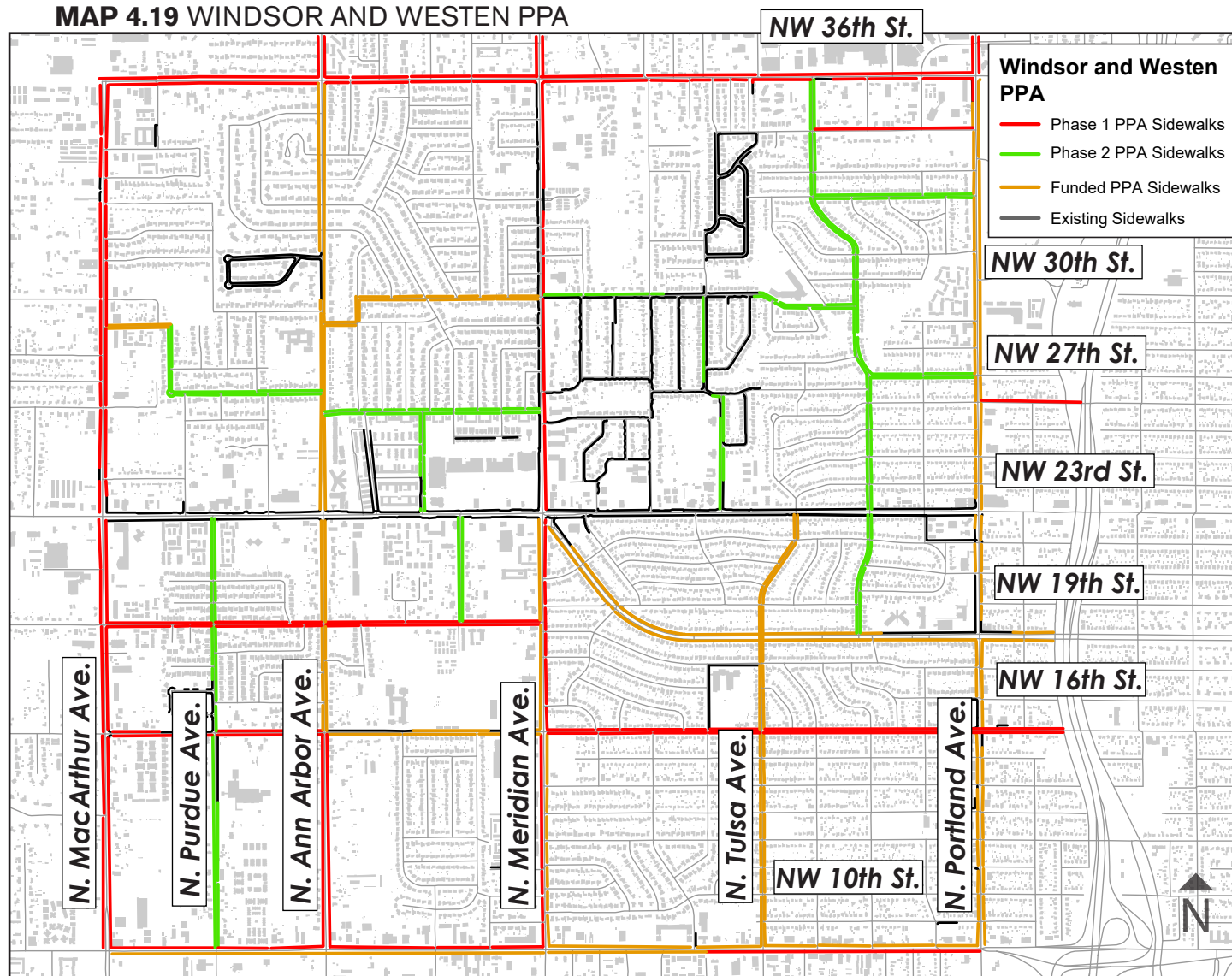
NE 23rd St already has sidewalks, but other walkability elements, such as access management and beautification are still needed. The corridor is also receiving a large street enhancement project, funded through the Better Streets Safer City program and slated to start design in 2023 with stakeholders.

A number of MAPS 4 projects are set to provide many significant improvements in the area:

- Investments in the beautification of NE 23rd St and Martin Luther King Ave, including up to \$5 million for potential land acquisition and remediation of the northeast corner; the east and west entrances to the Clara Luper Corridor; and public art and/or monuments at key intersections, including a statue of Ralph Ellison.
- MAPS 4 will restore the Freedom Center and build the Clara Luper Civil Rights Center to transform Oklahoma City's knowledge of our civil rights history, and to positively influence the future of northeast OKC and our entire community.
- The Transit category in MAPS 4 will include a bus rapid transit (BRT) line to serve the NE 23rd Street corridor, the Adventure District and the Innovation District, and hundreds of bus stop shelters will be added throughout the city.

MAP 4.18 MLK AND NE 23RD PPA



MAP 4.19 WINDSOR AND WESTEN PPA

ORIGINAL PPA - WINDSOR AND WESTEN DISTRICTS

West of I-44 along the commercial corridors on NW 10th St and NW 23rd St, pedestrian infrastructure investments from recent GO Bond and MAPS programs are resulting in a greater interest in creating a walkable community. The character of the area differs on either side of N Meridian Ave; to the east, high levels of residential density and strong street connectivity facilitate easy movement for vehicles, though pedestrian infrastructure is lacking; west of N Meridian Ave, the residential density drops and connectivity is constrained.

Funded sidewalk improvements were focused primarily on Portland, with multiple Better Streets Safer City projects building sidewalks, lighting and improved crossings to Will Rogers Park and its trail system. Other funded projects included collector streets like Ann Arbor Ave, NW 19th St, and N Tulsa Ave. In the 2023 plan update, sidewalk projects were added on NW 36th St and N MacArthur Ave to cover major arterial streets where sidewalk projects are still needed in the PPA. While some collector streets were funded and others are still in queue for future funding, it's critical to ensure that pedestrian infrastructure along all arterials are prioritized in all PPAs going forward.

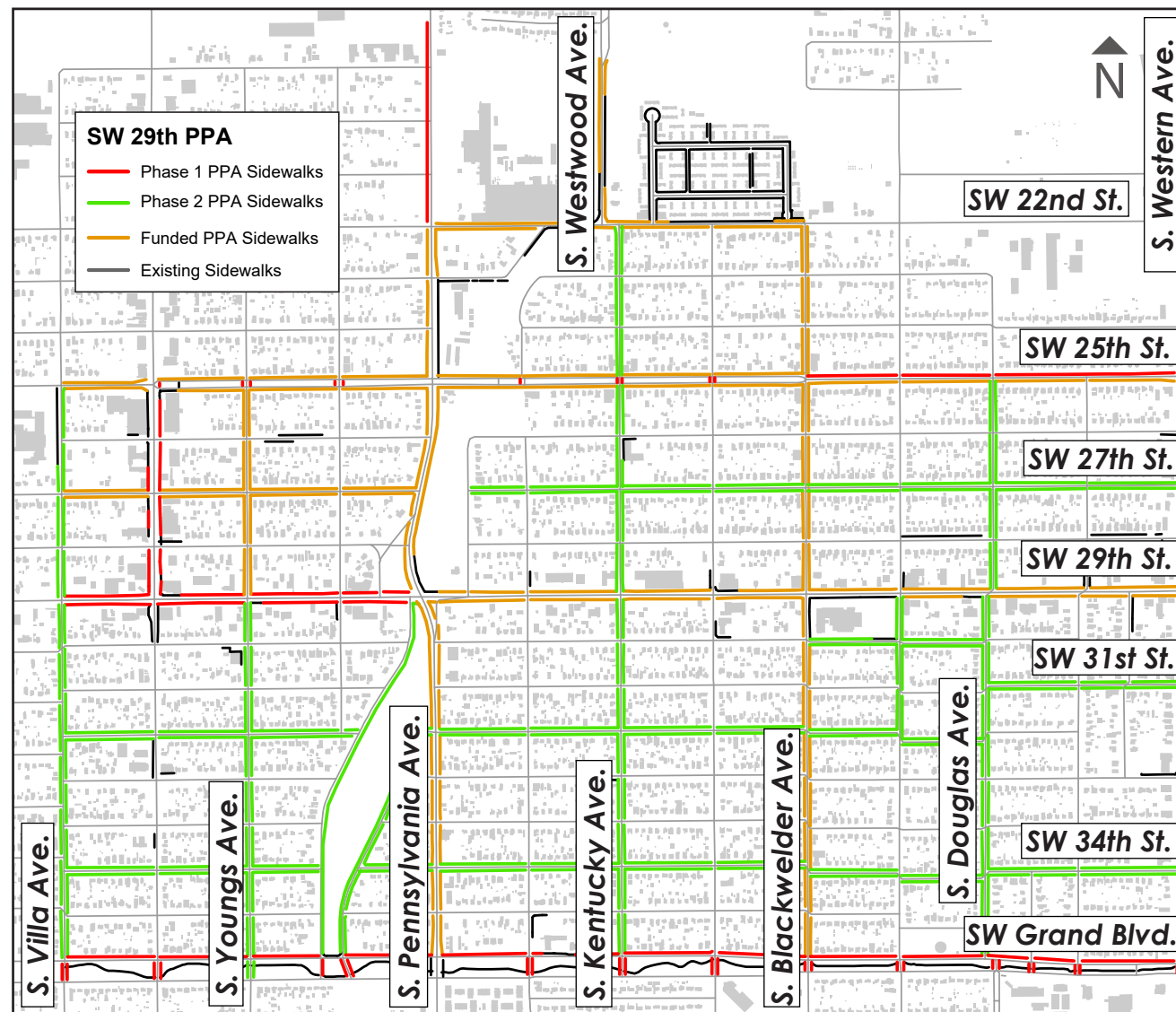
ORIGINAL PPA - SW 29TH DISTRICT

In general, the area south of the river and north of I-240 has a very regular street grid. In this particular PPA, the grid is bisected by the primary commercial corridor of SW 29th St. Despite this practical organization of land uses and urban form, sidewalks are sorely lacking in the area. There are excellent opportunities for increased connectivity to the rest of the city by improving major transit corridors and increasing connectivity to the S Grand Blvd multi-use trail.

The funded sidewalks, representing the first phase of PPA projects, focused on improving walkability along major arterials, commercial and transit corridors, as well as those in proximity to multi-family housing and schools. The main corridors with these characteristics are SW 29th St, S Pennsylvania Ave, and S Blackwelder Ave. In particular, SW 29th St is on the 2017 GO Bond for street enhancement project that includes resurfacing, new sidewalks, and other elements that will make the corridor more pedestrian friendly.

The unfunded improvements take advantage of the street grid pattern in the area to create a network of sidewalks where residents are never more than a couple of blocks from a safe corridor for pedestrians. Key concerns include providing safe access to and from parks and trails for residents, as well as facilitating safe movement to and from commercial areas.

MAP 4.20 SW 29TH DISTRICT PPA



ORIGINAL PPA - NW EXPRESSWAY AND MAY

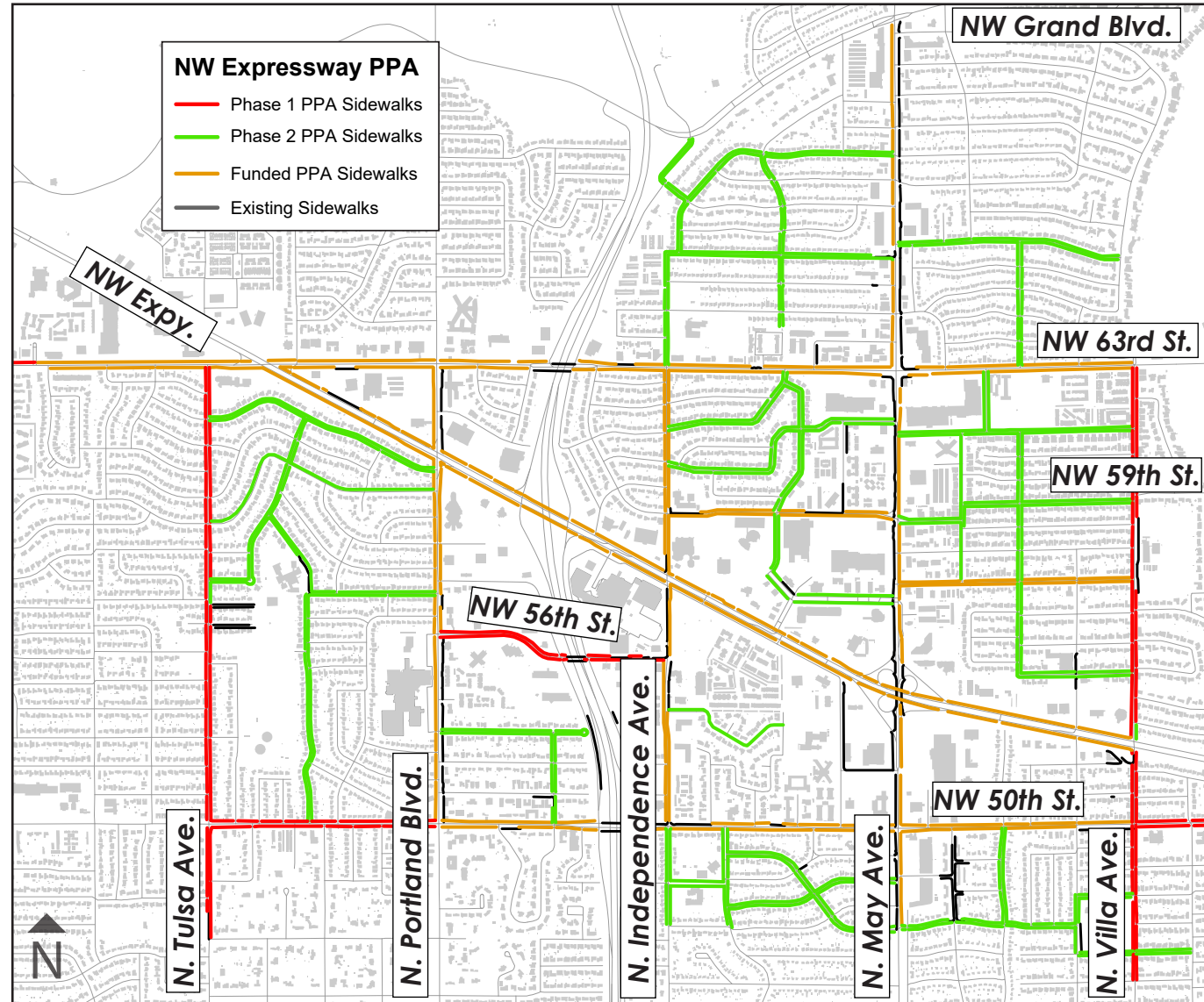
Some of the busiest streets in Oklahoma City cross through this PPA, including NW Expressway, NW 63rd St, N May Ave, NW 50th St, and N Portland Ave. These streets form the basis for the funded sidewalk improvements in the area, with the addition of N Independence Ave and a few other streets that penetrate the surrounding neighborhoods.

The unfunded improvements remain to serve as the next phase of neighborhood connection to the primary streets that are addressed in the currently-funded projects.

Considering the large number of shopping opportunities in the area and lack of other transportation options, congestion runs high. Adding sufficient pedestrian infrastructure will better facilitate mobility in the area. Shoppers will be more likely to park once and visit many stores if they can safely walk to and from different locations, reducing the number of vehicles turning on and off of busy streets.

As the NW Bus Rapid Transit (BRT) service begins its operation and grows its ridership over the coming years, public transit will become a more viable method of transportation into the area, thereby reducing congestion pressure. Surrounding residents will have the opportunity to visit the area without needing to drive. Expanding mobility options in this way can lead to a better functioning area overall.

MAP 4.21 NW EXPRESSWAY AND MAY PPA

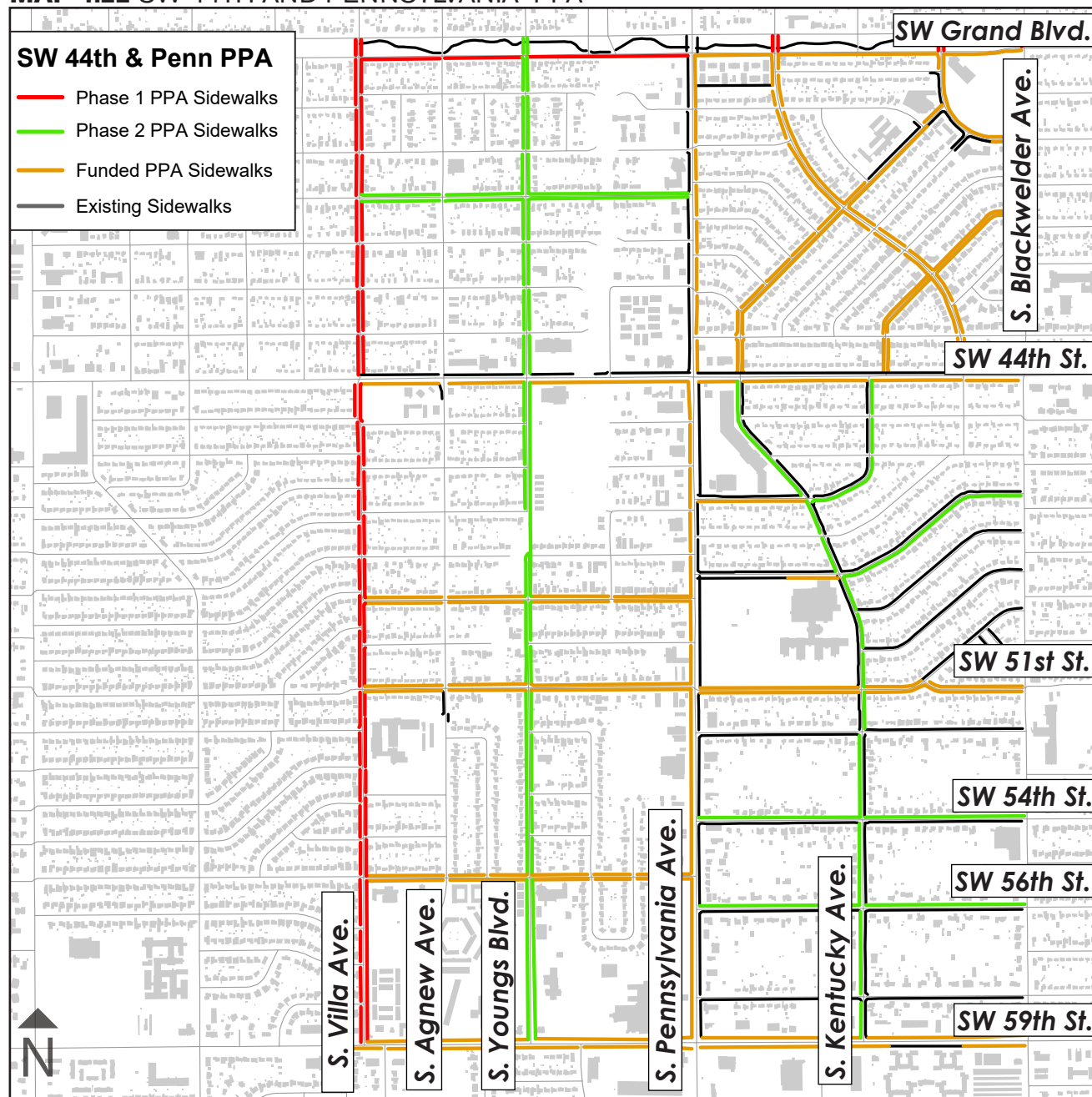


ORIGINAL PPA - SW 44TH AND PENNSYLVANIA

The major arterial streets in this PPA are poorly suited for pedestrian traffic, despite the high density of employment locations, shopping centers, and higher-density residential areas. In particular, the major arterials in the area, S Pennsylvania Ave, SW 44th St, and SW 59th St are the primary focus for the currently-funded sidewalk improvements. Additionally, SW 49th St west of S Pennsylvania Ave is a key connection that crosses the Brock Creek drainage channel, which is a substantial barrier to pedestrian movements. SW 49th aligns with U.S. Grant High School.

Unfunded improvements in this area primarily focus on creating a basic grid system for pedestrians. Another key focus is the leveraging of existing assets. Several streets in the area received sidewalks funded by the 2007 GO Bond, and the next phase of projects will continue that momentum to provide more sidewalks for better neighborhood coverage.

MAP 4.22 SW 44TH AND PENNSYLVANIA PPA



ORIGINAL PPA - STOCKYARDS

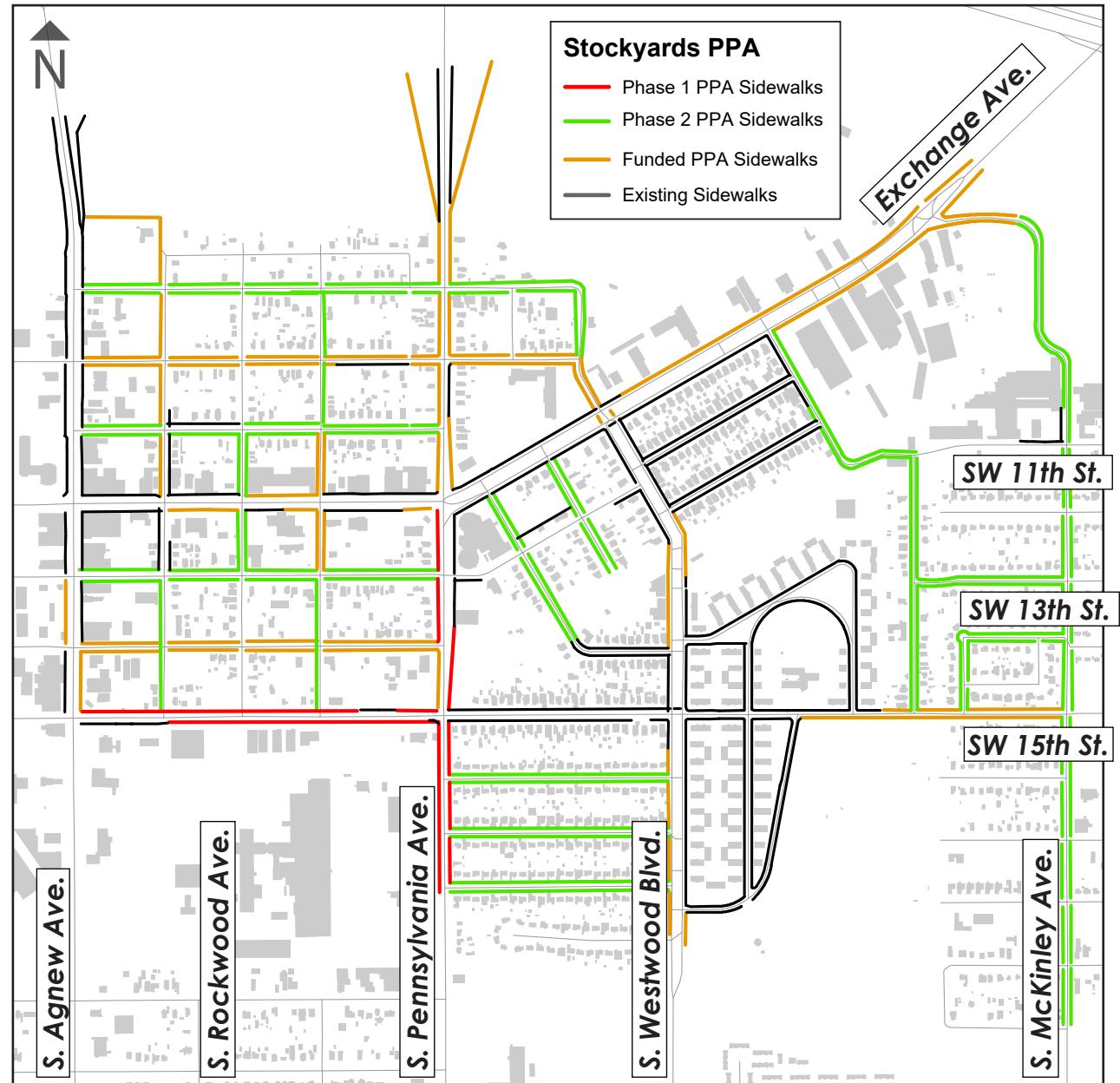
Completing the sidewalk network along major arterials, connecting residents to the Stockyards City commercial district, and connecting residents to the Oklahoma River are all key concerns for sidewalk improvements in this PPA.

As in other PPAs, the sidewalks in the funded category are primarily located along major arterials. In this case, they complete the gaps that exist on S Agnew Ave, S Pennsylvania Ave, and Exchange Ave. More residential-scale improvements include closing the gaps along Westwood Blvd, along with SW 10th St and SW 14th St. The next phase of sidewalk improvements will pick up where the funded sidewalks left off in terms of providing a sidewalk network to better connect neighborhood residents to their surrounding amenities.

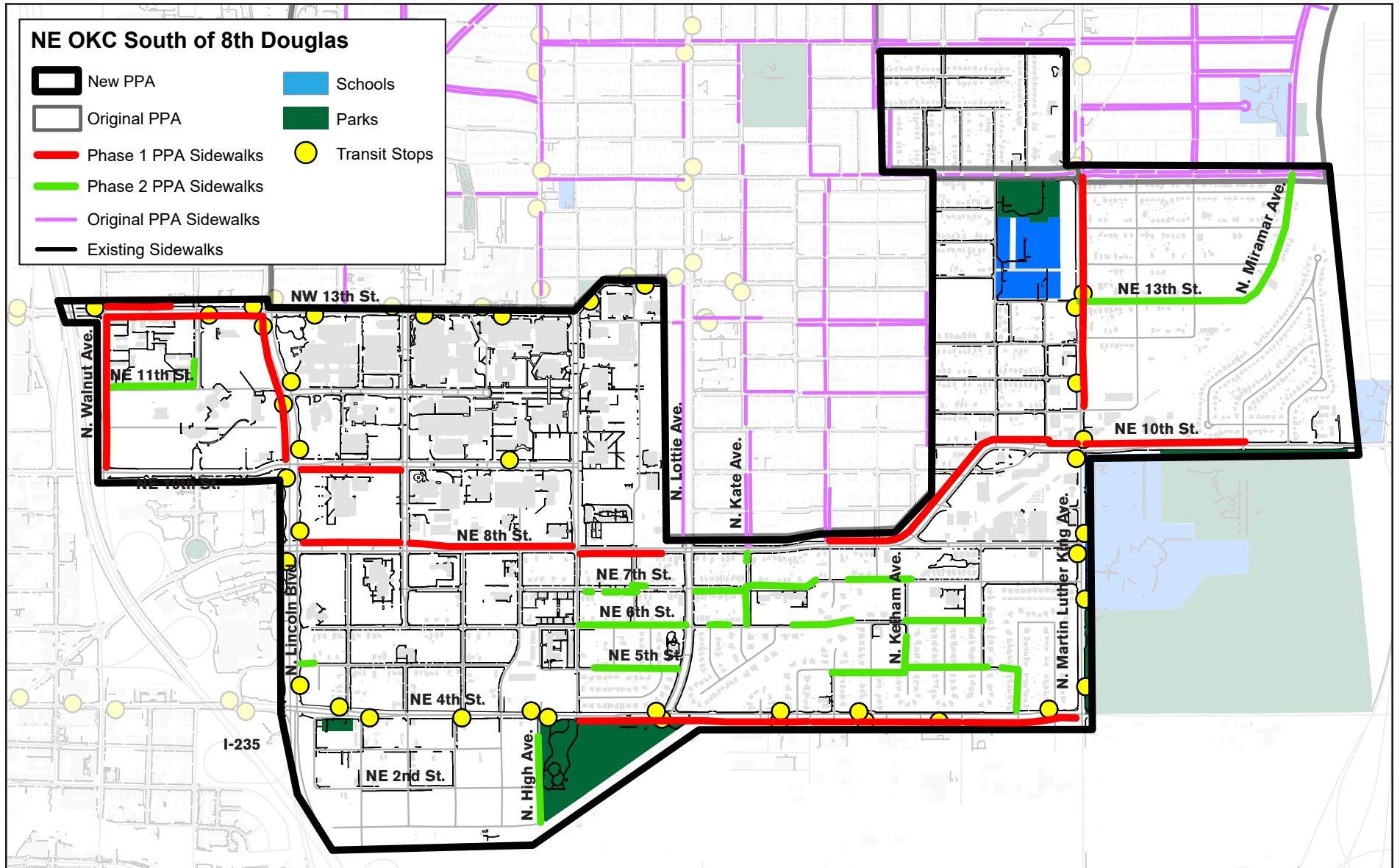
S Agnew Ave and Exchange Ave west of N Pennsylvania Ave have received improvements in the last few decades that have catalyzed business investment in the area, and another Better Streets Safer City street enhancement project is being designed with the district to create further improvements. Additionally, funded on-street bike facilities on Exchange and Agnew will better connect residents to the district.

With landmark locations such as Cattlemen's Steakhouse and Langston's Western Wear, and recent developments like the Rodeo Cinema theater, the heart of the district is already quite walkable. The sidewalk improvements recommended in this plan will help to further the success of the district, as well as to make the district more accessible to residents in the surrounding areas.

MAP 4.23 STOCKYARDS PPA



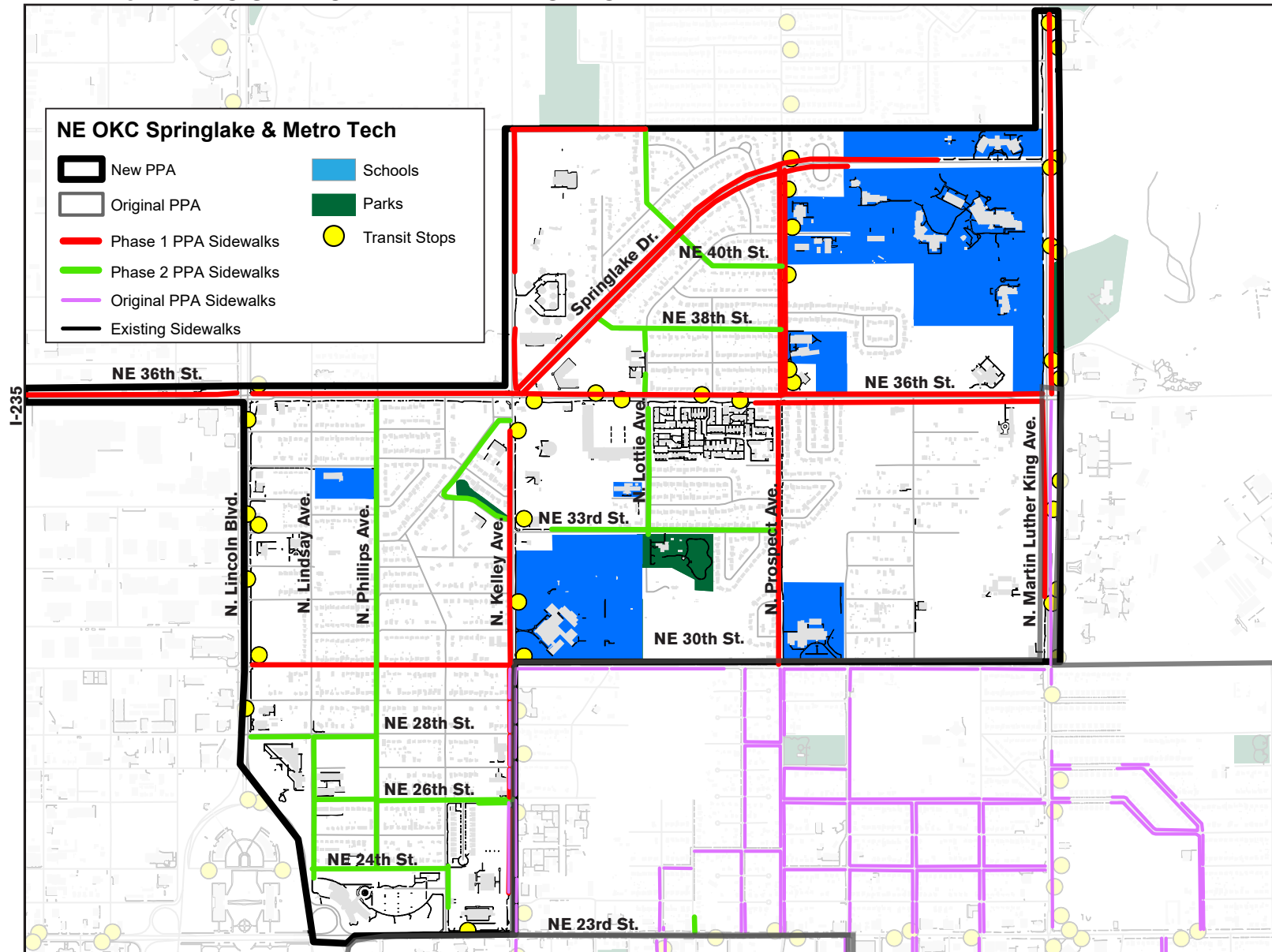
MAP 4.24 NE OKC SOUTH OF 8TH & DOUGLAS - NEW PPA



NEW PPA - NE OKC SOUTH OF 8TH & DOUGLASS EXPANSION

This new PPA builds upon the 2018 Oklahoma Health Center PPA. While the original PPA sought to create better access and connections from OHC to the neighborhoods to the east and north, this PPA focuses on making important connections to the NE 4th St corridor and Washington park to the south, and Douglass High School and JFK neighborhood to the east. It considers important destinations like the Page Woodson development and Innovation District. Transit routes 2, 3, 18, 22, and 24 all exist within this area, so accessible sidewalks along these routes are imperative. Major barriers in the form of arterial roads, like N Lincoln Blvd and N MLK Ave, are important streets to ensure sidewalks and adequate pedestrian crossings are present. Perhaps the most significant barrier is Interstate-235, and while the bridges and underpasses have pedestrian access and plans for further MAPS 4 improvements, many are still missing ADA crossings and sidewalk access to NE OKC districts and neighborhoods.

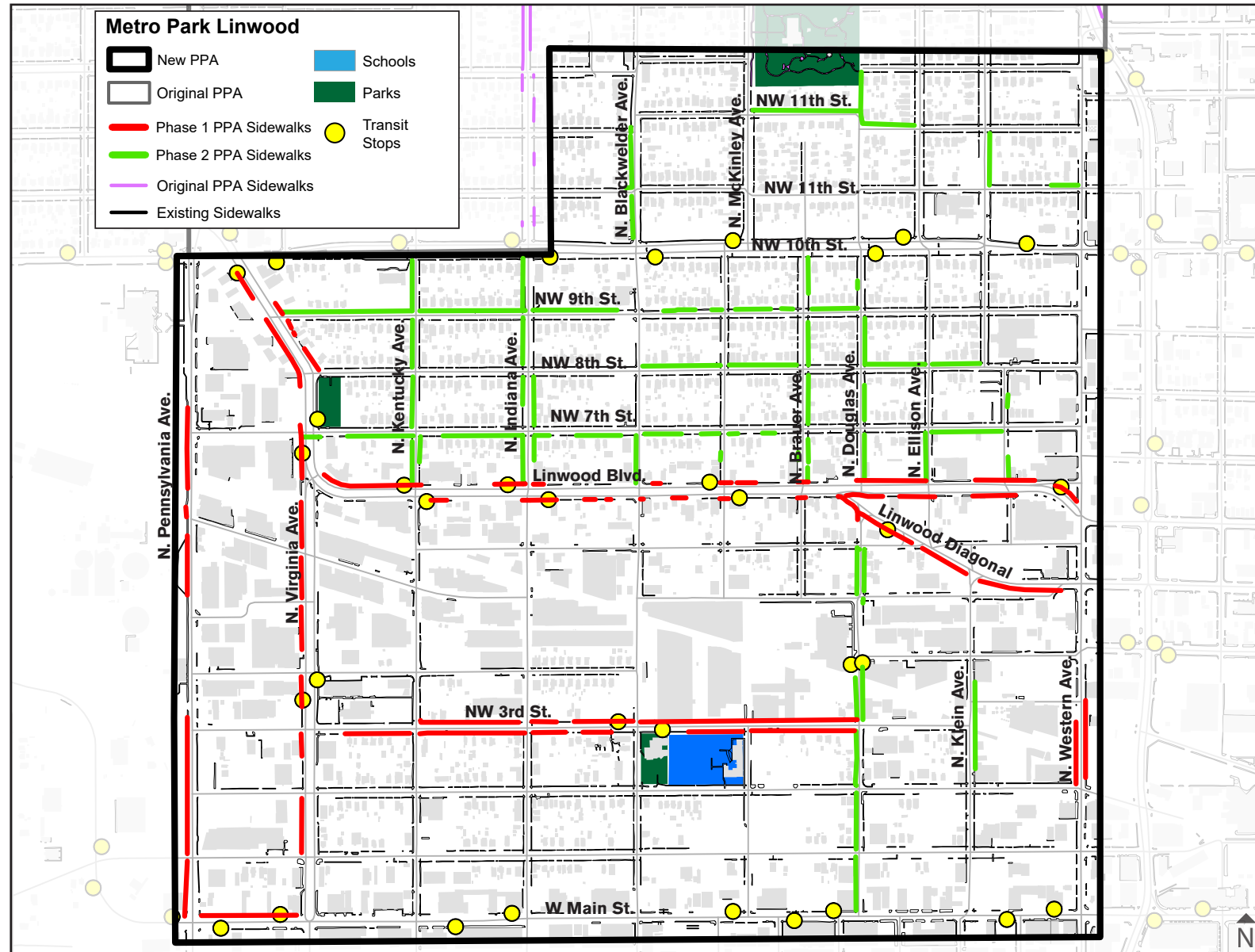
MAP 4.25 NE OKC SPRINGLAKE AND METRO TECH - NEW PPA



NEW PPA - NE OKC SPRINGLAKE & METRO TECH

This PPA expansion focuses on the neighborhoods north of the existing NE 23rd and MLK PPA. Better connections for residents to Metro Technology Center to the northeast will create direct access to important community resources. For younger residents, the connections to Thelma Parks Elementary and Classen High School at Northeast, along with neighborhood parks, are in need of sidewalk access. The Capitol View neighborhood to the west was established in the Strong Neighborhoods Initiative (SNI) program in 2018, and the proposed sidewalks there are informed by that public engagement process. NE 36th St to the west will connect to the new Homeland and MAPS 3 Wellness Center at Lincoln. Another PPA across I-235, and NE 36th to the east at N MLK Ave will ensure connections and access to the Adventure District and to various State offices.

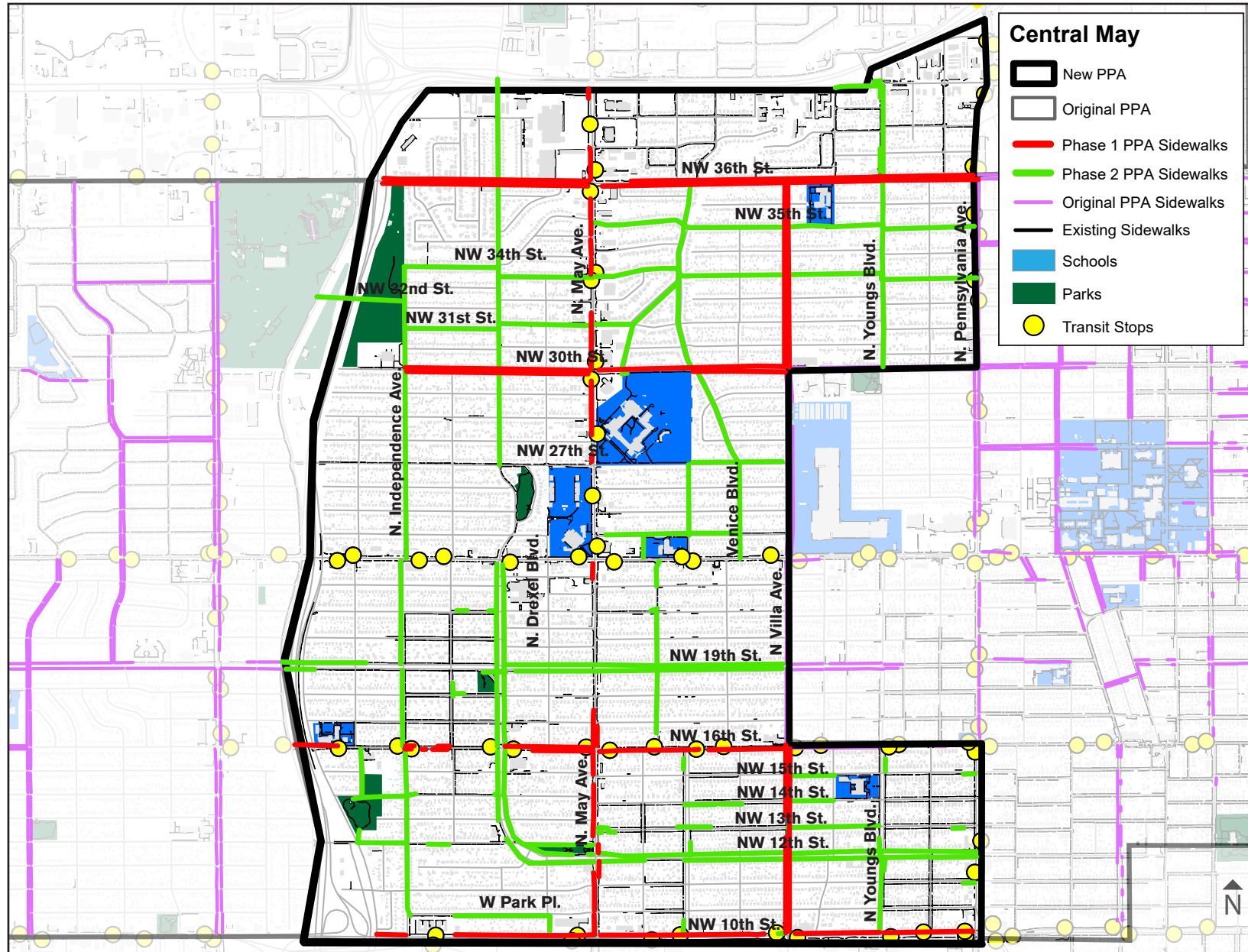
MAP 4.26 METRO PARK AND LINWOOD - NEW PPA



NEW PPA - METRO PARK & LINWOOD

Sidewalks in the Metro Park and Linwood area are as important as anywhere in OKC. The area between Main St. and Linwood Blvd. is home to multiple bus routes, the Homeless Alliance's Westtown Homeless Resource Campus, and a mix of historic housing stock with industrial activities. There are also multiple ongoing revitalization efforts, such as SNI programming in the Metro Park neighborhood, and new bike lane projects on Main St., Linwood Blvd., and Western Ave. Aside from ensuring that major streets like Penn and Western are covered with sidewalks, the focus for this expansion area is public transit access, coordination with SNI to identify important sidewalk gaps, and connection to Classen Ten Penn neighborhood to the north and Downtown to the east.

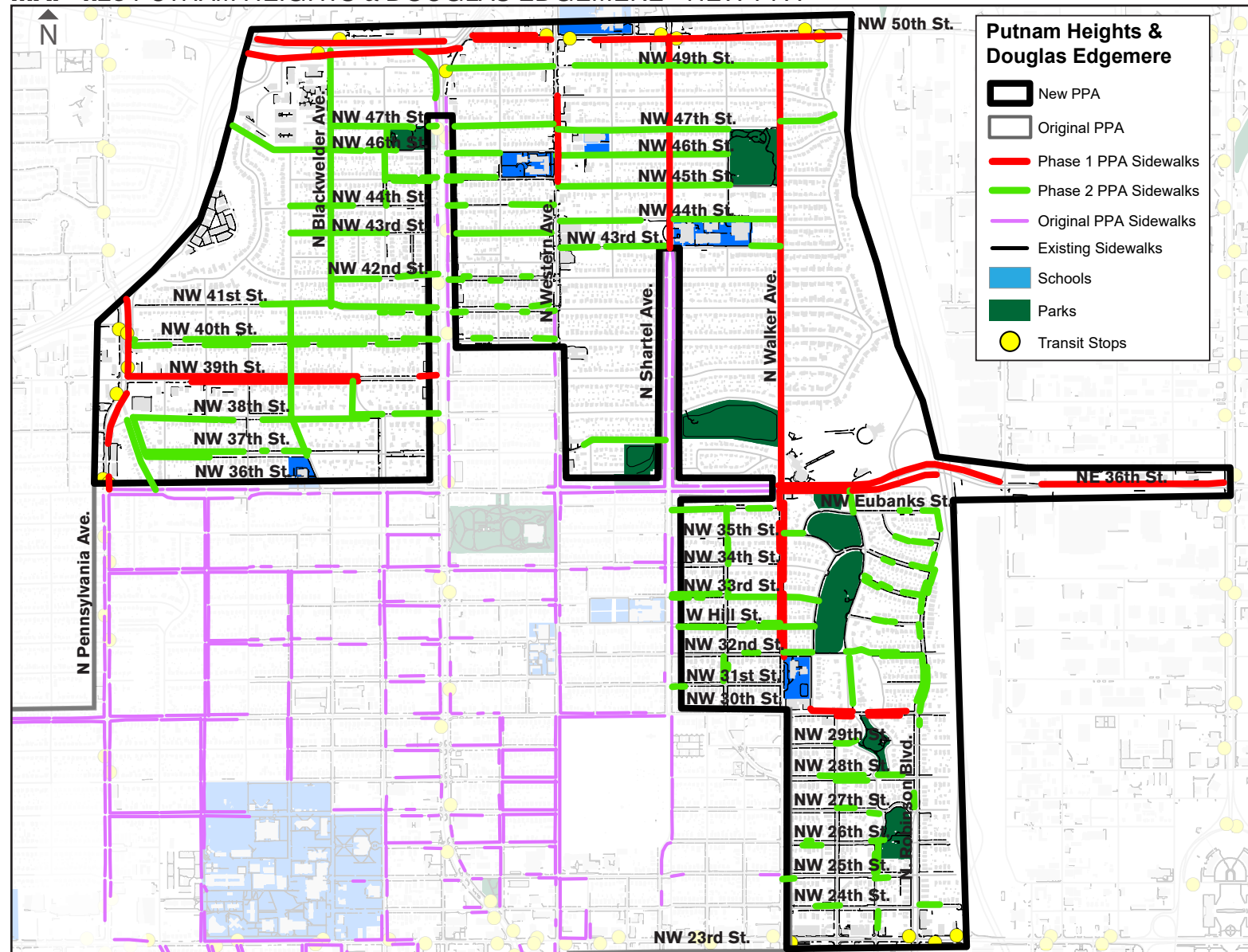
MAP 4.27 CENTRAL MAY - NEW PPA



NEW PPA - CENTRAL MAY

This PPA expansion centers around the corridor of N May Ave between NW 10th St and I-44, and it covers the large area within the inner OKC highway loop between two original PPAs. There are a number of significant accessibility issues here, including major arterial streets like N May Ave with its multitude of commercial activities and lack of complete sidewalks and pedestrian crossings to important community assets such as EMBARK bus routes 7, 8, 10, 23 and 38, Classen High School, Taft Middle School, other elementary schools and local parks, and diverse neighborhoods in walking distance to these destinations.

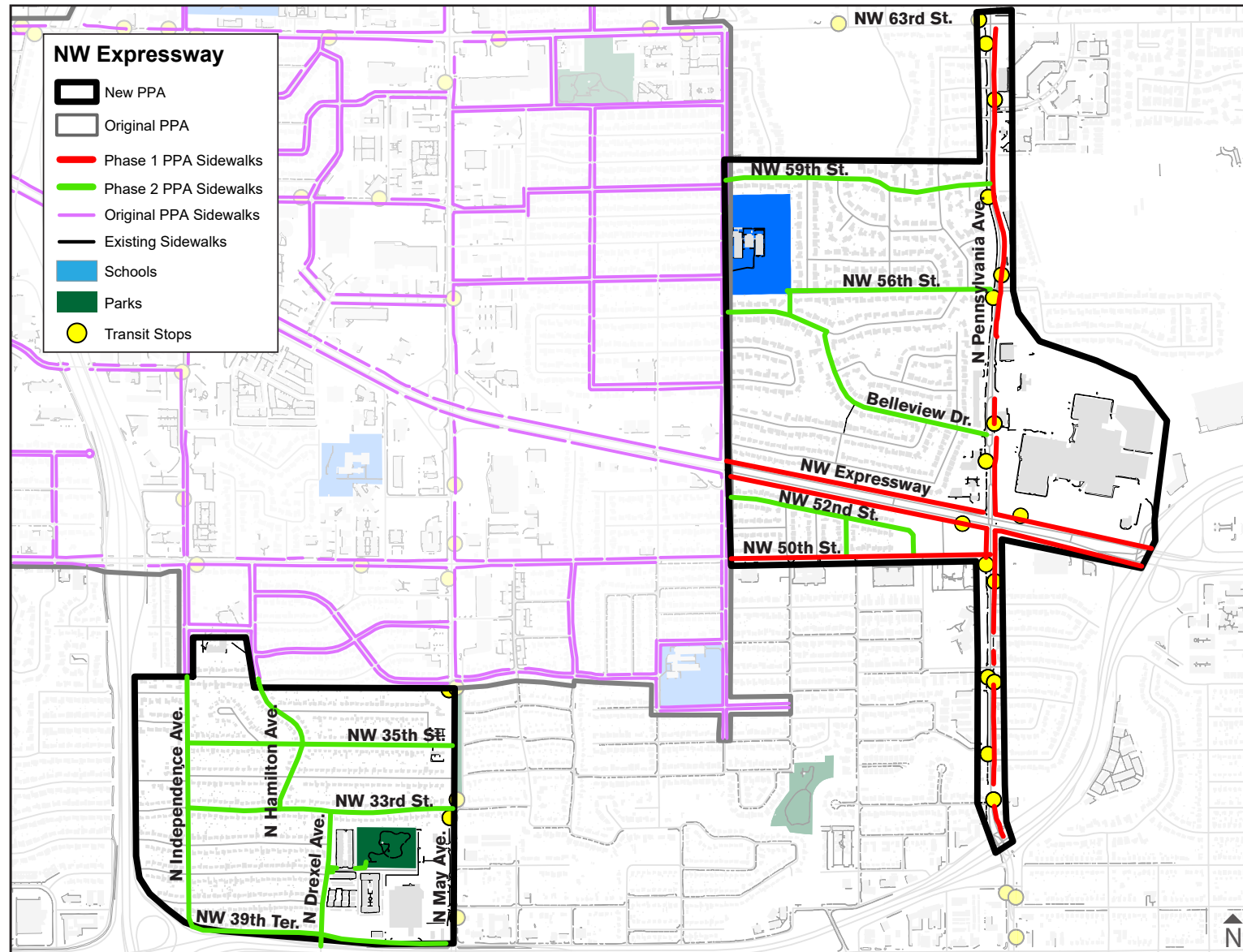
MAP 4.28 PUTNAM HEIGHTS & DOUGLAS EDMERE - NEW PPA



NEW PPA - PUTNAM HEIGHTS & DOUGLAS EDMERE

This area expands upon the original Classen and NW 23rd PPA. While Classen was a focal point of that PPA, the succeeding years have shown a growing importance to increase sidewalk presence and walkability in the surrounding neighborhoods. One such connection between the two is the imminent NW Bus Rapid Transit (BRT) route along Classen, which will provide high-frequency commuter transit service to these neighborhoods and districts. Another connection is the Western Avenue District which falls just outside of the original PPA and lacks adequate sidewalk connection to the surrounding neighborhoods. The eastern portion of this new PPA intends to better connect residents from Jefferson Park, Edgemere Park and Central Park to the historic and continuously growing Paseo Arts District. Additional access needs include Bishop McGuinness High School, Westminster K-8, and Trinity School, along with connections to the area's neighborhood parks: Douglas, Crown Heights, Guy James, Sparrow and Goodholm.

MAP 4.29 NW EXPRESSWAY - NEW PPA



NEW PPA - NW EXPRESSWAY

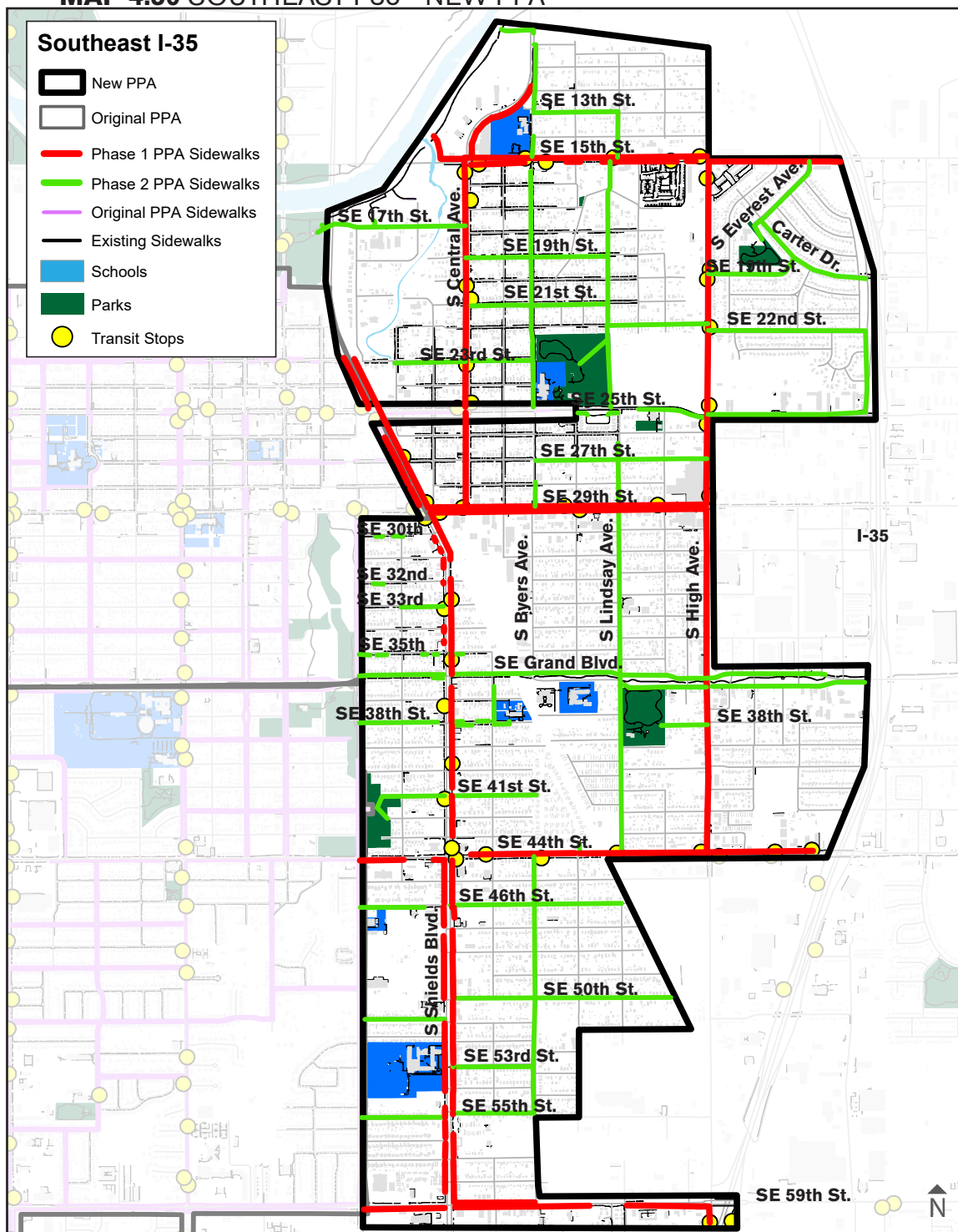
The NW Expressway PPA focuses on two non-contiguous areas. This is because, as illustrated in the Context Map, the neighborhoods in the middle have existing sidewalks on one side of nearly every street, as a result of a 2007 Bond residential resurfacing project. Because the central area is so well-served, the goal for this area then shifted to two neighborhoods - Mayfair West, cradled by I-44 and Lake Hefner Pkwy, and Wilemans Belle Isle to the northeast. Mayfair West is a natural southern extension of the original PPA, since its sidewalk projects are carried into the neighborhood but fall short of servicing the entire southern half. It is also directly adjacent to multiple grocery stores, a newly redeveloped commercial district, and multiple restaurants and convenience stores. Wilemans Belle Isle has a similar story, with Penn Square Mall to the east and a new mall-style development to the south. It's also important to connect this neighborhood to the Bus Rapid Transit (BRT) service soon to be completed along NW Expressway, and connecting west to Belle Isle Middle School and the original PPA sidewalk network already being implemented.

NEW PPA - SOUTHEAST I-35

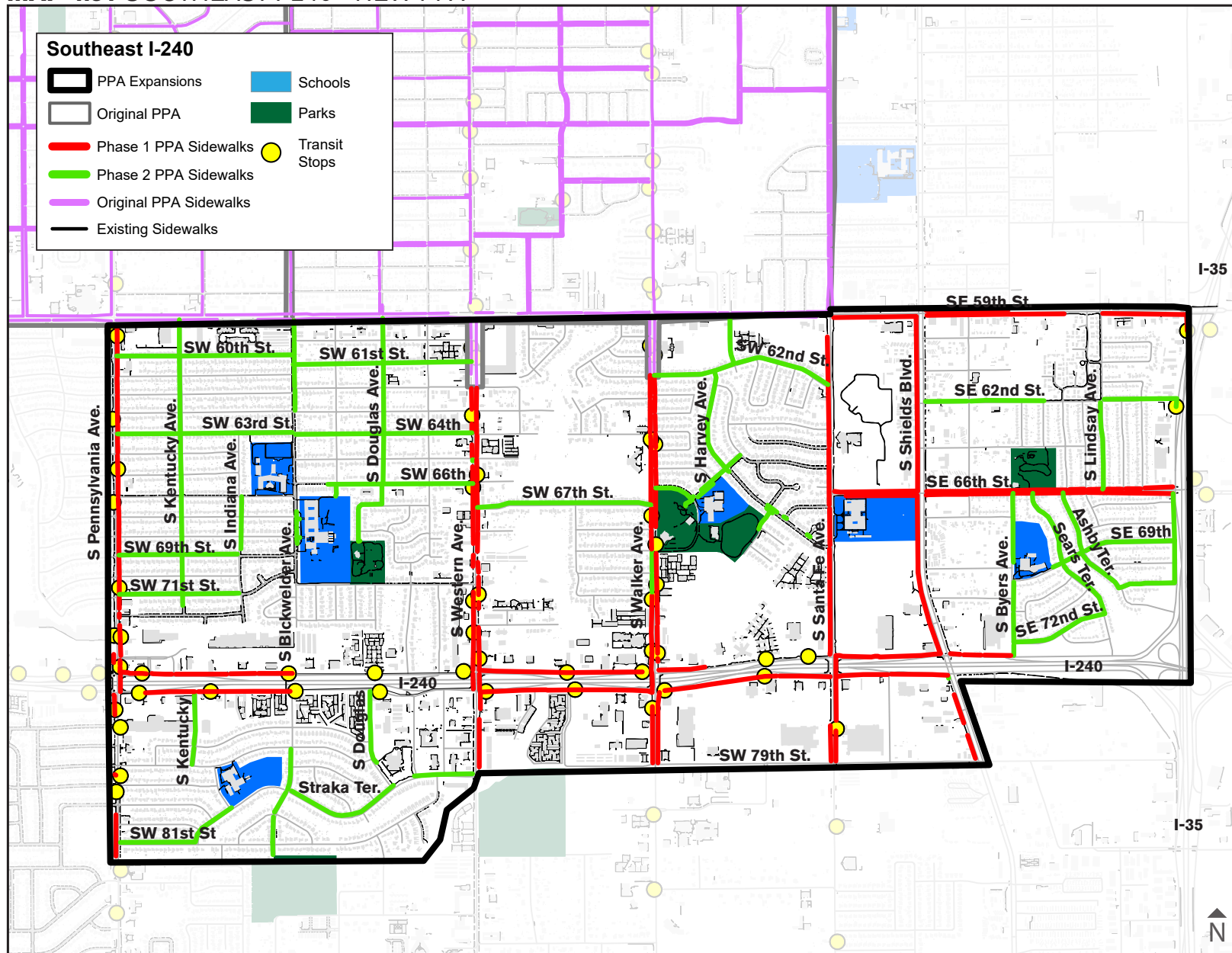
This PPA is intended to bring two of the south OKC PPAs, from the Oklahoma River to the north to SE 59th St to the south, east to I-35. This area has relatively high rates of zero-car households and several public schools without any sidewalk access. Parks and commercial areas also fall far short of adequate sidewalks infrastructure, and major arterial streets like S Shields Blvd create a barrier and significant safety concern for anyone on foot or a mobility device. Connections to existing trail amenities, such as the Oklahoma River trails and the multi-use trail running alongside SW Grand Blvd, are also needed.

Public transit is of heightened importance in this area, not only because it is currently being served by EMBARK bus routes 11 and 14, but also because there are both commuter rail and bus rapid transit (BRT) plans being set in motion by the Regional Transit Authority (RTA).

MAP 4.30 SOUTHEAST I-35 - NEW PPA



MAP 4.31 SOUTHEAST I-240 - NEW PPA



NEW PPA - SOUTHEAST I-240

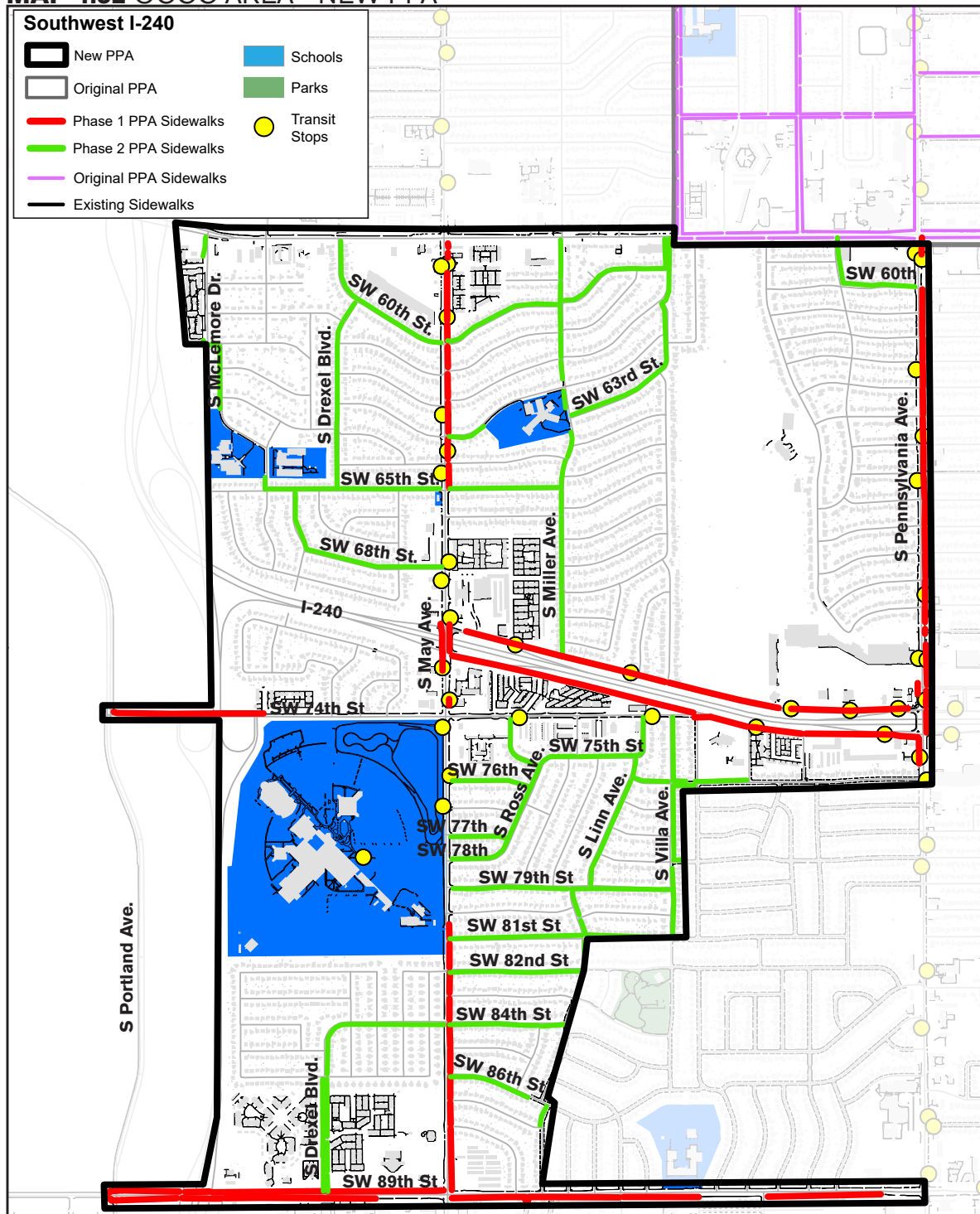
This area expands PPAs south across I-240 from S Pennsylvania Ave east to I-35. The area extends south of I-240 to better address I-240 as a major barrier for pedestrian activity. This approach also helps to serve transit ridership on EMBARK routes 13, 16 and 40, which have bus stops on both sides of the interstate along with several high-density apartment complexes. There is also a notably higher amount of schools and parks in this area that lack sidewalk access compared to other PPAs. One specific safety concern is the area around SE 66th and Shields Blvd, where numerous severe and fatal pedestrian collisions have occurred.

NEW PPA - OKLAHOMA CITY COMMUNITY COLLEGE (OCCC) AREA

As the title suggests, a significant portion of this expansion exists to better serve the area around OCCC and create better access to the campus itself. There are also two elementary schools to the north of I-240 that are in need of better sidewalk access. Sidewalks along major arterial streets and safe crossings under I-240 are a priority for this area. I-44 is a significant pedestrian barrier to multiple new employment developments, such as the Amazon Warehouses, along S Portland Ave by Will Rogers Airport. It's worth noting that the portion in the southeast is carved out of this expansion because that particular neighborhood received sidewalks on one side of every street through a 2007 Bond resurfacing project.

Public transit access is important, as it currently serves EMBARK routes 12, 13, and 16. As with a few other PPAs, there are special considerations for a MAPS 4 bus rapid transit (BRT) line and a future EMBARK airport route, which would provide additional transit service to the area in the coming years.

MAP 4.32 OCCC AREA - NEW PPA

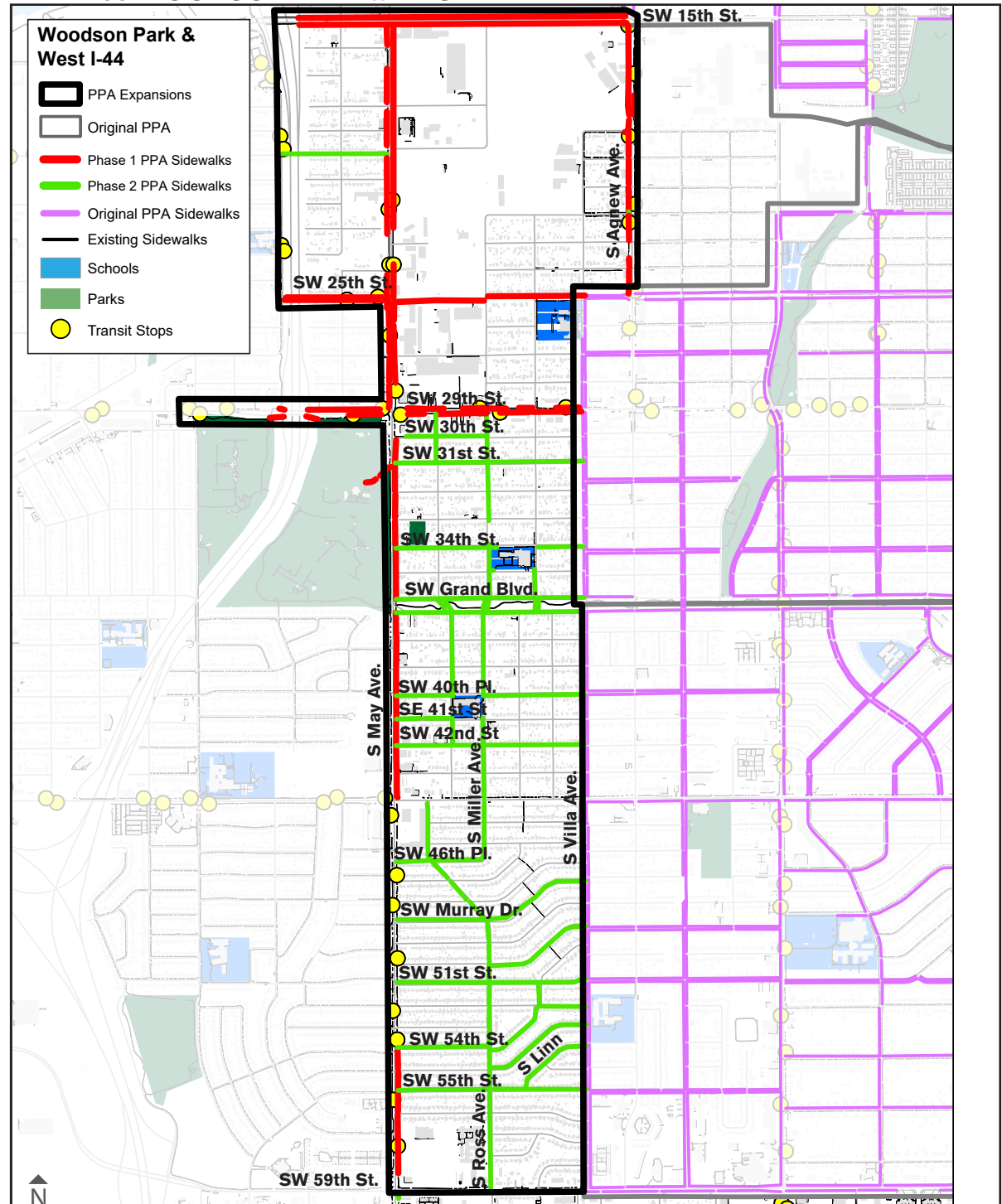


NEW PPA - WOODSON PARK & WEST I-44

This PPA covers an elongated north-south area between I-44 and previous PPAs to the east. Similar to other expanded areas, the neighborhoods south of Woodson Park and west of the proposed PPA received sidewalks on one side of every street through a 2007 Bond project. Between that project and the original PPAs, this expansion area is necessary to fill gaps in the sidewalk network.

The main public transit route is EMBARK Route 12, and access to that route is needed mostly along S May Ave and SW 29th St. Access to Woodson Park is important, not only because it is a regional recreational amenity, but also because it connects to the existing S Grand Blvd trail and a future trail alignment, which will connect Woodson Park north to the Oklahoma River and South to OCCC and ultimately Earlywine Park.

MAP 4.33 WOODSON PARK & WEST I-44 - NEW PPA



Street Enhancement Priorities

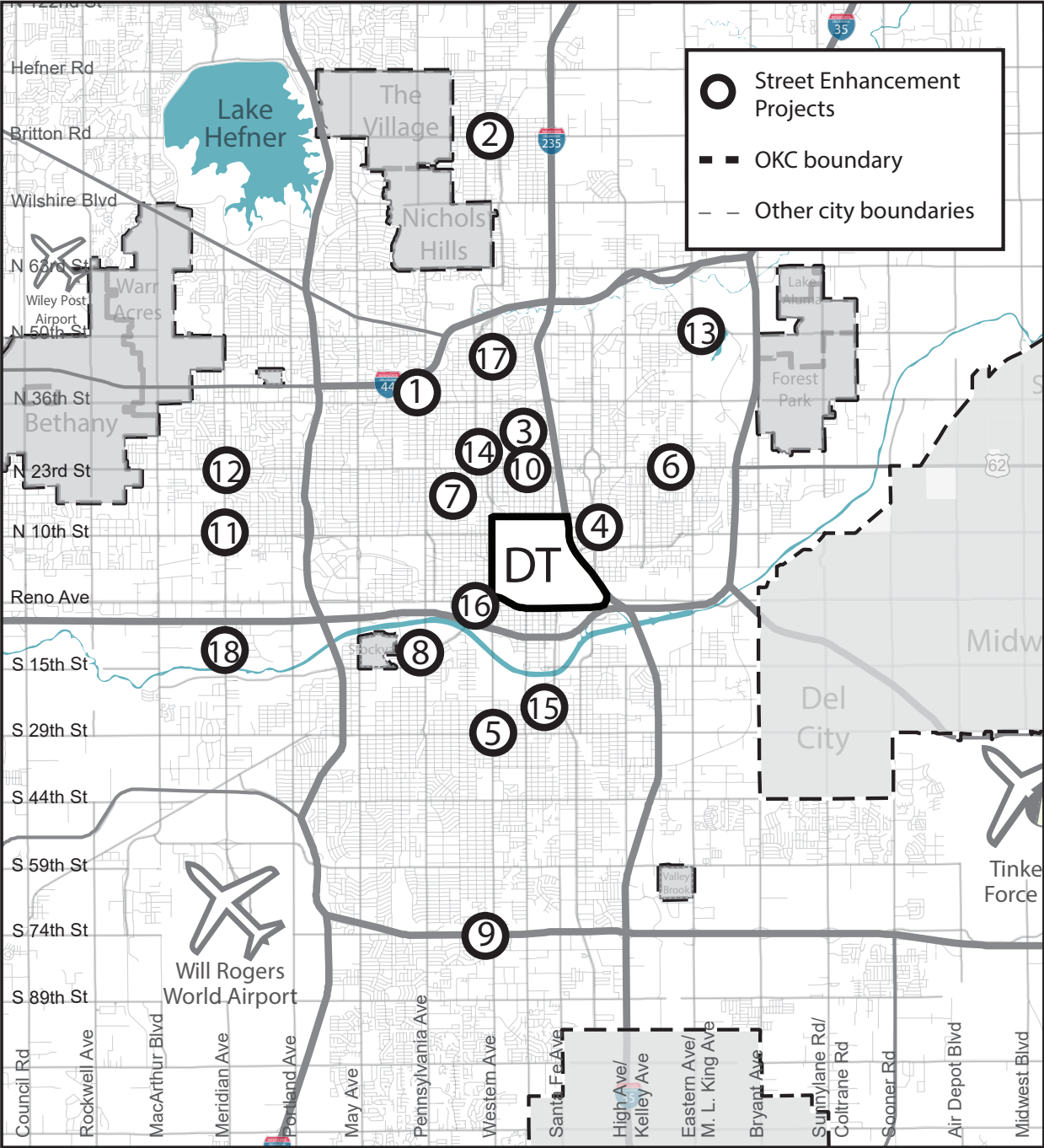
DISCUSSION

Several street enhancement projects were included in the Better Streets Safer City program. This category of projects contains a range of improvements, from sidewalks and bumpouts to pedestrian lighting and landscaping, based on the unique needs of individual commercial districts throughout OKC. Most districts have their own boards that work with the City through the Commercial District Revitalization program. While many street enhancements were funded over the last few years, several districts are still in need of funding for these types of improvements. The following table and map groups projects by funding status.

Table 4.6 Street Enhancement Projects Citywide

Map ID	Funded Street Enhancements
1	39th District (complete)
2	Britton District
3	Paseo Arts District (under construction)
4	Innovation District
5	La 29 District (under construction)
6	NE 23rd St District
7	Plaza District (complete)
8	Stockyards District
9	Two40 on I-240
10	Uptown 23rd District
11	WesTen District
12	Windsor District
Map ID	Unfunded Street Enhancements
13	Adventure District
14	Asian District
15	Capitol Hill District
16	Farmers Market District
17	Western District
18	Meridian Corridor

MAP 4.34 STREET ENHANCEMENT PRIORITIES



DOWNTOWN SUB-DISTRICTS

Downtown Oklahoma City is a Business Improvement District (BID) managed, maintained and marketed by the Downtown Oklahoma City Partnership (DOKC). The BID supports all six downtown sub-districts that have their own identities and boards.

In addition to DOKC’s regular funds used for streetscape maintenance, the City of Oklahoma City continues to upgrade and improve the streetscapes downtown. For example, one project the NW 4th bike lane project, is focused on redesigning a corridor that connects through multiple districts, and Automobile Alley has received funding for a streetscape improvement project.

Map 4.35 and Table 4.7 show currently funded street enhancements projects and other streets identified as needing any number of improvements, including pedestrian components, bike infrastructure, landscaping, and public art installations.

The approach and methodology associated with Street Enhancement projects are discussed further in Chapter 3, pages 74-75.

Robert S Kerr Ave after a Project 180 downtown street enhancement project



MAP 4.35 DOWNTOWN SUB-DISTRICTS

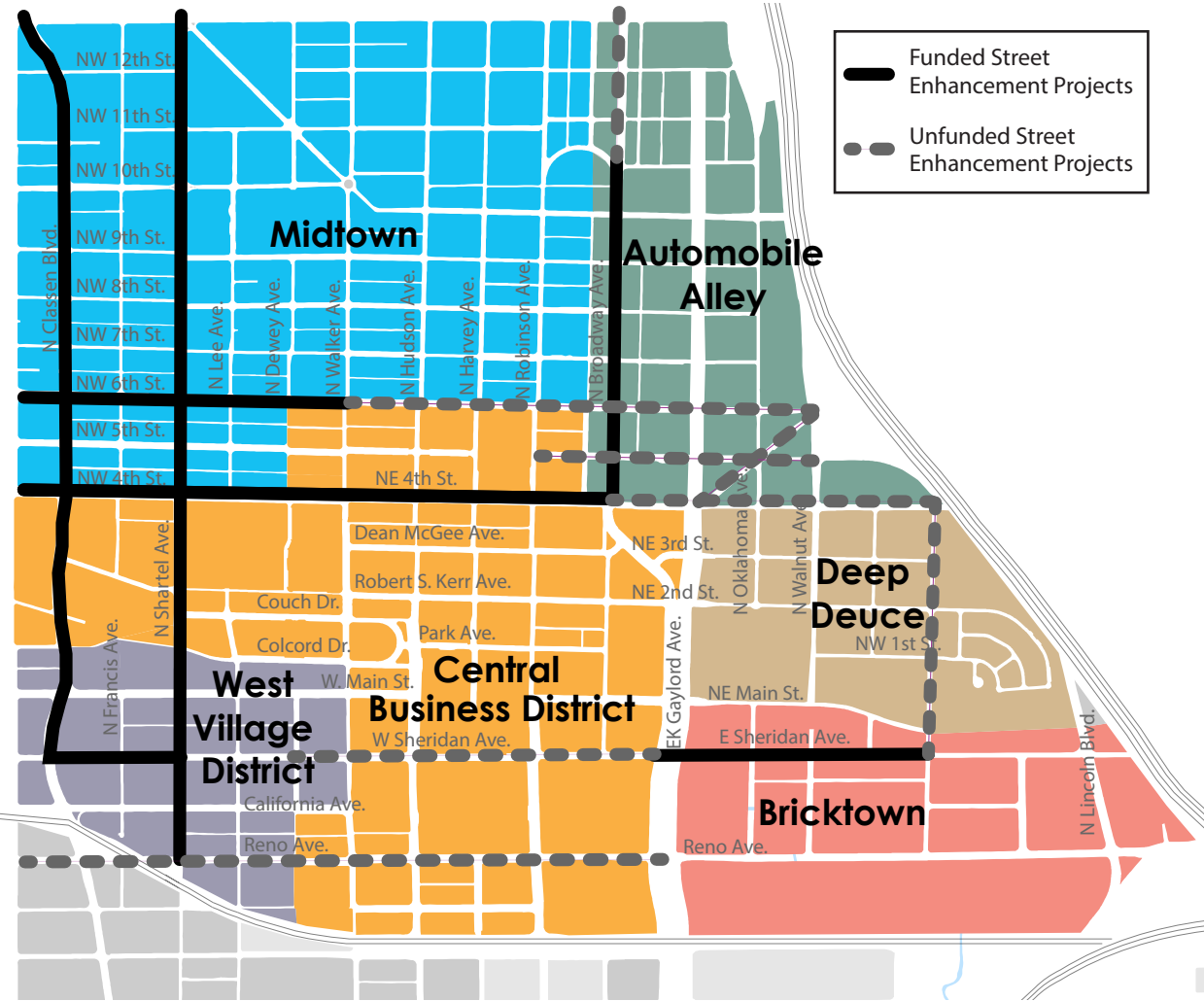


Table 4.7 Downtown Street Enhancement Projects

Funded Street Enhancements	Unfunded Street Enhancements
N Broadway Ave - NW 4th to NW 11th	N Broadway Ave - NW 11th to NW 23rd
N Classen Blvd - Sheridan to NW 10th	Russel M. Perry Ave - Sheridan to NE 4th
N Shartel Ave - Main to NW 13th	NW 6th St - Walker to Walnut
NW 6th St - Western to Walker	NW 5th St - Robinson to Walnut
NW 4th St - Western to Broadway	NE 4th St - Broadway to Lincoln
E Sheridan Ave - EK Gaylord Blvd to Joe Carter Ave	W Sheridan Ave - Dewey to EK Gaylord
	W Reno Ave - Western to EK Gaylord

Pedestrian Facilities

Prioritization - Transit

TRANSIT INSIDE OF PPAs

Each PPA prioritizes improvements along transit corridors. In order to facilitate pedestrian travel, bus stops require ADA accessible concrete pads. The cost of these pads should be included in any cost estimation of sidewalk projects along transit routes. Map 4.36 shows the overlap of the PPAs and the current transit routes. A total of 363 transit stops fall within the PPAs, with the highest concentration of stops being located in the NW Classen Blvd. at NW 23rd St. PPA. The two busiest transit routes in the EMBARK system, route 5 and route 23, traverse this PPA.

TRANSIT OUTSIDE OF PPAs

On the opposite page, Map 4.37 illustrates the locations of transit priority locations outside of the Pedestrian Priority Areas. These locations have high levels of transit usage with large numbers of residents within a walkable distance.

MAP 4.36 TRANSIT ROUTES AND PEDESTRIAN PRIORITY AREAS

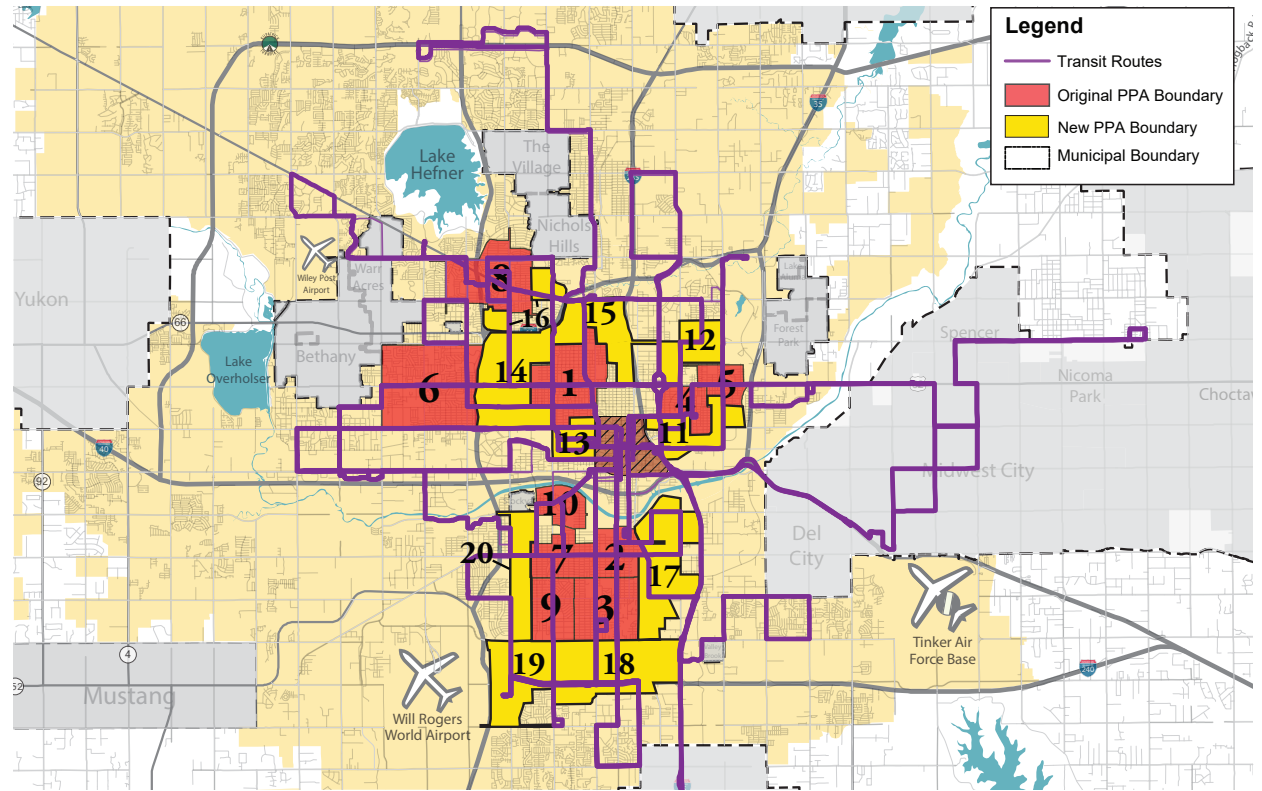


Table 4.8 Number of Bus Stops in Original PPAs

Label	Pedestrian Priority Areas (PPAs)	# of Bus Stops
1	NW Classen Blvd. at NW 23rd St.	86
2	Capitol Hill District	42
3	S. Walker Ave. and S. Western Ave.	32
4	OHC Surroundings	28
5	N. Martin Luther King Ave. at NE 23rd St.	29
6	Windsor District and WesTen District	48
7	SW 29th St. District	28
8	NW 63rd St. at N. May Ave.	40
9	SW 44th St. at S. Pennsylvania Ave.	14
10	Stockyards City	16
	TOTALS	363

Table 4.9 Number of Bus Stops in New PPAs

Label	Pedestrian Priority Areas (PPAs)	# of Bus Stops
11	NE OKC South of 8th Douglass	38
12	NE OKC Springlake Metro Tech	34
13	Metro Park Linwood	32
14	Central May	46
15	Putnam Heights & Douglas Edgemere	17
16	NW Expressway	19
17	Southeast I-35	44
18	Southwest I-240	47
19	OCCC	28
20	Woodson Park and West I-44	19
	TOTAL	324

TRANSIT PRIORITY OUTSIDE OF PPAs

For the original methodology in bikewalkokc, boarding and alighting data was used to identify 20 key locations that fall outside of the Pedestrian Priority Areas for sidewalk projects and pedestrian improvements. These locations are 1/2-mile radii around high-ridership stops. Through the Better Street Safer City program, along with multiple federal grants, all 20 of these projects are complete.

For this 2024 plan update, staff identified all the remaining transit lines outside of the PPA areas with the goal of making sure every transit route in OKC has adequate sidewalk coverage and ADA compliant bus stop access. Bus stop concrete pads, compliant to EMBARK standards, also must be incorporated in these projects to ensure the stops are shelter-ready. The transit lines are grouped by geography and prioritized according to their needs.

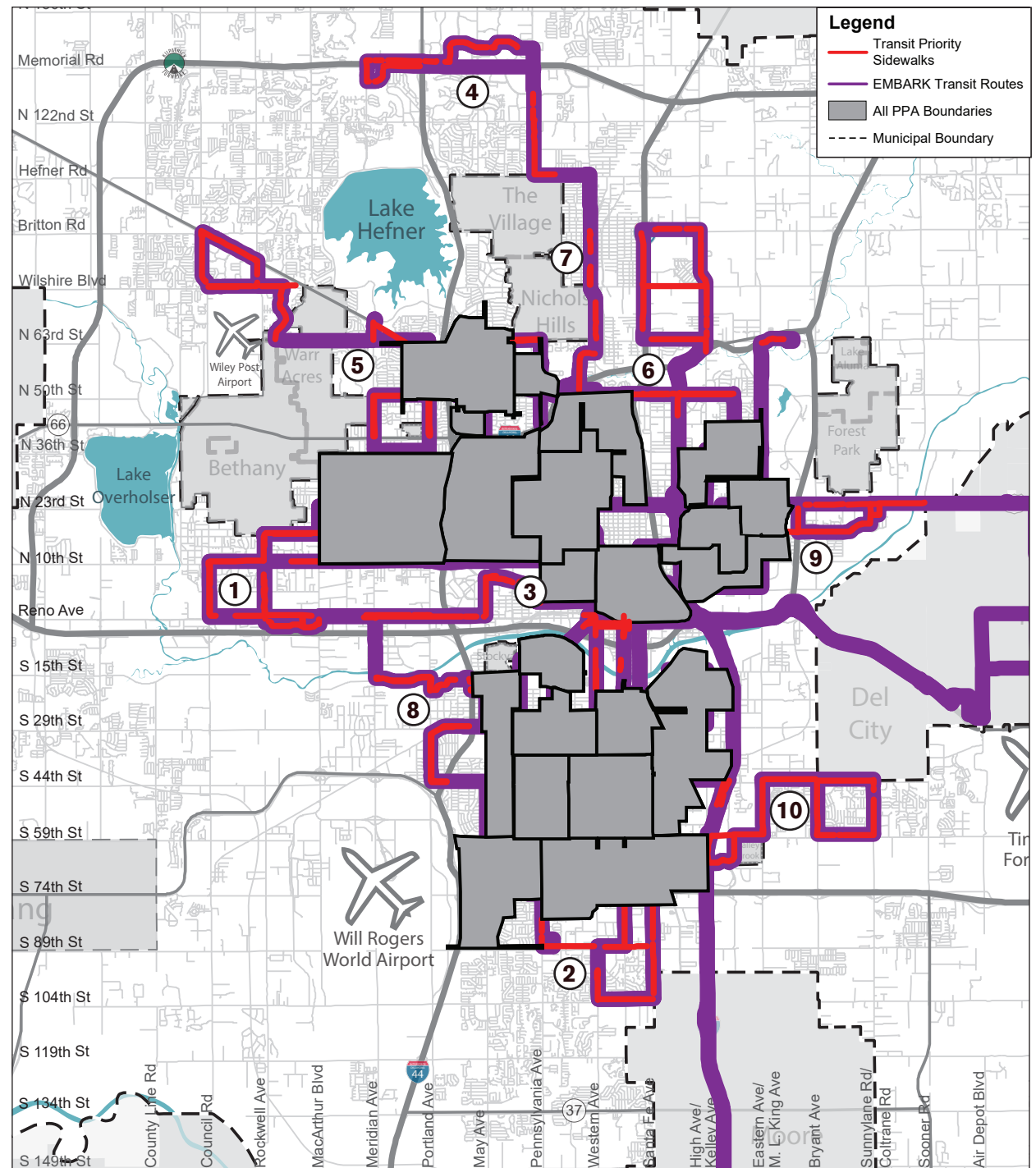
Coordination with EMBARK staff was essential to this prioritization method. Another consideration was EMBARK's OKC Moves Bus Study, which calls for four mini hubs to be added in the following locations:

- Reno and Greenfield
- OCCC
- Quail Springs Mall
- Santa Fe Walmart

Table 4.10 Priority Transit Locations

Rank / Map ID	Location Name
1	Routes 9, 11, 23, 38
2	Routes 13, 16, 40
3	Routes 9, 12, 13, 16
4	Route 5 (soon to be 3)
5	Routes 8, 10
6	Routes 3, 18, 22
7	Routes 5/3, 8
8	Routes 11, 12
9	Route 2
10	Route 14

MAP 4.37 PRIORITY TRANSIT LOCATIONS OUTSIDE OF PPAs



Pedestrian Facilities

Prioritization - Schools

SCHOOLS INSIDE OF PPAs

Schools are one of the key land uses that led to the identification of the Pedestrian Priority Areas. In areas of the city that have a high opportunity to become very walkable, safe access to schools is a very high priority. Map 4.38 and Tables 4.11 and 4.12 show how many schools are addressed by the pedestrian improvements in each of the 20 Pedestrian Priority Areas. In total there are 90 schools that fall within the PPA boundaries.

SCHOOLS OUTSIDE OF PPAs

On the opposite page, Map 4.39 illustrates the locations of schools outside of the Pedestrian Priority Areas. Improvements for streets in the vicinity of schools can be supplementally funded through federal funding via the Safe Routes to Schools initiative. Strategies to direct sales tax and general obligation bond monies toward walkability improvements around schools remains a priority for OKC.

MAP 4.38 SCHOOLS IN PPAs

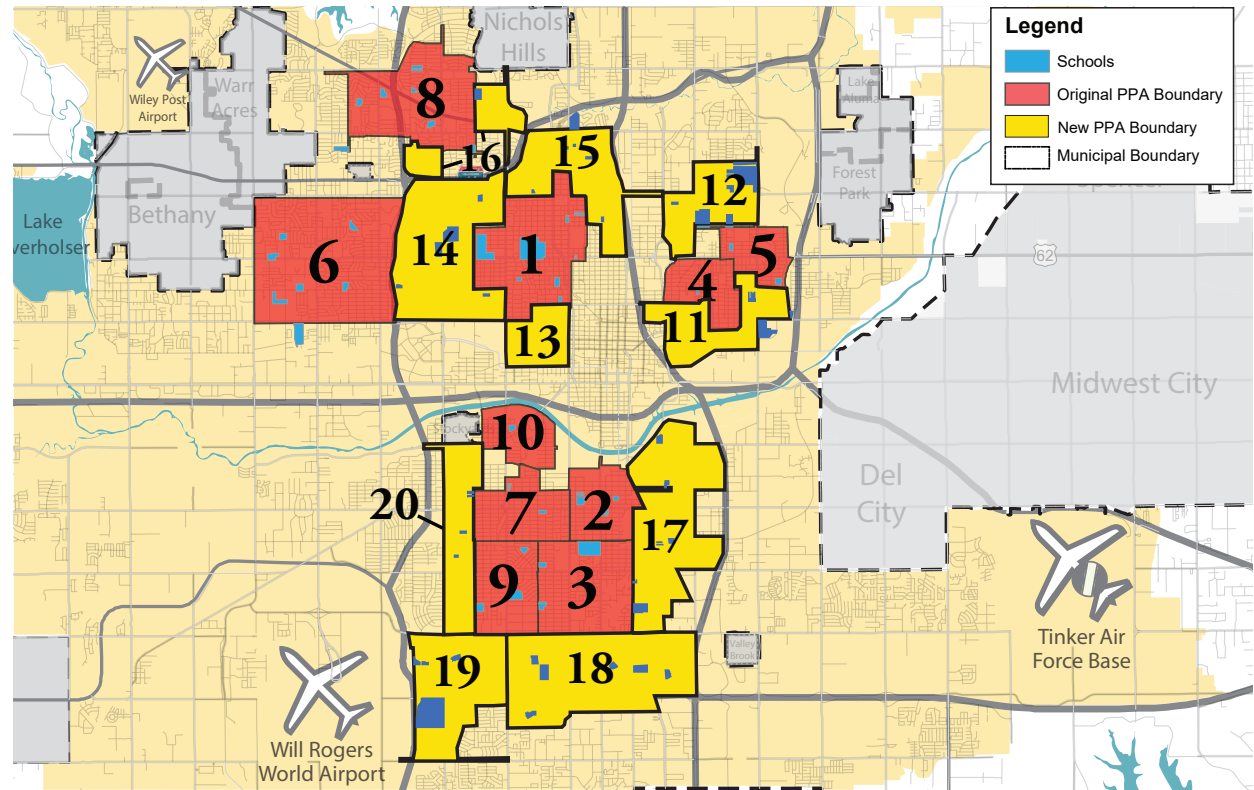


Table 4.11 Number of Schools in Original PPAs

Label	2018 Pedestrian Priority Areas (PPAs)	# of Schools
1	NW Classen Blvd. at NW 23rd St.	10
2	Capitol Hill District	4
3	S. Walker Ave. and S. Western Ave.	5
4	OHC Surroundings	2
5	N. Martin Luther King Ave. at NE 23rd St.	5
6	Windsor District and WesTen District	7
7	SW 29th St. District	3
8	NW 63rd St. at N. May Ave.	7
9	SW 44th St. at S. Pennsylvania Ave.	3
10	Stockyards City	1
	TOTAL	47

Table 4.12 Number of Schools in New PPAs

Label	2018 Pedestrian Priority Areas (PPAs)	# of Schools
11	NE OKC South of 8th Douglass	4
12	NE OKC Springlake Metro Tech	6
31	Metro Park Linwood	1
14	Central May	6
15	Putnam Heights & Douglas Edgemere	6
16	NW Expressway	1
17	Southeast I-35	6
18	Southwest I-240	6
19	OCCC	4
20	Woodson Park and West I-44	3
	TOTAL	43

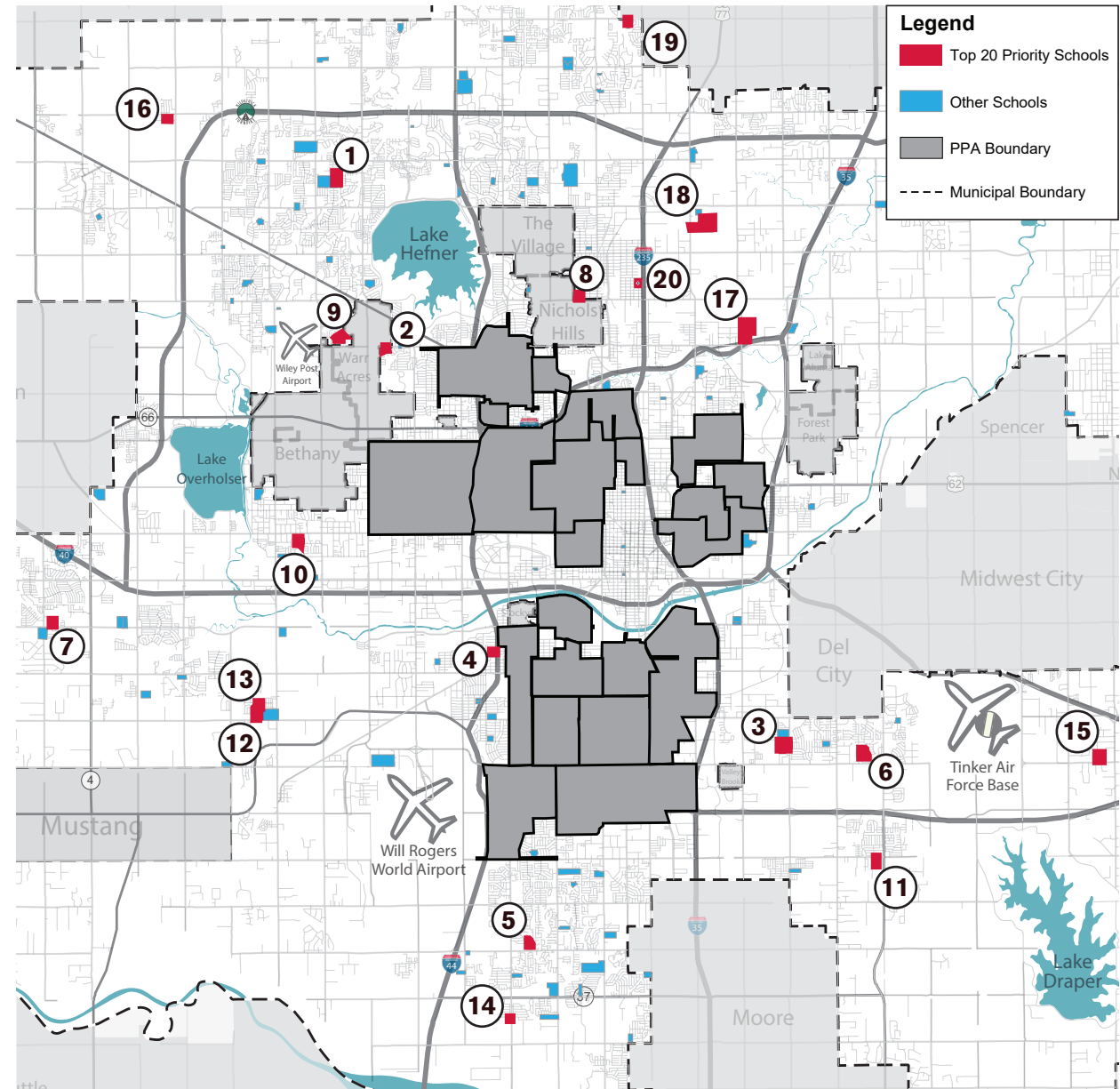
SCHOOL PRIORITY OUTSIDE OF PPAs

Using the prioritization process outlined in Chapter 3, pages 78-79, a list of the top 20 schools was generated for implementation. The resulting list shows a wide geographic distribution of locations across the city.

Table 4.13 Priority School Locations

Rank	School Name
1	James L Dennis ES
2	Rollingwood ES
3	Bodine ES
4	Rockwood ES
5	Fisher ES
6	Parkview ES
7	Mustang Trails ES
8	Nichols Hills ES
9	Tulakes ES
10	Greenvale ES
11	Sooner ES
12	Western Heights MS
13	Winds West ES
14	Wayland Bonds ES
15	Barnes ES
16	Stone Ridge ES
17	Millwood ES
18	Eisenhower ES
19	Holy Trinity Lutheran School
20	Kipp OKC College Prep

MAP 4.39 PRIORITY SCHOOL LOCATIONS OUTSIDE OF PPAs



Pedestrian Facilities

Prioritization - Parks

PARKS INSIDE OF PPAs

Parks are one of the key land uses that led to the identification of the Pedestrian Priority Areas. In areas of the city that have a high opportunity to become very walkable, safe access to parks is a very high priority. Map 4.40 and Tables 4.14 and 4.15 show how many parks are addressed by the pedestrian improvements in each of the 20 Pedestrian Priority Areas. In total there are 78 parks that fall within all 2018 and 2023 PPA boundaries.

PARKS OUTSIDE OF PPAs

On the opposite page, Map 4.41 illustrates the locations of parks outside of the Pedestrian Priority Areas. Strategies to direct sales tax and general obligation bond monies toward walkability improvements around parks should be a priority.

MAP 4.40 PARKS IN PEDESTRIAN PRIORITY AREAS

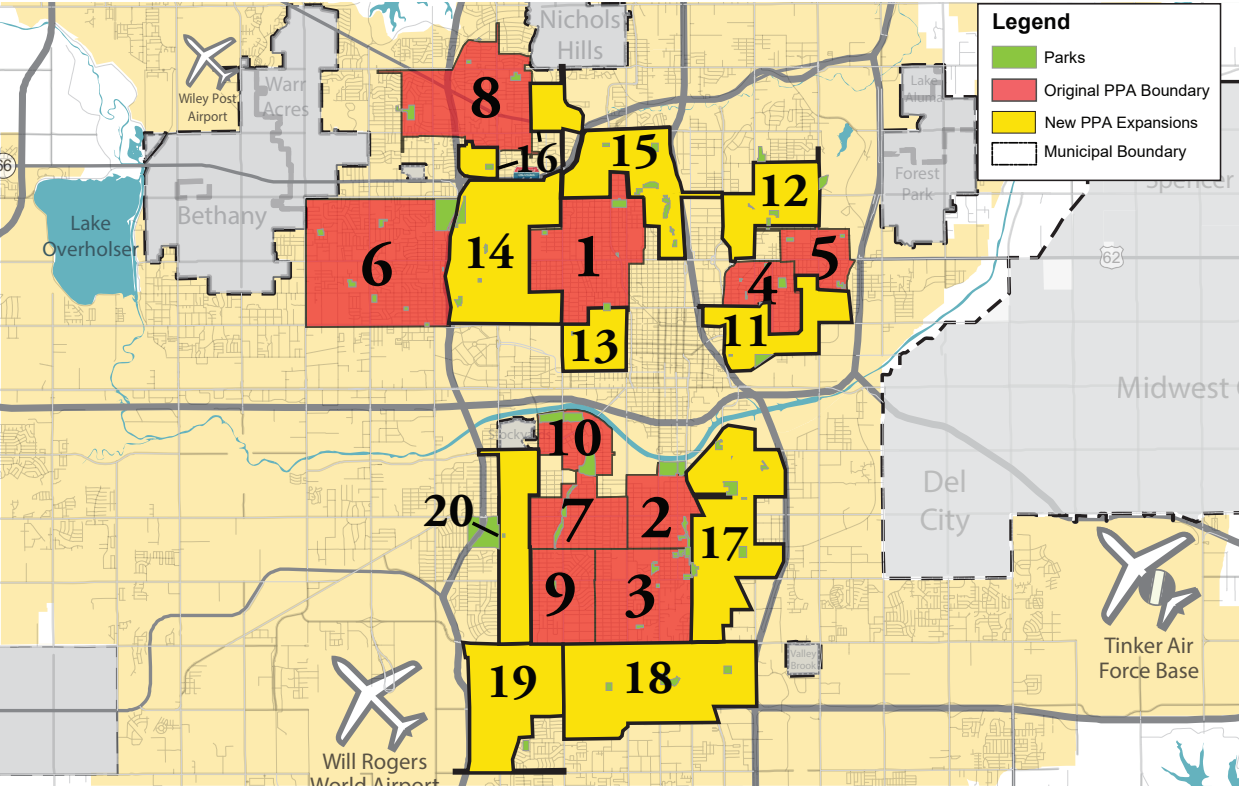


Table 4.14 Number of Parks in Original PPAs

Label	Pedestrian Priority Areas (PPAs)	# of Parks
1	NW Classen Blvd. at NW 23rd St.	7
2	Capitol Hill District	4
3	S. Walker Ave. and S. Western Ave.	4
4	OHC Surroundings	6
5	N. Martin Luther King Ave. at NE 23rd St.	4
6	Windsor District and WesTen District	8
7	SW 29th St. District	1
8	NW 63rd St. at N. May Ave.	4
9	SW 44th St. at S. Pennsylvania Ave.	1
10	Stockyards City	3
	TOTAL	42

Table 4.15 Number of Parks in New PPAs

Label	2018 Pedestrian Priority Areas (PPAs)	# of Parks
11	NE OKC South of 8th Douglass	3
12	NE OKC Springlake Metro Tech	3
31	Metro Park Linwood	2
14	Central May	6
15	Putnam Heights & Douglas Edgemere	7
16	NW Expressway	1
17	Southeast I-35	6
18	Southwest I-240	5
19	OCCC	1
20	Woodson Park and West I-44	2
	TOTAL	36

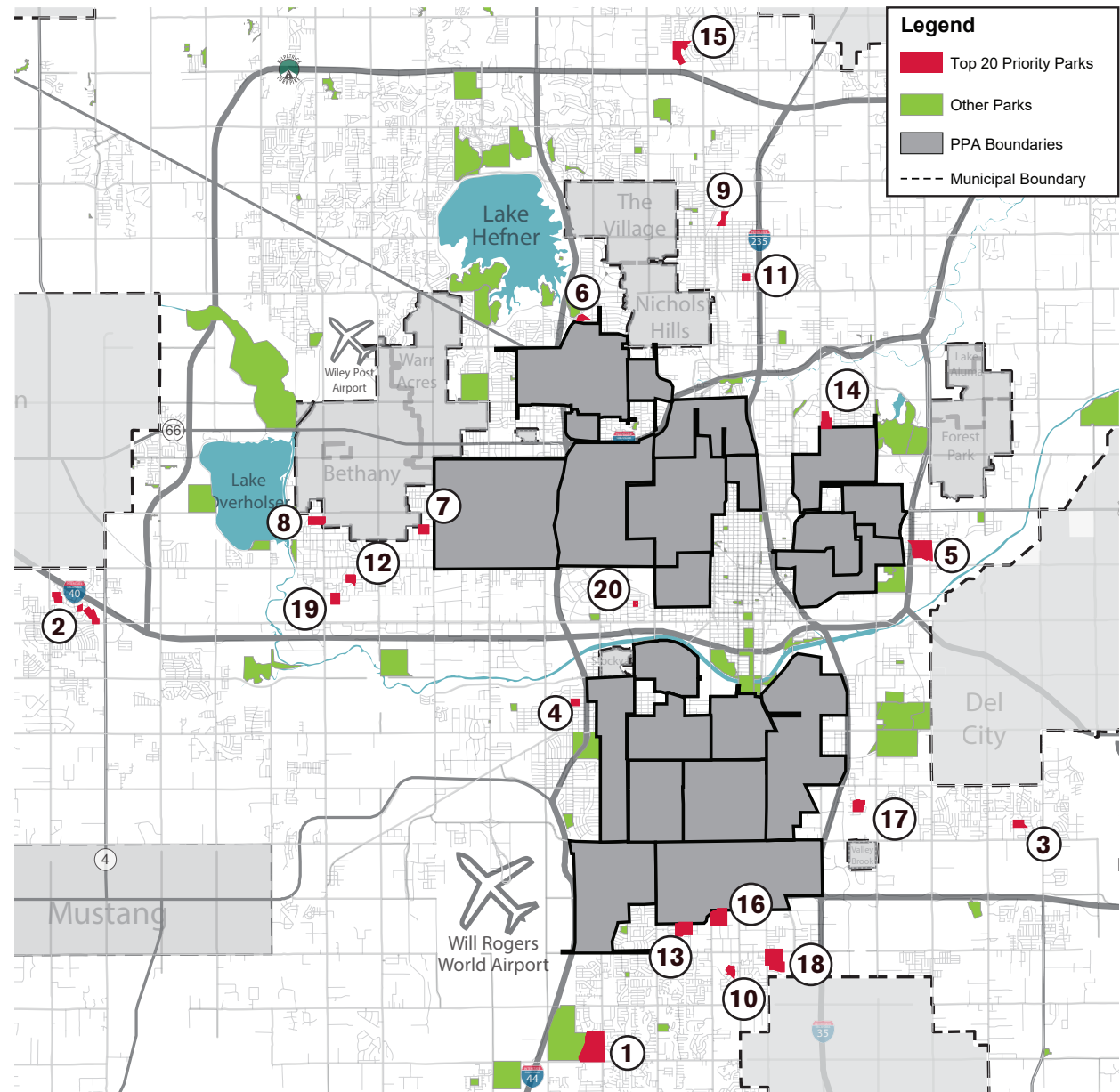
PARK PRIORITY OUTSIDE OF PPAs

Using the prioritization process outlined in Chapter 3, pages 80-81, a list of the top 20 parks was updated from 2018 to 2024 for implementation. The resulting list shows a wide geographic distribution of locations across the city.

Table 4.16 Priority Park Locations

Rank	Park Name
1	Earlywine Park
2	Woodrun Park (East & West)
3	Mackleman Park
4	Lorraine Thomas
5	Edwards Park
6	Mayview Park
7	Lela Park
8	J.B. Black Park
9	Burton/Britton Park
10	Brookwood Park
11	N Highland Park
12	Lytle Park
13	Straka Soccer Fields
14	L.D. Lacy Park
15	Redlands Park
16	Lightning Creek Park
17	Shallowbrook Park
18	Crossroads Sports Complex
19	Melrose Park
20	Mark Twain Park

MAP 4.41 PRIORITY PARK LOCATIONS OUTSIDE OF PPAs



Measuring Performance

Continual monitoring of implementation progress is essential to the success of bikewalk**okc**. Baseline measurements of key data like bicycling and walking activity, collision rates, miles of facilities, program participation numbers, and mode share provide a point of comparison to determine the impact of infrastructure projects and supporting education and enforcement programs. The City of Oklahoma City Planning Department has established the baseline of bicycle and pedestrian counts and performance measures in order to monitor plan and policy success. The performance measures staff uses for annual monitoring are included in Table 4.17.

Upon establishing baseline counts, City staff created a bikewalk**okc** report card for tracking performance every two years. Staff will complete this report card based on the performance metrics established within this plan. The report card will be helpful in tracking progress and can be used to show support for additional facility and program improvement.

Since the development of bikewalk**okc** in 2018, several trends emerged in the established measures. As expected, all categories under the Accessibility Measures and the Facilities Measures saw an increase in their desired outcomes. Much of these increases can be directly attributed to the City's investments in many miles of sidewalk and bike infrastructure over the last five years, but a positive market response can also be attributed to the growth in new infrastructure.

Table 4.17 Performance Measures

Accessibility Measures (Source: US Census 2020)					
Performance Measure	2018 Bike/Trail (within 1/4 mile)	2023 Bike Percentage	2018 Pedestrian (street w/ sidewalk)	2023 Ped Percentage	Desired Trend
% of Jobs with access	20.8%	32.1% ↑	40.5%	47.3% ↑	Increase
% of Population with access	11.0%	29.5% ↑	34.4%	46.8% ↑	Increase
% of Transit stops with access	16.7%	43.3% ↑	42.9%	57.9% ↑	Increase
% of Schools with access	14.5%	37.2% ↑	53.8%	62.2% ↑	Increase
% of Parks with access	35.5%	62.6% ↑	34.8%	47.7% ↑	Increase

Facilities Measures (Source: City of OKC)			
Performance Measure	2018 Baseline	2023 Increase	Desired Trend
Miles of On-Street Bike Lanes	8.83 miles	9.53 miles ↑	Increase
Miles of Multi-Use Trails	73.33 miles	15.69 miles ↑	Increase
Miles of Sidewalks	1,088.82 miles	176.48 miles ↑	Increase

Safety Measures (Source: Oklahoma Highway Safety Office)			
Performance Measure	Baseline (2003-2015)	Desired Outcome	2016-2020
Avg. Annual Fatal Pedestrian Collisions	10.62	Zero	18.80 ↑
Avg. Annual Fatal Bicycle Collisions	0.85	Zero	1.60 ↑
Pedestrian Collisions (per 100K)	129.15	Decrease	148.40 ↑
Bicycle Collisions (per 100K)	50.31	Decrease	61.60 ↑

Usage and Satisfaction Measures (Source: American Community Survey - US Census)			
Performance Measure	Baseline (2018)	Desired Trend	2022
Mode Split	Drove alone: 82.0% Carpool: 11.0% Transit: 0.6% Walked: 1.6% Bicycle: 0.1% Taxi/Other: 1.0% Worked from home: 3.7%	Shift from automobile trips to walking, bicycling, and public transit	Drove alone: 78.4% ↓ Carpool: 9.4% ↓ Transit: 0.4% ↓ Walked: 1.6% ■ Bicycle: 0.2% ↑ Taxi/Other: 1.5% ↑ Worked from home: 8.5% ↑

Action Plan

The following pages outline the approach for plan implementation. This plan is a collection of capital improvement projects, but it also has recommendations for City policies and ordinances, with the goal of improving safety and equity for people taking non-motorized trips.

The performance measures identified on page 132 will be updated every time a plan update occurs. This will allow enough time for changes in these measures to manifest, and with these periodic updates, the City will have data to guide the next iteration of the bicycle and pedestrian plan. With every update, the project lists from this plan will be evaluated for completion of projects and feasibility of remaining projects. Additionally, new projects should be identified that respond to the trends in performance measures, new public input, and a continuation of the approach to identify priority needs established in this plan.

Action Categories

The core of bikewalkokc is comprised of key bicycle and pedestrian projects discussed in this chapter; however, there are several other categories of actions beyond performance evaluation and capital improvement projects that will be necessary to accomplish the goals of this plan. These categories are as follows:

POLICY UPDATES

Internal policies related to capital improvements should be updated to reflect the importance of active transportation and recreation. Policies that govern the development review process for subdivisions, redevelopment projects, and commercial development should also be modified to include the principles of active transportation, as well as to ensure that as each new development comes in to Oklahoma City, our active transportation network is strengthened.

CODE AND REGULATIONS UPDATES

In order for many of the projects in this plan to flourish and function in their intended fashion, modifications need to be made to Oklahoma State Statutes and the City's municipal codes and subdivision regulations. Many City and State ordinances related to pedestrians and bicyclists are outdated and have become counterproductive with regard to improving walking and cycling.

STANDARDS UPDATES

Best practices in the design of active transportation and recreation facilities change rapidly, and it can be difficult to keep up with the state-of-the-practice approach. New standards can be adopted in several areas to better accommodate the needs associated with active transportation and recreation.

SYSTEMS UPDATES

Transportation systems largely favor automobiles, making it difficult for pedestrians and cyclists to travel on most streets. Modifications to our traffic control systems can be made in such a way as to not disrupt automobile traffic while accommodating non-motorized traffic.

PROMOTIONAL EFFORTS

With all of the changes that are set to occur with the adoption of this plan, continued education efforts will be required to ensure that all users of new facility types are aware of their responsibilities. Public awareness campaigns, like Watch for Me OK, should continue to focus on transportation safety, public and personal health, and the environment.

The City's Transportation Planning team, along with the Traffic and Transportation Commission, are charged with overseeing and pursuing the execution of these updates and efforts. The following pages detail each of these categories, citing specific examples and grouping them into a phased approach.

RESEARCH EFFORTS

Research projects should be conducted in order to move this plan forward into future iterations. These projects should gather data to use for future plan updates, as well as looking to other cities to determine best practices in the field for any given subject. This approach will allow for partnerships with higher education, increasing the capacity of the Planning Department.

PUBLIC EDUCATION AND ENGAGEMENT EFFORTS








Best practices in transportation planning are the result of both meaningful input from and effective education for stakeholders who are interested in or impacted by a







planning initiative or project. Stakeholders include residents, community groups, property and business owners, appointed and elected officials, agency partners, City departments, and others. The City's Planning Department staff will continue to engage stakeholders in the decision-making process in a variety of ways and strive to reach those who are not used to being part of the process, or who lack access to resources, technology or knowledge needed to participate. Additionally, the City will continue to develop and improve outreach and educational processes and tools to help new transportation facility users and those affected by the facilities utilize them appropriately and safely, and to facilitate and ease the post construction adjustment period.

Public participation efforts for bike or pedestrian projects will continue to be guided by a phased engagement plan created by Planning, Public Works, Parks and Recreation, and MAPS staff as applicable that involves interested and affected stakeholders. Depending on the project specifics, the engagement plan may include all phases of an improvement's life cycle: project identification, design, construction, user acclimatization, and stewardship for proper use and maintenance of the improvement. Activities or tools in the plan will include those listed below or others as appropriate:

- (1) Coordination with neighborhood associations, commercial districts, schools, churches, and other community groups;
- (2) Informative project websites and social media pages;
- (3) Online and/or postal-mail surveys with polls and/or open and/or multiple-choice answer questions;
- (4) In person events, such as public meetings, townhalls, or outreach at existing markets, festivals, and other community events;
- (5) Mailers informing affected neighborhoods about upcoming projects, public meetings, or specific project details, and/or requesting feedback;
- (6) Door-to-door in-person visits in residential neighborhoods and businesses;
- (7) Individual work sessions with particularly affected property owners;
- (8) News items in local media; and
- (9) Coordination among City Departments and partner agencies for the design, construction, and use of the proposed improvements.



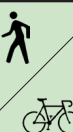
ACTION PLAN

CODE REGULATION UPDATES		
1	Create ordinance language to define “bike boxes”.	
1	Consider revisions to the fee-in-lieu-of system for sidewalk variances granted by the Board of Adjustment.	
2	Require right-of-way to be set aside for bicycle and trail facilities as (re)development projects coincide with proposed facilities in bikewayokc.	
2	Revise subdivision regulations to include connectivity standards and guidelines that require greater street connectivity, and provide allowances for pedestrian and bicycle connections when street connectivity cannot be made.	
2	Revise development standards to require ADA upgrades to pedestrian and trail facilities along connector and arterial streets.	
3	Revise development standards to require sidewalks with concrete transit stop pads along transit routes, conforming to EMBARK shelter-pad standards.	
3	Work with the Code Update team and the Municipal Counselor’s office to determine elements of the code that should be added, amended, or removed.	



POLICY UPDATES		
1	Establish standards for providing same-side pedestrian facilities in work zones and alternative bicycle routes when construction activity prohibits the use of existing facilities.	
1	Expand the City’s 50/50 Sidewalk Repair and Replacement Program to include new sidewalks that will fill in important gaps.	
2	Accommodate bicyclists and pedestrians on new and existing roadway bridges, underpasses, and interchanges, as well as on any other roadways that are impacted by a bridge, underpass or interchange project.	
3	Incorporate a bicycle and pedestrian facilities checklist into the plat and development review process.	
3	When approving projects that improve the level of service for vehicular traffic, ensure that they do not negatively impact the walkability or bikeability of the area.	
3	Set level of service goals to improve the performance of pedestrian and bicycle facilities.	

ACTION PLAN




STANDARDS UPDATES

1	Establish regular updates to the City's Bicycle Design Standards. Incorporate designs from piloted projects and new best practices.	
2	Roadways being reconstructed or resurfaced should incorporate proposed bicycle facilities (subject to traffic study). Non-local bicycle routes on two-lane roadways should receive a 6' to 8' shoulder where feasible.	
2	Develop design standards for bus stops and transit stations that consider location, make connections to sidewalks and bicycle routes/trails, and provide safe, comfortable and attractive waiting areas for riders.	









SYSTEMS UPDATES

1	Improve traffic signals along bicycle facilities to ensure cyclists are detected automatically.	
2	Incorporate automatic pedestrian signal phasing with fixed-time signals, Leading Pedestrian Interval (LPI), and other pedestrian safety methods in business districts, commercial corridors, pedestrian priority areas, and other locations.	

PROMOTIONAL EFFORTS

1	Continue working with schools, youth groups, and other parties to provide education and encouragement programs about bicycle and pedestrian safety.	
1	Create and maintain an informative website with bike routes, active projects, and safety materials.	
2	Encourage recumbent bicycles to be fitted with a flag or other visual element to account for the low-profile nature of the vehicle.	

RESEARCH EFFORTS

1	Pursue programs or grants that offer e-bike incentives, especially for income-qualifying communities.	
1	Explore the feasibility of the City assuming responsibility for sidewalk maintenance in all areas of the city.	
1	Study the impact of bikewalkokc implementation on responsive or vulnerable populations. Evaluate potential health outcomes and incorporate findings to ensure projects and policy changes have positive impacts.	
1	Research best practices to ensure that micromobility systems do not cause the pedestrian realm to become inaccessible or unsafe.	
2	Consider revisions to the fee-in-lieu-of system for sidewalk variances granted by the Board of Adjustment.	
2	Study what changes need to be made to City ordinances in order to better accommodate active transportation.	
3	Evaluate the intersections and street segments in the urbanized area of Oklahoma City using the Pedestrian Environment Assessment Toolkit (PEAT) approach.	
3	Monitor the use of the bicycle racks on EMBARK buses, and determine what other infrastructure improvements should compliment this service.	
3	Encourage shower and locker facilities in new developments to facilitate active transportation.	