City of Overland Park

Safe Bicycle Use Outreach Project

Project Report
Adopted April 13, 2015

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Acknowledgements

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EXECUTIVE SUMMARY

Introduction

The City of Overland Park Safe Bicycle Use Outreach Project is a coordinated and strategic effort to develop a comfortable, safe, and accessible network of bicycle facilities throughout Overland Park. This Project Report builds on existing assets in the city, including an extensive network of paths and trails, a diverse range of bicycle riders, and strong interest from the public in improving bicycle conditions and safety in Overland Park. The Project Report addresses challenges that bicyclists currently face, including lack of a connected network and safety concerns. The Project Report strives to improve the experience of bicyclists throughout the city, while also addressing issues such as education and awareness, driver behavior, bicycle parking, and maintenance of bicycle facilities.

This Executive Summary provides a succinct summary of the Project Report, including key recommendations for improving bicycling in Overland Park.

Purpose and Need

The City of Overland Park undertook the Safe Bicycle Use Outreach Project to gauge the needs of the bicyclists in the city. City officials have long heard from a small group of bicyclists that the City should be doing more to improve bicycling conditions and safety in Overland Park, particularly for on-street bicycling. City officials felt that there was validity in many of these requests, but wanted to engage in a process that would reach out to numerous types of bicyclists and other groups to ensure that bikeways that are developed serve a wide range of Overland Park residents and meet the needs of different groups. Additionally, the City desired guidance on developing a bikeway network that is cohesive, works with Overland Park's developed infrastructure, and provides an action plan and planning level costs for developing the network.

Vision and Goals

Extensive public outreach was carried out for the Safe Bicycle Use Outreach Project and is detailed in Chapter 1 and Appendix B of the Project Report. Based on this outreach, the following vision was developed by the Project Steering Committee:

The City of Overland Park will be a bicycle friendly community that encourages the use of bicycles for transportation and recreation.

The City will have a well-connected bikeway network that safely and efficiently connects destinations throughout the City and will strive to make bicycling a viable transportation option within the City.

Four specific goals were developed to support this vision:

1. Improve bicycle safety, access, and connectivity to, from, through, and within Overland Park.
2. Provide institutional support for improving bicycling in Overland Park.
3. Conduct educational, encouragement, and enforcement efforts throughout the City to promote the benefits of bicycling, bicycle safety, the proper use of bicycle facilities, and rules for sharing the road.
4. Regularly measure and evaluate Overland Park's progress toward increasing bicycle safety and use.

These goals are supported by specific objectives and actions that are detailed in Chapter 4 of the Project Report. Accomplishing these goals will set the city on a course to achieve its vision and to provide transportation choices for residents, create a well-connected bikeway network that serves a wide range of users, and increase the safety and mobility of bicyclists in Overland Park.

Existing Conditions

Chapter 2 of the Project Report details existing conditions for bicycling in Overland Park. Overland Park has an extensive network of bike-hike trails (shared use paths), particularly in the southern half of the city. These paths are extremely popular with residents and visitors to the city alike.

The city does not have any designated on-street bicycle facilities. This lack of on-street bikeways was noted time and time again during the public outreach process. While the path network provides great recreational opportunities for users, the paths do not work well for transportation trips as they often do not reach the destinations people wish to visit, are indirect, and are often congested with pedestrians and slower recreational bicyclists. While many people are comfortable bicycling on neighborhood streets, trips on collector streets and thoroughfares are necessary to complete a trip of any length. These streets tend to carry significant traffic volumes, often at significant speeds, and many people are not comfortable bicycling on them in their current state.

Bicycling in Overland Park (and Kansas as a whole) is relatively safe. In the period from January 2004 through March 2014, a total of 188 bicycle crashes were reported to Overland Park Police – an average of only 1.5 crashes per month. While these statistics likely do not capture minor crashes and crashes on paths or private property (i.e. parking lots), this number is quite low. Despite the low number of serious crashes, people reported during public outreach opportunities that they have significant safety concerns about bicycling on the street in Overland Park.

The Indian Creek Trail is extremely popular with Overland Park residents and visitors alike.

Goals, Objectives & Actions

As noted previously, four specific goals were developed by the Project Steering Committee to help achieve the vision for the project. Those goals, along with supporting objectives and specific actions, are provided below. Chapter 4 of the plan provides these tables, but also includes a discussion about whey each objective is important, and what the actions will help achieve.

Goal: Improve bicycle safety, access and connectivity to, from, through, and within Overland Park.
Objective: Create an extensive, well connected network of on-street bikeways in Overland Park.
• **Action:** Provide bicycle accommodations on or along all collector and thoroughfare streets where space is currently available or when they are resurfaced or reconstructed.
• **Action:** Consider adding traffic calming measurers to portions of the Neighborhood Network detailed in Chapter 5 to provide bicycle boulevards parallel to major street corridors and connecting locations such as schools and parks.
• **Action:** Ensure that the bicycle network provides connections into communities surrounding Overland Park.
• **Action:** Include bicycle accommodations in all newly constructed collector and thoroughfare streets.
Objective: Increase the off-street bikeways and connections throughout Overland Park.
• **Action:** Continue to expand the City's extensive network of off-street paths and trails following the recommendations of this plan and the City's Greenway Linkages Plan.
• **Action:** Close key gaps in the off-street bicycle network by implementing the bikeway recommendations contained in this report and the Greenway Linkages Plan.
• **Action:** Provide high-visibility crossing treatments where shared use paths cross major streets. Where paths need to cross major barriers, overpasses or underpasses may be necessary.
• **Action:** Construct all new shared-use paths to AASHTO standards.
• **Action:** Provide centerline striping on heavily used portions of shared use paths and through all underpasses and through corners with limited visibility.
Objective: Maintain bicycle facilities to a level that provides year-round safe, comfortable, and convenient usage for all users.
• **Action:** Sweep all on-street and paved off-street bikeways regularly to ensure a travel surface that is free of sand, gravel, leaves, and other debris.
• **Action:** Provide prompt maintenance of potholes and other pavement damage on bikeways.
• **Action:** Repaint or re-mark bikeway markings before they fade.
• **Action:** Have a plan in place to clear snow from on-street and off-street bikeways in a timely manner to allow for year-round use.

Objective: Provide "support" infrastructure to make it easy for people to bicycle in Overland Park.
• **Action:** Ensure that the bicycle network is clearly identified through directional and wayfinding signage.
• **Action:** Provide ample bicycle parking in commercial districts and at parks and schools that complies with the Association of Pedestrian and Bicycle Professionals guidance described in the Bicycle Parking Guidelines, 2nd Edition: http://www.apbp.org/
Objective: Improve bicycle access at hazardous areas and across major barriers such as freeways.
• **Action:** Provide high-visibility bicycle crossings at freeway interchange ramps and major intersections.
• **Action:** Ensure that bicycle access is maintained when construction closes bikeways.
Objective: Ensure that future development and redevelopment includes bicycle accommodations and provides a connected bikeway network.
• **Action:** Implement Overland Park's Complete Streets resolution by including bikeways with all newly constructed or reconstructed collector and thoroughfare streets identified in this report.
• **Action:** Ensure that the Overland Park zoning and subdivision codes include requirements for bicycling facilities such as bicycle parking requirements and land dedication for shared use paths.
• **Action:** Limit the use of cul-de-sacs and provide a pattern of local streets in new developments which permits connections between neighborhoods. When cul-de-sacs are allowed, a bicycle and pedestrian path should connect the end of the cul-de-sac to any paths, streets, parks, or commercial developments that may abut the properties on the cul-de-sac.

Goal: Provide institutional support for improving bicycling in Overland Park.
Objective: Provide internal guidance for the review and development of bikeways and bicycle-supporting events and activities in Overland Park.
• **Action:** Consider creating the position of Bicycle and Pedestrian Coordinator or assigning the duties to existing staff.
• **Action:** Consider creating an official City of Overland Park Bicycle and Pedestrian Committee.
• **Action:** Aggressively pursue funding for bicycle and pedestrian facilities from federal, state, and local sources.
• **Action:** Educate Overland Park staff, especially within the Public Works, Planning and Development Services, Parks Services, and Recreation Services Departments, as to their responsibilities for implementing this report and its recommendations.

Goal: Conduct educational, encouragement and enforcement efforts throughout the City to promote the benefits of bicycling, bicycle safety, the proper use of bicycle facilities, and rules for sharing the road.
Objective: Provide events and incentives to encourage more people to bicycle more frequently.
• **Action:** Sponsor Bike to Work Week and Bike & Walk to School Day activities.
• **Action:** Sponsor and/or support local family-friendly events that promote bicycling.
• **Action:** Promote the National Bike Challenge to employers to encourage increased bicycling for both recreation and transportation.
• **Action:** Sponsor and/or support a local competitive bicycling event such as a bike race.
Objective: Educate Overland Park residents about bicycling safety issues and the rules of the road as they pertain to motorists, bicyclists, and pedestrians.
• **Action:** Provide bicycle education events such as bicycle rodeos and other activities to teach safe bicycling to both youths and adults in Overland Park.
• **Action:** Include at least one piece of bicycle and pedestrian education annually in City communications to residents (i.e., newsletter, utility bills, tax bills, etc.).
• **Action:** Provide bicycle safety and education materials on the City website.
• **Action:** Investigate offering a bicycle and pedestrian education course as an alternative for bicyclists, pedestrians, and motorists who are first-time offenders of bicycle and pedestrian-related rules of the road.
Objective: Increase enforcement of existing traffic laws for all street users, particularly those that pose the greatest risks to bicyclists.
• **Action:** Enforce posted speed limits, particularly in school speed zones.
• **Action:** Utilize automated speed-tracking equipment to provide feedback to motorists when they are exceeding the speed limit.
• **Action:** Target the enforcement of those laws that will have the broadest impact on bicyclist safety.

Goal: Regularly measure and evaluate Overland Park's progress toward increasing bicycle safety and use.
Objective: Regularly evaluate and assess levels of bicycling in Overland Park.
• **Action:** Conduct annual bicycle counts to measure bicycling levels and the usage of bikeways within Overland Park.
• **Action:** Continue to track and monitor the number of reported bicycle crashes within the city.
• **Action:** Consider applying for Bicycle Friendly Community status from the League of American Bicyclists by 2016.
• **Action:** Consider applying for Bicycle Friendly Business status from the League of American Bicyclists by 2016 to serve as a role model for Overland Park employers.
• **Action:** Promote the Bicycle Friendly Business program from the League of American Bicyclists to Overland Park employers.

The Bikeway Network

Chapter 5 of the Project Report details the recommended bikeway network for Overland Park. This network includes off-street bikeways such as paths and trails, on-street bikeways such as bicycle lanes and shared lane markings, and a range of other facilities that will make bicycling more convenient and more comfortable for a range of bicyclists, and is likely to improve overall safety for bicyclists. This network will make bicycling in Overland Park a more realistic travel option than it is today.

The bicycle facilities recommended for specific locations are a direct response to existing conditions and user needs along various streets in the area. They also are based on national standards and guidelines, proven best practices, use of emerging designs and technologies, and the experiences of other jurisdictions in the Midwest. The analytical process used to identify the recommended network integrates local knowledge, engineering judgment, and input received through the Steering Committee, City staff, the public, and others. Portions of this process are described in this Chapter 5, and significantly more detail is provided in the Appendix. Descriptions of the facilities recommended in Chapter 5 are included in Chapter 3.

The recommended bikeway network is designed to meet the needs of people already bicycling as well as the needs of potential and future cyclists in Overland Park. This Project Report places a high value on developing a network that over the long run will allow children and senior cyclists, novice and experienced cyclists, regular and occasional commuters, students, visitors, tourists, and recreational riders to all feel comfortable and safer bicycling in Overland Park.

Group rides regularly take to Overland Park's thoroughfares, but most bicyclists are not comfortable riding on these streets as they are today.

The bikeway network recommendations are divided into three categories:

- **The City Network:** The City Network is primarily comprised of bikeways on thoroughfare streets. These bikeways provide direct connections across the city, but generally on streets that only more experienced bicyclists will be comfortable riding on. The typical bikeway types on the City Network are buffered and standard bike lanes.
- **The Neighborhood Network:** The Neighborhood Network is comprised of bikeways on collector and some local streets. Many of these bikeways run for considerable distance across the city, but their primary purpose is to connect neighborhoods and destinations such as schools and parks. These bikeways are designed for a broader range of bicyclists than the City Network. The typical bikeway types on the Neighborhood Network are standard bike lanes and shared lane markings.
- **The Trail & Sidepath Network:** The Trail & Sidepath Network consists of shared use paths throughout the city. These paths may be in their own right-of-way (bike-hike trails) or may be sidepaths along a busier street. The Trail & Sidepath Network is designed to serve all levels of bicyclists; however, faster bicyclists and those looking for more direct connections to destinations will be better served by on-street bikeways. Many segments of the Trail & Sidepath Network form key connections in the City and Neighborhood Networks. Most of the recommended paths and trails shown as part of the Trail & Sidepath Network have been identified in the Greenway Linkages Plan; only newly identified segments are detailed in this chapter.

Taken together, these three networks form a single, cohesive Overland Park Bikeway Network. The division of the larger network into three categories is primarily useful for planning purposes; from the user perspective, there will not be a significant difference when moving from one bikeway to the next. The Table below provides an overview of the miles of each facility type that make up the recommended Overland Park Bikeway Network..

Facility Type	Existing Miles	Recommended Miles	Total Miles
Bicycle Lanes	0.00	165.87	165.87
Buffered Bicycle Lanes	0.00	48.75	48.75
Shared Lane Markings	0.00	30.46	30.46
Signed Bike Routes	0.00	3.32	3.32
Shared Use Paths	80.37	14.60	94.97
Total	**80.37**	**263.00**	**343.37**

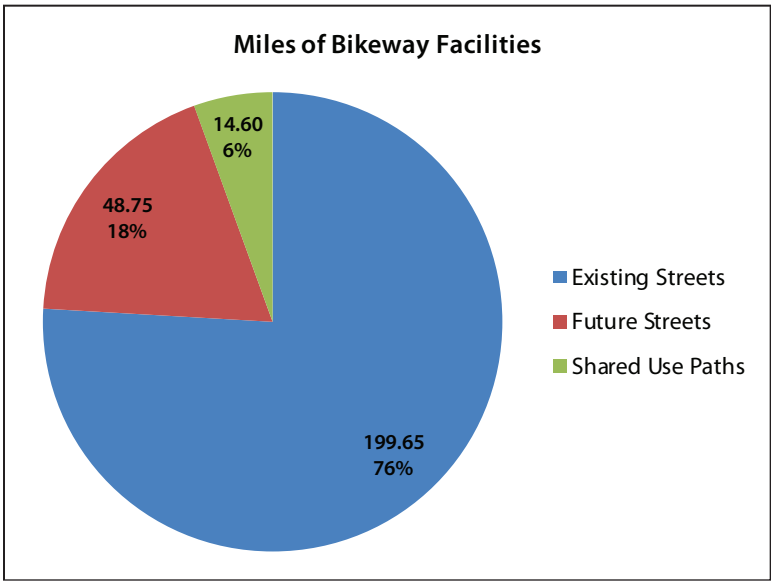
Each network is detailed in Chapter 5, including detailed descriptions of the facilities recommended for the network. The network is grouped into corridors – streets that taken together make a longer linear run across the city. These corridors are not always continuous, they may have gaps where a bikeway does not exist or may be divided by a freeway. However, over time, these gaps may be filled and continuous bikeway connections can be made through the corridor. Map 3 at the conclusion of the Project Report displays the networks by type, while Map 4 displays the recommended facility types for each street or path segment.

Implementation and Funding

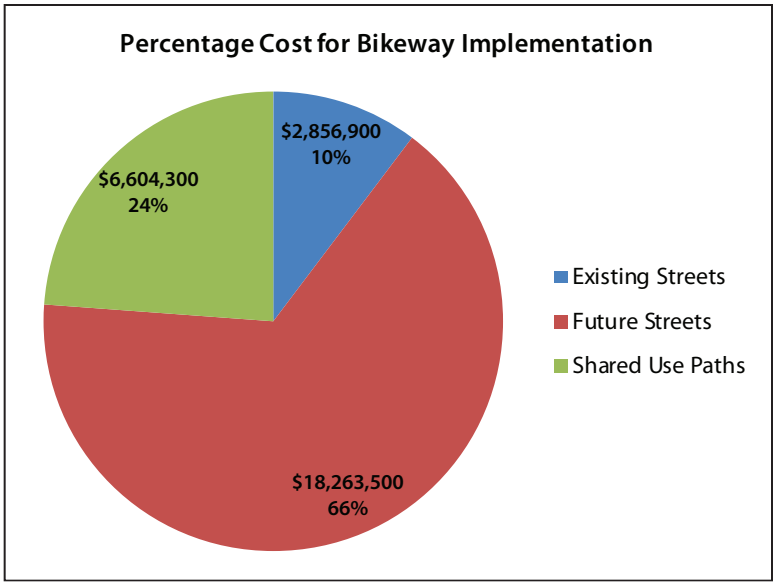
The Overland Park Bikeway Network is intended to be implemented over the next ten to fifteen years or more by taking advantage of street resurfacing and other roadway projects whenever possible. Chapter 6 of the Project Report provides an overview of steps to implement the Bikeway Network as well as an overview of network costs and funding opportunities. During this period of implementation some bikeways will be installed that do not directly connect to other bikeways or obvious destinations – this is a necessary effect of incremental implementation. It is important not to judge the performance and utility of these isolated bikeways until they are connected to the larger network. As more and more bikeways are installed, the network will gradually fill out, and a complete, well-connected bikeway system will form. This is also the way the performance of the network should be judged – it will take time before connections are made and bicyclists are able to make more frequent and longer trips on a well-connected bikeway network.

Bikeways can be implemented either when a new street is constructed, or can be retrofit onto an existing street. Including bikeways when a street is constructed or resurfaced is significantly less expensive than retrofitting bikeways onto existing streets. The Project Report recommends that bikeways should be included with all new collector streets and thoroughfares in Overland Park to ensure that the City is meeting the goals of its Complete Streets ordinance and is constructing bikeways in the most economically efficient manner. Where bikeways are recommended on existing streets and changes will be needed to the street configuration, it is recommended that the bikeways be implemented when the street is next resurfaced to minimize costs.

Chapter 6 of the Project Report includes planning level cost estimates for implementing the Overland Park Bikeway Network. These costs are intended to provide an order of magnitude for project costs – actual costs will not be known until each project is designed and bid. It is important to note that the vast majority of the costs for implementing the bikeway network are for including bikeways on streets that have not yet been reconstructed to city standards. As shown in the figures to the right, only 18% of the bikeway network is on streets that have not been constructed to city standards, yet these bikeways account for 67% of the total network cost. Put another way, 76% of the bikeway network is on existing Overland Park streets and can be implemented for only 9% of the total



Over 75% of the proposed bikeway network can be implemented on existing Overland Park streets at relatively low cost.



The vast majority of the cost for implementing the Overland Park Bikeway Network will come from including bikeways on streets as they are reconstructed to city standards.

network cost. Bikeways on future streets may not be constructed for decades, and when they are constructed, the costs for including bikeways will be incidental to the overall project cost. The costs for implementing bikeways on existing city streets and providing the recommended paths represents 35% of the total costs, and is reasonable given a ten to fifteen year timeframe for implementation.

Bikeway Network	Estimated Cost
City Network	$19,825,100
Neighborhood Network	$1,295,300
Trail & Sidepath Network	$6,604,300
Total	**$27,724,700**

Chapter 6 also includes potential sources for funding implementation of the bikeway network. Whenever possible, state and federal grand funds should be sought to help leverage local funds.

Conclusion

In many ways, Overland Park is already a great place to ride a bicycle. The city has an extensive hike-bike trail network that connects into neighboring communities, quiet neighborhood streets allow for families to bike, and the number of bicycle crashes with motor vehicles is relatively low. However, there are significant concerns among residents about bicycling on busier Overland Park Streets and there is a strong desire to see a bikeway network developed that provides bicycle facilities on major streets and connections to employment centers, parks and recreational facilities, and other destinations.

The Project Report makes numerous recommendations that are focused on providing a safe, well-connected bikeway network in Overland Park. The recommendations call for the implementation of nearly 250 miles of on-street bikeways and nearly 15 miles of off-street paths and trails in addition to what the City has previously planned. The recommendations also call for increased education and encouragement activities related to bicycling, enforcement of traffic regulations for all street users, and ongoing evaluation of the City's efforts to improve bicycling conditions. If these recommendations are carried out, the City of Overland Park will become a great city to bicycle in that offers its residents safe transportation options and a great quality of life.

The Overland Park Bikeway Network should provide opportunities for all types of bicyclists to comfortably ride in the city.

CHAPTER 1

1 | Introduction & Purpose

The City of Overland Park Safe Bicycle Use Outreach Project is a coordinated and strategic effort to develop a comfortable, safe, and accessible network of bicycle facilities throughout Overland Park. This Project Report builds on existing assets in the city, including an extensive network of paths and trails, a diverse range of bicycle riders, and strong interest from the public in improving bicycle conditions and safety in Overland Park. The Project Report addresses challenges that bicyclists currently face, including lack of a connected network and safety concerns. The Project Report strives to improve the experience of bicyclists throughout the city, while also addressing issues such as education and awareness, driver behavior, bicycle parking, and maintenance of bicycle facilities.

This Project Report provides a succinct summary of the process that was carried out for this project. More detailed research for the project, public input, and other information is contained in the Appendix.

1.1 | Vision and Goals

The vision developed by the Project Steering Committee for this project is:

The City of Overland Park will be a bicycle friendly community that encourages the use of bicycles for transportation and recreation.

The City will have a well-connected bikeway network that safely and efficiently connects destinations throughout the City and will strive to make bicycling a viable transportation option within the City.

Four specific goals were developed to support this vision:

1. Improve bicycle safety, access, and connectivity to, from, through, and within Overland Park.
2. Provide institutional support for improving bicycling in Overland Park.
3. Conduct educational, encouragement, and enforcement efforts throughout the City to promote the benefits of bicycling, bicycle safety, the proper use of bicycle facilities, and rules for sharing the road.
4. Regularly measure and evaluate Overland Park's progress toward increasing bicycle safety and use.

These goals are supported by specific objectives and actions that are detailed in Chapter 4. Accomplishing these goals will set the city on a course to achieve its vision and to provide transportation choices for residents, create a well-connected bikeway network that serves a wide range of users, and increase the safety and mobility of bicyclists in Overland Park.

1.2 | Purpose and Need

The City of Overland Park undertook the Safe Bicycle Use Outreach Project to gauge the needs of the bicyclists in the city. City officials have long heard from a small group of bicyclists that the City should be doing more to improve bicycling conditions and safety in Overland Park, particularly for on-street bicycling. City officials felt that there was validity in many of these requests, but wanted to engage in a process that would reach out to numerous types of bicyclists and other groups to ensure that bikeways that are developed serve a wide range of Overland Park residents and meet the needs of different groups. Additionally, the City desired guidance on developing a bikeway network that is cohesive, works with Overland Park's developed infrastructure, and provides an action plan and planning level costs for developing the network.

Overland Park has many bike-hike trails that are used by a range of bicyclists.

This Project Report is the result of a nearly year-long process to meet these goals. During the development of this report, the project team repeatedly heard the desire for better bicycling facilities in Overland Park from a wide array of residents, visitors, employers, and employees. The recommendations in this report call for providing an extensive bikeway network, largely on existing city streets, that serves the entire city. The recommendations also call for educational, encouragement, and enforcement events to increase bicycling and improve roadway safety for all street users, and for the city to actively track the use of bicycles in the city. Implementation of the recommendations in this plan will result in Overland Park becoming a better place to ride a bicycle.

1.3 | The Case for Bicycling

Counties, cities, and villages across the country are embracing bicycling as a viable transportation mode and a great form of recreation. Bicycling can also support multiple objectives including economic development, maximizing transportation investments, improving public health, addressing transportation equity, and reducing environmental impacts. These trends, described in more detail in the following pages, support implementation of this Project Report.

Public Support

A key component of the Safe Bicycle Use Outreach Project was reaching out to different groups of Overland Park residents, employers, employees, and others to gauge interest in bicycling in the city and address concerns about bicycling. Through a series of focus groups, an online survey, an online interactive map, and a public open house, widespread support for bicycling was received. This support was heard from many groups, including active road cyclists, bicycle commuters, people who would like to commute by bicycle, parents who ride with their children, and employers who want to attract customers and employees to their businesses. At the same time, significant concerns were noted about the lack of on-street bikeways, lack of connectivity to key destinations including schools, and the perception that bicycling is not safe on many Overland Park streets. Despite these concerns, there is strong support for bicycling in Overland Park. The public outreach activities for this project are detailed in Section 1.4 of this chapter and Appendix B.

"Overland Park's trail system is great, but we really need on-street bike lanes to make connections to destinations."
- Online Survey Response

Economic Vitality

In many industries the competition for workers is place-based: people are choosing employers not just based on salary and traditional benefits, but also based on external criteria such as lifestyle and quality of life. In today's global economy, the ability to attract business – and businesses' ability to attract employees – depends largely on the livability of the community. The "knowledge workers" of today and tomorrow's businesses want healthy and sustainable lifestyles, of which accessible bicycling is a part. Cities that are making investments to become more bikeable are seeing dividends in the form of attracting new residents and employers.

Investing in bicycle infrastructure is also a key strategy for revitalizing and improving neighborhoods. These investments improve access to businesses, make streets more attractive to

a broader range of users, increase neighborhood livability by increasing social interaction and perceptions of personal safety, and reduce vehicle congestion. Improving bicycle connectivity to established neighborhoods also supports the redevelopment and creation of mixed-use districts and provides safe routes to schools.

Providing access to good bicycling infrastructure can also provide economic benefits to residents. A motor vehicle is the second-highest household expense in the United States after housing according to the Bureau of Labor Statistics' Consumer Price Index. The American Automobile Association estimates that Americans spend on average $9,122 each year to own and operate a car.[1] It is estimated that about $7,000 of this leaves the local economy (through fuel purchases, insurance fees, etc.) while the remainder stays in the community (through taxes, maintenance, registration, etc.). In a period of high-variability in the cost of fuel, bicycling offers a lower-cost transportation option. Bicycling has an annual operating cost of approximately $300 – less than four percent of average annual car operating costs.[2] Providing transportation choices can give households the option of owning fewer cars, thus freeing up more household money that can be spent in the local economy.

Health

The Centers for Disease Control and Prevention recommends two and a half hours of moderate-intensity aerobic activity every week, which is equivalent to 10 minutes of brisk walking, three times per day, five days per week.[3] Adults who are physically active are healthier and less likely to develop many chronic diseases that are more common amongst inactive adults. In young people, there are nearly twice as many overweight children and almost three times as many overweight adolescents in the United States today as there were in 1980.[4] The number of children walking to school nationwide dropped substantially from the 1960's into the 2000's and has been a topic of concern among focus groups in Overland Park. Expanded and improved bicycle facilities and support programs enable children, adolescents, and adults to get exercise as a part of their daily transportation routines. The health benefits of active transportation have also been shown to include increased labor productivity amongst adults and improved academic performance for youth.

Bicycling is a popular recreational activity that can benefit the health of participants. Numerous group rides occur in or pass through Overland Park.

1 The American Automobile Association reports the average annual cost of owning a sedan to be $9,122 per year in 2013; an SUV is nearly $12,000. http://newsroom.aaa.com/2013/04/cost-of-owning-and-operating-vehicle-in-u-s-increases-nearly-two-percent-according-to-aaas-2013-your-driving-costs-study/

2 "Pedaling to Prosperity." The Sierra Club. http://www.sierraclub.org/pressroom/downloads/BikeMonth_Factsheet_0512.pdf

3 Centers for Disease Control and Prevention, How Much Physical Activity do Adults Need? http://www.cdc.gov/physicalactivity/everyone/guidelines/adults.html accessed 8/7/13

4 Childhood Obesity Facts. Centers for Disease Control and Prevention. Accessed November 25, 2013. http://www.cdc.gov/healthyyouth/obesity/facts.htm

Transportation Choice

Improving bicycling conditions will expand transportation choices for the entire community. For those on low or fixed incomes, bicycling may provide a supplement to public transit. Over one third of the U.S. population do not drive because they are too young or too old, have a physical disability, do not have the economic resources to own and operate a car, or simply do not want to drive. However, many of these people can bicycle if safe and convenient bikeways are present. Bicycling may also be an option for the elderly who reach an age where driving is no longer an option. Older adults need to travel to the grocery store, to medical appointments, to bus stops, and to access recreational opportunities. Improvements to bicycling conditions make it easier for Overland Park's residents to age-in-place, while also lowering transportation costs.

Providing well-connected bicycle facilities allows people to bicycle for transportation trips if they desire to do so.

Providing safe and convenient bicycle facilities also benefits people who rarely or never take advantage of them: for each person who bicycles to the grocery store or other destination, there is one less car on the street and one more parking space available for people who drive to the same destination. Using the bicycle to expand transportation choices in Overland Park also applies to people who may have temporary or limited access to an auto. By relying on bicycling for a small to moderate number of trips, the purchase of a second or even third motor vehicle may be averted.

Transit access is also important for people of all ages. Well-developed bicycle systems expand the reach of transit systems by allowing people to bicycle a short distance to a transit stop, ride the bus for a longer distance, and then bicycle a short distance to their final destination. Providing safe and convenient bikeways increase the service radius of a transit stop or station, particularly where distances between stops are great.

Recreation

Creating a comprehensive network of bikeways with connectivity between Overland Park and neighboring communities increases the opportunities for close-to-home, affordable recreation for people of all ages. Bicycle networks are valuable ways to enhance access to the City's many public parks and other recreational venues, and to provide links into neighboring communities. On their own, shared-use paths such as the Indian Creek and Tomahawk Creek Trails provide excellent recreation opportunities. Bicycling along paths and trails are great ways to de-stress, exercise, and experience nature.

Building Community & Public Safety

It cannot be underestimated what bicycling can contribute to building community and promoting public safety. Building a strong sense of community is dependent on knowing your neighbors and meeting the people who live on the next block or in the next neighborhood.

A community that bicycles will increase the social interactions that create these bonds. More bicycling also means more eyes on the streets and on the paths. The best deterrent to crime is the active presence of people in the public realm who are engaged in constructive activities.

Traffic Congestion & Safety

Bicycling can have an impact on local traffic congestion. On average, around one-third of all daily trips are less than three miles in length, a distance covered by bicycle in fifteen to twenty minutes. Most of these trips are made by automobile, in part due to a lack of bicycling facilities that are perceived to be safe. Improved bicycling conditions can reduce congestion by providing the option to travel by bicycle for running errands, visiting friends, and commuting to work or school. At certain times of day, there may be little difference in the time it takes to make a short trip by bicycle or by car, and bicycling may save time and money.

A bicyclist on Nall Avenue waits to cross 75th Street during rush hour.

Safe, clear, and consistent accommodations for bicyclists enhance safety for all street users. For example, bicycle lanes provide bicyclists clear guidance and more confidence about bicycling in the street, while also providing motorists with information about where to expect bicyclists. Research indicates that areas with more bicycling trips per capita have a lower frequency of bicycle/motor vehicle crashes than areas with lower numbers of bicycling trips per capita; when bicyclists are encountered more frequently on streets, motorists become more accustomed to sharing the road with them.[5] There is also well documented research which has found that bicycle accommodations also make driving safer. For instance, paved shoulders that benefit bicyclists have been documented to prevent several motor vehicle crash types and to decrease roadway maintenance costs.

It should also be noted that it is also significantly less expensive to create good bicycling facilities to attempt to reduce congestion than it is to increase street capacity by building new streets or expanding existing streets.

Environment

Bicycling can make small but meaningful contributions to solving environmental issues like air pollution and climate change. Increased levels of bicycling reduce fossil fuel consumption, air pollution, and carbon emissions. While every car trip cannot be replaced with a non-motorized trip, every trip made by bike does reduce pollution, especially when the trip covers a short distance. Based upon research conducted by the U.S. Environmental Protection Agency, it is estimated that up to 80% of the pollution created by automobiles is emitted in the first few minutes of operation, before pollution control devices begin to work effectively.[6] Replacing very short motor vehicle trips with bicycle trips can have an outsized environmental impact.

5 Bicycling and Walking in the United Sates: 2012 Benchmarking Report, Alliance for Biking and Walking, 2012

6 Catalysts for the Control of Automotive Cold Start Emissions, United States Environmental Protection Agency, http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/1450/report/0

Quality of Life

All of the factors noted above can contribute to an increased quality of life for Overland Park residents. A well-connected network of bikeways throughout the city will provide transportation and recreation options for residents, can lead to improved health for the community as a whole as more people bike, and can provide various economic benefits. These benefits do not only accrue to Overland Park residents who use the bicycle network – all residents benefit from decreased congestion on local streets, a safer transportation system, improved air quality, and robust local economies. Providing a well-connected bicycle network can help address many issues facing Overland Park, while also providing opportunities for increased recreation.

Children bicycling to Diemer School near Lamar Avenue and 97th Street.

1.4 | The Project Process

A brief summary of the project process is provided below. Where appropriate, more detail about the project process is included in the Appendix.

Background Data Collection and Field Analysis

Background information was gathered for this project from previous plans and studies, existing GIS data and maps, and from local government staff. Extensive GIS data were provided by the city staff, including the locations of streets, railroads, rivers and streams, subdivisions, schools, parks, and municipal boundaries. Field work was conducted throughout Overland Park to document existing conditions for bicycling and to identify opportunities to improve conditions for bicyclists. Every thoroughfare was field visited at least once, as was any local street identified as a bike route on the City's bicycle map. Information on variables such as the number of lanes, lane and road width, speed limit, and the presence of parking, parking usage, sidewalks, and paved shoulders was recorded in the field analysis. A more detailed description of the field analysis is included in Appendix A.

Public Involvement

The public should be closely involved in the development of a project such as this one to ensure that the final recommendations meet the needs of residents, have local support, and are implementable by government officials. An extensive, multi-pronged approach to public involvement was used to ensure that the public was centrally involved in the development of this Project Report and its recommendations. An overview of the public involvement conducted for the project is provided below with more detail provided in Appendix B.

Steering Committee

A Steering Committee comprised of 12 people was selected to guide the development of the Project Report and its recommendations. Steering Committee members were selected to represent a variety of groups including local businesses, the bicycling community, the school districts, the City Council and Planning Commission, and other groups or organizations. The Steering Committee met a total of six times over the course of the project to set a vision and goals for bicycling in Overland Park, recommend bicycle facility locations, discuss bicycle issues, and review draft recommendations and materials prepared for the Project Report, as well as the draft Project Report itself.

Participants at the February open house discuss bicycling in Overland Park and leave comments on a map of the city.

Public Open Houses

A public open house was held on Tuesday, February 11, 2014, from 6:00pm – 8:00pm and was attended by approximately 50 people. The open house was conducted in a "drop in" format and participants were encouraged to gather around large maps and other displays to provide feedback and opinions as well as participate in discussions about bicycling in

Overland Park. Information was recorded on the maps and on separate comment sheets. A flier announcing the online survey and WikiMap (described below) was also distributed at the meeting. Participants provided multiple comments about bicycling in Overland Park, including strengths, weaknesses, and specific locations that need improvements.

Additional public open houses were held on Tuesday, September 16, 2014, and Wednesday, January 21, 2015, at the Matt Ross Center. Recommendations from this Draft Project Report were presented at both meetings, and attendees were able to comment on the recommendations.

WikiMap

WikiMap is an online interactive public involvement platform that allows participants to identify and comment on specific challenge areas and provide input on opportunities to improve bicycling. The Overland Park Bike Project WikiMap was open for participation from February 10 through March 31, 2014. The WikiMap allowed participants to draw lines or points on a map of the region, and provide a comment about bicycling conditions at that location. Over 100 people provided 719 comments on the WikiMap. These comments ranged from positive comments about bicycling in Overland Park to requests for better bicycle accommodations at specific locations. A detailed description of the WikiMap input process and results is provided in Appendix B.

"179th Street / 175th Street has a bike lane (shoulder) which is wonderful. The two lane portion of Quivira is like risking your life at times. Motorists drive far too fast and are too close to you when passing."
— WikiMap Comment

Online Survey

An online survey about bicycling in Overland Park was also conducted as part of this project. The survey was available from February 10 to March 31, 2014. During that time, the survey garnered 626 responses, with the majority of respondents living within Overland Park and working within Overland Park and neighboring Leawood, Kansas. A total of 92% of survey participants had bicycled within the last 12 months.

A total of 36% of the survey respondents consider themselves confident cyclists, able to cycle on nearly any road or in any traffic conditions. The balance of individuals represented a strong tendency toward those who are less comfortable in heavy car traffic, but whom regularly use quieter streets and Overland Park's shared use paths for cycling. The majority of cycling trips taken by respondents are for recreational purposes and more of these trips are made on neighborhood streets than on the shared-use path system.

Bicyclists noted that the most significant barrier they face is too few bicycle facilities. Poor interconnectivity was also cited as a large barrier to their bicycling. The most sought-after improvement among respondents is

"The paths along the creek in South Overland Park, by Corporate Woods, Deanna Rose, and connected to Olathe are very good. Thank you for that investment."
— Online Survey Response

"I enjoy bicycling and would use a bike more if routes provided good interconnection leading to shopping and recreational facilities."
— Online Survey Response

"Dedicated bicycle infrastructure is the key to increasing cycling…. You will increase bicycling only by making it safe, accessible, and convenient to potential bicyclists. Infrastructure will help solidify bicycling as a viable mode of transportation in motorists' minds."
— Online Survey Response

bike lanes on busy streets. Respondents also noted that they would like to see the City spend transportation development dollars on on-street bikeways.

The most important educational opportunity perceived by the respondents was teaching automobile drivers how to interact with cyclists on the road. Comments noted drivers' failure to yield a minimum three foot passing clearance as required by state law, stopping in areas where bikes travel at intersections, honking, and other behaviors intended to startle cyclists. The second most important educational opportunity perceived by the respondents was to train cyclists on the rules of the road and safe cycling techniques.

Full survey results are provided in Appendix B.

Focus Groups

Six focus groups were held during the project to solicit feedback about bicycling in Overland Park from specific groups of people. A total of 32 people participated in the focus groups with group sizes ranging from two to seven people. The focus groups targeted the following groups or organizations:

- Downtown businesses;
- Chamber of Commerce members;
- Recreational road bicyclists (Kansas City Metro Bicycle Club members);
- Sprint World Headquarters employees;
- Blue Valley School District students, parents, and staff; and
- Shawnee-Mission School District students, parents, and staff.

Participants in the focus groups discussed good things about bicycling in Overland Park, barriers and obstacles to bicycling in the city, and things that could be done to make the city a better place to bicycle.

Overall, focus group participants were quite happy with the bike-hike trails in Overland Park, particularly in the southern portion of the city. The trails were cited as good for children and families to bicycle on, but they are not great for faster recreational bicyclists because of conflicts with pedestrians and slower bicyclists. Concerns were also noted about occasional blind corners on some of the trails, particularly leading into or out of underpasses, and a need for increased maintenance, particularly in areas that are prone to flooding after heavy rains. It was suggested that adding a center line to trails in areas with limited visibility and through underpasses would be very helpful.

Participants stated that Overland Park streets are generally in very good condition, although many participants are not comfortable bicycling on streets due to significant traffic volumes and speeds. It was noted that because of the widespread use of cul-de-sacs in the city, especially south of I-435, bicyclists and cars have to use collector and thoroughfare streets to make trips of any significant length. However, without facilities such as bicycle lanes on these streets, most focus group participants, other than the members of the Kansas City Metro Bicycle Club, are not comfortable bicycling on these streets.

Focus group participants were very supportive of providing on-street bicycle facilities such as bicycle lanes. At the same time, participants were also interested in seeing the trail network continue to expand throughout the city. Focus group participants noted that providing both an on-street and an off-street bikeway system will serve a wide range of bicyclists and a variety of trip types, all of which would make Overland Park a better place to bike.

A summary of the focus groups and comments made during the focus groups is provided in Appendix B.

Steering Committee members participate in a goal setting exercise to help establish priorities for the project.

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CHAPTER 2

2 | Existing Conditions

This chapter summarizes the existing conditions in Overland Park as they relate to bicycling. The chapter describes current bicycle usage trends, existing bicycle facilities, and street conditions throughout the city.

2.1 | Regional Context

Overland Park is a suburb of Kansas City, Missouri, and is both the second most populous city in the Kansas City Metro region and the state of Kansas. Since incorporation in 1960, the city has grown from an area of approximately 13 square miles and population of 28,085 to a city of 75 square miles and population of 184,706.[1] Downtown Overland Park is located approximately 12 miles southwest of downtown Kansas City. Overland Park is part of the Kansas City metropolitan region, and is bordered by nine other communities: Kansas City, Kansas to the north, Mission and Prairie Village to the northeast, Leawood to the east, unincorporated Johnson County to the south, Olathe and Lenexa to the west, and Shawnee and Merriam to the northwest. Overland Park lies a few miles south of the Kansas River, and numerous creeks and tributaries run from west to east across the city.

2.2 | The Street Network

Overland Park has established six major categories for streets which are detailed on the Overland Park Official Street Map. Table 1 describes the purpose of each street type, the number of lanes, the standard width (per side if divided), the minimum right-of-way (ROW) width, and the maximum intended average daily traffic volume (ADT).

Streets north of I-435, which is the oldest portion of the city, may vary from the preferred street and ROW widths described in Table 1. In particular, collector streets tend to be 28 to 32 feet wide north of I-435, while they are 36 feet wide south of the Interstate.

Thoroughfares are spaced one mile apart and form a grid network throughout the city that provides good connectivity. Collector and super-collector streets are also spaced approximately one mile apart between the thoroughfares; these streets also form a grid network, although the grid breaks down somewhat in the southern half of the city. Local residential streets north of I-435, and particularly north of 87th Street, form a regular grid network that provides good connectivity. However, this connectivity tends to break down south of I-435, with street users being forced to use collector level or higher functioning streets to travel through the city.

Table 1: Overland Park street types

Type	Purpose	Lanes	Width	ROW min.	ADT
Local Residential	Provide access to abutting property and provide limited parking	2	28 feet	50 feet	2,000 – 3,000
Collector & Apartment	Collect and move traffic from neighborhood streets to thoroughfare streets; apartment streets serve multifamily residential areas	2	36 feet	60 feet	10,000
Commercial & Industrial	Carry large amounts of traffic while avoiding residential areas	2 2	36 feet 52 feet	60 feet 80 feet	10,000 25,000
Super-Collector	Collect and move traffic generated by a residential neighborhood and/or apartment, commercial, industrial, or office developments to a thoroughfare street	2 4	36 feet 52 feet	60 feet 80 feet	10,000 25,000
Thoroughfare	Move large amounts of traffic through areas of the city	4 4 divided 6 divided	52 feet 28 feet 36 feet	80 feet 120 feet 120 feet	Up to 50,000 on six-lanes
Freeway	Carry high volumes of traffic to different parts of the metro area with uninterrupted, high-speed movement of traffic	4+ divided	24+ feet	Varies	Up to 150,000 on eight lanes

1 "Population Estimates." City of Overland Park, KS.

Two street patterns provide good potential for bicycling in Overland Park:

- The well-spaced collector system has the potential to form a well-connected bike route network that serves much of the city, particularly on streets that have room to add bike lanes within the current right-of-way.
- The grid of residential streets in the northern portion of the city forms numerous connections across thoroughfares and collectors and enables bicycling longer distances on slower speed and lower volume streets from neighborhood to neighborhood.

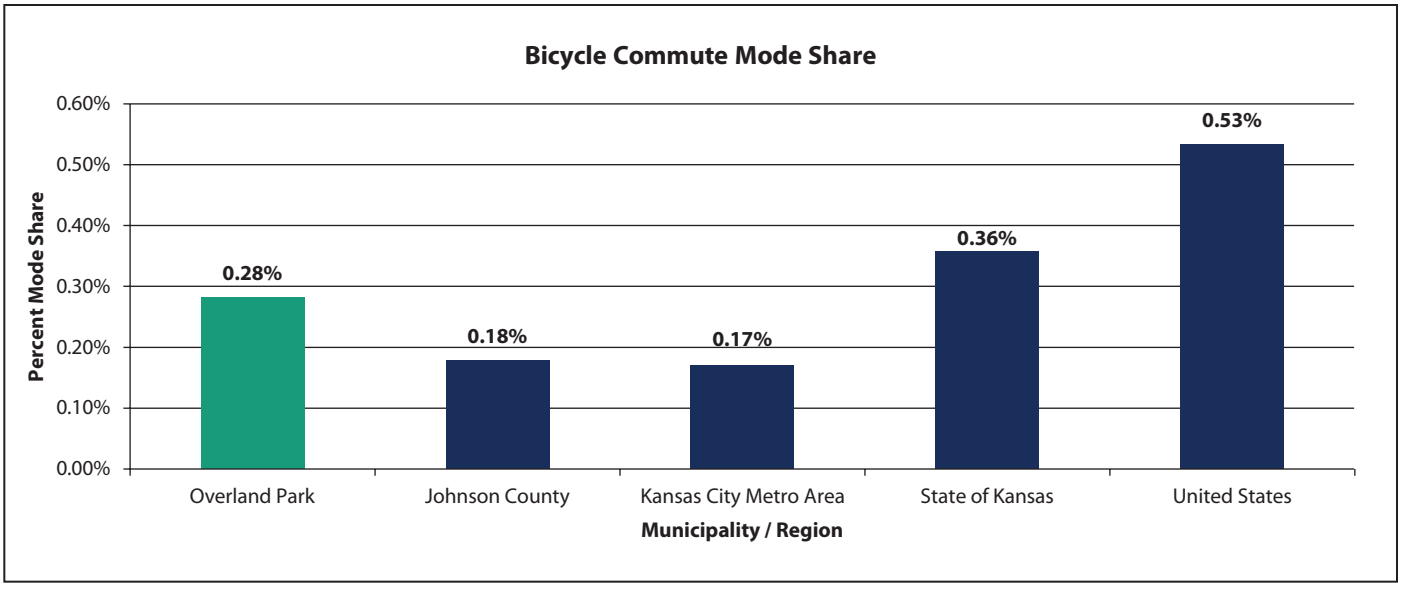
2.3 | Bicycle Mode Share

Mode share is the percentage of trips made using specific modes of travel, such as driving, using transit, bicycling, or walking. The primary source for determining the percentage of Overland Park residents that ride a bike on a regular basis (that is, the bicycle mode share) is the American Community Survey (ACS). The ACS is administered by the U.S. Census Bureau on an ongoing basis and asks "thinking about the previous week, what was your primary mode of transportation to work?" The survey presents some issues with accurately measuring mode share:

- If someone drove to work or took the bus three days out of the week and biked the other two days, they are recorded only as driving or taking transit to work (the predominant mode for that week).
- The weather can impact results from year to year.
- The data only represents trips to work, which are a small percentage of the total number of trips people typically make in a week.

Despite these drawbacks, ACS data is one of the best resources available for determining mode share because the survey is carried in the same format for all municipalities from year to year. Figure 1 compares the bicycle commute mode share of Overland Park to that of Johnson County, the Kansas City Metro Area, the State of Kansas, and the United States. Overland Park has a greater bicycle commute mode share than Johnson County and the metropolitan area, but the city lags behind the State of Kansas and the United States as a whole.

Figure 1: Bicycle commute mode share in Overland Park and other areas



2.4 | Existing Bicycle Facilities

Existing bicycle facilities in Overland Park are displayed on Map 1 at the conclusion of this report and are described below.

Bike Lanes

There are no formally designated bike lanes in Overland Park. A limited number of bike lanes exist in the adjoining communities of Olathe, Shawnee, Mission Hills, and Leawood. Some of the bike lanes in each of these communities, except Shawnee, end at the Overland Park border.

Bike Routes

Overland Park has an extensive network of mapped bicycle routes. The routes have been formally designated by the City and are displayed on the Bike Route Map; the routes are not designated by signs along the route. The vast majority of the bike routes meet the standards in the Mid-America Regional Council and the Kansas City Metro Chapter of the American Public Works Association Local Bikeway Planning and Design Guide. A small portion of the bike routes do not meet the APWA guidance – these segments typically connect gaps in the network or provide connections to key destinations that are not served by streets that do meet the guidance. In general, the bike route system provides a good network of bicycle-friendly streets throughout Overland Park, especially north of I-435. The primary shortfalls of the bike route network are that it is not signed, so routes cannot be identified without a map, and the routes often do not connect to popular destinations on thoroughfares, which are too busy to be designated as routes. The city has designated approximately 135 miles of city streets as bicycle routes.

Shared Use Paths (Hike/Bike Trails)

Shared use paths, also known as hike/bike trails, are off-street facilities that are open to bicyclists, pedestrians, joggers, and other non-motorized users. Shared use paths that are within a street right-of-way, as opposed to their own right-of-way or greenway corridors, are often known as sidepaths. Overland Park has a significant shared use path network, particularly south of I-435 where streams, newer development, and wider street rights-of-way have allowed the construction of more shared use paths in their own corridor and sidepaths along thoroughfares. Over 135 miles of paved shared use paths exist in Overland Park, with approximately 80 miles of path open to bicyclists. The longest shared use path is the Indian Creek Trail, which is nearly 17 miles long (10 miles within Overland Park) and runs west to east across the middle of the city.

Overland Park's bike-hike trails (shared use paths) are popular with a wide range of bicyclists.

When located in their own rights-of-way, shared use paths serve as transportation and recreation facilities that are removed from traffic, other than at street crossings. However, these paths often poorly serve transportation bicyclists as they can be congested, meander to follow a creek or greenway, and rarely connect directly to commercial, employment, or other

destinations. Sidepaths can provide access to some of these destinations along thoroughfares, but present their own challenges for transportation bicyclists. In particular, sidepaths are often located only on one side of a street, forcing users to cross a street to use the path, and driveway and intersection crossings can present safety issues.

2.5 | Bicycle Crashes

According to data provided by the City, there were 188 reported crashes between bicyclists and motorists during the ten year period of January 2004 to March 2014 in Overland Park. Map 2 at the conclusion of this report displays the approximate crash locations as well as the severity of the crash. Notably, no fatal crashes were reported during this period. These crashes are largely dispersed throughout the city, although patterns can be observed:

- Nearly all of the bicycle-motor vehicle crashes occurred at intersections; this is also a national trend. Although many bicyclists primarily fear crashes involving a motorist approaching from behind, this type of crash is statistically quite rare within urban areas.
- The majority of the crashes occurred at intersections with thoroughfares. It is likely that these crashes occurred with a bicyclist who was crossing the thoroughfare and a motorist who was turning onto or off of the thoroughfare, although this cannot be verified without detailed analysis of the crash reports.
- As shown in Figure 2, crashes are dispersed throughout the day, but peak during the evening rush hour. This is likely due to the fact that more people are bicycling at this time (commuting home or riding for recreation after work) and the fact that traffic is heavier and more difficult to navigate at this time of day.

The State of Kansas as a whole experiences approximately 275 reported bicycle-motor vehicle crashes per year or almost exactly one crash per 1,000 residents in the state. The annual crash rate for Overland Park is also approximately one crash per 1,000 residents as well. Of the reported crashes, approximately 20 percent did not result in an injury. Measuring bicycle crashes (or any type of crash) on a per capita basis is not the ideal way to analyze the data as it does not reflect how much bicycle usage is occurring. For example, if two cities each have a population of 100,000, and each city had 100 bicycle crashes in a year, the crash rates are identical on a per capita basis. However, if one of the cities has a greater bicycle mode share, then the bicycle crash rate is actually lower on a usage basis. Ideally bicycle crash rates would be calculated on a per mile basis, however, there is not an accurate way to measure bicycle mileage for a given city.

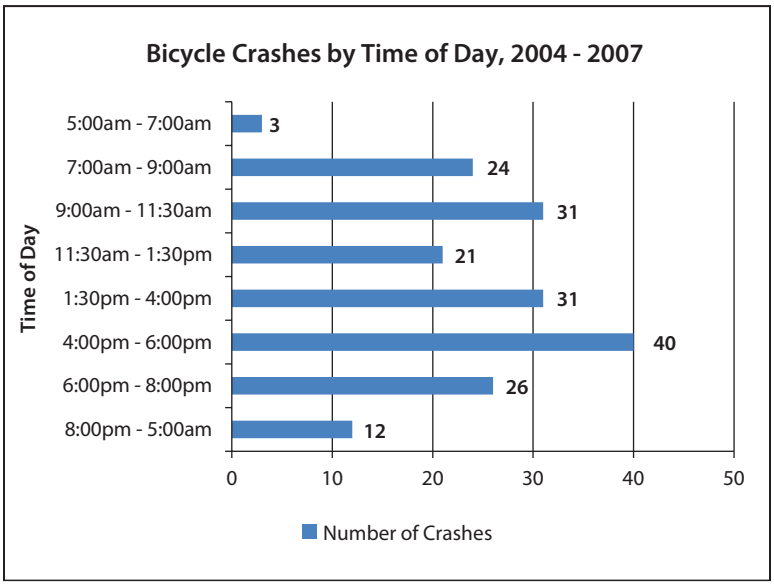


Figure 2: Reported bicycle crashes in Overland Park by time of day, 2004 - 2014

2.6 | Barriers to Bicycling

A number of factors serve as barriers to bicycling in Overland Park and are briefly described below. These barriers were highlighted on the project WikiMap, in the online survey, during focus groups, and were also noted during the fieldwork conducted by the project team.

Traffic Volumes

The ideal street for transportation cycling purposes is often one that provides relatively direct connections from one side of the city to the other, while also providing access to shopping, dining, jobs, and residential areas. These streets are also appealing to motorists, often resulting in high traffic volumes. Many of Overland Park's high traffic volume streets are multi-lane thoroughfares designed to convey very high traffic volumes. Also common in Overland Park are two-lane collectors and super-collectors, which carry significant traffic volumes. The vast majority of bicyclists is not comfortable bicycling with traffic on these streets without specific bicycle accommodations such as bike lanes or shared use paths.

The majority of local streets and some collector and apartment streets in Overland Park carry lower traffic volumes. These streets tend to be bicycle-friendly, but they often do not connect to the destinations that people want to access without the use of a much busier thoroughfare or collector.

Constrained Rights-of-Way

The addition of bike lanes and other facilities is often influenced by narrow street widths. This situation is typically the case along multi-lane streets and streets with designated on-street parking. In many cases, streets cannot be widened to provide space for such facilities due to constrained right-of-way or because they are not due to be reconstructed for many years, or a combination of the two. In these situations, the possible actions include removing a travel lane or parking lane (typically on just one side), acquiring additional right-of-way and widening the street (often at great expense), placing shared lane markings in the travel lanes, or choosing not to provide adequate bicycle accommodation and supporting bicycling with other options on alternative, parallel streets.

Traffic volumes and speeds on Overland Park's thoroughfares serve as a deterrent for all but the most confident bicyclists.

Physical Barriers

A number of significant obstacles limit the connectivity of bicycle-friendly streets in Overland Park. The majority of these obstacles fall into three categories:

Freeways

Portions of Interstates 35, 435, and 635, as well as freeway segments of U.S. Highway 69 cut through Overland Park. These freeways have limited crossings for motorists, bicyclists, and pedestrians. Crossings often occur at interchanges, which can be challenging for bicyclists to navigate comfortably. Existing non-interchange crossings of freeways should be closely studied to improve their bicycle friendliness.

Thoroughfares

Overland Park's thoroughfare network provides good connectivity for motorists, but serves as a barrier for bicyclists. Crossing thoroughfares can be intimidating for many bicyclists as there are multiple lanes of traffic to cross and motorist speeds are high. Additionally, many smaller streets do not continue directly across thoroughfares, forcing bicyclists to travel along the thoroughfare for some distance. While some thoroughfares have sidepaths to serve bicyclists and pedestrians, many do not.

Waterways

A number of creeks pass through Overland Park. These waterways can serve as opportunities to install shared use paths such as the Indian Creek Trail, but can also form barriers with limited crossings for bicyclists.

Waterways such as Indian Creek can form barriers within Overland Park, but can also provide the opportunity to install shared use paths (bike-hike trails) that serve a wide variety of users.

2.7 | Plan & Policy Review

Numerous plans and policies at the state, regional, and local level impact and influence bicycling in Overland Park. A summary of the following plans and policies as they relate to bicycling in Overland Park is provided in Appendix C.

Statewide Documents

- Kansas Bicycle and Pedestrian Transportation Plan: Kansas Department of Transportation Bureau of Transportation Planning 1995 (Currently Under Revision)
- 2013 Kansas Statute

Regional and County Focused Documents

- 2012 Local Bikeway Planning and Design Guide - Best Practices; KC APWA, MARC
- MARC Complete Streets Handbook
- MARC MetroGreen
- Johnson County Complete Streets

Local Planning Documents, Codes and Policies

- Overland Park Complete Streets Policy
- Overland Park and Mission Enhancing Downtown Accessibility: Pedestrian and Bike Improvements
- Vision Metcalf (May 2008)
- Downtown Overland Park Form Based Code
- Metcalf Avenue and Shawnee Mission Parkway Transit Planning Study
- Overland Park City-wide Comprehensive Plan
- Overland Park Greenway Linkages Plan
- Overland Park Municipal Code
    - Title 12. Traffic
    - Title 13. Streets and Sidewalks
    - Title 18. Overland Park Uniform Development Ordinance (UDO)
- Overland Park Governing Body Manual; includes policies on;
    - Bicycle facilities
    - Thoroughfare design
- Overland Park Downtown Parking Plan
- Overland Park Official Street Map

CHAPTER 3

3 | Bikeway Types & Design Guidance

In order to serve a wide range of bicyclists, a variety of bikeway types are proposed for use in Overland Park. This chapter provides "technical sheets" that provide a brief overview of a variety of bikeway types. The chapter also includes specific references that should be consulted when bikeways are being formally designed and designated.

3.1 | Bikeway Types

Descriptions are provided for the following types of bikeway facilities or markings on the following pages:

- Bicycle boulevards / neighborhood greenways
- Shared lane markings
- Bike lanes
- Paved shoulders
- Bike routing/wayfinding
- Bikeway intersection pavement markings & signal design
- Shared use paths
- Curb ramps
- Marked crosswalks
- Crossing islands

Although curb ramps, marked crosswalks, and crossing islands are primarily thought of as pedestrian facilities, they also serve bicyclists where shared use paths cross streets.

Collector streets like Lamar Avenue generally have adequate room to add bike lanes in Overland Park. Collectors provide connections across the city to parks, schools, neighborhoods, and retail and employment centers.

Bicycle Boulevards / Neighborhood Greenways

Facility Technical Sheet

Description

Lower volume, lower speed residential streets designed to prioritize bicycle through travel while discouraging motor vehicle traffic and maintaining relatively low motor vehicle speeds.

Benefits

- Suitable for most ages and abilities.
- Calms traffic speeds; slower speeds are safer and help reduce crash injuries.
- Typically retrofitted within existing right-of-way.
- Reduces cut-through traffic.

Challenges

- Impacts to traffic patterns.
- Emergency, transit, and maintenance vehicle access.
- Developing appropriate treatments at major intersections.
- Wayfinding to community destinations on major roadways.

Neighborhood traffic circles and other traffic-calming measurers are common elements on bicycle boulevards.

Design Criteria

- Target speeds are typically around 20 mph; there should be a maximum < 15 mph speed differential between bicyclists and vehicles.
- Preferred ADT: up to 1,500.
- Recommended Maximum ADT: 3,000.

Additional Considerations

- Run parallel—rather than along—transit and heavy truck routes.
- Traffic control at intersections should prioritize the bicycle movement and minimize stops whenever possible.
- Include traffic calming measures such as street trees, traffic circles, chicanes, and speed humps.
- Diverters or semi-diverters can redirect cut-through vehicle traffic and reduce traffic volume.
- Pilot programs to test impacts should be considered.
- Wayfinding signs should be provided to connect users to destinations.
- Additional treatments for major street crossings may be needed, such as median refuge islands, rapid flash beacons, bicycle signals, and HAWK or half signals.

Example Location(s) Where Applied

Minneapolis, MN; Portland, OR; Boston, MA; Berkeley, CA; Baltimore, MD; Madison, WI.

References & Resources

- AASHTO Guide for the Development of Bicycle Facilities (2012)
- NACTO Urban Bikeway Design Guide (2012)
- Manual on Uniform Traffic Control Devices (2009)
- Fundamentals of Bicycle Boulevard Planning & Design (2009)
- Minikel (2011). Cyclist safety on bicycle boulevards and parallel arterial routes in Berkeley, California. Department of Urban Studies and Planning, Massachusetts Institute of Technology

Shared Lane Markings

Facility Technical Sheet

Description

Shared lane markings (or "sharrows") are pavement markings that denote shared bicycle and motor vehicle travel lanes. The markings indicate where the bicyclist should be anticipated to operate.

Benefits

- May increase motorist awareness of the potential presence of bicyclists.
- Can act as wayfinding aids.
- The shared space is more likely to be swept and plowed than separated facility types.
- Low cost of implementation.

Challenges

- May not be suitable for all users as they do not provide separate space for bicyclists.
- May have higher maintenance needs than other facility types due to the wear and tear presented by motor vehicles driving over the pavement markings.

The placement of Shared Lane Markings varies based on lane width and the presence of on-street parking.

Design Criteria

- Posted speed limits of 35 mph or less.
- The marking's centerline must be minimum 4' from curb where parking is prohibited.
- The marking's centerline must be minimum 11' from curb where parking is permitted.
- For narrow lanes, it may be desirable to center shared lane markings along the centerline of the outside travel lane.

Additional Considerations

- Typically used on local, collector, or minor arterial streets with low traffic volumes.
- Typically feasible within existing right-of-way and pavement width even in constrained situations that preclude dedicated facilities.
- May be used to fill gaps between bike lanes or other dedicated facilities for short segments where there are space constraints.
- Commonly used on bicycle boulevards to reinforce the priority for bicyclists.
- May be used for downhill bicycle travel in conjunction with climbing lanes intended for uphill travel.
- Typically supplemented by signs, especially Bikes May Use Full Lane (R4-11).
- When applied on higher speed/volume roads, consider alternative routes suitable for users of all abilities.

Example Location(s) Where Applied

Kansas City, MO; North Kansas City, MO; Fort Worth, TX; Oklahoma City, OK; Long Beach, CA.

References & Resources

- AASHTO Guide for the Development of Bicycle Facilities (2012)
- NACTO Urban Bikeway Design Guide (2012)
- Manual on Uniform Traffic Control Devices (2009)

Bike Lanes

Facility Technical Sheet

Description

On-road facilities designated for exclusive use by bicyclists through pavement markings and signs (optional). Typically applied to thoroughfare and collector streets where volumes and/or speeds would otherwise discourage bicycling.

Benefits

- Dedicated space for bicyclists (except near intersections where motorists may enter bike lanes to make right turns).
- Can act as wayfinding aids.
- Established facility type that is understood by most road users.
- May encourage more bicycle travel.
- Can lower motor vehicle speeds in some settings.

Challenges

- May not be appropriate for all types of bicyclists.
- Potential risk of "dooring" when placed adjacent to parking.
- Potential for vehicles driving/parking in the bicycle lane.

Bike lanes provide dedicated space for bicyclists, but may present risks (such as "dooring") depending on their design.

Design Criteria

- Typical width: 5' (minimum 4' to gutter seam or curb).
- Minimum width next to parked cars: 5'.
- May be wider adjacent to narrow parking lanes and in areas with high on-street parking turnover.
- Include pavement markings to indicate one-way travel.

Additional Considerations

- May be placed on the left side of one-way roadways to avoid adjacency with on-street parking on the right side.
- May optionally be placed on only one side of a roadway in the uphill direction as a climbing lane if space is limited.
- Two-way bicycle travel may be achieved on some one-way streets by providing a contra-flow bike lane.
- Depending on the design of the roadway, bicyclists may have to operate in mixed traffic (such as to make turns).
- For high-speed or high-volume roads, alternative routes suitable for users of all abilities should be considered.
- Consider whether passing between two bicyclists is desirable and adjust lane widths accordingly.
- May include buffers (minimum 18") between bike lane and travel lane and/or between bike lane and parking lane to provide additional separation.

Example Location(s) Where Applied

Kansas City, MO; Olathe, KS, Shawnee, KS, Madison, WI; Austin, TX; Chicago, IL; San Diego, CA; Tucson, AZ, Boston, MA.

References & Resources

- Wisconsin Bicycle Facility Design Handbook (2004)
- AASHTO Guide for the Development of Bicycle Facilities (2012)
- NACTO Urban Bikeway Design Guide (2012)
- Manual on Uniform Traffic Control Devices (2009)
- The Mid-America Regional Council and The Kansas City Metro Chapter Of The American Public Works Association Best Practices Local Bikeway Planning and Design Guide (2012)

Paved Shoulders

Facility Technical Sheet

Description

Additional pavement width outside of the travel lanes that reduce crashes, aid maintenance, and provide space for bicyclists and pedestrians (although paved shoulders typically do not meet accessibility requirements for pedestrians).

Benefits

- Provide separated space for bicyclists and can be used by pedestrians.
- Reduce run-off-road motor vehicle crashes.
- Reduce pavement edge deterioration and accommodate maintenance vehicles.
- Provide emergency refuge for public safety vehicles and disabled vehicles.

Challenges

- Typically placed along high-speed roads.
- May not facilitate through-intersection bicycle movement unless specifically designed to do so.
- For pedestrians, paved shoulders do meet accessibility requirements.

Wide paved shoulders reduce run-off-road crashes, improve roadway maintenance, and can provide space for bicyclists.

Design Criteria

- Minimum width without milled rumble strips: 4' from edgeline to edge of pavement (5' if adjacent to curb or guardrail).
- Minimum width with milled rumble strips: 4' from rumble strip to edge of pavement (5' if adjacent to curb or guardrail).

Additional Considerations

- There are several situations in which additional shoulder width should be provided including motor vehicle speeds exceeding 50 mph, moderate to heavy volumes of traffic, and above-average bicycle or pedestrian use.
- The placement of milled rumble strips may significantly degrade the functionality of paved shoulders for bicyclists. Rumble strips should be placed as close to the edge line as practicable. Alternatively, rumble stripes may be used.
- Where rumble strips are present, gaps of at least 12' should be provided every 40-60'.
- Intersections with unpaved roads and driveways often result in gravel and debris deposited on paved shoulders. Paving the aprons of these intersections can mitigate the negative effect.

Example Location(s) Where Applied

Kansas; Iowa; Wisconsin; Oregon; New York; Pennsylvania.

References & Resources

- The Mid-America Regional Council and The Kansas City Metro Chapter Of The American Public Works Association Best Practices Local Bikeway Planning and Design Guide (2012)
- AASHTO Guide for the Development of Bicycle Facilities (2012)
- AASHTO Policy on Geometric Design of Highways and Streets (2013)
- Manual on Uniform Traffic Control Devices (2009)

Bike Routing/Wayfinding

Facility Technical Sheet

Description

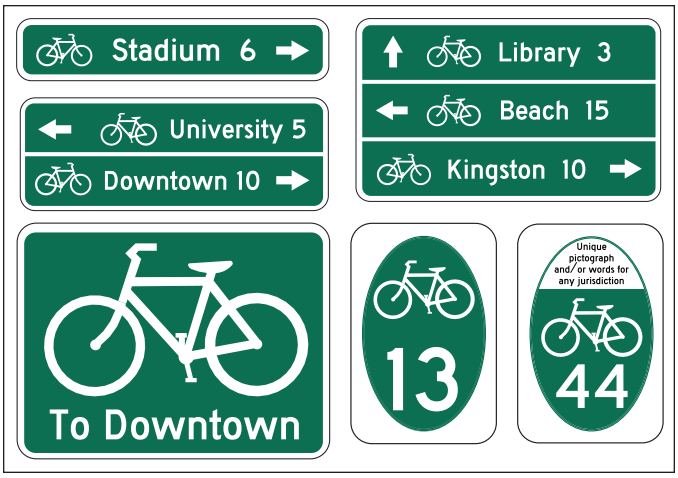
A system of signs and pavement markings that guide bicyclists along preferred routes (which may or may not be numbered) to destinations across the city and region. Signs may state distance to destinations or include route numbers.

Benefits

- Improves the usefulness of the bicycle network, especially when routes are diverted away from well-known streets.
- May encourage the use of lower-stress bikeways.

Challenges

- Can cause unnecessary confusion if the selection of destinations and placement of signs is not optimized.
- Can contribute to sign clutter.



Directional signs (top), regional route signs (bottom right), and confirmation signs (bottom left).

Design Criteria

- Include destination, direction, and distance.
- Place the nearest destination in the sign's top position.
- Place directional signs on the near side of intersections.
- Place confirmation signs on the far side of intersections.
- Sign design can be customized, but the clarity and accuracy of the information must be the top priority.
- Coordinate with existing/programmed bikeways and bicycle route maps.

Additional Considerations

- Bicycle route signs should provide bicyclists with direction, destination, and distance information to commercial centers, transit stations, shared use paths, and other popular destinations.
- The location of signs and represented destinations should be planned in a comprehensive manner, considering the likely routes of bicyclists and probable destinations.
- To assist the bicyclist, the system should provide three general forms of guidance:
  - Directional signs: placed at decision points where routes intersect and where routes turn from one street to another.
  - Regional route signs: Placed along designated routes.
  - Confirmation signs (also called designation signs): used to confirm route choice.

Example Location(s) Where Applied

Stevens Point, WI; Jefferson County, WI; Baltimore, MD; Oakland, CA; Cambridge, MA; Chicago, IL.

References & Resources

- The Mid-America Regional Council and The Kansas City Metro Chapter Of The American Public Works Association Best Practices Local Bikeway Planning and Design Guide (2012)
- NACTO Urban Bikeway Design Guide (2012)
- Manual on Uniform Traffic Control Devices (2009)

Bikeway Intersection Pavement Markings & Signal Design

Facility Technical Sheet

Description

Intersections can be optimized to accommodate bicyclists by including pavement markings that increase visibility and reduce conflicts and designing signals to serve the unique operating characteristics of bicyclists.

Benefits

- Enhanced pavement markings warn users of potential conflict locations, help define expected behaviors, and encourage turning motorists to yield to bicyclists.
- Improved signal designs provide adequate time for bicyclists to clear signalized intersections, minimize bicyclist delay, and reduce the likelihood that bicyclists will disobey the signal.

Challenges

- Excessive pavement markings may result in confusion or clutter.
- Bicycle-oriented signals may result in a slight loss of capacity at the intersection and may increase red-light running.

Bike boxes and green pavement (combined in this example) are two tools for improving intersections for bicyclists.

Design Criteria

- A variety of pavement markings can enhance intersections, guide bicyclists, and warn of potential conflicts.
- Bicyclists should be accommodated by lengthening the green and red phases of traffic signals and ensuring that loop detectors sense bicycles. Bicycle-specific signals may be used and have received interim approval from FHWA.
- Refer to the references and resources listed below for specific design criteria.

Additional Considerations

- Pavement marking treatments used at intersections can include dashed white lines, symbols including chevrons and bicycle symbols, and green pavement .
- Pavement marking treatments will vary depending on the context and character of each intersection and should be chosen based on engineering judgment.
- Corridor-wide intersection treatment can maintain consistency; however, spot treatments can be used to highlight conflict locations.
- Detection should be provided for bicyclists at signalized intersection approaches requiring actuation. It should not be expected that on-road bicyclists will be required to leave the roadway to actuate a signal. Video, microwave, and infrared detection can be alternates to loop detectors.

Example Location(s) Where Applied

Pavement Markings: Seattle, WA; Minneapolis, MN; Boston, MA; Washington D.C.
Signal Design: Portland, OR; San Francisco, CA; Madison, WI; Santa Clara Valley, CA.

References & Resources

- AASHTO Guide for the Development of Bicycle Facilities (2012)
- Manual on Uniform Traffic Control Devices (2009)
- OTREC Operational Guidance for Bicycle-Specific Traffic Signals (2013)
- Jensen, SU. Safety effects of blue cycle crossings: A before-after study. Accident Analysis & Prevention, 40(2), 742-750. (2008)
- Thompson, SR. Bicycle-Specific Traffic Signals: Results from a State-of-the-Practice Review (2012)

Shared Use Paths / Bike-Hike Trail

Facility Technical Sheet

Description

A shared use path is a two-way facility physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users.

Benefits

- Separated from motor vehicle traffic.
- May be more appropriate for children, seniors, and persons with disabilities.
- Provides recreational opportunities in addition to transportation.

Challenges

- Costly and complicated right-of-way acquisition.
- Topography and drainage can greatly impact design.
- High construction costs.
- Can present safety concerns when placed adjacent to a roadway with frequent driveway or intersection crossings.

Shared use paths may parallel streets, highways, utility easements, railroads, and natural features such as rivers or creeks.

Design Criteria

- Minimum width: 10'. Widths as narrow as 8' are acceptable for short distances under physical constraint. Warning signs should be considered at these locations.
- In locations with heavy volumes or a high proportion of pedestrians, widths exceeding 10' are recommended. A minimum of 11' is required for users to pass with a user traveling in the other direction.

Additional Considerations

- A shared use path should be designed to suit the characteristics of cyclists. This includes establishing a design speed (typically 18 mph) and designing curb radii appropriately.
- To accommodate high volumes and reduce conflicts between different user types, a path wider than the minimum can be provided or modes can be separated by constructing parallel paths for bicyclists and pedestrians.
- On a path that is shared by both transportation and recreational bicyclists, additional path width is desirable to allow users to pass.
- On wider paths, signage to remind users to keep right except to pass should be provided.
- Along paths that provide attractive recreational opportunities, consider adding amenities such as benches, rest areas, and scenic overlooks.

Example Location(s) Where Applied

Nearly every city in Kansas and Missouri has examples of shared-use paths.

References & Resources

- The Mid-America Regional Council and The Kansas City Metro Chapter Of The American Public Works Association Best Practices Local Bikeway Planning and Design Guide (2012)
- AASHTO Guide for the Development of Bicycle Facilities (2012)
- FHWA Shared-Use Path Level of Service Calculator (2006)
- Manual on Uniform Traffic Control Devices (2009)

Curb Ramps

Facility Technical Sheet

Description

Curb ramps provide transition between sidewalks and crosswalks and must be installed at all intersection and midblock pedestrian crossings, as mandated by federal legislation (1973 Rehabilitation Act and ADA 1990).

Benefits

- Universally, widespread benefits apply to people using wheelchairs, strollers, walkers, crutches, handcarts, bicycles, or who have mobility restrictions that make it difficult to step up and down high curbs.

Challenges

- Curb ramp designs can be challenging especially at intersections with large radii or on streets within narrow right-of-ways.
- Need to be well maintained, especially during winter months when snow and ice are encountered.
- Curb ramps can be a problem for pedestrians with visual impairments because they minimize the tactility of the transition point between the sidewalk and the roadway.

Curb ramps must include truncated domes. Sedimentation and snow accumulation are challenges.

Design Criteria

- Maximum slope: 1:12 (8.33%).
- Maximum slope of side flares: 1:10 (10%).
- Maximum cross-slope: 2% (1–2% with tight tolerances recommended).
- Truncated domes (the only permitted detectable warning device) must be installed on all new curb ramps to alert pedestrians to the sidewalk and street edge.

Additional Considerations

- Furnishing zones or terraces (the space between the curb and sidewalk) of 7′ of width provide just enough space at intersections for curb ramps to gain sufficient elevation to a sidewalk.
- Separate curb ramps should be provided for each crosswalk at an intersection rather than a single ramp at a corner for both crosswalks. The separate curb ramps improve orientation for visually impaired pedestrians by directing them toward the correct crosswalk.
- Curb ramps are required to have landings. Landings provide a level area with a cross slope of 2% or less in any direction for wheelchair users to wait, maneuver into or out of a ramp, or bypass the ramp altogether. Landings should be 5′ by 5′ and shall, at a minimum, be 4′ by 4′.
- All newly constructed and altered roadway projects must include curb ramps. Agencies with more than 50 employees are required to have a transition plan in place to address the staging of the curb ramp upgrades.

Example Location(s) Where Applied

Required by law as part of any new sidewalk construction occurring within Kansas and the United States.

References & Resources

- Wisconsin Guide to Pedestrian Best Practices (2010)
- Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG; 2011)

Marked Crosswalks

Facility Technical Sheet

Description

A variety of facility types intended to increase the safety of pedestrians crossing streets and roads. In addition to pavement markings, crosswalks may include signals/beacons, warning signs, and raised platforms.

Benefits

- Increases the visibility of pedestrians crossing at intersections and controlled mid-block crossings.
- Can have traffic-calming effects if raised or if curb extensions are provided.

Challenges

- Road grades and crowns pose challenges for constructing crosswalks that meet accessibility requirements.
- Multi-lane streets and rural intersections require longer crosswalks and are less comfortable for pedestrians.
- Enforcing stop-bar compliance is important so that drivers do not stop in crosswalks.

Raised crosswalks have traffic-calming effects. This crosswalk crosses two travel lanes, a bike lane, and a parking lane.

Design Criteria

- Place on all legs of signalized intersections, in school zones, and across streets with more than minor levels of traffic.
- Add rapid-flash beacons, signals, crossing islands, curb extensions, and/or other traffic-calming measures when ADT exceeds 12,000 on 4-lane roads or speeds exceed 40 mph on any road.
- Refer to the references and resources listed below for specific design criteria.

Additional Considerations

- There are many different styles of crosswalk striping and some are more effective than others. Ladder, zebra, and continental striping patterns are understood to be more visible to drivers.
- Signal phasing is very important. Pedestrian signal phases must be timed based on the length of the crossing. If pedestrians are forced to wait longer than 40 seconds, non-compliance is more likely.
- Raised crossings calm traffic and increase the visibility of pedestrians.
- Curb extensions, also known as bulb-outs and bump-outs, reduce the distance pedestrians have to cross and calm traffic.
- In Kansas, legal crosswalks—whether marked or unmarked—are present as an extension of sidewalks.

Example Location(s) Where Applied

Cities that have studied marked crosswalks: Boston, MA; Boulder, CO; Clearwater, FL; New York, NY.

References & Resources

- Wisconsin Guide to Pedestrian Best Practices (2010)
- NACTO Urban Street Design Guide (2013)
- Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations: Final Report and Recommended Guidelines (2005)
- Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG; 2011)
- ADA Accessibility Guidelines (2004)
- Manual on Uniform Traffic Control Devices (2009)

Crossing Islands

Facility Technical Sheet

Description

Raised islands located along the centerline of a street, as roundabout splitter islands, or as "pork chop" islands where right-turn slip lanes are present. They provide refuge for pedestrians and allow multi-stage crossings of wide streets.

Benefits

- Provide safe refuge when crossing wide, multi-lane streets.
- Allow shorter signal phases since crossings can be broken down into two or more stages.
- Improve crossings at unsignalized locations, as pedestrians are only required to negotiate one direction of traffic at a time.
- Have traffic calming effects.

Challenges

- Noncompliance with pedestrian signals may increase with multi-stage crossings due to impatience or feelings of vulnerability.
- While preferable, cut-through medians may accumulate debris and snow more than ramped islands.

This crossing island doubles as a partial diverter. Curb ramps are "cut through," allowing pedestrians to remain at-grade.

Design Criteria

- Minimum width: 6' (8' recommended to accommodate higher pedestrian volumes, bicyclists, and wheelchair users).
- Curb ramps with truncated dome detectable warnings and 5' by 5' landing areas are required.
- A nose that extends past the crosswalk is not required, but is recommended.
- Vegetation and other aesthetic treatments may be incorporated, but must not obscure visibility.

Additional Considerations

- There are two primary types of crossing islands. The first cuts through the island, keeping pedestrians at street-grade. The second ramps pedestrians up above street grade and may present challenges to constructing accessible curb ramps unless they are more than 17' wide.
- Cut-through widths should equal the width of the crosswalk. Cut-throughs may be wider in order to allow the clearing of debris and snow, but should not encourage motor vehicles to use the space for u-turns.
- Crossing islands can be coupled with other traffic-calming features, such as partial diverters.
- Crossing islands may be used to connect two or more off-set crosswalks. This treatment can be used to mitigate challenges associated with off-set intersections and to improve compliance with two-stage crossings.

Example Location(s) Where Applied

Chicago, IL; Washington, DC; Madison, WI.

References & Resources

- NACTO Urban Street Design Guide (2013)
- Manual on Uniform Traffic Control Devices (2009)

3.2 | Bikeway Design Guidance

Design details for these bikeway types detailed in section 3.1 are available from the following resources:

- The American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, 4th Edition (2012
  - https://bookstore.transportation.org/item_details.aspx?id=1943
- The Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (2009)
  - http://mutcd.fhwa.dot.gov
- The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide (2012)
  - http://nacto.org/cities-for-cycling/design-guide
- The Mid-America Regional Council and The Kansas City Metro Chapter of the American Public Works Association Best Practices Local Bikeway Planning and Design Guide (2012)
  - http://kcmetro.apwa.net

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CHAPTER 4

4 | Goals, Objectives & Actions

This chapter presents goals, objectives, and recommended actions to support the vision of making Overland Park a safer and easier place to ride a bicycle.

4.1 | Recommendations Structure

The policy recommendations in this chapter are designed to support specific objectives and goals of the project. The structure of the recommendations is described below. The goals were developed with assistance of the steering committee while the objectives were prepared by the project team and then reviewed and accepted by the steering committee.

- The *Project Vision* provides an overarching vision for what is hoped to be achieved through the project.
- *Goals* are broad statements that express general priorities. Goals are based on the identification of key issues, opportunities, and constraints for bicycling in Overland Park.
- *Objectives* are more specific than goals and are usually attainable through strategic planning and implementation activities. Implementation of an objective should contribute to the fulfillment of a goal.
- *Actions* are provided that can be taken by a specific group, agency or organization to achieve objectives and goals. Carrying out an action should aid in achieving specific objectives, which in turn work toward the achievement of a goal.

4.2 | Vision Statement

The vision developed by the Project Steering Committee for this project is:

The City of Overland Park will be a bicycle friendly community that encourages the use of bicycles for transportation and recreation.

The City will have a well-connected bikeway network that safely and efficiently connects destinations throughout the City and will strive to make bicycling a viable transportation option within the City.

Achieving this vision will take considerable time, but there are significant steps that can be made in the near-term to improve bicycling in Overland Park. The following section provides goals, objectives, and actions that will work toward achieving the project vision.

4.3 | Goals, Objectives & Actions

The goals, objectives, and actions developed for this plan are detailed below. Each primary goal has specific objectives and actions to support achievement of the goal. Narrative is provided for each objective to describe why it is important for improving bicycling safety and accessibility in Overland Park.

Goal: Improve bicycle safety, access, and connectivity to, from, through, and within Overland Park.

Objective: Create an extensive, well connected network of on-street bikeways in Overland Park.

The primary theme that consistently emerged during the public outreach phase of this project was the need for on-street bikeways in Overland Park. Hundreds of comments stressing this point were received through the project WikiMap, the online survey, the public meetings, and the focus groups. On-street bikeways will provide connections to the destinations that people want to travel to: employment centers, schools, parks, retail and entertainment establishments, and multiple other locations.

For a bikeway network to be effective it must be comprehensive and it must connect neighborhoods to the destinations people want to reach. The bikeways recommended in Chapter 5 of this report form a well-connected network that reaches into nearly all Overland Park neighborhoods, provides dedicated space for bicyclists on most collector and thoroughfare streets, and connects destinations. The actions below all relate directly to implementing the bikeway recommendations contained in this report.

- **Action:** Provide bicycle accommodations on or along all collector and thoroughfare streets where space is currently available or when they are resurfaced or reconstructed.
- **Action:** Consider adding traffic calming measurers to portions of the Neighborhood Network detailed in Chapter 5 to provide bicycle boulevards parallel to major street corridors and connecting locations such as schools and parks.
- **Action:** Ensure that the bicycle network provides connections into communities surrounding Overland Park.
- **Action:** Include bicycle accommodations in all newly constructed collector and thoroughfare streets.

Objective: Increase the off-street bikeways and connections throughout Overland Park.

Off-street bikeways, also known as shared use paths or bike-hike trails, are important elements of a viable non-motorized transportation system. They provide alternatives to on-street biking, with which many new and potential cyclists are not yet comfortable. They can also provide a shorter, more direct route between two points than street connections. In addition to serving as alternative routes, shared use paths can provide critical connections across obstacles that would otherwise hinder bicycle mobility, such as the Indian Creek Trail crossing of I-435. In addition to the transportation benefits of off-street bikeways, they also provide opportunities for recreational bicycling, jogging, and walking. Paths along the streams in Overland Park provide access to nature and are often preferred over on-street bikeways due to their aesthetics and quiet nature.

The City of Overland Park has an extensive system of shared-use paths, particularly south of I-435. These paths and trails provide excellent transportation and recreation opportunities for a wide range of bicyclists. The City should continue to expand its network of paths and trails to provide bikeways that are separate from street traffic. The actions below will help the City continue to develop a world-class path network. The planning and design of the path network – and how it interfaces with the on-street system – is very important to the viability and safety of the system. Several actions below relate directly to this point.

- **Action:** Continue to expand the City's extensive network of off-street paths and trails following the recommendations of this plan and the City's Greenway Linkages Plan.
- **Action:** Close key gaps in the off-street bicycle network by implementing the bikeway recommendations contained in this report and the Greenway Linkages Plan.
- **Action:** Provide high-visibility crossing treatments where shared use paths cross major streets. Where paths need to cross major barriers, overpasses or underpasses may be necessary.
- **Action:** Construct all new shared-use paths to AASHTO standards.
- **Action:** Provide centerline striping on heavily used portions of shared use paths and through all underpasses and through corners with limited visibility.

Overland Park has an extensive network of off-street bikeways like the Indian Creek Trail. These paths provide opportunities for recreational and transportation bicycling away from motorized traffic.

Objective: Maintain bicycle facilities to a level that provides year-round safe, comfortable, and convenient usage for all users.

Maintenance of bicycle facilities is often more important than maintaining streets for motor vehicles. Bicyclists rely on clean and smooth surfacing to balance their two-wheel vehicles and negotiate turns and stops. The most common crash among bicyclists is not with motor vehicles, but as a result of preventable spills occurring on surfaces that are often poorly maintained. Also, if bicyclists' attention is constantly being directed to watching for the next pothole or piece of glass, they will not be able to focus on the operation of the bicycle itself, creating another safety issue. The actions below will ensure that the city provides adequate maintenance of on- and off-street bikeways to provide a safe riding environment for bicyclists.

- **Action:** Sweep all on-street and paved off-street bikeways regularly to ensure a travel surface that is free of sand, gravel, leaves, and other debris.
- **Action:** Provide prompt maintenance of potholes and other pavement damage on bikeways.
- **Action:** Repaint or re-mark bikeway markings before they fade.
- **Action:** Have a plan in place to clear snow from on-street and off-street bikeways in a timely manner to allow for year-round use.

Objective: Provide "support" infrastructure to make it easy for people to bicycle in Overland Park.

As Overland Park develops a comprehensive bicycle network, the City needs to provide support infrastructure to facilitate bicycle use. Bicyclists must be able to find their way around the developing network and should know that secure bicycle parking is available at their destination, just as motorists know that they will be able to find a place to conveniently park their car at a destination.

- **Action:** Ensure that the bicycle network is clearly identified through directional and wayfinding signage.
- **Action:** Provide ample bicycle parking in commercial districts and at parks and schools that complies with the Association of Pedestrian and Bicycle Professionals guidance described in the Bicycle Parking Guidelines, 2nd Edition: http://www.apbp.org/

Objective: Improve bicycle access at hazardous areas and across major barriers such as freeways.
Perhaps the greatest obstacle for new cyclists is the perception that riding a bicycle is a dangerous activity (the crash analysis contained in Section 2.5 indicated that the rate of crashes is relatively low per thousand residents in Overland Park and is on par with the State of Kansas which has a low rate). Improving safety, as well as the perception of safety, is therefore an important exercise in facilitating a greater percentage of the community to bike. As with motor vehicle operators, bicyclists more regularly encounter hazards and are at a greater risk for a crash at freeway interchanges, intersections, and construction zones. Steps should be taken to ensure that bikeways are clearly marked and highly visible when they traverse these areas.
• **Action:** Provide high-visibility bicycle crossings at freeway interchange ramps and major intersections.
• **Action:** Ensure that bicycle access is maintained when construction closes bikeways.

Objective: Ensure that future development and redevelopment includes bicycle accommodations and provides a connected bikeway network.
Ideally, bicycle facilities and infrastructure will be included with all street projects functionally classified as anything more than local residential streets when they are initially constructed, or when streets are resurfaced or reconstructed. Including bicycle and pedestrian facilities at this time is less expensive than retrofitting facilities as stand-alone projects.
• **Action:** Implement Overland Park's Complete Streets resolution by including bikeways with all newly constructed or reconstructed collector and thoroughfare streets identified in this report.
• **Action:** Ensure that the Overland Park zoning and subdivision codes include requirements for bicycling facilities such as bicycle parking requirements and land dedication for shared use paths.
• **Action:** Limit the use of cul-de-sacs and provide a pattern of local streets in new developments which permits connections between neighborhoods. When cul-de-sacs are allowed, a bicycle and pedestrian path should connect the end of the cul-de-sac to any paths, streets, parks, or commercial developments that may abut the properties on the cul-de-sac.

Goal: Provide institutional support for improving bicycling in Overland Park.

Objective: Provide internal guidance for the review and development of bikeways and bicycle-supporting events and activities in Overland Park.
In order for the recommendations in this Project Report to be implemented, City staff and others will have to work to ensure that the recommendations are being carried out. This task can most easily be managed by creating the position of Bicycle and Pedestrian Coordinator and by creating a standing committee that deals with bicycle and pedestrian issues. [Note: Although this project is focused on bicycling, many bicycling issues go hand-in-hand with pedestrian issues, and can best be addressed together]. Additionally, funding for projects will need to be secured. Whenever possible, grants from outside entities should be sought that can leverage local matching funds into a much larger source of funds.
• **Action:** Consider creating the position of Bicycle and Pedestrian Coordinator or assigning the duties to existing staff.
• **Action:** Consider creating an official City of Overland Park Bicycle and Pedestrian Committee.
• **Action:** Aggressively pursue funding for bicycle and pedestrian facilities from federal, state, and local sources.
• **Action:** Educate Overland Park staff, especially within the Public Works, Planning and Development Services, Parks Services, and Recreation Services Departments, as to their responsibilities for implementing this report and its recommendations.

When road construction obstructs bikeways, care should be taken to provide an alternate bikeway in the same street corridor. When this cannot be achieved, a short bicycle detour should be provided.

Goal: Conduct educational, encouragement and enforcement efforts throughout the City to promote the benefits of bicycling, bicycle safety, the proper use of bicycle facilities, and rules for sharing the road.

Objective: Provide events and incentives to encourage more people to bicycle more frequently.

Small incentives or events can help encourage and facilitate biking. Often a simple challenge or perks like commute stations providing coffee and bagels during Bike to Work Week can spur people to walk or bike for a trip for which they may have otherwise driven. In order to encourage more bicycling in Overland Park, and to promote new bikeways that have been installed, the City should host or sponsor select bicycle related events over the course of the year.

- **Action:** Sponsor Bike to Work Week and Bike & Walk to School Day activities.
- **Action:** Sponsor and/or support local family-friendly events that promote bicycling.
- **Action:** Promote the National Bike Challenge to employers to encourage increased bicycling for both recreation and transportation.
- **Action:** Sponsor and/or support a local competitive bicycling event such as a bike race.

Objective: Educate Overland Park residents about bicycling safety issues and the rules of the road as they pertain to motorists, bicyclists, and pedestrians.

Education is critical to the success of a bicycle and pedestrian network within a community. There is oftentimes a mentality that "if you build it, they will come" when considering bicycle facilities. However, this is not always the case. If people are not comfortable riding their bicycles for whatever reason, even the best facilities will remain underutilized. Most Americans do not receive any formal training on how to ride their bicycles on a street, how bicycles work, or the rules of the road. Educational activities and strategies attempt to fill that knowledge gap.

- **Action:** Provide bicycle education events such as bicycle rodeos and other activities to teach safe bicycling to both youths and adults in Overland Park.
- **Action:** Include at least one piece of bicycle and pedestrian education annually in City communications to residents (i.e., newsletter, utility bills, tax bills, etc.).
- **Action:** Provide bicycle safety and education materials on the City website.
- **Action:** Investigate offering a bicycle and pedestrian education course as an alternative for bicyclists, pedestrians, and motorists who are first-time offenders of bicycle and pedestrian-related rules of the road.

Objective: Increase enforcement of existing traffic laws for all street users, particularly those that pose the greatest risks to bicyclists.
Despite a number of laws aimed at improving safety for non-motorized users, lack of compliance with those laws is an often cited reason for why residents do not bicycle or walk to local destinations more frequently. Enforcement of speeding and safe passing laws is often the most effective way of creating a culture of compliance and a greater level of confidence for people bicycling on the street; it is of little use from a safety standpoint to enforce laws that will have no real effect on safety and would be viewed by bicyclists themselves as inconsequential.
• **Action:** Enforce posted speed limits, particularly in school speed zones.
• **Action:** Utilize automated speed-tracking equipment to provide feedback to motorists when they are exceeding the speed limit.
• **Action:** Target the enforcement of those laws that will have the broadest impact on bicyclist safety.

Overland Park sponsors Bike to Work Week activities including this refreshment stop in Corporate Woods. Relatively simple and low cost activities such as this can provide a small incentive to encourage more people to bike.

Goal: Regularly measure and evaluate Overland Park's progress toward increasing bicycle safety and use.

Objective: Regularly evaluate and assess levels of bicycling in Overland Park.
By evaluating and assessing the level of bicycling in Overland Park, community leaders and City staff will be able to more effectively direct their efforts to improve bicycling conditions for residents and visitors. City staff will also be able to justify proposed capital improvement with statistics. Additionally, recognition as a League of American Bicyclist Bicycle Friendly Community can be used to promote Overland Park's high quality of life. This program, which has expanded substantially across the nation in the past 15 years, got its start in Overland Park due to a volunteer for the program living in Overland Park.
• **Action:** Conduct annual bicycle counts to measure bicycling levels and the usage of bikeways within Overland Park.
• **Action:** Continue to track and monitor the number of reported bicycle crashes within the city.
• **Action:** Consider applying for Bicycle Friendly Community status from the League of American Bicyclists by 2016.
• **Action:** Consider applying for Bicycle Friendly Business status from the League of American Bicyclists by 2016 to serve as a role model for Overland Park employers.
• **Action:** Promote the Bicycle Friendly Business program from the League of American Bicyclists to Overland Park employers.

Providing adequate bicycle parking is one step that businesses can take to achieve Bicycle Friendly Business recognition. The City of Overland Park can model bicycle-friendliness to local businesses by offering bicycle parking and other amenities at City buildings.

CHAPTER 5

5 | The Bikeway Network

This chapter identifies a network of bikeways throughout Overland Park. This network includes off-street bikeways such as paths and trails, on-street bikeways such as bicycle lanes and shared lane markings, and a range of other facilities that will make bicycling more convenient and more comfortable for a range of bicyclists, and is likely to improve overall safety for bicyclists. This network will make bicycling in Overland Park a more realistic travel option than it is today.

The bicycle facilities recommended for specific locations are a direct response to existing conditions and user needs along various streets in the area. They also are based on national standards and guidelines, proven best practices, use of emerging designs and technologies, and the experiences of other jurisdictions in the Midwest. The analytical process used to identify the recommended network integrates local knowledge, engineering judgment, and input received through the Steering Committee, City staff, the public, and others. Portions of this process are described in this chapter, and significantly more detail is provided in the Appendix.

5.1 | Network Development & Facility Selection

The recommended bikeway network is designed to meet the needs of people already bicycling as well as the needs of potential and future cyclists in Overland Park. This Project Report places a high value on developing a network that over the long run will allow children and senior cyclists, novice and experienced cyclists, regular and occasional commuters, students, visitors, tourists, and recreational riders to all feel comfortable and safer bicycling in Overland Park.

It is important to recognize that some bicyclists will only venture onto busier streets if they are provided with a facility that clearly delineates space in which they can operate or offers a significant degree of separation from traffic. Some bicyclists will avoid streets with high speeds and heavy volumes, regardless of the accommodations. Some will seek only quiet local streets, and some experienced bicyclists will actually prefer thoroughfares because they provide the most direct route to their destination with a minimum of traffic controls.

This Project Report recommends improving thoroughfare and collector streets to accommodate bicycles, and providing paths, sidepaths, and parallel routes along local streets, when possible, to meet the needs of different bicyclists. Streets and trails were selected for inclusion in the recommended bicycle transportation network to create direct, convenient, and logical connections throughout all Overland Park neighborhoods. The network includes streets and trails that cyclists currently use as well as streets they would like to use according to public input received during the development of this report.

The network is intended to encourage maximum use and comfort, while fostering safe and responsible riding. At the same time, bikeway recommendations were developed to take advantage of the city's existing street network. In some cases, this may result in bikeways that are comfortable primarily for experienced bicyclists, and not for the full range of bicyclists in Overland Park.

The specific bicycle facilities recommended for the bikeway network are largely based on the Bicycle Level of Service (BLOS) measure from the Highway Capacity Manual. The BLOS provides a value for the comfort level of a street for bicyclists based largely on safety measures such as traffic volumes, composition of traffic (truck and bus traffic), speed of traffic, the width of the street, presence of a bike lane, presence of on-street parking, and other factors. BLOS ratings range from A (best conditions for bicycling) through F (worst conditions for bicycling). Target and desirable BLOS ratings for existing and newly constructed Overland Park streets are provided in Tables 2 and 3. A more detailed explanation of the BLOS and how it applies to Overland Park streets is provided in Appendix D.

Table 2: Recommended target BLOS for existing Overland Park streets

Street Type	Target BLOS	Comments
Local	Not rated	Assumed to all be A
Collector	B or better	A is desirable
Thoroughfare	C or better	B is desirable; achievable with bicycle lanes or paved shoulders

Table 3: Recommended target BLOS for new Overland Park streets

Street Type	Target BLOS	Comments
Local	Not rated	Assumed to all be A
Collector	A	A is desirable
Thoroughfare	B	A is desirable

The BLOS can easily be used as a planning tool to help determine the appropriateness and widths of different bikeways needed to achieve the targets in Tables 2 and 3. To achieve the targeted BLOS ratings for Overland Park, bike lanes are required on nearly all collector and thoroughfare streets. Where bike lanes may not fit on a collector street, shared lane markings are often recommended. The detailed network recommendations are provided in Section 5.3.

It should be noted that final facility selection will be determined during project implementation. For a variety of reasons, the facilities recommended in this chapter may not be feasible. This may include street measurements that differ from standard city dimensions, the presence of parking that is desirable to maintain, or the need for center turn lanes on streets that do not have adequate width for three travel lanes plus bicycle lanes. When a lower-level facility is implemented in place of what is recommended in this plan, efforts should be made to include the recommended facility whenever the street is next reconstructed.

Bike lanes such as this one in Madison, Wisconsin, can provide bicyclists with a dedicated space to ride in even on major thoroughfares that carry significant volumes of traffic.

5.2 | Bikeway Network Framework

The bikeway network recommendations are divided into three categories:

- **The City Network:** The City Network is primarily comprised of bikeways on thoroughfare streets. These bikeways provide direct connections across the city, but generally on streets that only more experienced bicyclists will be comfortable riding on. The typical bikeway types on the City Network are buffered and standard bike lanes.
- **The Neighborhood Network:** The Neighborhood Network is comprised of bikeways on collector and some local streets. Many of these bikeways run for considerable distance across the city, but their primary purpose is to connect neighborhoods and destinations such as schools and parks. These bikeways are designed for a broader range of bicyclists than the City Network. The typical bikeway types on the Neighborhood Network are standard bike lanes and shared lane markings.
- **The Trail & Sidepath Network:** The Trail & Sidepath Network consists of shared use paths throughout the city. These paths may be in their own right-of-way (bike-hike trails) or may be sidepaths along a busier street. The Trail & Sidepath Network is designed to serve all levels of bicyclists; however, faster bicyclists and those looking for more direct connections to destinations will be better served by on-street bikeways. Many segments of the Trail & Sidepath Network form key connections in the City and Neighborhood Networks. Most of the recommended paths and trails shown as part of the Trail & Sidepath Network have been identified in the Greenway Linkages Plan; only newly identified segments are detailed in this chapter.

Taken together, these three networks form a single, cohesive Overland Park Bikeway Network. The division of the larger network into three categories is primarily useful for planning purposes; from the user perspective, there will not be a significant difference when moving from one bikeway to the next. Table 4 provides an overview of the miles of different facility types that make up the recommended Overland Park Bikeway Network.

Providing on-street bikeways can reduce sidewalk bicycling. While less confident bicyclists often prefer bicycling on the sidewalk, it creates conflicts with pedestrians and can increase the risk of a crash with a motor vehicle at driveways or intersections.

Table 4: Miles of existing and recommended bikeways in Overland Park

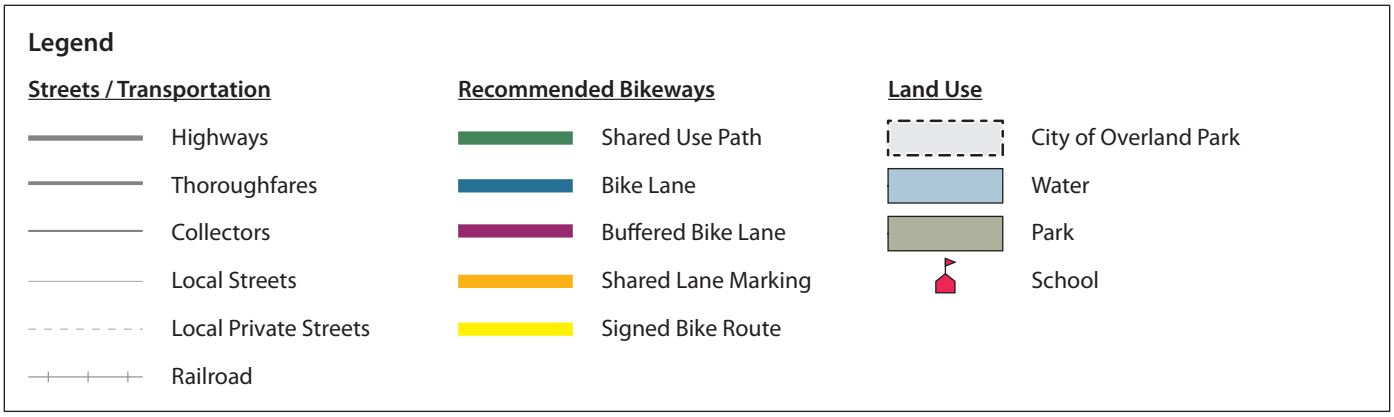
Facility Type	Existing Miles	Recommended Miles	Total Miles
Bicycle Lanes	0.00	165.87	165.87
Buffered Bicycle Lanes	0.00	48.75	48.75
Shared Lane Markings	0.00	30.46	30.46
Signed Bike Routes	0.00	3.32	3.32
Shared Use Paths	80.37	14.60	94.97
Total	**80.37**	**263.00**	**343.37**

Note: The Overland Park Greenway Linkages Plan recommends approximately 130 miles of shared use paths/bike-hike trails that are not included in the totals in Table 4. The installation of those trails and paths should be coordinated with the installation of facilities recommended in this report.

More information about each network is provided in the following pages, including detailed descriptions of the facilities recommended for the network. The network is grouped into corridors – streets that taken together make a longer linear run across the city. These corridors are not always continuous, they may have gaps where a bikeway does not exist or may be divided by a freeway. However, over time, these gaps may be filled and continuous bikeway connections can be made through the corridor. Map 3 at the end of this document displays the networks by type, while Map 4 displays the recommended facility types for each street or path segment. Chapter 6 discusses implementation of the recommendations provided in this chapter as well as planning level costs for implementation.

Maps of each bikeway corridor are included in the following sections. Figure 3 provides a legend for those maps. Note that the maps are designed to display the entire corridor, as such the scale of each map changes.

Figure 3: Legend for bikeway corridor maps contained in Chapter 5



5.3 | The City Network

The primary goal of the City Network is to provide regular, direct bikeways that cross the city north-south or east-west. The City Network forms the primary structure of the overall Overland Park Bikeway Network by providing long-distance, direct bikeways on major streets. The City Network includes approximately 128 miles of on-street bikeways; Figure 4 displays the network by corridor while Table 5 details the number of miles of specific facility types in the network. Details on the planning level cost estimates, including segment-by-segment cost estimates, are provided in Section 6.3 and Appendix E.

Figure 4: The City Network bikeway corridors

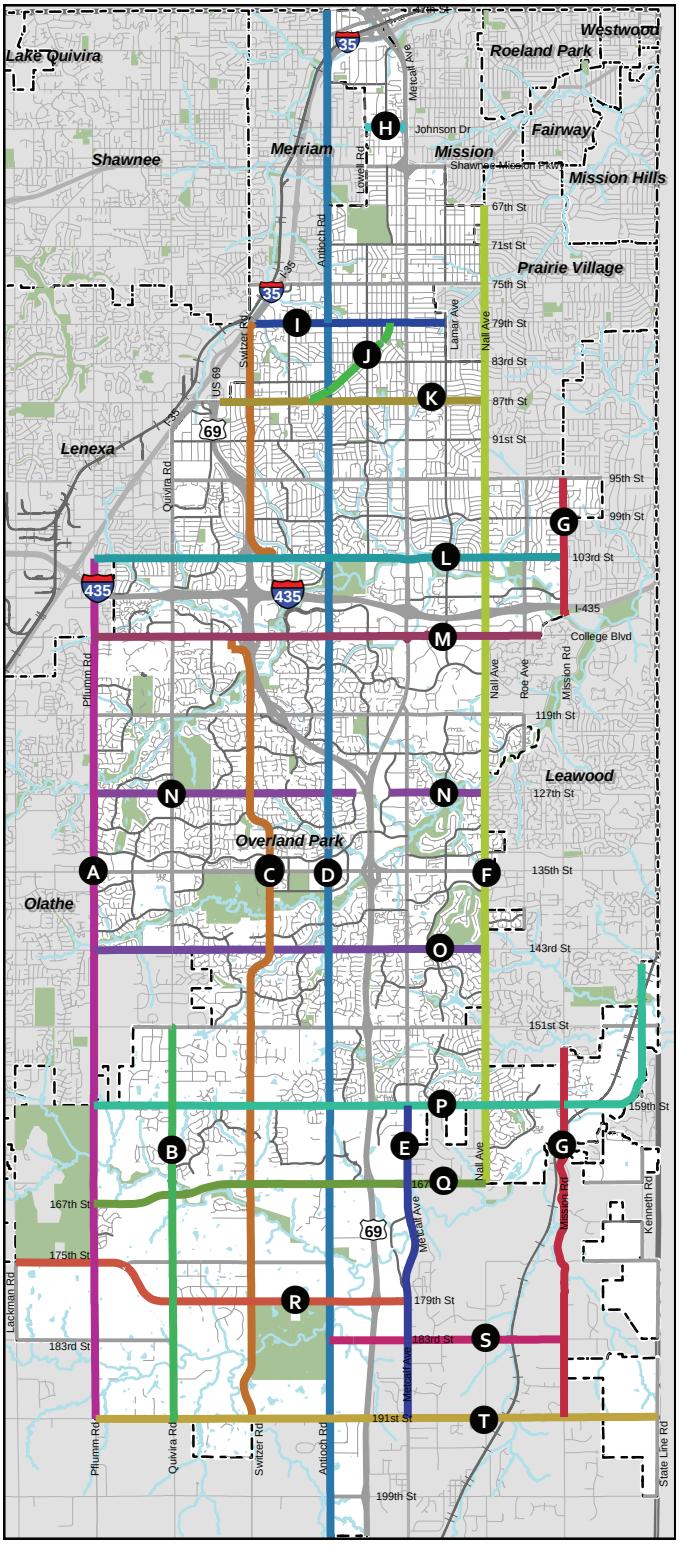


Table 5: City Network facility lengths

Facility Type	Miles
Bicycle Lane	80.13
Buffered Bicycle Lane / Paved Shoulders	48.75
Shared Lane Marking	3.12
Total	**132.01**

The general characteristics of the City Network are provided in Table 6. In general, the City Network is intended to provide long, direct connections across the City of Overland Park.

Table 6: Characteristics of the City Network

Characteristic	Description
Typical facility	Bicycle lane; buffered bicycle lane
Purpose	Provide direct connections across the full city; provide connections to destinations along thoroughfares
Corridor length	Long – typically fully cross the city
Directness	Very direct
Street type	Thoroughfares; Super Collectors
Bicyclist type	Experienced and confident; average adult bicyclists at non-peak times or for short distances
Implementation	When streets are resurfaced, top coated, or reconstructed
Timeframe	10 - 15 years for streets currently constructed to city standards; up to 30 years for all streets

The majority of the recommended facilities for the City Network are standard bicycle lanes with narrowed travel lanes. In many cases, a buffered bicycle lane would be preferred to a standard bicycle lane given traffic volumes and speeds on Overland Park thoroughfares, however, recommending a standard bicycle lane allows bicycle facilities to be added to existing streets without expensive street reconstruction. When facilities are being implemented as part of a newly constructed street, a buffered bicycle lane should be provided. The same applies to streets being reconstructed, but with the understanding that physical

and right-of-way constraints may make it difficult to incorporate buffered bicycle lanes. Streets that are being reconstructed to city standards in the southern portion of the city may substitute a paved shoulder for the recommended buffered bicycle lanes if a curb and gutter is not planned for the final design.

Portions of the City Network are on streets that are shared with neighboring communities :

- Pflumm Road (Olathe and Lenexa),
- Antioch Road (Merriam),
- Nall Avenue (Leawood and Prairie Village),
- Mission Road (Leawood and unincorporated Johnson County), and
- Metcalf Avenue, 167th Street, 183rd Street, and 191st Street (unincorporated Johnson County).

Coordination will be needed with these communities to achieve implementation of the facilities on roadways with shared ownership. Additionally, portions of these thoroughfares that are entirely outside of Overland Park have been designated as part of the City Network so as to provide a continuous bikeway corridor. For example, Pflumm Road from 143rd Street to approximately 159th Street is entirely within the City of Olathe. Overland Park cannot implement facilities on streets in other communities, but efforts should be made to work with the communities these streets pass through to work toward establishing continuous bikeways that serve residents of Overland Park and the surrounding communities.

The City Network exists primarily on heavily trafficked streets with higher traffic speeds and is primarily intended for experienced and confident adult bicyclists, although average adult bicyclists and older teens may find the City Network suitable at off-peak times or for short connections to destinations. These streets may also be tolerable for average adult bicyclists for short distances especially to make connections to and from the Neighborhood Network and the Trail & Sidepath Network. The corridors designated as part of the City Network are detailed below. In addition to the streets detailed below, all newly constructed thoroughfares in the southern portion of Overland Park should be built with bike lanes, buffered bike lanes, or paved shoulders.

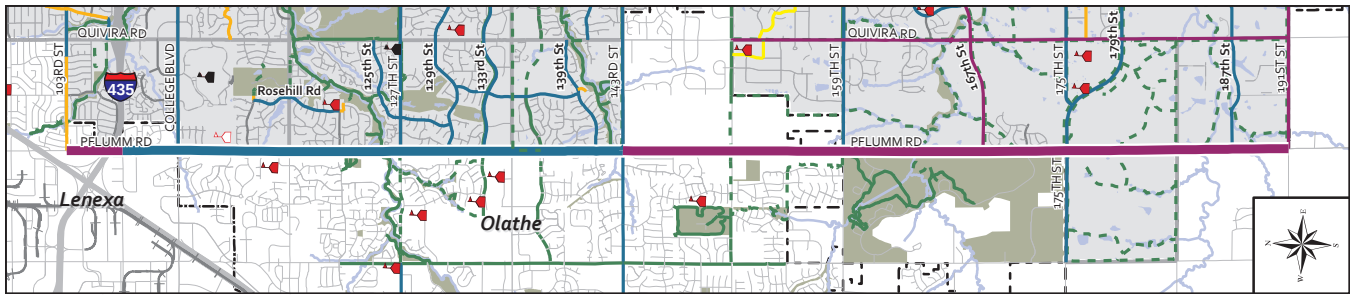
These recommendations are focused on providing implementable projects in the relatively near future. In the very long term, all thoroughfares in Overland Park should provide bicycle accommodations. As such, all thoroughfares that are due for resurfacing or reconstruction should be considered for the addition of bike lanes regardless of their inclusion in the tables on the following pages; this is particularly true for unimproved thoroughfares in the southern portion of the city.

The Blue Moose Ride, a recurring recreational group ride that utilizes some thoroughfares, regularly passes through Overland Park.

A: Pflumm Road Corridor

- Provides access to three schools
- Provides access to Heritage Park
- Provides bicycle access along major thoroughfare
- Provides access under I-435 without an interchange and the associated traffic
- Continues to Old Town Lenexa
- Portions of the corridor are within or border the Cities of Lenexa and Olathe; coordination with those municipalities will be necessary to fully implement the recommended facilities

Street	From	To	Facility	Miles	Comments / Action
Pflumm Road	103rd Street	107th Street	Buffered Bike Lane	0.51	Portions in Lenexa; include buffered bike lanes with reconstruction
Pflumm Road	107th Street	143rd Street	Bike Lane	4.52	Portions in Lenexa; narrow travel lanes to accommodate bike lanes
Pflumm Road	143rd Street	191st Street	Buffered Bike Lane	6.02	Include buffered bike lanes when reconstructed
			Total Length	**11.05**	



B: Quivira Road Corridor

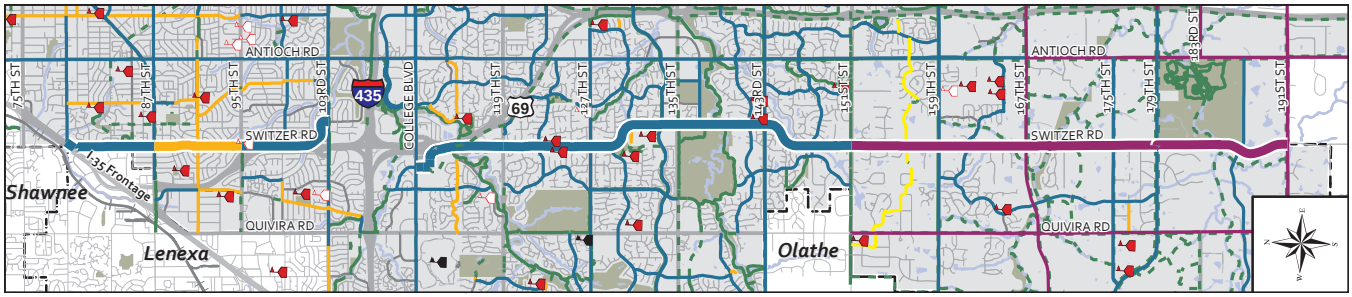
- Provides access to four schools
- Provides bicycle access along the southern portion of Quivira Road
- Provides access to Coffee Creek Trail

Street	From	To	Facility	Miles	Comments / Action
Quivira Road	143rd Street	191st Street	Buffered Bike Lane	5.20	Include buffered bike lanes when reconstructed or constructed
			Total Length	**5.20**	

C: Switzer Road Corridor

- Provides a lengthy north-south corridor
- Provides access to multiple schools
- Provides access to Indian Creek and Turkey Creek Trails
- Ends at proposed City Place development

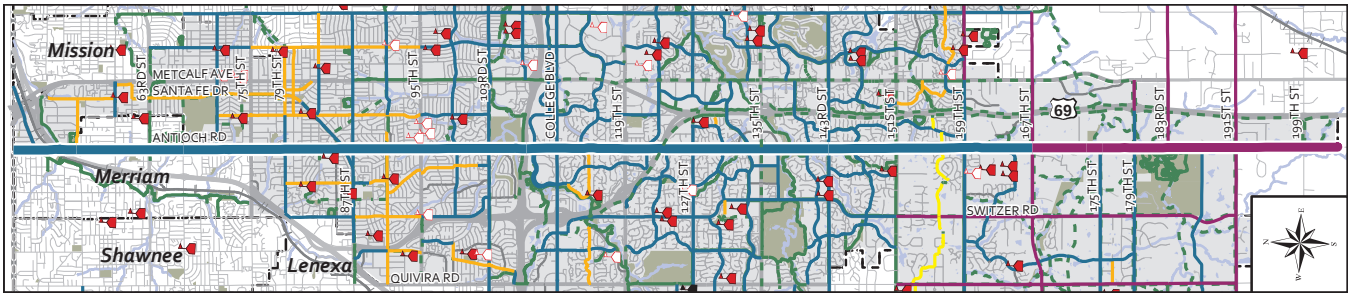
Street	From	To	Facility	Miles	Comments / Action
I-35 Frontage Road	Switzer Road	79th Street	Bike Lane	0.12	Stripe bike lanes in existing space
Switzer Road	I-35 Frontage Road	87th Street	Bike Lane	0.93	Stripe bike lanes in existing space
Switzer Road	87th Street	95th Street	Shared Lane Marking	1.01	Install shared lane markings
Switzer Road	95th Street	103rd Street	Bike Lane	1.19	Stripe bike lanes in existing space
Switzer Road	College Boulevard	119th Street	Bike Lane	1.17	Include bike lanes when reconstructed
Switzer Road	119th Street	159th Street	Bike Lane	5.26	Narrow travel lanes to accommodate bike lanes when resurfaced
Switzer Road	159th Street	179th Street	Buffered Bike Lane	2.52	Include buffered bike lanes when reconstructed
Switzer Road	179th Street	191st Street	Buffered Bike Lane	1.55	Include buffered bike lanes when constructed
			Total Length	**13.74**	



D: Antioch Road Corridor

- Provides the longest continuous bikeway corridor in the city
- Provides direct north-south access along a major thoroughfare

Street	From	To	Facility	Miles	Comments / Action
Antioch Road	47th Street	54th Terrace	Bike Lane	1.58	Narrow travel lanes to accommodate bike lanes when resurfaced*
Antioch Road	54th Terrace	67th Street	Bike Lane	0.96	City of Merriam; Narrow travel lanes to accommodate bike lanes when resurfaced*
Antioch Road	67th Street	75th Street	Bike Lane	1.51	Consider reducing to 3 lanes when resurfaced to include bike lanes
Antioch Road	75th Street	167th Street	Bike Lane	11.06	Narrow travel lanes to accommodate bike lanes when resurfaced*
Antioch Road	167th Street	172nd Terrace	Buffered Bike Lane	0.80	Include buffered bike lanes when reconstructed
Antioch Road	172nd Terrace	175th Street	Buffered Bike Lane	0.23	Include buffered bike lanes when constructed
Antioch Road	175th Street	South City Border	Buffered Bike Lane	3.50	Include buffered bike lanes when reconstructed
			Total Length	**19.64**	

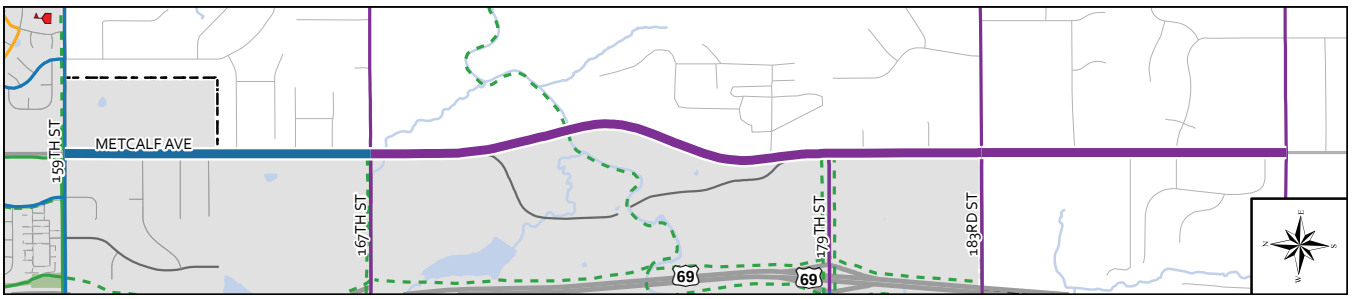


*** Thoroughfares north of I-435 may not have sufficient width to add bike lanes by narrowing travel lanes; further evaluation required at time of project development.**

E: Metcalf Avenue Corridor

- Provides a corridor in the southern portion of the city parallel to U.S. 69

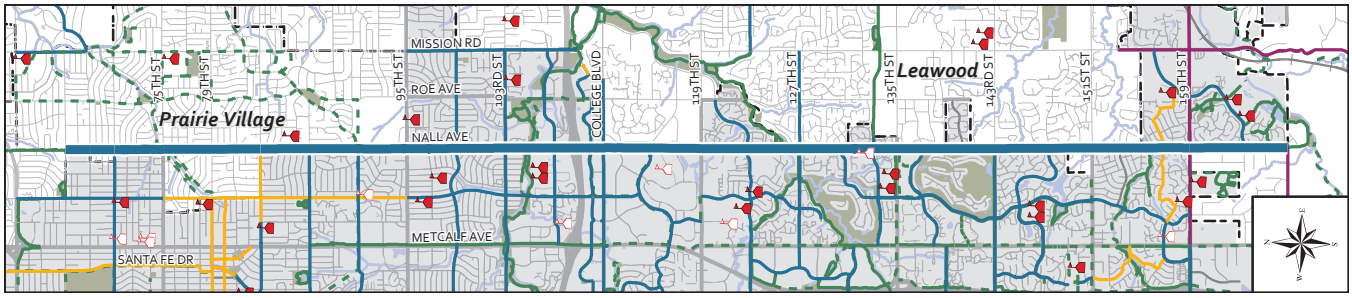
Street	From	To	Facility	Miles	Comments / Action
Metcalf Avenue	159th Street	167th Street	Bike Lane	1.00	Include bike lanes when reconstructed
Metcalf Avenue	159th Street	183rd Street	Buffered Bike Lane	3.05	Include buffered bike lanes when reconstructed
Metcalf Avenue	183rd Street	191st Street	Buffered Bike Lane	1.00	Include buffered bike lanes when constructed
			Total Length	**4.05**	



F: Nall Avenue Corridor

- Provides a lengthy north-south corridor along a major thoroughfare
- Provides access to a number of schools
- Portions of the corridor are within or border Prairie Village and Leawood; coordination with those municipalities will be necessary to fully implement the recommendations
- Portions of the corridor are contained in the Leawood Bicycle and Pedestrian Master Plan

Street	From	To	Facility	Miles	Comments / Action
Nall Avenue	67th Street	69th Street	Bike Lane	0.25	Narrow travel lanes to accommodate bike lanes when resurfaced*
Nall Avenue	69th Street	71st Street	Bike Lane	0.25	Prairie Village; Narrow travel lanes to accommodate bike lanes when resurfaced*
Nall Avenue	71st Street	75th Street	Bike Lane	0.81	Narrow travel lanes to accommodate bike lanes when resurfaced*
Nall Avenue	75th Street	83rd Street	Bike Lane	1.00	Prairie Village; Narrow travel lanes to accommodate bike lanes when resurfaced*
Nall Avenue	83rd Street	91st Street	Bike Lane	1.00	Narrow travel lanes to accommodate bike lanes when resurfaced*
Nall Avenue	91st Street	95th Street	Bike Lane	0.52	Consider reducing to 3 lanes when resurfaced to include bike lanes
Nall Avenue	95th Street	159th Street	Bike Lane	8.07	Narrow travel lanes to accommodate bike lanes when resurfaced*
Nall Avenue	159th Street	167th Street	Buffered Bike Lane	1.00	Include buffered bike lanes when reconstructed
			Total Length	**12.90**	

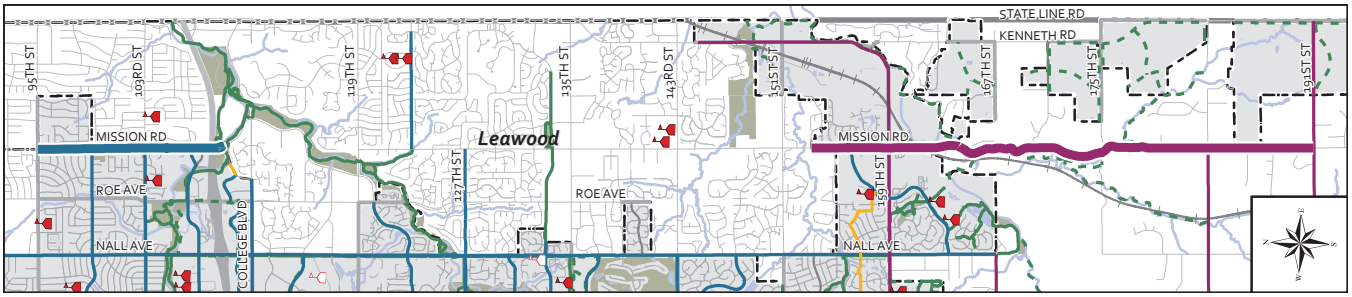


*** Thoroughfares north of I-435 may not have sufficient width to add bike lanes by narrowing travel lanes; further evaluation required at time of project development.**

G: Mission Road Corridor

- Provides bicycle access along a thoroughfare on Overland Park's eastern edge
- Portions of the corridor are within or border Leawood and unincorporated Johnson County; coordination with those entities will be necessary to fully implement the recommendations

Street	From	To	Facility	Miles	Comments / Action
Mission Road	95th Street	Indian Creek Trail	Bike Lane	1.79	Narrow travel lanes to accommodate bike lanes when resurfaced*
Mission Road	153rd Street	Blue River	Buffered Bike Lane	1.39	Include buffered bike lanes when reconstructed
Mission Road	Blue River	191st Street	Buffered Bike Lane	3.45	Unincorporated; Include buffered bike lanes when reconstructed
			Total Length	**6.63**	

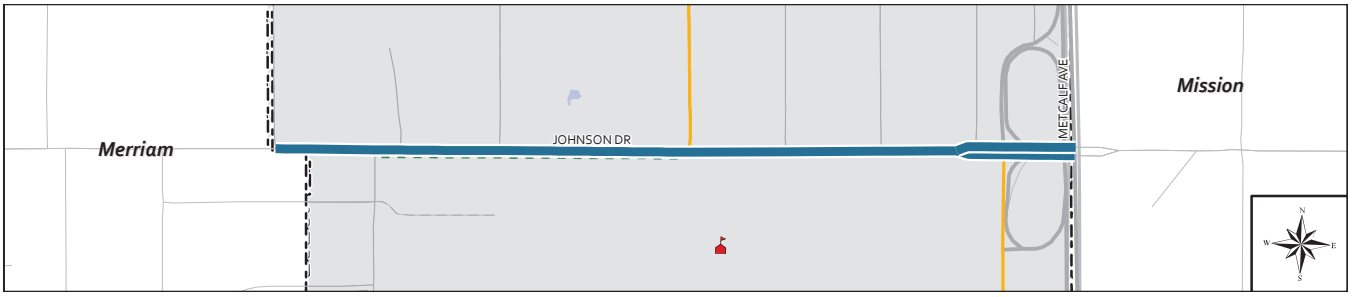


*** Thoroughfares north of I-435 may not have sufficient width to add bike lanes by narrowing travel lanes; further evaluation required at time of project development.**

H: Johnson Drive Corridor

- Provides access to Shawnee Mission North High School
- Provides connections to commercial and retail centers in Mission and Merriam including Ikea

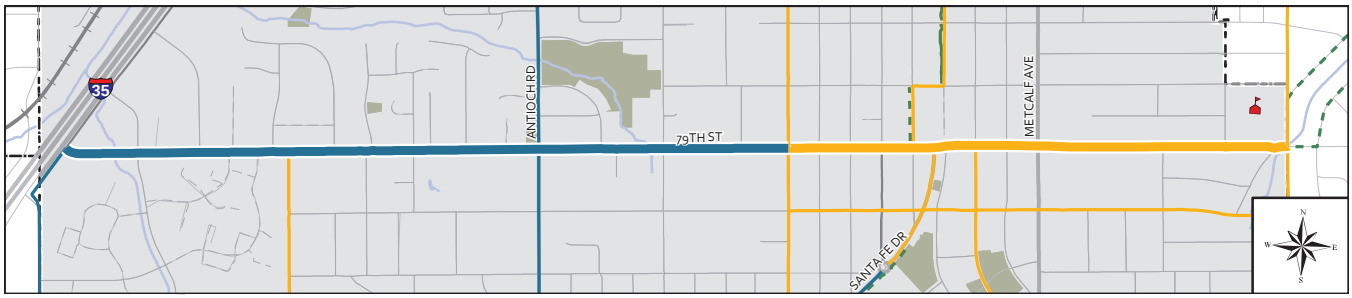
Street	From	To	Facility	Miles	Comments / Action
Johnson Drive	Lowell Street	Metcalf Avenue	Bike Lane	0.53	Consider reducing to 3 lanes when resurfaced to include bike lanes
			Total Length	**0.53**	



I: 79th Street Corridor

- Provides access to Downtown Overland Park and one school
- Connects to Tomahawk Road in Prairie Village, a popular bicycle route

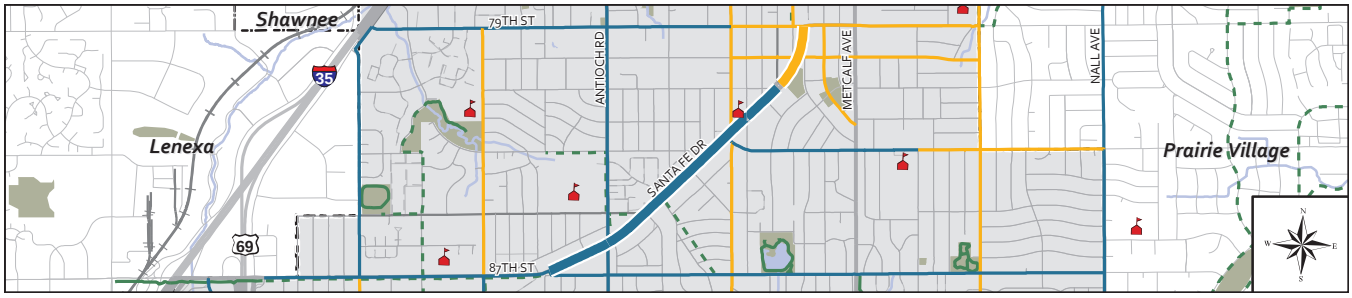
Street	From	To	Facility	Miles	Comments / Action
79th Street	I-35 Frontage Road	Lowell Avenue	Bike Lane	1.46	Stripe bike lanes in existing space
79th Street	Lowell Avenue	Lamar Avenue	Shared Lane Marking	1.01	Install shared lane markings
			Total Length	**2.47**	



J: Santa Fe Drive Corridor

- Provides access to Downtown Overland Park and City Hall
- The road diet that was implemented northeast of 83rd Street should be extended southwest to 87th Street

Street	From	To	Facility	Miles	Comments / Action
Santa Fe Drive	87th Street	Antioch Road	Bike Lane	0.26	Consider reducing to 3 lanes when resurfaced to include bike lanes
Santa Fe Drive	Antioch Road	Robinson Street	Bike Lane	0.76	Consider reducing to 3 lanes when resurfaced to include bike lanes
Santa Fe Drive	Robinson Street	Roundabout	Bike Lane	0.17	Narrow travel lanes to accommodate bike lanes when resurfaced
Santa Fe Drive	Roundabout	79th Street	Shared Lane Marking	0.26	Install shared lane markings
			Total Length	**1.45**	



K: 87th Street Corridor

- Provides east-west cross city connection
- Bicycle traffic should be directed onto the existing shared use path to cross U.S. 69

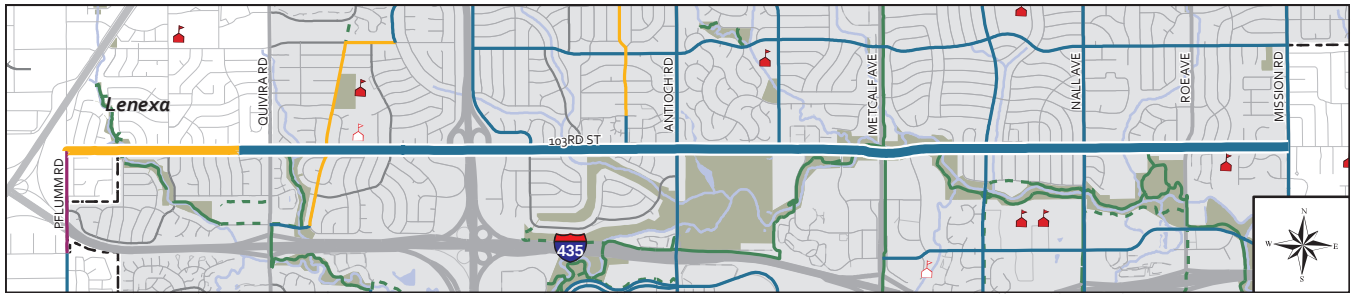
Street	From	To	Facility	Miles	Comments / Action
87th Street	Reeder Street	Santa Fe Drive	Bike Lane	1.16	Stripe bike lanes in existing space*
87th Street	Santa Fe Drive	Nall Avenue	Bike Lane	2.26	Stripe bike lanes in existing space*
			Total Length	**3.42**	

*** Thoroughfares north of I-435 may not have sufficient width to add bike lanes by narrowing travel lanes; further evaluation required at time of project development.**

L: 103rd Street Corridor

- Provides direct access to two schools and indirect access to multiple other schools
- Provides access to community pool in Lenexa
- Connects to the Indian Creek Trail

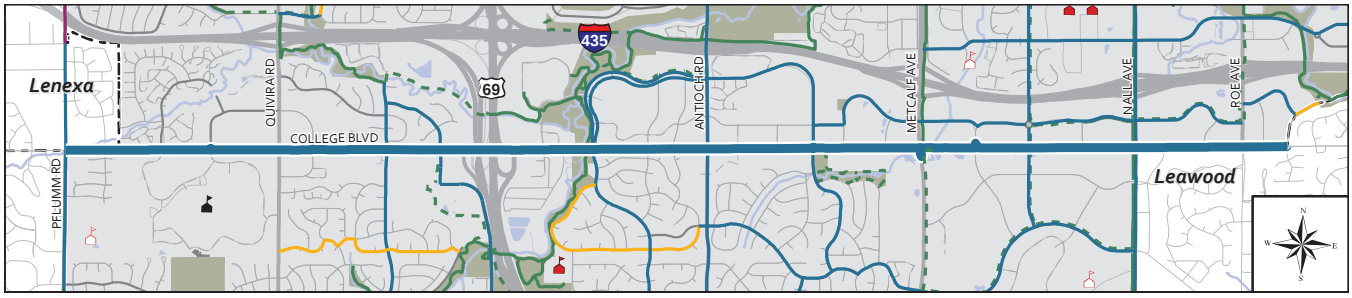
Street	From	To	Facility	Miles	Comments / Action
103rd Street	Pflumm Road	Monrovia Street	Shared Lane Marking	0.85	Install shared lane markings
103rd Street	Monrovia Street	Mission Road	Bike Lane	5.19	Stripe bike lanes in existing space
			Total Length	**6.04**	



M: College Boulevard Corridor

- Provides access to Johnson County Community College, Corporate Woods, and the Overland Park Convention Center
- Provides bicycle access along a major east-west thoroughfare

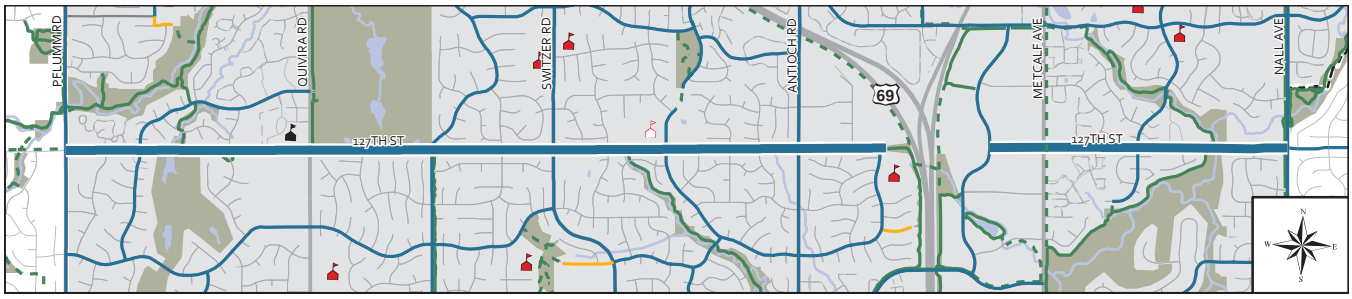
Street	From	To	Facility	Miles	Comments / Action
College Boulevard	Pflumm Road	El Monte Street	Bike Lane	5.88	Narrow travel lanes to accommodate bike lanes when resurfaced
			Total Length	**5.88**	



N: 127th Street Corridor

- Provides access to the University of Kansas – Edwards campus
- Provides a potential connection for a future non-motorized crossing of U.S. Highway 69
- Connects to existing bike lanes in Leawood

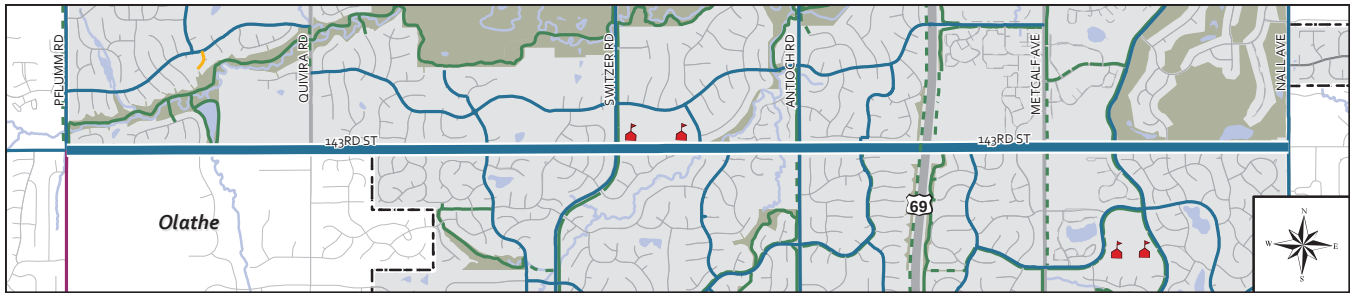
Street	From	To	Facility	Miles	Comments / Action
127th Street	Pflumm Road	Goodman Street	Bike Lane	3.37	Narrow travel lanes to accommodate bike lanes when resurfaced
127th Street	Foster Street	Nall Avenue	Bike Lane	1.22	Narrow travel lanes to accommodate bike lanes when resurfaced
			Total Length	**4.59**	



O: 143rd Street Corridor

- Provides access to two schools
- Provides east-west cross city connection

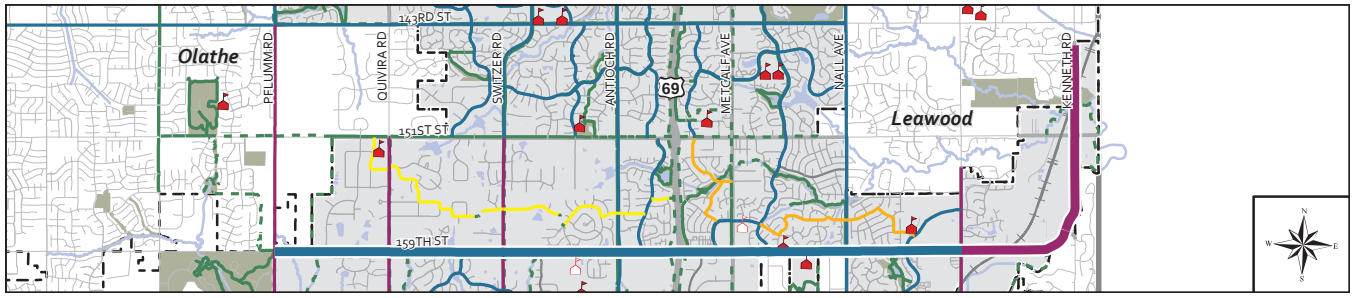
Street	From	To	Facility	Miles	Comments / Action
143rd Street	Pflumm Road	Quivira Road	Bike Lane	1.00	Include bike lanes when reconstructed
143rd Street	Quivira Road	Nall Avenue	Bike Lane	4.02	Narrow travel lanes to accommodate bike lanes when resurfaced
			Total Length	**5.02**	



P: 159th Street / Kenneth Road Corridor

- Provides direct access to two schools and indirect access to three other schools

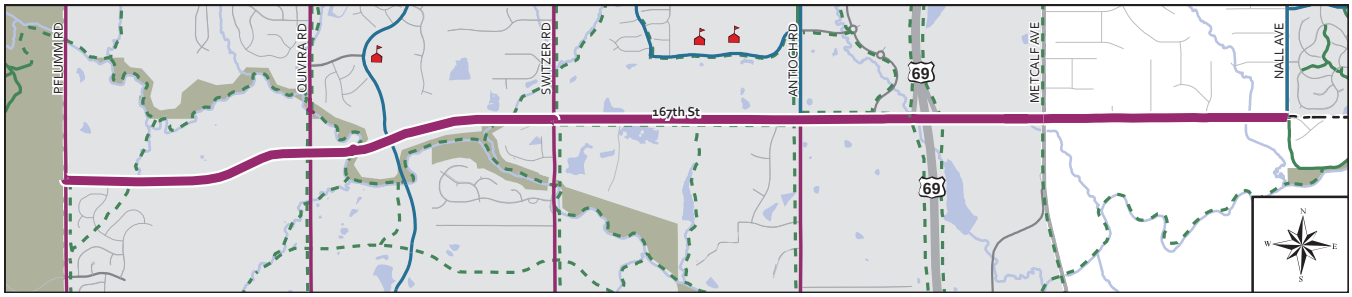
Street	From	To	Facility	Miles	Comments / Action
159th Street	Pflumm Road	Quivira Road	Bike Lane	1.01	Include bike lanes when reconstructed
159th Street	Quivira Road	Mission Road	Bike Lane	5.04	Narrow travel lanes to accommodate bike lanes when resurfaced
159th Street	Mission Road	Kenneth Road	Buffered Bike Lane	1.00	Include buffered bike lanes when reconstructed
Kenneth Road	159th Street	144th Street	Buffered Bike Lane	1.65	Include buffered bike lanes when reconstructed
			Total Length	**8.70**	



Q: 167th Street Corridor

- Provides east-west access across southern Overland Park

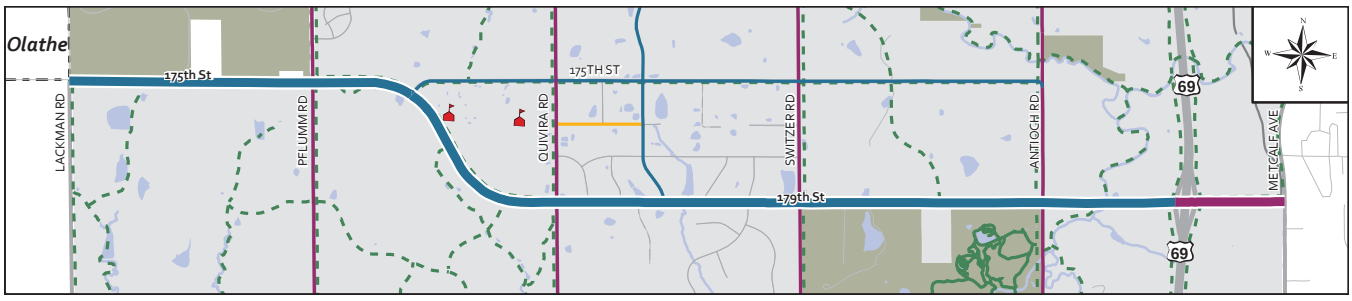
Street	From	To	Facility	Miles	Comments / Action
167th Street	Pflumm Road	Switzer Road	Buffered Bike Lane	2.08	Include buffered bike lanes / shoulders when constructed
167th Street	Switzer Road	Metcalf Avenue	Buffered Bike Lane	2.12	Include buffered bike lanes / shoulders when reconstructed
167th Street	Metcalf Avenue	Nall Avenue	Buffered Bike Lane	1.00	Unincorporated; Include buffered bike lanes / shoulders when reconstructed
			Total Length	**5.20**	



R: 175th Street / 179th Street Corridor

- Provides access to two schools
- Links Heritage Park and the Overland Park Arboretum
- Currently a popular route for recreational bicyclists

Street	From	To	Facility	Miles	Comments / Action
175th Street	Lackman Road	179th Street	Bike Lane	1.43	Narrow travel lanes to accommodate bike lanes when resurfaced
179th Street	175th Street	U.S. 69	Bike Lane / Shoulders	3.38	Has existing 5' paved shoulders
179th Street	U.S. 69	Metcalf Avenue	Buffered Bike Lane	0.45	Include buffered bike lanes / shoulders when reconstructed
			Total Length	**5.26**	



S: 183rd Street Corridor

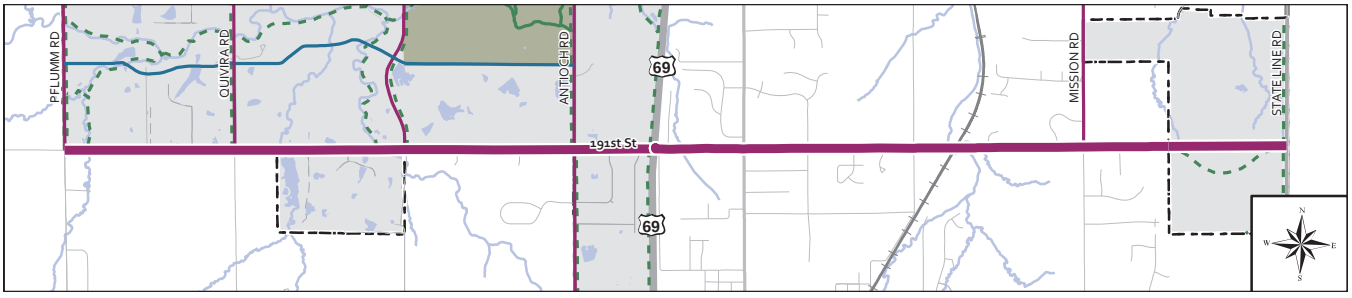
- Provides east-west access across southern Overland Park
- Provides access to the Overland Park Arboretum and Botanical Gardens
- Portions of the corridor are in unincorporated Johnson County and will require coordination with the County to implement

Street	From	To	Facility	Miles	Comments / Action
183rd Street	Antioch Road	Existing 183rd Street	Buffered Bike Lane / Sidepath	0.31	Include buffered bike lanes / shoulders when constructed
183rd Street	Current west end	Metcalf Avenue	Buffered Bike Lane	0.70	Include buffered bike lanes / shoulders when reconstructed
183rd Street	Metcalf Avenue	Mission Road	Buffered Bike Lane	2.00	Unincorporated; Include buffered bike lanes / shoulders when reconstructed
			Total Length	**3.01**	

T: 191st Street Corridor

- Provides east-west access across southern Overland Park
- Portions of the corridor are in unincorporated Johnson County and will require coordination with the County to implement

Street	From	To	Facility	Miles	Comments / Action
191st Street	Pflumm Road	U.S. 69	Buffered Bike Lane	3.48	Include buffered bike lanes / shoulders when reconstructed
191st Street	U.S. 69	City border	Buffered Bike Lane	3.05	Unincorporated; Include buffered bike lanes / shoulders when reconstructed
191st Street	City border	State Line Road	Buffered Bike Lane	0.70	Include buffered bike lanes / shoulders when reconstructed
			Total Length	**7.23**	



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5.4 | The Neighborhood Network

The primary goal of the Neighborhood Network is to provide connections through and between Overland Park neighborhoods. The Neighborhood Network is designed to provide longer routes by stringing together various neighborhood routes whenever possible, but the routes tend to meander more than the City Network. Using the Neighborhood Network, along with short stretches of the City Network and Trail/Sidepath Network, average adult cyclists will be able to complete most of their longer trips with a minimum of stress and increased safety provided by these lower volume and lower speed streets. The Neighborhood Network provides connections to schools, parks, and other community centers throughout the city. The Neighborhood Network also fills in gaps between the City Network. The Neighborhood Network was designated primarily on streets that are part of the existing Overland Park bike route network. This existing network was designed to access destinations throughout the city using collector level streets that carry lower to moderate levels of traffic. Figure 5 displays the Neighborhood Network corridors while Table 7 details the miles of facilities in the network.

Figure 5: The Neighborhood Network bikeway corridors

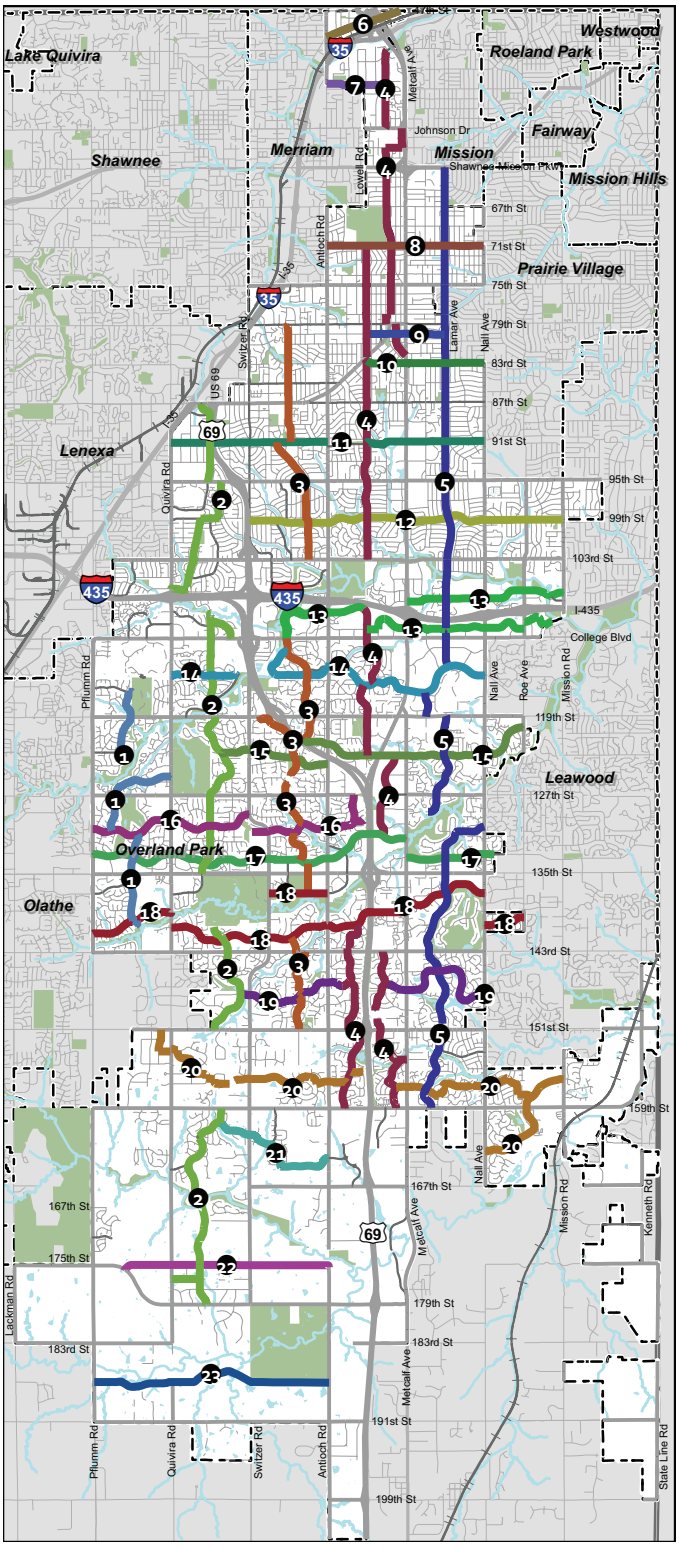


Table 7: Neighborhood Network facility lengths

Facility Type	Miles
Bicycle Lane	85.74
Shared Lane Marking	27.34
Signed Bike Route	3.32
Total	**116.40**

The general characteristics of the Neighborhood Network are provided in Table 8. In general, the Neighborhood Network is intended to provide connections into Overland Park neighborhoods and to locations such as schools and parks.

Table 8: Characteristics of the Neighborhood Network

Characteristic	Description
Typical facility	Bike lane; shared lane markings; shared use paths; signed routes
Purpose	Provide connections within and through neighborhoods and to schools and parks
Corridor length	Short to long
Directness	Relatively direct with some meandering, particularly on path segments
Street type	Super Collectors; Collectors; Locals
Bicyclist type	Average adult bicyclists and experienced teens; children with adults on select routes
Implementation	At any time; does not require moving existing lane lines in nearly all cases
Timeframe	2 – 5 years

The majority of the recommended facilities for the Neighborhood Network are standard bicycle lanes on collector streets. Some of the recommended bikeways may be implemented as parking lanes in areas that allow on-street parking and where it may not be politically feasible to remove parking; as there is little on-street parking on Overland Park collector streets, these parking lanes would serve as de facto bike lanes. On streets where traffic volumes exceed 3,000 vehicles per day regular bike lanes should be installed with no parking allowed. It may be necessary at "pinch points" on the Neighborhood Network to drop bike lanes in favor of shared lane markings. For example, where a center turn lane is added on a collector street, there may not be space to continue the bike lanes. Shared lane markings should be added immediately after a bike lane is dropped and should continue until the lane resumes to guide bicyclists through the area and alert motorists that bicyclists may be in the travel lane.

The Neighborhood Network primarily exists on collector streets that carry moderately-low to moderate levels of traffic at low to moderate speeds; as such it is intended to be appropriate for less confident adult cyclists and average teenagers, especially those with a driver's license who have an understanding of how traffic operates.

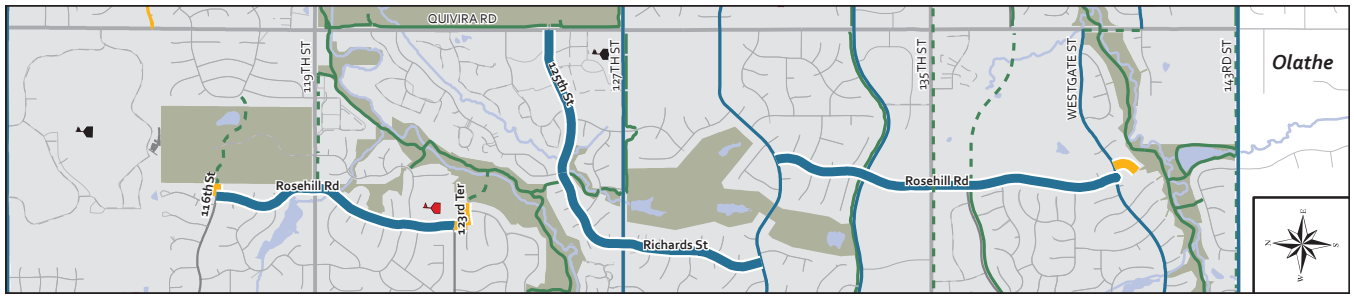
The tables below detail the Neighborhood Network corridors. A number of path segments, including portions of the Indian Creek and Tomahawk Creek Trails and a number of sidepaths, form key connections in the Neighborhood Network; these path segments are not listed in the tables below, but are shown in the corridor maps. In addition to the streets listed in the tables below, all newly constructed collectors in the southern portion of Overland Park should be built with bike lanes or buffered bike lanes. Collectors not noted below that are due for resurfacing should also be considered for the addition of bike lanes.

Streets like Lamar Avenue are already good streets for bicycling for many people, but could benefit from the addition of bike lanes or shared lane markings.

1: Rosehill Road Corridor

- Provides access to Stoll Park, Johnson County Community College, University of Kansas – Edwards Campus, and one school
- Provides connections to multiple parks and trails including the Indian Creek Trail

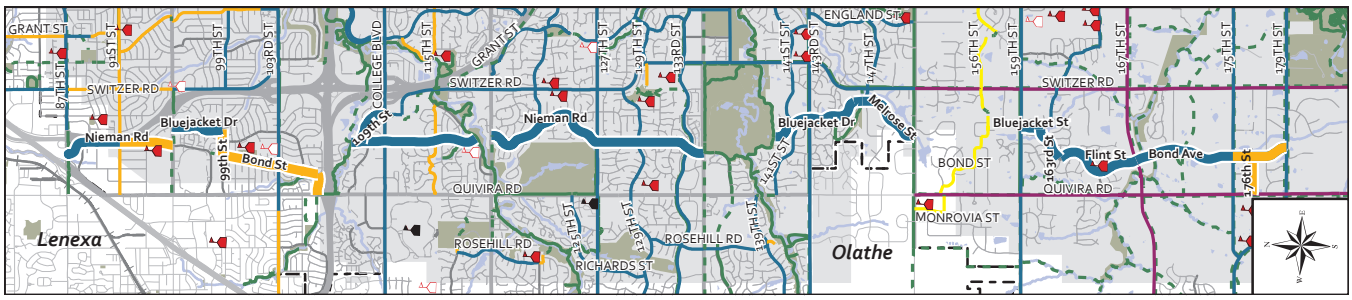
Street	From	To	Facility	Miles	Comments / Action
116th Street	Rosehill Road	Stoll Park Path	Shared Lane Marking	0.04	Install shared lane markings
Rosehill Road	116th Street	123rd Street	Bike Lane	0.84	Stripe bike lanes in existing space
Richards Street	Westgate Street	129th Street	Bike Lane	0.81	Stripe bike lanes in existing space
125th Street	Westgate Street	Quivira Road	Bike Lane	0.48	Stripe bike lanes in existing space
Rosehill Road	129th Street	141st Street	Bike Lane	1.14	Stripe bike lanes in existing space
Westgate Street	139th Street	Existing path	Shared Lane Marking	0.08	Install shared lane markings
			Total Length	**3.39**	



2: Nieman Road / Melrose Street Corridor

- Provides a lengthy north-south corridor between Quivira Road and Switzer Road
- Provides direct access to five schools, with three other schools in close proximity
- Provides access to Bluejacket Pool

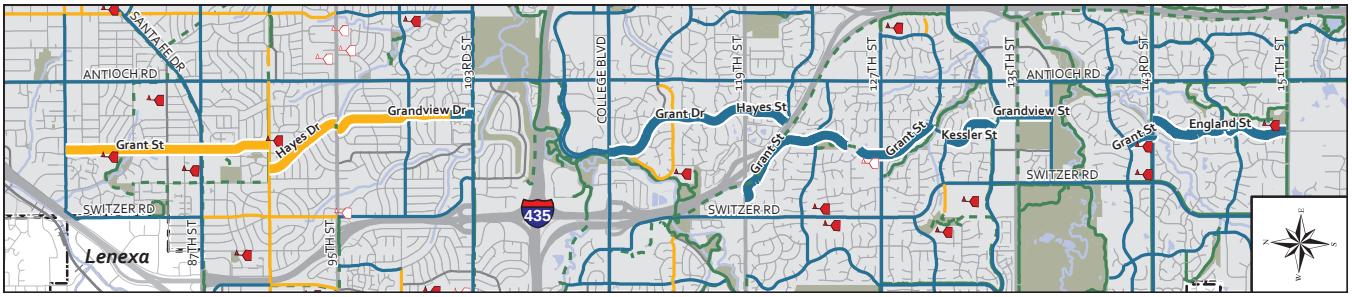
Street	From	To	Facility	Miles	Comments / Action
Nieman Road	87th Street	91st Street	Bike Lane	0.56	Stripe bike lanes in existing space
Nieman Road	91st Street	95th Street	Shared Lane Marking	0.50	Install shared lane markings
Bluejacket Drive	95th Street	99th Street	Bike Lane	0.49	Stripe bike lanes in existing space
99th Street	Bond Street	Bluejacket Drive	Shared Lane Marking	0.25	Install shared lane markings
Bond Street	99th Street	106th Street	Shared Lane Marking	0.96	Install shared lane markings
106th Street	Quivira Road	Bond Street	Bike Lane	0.20	Stripe bike lanes in existing space
Nieman Road	Valley Brooke Park Path	Indian Creek Pkwy Path	Bike Lane	1.20	Stripe bike lanes in existing space
109th Street	Nieman Road	College Blvd	Bike Lane	0.39	Stripe bike lanes in existing space
Nieman Road	119th Street	135th Street	Bike Lane	2.31	Stripe bike lanes in existing space
Reeder Street	Tomahawk Path	Bluejacket Street	Bike Lane	0.16	Stripe bike lanes in existing space
Bluejacket Street	Reeder Street	S End (W 146th Street)	Bike Lane	0.74	Stripe bike lanes in existing space
Melrose Street	Bluejacket Street	Melrose Street	Bike Lane	0.08	Stripe bike lanes when street is constructed
Melrose Street	N End (W 148th Street)	151st Street	Bike Lane	0.66	Stripe bike lanes in existing space
Bluejacket Street	159th Street	163rd Street	Bike Lane	0.19	Stripe bike lanes in existing space
163rd Street	Flint Street	Bluejacket Street	Bike Lane	0.34	Stripe bike lanes in existing space
Flint Street	163rd Street	167th Street	Bike Lane	0.84	Stripe bike lanes in existing space
Bond Avenue	167th Street	175th Street	Bike Lane	0.96	Include bike lanes when constructed
Bond Avenue	175th Street	179th Street	Shared Lane Marking	0.53	Install shared lane markings
176th Terrace	Quivira Road	Bond Avenue	Shared Lane Marking	0.36	Install shared lane markings
			Total Length	**11.70**	



3: Grant Street Corridor

- Provides a north-south corridor between Switzer Road and Antioch Road
- Provides direct access to three schools with two other schools in close proximity

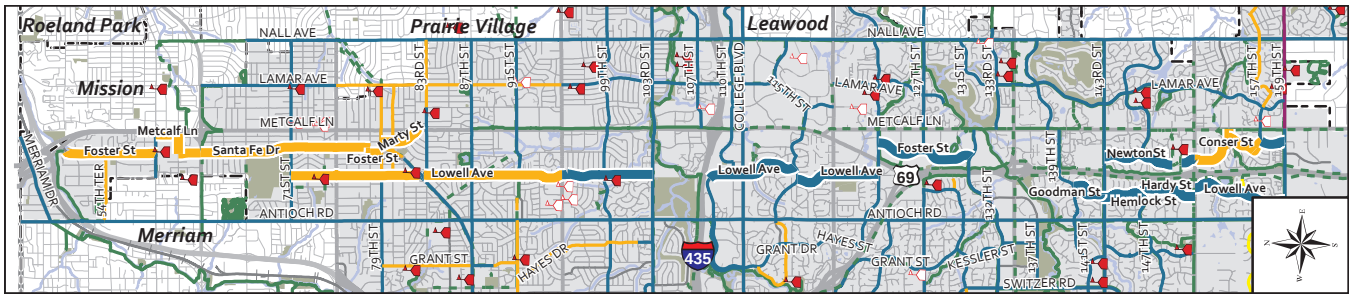
Street	From	To	Facility	Miles	Comments / Action
Grant Street	79th Street	87th Street	Shared Lane Marking	0.24	Install shared lane markings
Grant Street	87th Street	88th Terrace	Shared Lane Marking	0.27	Install shared lane markings
Grant Street	88th Terrace	91st Street	Shared Lane Marking	0.62	Install shared lane markings
Hayes Drive	91st Street	95th Street	Shared Lane Marking	0.62	Install shared lane markings
Grandview Drive	95th Street	103rd Street	Shared Lane Marking	1.05	Install shared lane markings
Grant Drive	College Blvd	119th Street	Bike Lane	1.17	Stripe bike lanes in existing space
Hayes Street	119th Street	121st Terrace	Bike Lane	0.33	Stripe bike lanes in existing space
Grant Street	119th Street	Gap	Bike Lane	1.19	Stripe bike lanes in existing space
Grant Street	Gap	131st Street	Bike Lane	0.20	Stripe bike lanes in existing space
Kessler Street	131st Street	133rd Street	Bike Lane	0.44	Stripe bike lanes in existing space
Grandview Street	133rd Street	137th Street	Bike Lane	0.38	Stripe bike lanes in existing space
Grant Street	141st Street	143rd Street	Bike Lane	1.00	Stripe bike lanes in existing space
England Street	143rd Street	147th Street	Bike Lane	0.65	Stripe bike lanes in existing space
England Street	147th Street	151st Street	Bike Lane	0.45	Stripe bike lanes in existing space
			Total Length	**8.60**	



4: Foster Street / Lowell Avenue Corridor

- The central north-south corridor in the city, running between Antioch Road and Metcalf Avenue, and along both sides of U.S. 69
- Provides access to Downtown Overland Park
- Provides access to multiple schools, parks, and recreation areas

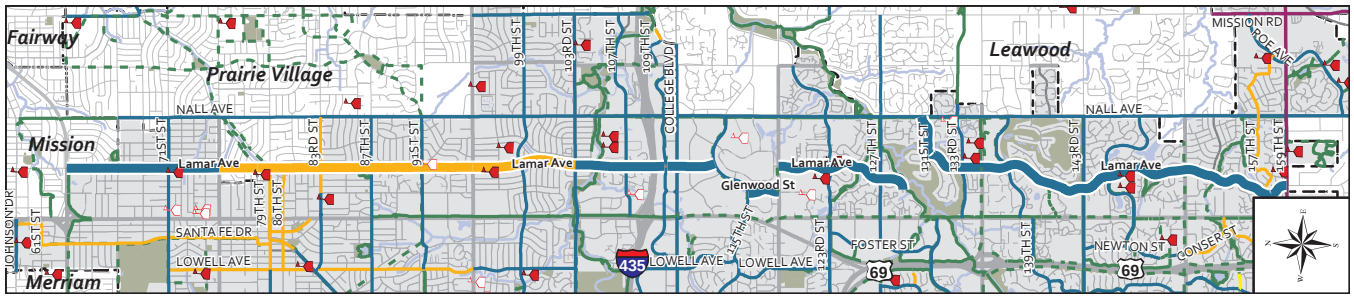
Street	From	To	Facility	Miles	Comments / Action
Foster Street	Turkey Creek Path	Johnson Drive	Shared Lane Marking	1.00	Install shared lane markings
Metcalf Lane	Johnson Drive	61st Street	Shared Lane Marking	0.25	Install shared lane markings
61st Street	Foster Street	Metcalf Lane	Shared Lane Marking	0.22	Install shared lane markings
Foster Street	61st Street	Shawnee Mission Parkway	Shared Lane Marking	0.25	Install shared lane markings
Santa Fe Drive	Shawnee Mission Parkway	78th Street	Shared Lane Marking	1.90	Install shared lane markings
78th Street	Foster Street	Santa Fe Drive	Shared Lane Marking	0.07	Install shared lane markings
Foster Street	78th Street	79th Street	Shared Lane Marking	0.13	Install shared lane markings
Marty Street	79th Street	Metcalf Avenue	Shared Lane Marking	0.45	Install shared lane markings
Lowell Avenue	71st Street	Santa Fe Drive	Shared Lane Marking	1.44	Install shared lane markings
83rd Street	Santa Fe Drive	Lowell Avenue	Bike Lane	0.04	Stripe bike lanes in existing space
Lowell Avenue	83rd Street	95th Street	Shared Lane Marking	1.56	Install shared lane markings
Lowell Avenue	95th Street	103rd Street	Bike Lane	1.02	Stripe bike lanes in existing space
Lowell Avenue	108th Terrace	115th Street	Bike Lane	1.05	Stripe bike lanes in existing space
Lowell Avenue	115th Street	123rd Street	Bike Lane	0.94	Stripe bike lanes in existing space
Foster Street	123rd Street	132nd Street	Bike Lane	1.14	Stripe bike lanes in existing space
Goodman Street	139th Street	142nd Terrace	Bike Lane	0.38	Stripe bike lanes in existing space
142nd Terrace	Hemlock Street	Goodman Street	Bike Lane	0.03	Stripe bike lanes in existing space
Hemlock Street	Hadley Street	142nd Terrace	Bike Lane	0.57	Stripe bike lanes in existing space
Hardy Street	Hemlock Street	151st Street	Bike Lane	0.69	Stripe bike lanes in existing space
Lowell Avenue	151st Street	159th Street	Bike Lane	1.08	Stripe bike lanes in existing space
Newton Street	143rd Street	Planned path	Bike Lane	0.81	Stripe bike lanes in existing space
Newton Street	Planned path	151st Street	Bike Lane	0.16	Stripe bike lanes in existing space
Conser Street	151st Street	154th Terrace	Shared Lane Marking	0.46	Install shared lane markings
154th Terrace	Conser Street	Metcalf Avenue	Shared Lane Marking	0.18	Install shared lane markings
Foster Street	154th Terrace	156th Street	Shared Lane Marking	0.33	Install shared lane markings
156th Street	Foster Street	Marty Street	Shared Lane Marking	0.14	Install shared lane markings
Marty Street	156th Street	159th Street	Bike Lane	0.28	Stripe bike lanes in existing space
			Total Length	**16.58**	



5: Lamar Avenue Corridor

- Provides a direct north-south corridor between Metcalf Avenue and Nall Avenue
- Provides access to ten schools
- Provides access to the Sprint corporate campus and Overland Park Convention Center
- Portions of the corridor are partially or wholly within Mission or Prairie Village

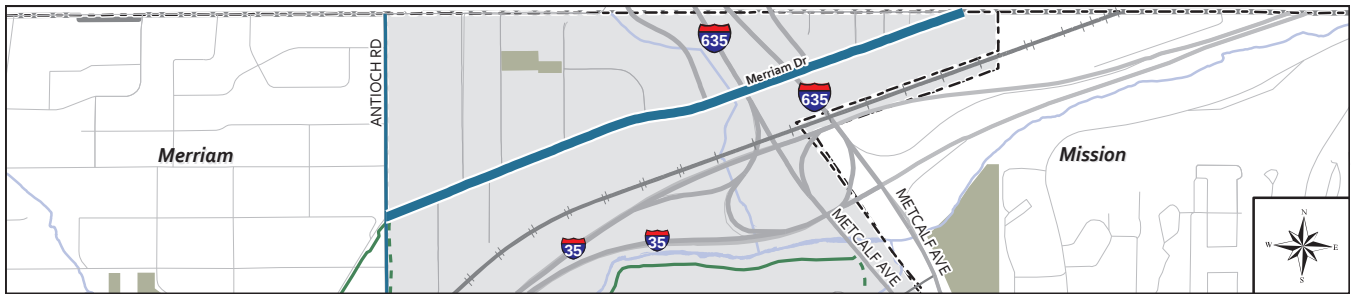
Street	From	To	Facility	Miles	Comments / Action
Lamar Avenue	Shawnee Mission Pkwy	75th Street	Bike Lane	1.51	Stripe bike lanes in existing space
Lamar Avenue	75th Street	78th Street	Shared Lane Marking	0.38	Prairie Village; Install shared lane markings
Lamar Avenue	78th Street	103rd Street	Shared Lane Marking	3.16	Install shared lane markings
Lamar Avenue	103rd Street	110th Street	Bike Lane	0.88	Stripe bike lanes in existing space
Lamar Avenue	110th Street	115th Street	Bike Lane	0.47	Stripe bike lanes in existing space
Glenwood Street	115th Street	119th Street	Bike Lane	0.32	Stripe bike lanes in existing space
Lamar Avenue	119th Street	Deer Creek Path	Bike Lane	1.38	Stripe bike lanes in existing space
131st Street	Lamar Avenue	Nall Avenue	Bike Lane	0.39	Stripe bike lanes in existing space
Lamar Avenue	131st Street	150th Street	Bike Lane	2.68	Stripe bike lanes in existing space
Lamar Avenue	151st Street	159th Street	Bike Lane	1.12	Stripe bike lanes in existing space
			Total Length	**12.29**	



6: Merriam Drive Corridor

- Serves as a critical regional bikeway corridor on the northern edge of Overland Park

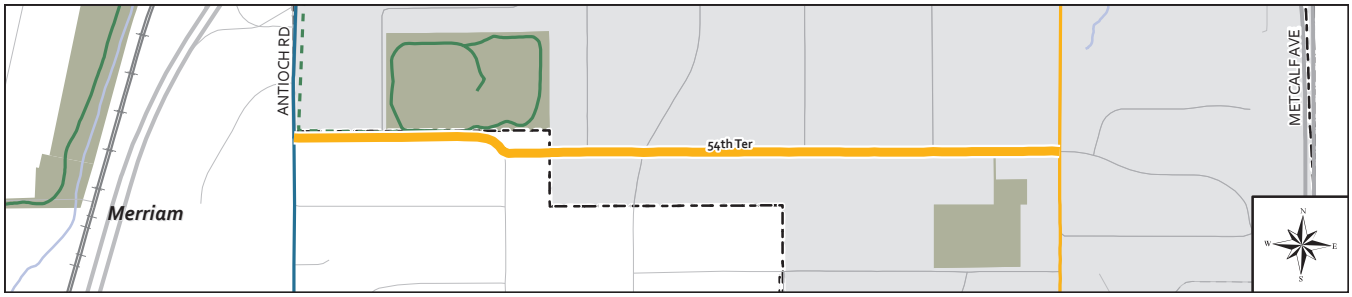
Street	From	To	Facility	Miles	Comments / Action
Merriam Drive	Antioch Road	47th Street	Bike Lane	1.01	Stripe bike lanes in existing space or when reconstructed
			Total Length	**1.01**	



7: 54th Terrace Corridor

- Provides access to neighborhoods in northern Overland Park

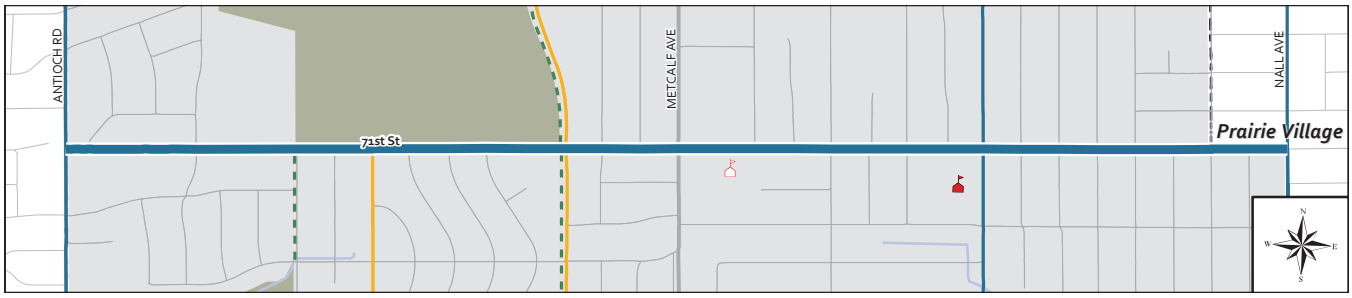
Street	From	To	Facility	Miles	Comments / Action
54th Terrace	Antioch Road	Foster Street	Shared Lane Marking	0.76	Mark shared lane markings
			Total Length	**0.76**	



8: 71st Street Corridor

- Provides access to two schools

Street	From	To	Facility	Miles	Comments / Action
71st Street	Antioch Road	Nall Avenue	Bike Lane	2.01	Stripe bike lanes in existing space
			Total Length	**2.01**	



9: 80th Street Corridor

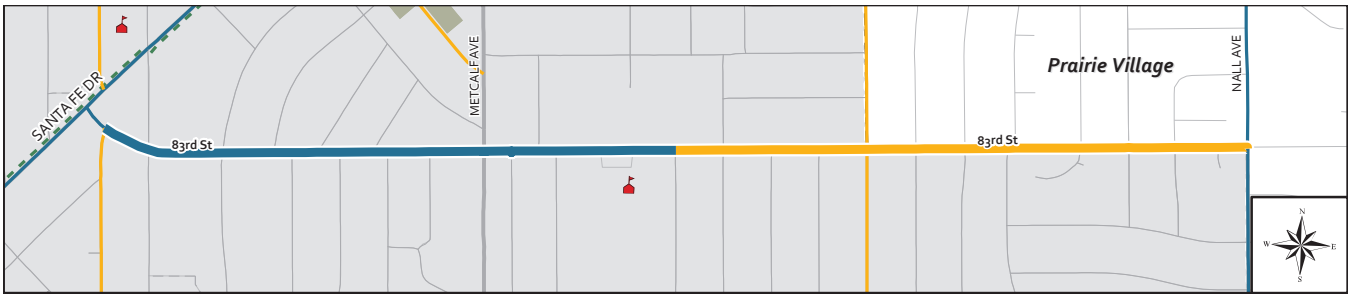
- Provides connection to Downtown Overland Park

Street	From	To	Facility	Miles	Comments / Action
80th Street	Lowell Avenue	Lamar Avenue	Shared Lane Marking	1.01	Install shared lane markings
			Total Length	**1.01**	

10: 83rd Street Corridor

- Provides connection to one school

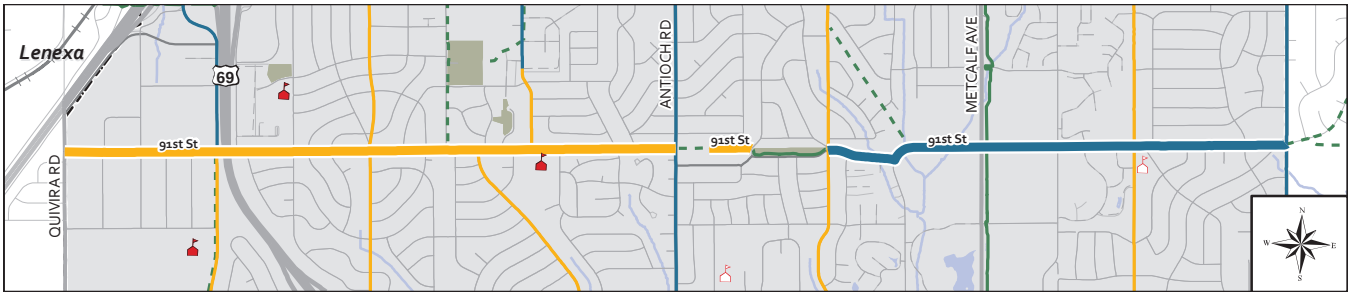
Street	From	To	Facility	Miles	Comments / Action
83rd Street	Lowell Avenue	Glenwood Street	Bike Lane	0.78	Stripe bike lanes in existing space
83rd Street	Glenwood Street	Nall Avenue	Shared Lane Marking	0.75	Install shared lane markings
			Total Length	**1.53**	



11: 91st Street Corridor

- Provides access to two schools with one additional school nearby

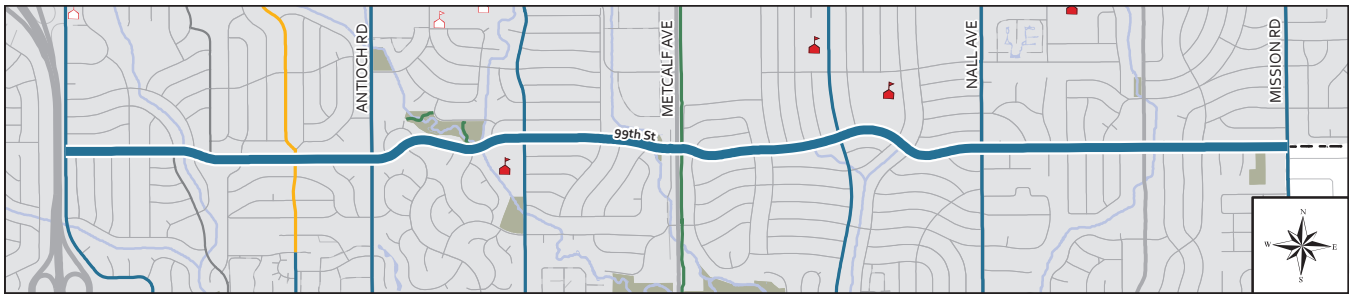
Street	From	To	Facility	Miles	Comments / Action
91st Street	Quivira Road	Antioch Road	Shared Lane Marking	2.01	Install shared lane markings
91st Street	Planned Path (Antioch Road)	Hemlock Street	Shared Lane Marking	0.14	Install shared lane markings
91st Street	Lowell Avenue	Nall Avenue	Bike Lane	1.53	Stripe bike lanes in existing space
			Total Length	**3.68**	



12: 99th Street Corridor

- Provides connection to two schools with one additional school nearby
- Provides lengthy east-west connection across much of Overland Park
- Provides for potential future non-motorized crossing of U.S. Highway 69

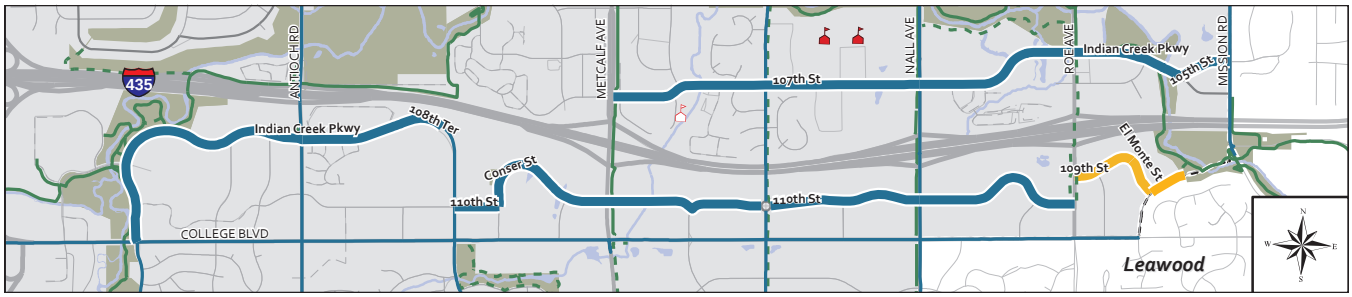
Street	From	To	Facility	Miles	Comments / Action
99th Street	Switzer Avenue	Mission Road	Bike Lane	4.10	Stripe bike lanes in existing space
			Total Length	**4.10**	



13: 107th Street – 110th Street Corridor

- Provides access along north and south sides of I-435 east of Metcalf Avenue
- Provides access to the Overland Park Convention Center and Corporate Woods
- Provides direct connection to three schools
- Provides connections to Indian Creek Trail for two non-motorized crossings of I-435

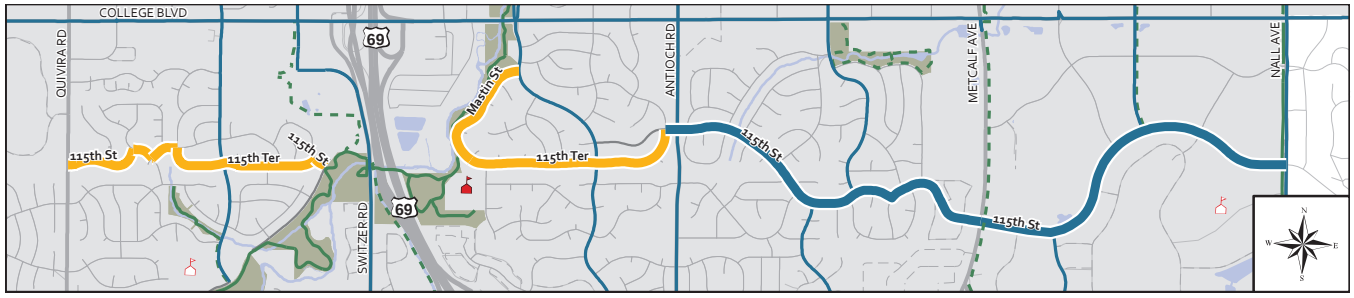
Street	From	To	Facility	Miles	Comments / Action
107th Street	Metcalf Avenue	Nall Avenue	Bike Lane	1.01	Stripe bike lanes in existing space
Indian Creek Pkwy	Nall Avenue	105th Street	Bike Lane	0.93	Stripe bike lanes in existing space
105th Street	Indian Creek Pkwy	Mission Road	Bike Lane	0.16	Stripe bike lanes in existing space
Indian Creek Pkwy	College Blvd	Antioch Road	Bike Lane	0.87	Narrow travel lanes to accommodate bike lanes when resurfaced
108th Terrace	Antioch Road	Lowell Avenue	Bike Lane	0.48	Stripe bike lanes in existing space
110th Street	Lowell Avenue	Conser Street	Bike Lane	0.15	Stripe bike lanes in existing space
Conser Street	110th Street	110th Street	Bike Lane	0.18	Stripe bike lanes in existing space
110th Street	Conser Street	Lamar Avenue	Bike Lane	0.83	Stripe bike lanes in existing space
110th Street	Lamar Avenue	Nall Avenue	Bike Lane	0.49	Stripe bike lanes in existing space
110th Street	Nall Avenue	Roe Avenue	Bike Lane	0.56	Narrow travel lanes to accommodate bike lanes when resurfaced
109th Street	Roe Avenue	El Monte Street	Shared Lane Marking	0.20	Stripe bike lanes in existing space
El Monte Street	109th Street	109th Terrace	Shared Lane Marking	0.13	Install shared lane markings
109th Terrace	El Monte Street	Foxhill South Park	Shared Lane Marking	0.12	Install shared lane markings
			Total Length	**6.11**	



14: 115th Street Corridor

- Provides connection to two schools
- Provides connection to Indian Creek Trail for crossing of U.S. Highway 69
- Provides connection to Sprint campus and Leawood Town Center

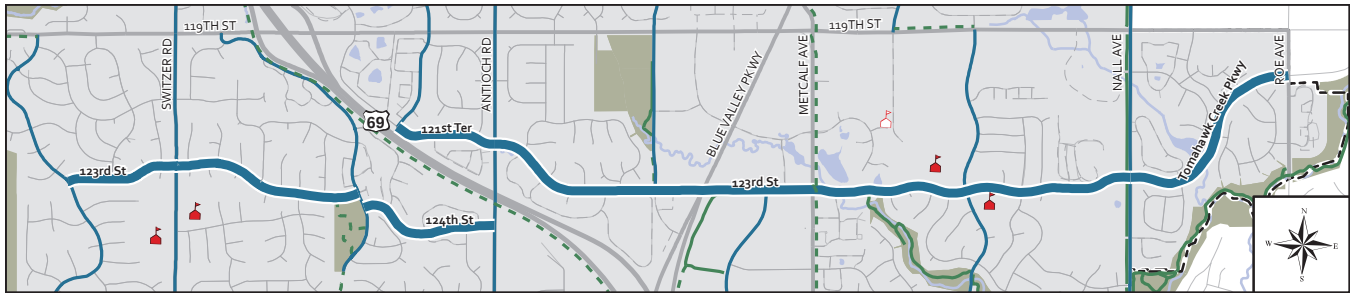
Street	From	To	Facility	Miles	Comments / Action
115th Street	Quivira Road	Flint Street	Shared Lane Marking	0.28	Install shared lane markings
Flint Street	115th Street	115th Street	Shared Lane Marking	0.08	Install shared lane markings
115th Street	Flint Street	115th Terrace	Shared Lane Marking	0.10	Install shared lane markings
115th Terrace	115th Street	115th Street	Shared Lane Marking	0.54	Install shared lane markings
115th Street	115th Terrace	Indian Creek Pkwy	Shared Lane Marking	0.04	Install shared lane markings to path connection
Mastin Street	Grant Drive	115th Terrace	Shared Lane Marking	0.41	Install shared lane markings
115th Terrace	Mastin Street	115th Street	Shared Lane Marking	0.72	Install shared lane markings to path connection
115th Street	115th Terrace	Metcalf Avenue	Bike Lane	1.23	Stripe bike lanes in existing space
115th Street	Metcalf Avenue	Nall Avenue	Bike Lane	1.22	Narrow travel lanes to accommodate bike lanes when resurfaced
			Total Length	**4.62**	



15: 123rd Street Corridor

- Provides access to two schools with three others nearby
- Provides for potential future non-motorized crossing of U.S. Highway 69

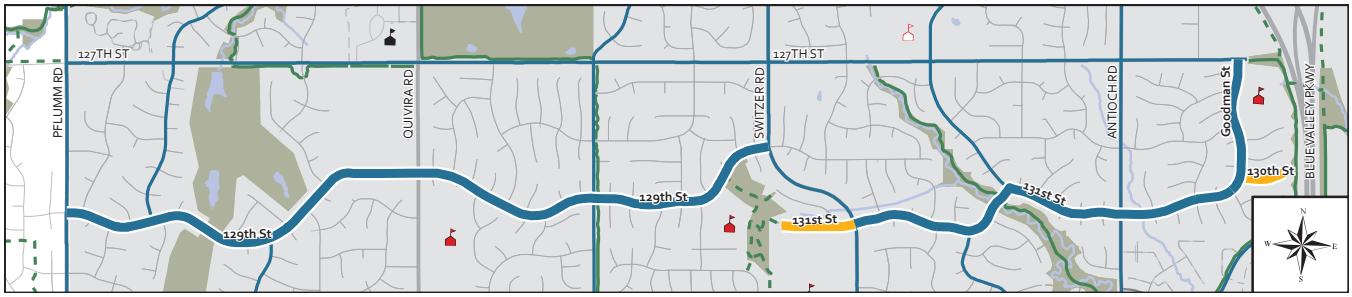
Street	From	To	Facility	Miles	Comments / Action
123rd Street	Nieman Road	Grant Street	Bike Lane	0.96	Stripe bike lanes in existing space
124th Street	Grant Street	Antioch Road	Bike Lane	0.45	Stripe bike lanes in existing space
121st Terrace	Hayes Street	Antioch Road	Bike Lane	0.32	Stripe bike lanes in existing space
123rd Street	Antioch Road	Nall Avenue	Bike Lane	2.08	Stripe bike lanes in existing space
Tomahawk Creek Pkwy	Nall Avenue	Roe Avenue	Bike Lane	0.68	Narrow travel lanes to accommodate bike lanes when resurfaced
			Total Length	**4.50**	



16: 129th Street - 131st Street Corridor

- Provides access to three schools

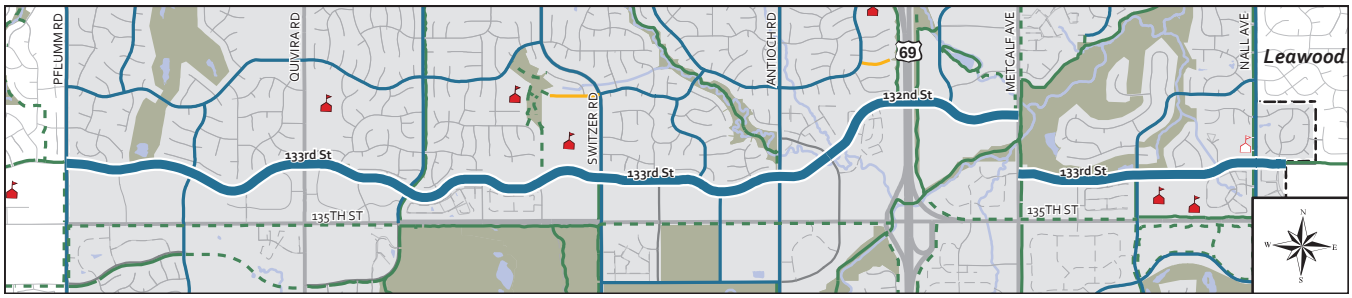
Street	From	To	Facility	Miles	Comments / Action
129th Street	Pflumm Road	Switzer Road	Bike Lane	2.22	Stripe bike lanes in existing space
131st Street	Windham Hill Park	Switzer Road	Shared Lane Marking	0.21	Install shared lane markings to path connection
131st Street	Switzer Road	Goodman Street	Bike Lane	1.18	Stripe bike lanes in existing space
Goodman Street	131st Street	127th Street	Bike Lane	0.39	Stripe bike lanes in existing space
130th Street	Goodman Street	Brandon Place Linkage	Shared Lane Marking	0.13	Install shared lane markings to path connection
			Total Length	**4.13**	



17: 133rd Street Corridor

- Provides access to three schools
- Provides parallel route to 135th Street which has many commercial destinations
- Close proximity to the Overland Park soccer complex
- Provides connection into Leawood

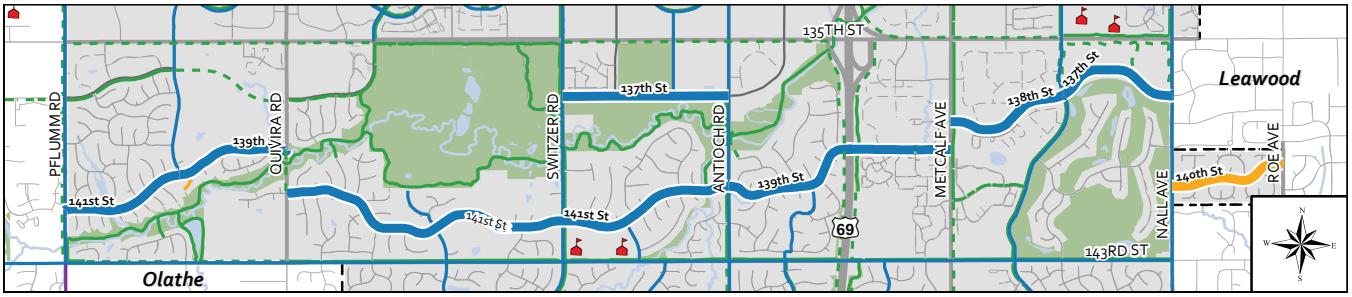
Street	From	To	Facility	Miles	Comments / Action
133rd Street	Pflumm Road	Hemlock Street	Bike Lane	3.41	Stripe bike lanes in existing space
132nd Street	Hemlock Street	Metcalf Avenue	Bike Lane	0.93	Stripe bike lanes in existing space
133rd Street	Metcalf Avenue	Leawood	Bike Lane	1.15	Stripe bike lanes in existing space
			Total Length	**5.49**	



18: 137th Street - 141st Street Corridor

- Provides access to two schools
- Provides non-interchange crossing of U.S. Highway 69
- Adjacent to Overland Park soccer complex, Deanna Rose Farmstead, BVRC Complex, and Prairie Fire

Street	From	To	Facility	Miles	Comments / Action
141st Street	Pflumm Road	Rosehill Street	Bike Lane	0.57	Stripe bike lanes in existing space
139th Street	Rosehill Street	Quivira Road	Bike Lane	0.52	Stripe bike lanes in existing space
141st Street	Quivira Road	Antioch Road	Bike Lane	2.18	Stripe bike lanes in existing space
139th Street	Antioch Road	Metcalf Avenue	Bike Lane	1.21	Stripe bike lanes in existing space
138th Street	Metcalf Avenue	Lamar Avenue	Bike Lane	0.57	Stripe bike lanes in existing space
137th Street	Lamar Avenue	Nall Avenue	Bike Lane	0.57	Stripe bike lanes in existing space
137th Street	Switzer Road	Antioch Road	Bike Lane	0.75	Stripe bike lanes in existing space
140th Street	Nall Avenue	Roe Avenue	Shared Lane Marking	0.54	Install shared lane markings
			Total Length	**6.91**	



19: 147th Street / Edgewater Drive Corridor

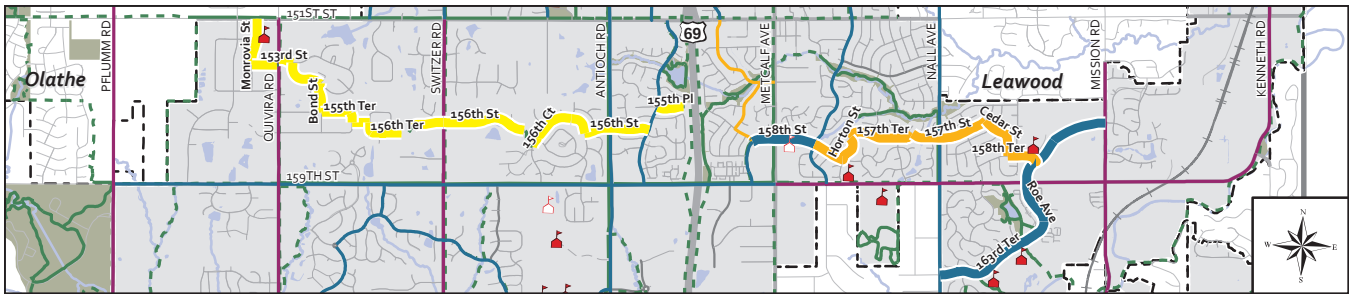
- Provides access to two schools
- Provides access to existing and planned paths paralleling U.S. Highway 69

Street	From	To	Facility	Miles	Comments / Action
148th Street	Melrose Street	Switzer Road	Bike Lane	0.12	Stripe bike lanes in existing space
147th Street	Switzer Road	Hadley Street	Bike Lane	1.34	Stripe bike lanes in existing space
147th Street	Newton Street	Metcalf Avenue	Bike Lane	0.30	Stripe bike lanes in existing space
Edgewater Drive	Metcalf Avenue	Nall Avenue	Bike Lane	1.57	Stripe bike lanes in existing space
			Total Length	**3.33**	

20: 150s Corridor

- Provides access to six schools
- Meandering route will require wayfinding signage

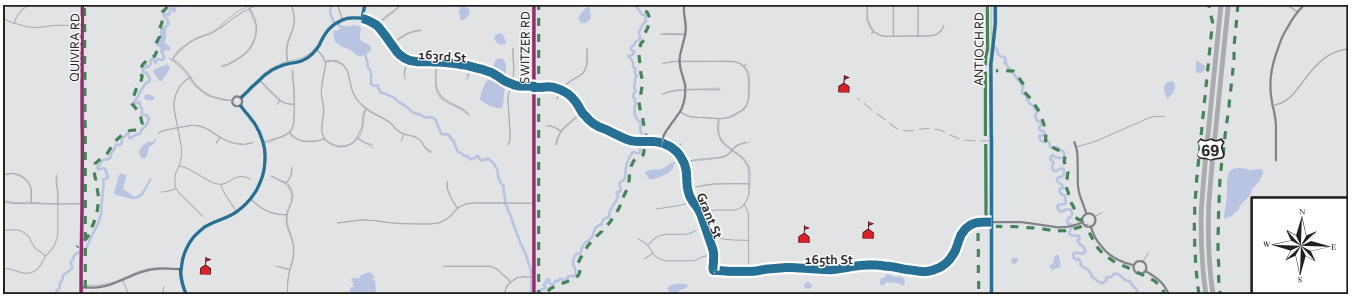
Street	From	To	Facility	Miles	Comments / Action
Monrovia Street	151st Street	153rd Street	Signed Bike Route	0.29	Add bike route signs
153rd Street	Monrovia Street	Planned Path	Signed Bike Route	0.15	Sign when planned path is constructed
153rd Street	Quivira Road	154th Street	Signed Bike Route	0.09	Add bike route signs
154th Street	153rd Street	Bond Street	Signed Bike Route	0.25	Add bike route signs
Bond Street	154th Street	155th Terrace	Signed Bike Route	0.19	Add bike route signs
155th Terrace	Bond Street	Barton Street	Signed Bike Route	0.18	Add bike route signs
Barton Street	155th Terrace	156th Street	Signed Bike Route	0.06	Add bike route signs
156th Street	Barton Street	Reeder Street	Signed Bike Route	0.11	Add bike route signs
Reeder Street	156th Street	156th Terrace	Signed Bike Route	0.06	Add bike route signs
156th Terrace	Reeder Street	Planned Path	Signed Bike Route	0.22	Sign when planned path constructed
156th Terrace	Planned Path	Switzer Road	Signed Bike Route	0.19	Sign when planned path constructed
156th Street	Switzer Road	Planned Path	Signed Bike Route	0.51	Sign when planned path constructed
Hayes Street	Planned Path	157th Terrace	Signed Bike Route	0.06	Sign when planned path constructed
155th Court	157th Street	Grandview Street	Signed Bike Route	0.26	Sign when planned path constructed
Eby Street	Grandview Street	156th Street	Signed Bike Route	0.14	Sign when planned path constructed
156th Street	Eby Street	Lowell Avenue	Signed Bike Route	0.40	Sign when planned path constructed
155th Terrace	Lowell Avenue	Planned Path	Signed Bike Route	0.16	Sign when planned path constructed
158th Street	Marty Street	Lamar Avenue	Bike Lane	0.38	Stripe bike lanes in existing space
158th Street	Lamar Avenue	Horton Street	Shared Lane Marking	0.20	Install shared lane markings
Horton Street	158th Street	157th Terrace	Shared Lane Marking	0.16	Install shared lane markings
157th Terrace	Horton Street	157th Street	Shared Lane Marking	0.42	Install shared lane markings
157th Street	157th Terrace	Cedar Street	Shared Lane Marking	0.48	Install shared lane markings
Cedar Street	157th Street	158th Terrace	Shared Lane Marking	0.29	Install shared lane markings
158th Terrace	Cedar Street	Roe Avenue	Shared Lane Marking	0.19	Install shared lane markings
Roe Avenue	163rd Terrace	Roe Avenue (end)	Bike Lane	0.59	Stripe bike lanes in existing space
Roe Avenue	Roe Avenue (end)	Mission Road	Bike Lane	0.34	Include bike lanes when constructed
163rd Terrace	Nall Avenue	Roe Avenue	Bike Lane	0.77	Stripe bike lanes in existing space
			Total Length	**7.13**	



21: 160s Corridor

- Provides access to two schools with two other schools in close proximity

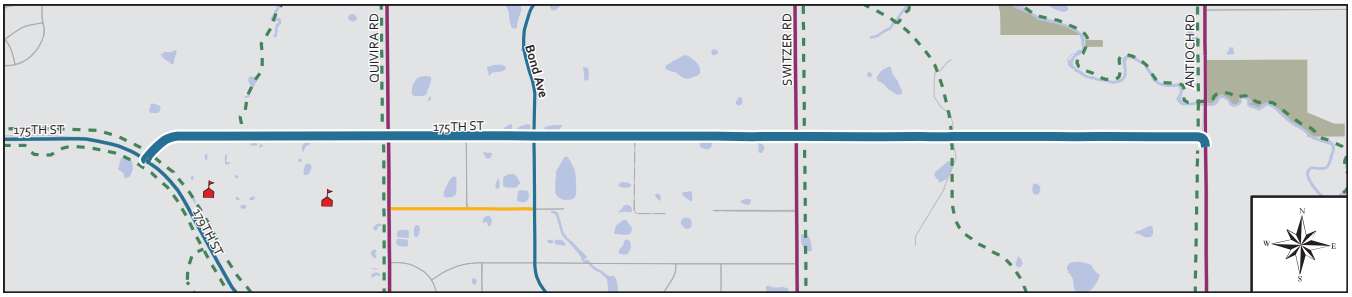
Street	From	To	Facility	Miles	Comments / Action
163rd Street	Bluejacket Street	Grant Street	Bike Lane	0.76	Stripe bike lanes in existing space
Grant Street	163rd Street	165th Street	Bike Lane	0.32	Stripe bike lanes in existing space
165th Street	Grant Street	Antioch Road	Bike Lane	0.68	Stripe bike lanes in existing space
			Total Length	**1.76**	



22: 175th Street Corridor

- Provides access to two schools

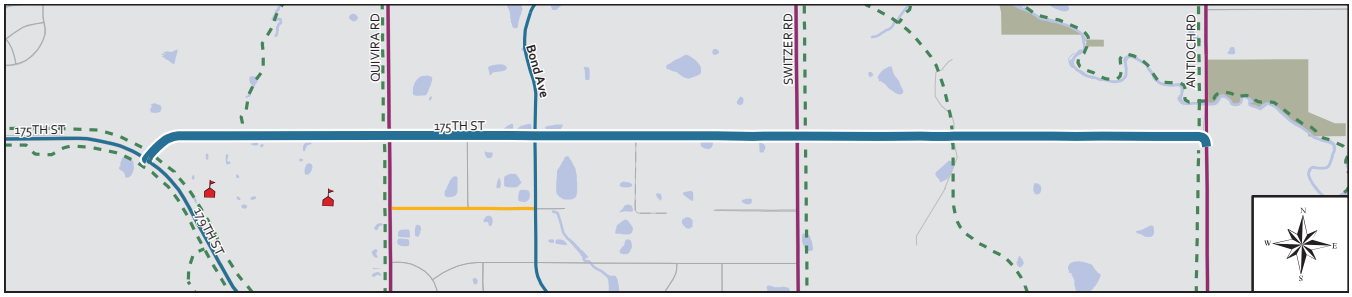
Street	From	To	Facility	Miles	Comments / Action
175th Street	W 179th Street	Antioch Road	Bike Lane	2.66	Stripe bike lanes in existing space
			Total Length	**2.66**	



22: 187th Street Corridor

- Provides access to the Overland Park Arboretum and Botanical Gardens

Street	From	To	Facility	Miles	Comments / Action
187th Street	Pflumm Road	Antioch Road	Bike Lane	3.11	Stripe bike lanes in existing space or when constructed
			Total Length	**3.11**	



5.5 | The Trail & Sidepath Network

Overland Park has an excellent network of trails and shared use paths throughout the city. These trails and paths exist both as stand-alone facilities in their own right-of-way (often through parks or along streams) or as sidepaths along thoroughfare streets. The City has also been proactively planning for future trails in the southern portion of the city and sidepaths along many major streets. Figure 6 displays the Trail & Sidepath Network while Table 9 lists the total mileage for the Trail & Sidepath Network.

Figure 6: The Trail & Sidepath Network

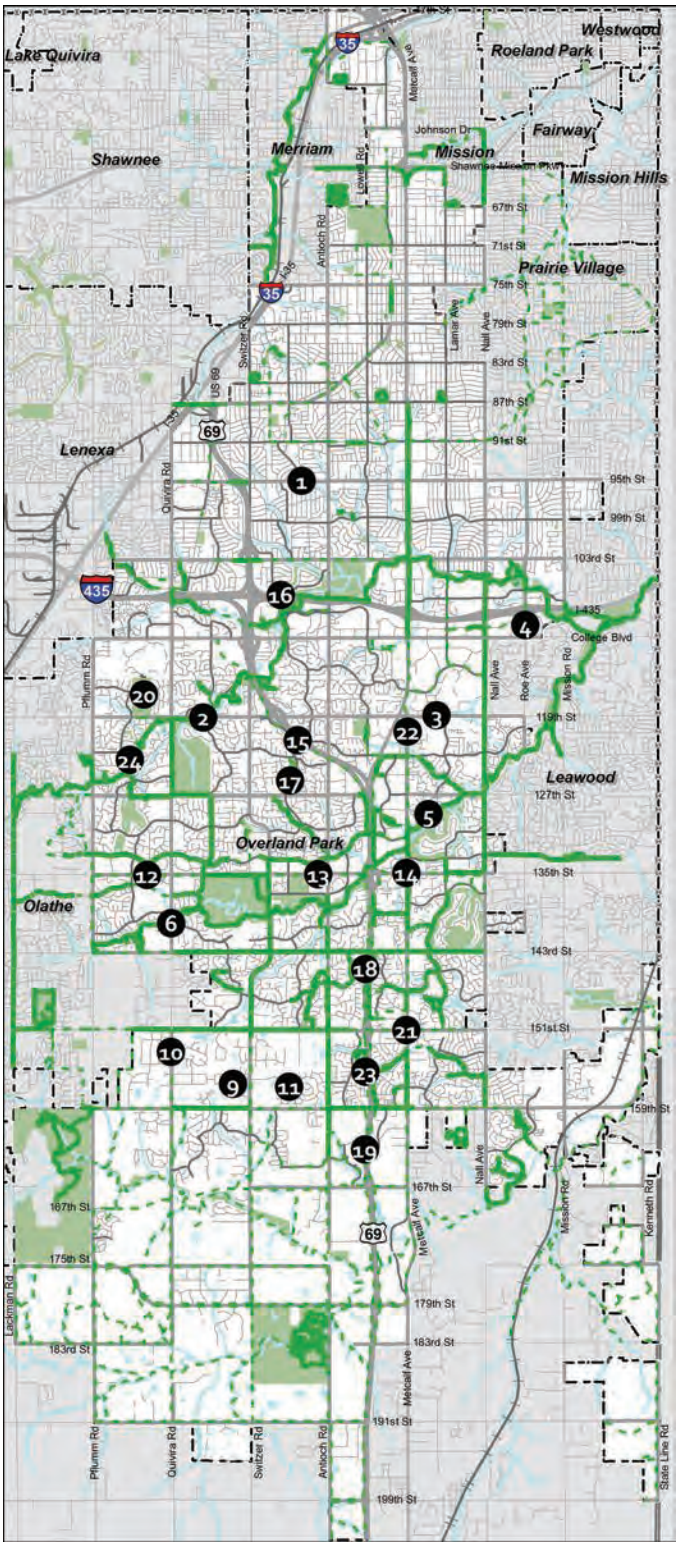


Table 9: Trail & Sidepath Network facility lengths

Facility Type	Miles
Shared Use Path	6.85
Sidepath	7.75
Total	**14.60**

The general characteristics of the Trail & Sidepath Network are provided in Table 10. In general, the Trail & Sidepath Network is intended to provide links between on-street bikeways and to key destinations.

Table 10: Characteristics of the City Network

Characteristic	Description
Typical facility	Shared use paths in their own right-of-way; sidepaths
Purpose	Provide bikeways that are fully separated from motor vehicle traffic
Corridor length	Short to long
Directness	Typically indirect; sidepaths may be very direct while paths in their own right-of-way are indirect
Street type	N/A
Bicyclist type	All bicyclists; care must be taken on sidepaths at street and driveway crossings
Implementation	Medium- to long-term
Timeframe	2 – 20 years

The City already has many trails and sidepaths planned which are detailed in the Overland Park Greenway Linkages Plan. As part of this report, additional path segments are proposed; these paths tend to be connections between other bikeways that are recommended in this report. The tables below display the recommended additions to the City's trail and sidepath network. Trails and sidepaths that are planned as part of the Greenway Linkages Plan are shown on all maps, but are not included in the tables below.

The City should continue to pursue construction of all paths that have been previously proposed. Additionally, when new

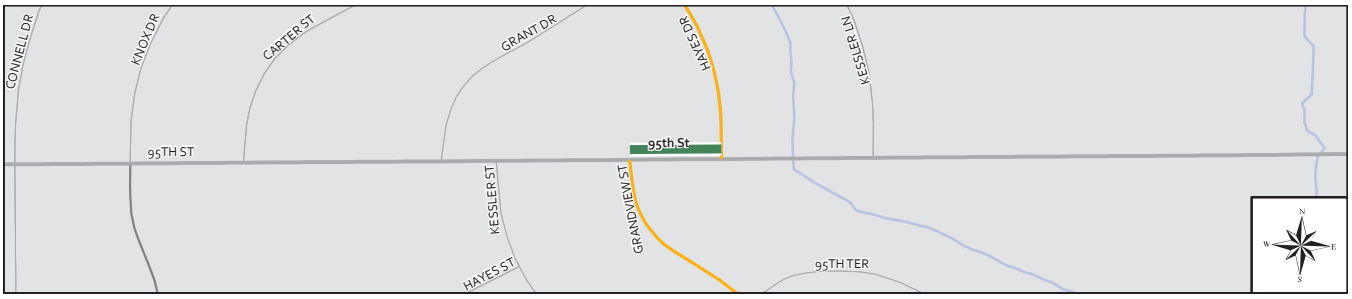
thoroughfares are constructed, the City should continue to provide a sidepath on at least one side of the thoroughfare if there are a limited number of driveways and intersections that would conflict with the path and even if an on-street bicycle facility is provided. The City should also continue to look for opportunities to add neighborhood connections to its existing paths and trails.

Bike-hike trails like the Indian Creek Trail are incredibly popular with Overland Park residents and visitors.

1: 95th Street Sidepath

- Connects the Hayes Drive and Grandview Street bikeways along 95th Street
- The existing sidewalk should be expanded to path standards
- An enhanced crossing of 95th Street should be provided at Grandview Street

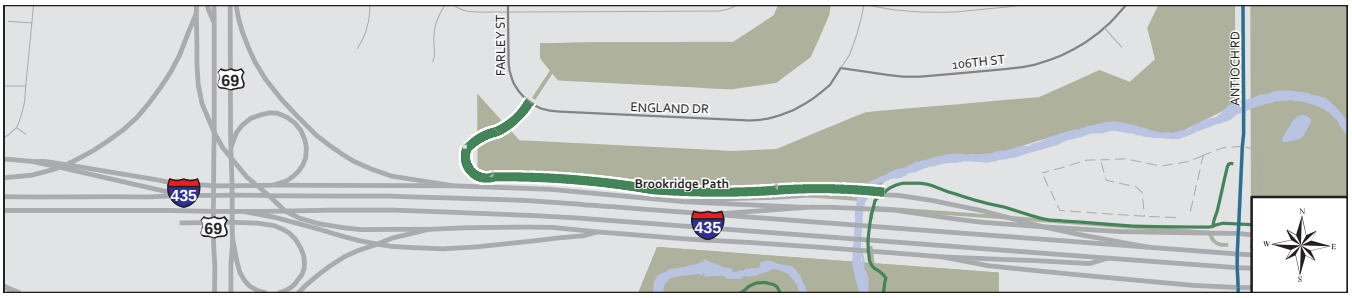
Name	From	To	Facility	Miles	Comments / Action
95th Street Sidepath	Grandview St	Hayes Drive	Sidepath	0.05	North side of street
			Total Length	**0.05**	



2: Brookridge Path

- Provides access to Indian Creek Trail and non-motorized crossing of I-435
- May need to utilize Brookridge Country Club golf cart path; coordination will be necessary with the country club
- Path entrance on Farley Street should be well marked

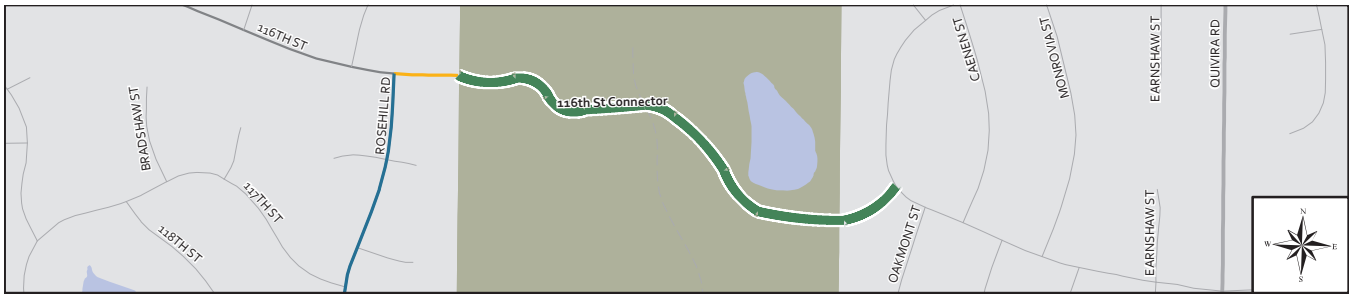
Name	From	To	Facility	Miles	Comments / Action
Brookridge Path	Farley Street	Indian Creek Trail	Path	0.51	Utilize golf cart connection; will require bridge over creek
			Total Length	**0.51**	



3: 116th Street Connector Path

- Provides connection between two neighborhoods through Stoll Park
- Existing path should be improved

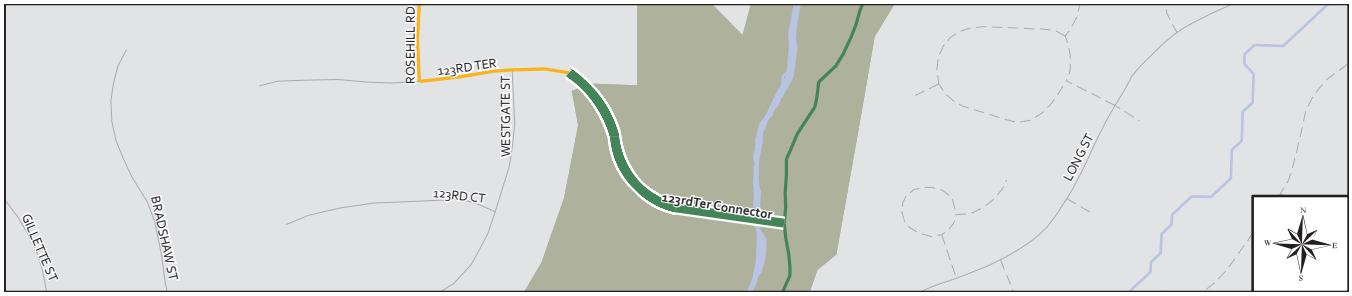
Name	From	To	Facility	Miles	Comments / Action
116th Street Path Connector	116th Street	116th Street	Path	0.34	Improve path through Stoll Park
			Total Length	**0.34**	



4: 123rd Terrace Connector

- Provides connection from 123rd Terrace to Indian Creek Trail

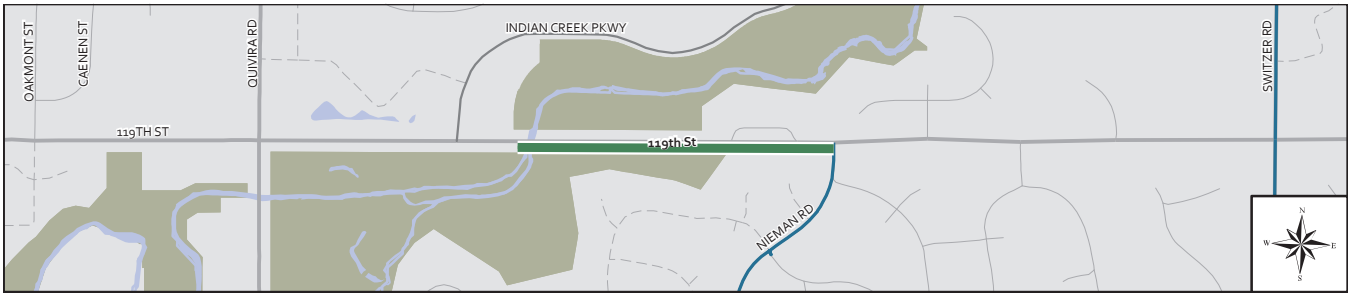
Name	From	To	Facility	Miles	Comments / Action
123rd Terrace Connector	123rd Terrace	Indian Creek Trail	Path	0.14	Connect cul-de-sac to path; will require bridge over creek
			Total Length	**0.14**	



5: 119th Street Sidepath – West

- Connects the Nieman Road bikeway to the Indian Creek Trail
- The existing sidewalk should be expanded to path standards

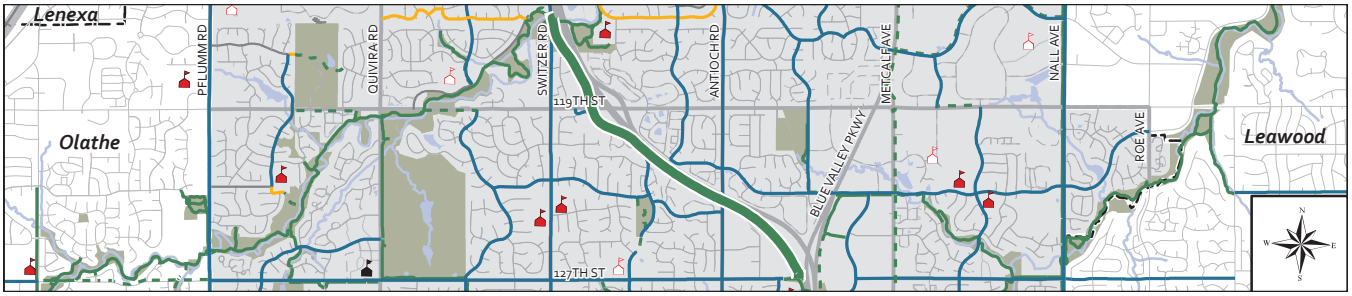
Name	From	To	Facility	Miles	Comments / Action
119th Street Sidepath – West	Indian Creek Trail	Nieman Road	Sidepath	0.31	South side of street
			Total Length	**0.31**	



6: U.S. 69 Corridor Path – North

- Provides lengthy path corridor along U.S. Highway 69

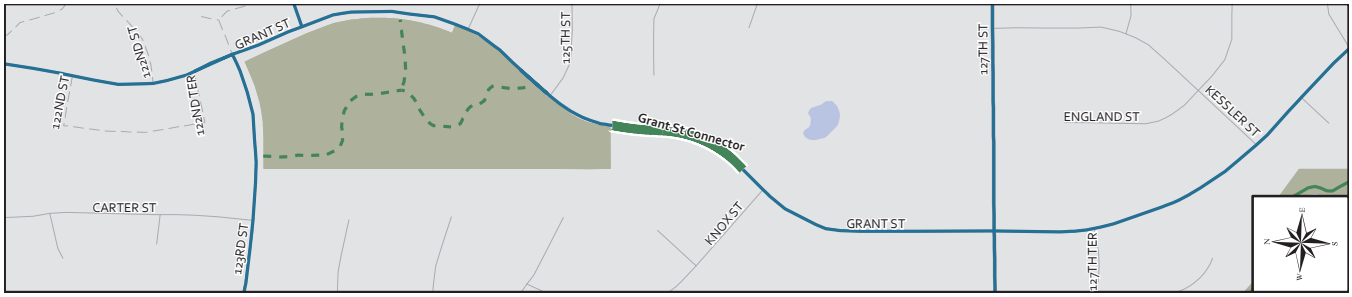
Street	From	To	Facility	Miles	Comments / Action
U.S. 69 Corridor Path – North	Indian Creek Trail	127th Street	Path	2.23	West side of highway
			Total Length	**2.23**	



7: Grant Street Connector

- Connects missing section of Grant Street
- May be superseded by missing section of street being constructed

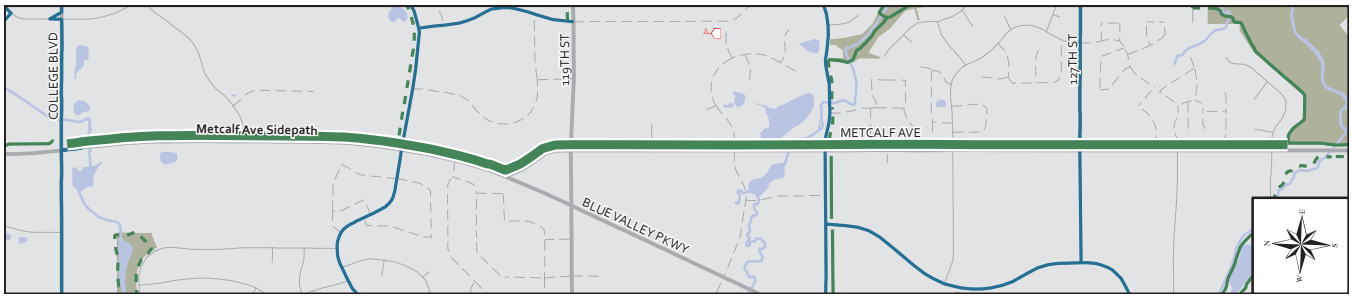
Name	From	To	Facility	Miles	Comments / Action
Grant Street Connector	Grant Street	Grant Street	Path	0.09	Connect street with path until street is completed
			Total Length	**0.09**	



8: Metcalf Avenue Sidepath – North

- Provides bikeway along major thoroughfare
- Connects to existing sidepath and Tomahawk Creek Trail

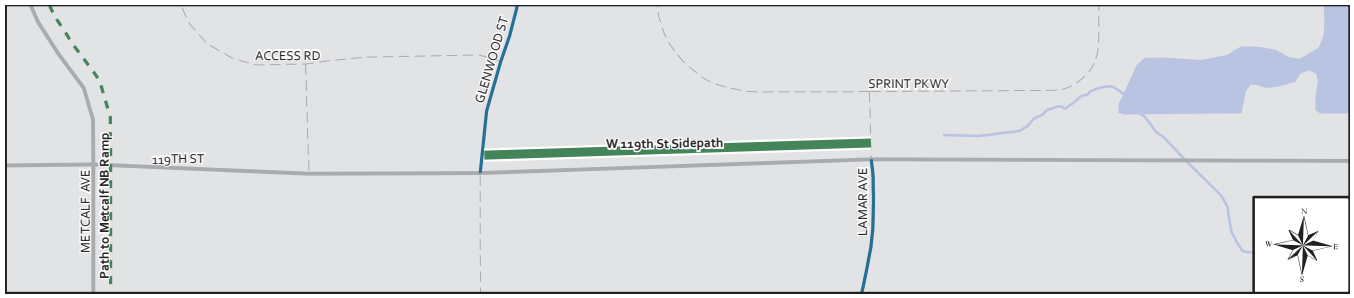
Street	From	To	Facility	Miles	Comments / Action
Metcalf Avenue Sidepath	College Avenue	Tomahawk Creek Trail	Sidepath	2.53	East side of street
			Total Length	**2.53**	



9: 119th Street Sidepath – East

- Connects the Glenwood Street and Lamar Avenue bikeways
- The existing sidewalk should be expanded to path standards

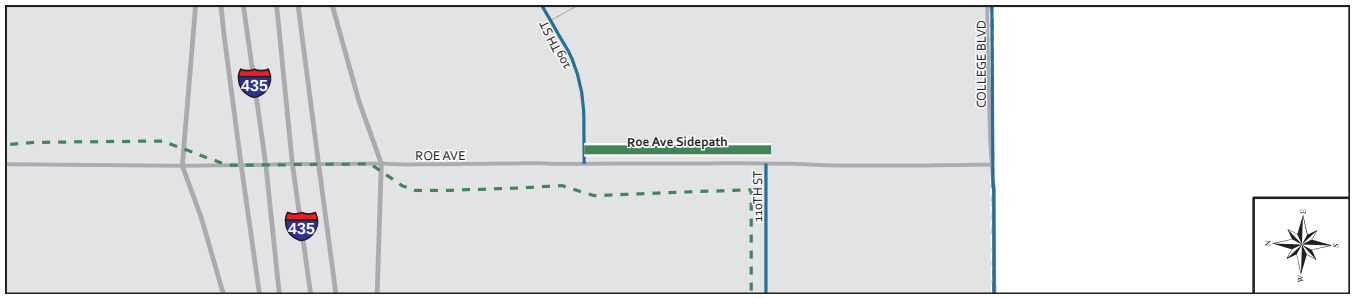
Name	From	To	Facility	Miles	Comments / Action
119th Street Sidepath – East	Glenwood Street	Lamar Avenue	Sidepath	0.25	North side of street
			Total Length	**0.25**	



10: Roe Avenue Sidepath

- Connects the 109th Street and 110th Street bikeways
- The existing sidewalk should be expanded to path standards

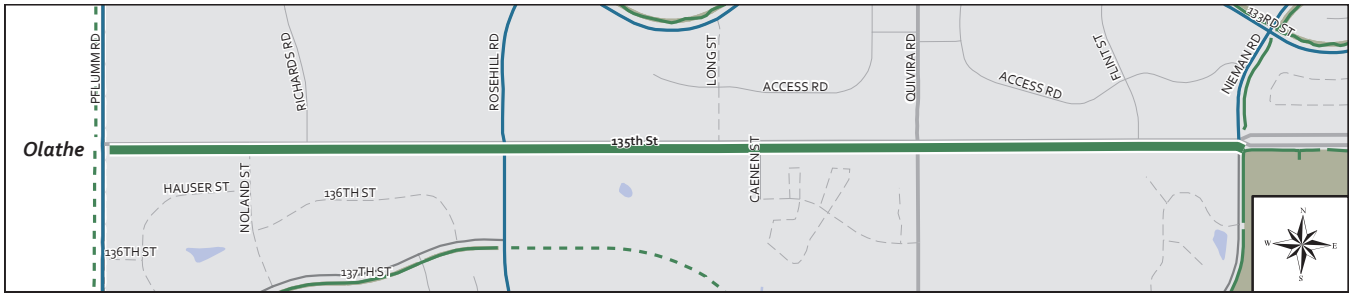
Street	From	To	Facility	Miles	Comments / Action
Roe Avenue Sidepath	109th Street	110th Street	Sidepath	0.09	East side of street
			Total Length	**0.09**	



11: 135th Street Sidepath – West

- Provides bicycle access along major thoroughfare

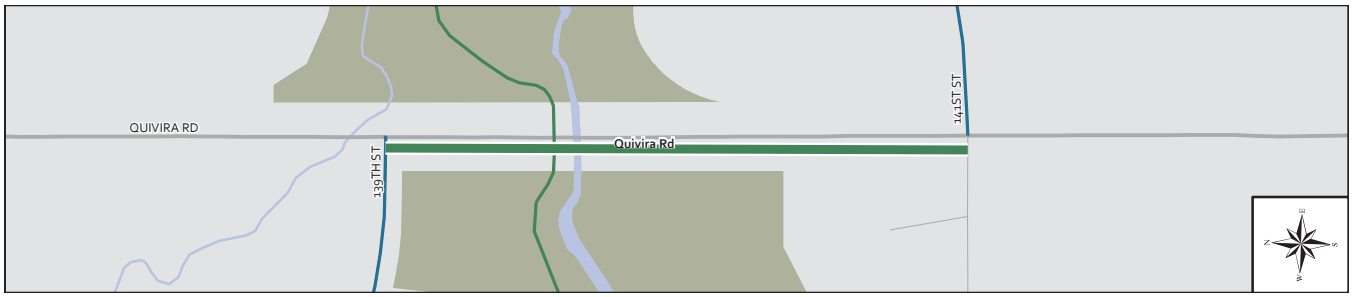
Name	From	To	Facility	Miles	Comments / Action
135th Street Sidepath – West	Pflumm Road	Nieman Road	Sidepath	1.65	South side of street
			Total Length	**1.65**	



12: Quivira Road Sidepath

- Connects the 139th Street and 141st Street bikeways
- The existing sidewalk should be widened to path standards
- An enhanced crossing of Quivira Road should be provided at 141st Street

Street	From	To	Facility	Miles	Comments / Action
Quivira Road Sidepath	139th Street	141st Street	Sidepath	0.19	West side of street
			Total Length	**0.19**	



13: 135th Street Sidepath – Center

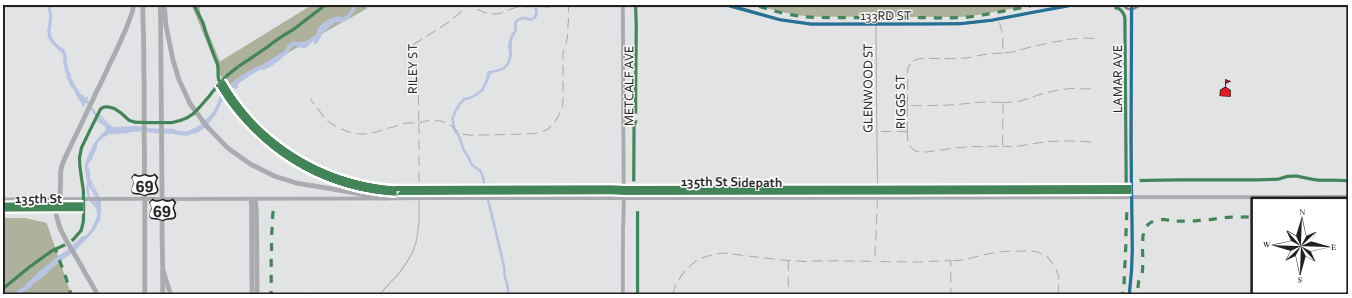
- Provides bicycle access along major thoroughfare
- Connects to Tomahawk Creek Trail for non-motorized crossing of U.S. Highway 69

Name	From	To	Facility	Miles	Comments / Action
135th Street Sidepath – Center	Switzer Road	Tomahawk Creek Trail	Sidepath	1.24	South side of street
			Total Length	**1.24**	

14: 135th Street Sidepath – East

- Provides bicycle access along major thoroughfare
- Connects to Tomahawk Creek Trail for non-motorized crossing of U.S. Highway 69

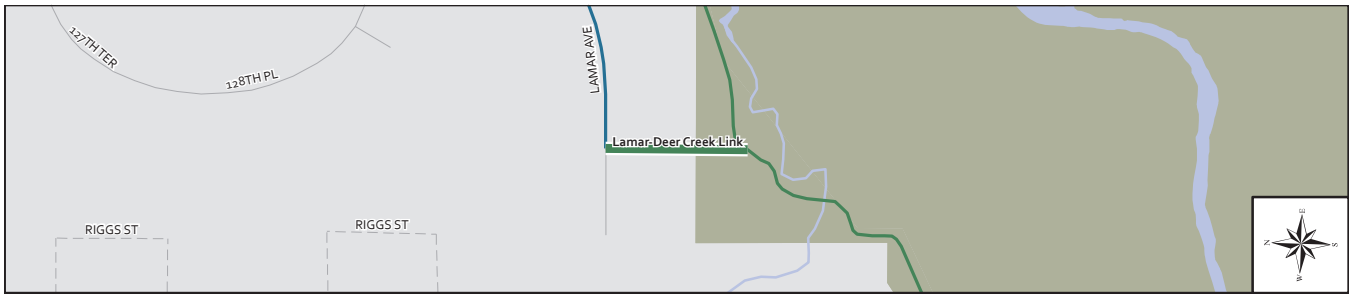
Street	From	To	Facility	Miles	Comments / Action
135th Street Sidepath – East	Tomahawk Creek Trail	Lamar Avenue	Sidepath	0.94	North side of street; will require bridge over creek
			Total Length	**0.94**	



15: Lamar – Deer Creek Link

- Connects the Lamar Avenue bikeway to the Deer Creek Trail
- The existing sidewalk connection should be enhanced for better visibility

Name	From	To	Facility	Miles	Comments / Action
Lamar-Deer Creek Link	Lamar Avenue	Tomahawk Creek Trail	Path	0.05	Provide connection to existing path
			Total Length	**0.05**	



16: U.S. 69 Corridor Path – Center

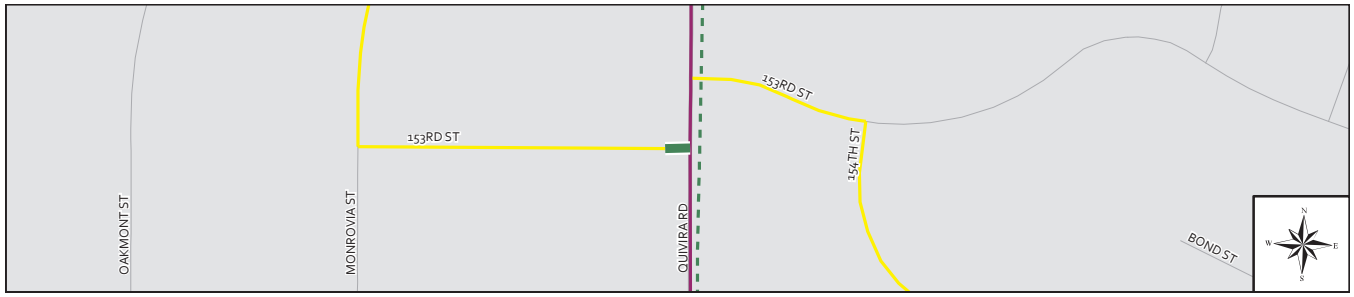
- Provides lengthy path corridor along U.S. Highway 69

Street	From	To	Facility	Miles	Comments / Action
U.S. 69 Corridor Path – Center	138th Street	Kinston Lake Park Path	Path	1.83	West side of highway
			Total Length	**1.83**	

17: 153rd Street Connector

- Connects 153rd Street cul-de-sac to Quivira Road and allows access to eastern portion of 153rd Street

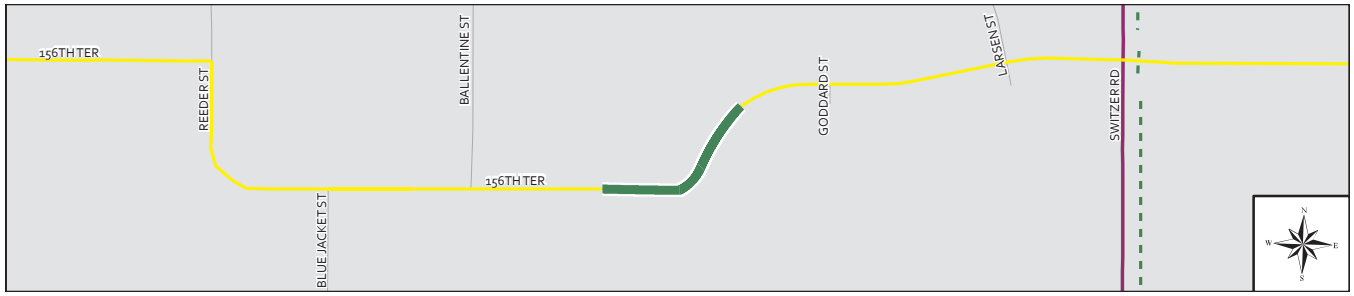
Name	From	To	Facility	Miles	Comments / Action
153rd Street Connector	153rd Street	Quivira Road	Path	0.01	Connect cul-de-sac to street
			Total Length	**0.01**	



18: 156th Terrace Connector

- Connects missing section of 156th Terrace
- May be superseded by missing section of street being constructed

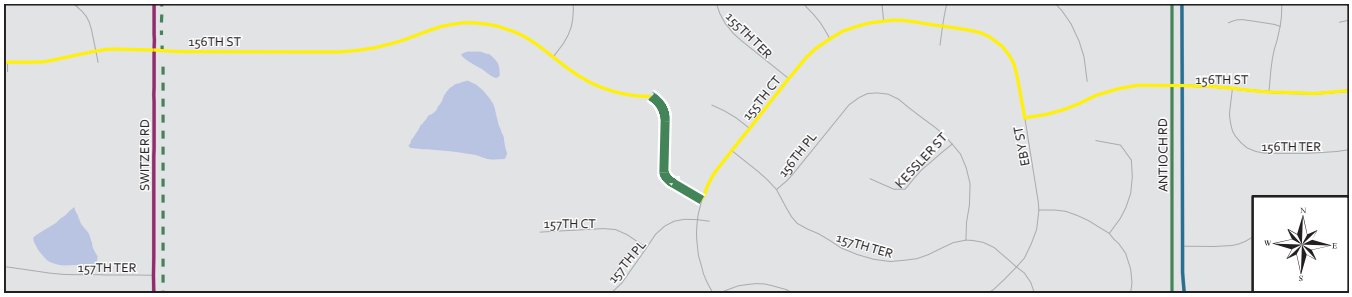
Street	From	To	Facility	Miles	Comments / Action
156th Terrace Connector	156th Terrace	156th Terrace	Path	0.08	Connect street segments with path until street is completed
			Total Length	**0.08**	



19: 156th Street Connector

- Connects discontinuous portions of 156th Street to form longer bikeway corridor

Name	From	To	Facility	Miles	Comments / Action
156th Street Connector	156th Street	156th Street	Path	0.11	Connect discontinuous street with path
			Total Length	**0.11**	



20: 155th Terrace Connector

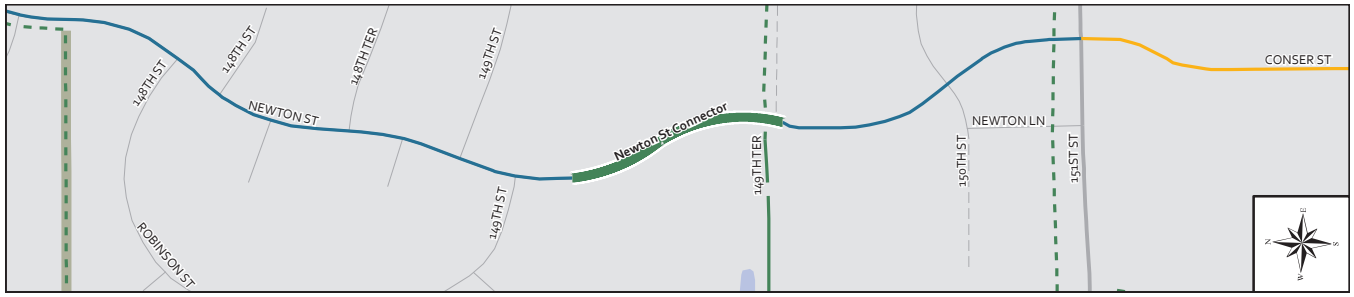
- Provides connection from 155th Terrace to planned U.S. Highway 69 path

Street	From	To	Facility	Miles	Comments / Action
155th Terrace Connector	155th Terrace	Planned U.S. 69 Path	Path	0.04	Connect cul-de-sac to path
			Total Length	**0.04**	

21: Newton Street Connector

- Connects discontinuous section of Newton Street

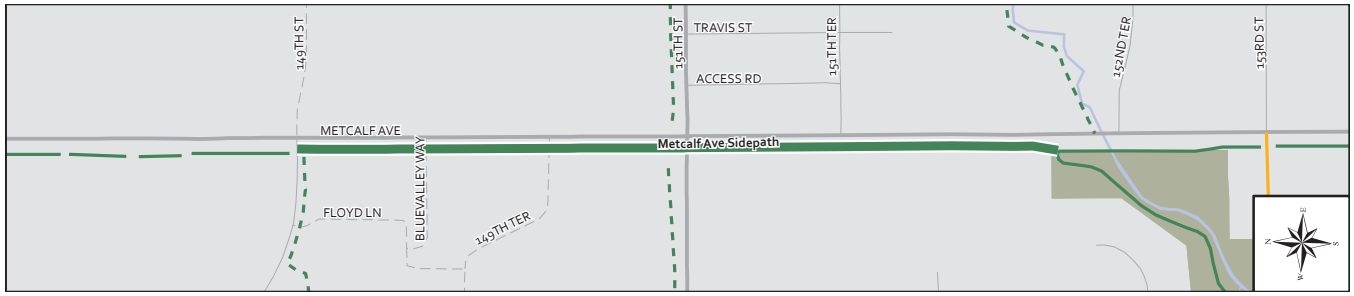
Name	From	To	Facility	Miles	Comments / Action
Newton Street Connector	Newton Street	Newton Street	Path	0.10	Connect street segments with path until street is completed
			Total Length	**0.10**	



22: Metcalf Avenue Sidepath – South

- Provides bikeway along major thoroughfare
- Connects to existing sidepaths and path through Brittany Park

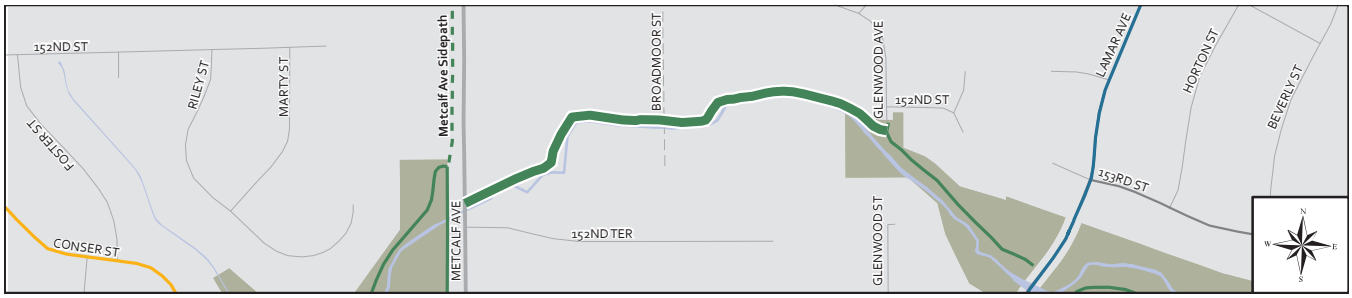
Street	From	To	Facility	Miles	Comments / Action
Metcalf Avenue Sidepath	149th Street	Brittany Park	Sidepath	0.50	West side of street
			Total Length	**0.50**	



23: Green Meadows Path Extension

- Connects two discontinuous path segments
- An enhanced mid-block crossing of Metcalf Avenue should be provided

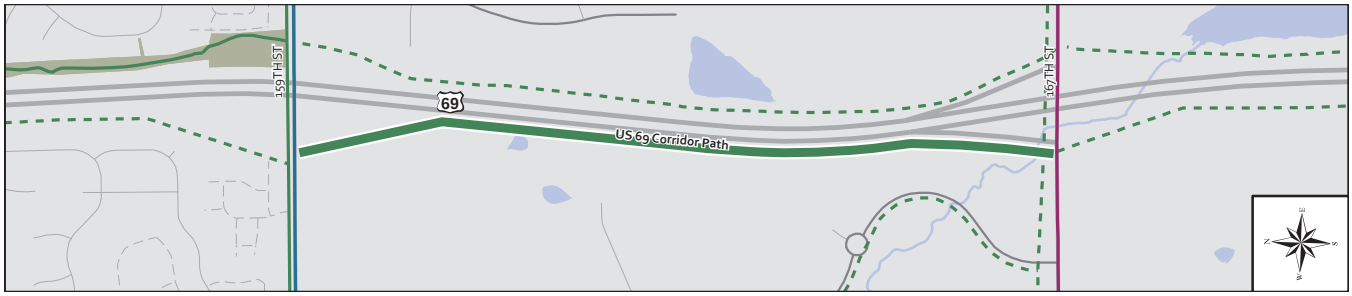
Name	From	To	Facility	Miles	Comments / Action
Green Meadows Path Extension	Metcalf Avenue Culvert	Glenwood Avenue	Path	0.32	Consider providing mid-block crossing of Metcalf Avenue
			Total Length	**0.32**	



24: U.S. 69 Corridor Path – South

- Provides lengthy path corridor along U.S. Highway 69

Street	From	To	Facility	Miles	Comments / Action
U.S. 69 Corridor Path	159th Street	167th Street	Path	1.00	West side of highway
			Total Length	**2.53**	



5.6 | Freeway Crossings

There is a strong need for additional crossings of the freeways passing through Overland Park. In many parts of the city, the only freeway crossings are at major interchanges that are challenging and intimidating for even the most experienced bicyclists to navigate. Non-interchange crossings that serve bicyclists well include path/trail crossings such as the Indian Creek Trail and street connections such as Lamar Avenue and 132nd Street. Additional non-interchange crossings of U.S. 69 and I-435 should be considered for Overland Park. These may be full street crossings (similar to 132nd Street) or may be path crossings that are designed specifically for bicyclists and pedestrians. Areas of specific need for additional bicycle crossings include:

- U.S. 69 between 95th Street and 103rd Street (area of 99th Street)
- U.S. 69 between 119th Street and 127th Street
- U.S. 69 in the area of 127th Street
- U.S. 69 between 143rd Street and 159th Street
- I-435 between Pflumm Road and U.S. 69
- I-435 between Antioch Road and Metcalf Avenue

Installing bicycle and pedestrian overpasses or underpasses during freeway reconstruction projects can be an effective way to provide new connectivity at a nominal cost to the overall project (this is especially true for underpasses). Additionally, these projects are often funded with state or federal funds, and may have little cost to Overland Park. An effort should be made to identify any future freeway projects that could include grade-separated crossings for bicyclists and pedestrians.

CHAPTER 6

6 | Implementation & Funding

The Overland Park Bikeway Network is intended to be implemented over the next ten to fifteen years or more by taking advantage of street resurfacing and other roadway projects whenever possible. This chapter provides an overview of steps to implement the Bikeway Network as well as an overview of network costs and funding opportunities. During this period of implementation some bikeways will be installed that do not directly connect to other bikeways or obvious destinations – this is a necessary effect of incremental implementation. It is important not to judge the performance and utility of these isolated bikeways until they are connected to the larger network. As more and more bikeways are installed, the network will gradually fill out, and a complete, well-connected bikeway system will form. This is also the way the performance of the entire network should be judged – it will take time before system connections are made and bicyclists are able to make more frequent and longer trips on a well-connected bikeway network.

6.1 | Network Development Approaches

Ideally, the City of Overland Park would implement the recommended bikeway network immediately on a city-wide basis. However, there are numerous reasons why this cannot occur. These reasons include:

- **Constrained Right of Way:** Many streets, particularly thoroughfares, do not have the space to add bicycle facilities such as bike lanes without widening the street.
- **Street Opportunities:** For many thoroughfares the only cost-effective way adequate bikeways can be added is when streets are reconstructed. These street corridors may have enough right-of-way, but the space between the curbs must be widened (or the median narrowed) to include bikeways.
- **Future Development:** Some key connections in the network may require the construction of a street as part of a future development project that has not yet occurred.
- **Funding:** While relatively minor compared to the cost of constructing new streets, new bicycle facilities require funding for construction and maintenance which must be budgeted for over time.

Given these constraints, this section describes approaches to implementing the proposed network in an efficient manner. While some bicycle facilities may not be developed for years, or even decades, the approaches below will provide a bicycle network in the near term that will continue to develop in the coming years.

Constructing New Streets

All new streets constructed in the City of Overland Park should include appropriate bicycle facilities. This does not mean that every street will have bicycle lanes or a sidepath. The vast majority of the street network is made up of local streets that can accommodate bicyclists without any change to the current design. However, busier streets, including most collectors and all thoroughfares, will require changes to their striping or design to allow for the inclusion of bicycle facilities. Table 11 displays the recommended bicycle facility type for specific street types, and the changes that need to occur to Overland Park's existing street designs to include such facilities. Appendix F displays cross sections for thoroughfare configurations that are included in the Draft South Overland Park Transportation Plan; all of these cross sections include bicycle lanes or paved shoulders.

Initial construction or reconstruction of a street is the ideal time to include bicycle facilities.

Table 11: Changes to existing street cross sections necessary to accommodate specific bicycle facilities

Street Type	Bicycle Facility	Minimum Facility Width	Change to Existing Cross Section
Local (low speed)	None or Shared Lane Markings	Not applicable	No change
Collector & Apartment	Bike lane or shared bike/parking lane	4'+ (exclusive of gutter)	No change; may require use of narrow travel lanes
Commercial & Industrial	Bike lane or shared bike/parking lane	4'+ (exclusive of gutter)	No change; may require use of narrow travel lanes
Super-Collector	Bike lane or shared bike/parking lane	5'+ (exclusive of gutter)	No change; may require use of narrow travel lanes
Thoroughfare	Buffered bike lane and shared use paths	7'+ (exclusive of gutter) on-street; 6'+ for wide sidewalks; 10'+ for shared use paths	Requires widening of street or reduction of travel lanes; wide sidewalks or side-paths should be provided on both sides

Retrofitting Existing Streets

Retrofitting existing streets to include bicycle facilities can vary in ease of implementation and the associated expense. Many collector streets have adequate width to add a designated bicycle lane or a marked shoulder that can be used for bicycling and parking. However, most thoroughfares do not have room to add bicycle lanes without either reducing the number of travel lanes or widening the street. Options for retrofitting existing streets in Overland Park with bicycle facilities are described below.

Shared Lane Markings

Shared lane markings can be implemented on streets in Overland Park without any changes to the street cross section. Guidance for the installation of Shared Lane Markings is provided in Chapter 3.

Bicycle Lanes – Collectors

Most collector streets in Overland Park have adequate width to install standard bicycle lanes. The primary issue that will arise with the installation of bike lanes is requiring no parking. While little parking currently occurs on collectors, the removal of the ability to park, even if seldom used, is often contentious and usually only workable when removal is done on one side of the street.

Shared Parking/Bicycle Lanes – Collectors

Where on-street parking currently exists on collectors in Overland Park, and it is desirable to retain on-street parking, parking lanes may be marked on the street. In areas with little or no parking taking place, these lanes will function as de facto bicycle lanes while also allowing parking; bicyclists may have to occasionally move out of the parking lane into the travel lane to pass a parked vehicle. When implementing parking lanes, it is recommended that ten foot wide travel lanes be striped in the center of the street with the remainder of the street width for parking/bicycle usage. On most of the city's collector streets, this would leave approximately seven foot parking lanes (including the gutter) on each side of the street. Areas with moderate levels of parking that would require bicyclists to frequently move into the travel lane should not be considered for this treatment. Where there is a neighborhood speeding problem, this option has the additional benefit of slightly reducing the speed of motor vehicles.

Bicycle Lanes – Thoroughfares

Thoroughfares are the highest volume and fastest surface streets in the city, and therefore are the streets most in need of dedicated bicycle facilities. However, thoroughfares also tend to be physically constrained so that facilities such as bicycle lanes cannot easily be added to them. A variety of approaches are available for retrofitting existing thoroughfares with bicycle facilities:

Reduce travel lanes

Some undivided four lane thoroughfares may be candidates for conversion to three lane streets with bicycle lanes. This configuration provides one travel lane in each direction with a center turn lane. Conversion of four lane to three lane streets typically has little to no impact on the carrying capacity of the street if the total traffic volume is less than 20,000 vehicles per day, and conversion to three lanes often results in a reduction in crashes. The removal of one travel lane allows the installation of standard bicycle lanes, in essence making the street a five lane street. Traffic studies will need to be conducted to conclude that streets are good candidates for lane reductions.

Provide a narrow bicycle lane/shoulder

Overland Park's current practice is to stripe divided four lane thoroughfares with an 11' travel lane next to a 13' travel lane in order to provide a wider outside lane that can accommodate bicyclists. It may be possible to further narrow the travel lanes to ten feet each while providing a four foot bicycle lane. While a four foot bicycle lane is the absolute minimum recommended on any street, let alone a high volume, high speed street, many bicyclists would prefer such a facility to the wide outside lane currently provided. This option should be considered first for thoroughfares with lower volumes of traffic and/or lower speeds.

Wait for reconstruction

It may not be possible to provide an on-street bicycle facility on some thoroughfares until they are reconstructed, which may not occur for decades. If this is the case, a bicycle facility wider than the minimum recommendations should be provided. In a reconstruction, the center median could be narrowed slightly while also narrowing travel lanes to allow for the installation of a buffered bicycle lane or cycletrack.

Shared Use Paths

The city has been consistently adding shared use paths along at least one side of many thoroughfares in Overland Park. These sidepaths serve bicyclists and pedestrians. However, sidepaths are a less than ideal facility for some cyclists as they may require crossing the street to the side the path is on, require more frequent stops at intersections or other crossings, and require sharing the space with other user types. Despite these drawbacks, the practice of installing sidepaths should continue, particularly where on-street facilities cannot be installed. Sidepaths should be installed on at least one side of thoroughfares, although both sides are preferable in commercial or employment areas. Sidepaths should not be considered a substitute for on-street bicycle facilities, but rather a supplement to on-street facilities that serves different user types including children and novice bicyclists. Whenever sidepaths are constructed, care should be exercised in the design of the facilities where they cross intersections and higher volume driveways or where paths will have steep downhill grades approaching intersections.

6.2 | Implementation Steps & Priority Corridors

Implementation involves taking the series of action items listed under each objective in Chapter 4 and producing a strategy for prioritizing, funding, and identifying responsible parties for each action. This section discusses implementation measures related to bicycle facilities consistent with the first goal in Chapter 4.

Objectives under the first goal of this Project Report calls for a dramatic expansion of the on-street bicycle network in the city. Table 12 provides basic implementation steps and the agencies or departments that will be involved in implementing this objective.

Implementation Approaches

The City should pursue implementation of projects in this Project Report whenever possible. This implementation will likely fall into two distinct categories: stand-alone capital projects, and projects that can easily be implemented as part of another project. These opportunities are described more in this section.

Proactive Implementation: Capital Project Prioritization

Prioritizing capital projects is an activity that City departments undertake annually. There are a number of issues in this process for which the City may want to develop guidelines that relate to the bikeway and pedestrian projects in this Project Report, including the following:

- Setting a project size (i.e. dollar amount, or level of effort) to determine which bikeway projects should be implemented as major capital expenditures.
- Determining which bikeway projects should be integrated into roadway projects that are on the capital project list, or likely to be added to the list. This is especially important for including bike lanes and sidepaths as Overland Park reconstructs or builds new streets.
- Considering which bikeway projects should be in the capital budgets of other City departments (in addition to the Public Works Department), such as Parks Services Department, Recreation Services Department, Planning and Development Services Department, etc., or in the capital budgets of other municipalities or agencies such as Kansas DOT, Johnson County, and the local school districts.

Small and Medium Sized Projects

To manage implementation of small and medium sized bikeway and pedestrian projects, many jurisdictions establish an on-going Bicycle and Pedestrian Infrastructure Funding Program, for which a lump sum is budgeted each year. Selection of which projects to fund annually can be done through an inter-department coordination group that is managing implementation of this Project Report. This funding is flexible and can be used to respond to new opportunities, critical needs that were not foreseen in the planning process, and annually identified priority projects that are implemented as a part of a City's routine work managing public infrastructure. Such projects may be in conjunction with road resurfacing projects, intersection improvement projects, other programmatic transportation activities, or property management and maintenance activities of the department managing parks or public schools.

Opportunity Implementation

One of the key implementation strategies frequently discussed throughout this Project Report is the incremental approach the City would like to take to implement projects. This calls for two actions: setting into motion a set of smaller easier to implement projects, and being ready to respond to opportunities where bicycle projects can be included with larger street projects. This second strategy capitalizes on incorporating bicycle projects as part of public or private developments or routine departmental work. While these approaches may be reactive in nature, they are none-the-less effective methods to implement the recommendations of this report. Primary opportunities to integrate bicycle projects include:

- **Street Resurfacing:** A key opportunity is the annual scheduling of street resurfacing projects. Resurfacing schedules are generally based on pavement quality and pavement life, and specific street segments are identified in Overland Park for resurfacing on an annual basis prior to the beginning of the paving season. It is important that this process begin to take into account the recommendations of this report, and include recommended bikeways whenever possible. The City is already considering several recommendations that could be included with future resurfacing projects.
- **Development Projects:** The City of Overland Park has experienced considerable development in the past 30 years and will continue to see significant additional private investment. Private development of residential or commercial projects is a key opportunity for the City to implement recommendations in this report. Based upon their traffic impacts, the site design features that relate to their property frontage, and their requirements to contribute to needed public facilities, the City may be able to require or request that bikeways (and pedestrian facilities) that will serve the development be constructed as a part of the project or part of other transportation improvements that the City is requiring.
- **Routine City Work:** A third opportunity relates to monitoring routine work to address such things as neighborhood traffic calming, traffic signal management, and other traffic management and safety needs at intersections, including crosswalk installation, curb ramp retrofits for trails and paths, and maintenance of trails and paths. The City should ensure that bicycle and pedestrian accommodations and safety features, especially those identified in the Project Report, are incorporated into these projects as a routine part of evaluation and design.

Inter-Agency Coordination

Effective implementation of the Project Report recommendations will require ongoing coordination among a significant number of City departments. Additionally, the City will need to coordinate with its neighboring jurisdictions, Johnson County, and the State of Kansas. Finally, coordination with representatives of the local bicycling advocacy community is also important as they may be able to play a role in making sure politicians realize the importance of key projects and can provide valuable feedback on new projects.

Implementation Actions

For a Project Report such as this to be implemented, many agencies will need to be involved. Table 12 provides the key actions that will need to be carried out and the agencies responsible for those actions.

Table 12: Implementation actions and responsible agencies

Action	Responsible Agency
1. Follow the recommendations for on-street bikeways presented in this Project Report.	City, County, Kansas DOT
2. Provide bicycle facilities on or along all streets functionally classified as more than local residential.	City, County, Kansas DOT
3. Create Safe Routes to School Plans for key schools that identify further bicycle facility gaps or needs associated with those school areas.	City, School Districts
4. Follow Kansas DOT, AASHTO, and/or NACTO guidance for all on-street bikeways.	City
5. Consider the need for on-street bicycle facilities with every street resurfacing or reconstruction that the City carries out.	City

Near-term Bikeway Priorities (1 – 3 years):

Based on the Bicycle Level of Service analysis described previously in the Project Report Appendix, cost estimates included later in this chapter, and discussions with Overland Park staff and with the Project Steering Committee, the following bikeway projects should be a priority for the City in the near-term (1 – 3 years):

- **Lamar Avenue Corridor:** This is one of the few long north-south corridors in the city that is relatively direct, but is not a thoroughfare. Many sections of this corridor are already suitable for bicycling. Adding bike lanes and shared lane markings to the Lamar Avenue corridor would increase its overall bicycle level of service (BLOS) rating from a collective C to B. The project would consist almost entirely of markings – longitudinal lines, bike lane markings, and shared lane markings.
- **99th Avenue Corridor:** This is an important east-west corridor and should be relatively simple to implement in the near term. The existing BLOS for this street is B and C and would increase to a uniform B with some segments rated A. The project consists of marking bicycle lanes.
- **Nieman Road Corridor:** This is a somewhat circuitous set of north-south streets recommended as part of the Neighborhood Network. By marking bicycle lanes, the BLOS would improve one letter grade throughout the corridor. The project consists primarily of adding bicycle lanes with some shared lane markings.
- **Wayfinding Plan and Signs:** The City has already embarked upon a project to create a bicyclist wayfinding system in the northern part of the city near downtown. The next step for the City is to create a wayfinding plan for its next phase of bicycle routing. Most of the recommendations in this Project Report, especially those related to the neighborhood network, will require wayfinding signs.

6.3 | Planning Level Cost Estimates

This section provides planning level cost estimates for implementing the bikeway recommendations included in this report. These estimates are intended to provide an order of magnitude for the costs associated with implementing bikeways, and not to provide detailed cost estimates. Cost estimates were arrived at using a combination of national and local cost figures for street and path construction and marking. Table 13 displays the planning level cost estimates per mile for the bikeway types included in this report. More detail on how these cost estimates were derived is provided in Appendix E.

Estimating costs for projects is one of the most difficult tasks involved in developing a report of this nature. However, providing cost estimates is worthwhile as they serve several purposes: knowing rough project costs for capital budgeting purposes and helping to prioritize projects. There are three primary challenges in estimating costs for Overland Park:

- **Determining all factors affecting costs.** Although Overland Park does have project cost data, gathering and assessing all of the factors that might impact the cost of the bikeways as part of projects is still difficult. This is often not known until preliminary engineering work is done.
- **Determining the true marginal cost of adding bicycle facilities.** In some cases, this is straight forward, like adding in costs for marking bicycle lanes. In other cases, it becomes much more complex. For instance, the costs for adding paved shoulders to new construction projects in Overland Park (a major recommendation for the south side of the city) where adequate shoulder width already exists or would otherwise be added as part of the project would have a very low marginal cost attributable to bikeways. Conversely, adding bikeways to a project that does not already have sufficient roadway width for adequate accommodations is considerably more expensive.
- **Accurately attributing costs and benefits to the bicycle part of a project when bicycle accommodations benefit a multitude of users.** Cost/benefit studies have conclusively shown that motorist, transit, and even pedestrians benefit when bicycle lanes or paved shoulders are added to a project, but there is no formula available to help parse the costs and benefits to each mode of travel.

As indicated in Table 13, the costs per mile of bikeway are especially high for bicycle lanes that require adding street width, paved shoulders, and paths. These facilities represent the majority of the costs for implementing the recommendations of this report. The costs in this table are average costs and not the marginal costs of adding in bikeways. Often the marginal cost will be less than the average cost as noted above. For these reasons, the costs provided for these higher priced bikeways should be viewed as being at the higher end of the cost range. For example, although the costs to build paved shoulders to accommodate bicyclists is presented at $462,800 per mile, the marginal cost to add the same set of paved shoulders would be substantially less than this if the shoulders are added as part of a new street construction project. This is an important component of this study's implementation strategy: bicycle accommodations that require adding street width are only recommended to be implemented when the street is constructed or reconstructed. Adding these types of bicycle accommodations as part of a larger project takes advantage of the economies of scale of the larger project.

Table 13: Planning level cost estimates per mile of bikeway

Facility	Est. Cost/Mile
Signed Route (Add Signs)	$2,900
Sharrows (Add Markings and Signs)	$10,000
Bike Lanes - Paint (Add Striping and Signs)	$11,800
Bike Lanes - Thermoplastic (Add Striping and Signs)	$19,100
Bike Lanes (Widen Road and Add Signs)	$374,600
Paved and Striped Shoulder (Add Striping)	$15,500
Paved Shoulders (Build Shoulders)	$462,800
Shared Use Path (Construct New)	$452,300

Table 14 displays the estimated cost for implementing the three bikeway networks for Overland Park. Based on these planning level cost estimates, the total projected cost for implementing the bikeway recommendations in this report is approximately $31 million. The majority of this cost is for including buffered bike lanes or paved shoulders on thoroughfares that have yet to be constructed to city standards. The cost of including these bikeways in the initial construction project will be relatively modest when considered as part of the larger project. There may be instances, particularly in northern Overland Park, where current street widths and right-of-way limitations will preclude bikeway installation until many years from now when total reconstruction efforts take place. Because of the uncertainty of future redevelopment patterns, utility locations, and community needs, the additional cost (beyond striping) of providing bike lanes north of I-435 has not been included in the overall cost estimates.

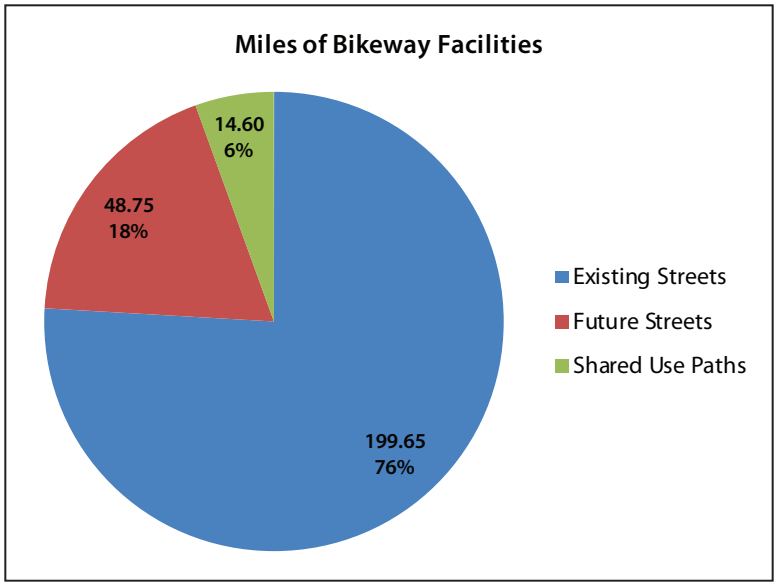


Figure 7: Over 75% of the proposed bikeway network can be implemented on existing Overland Park streets at relatively low cost.

Table 14: Bikeway netowrk planning level cost estimates

Bikeway Network	Estimated Cost
City Network	$19,825,100
Neighborhood Network	$1,295,300
Trail & Sidepath Network	$6,604,300
Total	**$27,724,700**

As shown in Figures 7 and 8, only 18% of the recommended bikeway network is on streets that have not been constructed to city standards, yet these bikeways account for 66% of the total network cost. Put another way, 76% of the recommended bikeway network is on existing Overland Park streets and can be implemented for only 9% of the total network cost

Appendix E details the planning level cost estimate for each bikeway recommended in Chapter 5.

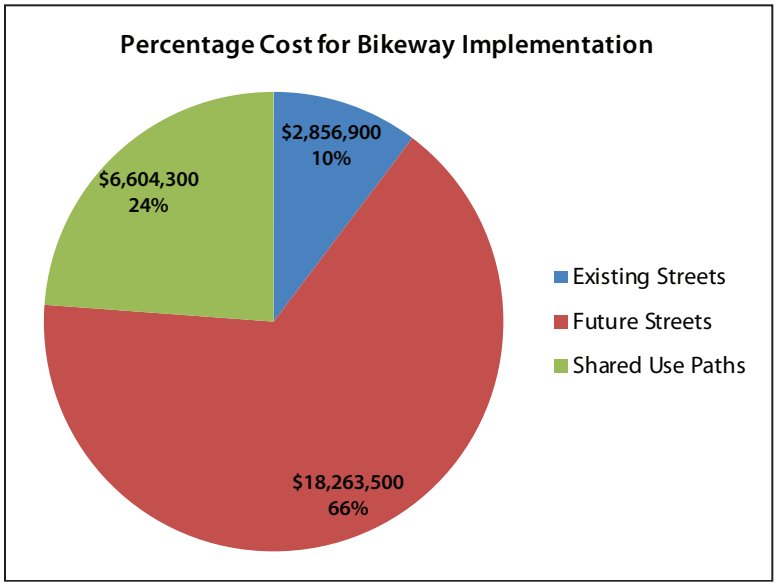


Figure 8: The majority of the cost for implementing the bikeway network will come from bikeways on streets being reconstructed to city standards.

6.4 | Funding Opportunities

Determining how to fund various bikeway improvements is a key strategic issue that communities face when implementing bicycle studies and plans. While there are many funding options, each source may have limitations making it more or less appropriate for certain types of projects. Some funding sources are targeted to infrastructure while others target education and encouragement efforts. Some sources are not directly bicycle-related but can be applied to bikeway projects that may have a nexus with another public priority such as historic preservation or public health. Some sources may support grants of hundreds of thousands or millions of dollars (Kansas DOT Transportation Alternatives Program); others may be targeted to smaller amounts and require citizen volunteers or community involvement as a part of the required local match.

Federal Funding Administered by State Agencies

The primary Federal Transportation funding programs for bicycling were consolidated under the MAP-21 legislation of 2012. The Transportation Enhancements, Safe Routes to School, and National Recreational Trails programs were combined into the Transportation Alternatives Program (TAP). Funding levels were reduced over previous years, and some changes were made in project eligibility. Greater authority was given to Metropolitan Planning Organizations (Mid-America Regional Council for the Kansas City region) regarding project selection. Table 15 provides a summary of the types of bikeway projects that would be eligible for a wide range of Federal Transportation funding programs.

Programs that remain unchanged by MAP-21 include the following. Most of these programs are under a larger Surface Transportation Program known as STP with allocations to sub-programs.

- The **Surface Transportation Urban Program** provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities. These funds may be used for either the construction of bicycle transportation facilities, or non-construction projects such as maps, brochures, and public service announcements related to safe bicycle use. Although seldom used for bicycle projects, this is still an excellent source of funding for hard to finance bikeway projects. Up to 80% of project costs can be covered by STP Urban funds. The Kansas City MPO (Mid-America Regional Council) administers these funds.

A bicyclist enters the roundabout at the intersection of Lamar Avenue and 110th Street. Double lane roundabouts can be challenging for bicyclists to navigate.

- The **Transportation Alternatives (TAP)** program will provide the Overland Park's best opportunity for federal funding of bicycle and pedestrian projects. Projects that exceed $250,000 are the best fit for this program since a significant amount of administrative work is involved. As indicated above, this is a new program which combines former programs. New for 2014 was the selection of projects by the MARC since

they are a federally designated Transportation Management Agency. The first round of TAP funding was recently completed. The next funding round is expected to be for fiscal year 2018.

- Ten percent of each State's Surface Transportation Program funds is set aside for the **Highway Safety Improvement Program and Railway-Highway Crossing Program**, which addresses bicycle and pedestrian safety at hazardous locations. These funds can be used for bicycle safety projects, but are rarely used for that purpose in Kansas.
- Funds from the **Congestion Mitigation and Air Quality Improvement Program (CMAQ)** may be used to construct bicycle facilities, pedestrian walkways, or non-construction projects such as maps, brochures, and public service announcements related to safe bicycle use. Overland Park was recently awarded a CMAQ grant for bicycle wayfinding, parking, and bikeway improvements in the Downtown area.
- Funds from the **Recreational Trails Program (RTP)** may be used for all kinds of trail projects. This is the only federal transportation funding source that can be used for maintenance activities. The program is administered through the Kansas Department of Wildlife, Parks and Tourism.
- The **Highway Safety Grant Program (Section 402)** is administered by Kansas DOT. Federal 402 funds are used for pedestrian and bicycle public information and education programs. Funds are distributed to states annually from the National Highway Traffic Safety Administration (NHTSA) according to a formula based on population and road mileage. Government agencies or government-sponsored entities are eligible to apply for 402 funds, but this has not been a priority for this funding in Kansas.

Table 15 provides a list of Federal funding sources that may be available for bicycle projects in Overland Park. Additionally, Advocacy Advance provides an online Bicycle and Pedestrian Federal Funding Resources List with frequently undated links to each program: http://www.advocacyadvance.org/

State Funding Sources

Currently, there are no state programs that fund bicycle projects, however, the state DOT administers the federally funded programs cited above.

Local Funding Sources

Local funds will be needed to implement the recommendations of this report. One effective approach is that bicycle facilities should be included as part of resurfacing, reconstruction, and construction projects. However, to set the plan in motion, higher priority projects need to be funded as independent projects. In order to do that, local funds will need to be used either on their own and/or as a match for federal funding.

Generally, the majority of the bikeway recommendations that are implemented as stand-alone projects will need to be funded through Overland Park's general fund. This is particularly true of any on-street markings. Projects that have a longer life than street markings (ie. paths) may be able to be financed through general obligation debt in the same manner that many street or other infrastructure projects are financed.

Table 15: Potential Federal funding sources for bicycle projects

Activity	FTA	ATI	CMAQ	HSIP	NHPP/NHS	STP	TAP/TE	RTP	SRTS*	PLAN	402	FLH	BYW**	TCSP**
Access enhancements to public transportation	●	●	●			●	●					●		●
Bicycle and/or pedestrian plans	●					●				●		●		●
Bicycle lanes on road	●	●	●	●	●	●	●		●			●	●	●
Bicycle parking	●	●	●			●	●		●			●	●	●
Bike racks on transit	●	●	●			●	●					●		●
Bicycle share (capital/equipment; not operations)	●	●	●		●	●	●					●		●
Bicycle storage or service centers	●	●	●			●	●							●
Bridges / overcrossings	●	●	●	●	●	●	●	●	●			●	●	●
Bus shelters	●	●				●	●					●		●
Coordinator positions (State or local)			●			●	◆		●					
Crosswalks (new or retrofit)	●	●	●	●	●	●	●	●	●			●	●	●
Curb cuts and ramps	●	●	●	●	●	●	●	●	●			●	●	●
Helmet promotion						●	◆		●		●			
Historic preservation (bike, ped, transit facilities)	●	●				●	●					●		●
Land/streetscaping (bike/ped route; transit access)	●	●				●	●					●		●
Maps (for bicyclists and/or pedestrians)	●	●	●			●	◆		●		●		●	●
Paved shoulders			●	●	●	●	●		●			●	●	●
Police patrols						◆	◆		●		●			
Recreational trails						●	●	●				●		●
Safety brochures, books						◆	◆		●		●			
Safety education positions						◆	◆		●		●			
Shared use paths / transportation trails	●	●	●	●	●	●	●	●	●			●	●	●
Sidewalks (new or retrofit)	●	●	●	●	●	●	●	●	●			●	●	●
Signs / signals / signal improvements	●	●	●	●	●	●	●		●			●		●
Signed bicycle or pedestrian routes	●	●	●		●	●	●		●			●	●	●
Spot improvement programs	●		●	●		●	●	●	●					●
Traffic calming	●			●	●	●	●		●					●
Trail bridges			●	●	●	●	●	●	●			●	●	●
Trail/highway intersections			●	●	●	●	●	●	●			●	●	●
Training			●			●	●	●	●		●			●
Tunnels / undercrossings	●	●	●	●	●	●	●	●	●			●	●	●

* Until Expended ** Until Not Available ◆ As Safe Routes To School

A key for the programs referenced in Table 15 is provided on the next page.

Table 15 Key

- FTA: Federal Transit Administration Capital Funds
- ATI: Associated Transit Improvement
- CMAQ: Congestion Mitigation and Air Quality Improvement Program
- HSIP: Highway Safety Improvement Program
- NHPP/NHS: National Highway Performance Program (National Highway System)
- STP: Surface Transportation Program
- TAP/TE: Transportation Alternatives Program / Transportation Enhancement Activities
- RTP: Recreational Trails Program
- SRTS: Safe Routes to School Program
- PLAN: Statewide or Metropolitan Planning
- 402: State and Community Traffic Safety Program
- FLH: Federal Lands Highway Program (Federal Lands Access Program, Federal Lands Transportation Program, Tribal Transportation Program)
- BYW: National Scenic Byways Program
- TCSP: Transportation, Community, and System Preservation Program

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CHAPTER 7

7 | Conclusion

In many ways, Overland Park is already a great place to ride a bicycle. The city has an extensive hike-bike trail network that connects into neighboring communities, quiet neighborhood streets allow for families to bicycle, and the number of bicycle crashes with motor vehicles is relatively low. However, there are significant concerns among residents about bicycling on busier Overland Park Streets and there is a strong desire to see a bikeway network developed that provides bicycle facilities on major streets and connections to employment centers, parks and recreational facilities, and other destinations.

This Project Report makes numerous recommendations that are focused on providing a safe, well-connected bikeway network in Overland Park. The recommendations call for the implementation of over 240 miles of on-street bikeways and nearly 15 miles of off-street paths and trails in addition to what the City has previously planned. The recommendations also call for increased education and encouragement activities related to bicycling, enforcement of traffic regulations for all street users, and ongoing evaluation of the City's efforts to improve bicycling conditions. If these recommendations are carried out, the City of Overland Park will become a great city to bicycle in that offers its residents safe transportation options and a great quality of life.

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CHAPTER 8

8 | Maps

The following pages contain maps that are referenced in the body of this report. The maps that are included are:

- Map 1: Existing Bikeways
- Map 2: Bicycle Crashes in Overland Park
- Map 3: Recommended Bikeway Networks
- Map 4: Recommended Bikeway Facilities

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City of Overland Park

Safe Bicycle Use Outreach Project
Map 1: Existing Bikeways

Map Description

This map displays existing bikeways in the Overland Park region. Bikways within Overland Park include shared use paths and unsigned bike routes.

Legend

Streets/Transportation

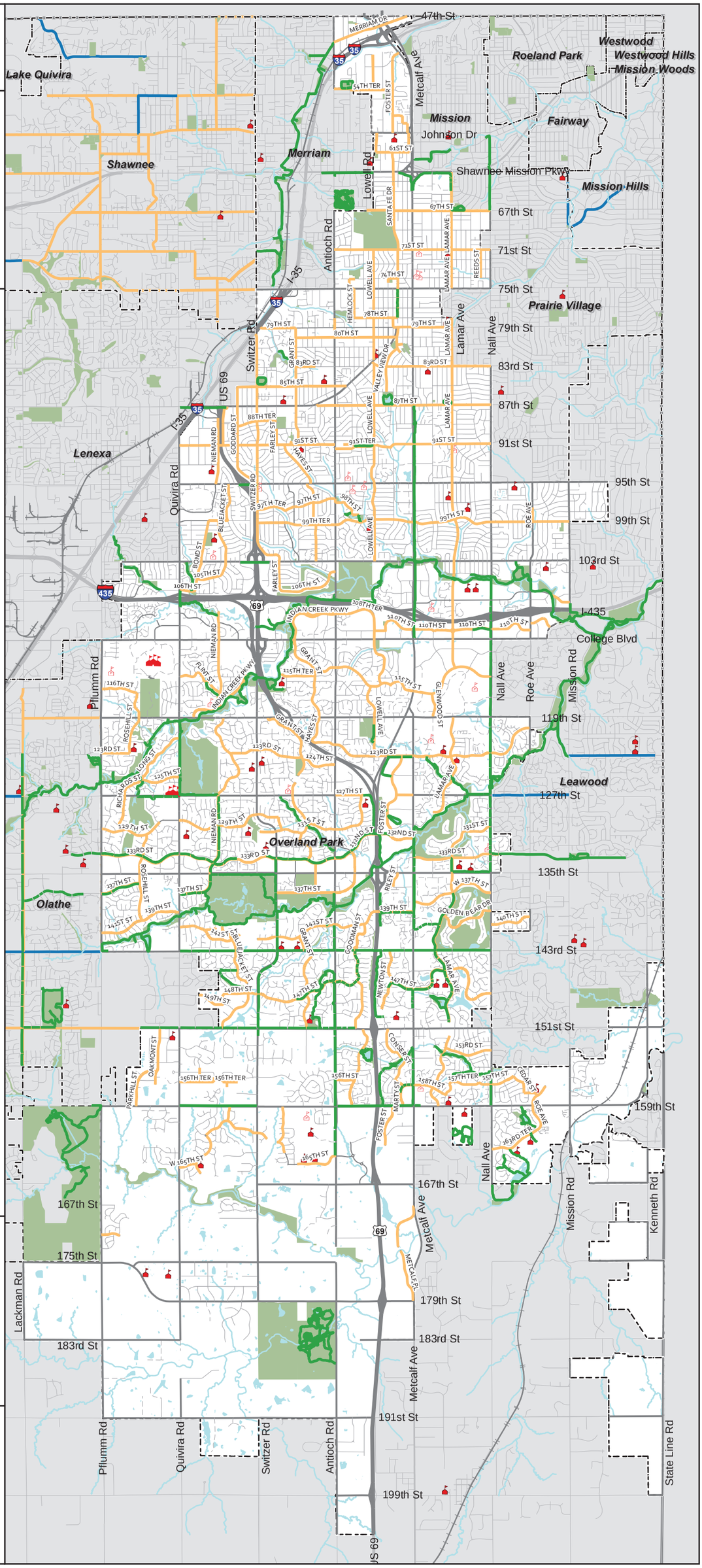
- Highways
- Thoroughfares
- Collectors
- Local Streets
- Local Private Streets
- Railroad

Existing Bikeways

- Shared Use Path / Hike-Bike Trail
- Bike Lane
- Bike Route

Land Use

- City of Overland Park
- Water
- Park - Existing
- School / Private School
- College / University



N

Miles
0 0.5 1 2

Map data provided by the City of Overland Park, MARC, and the U.S. Census Bureau. Map is provided "as-is" for informational purposes, and no guarantee is made as to the accuracy of the map or data. Plot date: 1/12/2015

OVERLAND PARK
KANSAS
ABOVE AND BEYOND. BY DESIGN.

Toole Design Group
Vireo

City of Overland Park

Safe Bicycle Use Outreach Project
Map 2: Bicycle Crash Locations

Map Description

This map displays all bicycle crashes in Overland Park from January 1, 2004 through March 15, 2014, that a police report was filed for and the location could be mapped. Crash locations are approximate. A total of 188 crashes are mapped within Overland Park, for an average of approximately 19 crashes per year.

Legend

Streets/Transportation

- Highways
- Thoroughfares
- Collectors
- Local Streets
- Local Private Streets
- Railroad

Bikeways

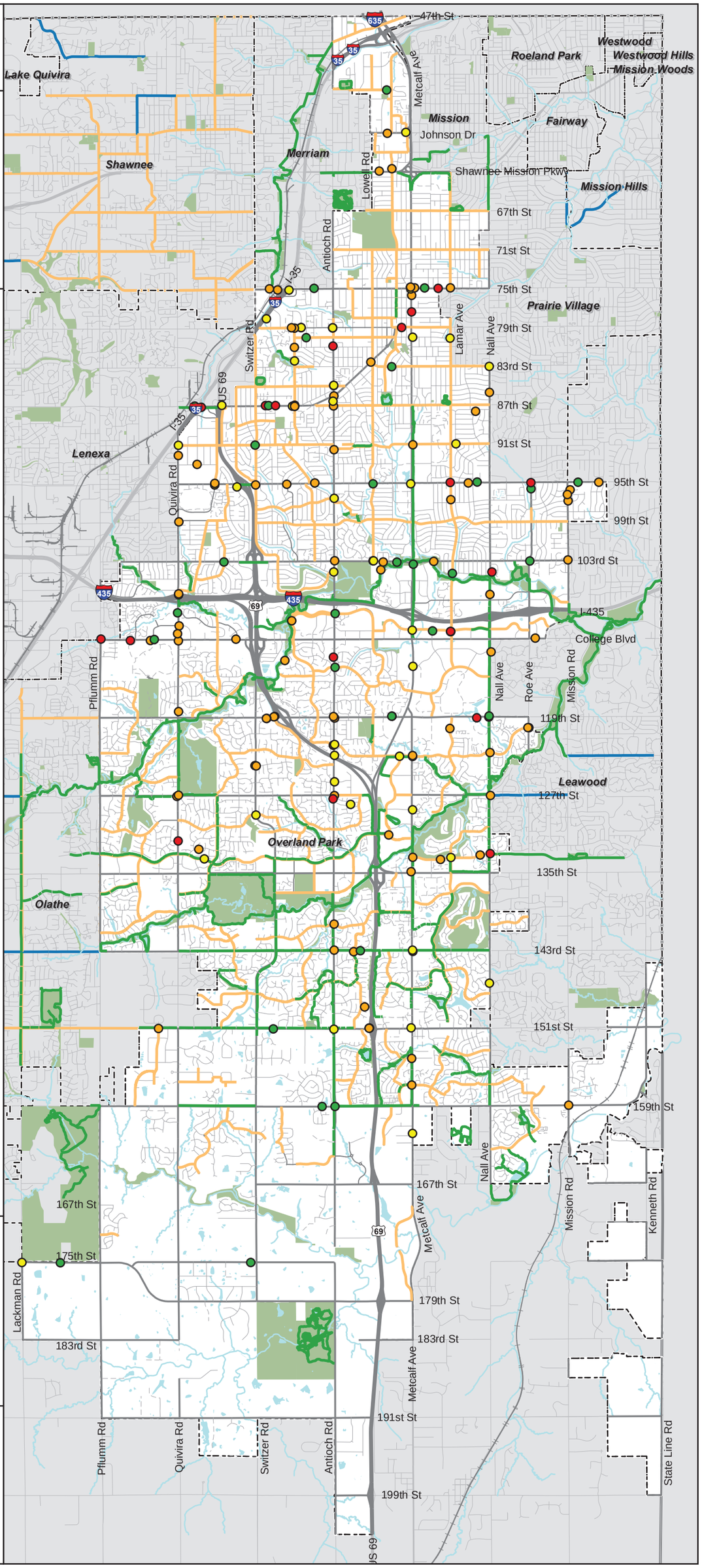
- Shared Use Path - Existing
- Bike Lane - Existing
- Bike Route - Existing

Land Use

- City of Overland Park
- Water
- Park - Existing

Bicycle Crash Locations

- No Injury
- Possible Injury
- Injury
- Incapacitating Injury



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City of Overland Park

Safe Bicycle Use Outreach Project
Map 3: Bikeway Corridors

Map Description

This map displays existing and proposed bikeways in Overland Park by the type of bikeway netowrk. The City Netowrk is designed to provide direct connections across Overland Park, while the Neighborhood Netowrk is designed to access local destinations including schools and parks while utilizing less trafficked streets.

Legend

Streets/Transportation

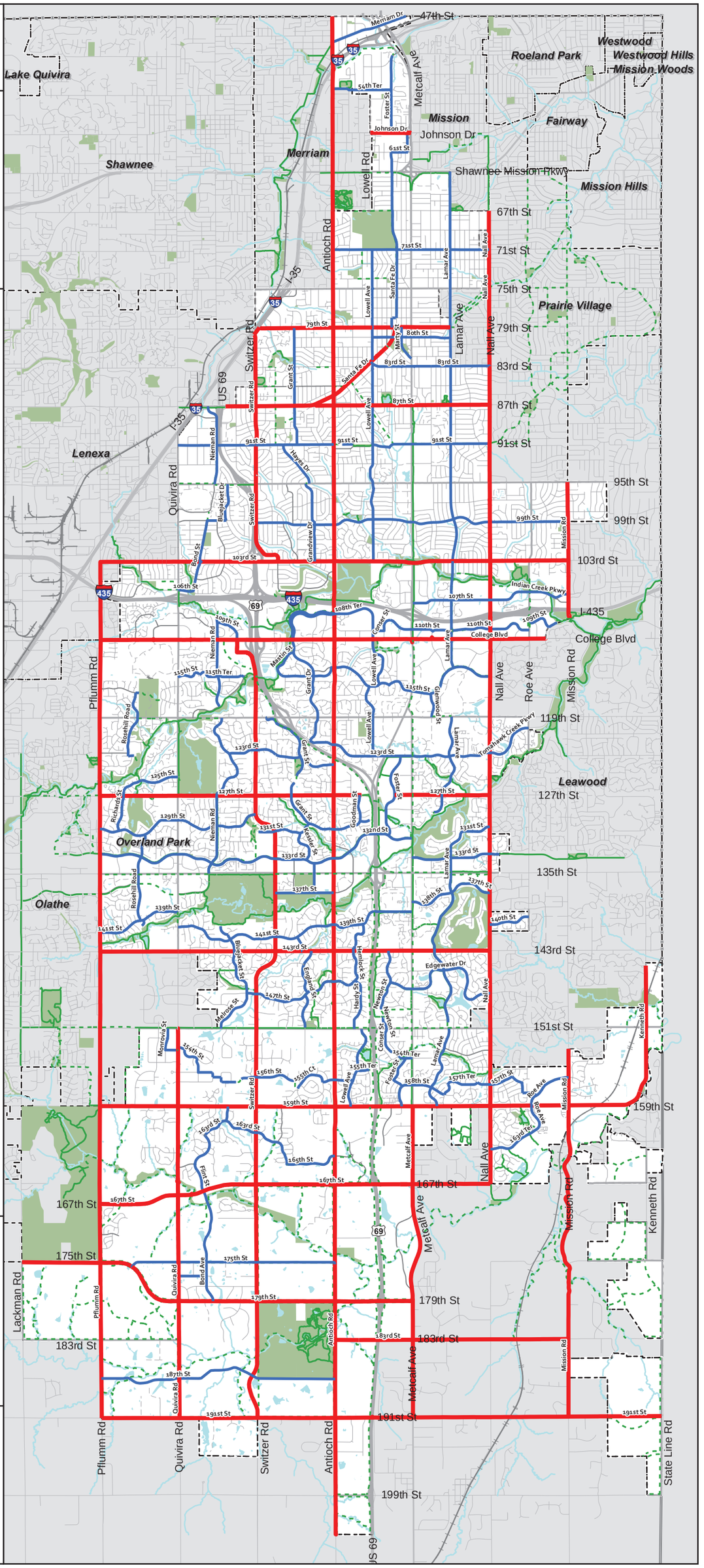
- Highways
- Thoroughfares
- Collectors
- Local Streets
- Local Private Streets
- Railroad

Bikeways (Existing/Proposed)

- Shared Use Path
- City Network
- Neighborhood Netowrk

Land Use

- City of Overland Park
- Water
- Park - Existing



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Map data provided by the City of Overland Park, MARC, and the U.S. Census Bureau. Map is provided "as-is" for informational purposes, and no guarantee is made as to the accuracy of the map or data. Plot date: 1/12/2015

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City of Overland Park

Safe Bicycle Use Outreach Project

Map 4: Existing & Proposed Bikeways

Map Description

This map displays existing and proposed bikeways in the Overland Park region by the type of bikeway.

Legend

Streets/Transportation

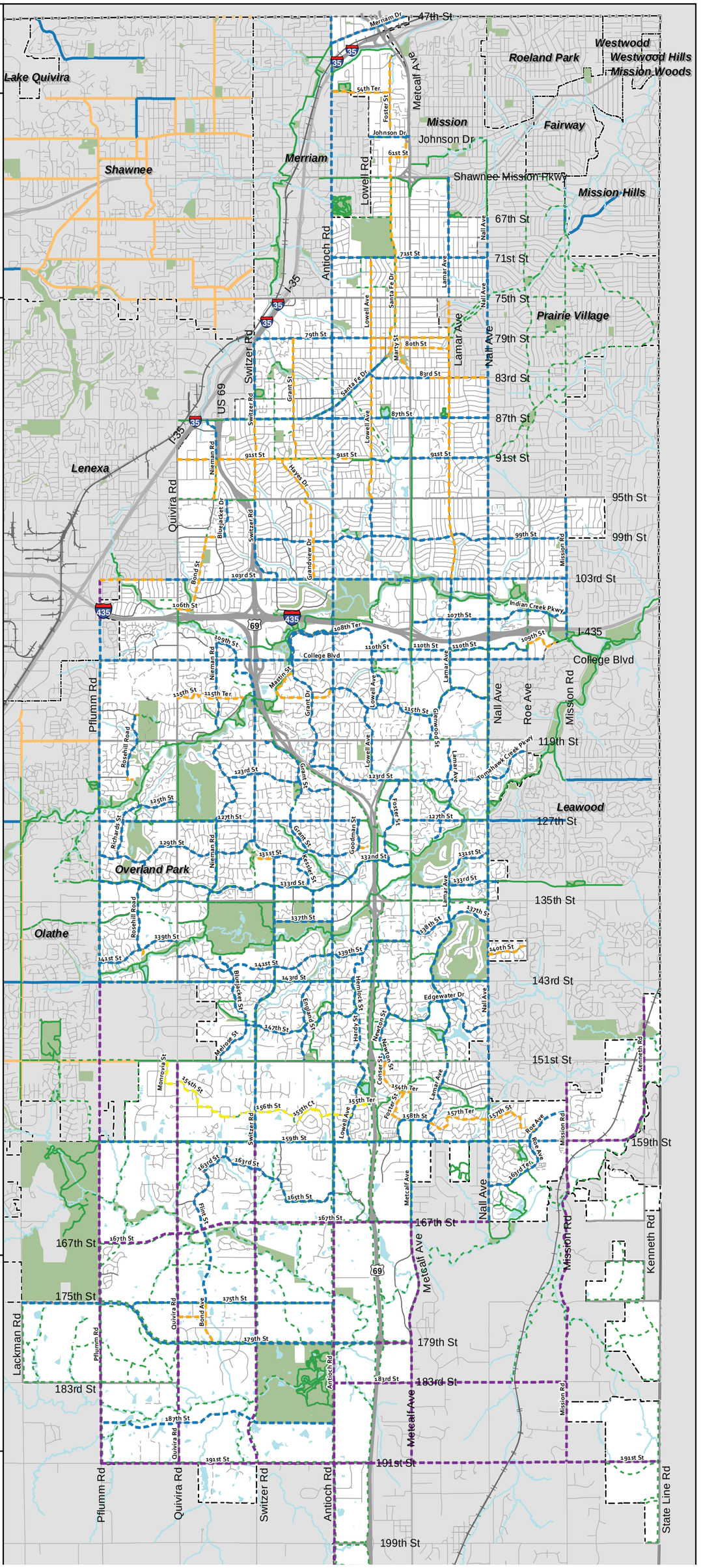
- Highways
- Thoroughfares
- Collectors
- Local Streets
- Local Private Streets
- Railroad

Bikeways (Existing/Proposed)

- Shared Use Path
- Bike Lane
- Buffered Bike Lane
- Shared Lane Marking
- Signed Bike Route

Land Use

- City of Overland Park
- Water
- Park - Existing



N

Miles

0 0.5 1 2

Map data provided by the City of Overland Park, MARC, and the U.S. Census Bureau. Map is provided "as-is" for informational purposes, and no guarantee is made as to the accuracy of the map or data. Plot date: 4/29/2015

OVERLAND PARK KANSAS

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Street

City of Overland Park

Safe Bicycle Use Outreach Project

Project Report Appendix
Adopted April 13, 2015

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APPENDIX A

A | Field Work Description

Extensive field work was conducted by the project team during the spring and summer of 2014 to verify the need for bicycle facilities in specific locations and ensure that appropriate facilities are recommended.

Throughout Overland Park, each thoroughfare and nearly every collector was subject to a "windshield survey." This survey provides a general, but fairly comprehensive, assessment of roadway factors that are important for determining the need and potential for bicycle accommodations. In addition to the windshield survey, multiple stops per street segment were made to take cross section measurements and verify other conditions.

A.1 | Factors Examined During Fieldwork

Following is a list of factors that were considered in the field review process:

- Street connectivity
- Topography
- Functional classification
- Types of land uses served
- Speed limit
- Observed traffic speeds and volumes
- Traffic controls at intersections
- Presence of turn lanes at intersections
- Presence of and design of highway interchanges
- Pavement quality
- Trail connectivity
- Presence of sidepaths
- Likely truck traffic volumes
- Relationship to key destinations
- Connectivity to adjacent jurisdictions
- Presence of barriers and potential as a barrier avoidance route
- Potential sight distance or other safety issues (dangerous drainage grates)
- Potential for roadway hazards including vegetative overgrowth
- Observed cyclists
- Observed need for motor vehicle parking
- Roadside conditions such as drainage structures, presence of sidewalks, buffers, streams, wetlands, etc.
- Roadway measures:
    - Curbed or open section
    - Overall road and median width
    - Number and width of travel lanes
    - Shoulder width
    - Presence of parking and parking lane width

Because the primary purpose of the survey was to make a bicycle facility recommendation, a complete inventory of these features was not documented for every roadway section reviewed. However, much of the data collected was logged manually on data collection sheets. In addition to the windshield survey, a number of streets were reviewed using publicly available Google maps and online street-view applications.

APPENDIX B

B | Public Input Summary

This appendix details the public input process used for the Overland Park Safe Bicycle Use Outreach Project.

B.1 | Overland Park WikiMap

WikiMap is an online interactive public involvement platform that allows participants to identify and comment on specific challenge areas and opportunities to improve bicycling. This memo provides an overview of the data that was collected through the Overland Park Safe Bicycle Use Outreach Project WikiMap. The memo does not describe detailed entries on the map, but rather the generalized map comments. The detailed data collected from the WikiMap will help inform the final recommendations for the Overland Park Project. The full results from the WikiMap will be provided to the City for internal use at the conclusion of the project.

The Overland Park Project WikiMap was advertised by the City through various channels and was open for participation from February 10 through March 31, 2014. During this time, 254 people logged into the WikiMap site and created accounts, but only 112 people provided input on the map itself. The 112 mapping participants entered 719 total comments into the map. Map input includes identifying specific locations (points) that are barriers to bicycling or bicycling destinations, as well as routes (lines) that people currently use for bicycling as well as those they would like to use. The overall rate of participation in the WikiMap by registered users is consistent with other WikiMap projects we have used, while the total number of comments exceeds other projects we have completed for cities or regions of similar size.

The Mid-America Council, the metropolitan planning organization for the Kansas City region, is in the process of creating a Regional Bikeway Plan. As part of this planning effort, a regional WikiMap was created which also covers Overland Park. The regional WikiMap had considerable participation, and comments were received for the Overland Park area. Those comments are not reflected in the maps and notes in this memo, but will be considered with the project recommendations.

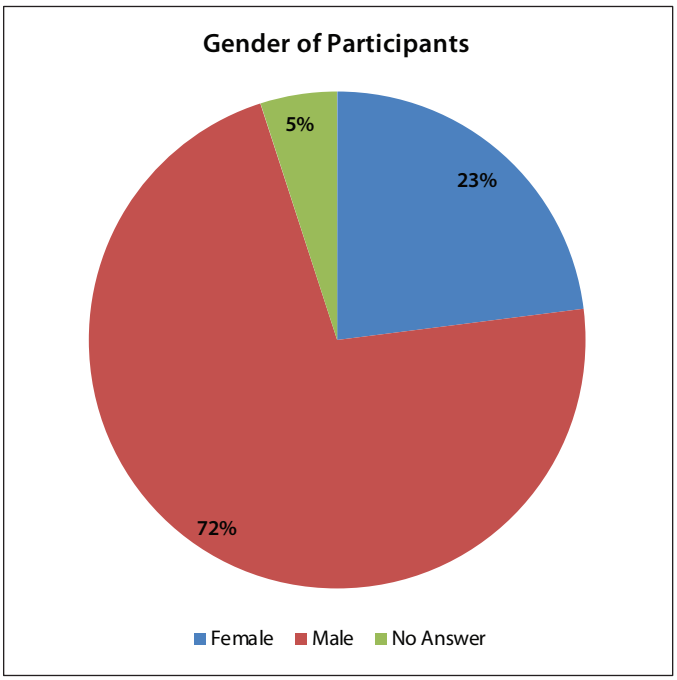


Figure 1: Gender of participants registering for the WikiMap

Introductory Survey

When participants registered for the WikiMap, each was asked to complete a brief survey. This section provides an overview of the Introductory Survey questions and participants' responses.

What is your gender?

Across the United States, surveys show that bicyclists, especially avid bicyclists, are predominately male. Figure 1 illustrates that approximately 72% of the Overland Park WikiMap participants are male and 23% are female (5% did not identify their gender). It is unlikely that this figure accurately represents the overall gender make-up of Overland Park's bicyclists, but it does indicate that males were more interested in providing feedback in the WikiMap.

What is your age?

As shown in Figure 2, the majority of the WikiMap participants were between the ages of 41 and 65 (62%). An additional 24% of the participants were between the ages of 26 and 40. Ten percent of participants were over the age of 65, which is not a demographic that is commonly thought of when discussing bicycling or technology usage. It is likely that the actual Overland Park bicycling population is more evenly spread across the age spectrum than is represented by participation in the WikiMap.

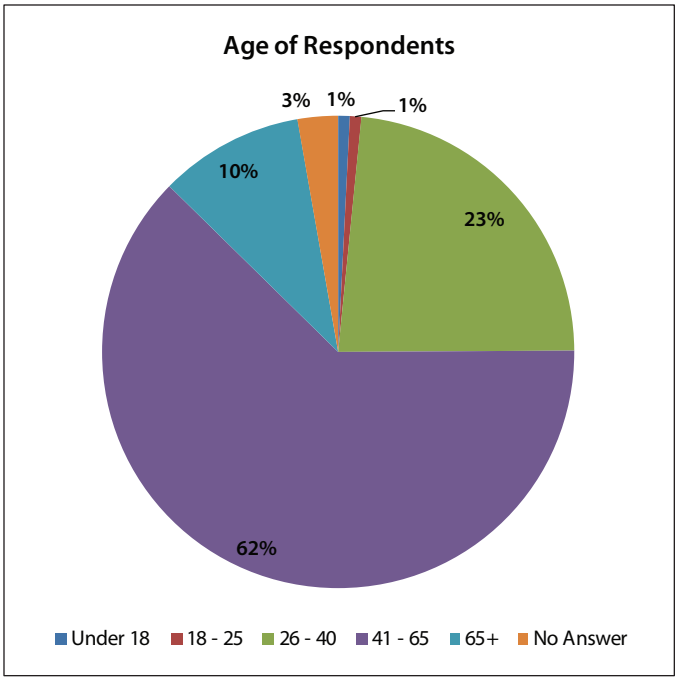


Figure 2: Age of participants registering for the WikiMap

What is your home ZIP code?

WikiMap participants hailed from across the Kansas City region, but were concentrated in Overland Park. Figure 3 displays the number of WikiMap participants by home ZIP code for ZIP codes that had three or more total participants.

Assessment of Introductory Survey

The Introductory Survey results indicate that the WikiMap participants are not completely representative of Overland Park residents. Generally speaking, the WikiMap participants skew much more male than the Overland Park population, and the respondents also skew older than the general population. This is not a surprising outcome, and is a common occurrence with WikiMaps and other online mapping tools. As previously noted, avid bicyclists tend to skew male, and also tend to skew older than the general population.

Just because the WikiMap participants are not representative of bicyclists in Overland Park in general does not mean that the comments received are not valuable. The avid cyclists who likely comprised most of the WikiMap participants likely log extensive bicycle mileage on Overland Park streets and paths. With this riding comes extensive knowledge about good streets to ride on as well as problem areas for bicycling. Additional focus groups have been held with a variety of people and bicycle user groups from around Overland Park that will help round out the public feedback that was received through the WikiMap.

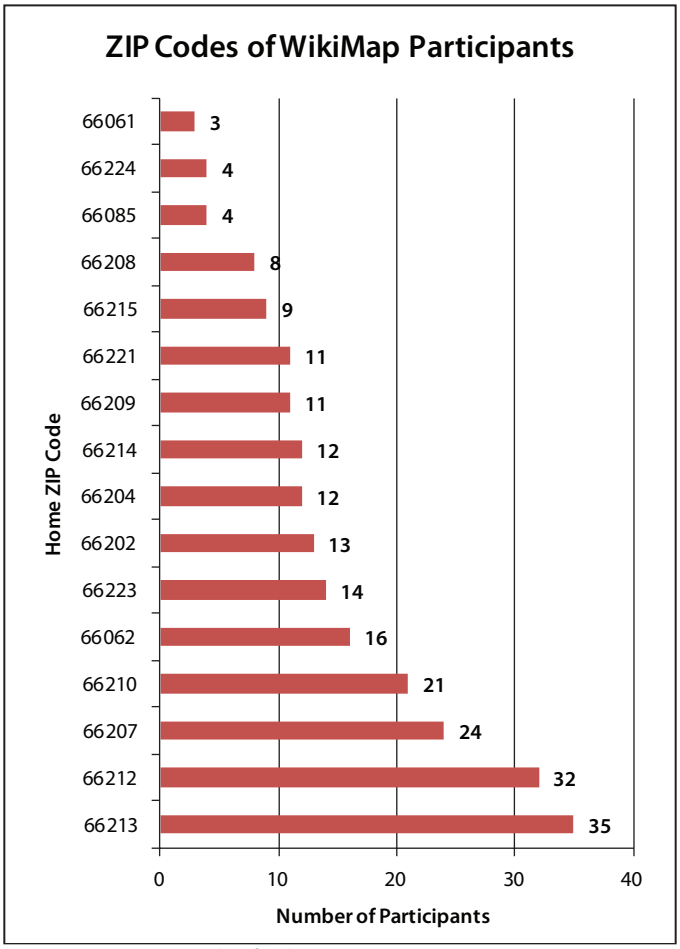


Figure 3: Home ZIP code of WikiMap participants

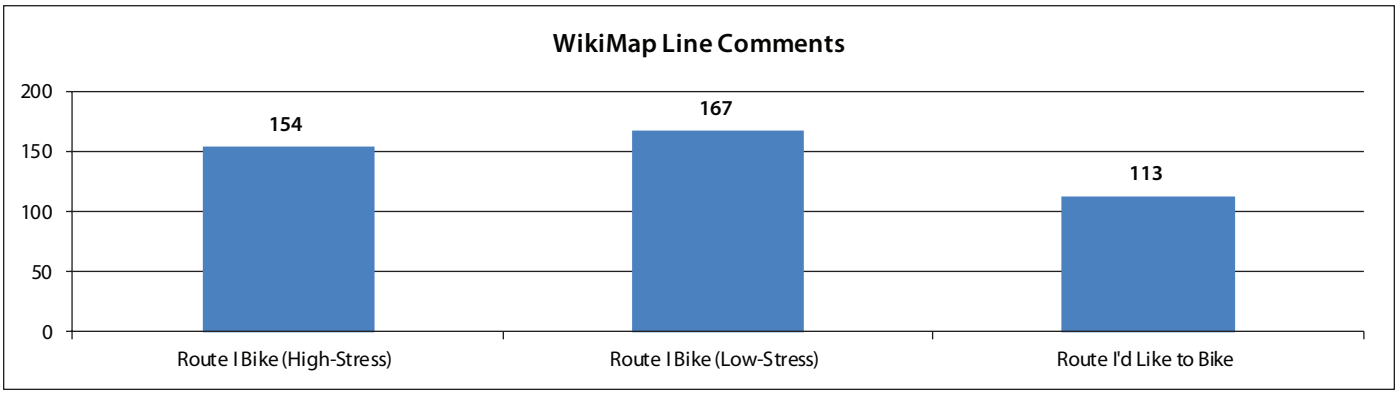
Map Comments

The WikiMap allows participants to enter points or lines on the map and then attach a comment to the point or line. This section summarizes the number of line or point types that were entered into the map.

Line Comments

Participants drew 434 lines to indicate routes that the currently bike and routes that they would like to bike. Figure 4 displays the number of the different types of lines that participants entered in the map.

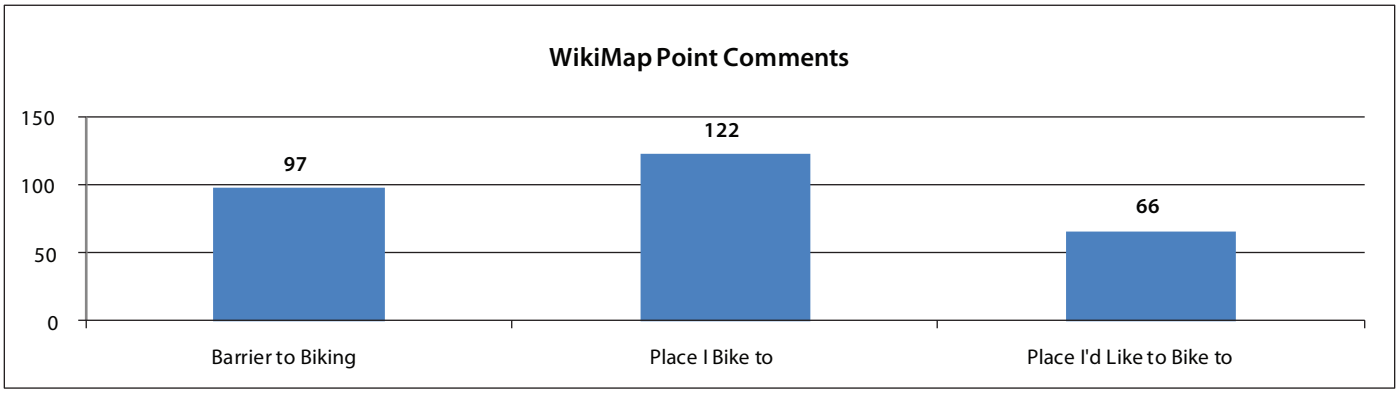
Figure 4: WikiMap line comments by type



Point Comments

In total, 285 point comments were contributed to the WikiMap. Points allow people to comment on single features, such as a place they bicycle to or an intersection they have problems at, rather than a route. The predominant point type placed by participants was the "place I bike to" point.

Figure 5: WikiMap point comments by type



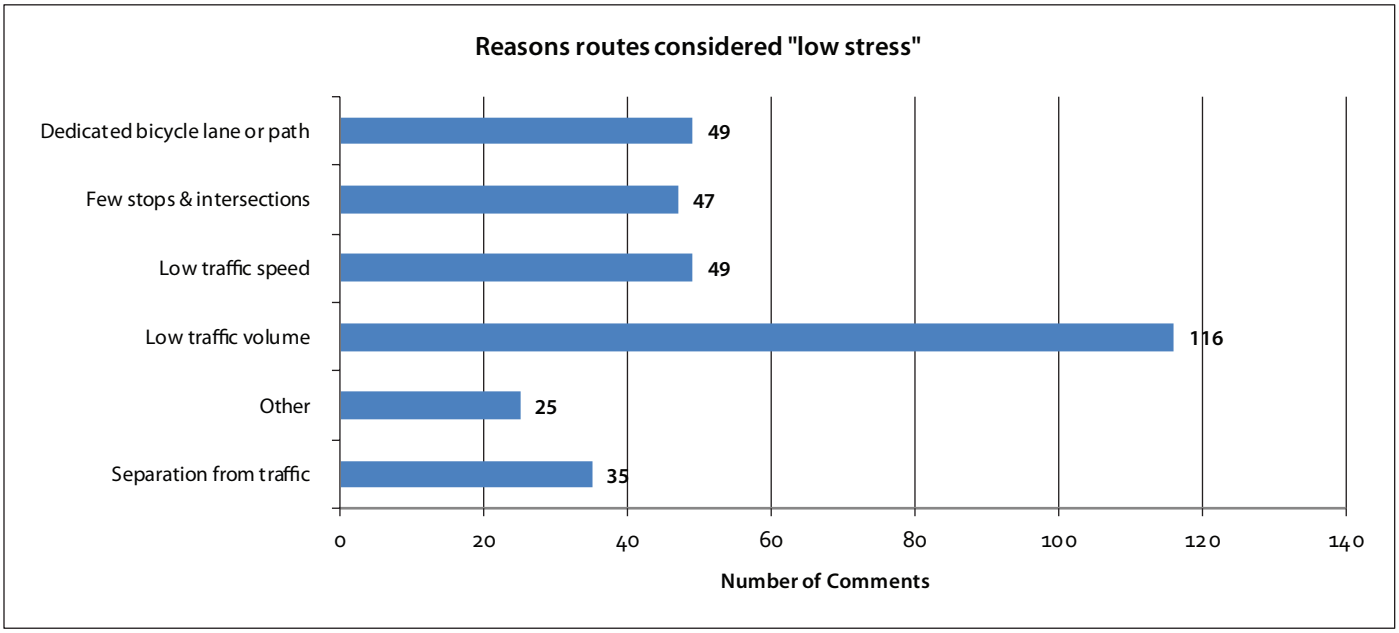
Descriptions of the maps that are included with this memo and the types of comments displayed on each map are provided below. While specific comments are not provided in this memo, all of the comments will be available in Excel and GIS formats at the conclusion of the project.

Low Stress Routes & Current Bicycle Destinations

Map A at the conclusion of the appendix displays routes that WikiMap participants identified as "low stress" and locations that they currently bicycle to. "Low stress" was not defined in the WikiMap – it was left up to each participant to determine routes that they felt comfortable bicycling. The more lines that were created by users on a given route results in darker blue lines on the map. Not surprisingly, the Indian Creek Trail jumps out as the most popular low stress route. The Tomahawk Creek Trail is also a popular low stress off-street corridor. No single on-street route received as many "low stress" comments as the two trails noted above, although portions of Lamar Avenue, Lowell Road, 127th Street, 175th/179th Street, and 199th Street were all popular low stress routes. Notably, a few people identified 143rd Street as a low stress route in Overland Park, but many more people noted 143rd as a low stress route in Olathe where the street has bike lanes.

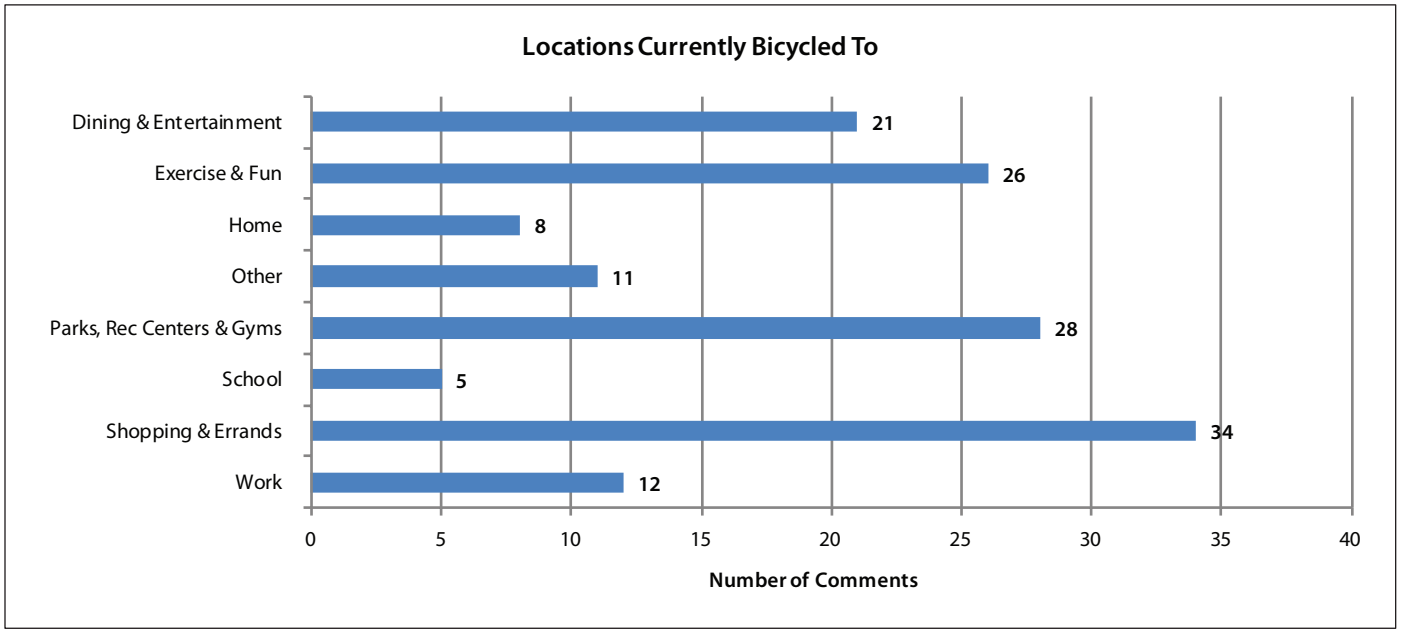
Figure 6 displays reasons that WikiMap participants selected for why a particular route is low stress. Participants were able to select multiple reasons for a single route, so the numbers noted below do not sum to the total number of low stress routes.

Figure 6: Reasons cited by WikiMap participants for a route being "low stress"



Locations that people currently bicycle to are dispersed around the city, but include schools, employment centers, parks, commercial areas, and other locations. Downtown Overland Park, the City Hall & Price Chopper area, and the Central Library were popular destinations. In general, people will bicycle to any location that is relatively nearby that they feel safe bicycling to and know that there is somewhere to lock their bicycle. Figure 7 displays the number of comments that were received for different types of destinations.

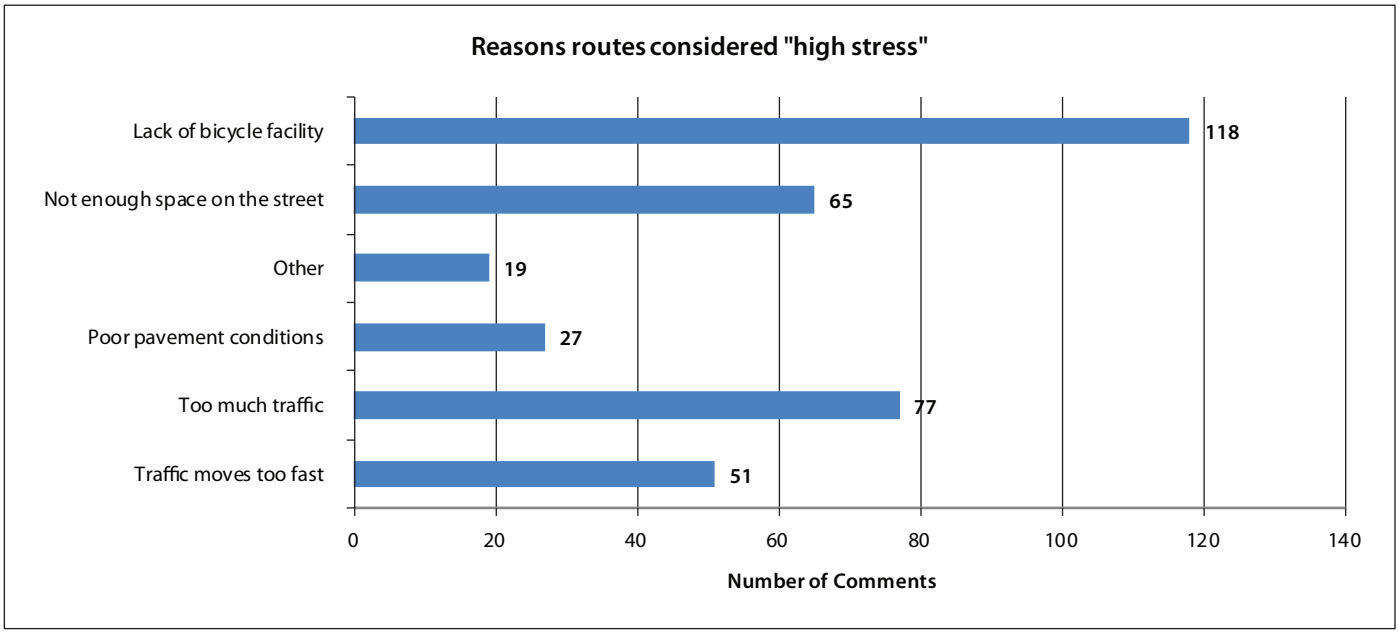
Figure 7: Locations identified by WikiMap participants that they currently bicycle to



High Stress Routes & Barriers to Bicycling

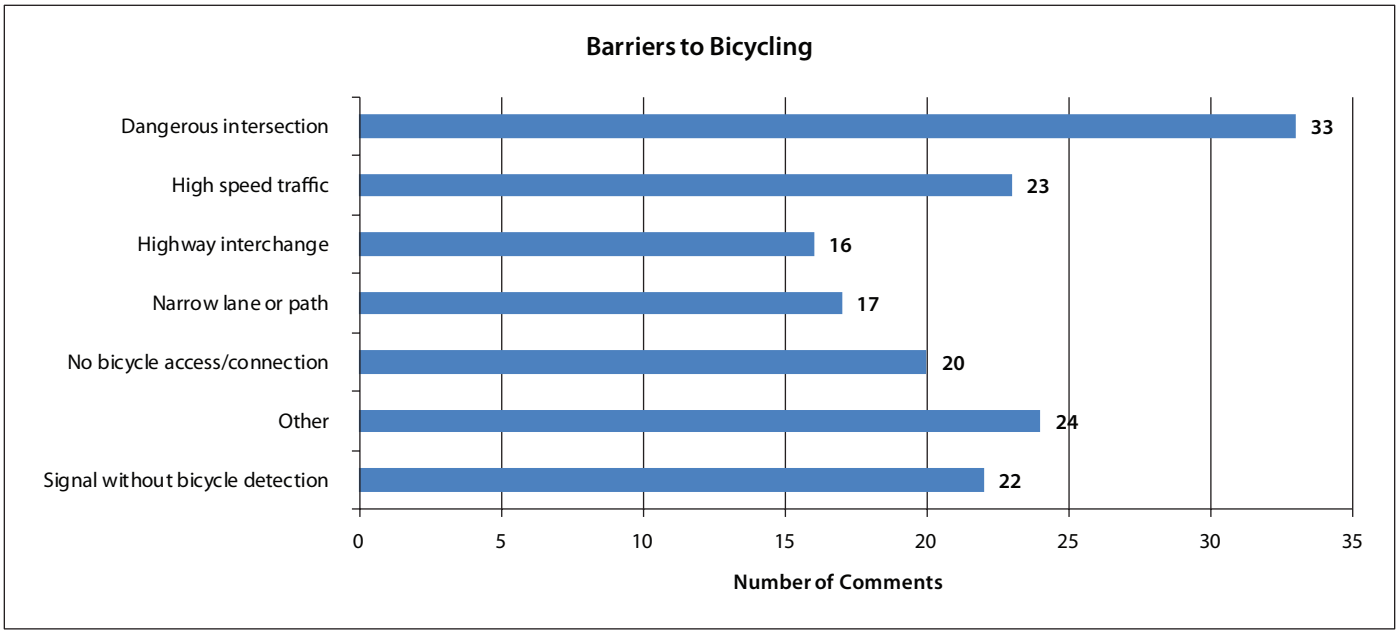
Map B at the conclusion of the appendix displays routes that WikiMap participants identified as "high stress" as well as points that they consider to be barriers to bicycling. As with the low stress routes, "high stress" was not defined and was left to the users discretion. Not surprisingly, virtually every thoroughfare in Overland Park was identified as high stress. Interestingly, a number of routes that were identified as low stress by some users were identified as high stress by other users, including portions of Lamar Avenue, 175th/179th Streets, and 199th Street. This demonstrates the different levels of traffic stress that individuals have – some people may be perfectly comfortable riding with moderately heavy traffic, while others begin to get uncomfortable with even relatively low levels of traffic. The major paths were also noted as high stress by a few WikiMap users, which is likely because of conflicts with other path users. Figure 8 displays reasons cited by WikiMap users for why they consider a particular route high stress.

Figure 8: Reasons cited by WikiMap participants for a route being "high stress"



The second map also displays points that users identified as barriers to bicycling. A variety of barrier types were provided as standard responses and users could enter their own comments as well. Figure 9 displays the number of comments received by the type of barrier identified. As can be seen on the map, many of the barriers are crossings of freeways or major thoroughfares.

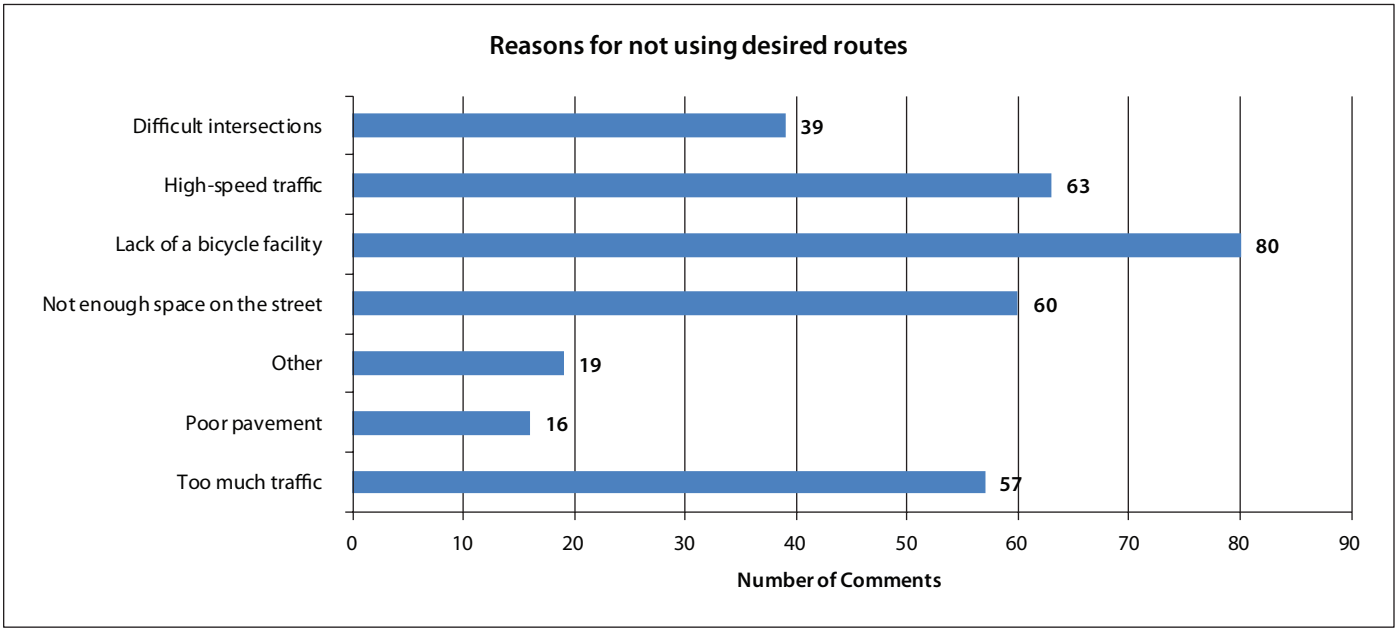
Figure 9: Locations identified by WikiMap participants as barriers to bicycling



Desired Routes & Destinations

Map C at the conclusion of the appendix displays routes that WikiMap participants would like to be able to bicycle as well as destinations they would like to bicycle to. The majority of the routes that people identified as desired routes are on Overland Park thoroughfares – streets they likely do not currently feel comfortable bicycling on. Figure 10 displays the reasons that people cited for not using the route they identified.

Figure 10: Reasons cited for not bicycling desired routes



WikiMap users were also able to enter destinations that they would like to bicycle to, but do not currently do so. Figure 11 displays the types of destinations that users noted, while Figure 12 displays the reasons that were noted for not bicycling to these destinations.

Figure 11: Types of destinations WikiMap users desire to bicycle to

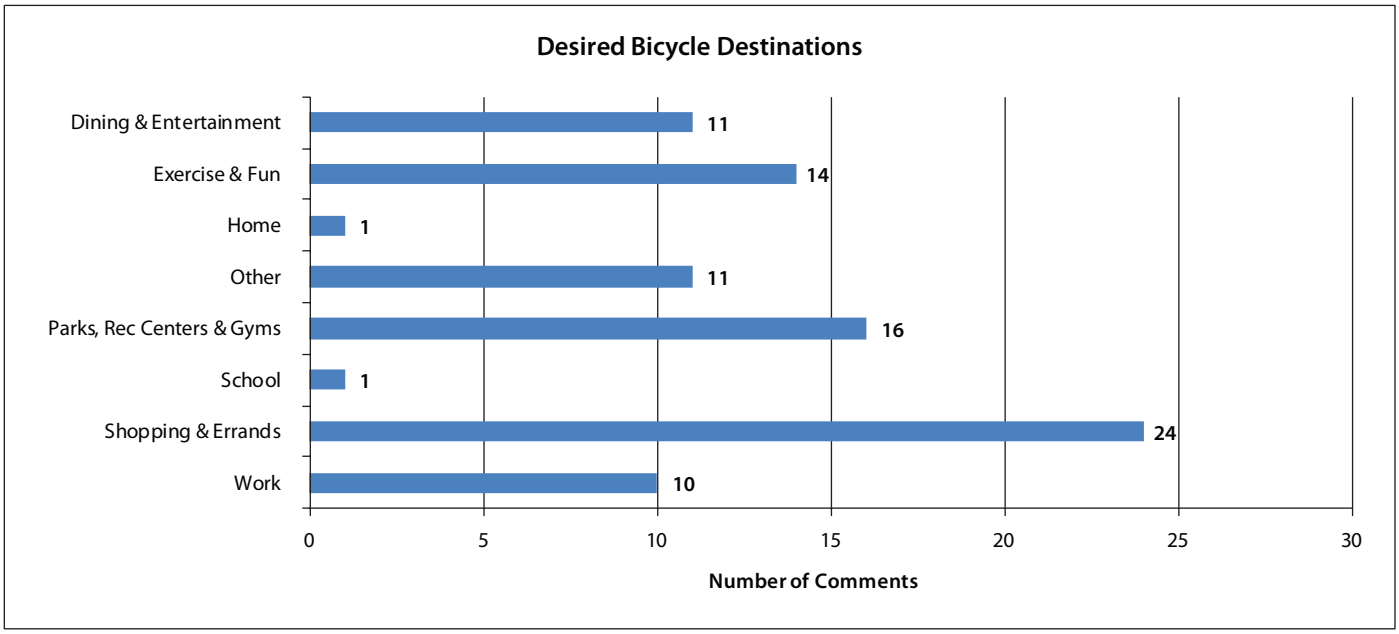
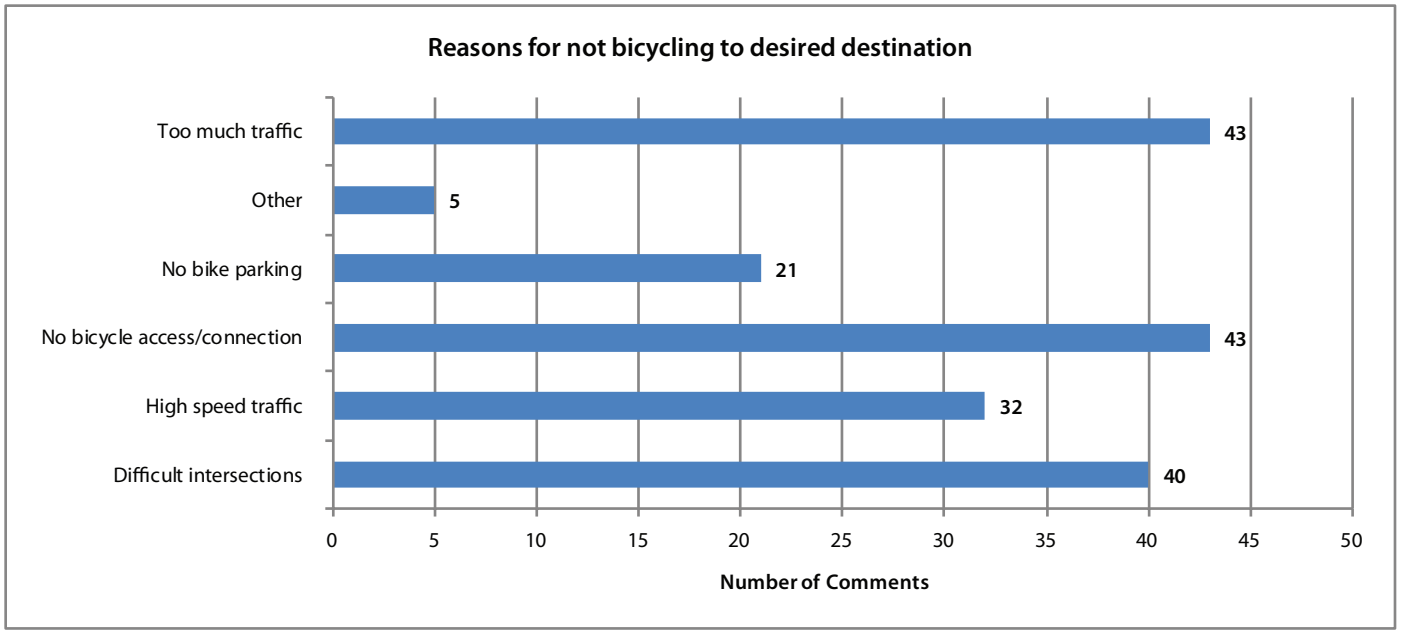


Figure 12: Reasons cited for not bicycling to desired bicycle destinations



Conclusion

The WikiMap allows participants from any background and any skill level to provide input on conditions for bicycling from the comfort of their home or mobile device. The primary benefit of this is that a greater level of public participation can be achieved than by soliciting input at public meetings. The WikiMap allows input from participants at times that are convenient for them, and when they have time to think about the comments they would like to make. Additionally, the ability to aggregate all input data and display areas with large number of comments eases the analysis of large amounts of public comment.

It is interesting to note the significant overlap of many streets on each of the three WikiMap maps. For example, Lamar Avenue and 127th Street were both commented on repeatedly on all three maps. This demonstrates that different people have different ideas about what makes an acceptable street for bicycling. For some WikiMap users, these two streets are currently "low stress" routes, for other users they are "high stress" routes, and still other map users would like to bicycle on these streets, but will not do so under current conditions.

The comments received from the public through the WikiMap will be an important factor in developing the final Overland Park Safe Bicycle Use Outreach Project recommendations.

B.2 | Online Survey

Survey Summary

The Overland Park Safe Bicycle Use Outreach public survey garnered 626 responses, with the majority of respondents living within Overland Park and working within Overland Park and neighboring Leawood, Kansas. Males outnumbered female respondents two to one, and 92% of those answering the survey have cycled within the last 12 months.

36% of the respondents consider themselves confident cyclists, able to cycle in nearly any road or traffic condition. The balance of individuals represented a strong tendency toward those who are less comfortable in heavy car traffic, but whom regularly use quieter streets and Overland Park's shared-use paths for cycling. 3% of respondents mentioned a desire to bicycle in Overland Park, if conditions become safer.

The majority of cycling trips taken by respondents are for recreational purposes and more of these trips are made on calm streets than on the shared-use path system.

Cyclists noted that the most significant barrier they face is too few bicycle facilities. Poor interconnectivity was also cited as a large barrier to their biking.

The most sought-after improvement among respondents is bike lanes on busy streets, and they noted this is where they would like to see the City next spend its transportation development dollars.

The most important educational opportunity perceived by the respondents is teaching automobile drivers how to interact with cyclists on the road. Comments noted drivers' failure to yield a minimum 3' passing clearance, stopping in areas where bikes travel at intersections, honking, and other behaviors intending to startle cyclists. The second most important educational opportunity perceived by the respondents was to train cyclists on the rules of the road and safe cycling techniques.

Demographics

Of the 626 survey respondents, 67% are Male and 33% are Female. As shown in Figure 1, 52% of the survey group are between the ages of 25 and 49, 46% are 50 and over, and 2% are under 24. In addition, 2.6% have a disability that affects their ability to bike.

A total of 51 residential zip codes were recorded. The most frequent zip codes included: 66213, 66212, 66204, 66207, and 66223; all of which are located in Overland Park, Kansas

A total of 90 work zip codes were recorded. The most frequent zip codes included: 66212, 66210, 66213, 66211, and 66214; located in Overland Park, Kansas and Leawood, Kansas.

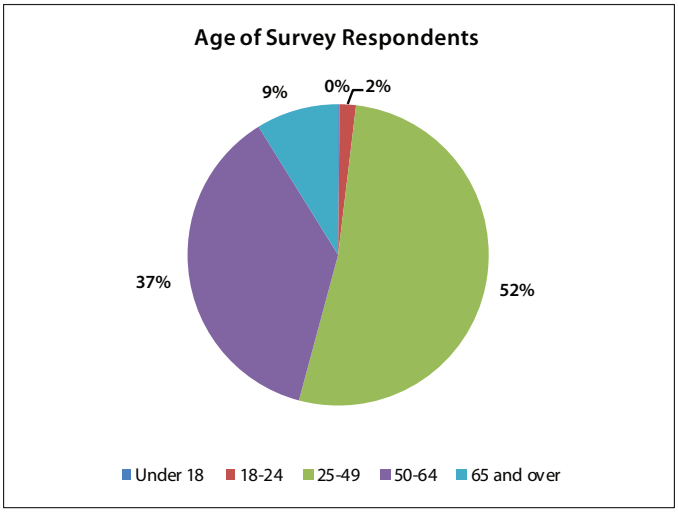
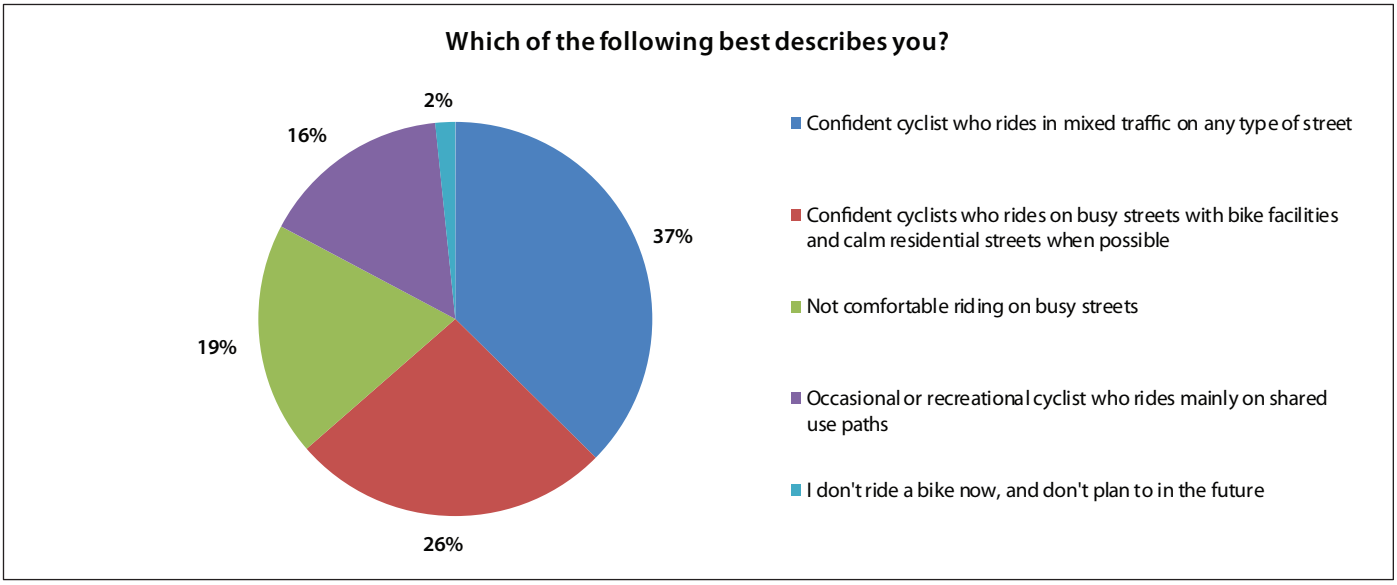


Figure 13: Age of survey respondents

Frequency and Type of Bicycle Trips

Within the last year, 92% of 634 survey respondents bicycled in Overland Park. Of these active bicyclists, 32% ride with their children. 36% describe themselves as confident cyclists, who ride in mixed traffic on any type of street, compared to 19% who said they are not comfortable riding on busy streets. 15% are occasional or recreational cyclists mainly using shared-use paths and 3% don't currently ride a bike, but might if safer facilities were provided.

Figure 14: Self-description of bicyclist type by survey respondents



The most preferred bicycle facilities were ranked by the survey group from the most important to least important. The rankings below are based on a weighted calculation where items ranked first are valued higher than the following ranks:

1. Designated striped bicycle lanes.
2. Off-street, shared –use paths
3. Wide travel lanes that allow motorists to safely pass bicycles on the left

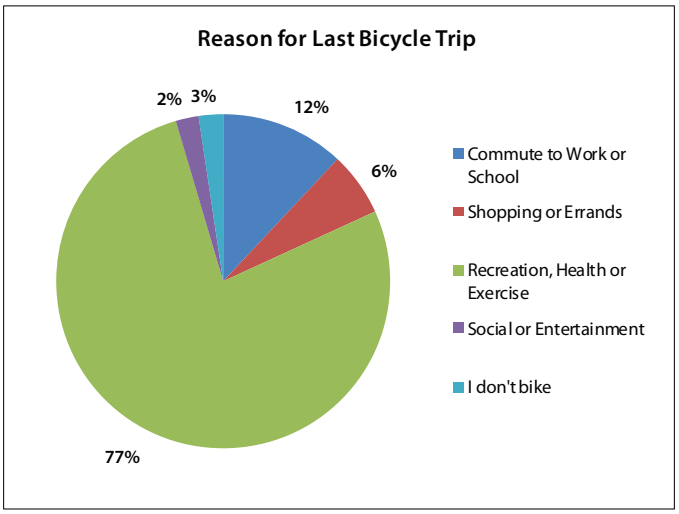


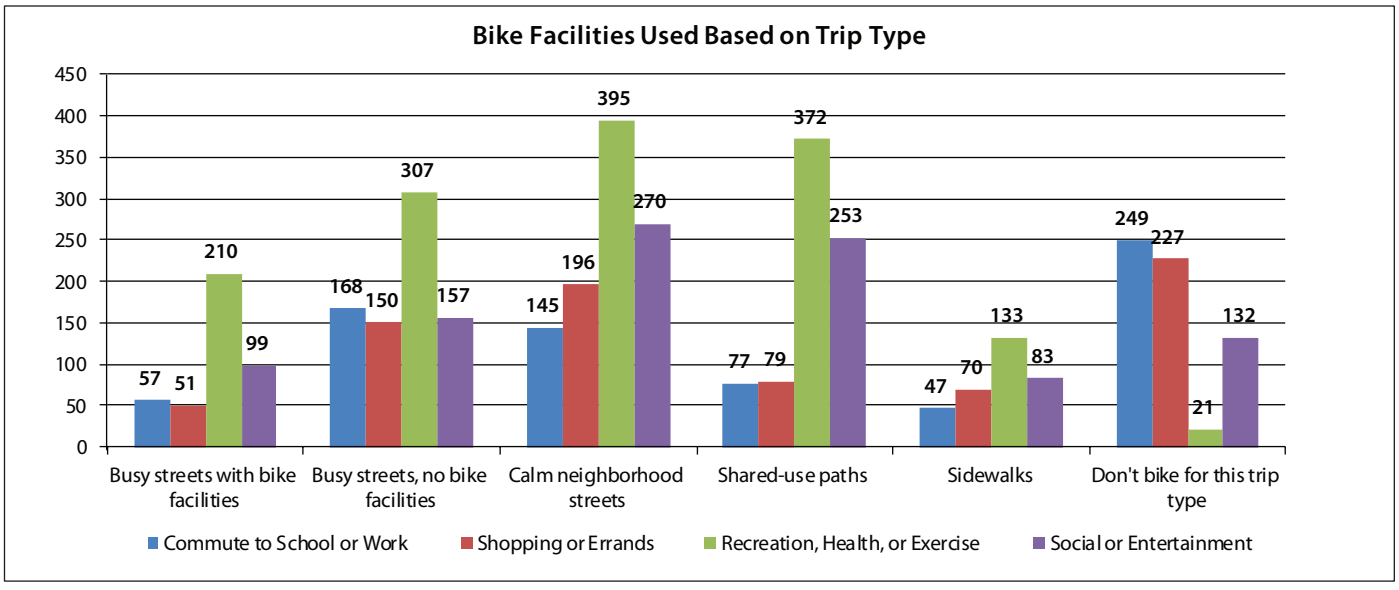
Figure 15: Reason for last bicycle trip

4. Neighborhood street or with minimal traffic and low speeds
5. Any streets where bicycles are allowed
6. Sidewalks
7. Other (cycle track, buffered bicycle lanes, not a bicyclist)

As shown in Figure 15, 77% of those surveyed said their latest bicycle trip was for recreation, health, and exercise, while 12% commute to work or school by bike. Only 3% responded they do not currently bike.

As shown in Figure 16, 47% of the survey group currently bicycle on calm neighborhood streets, 36% use busy streets with no bike facilities, and 36% use shared-use paths. Only 15% bike on sidewalks.

Figure 16: Bike facilities used by trip type



Biking for Recreation, Health or Exercise

When bicycling for recreation, health or exercise, 66% of survey respondents bike more than 10 miles one-way and 17% bike between 5 to 10 miles one-way. (See Figure 17)

As shown in Figure 18, calm neighborhood streets, shared-use paths and busy streets with no bike facilities are used for recreational biking.

Figure 19 displays the number of days per week that survey respondents reported going for recreational rides on their bike. When weather conditions are good, 23% of survey respondents average 3 days per week. However, when weather conditions are not favorable, only 6% bike 3 days per week. As would be expected, fewer people go for recreational rides when the weather is "bad" than when the weather is "good."

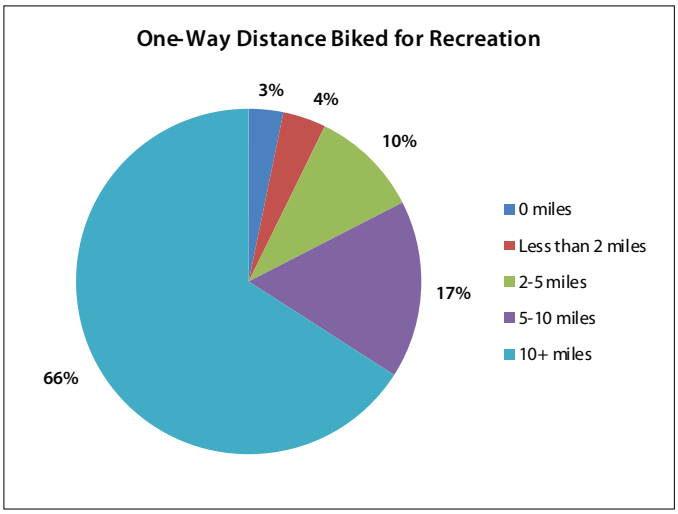


Figure 17: One-way distance biked for recreation

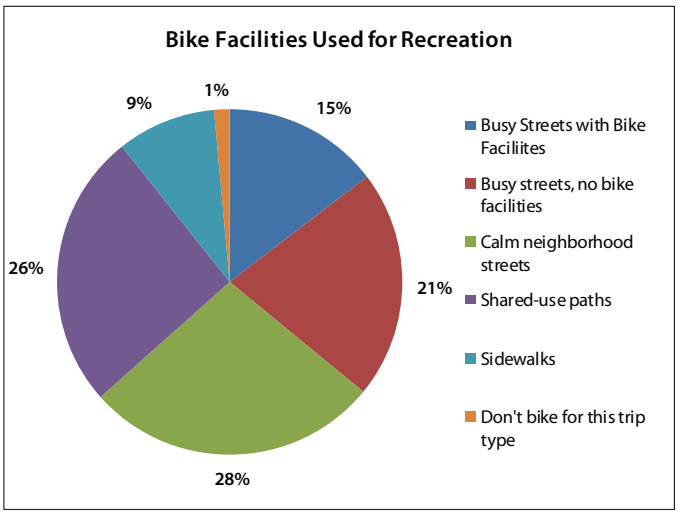
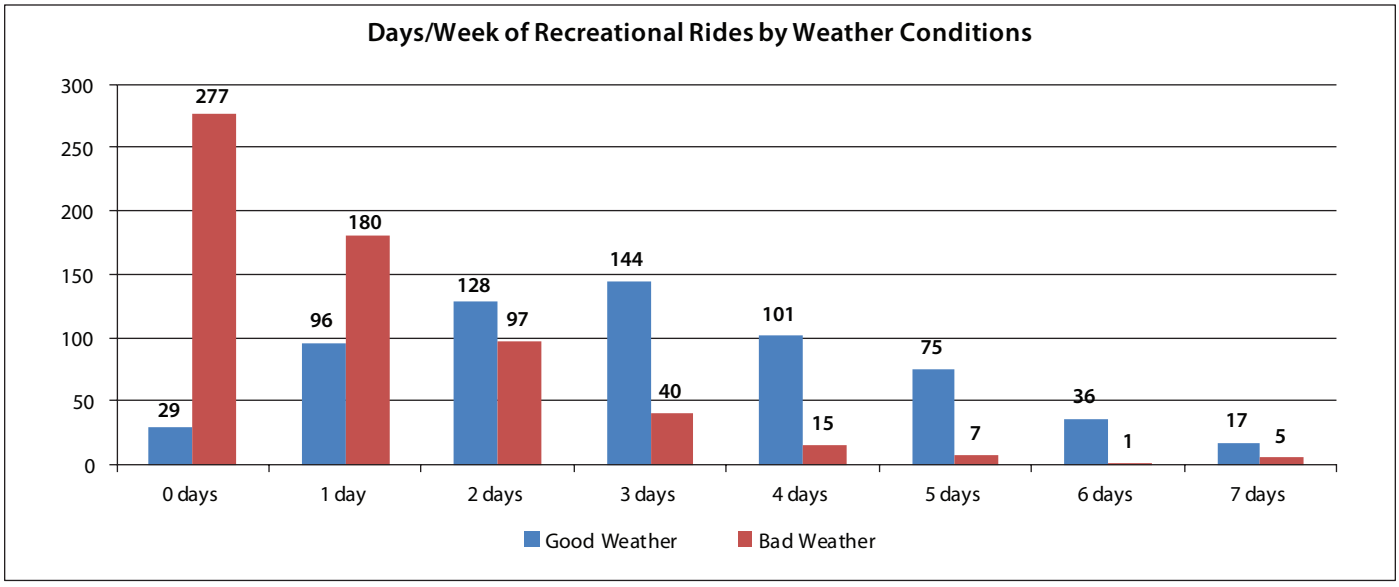


Figure 18: Bicycle facilities used for recreation

Figure 19: Number of days per week of recreational bicycling



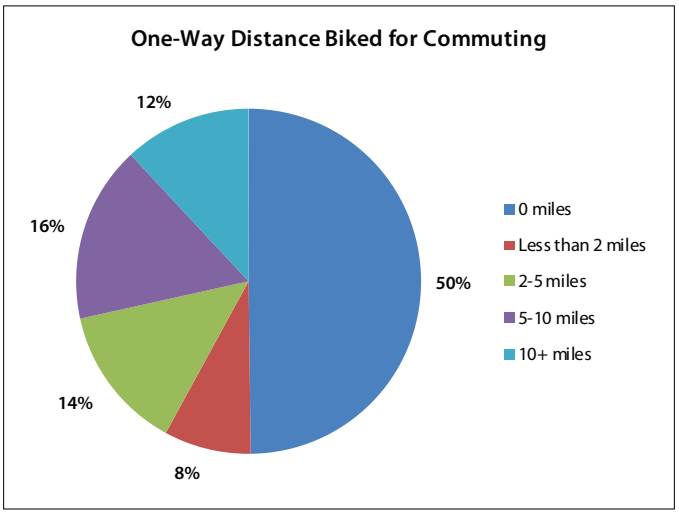


Figure 20: One-way distance commuted by bicycle

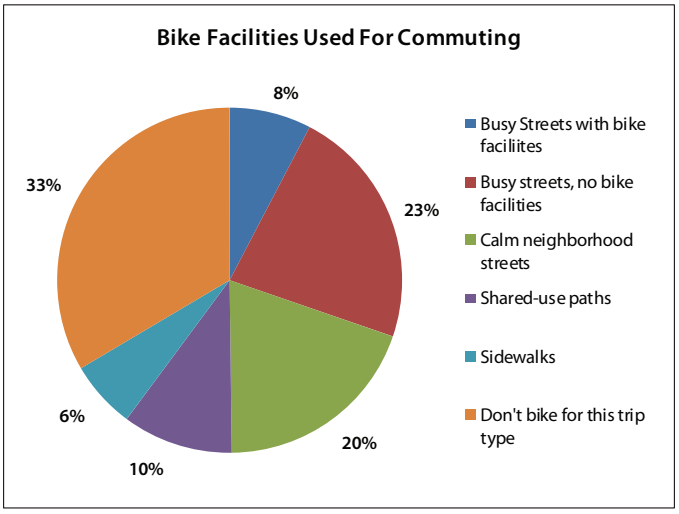


Figure 21: Bicycle facilities used for commuting

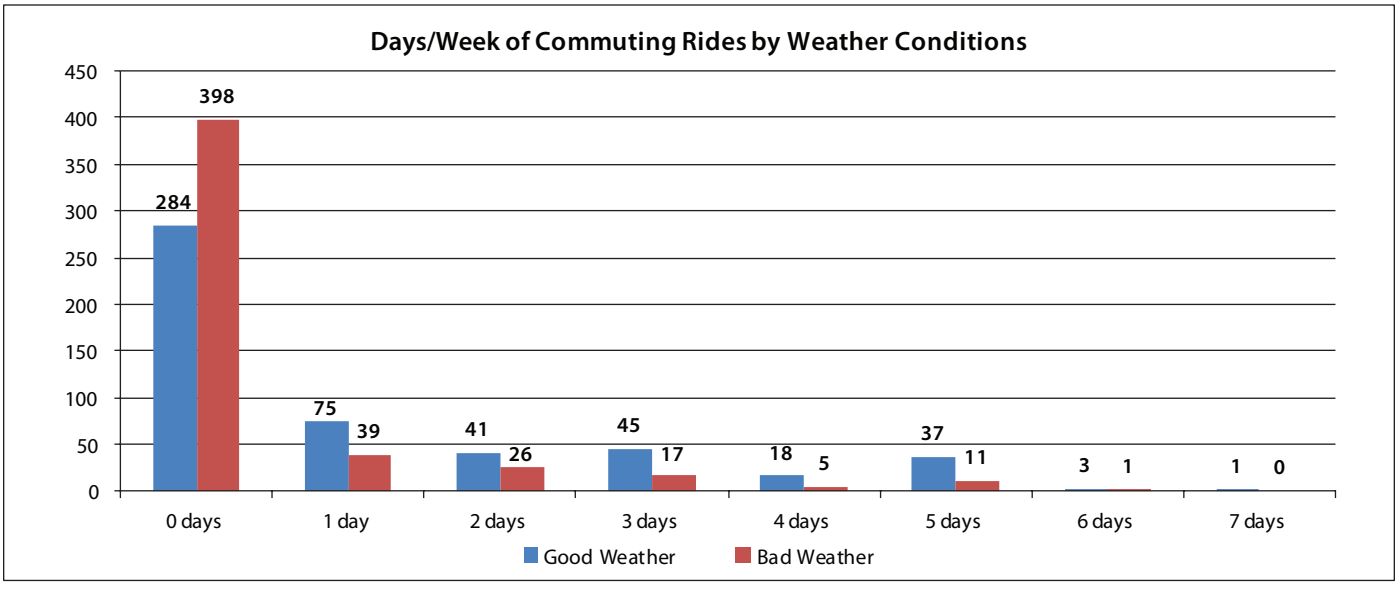
Commuting to Work or School by Bicycle

When commuting to work or school, 16% of survey respondents bike between 5 to 10 miles one-way and 14% bike between 2 to 5 miles one-way. (See Figure 20)

As shown in Figure 21, busy streets with no bike facilities and calm neighborhood streets are used for commuting by bicycle.

Figure 22 displays the number of days per week that survey respondents reported commuting by bike. As would be expected, fewer people commute by bicycle when the weather is "bad" than when the weather is "good." When weather conditions are good, 15% of survey respondents commute by bike 1 day per week. However, when weather conditions are not favorable, only 8% bike 1 day per week.

Figure 22: Number of days of the week of bicycle commuting by weather condition



Biking to Shopping and Errands

When bicycling to shopping areas, 28% of survey respondents bike less than 2 miles one-way, and 25% bike between 2 to 5 miles one-way. (See Figure 24)

As shown in Figure 25, calm neighborhood streets, and busy streets with no bike facilities are used for biking to shopping areas.

When weather conditions are good, 30% of survey respondents bike to shopping destinations 1 day per week. However, when weather conditions are not favorable, only 14% bike 1 day per week. (See Figure 26)

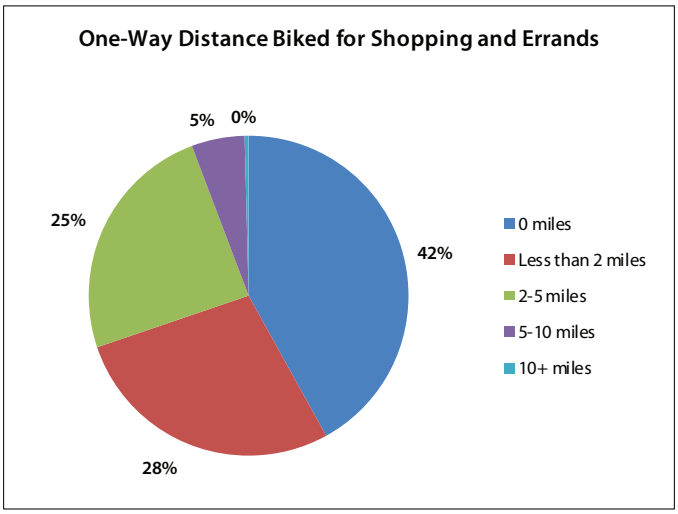


Figure 23: One-way distance biked for shopping and errands

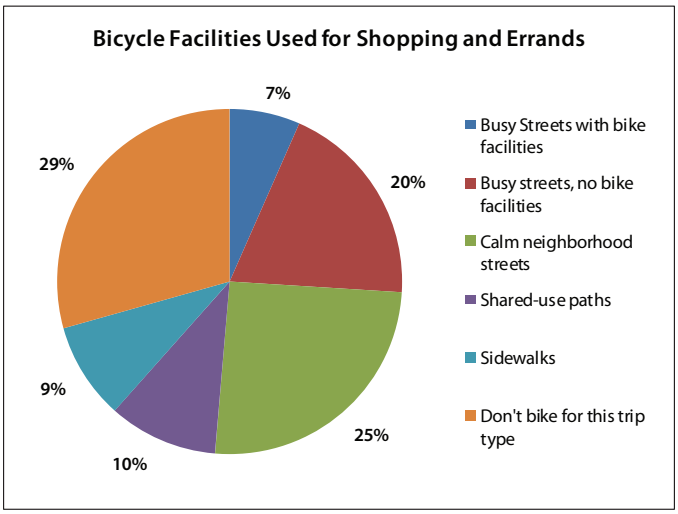
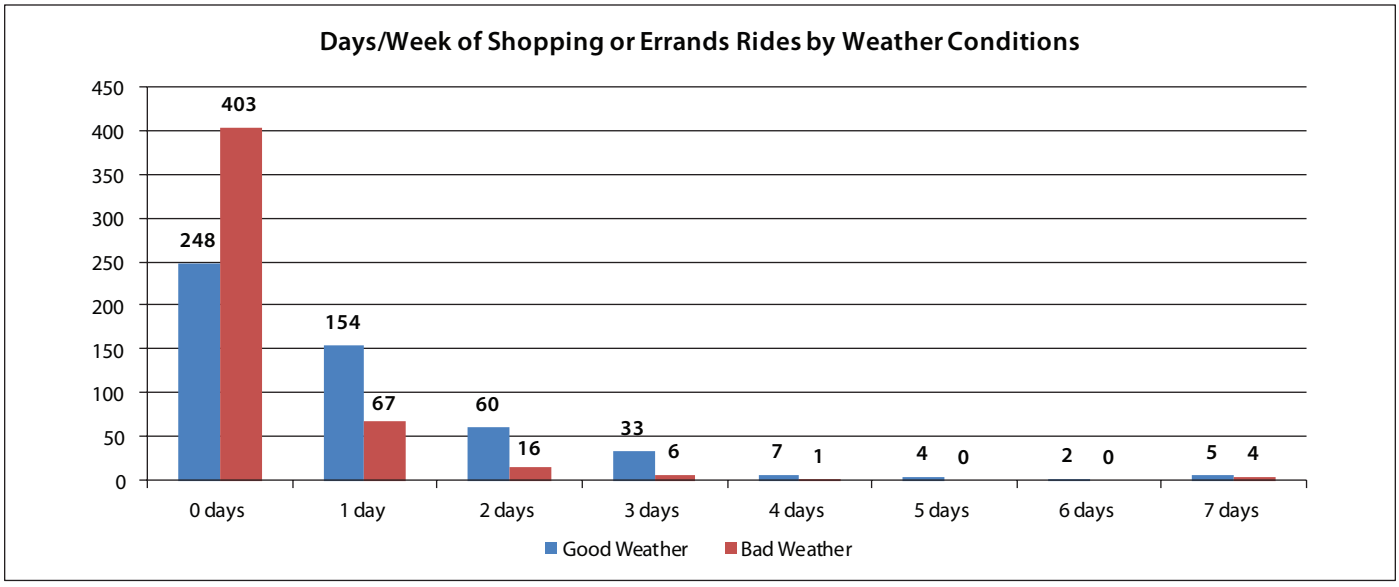


Figure 24: Bicycle facilities used for shopping and errands

Figure 25: Number of days of the week bicycles used for shopping or errands



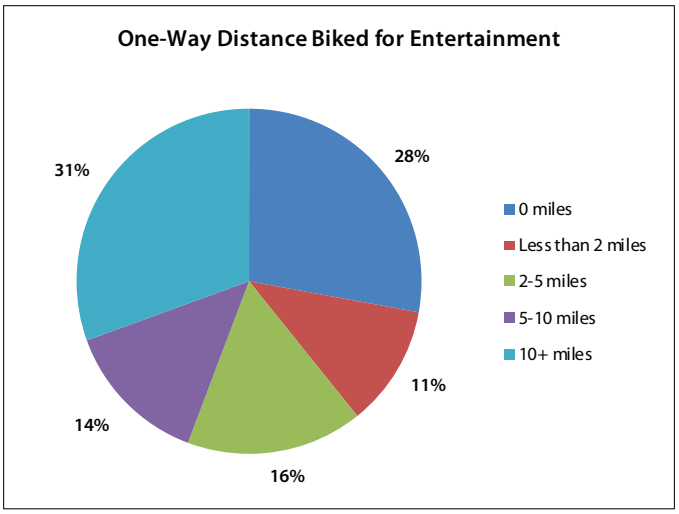


Figure 26: One-way distance biked for entertainment

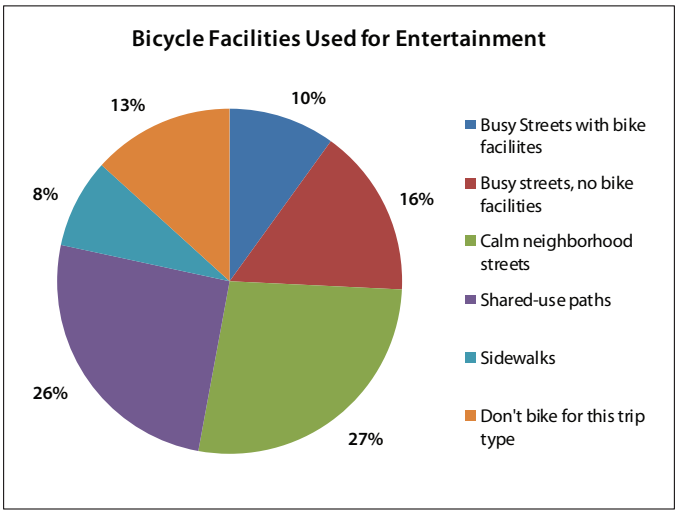


Figure 27: Bicycle facilities used for entertainment

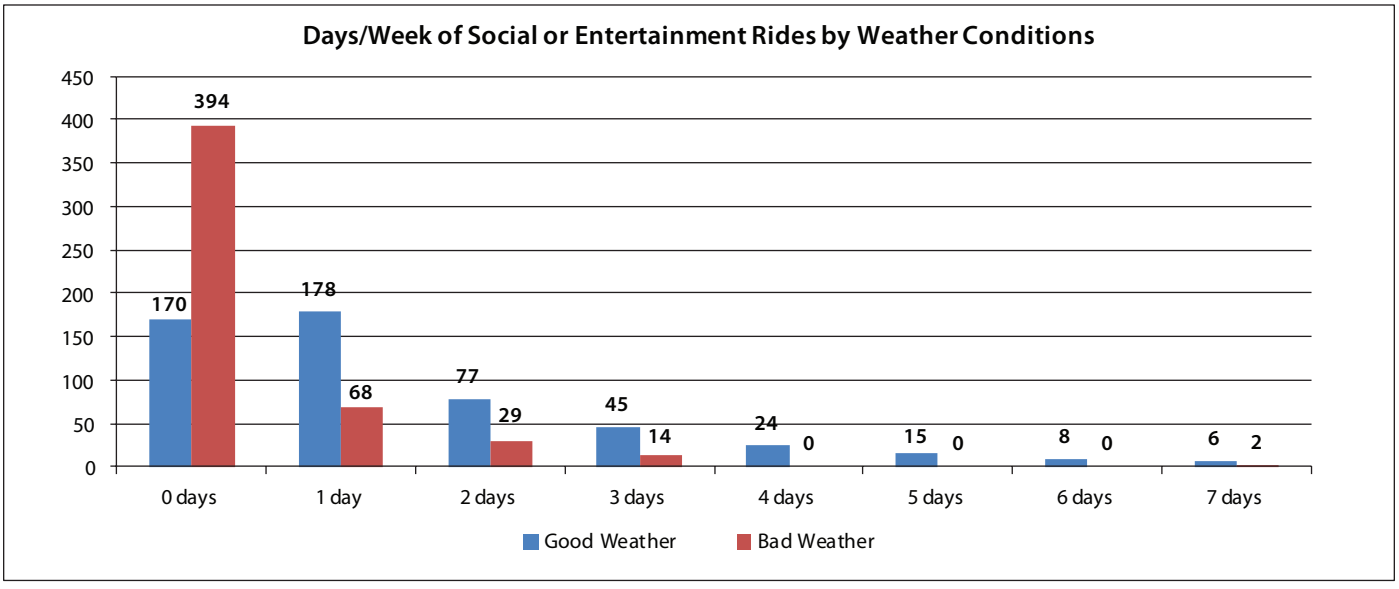
Social or Entertainment Biking

When bicycling for entertainment, 31% of survey respondents bike more than 10 miles one-way, and 16% bike between 2 to 5 miles one-way. (See Figure 27)

As shown in Figure 28, calm neighborhood streets and shared-use paths are preferred for social or entertainment biking.

When weather conditions are good, 34% of survey respondents bike 1 day per week for entertainment. However, when weather conditions are not favorable, only 13% will bike. (See Figure 29)

Figure 28: Number of days of the week bicycles used for social or entertainment rides



Barriers to Bicycling in Overland Park

Factors which prevent people from bicycling in Overland Park were ranked by 572 survey respondents from most important to least important. The rankings below are based on a weighted calculation where items ranked first are valued higher than the following ranks.:

1. Bicycle facilities are too few, and are not interconnected
2. Continuous bicycle facilities do not exist for the trips I would like to take
3. There are too many barriers to bicycling (freeways, hills, lack of street connectivity)
4. There are not enough shared-use paths
5. I don't know a safe bicycle route to my destination
6. Road surfaces are poor (potholes, cracks, debris, etc.)
7. Path surfaces are poor (gravel, puddles, debris, etc.)
8. Distances are too great
9. Other (no barriers, drivers don't share the roads, available time, high traffic volumes, trail maintenance, safety, poor signage, lack of bike racks, physical limitations)

Additional factors which prevent people from bicycling in Overland Park were ranked by 538 survey respondents from most important to least important. The rankings below are based on a weighted calculation where items ranked first are valued higher than the following ranks.

1. Weather
2. I don't feel safe riding a bicycle around cars and trucks
3. Time constraints due to schedule demands
4. I'm concerned for my personal safety (e.g. riding alone on paths).
5. I have small children.
6. I have too much to carry.
7. Other Factors
8. I don't have a bicycle I can ride
9. I don't feel like I am the kind of person who rides a bike
10. I am physically limited from riding a bicycle.

Additional Public Comments for Barriers to Bicycling in Overland Park

- Major traffic intersections are sometimes difficult to maneuver.
- Multi-use, off-street paths (i.e. along 151st from Antioch to Pflum) can be quite dangerous where smaller side streets cross the path. Drivers rarely stop at their stop sign; instead, they pass through the path and stop prior to the main street. Basically there is confusion about the right of way, whether it is the path or side street. In order to safely use the off street path, one must stop and yield at every side street crossing, whereas, if one was cycling on the main street or the path was an on-street bicycle lane (like Olathe frequently does) they would not need to stop.
- Chip and seal pavement is a pain to ride on.
- Connectivity is particularly poor in Northern Overland Park.
- Especially in the Spring, road surfaces (debris) can pose an especially nasty hazard.
- High volume of traffic on a lot of roads.
- Most bike routes go West to East. Not many options for going North to South.
- Nowhere to park/lock my bicycle at potential destinations.
- The shared-use paths are not well maintained. Those along busy streets, like Nall and Metcalf, are covered in debris, glass and are not cleared like the roads are when there has been snow. Also, the crossings at driveways are not marked, like in front of the Walmart Market on 103rd and Metcalf. On 107th and Metcalf, there is a huge power station with a bush around it that obstructs the view for drivers seeing someone on the path or vice versa.

Improvements for Bicycling in Overland Park

Education and easily accessible bike maps were ranked as very important ways to improve and promote bicycling in Overland Park. The suggestions below received the most votes.:

- 82% Education for motorists on how to respectfully share the road
- 57% Education for cyclists on following the rules of the road and using lights at night
- 49% Information about the best routes to get to destinations
- 49% Easily accessible bike maps
- 34% Education for yourself on how to ride with motor vehicle traffic

The following street or path improvements were ranked as very important ways to encourage biking more often:

- 77% Bike Lanes on busy streets
- 66% On-street bike facilities that are separate from traffic (buffered bike lanes)
- 62% Accommodations for bicyclists at intersections (signal triggers, bike lane markings, etc.)
- 61% Paved shoulders on narrow roads
- 53% Better on-street connections between paths
- 51% Off-street, shared use paths
- 39% Residential streets that are calmed for bike travel (bicycle boulevards)

Survey respondents ranked the following based on how they would like to see the City spend money on improving bicycling in Overland Park. The rankings below are based on a weighted calculation where items ranked first are valued higher than the following ranks:

1. More bike facilities on busy streets.
2. Connecting gaps in bicycle facilities
3. Off-street shared-use paths
4. Motorist education
5. Barrier crossings (bridges, tunnels)
6. Road surface maintenance (filling potholes, pavement cracks)
7. More bike facilities on calm streets
8. Street sweeping
9. Bicycle parking at destinations
10. Signals and intersections
11. Other (education, paved shoulders, cycle track, bike share program)
12. Trimming vegetation

Additional Public Comments for Bicycling Improvements

- Need more private bike paths similar to Indian Creek or Mill Creek.
- Bike lanes are strongly preferred over shared-use paths.
- Love riding the trails, but they don't go near work or shopping.
- Would bicycle more if striped bicycle lanes were more readily available.
- Would like to see more bike lanes on main streets.
- Prefer bike lanes where I can ride faster than shared-use paths.
- Need protected bike lanes with some type of physical barrier separating bikes and motorized traffic.
- When taking my daughter out, I want to be on off-street paths.
- Would love to see striped bike lanes in Overland Park on side streets (not on the four-lane streets).
- I would use (and would prefer) separate bike lanes on streets, but when these are available, they are often unusable due to excessive debris (glass, trash, sand, etc.).
- Rails to trails; seen it in other states and really like it. Current system in Overland Park is disconnected. Whatever system you choose, be consistent and have it readily identifiable for folks.
- Shared-use paths are great for recreation, but are rarely effective for transportation. The transfer from the path to the street (if the path is being used for part of the trip) can be awkward and inconvenient, especially on a road bike.
- I would love to commute to work and will consider the new improvements to College Boulevard that are planned to have a bike lane taking place this Spring/Summer. If the lane is safe enough, I will consider biking the 8 miles round-trip at least twice a week. I would also bike more often for shopping if sidewalks were not my only safe option along College, Pflumm, 119th and Blackbob. I would most prefer 'Wide lanes that allow motorists to safely pass on left'.
- Too many motorists are not adequately educated regarding common courtesy of sharing the city streets, and other potential bike options. Motorists frequently drive as though they have no regard for anyone not in a vehicle. Same applies to runners. Driving way too close when there is ample space for both is dangerous and deliberately showing a belligerent attitude.
- Won't start biking unless I can do it on paths with a physical separation from motorized vehicles.
- Bicycle paths tend not to be cleaned and maintained properly, making them more dangerous than the main road.
- I ride 3 times per week whenever weather permits. Our shared paths are really well done and maintained.
- First I want to commend Overland Park for developing a fantastic trail system throughout the city. I spend 85% of my time on the trails. The 15% is getting to the trails. Keep up the good work. Only suggestion regards keeping dirt and debris off the

trails as much as possible after a fall last year caused by slick surfaces due to excess dirt on trail. Only cold weather and slick conditions keep me off the trails.

- The trail system is great, but we really need on-street bike lanes to make more connections to destinations.
- If we could connect the Indian Creek Trail to the Shawnee Mission Park Trail, that would be great. A good bike lane on 95th to pick up the trail on West 95th would be good. More interconnectivity.
- Once again, city planners design the American street with only automobiles in mind. Cyclists don't expect to have their own roads built for them, but a buffered path, safe marked lane should be a minimum. Build it and they will come!
- Many older roads and section/quarter section roads do not have any space for cyclists particularly in southern Overland Park.
- The paths along the creek in South Overland Park, by Corporate Woods, Deanna Rose, and connected to Olathe are very good. Thank you for that investment.
- Johnson County has some great recreational shared-use paths. At the same time, they have next to nothing for direct grid bike lanes/paths to allow people to bike to work, school, or shopping.
- I enjoy bicycling and would use a bike more if routes provided good interconnection leading to shopping and recreational facilities.
- Bridges abandoned for motor vehicle use (e.g. 151st & State Line; Old Metcalf between 167th & 179th [and on to Arboretum!]) would make great connectors if retrofitted for bike and pedestrian use! Another key opportunity would be establishment of a North/South route, by connecting segments along US-69 [S of I-435]; creating an I-435 crossing between Antioch & Metcalf; and/or identifying Lowell (and parallel streets) as a bike route North of I-435.
- Dedicated bicycle infrastructure is the key to increasing cycling. You will not make an impact by asking people to ride their bicycles in dangerous situations. You will increase bicycling only by making it safe, accessible, and convenient to potential bicyclists. The presence of dedicated bicycling infrastructure is also a key in educating motorists. Infrastructure will help solidify bicycling as a viable mode of transportation in motorists' minds.
- Need restrooms on bike paths, better maintenance of bike path, and more consideration for users during path closings due to construction. Ned better cooperation between KDOT and Overland Park.
- I would like to see the city invest in a shared bike rental system, once the infrastructure for travel routes on busy streets is in place.
- Thank you for doing this research! I hope there is a good response to your survey. Kansas has the weather (almost all year long) for us outdoor enthusiasts, and it would be wonderful if the roads were more safe to support us. The shared path network is wonderful for walks with our dogs and for the neighborhood kids; however, when it comes to me and other cyclists traveling at over 10mph, it is not safe for the pedestrian or the cyclist. Once you get out of town traffic, the roads may be quieter, but there

are no shoulders and drivers do not abide by the 3 foot rule. I've been honked at and flipped off. An activity that used to bring me relaxation and joy has turned into an unpleasant outing. Thank you for wanting to improve things.

- It would be great to have circular bike paths for young kids and persons with disabilities, similar to Roe Park, for supervised bike riding, as a learning path. It's important for it to be very flat. The Roe path has a couple of slight slopes, but new riders who don't have the strength to pedal or the experience to use brakes or proper speed can tip or roll backwards and fall off. It's happened. There's a ravine with some large rocks right at the bottom of one of the slopes (the south end of the loop) and one young lady fell off her bike, landing upside down in the ravine, luckily missing a large rock.
- Thank you for your interest in a more bicycle-friendly city! Let's make it happen!

Bike Safety

83% of 627 survey respondents always wear a helmet while bicycling compared to only 6% who never wear a helmet. (See Figure 29)

23% of 627 survey respondents have been involved in a crash while bicycling in Overland Park. These crashes occurred on a street, shared use-path, sidewalk, or at a path or street intersection. The crash locations categorized as 'Other', include parking lots, bridge overpasses, and bicycle races. (See Figure 30)

As shown in Figure 31, the cause of 30% of bicycle crashes included motor vehicles, and 16% were caused by other cyclists. 47% were categorized as 'Other' and were due to road debris, poor surface conditions, weather, railroad tracks, or user error.

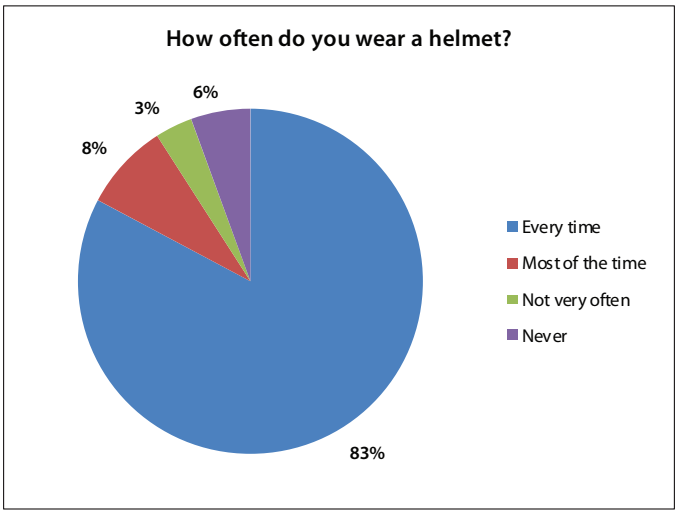


Figure 29: Use of helmets

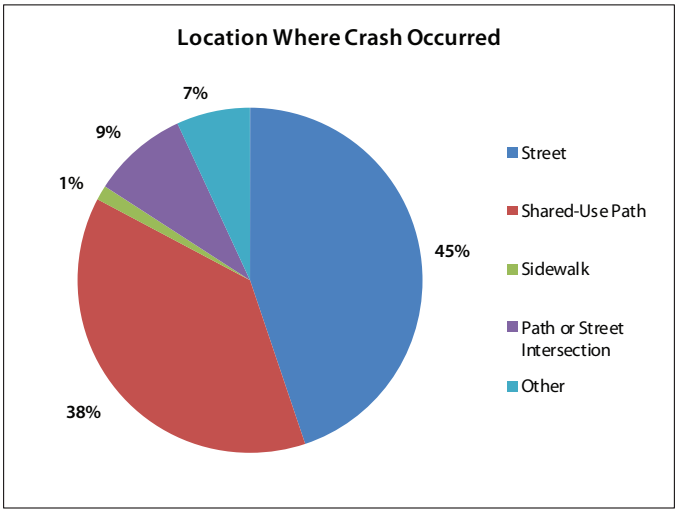


Figure 30: Bicycle crash locations

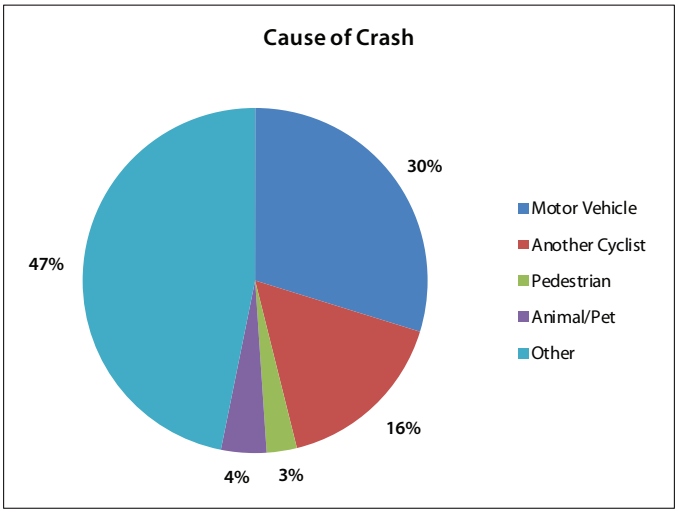


Figure 31: Bicycle crash causes

B.3 | Focus Groups

Six focus group meetings were conducted from February 12, 2014 to June 25, 2014. The purpose of these meetings was to gather public input about bicycling in Overland Park from a diverse range of stakeholders which included local bicycle advocates, members of the local business community and school district representatives, students and parents. A listing of each focus group and the participants is provided below.

Focus Group 1: Downtown Businesses – Wednesday, February 12, 2014, 8:30am – 10:00am

Name	Group / Association
Kevin Luecke	Toole Design Group
Tom Huber	Toole Design Group
Lara Justesen	Vireo
Brian Shields	City of Overland Park
Robin Fish	Downtown Overland Park Partnership/Steering Committee
Adam Schaumburg	Downtown Overland Park Partnership
Steve Bromert	Shelter Insurance
Doug Freemen	Innovadex
Mike Cole	The General Store & Company

Focus Group 2: Chamber of Commerce – Tuesday, April 1, 2014, 8:00am – 9:30am

Name	Group / Association
Kevin Luecke	Toole Design Group
Tom Huber	Toole Design Group
Lara Justesen	Vireo
Brian Shields	City of Overland Park
Wayne Byrd	Citizen/EAC/League of American Bicyclists
Jay Lehnerlz	Retired
Jeff Hurt	Foulston Siefkin LLP
Lauren Twist	OP Chamber of Commerce

Focus Group 3: Road Cyclists/Kansas City Metro Bicycle Club – Tuesday, April 1, 2014, 6:00pm – 7:30pm

Name	Group / Association
Kevin Luecke	Toole Design Group
Tom Huber	Toole Design Group
Lara Justesen	Vireo
Brian Shields	City of Overland Park
Steve White	KCMBC President
Mark Hines	KCMBC Member
Mani Subramanian	KCMBC Member
Mark Maurer	KCMBC Member
Wayne Tuonig	KCMBC Member
Bernard Brown	KCMBC Member

Focus Group 4: Sprint – Tuesday, April 2, 2014, 2:30pm – 4:00pm

Name	Group / Association
Kevin Luecke	Toole Design Group
Tom Huber	Toole Design Group
Lara Justesen	Vireo
Brian Shields	City of Overland Park
Heather Wilson	Sprint Real Estate
Darren Beck	Sprint Corporate Responsibility
Darrel Carter	Sprint Real Estate
Patrick Beckett	Sprint Real Estate
Amy Bond	CBRE Sprint Real Estate
Lara Justeen	Vireo
Dave Scott	City of Overland Park
Candy Hawks	Sprint Alive (United Health Care)
Brian Shields	City of Overland Park

Focus Group 5: Blue Valley Schools – Tuesday, April 2, 2014, 6:30pm – 8:00pm

Name	Group / Association
Kevin Luecke	Toole Design Group
Tom Huber	Toole Design Group
Lara Justesen	Vireo
Brian Shields	City of Overland Park
Dylan Schmidt	7th Grade Student
Ann Suchma	Parent
Harrison Dollar	6th Grade student
Devin Dollar	Parent
Benjamin Thor Palsson	11th Grade Student
Adam Davis	8th Grade Student
Kolby Schmidt	7th Grade Student
Grady Schmidt	7th Grade Student

Focus Group 6: Shawnee-Mission Schools – Tuesday, June 24, 2014, 6:30pm – 8:00pm

Name	Group / Association
Lara Justesen	Vireo
Brian Shields	City of Overland Park
Drew Baranowki	Shawnee-Mission School District
Amy Walker	Shawnee-Mission School District

A summary of the comments the Study Team received at each focus group meeting is described in the following bullets.

Summary of Focus Group Comments

A total of 32 people attended the focus group meetings. The following bullet points provide a summary of the comments and concerns heard during the focus group meetings.

What is good about bicycling in Overland Park?

- Streets and trails are well maintained.
- Spring, Summer, and Fall weather is good for riding; Winter even has some decent days.
- Motorists are generally considerate and accepting of bicyclists.
- Overland Park has a great trail system connecting multiple communities.
- There seems to be a lot of interest in bicycling; seeing more and more people bicycling around Overland Park.
- Overland Park is easy to get around because it has a good street network, and the facilities are generally in very good condition. The collector streets provide good connections.
- Nice benches and rest areas in a few places.
- Bicycle racks are provided at all of the schools.

Obstacles to Bicycling in Overland Park:

- Driving is easy, parking is free, and traffic congestion isn't bad.
- Some bicyclists do not feel safe riding on the busy roads and would like to see more trails throughout the city.
- Poor visibility and lighting at underpasses. In addition, when underpasses flood, eroded mud/dirt collects on the path.
- Poor road conditions. Debris from construction and auto collisions collect along the edge of the road, creating a hazard for road bicyclists.
- Paths and trails are sometimes difficult to ride fast on. For example, the Trolley Track Trail gets packed, slowing down cyclists.
- There are not enough safe ways to cross highways. I-35 is a huge barrier for bicyclists and pedestrians. The only truly viable crossing of I-435 is Lamar, unless you take Pflumm.
- Metcalf is a huge barrier for bicyclists and pedestrians.
- Motorists turning right are not looking for bicyclists or pedestrians crossing.
- Antioch and Quivera are too busy, bicyclists avoid these roads.
- Currently no safe and continuous north-south connector.
- Where the street grid goes away, routes become unpredictable. Bicyclists have to figure out new ways to get to destinations.
- Where 71st Street ends at Antioch, there is no practical way to get around the hospital complex.

- Need something, other than road paint, to protect cyclists at highway interchanges.
- Ways to Promote Bicycling in Overland Park:
- Supply bicycle safety and education flyers to bike shops to hand out with each bike sale.
- Develop programs to encourage bicycling at specific businesses. For example, Corporate Woods has a bike club. The Sprint Campus has a Smart Commute program and provides 10 Campus bikes with GPS tracking to employees. The Sprint Campus also provides 8 secure bike lockers to employees.
- Increase bicycle awareness in schools and through City social media and websites.
- The Overland Park Chamber of Commerce could lead the movement by encouraging more bike parking, showers, and lockers at businesses.
- Trails are great for growing the cycling community.
- Clubs like KCMBC could sponsor more rides to help get their knowledge out to newer riders.
- Promote the economic development potential of better bike infrastructure.
- Education and encouragement are key. People need help to get started biking and knowing how and where to get around by bike. A program such as 'Bike Buddies' could be very helpful for getting more people biking. Activities like an 'Open Streets' event or a bike scavenger hunt could also be good for promoting bicycling.
- Encouragement events and activities for kids would be great. For example, schools could have a pizza party for students bicycling to school. In addition, schools could arrange bike groups riding to and from school.
- Develop better online or mobile app route mapping.
- Challenge people to bike to work.
- Promote health benefits and wellness programs.

Ways to Improve Bicycling in Overland Park

- Promote bicycle safety and education for drivers.
- Provide shared lane markings on key streets.
- Add more bike racks and parking areas in downtown Overland Park. When there are more bikes, more people are around, deterring theft.
- Install traffic signals that detect bikes.
- When resurfacing roads, install sewer grates and utility covers flush with the top of pavement.
- Install signage to remind drivers to look for bikes and pedestrians.
- Install wayfinding signage for bike routes and trails that are color coded or named.
- Need more bike racks in highly visible locations, especially at popular destinations.
- A variety of bicycle facilities are needed to provide for different types and levels of riders.
- Show skill levels or comfort levels on bike maps.

- Nall and Antioch would be good streets for bike lanes.
- Need longer traffic crossing signals for bike/pedestrian crossings; 7 seconds is too short.
- Need more connected bike lanes. Current lanes start and stop randomly. A mile long bike lane doesn't do any good. For example, in Prairie Village on Mission Road there is a bike lane 1.5 miles long at 63rd Street, but ends abruptly. Nall, Antioch, and 79th Street would be good streets for bike lanes.
- Need protected bike lanes in highway crossings. Putting cyclists on a highway overpass sidewalk is a bad idea because of curb cuts.
- Develop more connections from neighborhoods to the trails to eliminate people driving their cars to the park just to ride their bike.
- Need better maintenance and street sweeping between curb and gutter.

Additional Comments

- The gridded street network in the North is easy to ride, while the South has the advantage of more paths and off-street connections.
- Bicyclists can cross 69-highway and I-35 using the sidewalk along Quivera or 91st Street.
- One focus group bicyclist doesn't like bicycling on trails because of the curves and people walking dogs. This bicyclist prefers riding with traffic on the street because it is more predictable than what occurs on the trails.

APPENDIX C

C | Plan & Policy Review

This appendix summarizes the plans and policies that influence the Overland Park Safe Bicycle Use Outreach Project. The following text explains past and current planning efforts at the State, Regional, and Local levels that may have an impact on decisions made within the Bicycle Safety Outreach Plan. The summaries are brief and are intended to provide only a brief overview of bicycle-related recommendations from each plan or policy.

C.1 | Plans & Policies Reviewed

This appendix includes review of the following texts:

Statewide Documents

- Kansas Bicycle and Pedestrian Transportation Plan: Kansas Department of Transportation Bureau of Transportation Planning 1995 (Currently Under Revision)
- 2013 Kansas Statute

Regional and County Focused Documents

- 2012 Local Bikeway Planning and Design Guide - Best Practices. KC APWA, MARC
- MARC Complete Streets Handbook
- MARC MetroGreen
- Johnson County Complete Streets

Local Planning Documents, Codes and Policies

- Overland Park Complete Streets Policy
- Overland Park and Mission Enhancing Downtown Accessibility: Pedestrian and Bike Improvements
- Vision Metcalf (May 2008)
- Downtown Overland Park Form Based Code
- Metcalf Avenue and Shawnee Mission Parkway Transit Planning Study
- Overland Park City-wide Comprehensive Plan
- Overland Park Greenway Linkages Plan
- Overland Park Municipal Code
    - Title 12. Traffic
    - Title 13. Streets and Sidewalks
    - Title 18. Overland Park Uniform Development Ordinance (UDO)
- Overland Park Governing Body Manual
- Overland Park Downtown Parking Plan
- Southern Overland Park Transportation Plan (In progress)

C.2 | Statewide Documents

Kansas Bicycle and Pedestrian Transportation Plan: Kansas Department of Transportation Bureau of Transportation Planning 1995 (Currently Under Revision)

This document offers an early look at the background to and implementation of bicycle planning facilities in Kansas following the initiation of the federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). It outlines public opinion at the time of publication, including reasons why individuals did not use bicycling more as a travel mode at that time.

Facility recommendations set forth in the Kansas Plan are as follows:

- Arterials should have a 14 foot wide outside lane
- Grade-separated intersections are preferred as traffic on both the path and the street is not interrupted.
- Bicycle lanes should only be delineated where short connections to the off-road bicycle path system are required on the street system or where very high levels of bike use, particularly bicycle commuter use, are occurring.

2013 Kansas Statute – Chapter 8: Automobiles and Other Vehicles

Kansas state laws are summarized below and are generally consistent with the 2000 Uniform Vehicle Code.

- Grants all of the rights and duties applicable to the driver of a vehicle.
- Bicycles traveling slower than the normal speed of traffic shall ride as near to the right side of the roadway as practicable. (If the lane is too narrow for a bicycle and vehicle to travel safely side-by-side within the lane, the bicyclist is not required to hug the side.) Bicyclist may use the left side on one-way roads with two or more marked lanes.
- Riders must not ride more than two abreast on roads.
- Wherever a usable path for bicycles has been provided adjacent to a roadway, bicycle riders shall use such path and shall not use the roadway.
- Bicyclists must not carry anything that would keep them from keeping at least one hand on the handlebars.
- Bicycles in use at nighttime shall be equipped with a white light on the front (viewable from at least 500 feet) and a red reflector on the rear (viewable from 100 to 600 feet to the rear). Pedals must have reflectors.
- The driver of a motorcycle or a person riding a bicycle facing any steady red signal, which fails to change to a green light within a reasonable period of time because of a signal malfunction or because the signal has failed to detect the arrival of the motorcycle or bicycle because of its size or weight (known as a "dead red" light), shall have the right to proceed. After stopping, the driver or rider shall yield the right-of-way to any vehicle in or near the intersection or approaching on a roadway. Such motorcycle or bicycle traffic shall yield the right-of-way to pedestrians lawfully within an adjacent crosswalk and to other traffic lawfully using the intersection.
- Vehicles must pass bicycles with 3 or more feet of clearance.

C.3 | Regional Documents

2012 Local Bikeway Planning and Design Guide - Best Practices. KC APWA, MARC

This guide provides supplemental guidance to local and state governments in the planning, designing and construction of bicycle facilities. The word "shall" is used wherever standards have been established.

- Bicycle lanes shall be clearly marked and signed for one-way travel, with designated facilities provided on both sides of a street or roadway, all in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).
- According to the MUTCD, the Shared Lane Markings shall not be used on shoulders or in designated bicycle lanes.
- National standards recommendations for the use of regulatory and warning signs shall be followed as established in MUTCD.
- Bike lanes shall not be marked on the circulating roadway of the roundabout in accordance with the MUTCD.
- At installations where visibility-limited signal faces are used, signal faces shall be adjusted so bicyclists for whom the indications are intended can see the signal indications. If the visibility-limited signal faces cannot be aimed to serve the bicyclist, then separate signal faces shall be provided for the bicyclist. On bikeways, signal timing and actuation shall be reviewed and adjusted to consider the needs of bicyclists.

MARC Complete Streets Handbook

The Mid-America Regional Council (MARC) Complete Streets Handbook Provides a framework of guidelines and tools for local governments to use in implementing their own complete streets policy. The handbook provides resources for communities within the MARC planning area that are at different stages of complete streets policy or facility implementation. The handbook defines complete streets as "streets, highways and bridges that are routinely planned, designed, operated and maintained with the consideration of the needs and safety of all travelers along and across the entire public right of way." The handbook focuses on guiding policy decisions and frameworks that will lead to complete streets being implemented. Although the City of Overland Park already has a Complete Streets policy, the handbook can serve as a useful resource for future policy decisions related to bicycling and walking.

MARC MetroGreen

MetroGreen is a visionary large-scale system of interconnected landscape corridors, trails and bike paths for pedestrians, bicyclists and equestrians that span two states and currently seven counties. (MetroGreen will spread into an eighth county in 2014.)

MetroGreen's concept is simple:

1. Link together corridors of land to the landscapes and destinations that people value.
2. Where appropriate, build pathways that people can travel by foot, bicycle, rollerblade or horseback.

3. Make the corridors wide enough so that they will help to protect water courses, preserve historic landscapes and beautify area roadways.

The MetroGreen Action plan provides plans for a trail system that connects throughout the metropolitan area, including the City of Overland Park.

Johnson County Complete Streets

Adopted in 2011, the Johnson County Complete Streets Policy proposes a complete streets treatment of all streets with detailed contextual consideration. Applicability is comprehensive: the policy directs the county's transportation planners and engineers to routinely consider designing, building and maintaining the county's right of way to incorporate complete streets principles.

C.4 | Local Documents

Overland Park Complete Streets

The City of Overland Park adopted a Complete Streets resolution in November, 2013. Key components of the policy are noted below.

To the extent reasonable and practical, all public streets that are newly constructed or reconstructed within the City, whether privately or publicly financed, will be constructed as Complete Streets.

Complete Street construction shall include to the extent reasonable and practical:

A. Ensuring provisions for pedestrians, bicyclists, and persons of all ages and abilities, as follows:

1. along public streets, including provisions for crossing public streets and private drives or streets, where appropriate;
2. across interchanges with freeways and other highways;
3. across bridges over highways, waterways and railroad facilities; and
4. to interconnect activity centers and residential areas with parks and open space.

B. Working with Johnson County Transit to identify existing and potential locations for transit stops, and working to ensure that pedestrians and bicyclists can conveniently and safely access transit vehicles at those locations.

C. Preparing as funding permits, a comprehensive Bicycle Master Plan for the City to help guide future decisions concerning where new on-street facilities are to be designed and built while recognizing limitations with the existing transportation network.

Overland Park and Mission-Enhancing Downtown Accessibility: Pedestrian and Bike Improvements

This plan offers broad strategies to welcome bicyclists downtown through provision of: bicycle lanes, bicycle boulevards, shared lanes, wayfinding, bike parking, traffic calming and intersection improvements. The plan makes the following specific recommendations for improving bicycling conditions downtown:

- Add shared lane markings on 79th and 80th Streets between Santa Fe and Broadmoor;
- Add bicycle lanes on Marty from 79th Street to Metcalf Street;
- Add three bicycle racks per block on 80th Street, Marty Street, and Santa Fe Drive in the downtown area;
- Consider adding covered bicycle parking and/or bike lockers at the existing and planned transit stops;
- Provide video or loop detection at signalized intersections that will detect the presence of bicycles;

- Provide wayfinding signage in the greater downtown area to direct bicyclists downtown; and
- Provide a bicycle boulevard network on low volume, low traffic speed streets to designate preferred routes between select destinations and downtown.

Vision Metcalf (May 2008)

This plan calls for producing a balanced transportation system along Metcalf Avenue, Overland Parks primary north-south thoroughfare. Objectives within the Plan include:

- Improve bicycle access to and through the corridor and reduce automobile dependency by creating a system of bike lanes and trails that connect neighborhoods and links to existing trail systems in the City and region.
- Promote biking as an effective way to travel by encouraging safe storage locations, recognizable routes, and required facilities at employment centers.
- Install a system of wayfinding that directs pedestrian traffic and advertises amenities.
- Reduce parking ratios to eliminate excessive parking fields and encourage alternative modes of transportation.
- Promote programs that support alternative modes of transportation including a Safe Routes to School Program, urban trails, Ride Your Bike to Work Day, etc.

Downtown Overland Park Form Based Code

This code provides design standards and guidance for new development in the downtown area. Notable to this planning effort is the requirement that streets must balance the needs of all forms of traffic—auto, transit, bicycle and pedestrian—to maximize mobility and convenience for all residents and users.

The code requires that bicycle parking shall be provided forward of the dooryard area [of the streetscape], the racks shall be located in alignment with the street trees. (The "U" rack is recommended as the standard rack.)

Additionally, Bicycle parking is required at a rate of two racks (two bike capacity) her 10,000 square feet of commercial floor area and one rack (two-bike capacity) per ten units of multifamily residential development; no parking is required for multifamily developments of less than ten units.

Metcalf Avenue and Shawnee Mission Parkway Transit Planning Study

The Planning Study helped lead to development of a multi-use trail along the east side of Metcalf Avenue from 87th Street to College Boulevard.

Overland Park City-wide Comprehensive Plan

The Transportation Element of the City's Comprehensive Plan describes the transportation network, the types of streets that form the network, and the purpose of each type of street. The

street network has three main purposes, one of which is to provide for the safe circulation of pedestrians and bicyclists. The different street types are described below.

Local Residential Streets

- On-street parking permitted in most situations
- Pedestrian movements accommodated by sidewalks on one side of the street
- Bicyclists share the roadway with other vehicles
- A 28-foot street (back-of-curb to back-of-curb) within a 50-foot wide right-of-way
- Where existing streets are being rebuilt, standard street widths may be reduced and right-of-way may be less than 50-feet
- Up to 2,000 to 3,000 vehicles per day

Collector and Apartment Streets

- Pedestrians are served by sidewalks on both sides of the street
- Bicyclists share the roadway with other vehicles, and in some cases parallel multipurpose trails may be provided within or adjoining the public street right-of-way
- On-street parking on a collector generally is permitted if adequate pavement width is available, but is discouraged in some cases, even if sufficient pavement width is available
- A 36-foot street within a 60-foot wide right-of-way
- Up to 10,000 vehicles per day

Commercial and Industrial Streets

- Pedestrian and bicycle accommodations are similar to those provided for collector streets
- A 36- to 52-foot roadway within a 60- to 80-foot wide right-of-way, depending on the size of the development being served
- 10,000 to 25,000 vehicles per day

Super-Collector Streets

- Pedestrian and bicycle accommodations are similar to those provided for collector streets
- A 36- to 52-foot roadway within a minimum 80-foot wide right-of-way, depending on the expected traffic volumes and usage of the street
- 10,000 to 25,000 vehicles per day

Thoroughfares

- Median breaks are restricted to quarter-mile intervals along thoroughfares
- On-street parking is prohibited
- Pedestrians are served by sidewalks on both sides to the street

- Bicyclists share the roadway with other vehicles.
- Many four lane divided thoroughfares contain a wide curb lane to better accommodate bicyclists. In several cases parallel multipurpose trails are provided within the public street right-of-way
- 80 to 200 feet of right-of-way to provide for medians, turn lanes, and four to six through-traffic lanes
- Up to 50,000 vehicles per day on six-lane thoroughfares

Freeways

- Up to 300 feet of right-of-way to provide for exclusive turnoff and merge lanes, and four to eight through-traffic lanes
- Up to 120,000 vehicles per day on six-lane freeways
- Up to 150,000 vehicles per day on eight-lane freeways

Overland Park Greenway Linkages Plan

The Greenway Linkages Plan guides the development of linear open spaces. The Plans are maps of the northern and southern portions of the city (divided at I-435) that display the ultimate system of proposed greenway linkages. The maps are updated annually and are included in the city's Comprehensive Plan.

The Greenway Linkages Guidelines are adopted separately from the Plan maps and describe the types of greenway linkages that the maps display. The greenway types include:

- **Type 1 Linkage – Greenway:** A linear open space area set aside for public use that is wide enough to accommodate a paved shared use path.
- **Type 2 Linkage** – Thoroughfare Street: A linear easement set aside for public shared use path development that is part of the existing thoroughfare street right-of-way.
- **Type 3 Linkage** – Collector and Commercial Streets: Similar to a Type 2 Linkage, but developed within the rights-of-way of commercial, apartment and collector streets.

The Greenway Linkages Plan is the city's comprehensive plan for shared use path development.

Overland Park Municipal Code

The following codes that relate to bicycling (and walking) are included in the city's municipal codes under the following titles.

Title 12. Traffic

Traffic-Control Signals

Every person riding a bicycle upon a roadway shall be granted all of the rights and shall be subject to all of the duties applicable to the driver of a vehicle by this ordinance, except as otherwise provided.

Every person operating a bicycle or a moped upon a roadway at less than the normal speed of traffic at the time and place and under the conditions then existing shall ride as near to the right side of the roadway as practicable, except under any of the following situations when:

1. overtaking and passing another bicycle or vehicle proceeding in the same direction;
2. preparing for a left turn at an intersection or into a private road or driveway; or
3. reasonably necessary to avoid conditions including, fixed or moving objects, parked or moving bicycles, pedestrians, animals, surface hazards or narrow width lanes that make it unsafe to continue along the right-hand edge of the roadway.

Any person operating a bicycle or a moped upon a one-way highway with two or more marked traffic lanes may ride as near to the left side of the roadway as practicable.

Persons riding bicycles upon a roadway shall not ride more than two abreast, except on paths or parts of roadways set aside for the exclusive use of bicycles.

Wherever a usable path for bicycles has been provided adjacent to a roadway, bicycle riders shall use such path and shall not use the roadway.

Overland Park has adopted Kansas state legislation regarding traffic signals that fail to actuate because they do not recognize the presence of motorcycles or bicycles ("dead red" law).

Title 13. Streets and Sidewalks

Sidewalks are required to be constructed in Non-Residential, Single-Family and Two-Family Zoning Districts. Walks must be constructed along the street frontage when a building is constructed or renovated.

In Residential Estates Zoning Districts, sidewalks may be omitted at the option of the developer. In subdivisions where sidewalks are not to be constructed, an agreement or deed restrictions shall be recorded with the Johnson County Records and Tax administration stating that all costs of any future project to construct sidewalks in the subdivision shall be spread among all properties in the subdivision.

Title 18. Unified Development Ordinance (UDO)

Uses Permitted on Open Space Lands set aside in RP-OS (Planned Open Space Single-family Residential District) and RP-OE (Planned Open Space Estate Residential District) – Walking trails, bikeways other kinds of pathways are allowed in open space land areas.

"Stream corridor" allowable uses shall utilize best management practices to minimize disturbance or impacts to the stream corridor and include: Paved or unpaved paths for foot, bike, golf carts, and other similar uses. Paths must be constructed near natural grade to minimize clearing, filling and grading.

Bicycle Parking Requirements

No districts in the UDO currently require bicycle parking, including the Downtown District (DD).

Overland Park Governing Body Manual

The Governing Body Manual includes the following Resolutions related to bicycling:

Resolution no. 3814 A resolution establishing a policy for the standards on the Neighborhood street reconstruction program.

STREET WIDTH: Street width shall match that of the existing street, or shall be 26 feet, as measured from the back of curb to the back of curb, whichever is greater.

SIDEWALKS: Sidewalks will be constructed on one side of residential streets and will be constructed on both sides of collector streets, all preferably one foot from the property line in accordance with the Overland Park Municipal Code ("OPMC"). The actual location will be based on trees, ground slopes, utility conflicts, cost and other relevant considerations. Existing sidewalks will be reconstructed to meet current standards.

Resolution no. 3821 A resolution establishing policy on designing, modifying and Maintaining public streets to facilitate bicycle usage and Rescinding resolution no. 2930.

When any street is constructed, improved or is substantially modified, the City's Greenway Linkages Plans (for Northern and Southern Overland Park) and the City's Bike Route Plan will be reviewed and design standards set forth in those plans will be followed where appropriate.

When four-lane thoroughfares are initially constructed, overlaid with a new course of asphalt, or reconstructed, the outside lanes may be striped wider than the inside lanes if the following criteria are met, as determined by the Director of Public Works:

a. The segment of street being constructed, overlaid, or reconstructed must have a continuous length of at least one-half mile, or connect to an existing wide outside lane;
b. The street segment must have a driving surface in one direction at least 24 feet wide, exclusive of curb and gutter sections;
c. The Director of Public Works must determine that the street segment does not contain any unique geometrics or other unusual circumstances that would cause the uneven lane widths to present a hazard to the public health, safety and/or welfare; and
d. If the thoroughfare is a state and/or federal highway or project, the appropriate state and/or federal agency must approve the modified striping plan.

Resolution no. 3821 A resolution establishing policy on designing, modifying and Maintaining public streets to facilitate bicycle usage and Rescinding resolution no. 2930.

The City is encouraged to make every reasonable effort to either maintain traffic signal detectors that are sensitive to the presence of bicycles or provide for other means of actuation of traffic signals for bicyclists.

When designing or reviewing plans for new streets or when developing plans for the reconstruction of existing streets, the City and all utility companies are encouraged to specify that any storm water inlets containing street grates, and utility covers and other surface irregularities be designed to be safe for the passage of bicycles.

Wherever it has street maintenance responsibility, the City is encouraged to make every reasonable effort to maintain as smooth as practical transitions between street surfaces and bridge decks, between street surfaces and concrete gutter sections, and between street surfaces and any street grates.

SECTION 2. That the purpose and intent of this Resolution is to give broad, general policy direction to the Director of Public Works and other appropriate employees and officials of the City and to strongly encourage them to utilize their best efforts to improve conditions for bicyclists on public streets within the City, and to grant them the authority to take the actions recommended in this Resolution if, in the exercise of their discretionary authority and sound engineering judgment, they deem such action to be appropriate.

Overland Park Downtown Parking Plan

The Downtown Parking Plan provides existing conditions and recommendations for motor vehicle parking in downtown Overland Park. The plan makes no accommodation for bicyclist parking. (See Downtown OP Form Based Code for bike parking location requirements)

Southern Overland Park Transportation Plan (In progress)

This plan will produce recommendations for the transportation network in the southern portion of the city. The plan will evaluate the current street cross sections used by the city and make recommendations about the future street network in the southern portion of the city.

APPENDIX D

D | Bicycle Level of Service

This appendix provides an overview of the Bicycle Level of Service (BLOS) model from the Highway Capacity Manual and its application in Overland Park. In particular, the appendix focuses on providing an adequate level of service for bicyclists on streets that are yet to be constructed, particularly thoroughfares, but also collector-level streets.

D.1 | The Bicycle Level of Service Model

The Bicycle Level of Service is a nationally-used measure of on-road bicyclist comfort level. The model was developed by Sprinke Consulting and is included in the Highway Capacity Manual. The BLOS accounts for roadway geometry and traffic conditions to produce a rating for the segment of roadway being analyzed. It is important to note that the standard vehicle level of service (LOS) and the BLOS measure different things. Level of service measures for motor vehicles indicate vehicle delay and throughput, while the BLOS indicates the perceived level of comfort for bicyclists. So a street that carries a significant volume of motor vehicle traffic at higher speeds with little or no delay would likely have a high LOS rating, but may have a low BLOS rating if there is not adequate space for bicyclists on the street, such as a bike lane.

Table 1 displays the specific BLOS levels and a description of each score. The formulas used to calculate BLOS are complex, and will not be displayed here. However, the League of Illinois Bicyclists has an online calculator that provides BLOS ratings based on user input of roadway conditions:
http://www.bikelib.org/roads/blos/blosform.htm

While we do not have specific LOS ratings for Overland Park streets, the majority of them functions very well and likely have high LOS ratings. However, because of a lack of bicycle facilities on busier streets, many Overland Park collectors and most thoroughfares likely have a low BLOS score.

Table 1: BLOS scores and general descriptions

BLOS	Score	Condition	Description	Comments
Level A	0.0 – 1.5	Excellent	Good for all	Nearly impossible to achieve this level w/o bike lanes or parking*
B	1.51 – 2.5	Very Good	Good for all with possible exception of inexperienced child	25 mph, 750 ADT or less is 2.48, but with only 10% occupied on-street parking
C	2.51 – 3.5	Average	Acceptable to most average adult cyclists	30 mph, 3,000 ADT is 3.47 which is upper threshold of C
D	3.51 – 4.5	Poor	May be acceptable to experienced cyclists	35 mph, 4-lane, with more than 5,000 ADT is 3.5 or greater
E	4.51 – 5.5	Very poor	Bearable by some experienced adult cyclists	35 mph, 4-lane, ADT 10,000 is 4.5
F	**>5.5**	Extremely poor	Not suited to any cyclist	

Note: Parking space, even at 40 and 50% occupied has a tremendous impact on BLOS. BLOS changes by a full point with a marked parking lane of 6' in width.

D.2 | BLOS Applied to Overland Park

In order to support bicycling by a wide range of users (children and cautious recreational bicyclists through seasoned commuters and racers), Overland Park should strive to provide a high bicycle level of service on all streets. In support of this, the City's Governing Body passed a Complete Streets Policy in 2013 that states that "That to the extent reasonable and practical, all public streets that are newly constructed or reconstructed within the City, whether privately or publicly financed, will be constructed as Complete Streets." The recommendations in the remainder of this memo support this City policy and will work to provide a safer and more comfortable bicycling environment for Overland Park residents and visitors.

Table 2 presents the recommended target BLOS ratings for existing streets in Overland Park. These recommendations are focused on achieving a reasonable level of service for bicyclists as well as being achievable within the existing curb lines.

Table 2: Recommended target BLOS for existing Overland Park streets

Street Type	Target BLOS	Comments
Local	Not rated	Assumed to all be A
Collector	B or better	BLOS of A is desirable
Thoroughfare	C or better	BLOS of B is desirable

To provide some context for these ratings, Table 3 provides examples of existing conditions in Overland Park, and what can be achieved with modest changes to existing roadway striping.

Table 3: BLOS applied to select Overland Park Streets

Street	Cross Street	Lanes	ADT	Comment	BLOS
99th St.	Lamar Ave.	2	2,000	Existing	B (2.47)
99th St.	Lamar Ave.	2	2,000	10' Travel Lanes + 6' Bike/Parking Lanes	A (1.38)
Lamar Ave.	99th St.	2	3,900	Existing	C (2.81)
Lamar Ave.	99th St.	2	3,900	10' Travel Lanes + 6' Bike/Parking Lanes	B (1.72)
Switzer Rd.	129th St.	4	9,200	Existing	D (3.71)
Switzer Rd.	129th St.	4	9,200	10' Travel Lanes + 4' Bike Lanes	C (2.93)
Antioch Rd.	119th St.	6	23,500	Existing	D (3.98)
Antioch Rd.	119th St.	6	23,500	10' Travel Lanes + 4' Bike Lanes	C (3.20)

Note: The following data was used for calculating BLOS:

- *Lanes: Only through lanes are counted*
- *ADT: Drawn from the City of Overland Park Traffic Count interactive map*
- *Outside Lane Width: 16' (collectors); 13' (thoroughfares)*
- *Posted Speed: 25 (collectors); 45 (thoroughfares)*
- *Heavy Vehicle Percentage: 1% (collectors); 2% (thoroughfares)*
- *FHWA Pavement Condition Rating: 4*
- *% Occupied On-Street Parking: 5% (collectors); 0% (thoroughfares)*

It is notable that by painting a bicycle or bicycle/parking lane within the existing curbs generally increases the BLOS rating of a given street a full level. Even more notable is that larger thoroughfares with significant traffic levels and speeds (Antioch Road) can achieve a BLOS of C by restriping the travel lanes to 10' and providing a 4' bike lane (exclusive of the gutter). Adding bike/parking lane striping to collector streets and restriping thoroughfares to include bike lanes is an efficient and cost effective means of providing acceptable bikeways on existing streets.

It should be noted that the Highway Capacity Manual supports the use of 10' travel lanes in most urban and suburban settings. Generally speaking, travel lanes as narrow as 10' do not have a significant impact on safety or traffic throughput. Our January 31, 2014, memo "Lane Widths" provides more details about, and support for, the use of narrow travel lanes.

Although acceptable BLOS levels can be achieved on existing Overland Park streets by narrowing travel lanes and providing the minimum bikeway accommodation, the City should strive to do better on newly constructed streets. Streets have a lifespan of 50 to 60 years from when they are first constructed until they generally need to be fully reconstructed. Not including adequate bikeways on newly constructed streets means that the opportunity may not present itself again for a generation or more. Additionally, including bikeways during the initial construction of a street is dramatically more cost effective than attempting to retrofit bikeways at a later date. With these points in mind, Table 4 presents the recommended target BLOS ratings for new streets in Overland Park.

Table 4: Recommended target BLOS for new Overland Park streets

Street Type	Target BLOS	Comments
Local	Not rated	Assumed to all be A
Collector	A	
Thoroughfare	B	BLOS of A is desirable

The BLOS levels recommended in Table 4 can be achieved with the following measures:

Collector Street

Using the existing cross-section, a collector street with a speed limit of 30, lane widths of 10' and a 6' bike lane (no parking) can carry up to 3,300 vehicles per day and achieve an A rating (1.50) and up to 8,000 vehicles per day and still achieve a mid-B rating (1.95).

Thoroughfare Streets

For the BLOS calculation, the number of through lanes does not matter as the ADT is simply divided by the number of lanes. For our recommendations, we assume that a thoroughfare will carry 7,500 vehicles per day per through lane; this results in ADTs of 15,000 for two lane thoroughfares, 30,000 for four lanes, and 45,000 for six lanes. In order to achieve a BLOS level of B (2.50) on a thoroughfare with these volumes, a speed limit of 45, and outside lane widths of 10', a 6.5' wide bike lane or shoulder is required. Ideally, rather than providing a standard 6.5' bike lane, a 4' bike lane (exclusive of gutter) is provided with a 2.5' buffer zone between the bike lane and the travel lane. Buffered bike lanes provide a greater level of comfort for bicyclists and also make clear that the wide lane is not a parking lane.

An example of a buffered bicycle lane in Bloomington, Indiana.

It should be noted that the provision of a sidepath within the street right-of-way is not an acceptable substitute for on-street bicycle facilities under most circumstances. Sidepaths can be a good facility for children and less confident bicyclists, but they also can present significant safety and operational issues at intersections and driveway crossings. Additionally, sidepaths are not an adequate bicycle facility for transportation bicyclists or fast recreational riders for a variety of reasons. In particular, faster bicycle speeds are not compatible with the other uses present on shared use paths (pedestrians, dog walkers, joggers…), and paths may not be located on the side of the street a user needs, requiring them to cross the adjacent street multiple times. The 2012 AASHTO Guide to Bicycle Facilities states that the "provision of a pathway adjacent to the road is not a substitute for the provision of on-road accommodation such as paved shoulders or bike lanes, but may be considered in some locations in addition to on-road bicycle facilities." With this in mind, we recommend that Overland Park continue to provide sidepaths on at least one side of thoroughfares, but that this is done as a supplement to, and not a substitute for, on-street bicycle accommodations.

D.3 | South Overland Park Transportation Plan

HNTB is currently conducting a study for the City of Overland Park to evaluate the future thoroughfare network in the southern portion of the city. This study includes modeling of future traffic demand and the recommendations for the street cross-sections that will be necessary to meet this demand. Comments on the draft typical cross-sections that were provided to us by Brian Shields, City Traffic Engineer, are provided below. The comments are based on the assumption that all thoroughfares will have a posted speed limit of 40 and will carry up to 7,500 vehicles per day in each through lane and reflect the BLOS recommendations provided above. As noted previously, it is recommended that all newly constructed collectors and thoroughfares in Overland Park include on-street bikeways. As such, our comments for each cross-section include the recommendation to add or expand the width of bike lanes. Although a 6.5' bike lane is required to achieve a BLOS of B on Overland Park's thoroughfares given the assumed traffic volumes and speeds, only a 6' bike lane is included in our recommendations below in order to reduce pavement widths and associated costs.

- **2 Lane Divided Interim with Future 4 Lane Divided:** The proposed 5' shoulder should be expanded to 6'. Either a standard 6' bike lane or a 4' bike lane with a 2' buffer may be used. This change can be accommodated within the proposed pavement width by narrowing the travel lanes by 1'.
- **2 Lane Undivided with Bike Lanes:** The proposed 5' bike lane should be expanded to 6'. Either a standard 6' bike lane or a 4' bike lane with a 2' buffer may be used. This change can be accommodated within the proposed pavement width by narrowing the travel lanes by 1'.
- **3 Lane Undivided with Ditches:** The proposed 2' shoulder should be expanded to 6'. Either a standard 6' bike lane or a 4' bike lane with a 2' buffer may be used. Some of this additional width can be accommodated by narrowing the travel lanes and center turn lane, but additional pavement width will likely be required.
- **3 Lane Undivided with Curb & Gutter:** 6' bike lanes should be provided. Either a standard 6' bike lane or a 4' bike lane with a 2' buffer may be used. Some of the bike lane width can be accommodated by narrowing the travel lanes and center turn lane, but additional pavement width will likely be required.
- **4 Lane Divided (City Standard):** 6' bike lanes should be provided. Either a standard 6' bike lane or a 4' bike lane with a 2' buffer may be used. Some of the bike lane width can be accommodated by narrowing the travel lanes and center turn lane, but additional pavement width will likely be required.

In general, we also recommend that travel lanes narrower than 12' be strongly considered for each cross-section, both for the traffic-calming effects of narrower lanes and to minimize overall pavement widths and costs.

Sample cross sections that were discussed during the development of the South Overland Park Transportation Plan are provided in Appendix F.

D.4 | Conclusion

The City of Overland Park has the opportunity to provide an excellent Bicycle Level of Service on existing collector streets and an acceptable Bicycle Level of Service on existing thoroughfares simply by reconfiguring existing striping patterns within the existing curb lines. The City also has an opportunity with the ongoing South Overland Park Transportation Plan to offer an improved level of service for bicyclists on future streets, particularly thoroughfares. This can be achieved by ensuring that newly developed cross-sections provide adequately wide on-street bicycle lanes (or shoulders) or buffered bicycle lanes so that streets offer a high bicycle level of service at the time they are constructed.

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APPENDIX E

E | Planning Level Cost Estimates

The Project Report provides planning level cost estimates for the recommended bikeway facilities. This appendix details how the cost estimates were arrived at, and provides cost estimates for each bikeway on a corridor-by-corridor basis.

E.1 | Bikeway Facility Base Costs

Table 5 displays the planning level cost estimates per mile of bikeway that were used to derive cost figures presented in the Project Report.

Table 5: Planning level cost estimates per mile of bikeway

Facility	Est. Cost/Mile
Signed Route (Add Signs)	$2,900
Sharrows (Add Markings and Signs)	$10,000
Bike Lanes - Paint (Add Striping and Signs)	$11,800
Bike Lanes - Thermoplastic (Add Striping and Signs)	$19,100
Buffered Bike Lanes - Thermoplastic (Add Striping and Signs)	$31,900
Bike Lanes (Widen Road and Add Signs)	$374,600
Paved and Striped Shoulder (Add Striping)	$15,500
Paved Shoulders (Build Shoulders)	$462,800
Shared Use Path (Construct New)	$452,300

Tables 6 – 12 provide additional detail how these planning level costs were derived. The costs are based on national cost figures for specific materials or activities that have been calibrated to cost quotes that Overland Park has received for recently bid projects. Costs may vary widely for materials and construction activities from project to project and year to year, and the costs provided should only be used as ball park level planning costs. Note that costs are provided for some facility types that are not included in this plan – these costs may be useful for future planning efforts.

It should be noted that all of the cost figures include costs for maintenance of traffic, that is, rerouting traffic during facility installation, and other lump sum costs where appropriate. The cost figures also include a 25% contingency amount.

Signed Bike Routes

Table 6 displays the planning level costs for signed bike routes. No significant work is needed to implement signed routes other than the installation of signs.

Table 6: Planning level cost estimates for signed bike routes

Signed Route (Add Signs)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
New Sign	EA	10	$225.00	$2,250	Assume 1 Sign every 1,000', each side of road
Lump Sum Items					
Maintenance of Traffic (5%)	LS	1.00	$225	$225	
			Subtotal	**$2,475**	
			15% Contingency	$371	
			Total Estimated Cost	**$2,900**	

Shared Lane Markings

Table 7 displays the planning level costs for installing shared lane markings. Depending on the number of intersections on a given street, more or fewer pavement marking symbols may be needed which may impact the overall cost.

Table 7: Planning level cost estimates for shared lane markings

Shared Lane Markings (No Major Action/Add Markings)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
Thermoplastic Pavement Marking Symbol	EA	20	$300.00	$6,000	Assume 1 Symbol every 500' each side of the road
New Sign	EA	10	$225.00	$2,250	Assume 1 Sign every 1,000' each side of road
Lump Sum Items					
Maintenance of Traffic (5%)	LS	1.00	$413	$413	
			Subtotal	**$8,663**	
			15% Contingency	$1,299	
			Total Estimated Cost	**$10,000**	

Bike Lanes (Paint)

Table 8 displays the planning level costs for installing bike lanes on streets that already have room for the lanes and do not require any marking eradication. The costs in Table 8 reflect the use of paint for the lane stripes. These costs are appropriate for the bike lanes proposed for Overland Park's collector streets.

Table 8: Planning level cost estimates for bike lanes (paint striping)

Bike Lanes - Paint (No Major Action/Add Striping)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
Paint Pavement Marking (4")	LF	10560	$0.14	$1,478	Assume 2 lines entire length
Thermoplastic Pavement Marking Symbol	EA	20	$300.00	$6,000	Assume 1 Symbol every 500' each side of road
New Sign	EA	10	$225.00	$2,250	Assume 1 Sign every 1,000' each side of road
Lump Sum Items					
Maintenance of Traffic (5%)	LS	1.00	$486	$486	
			Subtotal	**$10,214**	
			15% Contingency	$1,532	
			Total Estimated Cost	**$11,800**	

Bike Lanes (Thermoplastic)

Table 9 displays the planning level costs for installing bike lanes on streets that already have room for the lanes and do not require any marking eradication. The costs in Table 9 reflect the use of thermoplastic for the lane stripes. These costs are appropriate for the bike lanes proposed for Overland Park's thoroughfares assuming the work is done following a resurfacing project when striping has to be reapplied for all lanes. A six inch wide bike lane stripe is recommended for use on thoroughfares to provide increased visibility.

Table 9: Planning level cost estimates for bike lanes (thermoplastic striping)

Bike Lanes - Thermoplastic (No Major Action/Add Striping)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
Thermoplastic Pavement Marking (6")	LF	10560	$1.00	$10,560	Assume 2 lines entire length
Thermoplastic Pavement Marking Symbol	EA	10	$300.00	$3,000	Assume 1 Symbol every 1,000' each side of road
New Sign	EA	10	$225.00	$2,250	Assume 1 Sign every 1,000' each side of road
Lump Sum Items					
Maintenance of Traffic (5%)	LS	1.00	$791	$791	
			Subtotal	**$16,601**	
			15% Contingency	$2,490	
			Total Estimated Cost	**$19,100**	

Bike Lanes (New Construction)

Table 10 displays the planning level costs for constructing new bike lanes. The costs in Table 10 reflect the use of thermoplastic for the lane stripes. These costs are appropriate for the bike lanes or buffered bike lanes proposed for Overland Park's thoroughfares that have not yet been constructed to an urban cross section. The additional four feet of pavement for each side of the street will allow adequate room for a standard or buffered bike lane (assuming travel lanes are narrowed slightly).

Table 10: Planning level cost estimates for bike lanes (new construction)

Bike Lanes (Widen Road/Construct Shoulders - 4' each side)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
Earthwork, Excavation, Grading	CY	3000	$25.00	$75,000	Assume 8' width and 2' depth
Aggregate Base Course for Pavement	CY	1600	$60.00	$96,000	Assume 8' width and 1' depth
Asphalt Base Course	TON	1600	$64.00	$102,400	Assume 8' width and 0.5' depth, 13.3 CF in a TON
Asphalt Surface Course	TON	400	$64.00	$25,600	Assume 8' width and 0.125' depth, 13.3 CF in a TON
Thermoplastic Pavement Marking (6")	LF	10560	$1.00	$10,560	Assume 2 lines entire length
Thermoplastic Pavement Marking Symbol	EA	10	$300.00	$3,000	Assume 1 Symbol every 1,000' each side of road
New Sign	EA	10	$225.00	$2,250	Assume 1 Sign every 1,000' each side of road
Lump Sum Items					
Landscaping (5%)	LS	1.00	$1,808	$1,808	
Drainage and E&S (10%)	LS	1.00	$3,616	$3,616	
Maintenance of Traffic (5%)	LS	1.00	$1,808	$1,808	
Utility Adjustments (10%)	LS	1.00	$3,616	$3,616	
			Subtotal	**$325,658**	
			15% Contingency	$48,849	
			Total Estimated Cost	**$374,600**	

Buffered Bike Lanes

Table 11 displays the planning level costs for installing buffered bike lanes on streets that already have room for the lanes and do not require any marking eradication. The costs in Table 11 reflect the use of thermoplastic for the lane stripes.

Table 11: Planning level cost estimates for buffered bike lanes

Buffered Bike Lanes - Thermoplastic (No Major Action/Add Striping)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
Thermoplastic Pavement Marking (6")	LF	21,120	$1.00	$21,120	Assume 4 lines entire length
Thermoplastic Pavement Marking Symbol	EA	10	$300.00	$3,000	Assume 1 Symbol every 1,000' each side of road
New Sign	EA	10	$225.00	$2,250	Assume 1 Sign every 1,000' each side of road
Lump Sum Items					
Maintenance of Traffic (5%)	LS	1.00	$791	$1,319	
			Subtotal	**$27,689**	
			15% Contingency	$4,153	
			Total Estimated Cost	**$31,900**	

Paved Shoulders

Table 12 displays the planning level costs for striping shoulders on streets that already have room for the shoulders and do not require any marking eradication. The costs in Table 12 reflect the use of thermoplastic for the lane stripes.

Table 12: Planning level cost estimates for buffered bike lanes

Paved and Striped Shoulder (Add Striping)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
Thermoplastic Pavement Marking (6")	LF	10,560	$1.00	$10,560	Assume 2 lines entire length
New Sign	EA	10	$225.00	$2,250	Assume 1 Sign every 1,000' each side of road
Lump Sum Items					
Maintenance of Traffic (5%)	LS	1.00	$641	$641	
			Subtotal	**$13,451**	
			15% Contingency	$2,018	
			Total Estimated Cost	**$15,500**	

Paved Shoulders (New Construction)

Table 13 displays the planning level costs for constructing new paved shoulders. The costs in Table 13 reflect the use of thermoplastic for the lane stripes. These costs are appropriate for the paved shoulders proposed for Overland Park's thoroughfares that have not yet been reconstructed. The additional five four of pavement for each side of the street will allow adequate room for a standard or buffered bike lane (assuming travel lanes are narrowed slightly).

Table 13: Planning level cost estimates for bike lanes (new construction)

Paved Shoulders (Construct Shoulders - 4' each side)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
Earthwork, Excavation, Grading	CY	3000	$25.00	$75,000	Assume 8' width and 2' depth
Aggregate Base Course for Pavement	CY	1600	$60.00	$96,000	Assume 8' width and 1' depth
Asphalt Base Course	TON	1600	$64.00	$102,400	Assume 8' width and 0.5' depth, 13.3 CF in a TON
Asphalt Surface Course	TON	400	$64.00	$25,600	Assume 8' width and 0.125' depth, 13.3 CF in a TON
Thermoplastic Pavement Marking (6")	LF	10560	$1.00	$10,560	Assume 2 lines entire length
Lump Sum Items					
Landscaping (5%)	LS	1.00	$15,478	$15,478	
Drainage and E&S (10%)	LS	1.00	$30,956	$30,956	
Maintenance of Traffic (5%)	LS	1.00	$15,478	$15,478	
Utility Adjustments (10%)	LS	1.00	$30,956	$30,956	
			Subtotal	**$402,428**	
			15% Contingency	$60,364	
			Total Estimated Cost	**$462,800**	

Shared Use Paths (10')

Table 12 displays the planning level costs for constructing ten foot wide shared use paths. The costs do not include land acquisition or any significant cut or fill operations. The costs also do not reflect enhanced crossings that may be needed where a path crosses or meets a major collector street or thoroughfare.

Table 14: Planning level cost estimates for shared use paths

Bike Lanes (Widen Road/Construct Shoulders - 5' each side)					
Item	**Unit**	**Quant.**	**Estimated Unit Cost**	**Total Cost per Mile**	**Comment**
Earthwork, Excavation, Grading	CY	6500	$25.00	$162,500	Assume 16' width and 2' depth
Aggregate Base Course for Pavement	CY	1000	$60.00	$60,000	Assume 10' width and 1' depth
Asphalt Base Course	TON	1000	$64.00	$64,000	Assume 10' width and 0.5' depth, 13.3 CF in a TON
Asphalt Surface Course	TON	250	$64.00	$16,000	Assume 10' width and 0.125' depth, 13.3 CF in a TON
Lump Sum Items					
Landscaping (5%)	LS	1.00	$15,125	$15,125	
Drainage and E&S (10%)	LS	1.00	$30,250	$30,250	
Maintenance of Traffic (5%)	LS	1.00	$15,125	$15,125	
Utility Adjustments (10%)	LS	1.00	$30,250	$30,250	
			Subtotal	**$393,250**	
			15% Contingency	$58,988	
			Total Estimated Cost	**$452,300**	

E.2 | Planning Level Bikeway Corridor Costs

Tables 15 – 17 display the planning level cost estimates for each segment of the bikeways proposed in Chapter 5 of the Project Report. The cost estimates are based on the facility base costs presented in Section E.1. The tables list the street segments according to the corridor number that was used in Chapter 5 of the Project Report.

The City Network

Table 15 presents the planning level cost estimates for streets included in the proposed City Network.

Table 15: Planning level cost estimates for the proposed City Network

#	Street	From	To	Bike Facility	Miles	Cost/Mile	Total Cost
A	Pflumm Rd	103rd St	107th St	Buffered Bike Lane	0.51	$374,600	$189,900
A	Pflumm Rd	107th St	143rd St	Bike Lane	4.52	$19,100	$86,400
A	Pflumm Rd	143rd St	191st St	Buffered Bike Lane	6.02	$374,600	$2,255,100
B	Quivira Rd	143rd St	191st St	Buffered Bike Lane	5.20	$374,600	$1,947,900
C	I-35 Frontage	Switzer Rd	79th St	Bike Lane	0.12	$19,100	$2,200
C	Switzer Rd	I-35 Frontage Rd	87th St	Bike Lane	0.93	$19,100	$17,700
C	Switzer Rd	87th St	95th St	Shared Lane Marking	1.01	$10,000	$10,100
C	Switzer Rd	W 95th St	103rd St	Bike Lane	1.19	$19,100	$22,700
C	Switzer Rd	College Blvd	119th St	Bike Lane	1.17	$19,100	$22,300
C	Switzer Rd	119th St	159th St	Bike Lane	5.26	$19,100	$100,500
C	Switzer Rd	159th St	179th St	Buffered Bike Lane	2.52	$374,600	$944,000
C	Switzer Rd	W 179th St	191st St	Buffered Bike Lane	1.55	$374,600	$580,700
D	Antioch Rd	47th St	54th Ter	Bike Lane	1.58	$19,100	$30,200
D	Antioch Rd	54th Ter	67th St	Bike Lane	0.96	$19,100	$18,300
D	Antioch Rd	67th St	75th St	Bike Lane	1.51	$19,100	$28,800
D	Antioch Rd	75th St	167th St	Bike Lane	11.06	$19,100	$211,200
D	Antioch Rd	167th St	172nd Ter	Buffered Bike Lane	0.80	$374,600	$300,700
D	Antioch Rd	172nd Ter	175th St	Buffered Bike Lane	0.23	$374,600	$85,000
D	Antioch Rd	175th St	S City Border	Buffered Bike Lane	3.50	$374,600	$1,309,700
E	Metcalf Ave	159th St	183rd St	Buffered Bike Lane	3.04	$374,600	$1,140,500
E	Metcalf Ave	183rd St	191st St	Buffered Bike Lane	1.00	$374,600	$374,600
F	Nall Ave	67th St	69th St	Bike Lane	0.25	$19,100	$4,800
F	Nall Ave	69th St	71st St	Bike Lane	0.25	$19,100	$4,800
F	Nall Ave	71st St	75th St	Bike Lane	0.81	$19,100	$15,500
F	Nall Ave	75th St	83rd St	Bike Lane	1.00	$19,100	$19,100
F	Nall Ave	83rd St	91st St	Bike Lane	1.00	$19,100	$19,100
F	Nall Ave	91st St	95th St	Bike Lane	0.52	$19,100	$9,900
F	Nall Ave	95th St	159th St	Bike Lane	8.07	$19,100	$154,100
F	Nall Ave	159th St	167th St	Buffered Bike Lane	1.00	$374,600	$375,900
G	Mission Rd	95th St	Indian Creek Trail	Bike Lane	1.79	$19,100	$34,200
G	Mission Rd	153rd St	Blue River	Buffered Bike Lane	1.39	$374,600	$520,700
G	Mission Rd	Blue River	191st St	Buffered Bike Lane	3.45	$374,600	$1,292,400
H	Johnson Dr	Lowell St	Metcalf Ave	Bike Lane	0.53	$19,100	$10,100
I	79th St	I-35 Frontage Rd	Lowell Ave	Bike Lane	1.46	$19,100	$27,800
I	79th St	Lowell Ave	Lamar Ave	Shared Lane Marking	1.01	$10,000	$10,100

Table 15 continued

#	Street	From	To	Bike Facility	Miles	Cost/Mile	Total Cost
J	Santa Fe Dr	87th St	Antioch Rd	Bike Lane	0.26	$19,100	$5,000
J	Santa Fe Dr	Antioch Rd	Robinson St	Bike Lane	0.76	$19,100	$14,500
J	Santa Fe Dr	Robinson St	Roundabout	Bike Lane	0.17	$19,100	$3,300
J	Santa Fe Dr	Roundabout	79th St	Shared Lane Marking	0.26	$10,000	$2,600
K	87th St	Reeder St	Santa Fe Dr	Bike Lane	1.16	$19,100	$22,100
K	87th St	Santa Fe Dr	Nall Ave	Bike Lane	2.26	$19,100	$43,200
L	103rd St	Pflumm Rd	Monrovia St	Shared Lane Marking	0.85	$10,000	$8,500
L	103rd St	Monrovia St	Mission Rd	Bike Lane	5.19	$19,100	$99,100
M	College Blvd	Pflumm Rd	El Monte St	Bike Lane	5.88	$19,100	$112,300
N	127th St	Pflumm Ave	East End (Goodman St)	Bike Lane	3.37	$19,100	$64,400
N	127th St	Foster St	Nall Ave	Bike Lane	1.22	$19,100	$23,400
O	143rd St	Pflumm Rd	Quivira Rd	Bike Lane	1.00	$374,600	$374,600
O	143rd St	Quivira Rd	Nall Ave	Bike Lane	4.02	$19,100	$76,800
P	159th St	Pflumm Rd	Quivira Rd	Bike Lane	1.01	$374,600	$378,300
P	159th St	Quivira Rd	Mission Rd	Bike Lane	5.04	$19,100	$96,300
P	159th St	Mission Rd	Kenneth Rd	Buffered Bike Lane	1.00	$374,600	$374,600
P	Kenneth Rd	144th St	159th St	Buffered Bike Lane	1.65	$374,600	$618,100
Q	167th St	Pflumm Rd	Switzer Rd	Buffered Bike Lane	2.08	$374,600	$779,200
Q	167th St	Switzer Rd	Metcalf Ave	Buffered Bike Lane	2.12	$374,600	$794,200
Q	167th St	Metcalf Ave	Nall Ave	Buffered Bike Lane	1.00	$374,600	$374,600
R	175th St	Lackman Rd	W 179th St	Bike Lane	1.43	$19,100	$27,300
R	179th St	175th St	U.S. 69	Bike Lane	3.38	-	-
R	179th St	U.S. 69	Metcalf Ave	Buffered Bike Lane	0.45	$374,600	$169,900
S	183rd St	Antioch Rd	Existing street	Buffered Bike Lane	0.31	$374,600	$116,100
S	183rd St	West end	Metcalf Ave	Buffered Bike Lane	0.70	$374,600	$262,200
S	183rd St	Metcalf Ave	Mission Rd	Buffered Bike Lane	2.00	$374,600	$749,200
T	191st St	Pflumm Rd	U.S. 69	Buffered Bike Lane	3.48	$374,600	$1,303,600
T	191st St	U.S. 69	City border	Buffered Bike Lane	3.05	$374,600	$1,142,500
T	191st St	City border	State Line Rd	Buffered Bike Lane	0.70	$374,600	$262,200
				Total	**132.01**		**$19,825,100**

The Neighborhood Network

Table 16 presents the planning level cost estimates for streets included in the proposed Neighborhood Network.

Table 16: Planning level cost estimates for the proposed Neighborhood Network

#	Street	From	To	Bike Facility	Miles	Cost/Mile	Total Cost
1	116th Street	Rosehill Road	Stoll Park Path	Shared Lane Marking	0.04	$10,000	$400
1	Rosehill Road	116th Street	123rd Street	Bike Lane	0.84	$11,800	$9,900
1	Richards Street	Westgate Street	129th Street	Bike Lane	0.81	$11,800	$9,600
1	125th St	Westgate Street	Quivira Rd	Bike Lane	0.48	$11,800	$5,700
1	Rosehill Road	129th Street	141st Street	Bike Lane	1.14	$11,800	$13,500
1	Westgate Street	139th Street	Existing path	Shared Lane Marking	0.08	$10,000	$800
2	Nieman Rd	87th St	91st St	Bike Lane	0.56	$11,800	$6,600
2	Nieman Rd	91st St	95th St	Shared Lane Marking	0.50	$10,000	$5,000
2	Bluejacket Dr	95th St	99th St	Bike Lane	0.49	$11,800	$5,700
2	99th St	Bond St	Bluejacket Dr	Shared Lane Marking	0.25	$10,000	$2,500
2	Bond St	99th St	106th St	Shared Lane Marking	0.96	$10,000	$9,600
2	106th St	Quivira Rd	Bond St	Bike Lane	0.20	$11,800	$2,400
2	Nieman Rd	Valley Brooke Park Path	Indian Creek Pkwy Path	Bike Lane	1.20	$11,800	$14,200
2	109th St	Nieman Rd	College Blvd	Bike Lane	0.39	$11,800	$4,600
2	Nieman Rd	119th St	135th St	Bike Lane	2.31	$11,800	$27,300
2	Reeder St	Tomahawk Path	Bluejacket St	Bike Lane	0.16	$11,800	$1,900
2	Bluejacket St	Reeder St	S End (W 146th St)	Bike Lane	0.74	$11,800	$8,700
2	Melrose St	Bluejacket St	Melrose St	Bike Lane	0.08	$11,800	$900
2	Melrose St	N End (148th St)	151st St	Bike Lane	0.66	$11,800	$7,800
2	Bluejacket St	159th St	163rd St	Bike Lane	0.19	$11,800	$2,200
2	163rd St	Flint St	Bluejacket St	Bike Lane	0.34	$11,800	$4,000
2	Flint St	163rd St	167th St	Bike Lane	0.84	$11,800	$9,900
2	Bond Ave	167th St	175th St	Bike Lane	0.96	$11,800	$11,300
2	Bond Ave	175th St	179th St	Shared Lane Marking	0.53	$10,000	$5,300
2	176th Ter	Quivira Rd	Bond Ave	Shared Lane Marking	0.36	$10,000	$3,600
3	Grant St	79th St	87th St	Shared Lane Marking	0.24	$10,000	$2,400
3	Grant St	87th St	88th Ter	Shared Lane Marking	0.27	$10,000	$2,700
3	Grant St	88th Ter	91st St	Shared Lane Marking	0.62	$10,000	$6,200
3	Hayes Dr	91st St	95th St	Shared Lane Marking	0.62	$10,000	$6,200
3	Grandview Dr	95th St	103rd St	Shared Lane Marking	1.05	$10,000	$10,500
3	Grant Dr	College Blvd	119th St	Bike Lane	1.17	$11,800	$13,800
3	Hayes St	119th St	121st Ter	Bike Lane	0.33	$11,800	$3,900
3	Grant St	119th St	Gap	Bike Lane	1.19	$11,800	$14,000
3	Grant St	Gap	131st St	Bike Lane	0.20	$11,800	$2,300
3	Kessler St	131st St	133rd St	Bike Lane	0.44	$11,800	$5,200
3	Grandview St	133rd St	137th St	Bike Lane	0.38	$11,800	$4,500
3	Grant St	141st St	143rd St	Bike Lane	1.00	$11,800	$11,800
3	England St	143rd St	147th St	Bike Lane	0.65	$11,800	$7,600
3	England St	147th St	151st St	Bike Lane	0.45	$11,800	$5,300

Table 16 continued

#	Street	From	To	Bike Facility	Miles	Cost/Mile	Total Cost
4	Foster St	Turkey Creek Path	Johnson Dr	Shared Lane Marking	1.00	$10,000	$10,000
4	Metcalf Ln	Johnson Dr	61st St	Shared Lane Marking	0.25	$10,000	$2,500
4	61st St	Foster St	Metcalf Ln	Shared Lane Marking	0.22	$10,000	$2,200
4	Foster St	61st St	Shawnee Mission Pkwy	Shared Lane Marking	0.25	$10,000	$2,500
4	Santa Fe Dr	Shawnee Mission Pkwy	78th St	Shared Lane Marking	1.90	$10,000	$19,000
4	78th St	Foster St	Santa Fe Dr	Shared Lane Marking	0.07	$10,000	$700
4	Foster St	78th St	79th St	Shared Lane Marking	0.13	$10,000	$1,300
4	Marty St	79th St	Metcalf Ave	Shared Lane Marking	0.45	$10,000	$4,500
4	Lowell Ave	71st St	Santa Fe Dr	Shared Lane Marking	1.44	$10,000	$14,400
4	83rd St	Santa Fe Dr	Lowell Ave	Bike Lane	0.04	$11,800	$400
4	Lowell Ave	83rd St	95th St	Shared Lane Marking	1.56	$10,000	$15,600
4	Lowell Ave	95th St	103rd St	Bike Lane	1.02	$11,800	$12,000
4	Lowell Ave	108th Ter	115th St	Bike Lane	1.05	$11,800	$12,400
4	Lowell Ave	115th St	123rd St	Bike Lane	0.94	$11,800	$11,100
4	Foster St	123rd St	132nd St	Bike Lane	1.14	$11,800	$13,400
4	Goodman St	142nd Ter	139th St	Bike Lane	0.38	$11,800	$4,500
4	142nd Ter	Hemlock St	Goodman St	Bike Lane	0.03	$11,800	$400
4	Hemlock St	Hadley St	142nd Ter	Bike Lane	0.57	$11,800	$6,700
4	Hardy St	Hemlock St	151st St	Bike Lane	0.69	$11,800	$8,200
4	Lowell Ave	151st St	159th St	Bike Lane	1.08	$11,800	$12,800
4	Newton St	143rd St	Gap	Bike Lane	0.81	$11,800	$9,600
4	Newton St	Gap	151st St	Bike Lane	0.16	$11,800	$1,900
4	Conser St	151st St	154th Ter	Shared Lane Marking	0.46	$10,000	$4,600
4	154th Ter	Conser St	Metcalf Ave	Shared Lane Marking	0.18	$10,000	$1,800
4	Foster St	154th Ter	156th St	Shared Lane Marking	0.33	$10,000	$3,300
4	156th St	Foster St	Marty St	Shared Lane Marking	0.14	$10,000	$1,400
4	Marty St	156th St	159th St	Bike Lane	0.28	$11,800	$3,300
5	Lamar Ave	Shawnee Mission Pkwy	75th St	Bike Lane	1.51	$11,800	$17,800
5	Lamar Ave	75th St	78th St	Shared Lane Marking	0.38	$10,000	$3,800
5	Lamar Ave	78th St	103rd St	Shared Lane Marking	3.16	$10,000	$31,600
5	Lamar Ave	103rd	110th St	Bike Lane	0.88	$11,800	$10,400
5	Lamar Ave	110th St	115th St	Bike Lane	0.47	$11,800	$5,600
5	Glenwood St	115th St	119th St	Bike Lane	0.32	$11,800	$3,700
5	Lamar Ave	119th St	Deer Creek Path	Bike Lane	1.38	$11,800	$16,300
5	131st St	Lamar Ave	Nall Ave	Bike Lane	0.39	$11,800	$4,600
5	Lamar Ave	131st St	150th St	Bike Lane	2.68	$11,800	$31,600
5	Lamar Ave	151st St	159th St	Bike Lane	1.12	$11,800	$13,200
6	Merriam Dr	Antioch Rd	47th St	Bike Lane	1.01	$11,800	$11,900
7	54th Ter	Antioch Rd	Foster St	Shared Lane Marking	0.76	$10,000	$7,600
8	71st St	Antioch Rd	Nall Ave	Bike Lane	2.01	$11,800	$23,800
9	80th St	Lowell Ave	Lamar Ave	Shared Lane Marking	1.01	$10,000	$10,100
10	83rd St	Lowell Ave	Glenwood St	Bike Lane	0.78	$11,800	$9,100
10	83rd St	Glenwood St	Nall Ave	Shared Lane Marking	0.75	$10,000	$7,500

Table 16 continued

#	Street	From	To	Bike Facility	Miles	Cost/Mile	Total Cost
11	91st St	Quivira Rd	Antioch Rd	Shared Lane Marking	2.01	$10,000	$20,100
11	91st St	Antioch Rd	Hemlock St	Shared Lane Marking	0.14	$10,000	$1,400
11	91st St	Lowell Ave	Nall Ave	Bike Lane	1.53	$11,800	$18,100
12	99th St	Switzer Ave	Mission Rd	Bike Lane	4.10	$11,800	$48,300
13	107th St	Metcalf Ave	Nall Ave	Bike Lane	1.01	$11,800	$11,900
13	Indian Creek Pkwy	Nall Ave	105th St	Bike Lane	0.93	$11,800	$11,000
13	105th St	Indian Creek Pkwy	Mission Rd	Bike Lane	0.16	$11,800	$1,900
13	Indian Creek Pkwy	College Blvd	Antioch Rd	Bike Lane	0.87	$11,800	$10,200
13	108th Ter	Antioch Rd	Lowell Ave	Bike Lane	0.48	$11,800	$5,600
13	110th St	Lowell Ave	Conser St	Bike Lane	0.15	$11,800	$1,700
13	Conser St	110th St	110th St	Bike Lane	0.18	$11,800	$2,200
13	110th St	Conser St	Lamar Ave	Bike Lane	0.83	$11,800	$9,800
13	110th St	Lamar Ave	Nall Ave	Bike Lane	0.49	$11,800	$5,800
13	110th St	Nall Ave	Roe Ave	Bike Lane	0.56	$11,800	$6,700
13	109th St	Roe Ave	El Monte St	Shared Lane Marking	0.20	$11,800	$2,400
13	El Monte St	109th St	109th Ter	Shared Lane Marking	0.13	$11,800	$1,500
13	109th Ter	El Monte St	Foxhill South Park	Shared Lane Marking	0.12	$10,000	$1,200
14	115th St	Quivira Rd	Flint St	Shared Lane Marking	0.28	$10,000	$2,800
14	Flint St	115th St	115th St	Shared Lane Marking	0.08	$10,000	$800
14	115th St	Flint St	115th Ter	Shared Lane Marking	0.10	$10,000	$1,000
14	115th Ter	115th St	115th St	Shared Lane Marking	0.54	$10,000	$5,400
14	115th St	115th Ter	Indian Creek Pkwy	Shared Lane Marking	0.04	$10,000	$400
14	Mastin St	Grant Dr	115th Ter	Shared Lane Marking	0.41	$10,000	$4,100
14	115th Ter	Mastin St	115th St	Shared Lane Marking	0.72	$10,000	$7,200
14	115th St	115th Ter	Nall Ave	Bike Lane	2.46	$11,800	$29,000
15	123rd St	Nieman Rd	Grant St	Bike Lane	0.96	$11,800	$11,300
15	124th St	Grant St	Antioch Rd	Bike Lane	0.45	$11,800	$5,300
15	121st Ter	Hayes St	Antioch Rd	Bike Lane	0.32	$11,800	$3,800
15	123rd St	Antioch Rd	Nall Ave	Bike Lane	2.08	$11,800	$24,600
15	Tomahawk Creek	Nall Ave	Roe Ave	Bike Lane	0.68	$11,800	$8,100
16	129th St	Pflumm Rd	Switzer Rd	Bike Lane	2.22	$11,800	$26,200
16	131st St	Windham Hill Park	Switzer Rd	Shared Lane Marking	0.21	$10,000	$2,100
16	131st St	Antioch Rd	Goodman St	Bike Lane	1.18	$11,800	$13,900
16	Goodman St	131st St	127th St	Bike Lane	0.39	$11,800	$4,600
16	130th St	Goodman St	Brandon Place Link	Shared Lane Marking	0.13	$10,000	$1,300
17	133rd St	Pflumm Rd	Hemlock St	Bike Lane	3.41	$11,800	$40,300
17	132nd St	Hemlock St	Metcalf Ave	Bike Lane	0.93	$11,800	$11,000
17	133rd St	Metcalf Ave	Leawood	Bike Lane	1.15	$11,800	$13,600
18	141st St	Pflumm Rd	Rosehill St	Bike Lane	0.57	$11,800	$6,700
18	139th St	Rosehill St	Quivira Rd	Bike Lane	0.52	$11,800	$6,200
18	141st St	Quivira Rd	Antioch Rd	Bike Lane	2.18	$11,800	$25,700
18	139th St	Antioch Rd	Metcalf Ave	Bike Lane	1.21	$11,800	$14,300
18	138th St	Metcalf Ave	Lamar Ave	Bike Lane	0.57	$11,800	$6,800
18	137th St	Lamar Ave	Nall Ave	Bike Lane	0.57	$11,800	$6,800
18	137th St	Switzer Rd	Antioch Rd	Bike Lane	0.75	$11,800	$8,900
18	140th St	Nall Ave	Roe Ave	Shared Lane Marking	0.54	$10,000	$5,400

Table 16 continued

#	Street	From	To	Bike Facility	Miles	Cost/Mile	Total Cost
19	148th St	Melrose St	Switzer Rd	Bike Lane	0.12	$11,800	$1,400
19	147th St	Switzer Rd	Hadley St	Bike Lane	1.34	$11,800	$15,800
19	147th St	Newton St	Metcalf Ave	Bike Lane	0.30	$11,800	$3,500
19	Edgewater Dr	Metcalf Ave	Nall Ave	Bike Lane	1.57	$11,800	$18,600
20	Monrovia St	151st St	153rd St	Signed Bike Route	0.29	$2,900	$800
20	153rd St	Monrovia St	Planned Path	Signed Bike Route	0.15	$2,900	$400
20	153rd St	Quivira Rd	154th St	Signed Bike Route	0.09	$2,900	$300
20	154th St	153rd St	Bond St	Signed Bike Route	0.25	$2,900	$700
20	Bond St	154th St	155th Ter	Signed Bike Route	0.19	$2,900	$500
20	155th Ter	Bond St	Barton St	Signed Bike Route	0.18	$2,900	$500
20	Barton St	155th Ter	156th St	Signed Bike Route	0.06	$2,900	$200
20	156th St	Barton St	Reeder St	Signed Bike Route	0.11	$2,900	$300
20	Reeder St	156th St	156th Ter	Signed Bike Route	0.06	$2,900	$200
20	156th Ter	Reeder St	Planned Path	Signed Bike Route	0.22	$2,900	$600
20	156th Ter	Planned Path	Switzer Rd	Signed Bike Route	0.19	$2,900	$600
20	156th St	Switzer Rd	Planned Path	Signed Bike Route	0.51	$2,900	$1,500
20	Hayes St	Planned Path	157th Ter	Signed Bike Route	0.06	$2,900	$200
20	155th Ct	157th St	Grandview St	Signed Bike Route	0.26	$2,900	$800
20	Eby St	Grandview St	156th St	Signed Bike Route	0.14	$2,900	$400
20	156th St	Eby St	Lowell Ave	Signed Bike Route	0.40	$2,900	$1,200
20	155th Ter	Lowell Ave	Planned Path	Signed Bike Route	0.16	$2,900	$500
20	158th St	Marty St	Lamar Ave	Bike Lane	0.38	$11,800	$4,500
20	158th St	Lamar Ave	Horton St	Shared Lane Marking	0.20	$10,000	$2,000
20	Horton St	158th St	157th Ter	Shared Lane Marking	0.16	$10,000	$1,600
20	157th Ter	Horton St	157th St	Shared Lane Marking	0.42	$10,000	$4,200
20	157th St	157th Ter	Cedar St	Shared Lane Marking	0.48	$10,000	$4,800
20	Cedar St	157th St	158th Ter	Shared Lane Marking	0.29	$10,000	$2,900
20	158th Ter	Cedar St	Roe Ave	Shared Lane Marking	0.19	$10,000	$1,900
20	Roe Ave	163rd Ter	Roe Ave (end)	Bike Lane	0.59	$11,800	$6,900
20	Roe Ave	Roe Ave (end)	Mission Rd	Bike Lane	0.34	$11,800	$4,000
20	163rd Ter	Nall Ave	Roe Ave	Bike Lane	0.77	$11,800	$9,000
21	163rd St	Flint St	Grant St	Bike Lane	0.76	$11,800	$9,000
21	Grant St	163rd St	165th St	Bike Lane	0.32	$11,800	$3,800
21	165th St	Grant St	Antioch Rd	Bike Lane	0.68	$11,800	$8,000
22	175th St	W 179th St	Antioch Rd	Bike Lane	2.66	$11,800	$31,300
23	187th St	Pflumm Rd	Antioch Rd	Bike Lane	3.11	$11,800	$36,700
				Total	**116.40**		**$1,295,300**

The Trail & Sidepath Network

Table 17 presents the planning level cost estimates for the proposed Trail & Sidepath Network.

Table 17: Planning level cost estimates for the proposed Trial & Sidepath Network

#	Name	From	To	Bike Facility	Miles	Cost/Mile	Total Cost
1	95th St Sidepath	Grandview St	Hayes Dr	Sidepath	0.05	$452,300	$20,400
2	119th St Sidepath	Indian Creek Trail	Nieman Rd	Sidepath	0.31	$452,300	$141,000
3	119th St Sidepath	Glenwood St	Lamar Ave	Sidepath	0.25	$452,300	$115,000
4	Roe Ave Sidepath	109th St	110th St	Sidepath	0.09	$452,300	$41,700
5	Lamar-Deer Creek Link	Lamar Ave	Tomahawk Creek Trail	Path	0.05	$452,300	$21,100
6	Quivira Rd Sidepath	139th St	141st St	Sidepath	0.19	$452,300	$86,600
7	Green Meadows Path Extension	Metcalf Ave Culvert	Glenwood Ave	Path	0.32	$452,300	$144,700
8	Newton St Connector	Newton St	Newton St	Path	0.10	$452,300	$45,200
9	156th Ter Connector	156th Ter	156th Ter	Path	0.08	$452,300	$36,200
10	153rd St Connector	153rd St	Quivira Rd	Path	0.01	$452,300	$4,500
11	156th St Connector	156th St	156th St	Path	0.11	$452,300	$49,800
12	135th St Sidepath	Pflumm Rd	Nieman Rd	Sidepath	1.65	$452,300	$746,300
13	135th St Sidepath	Switzer Rd	Tomahawk Creek Trail	Sidepath	1.24	$452,300	$560,900
14	135th St Sidepath	Tomahawk Creek Trail	Lamar Ave	Sidepath	0.94	$452,300	$425,200
15	U.S. 69 Corridor Path	Indian Creek Trail	127th St	Path	2.23	$452,300	$1,008,600
16	Brookridge Path	Farley St	Indian Creek Trail	Path	0.51	$452,300	$230,700
17	Grant St Connector	Grant St	Grant St	Path	0.09	$452,300	$40,700
18	U.S. 69 Corridor Path	138th St	Kinston Lake Park Path	Path	1.83	$452,300	$827,700
19	U.S. 69 Corridor Path	159th St	167th St	Path	1.00	$452,300	$452,300
20	116th Path Connector	116th St	116th St	Path	0.34	$452,300	$153,800
21	Metcalf Ave Sidepath	149th St	Brittany Park	Sidepath	0.50	$452,300	$226,200
22	Metcalf Ave Sidepath	College Ave	Tomahawk Creek Trail	Sidepath	2.53	$452,300	$1,144,300
23	155th Ter Connector	155th Ter	Planned U.S. 69 Path	Path	0.04	$452,300	$18,100
24	123rd Terrace Conenctor	123rd Terrace	Indian Creek Trail	Path	0.14	$452,300	$63,300
				Total	**14.60**		**$6,604,300**

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APPENDIX F

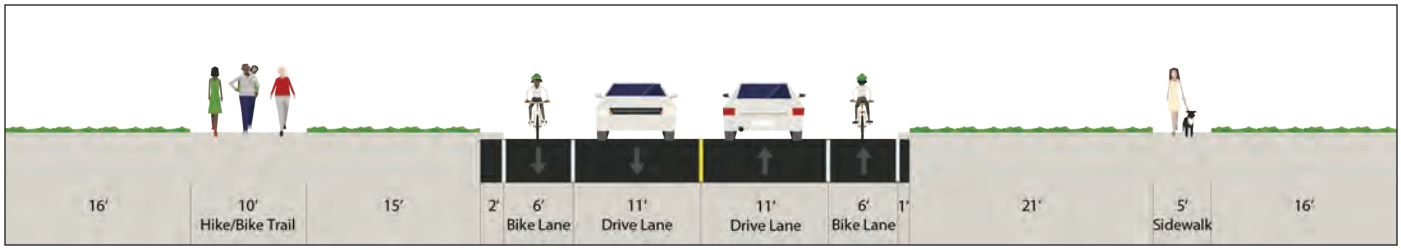
F | Street Typical Cross Sections

This appendix displays draft typical cross sections that were developed for the Southern Overland Park Transportation Plan.

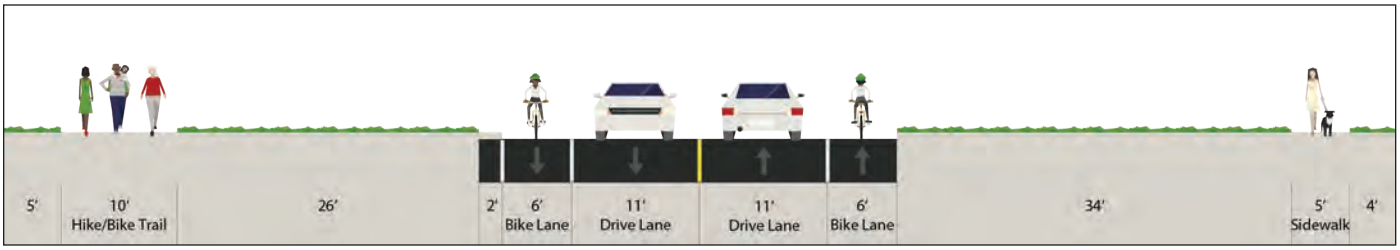
Draft Cross Sections

The typical cross sections below were developed by HNTB for the Southern Overland Park Transportation Plan. The cross sections are intended to be used as streets in the southern portion of the city are upgraded to city standards. The cross sections provide a variety of configurations, and all include bicycle facilities. For more information, consult the Southern Overland Park Transportation Plan. All graphics designed using StreetMix: www.streetmix.net.

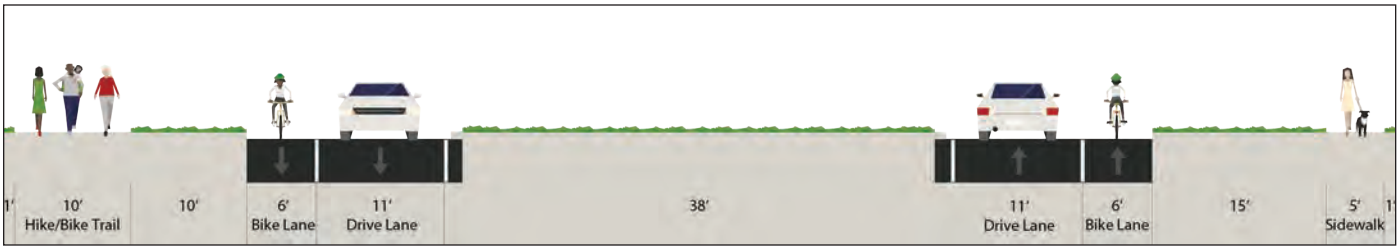
Typical A: Two lane roadway



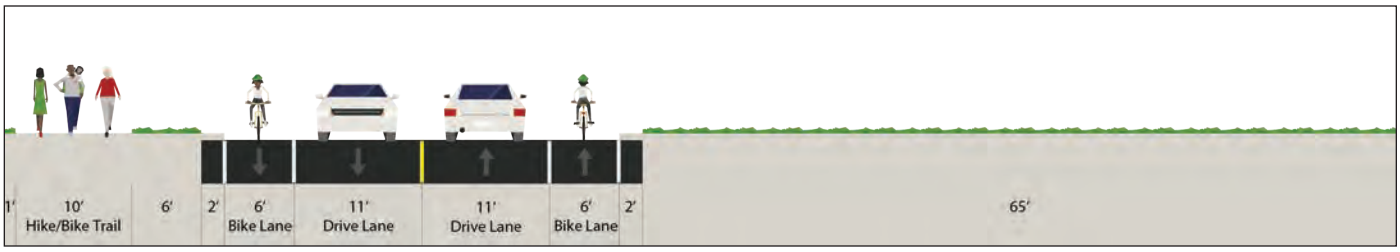
Typical B-1: Two lane undivided roadway



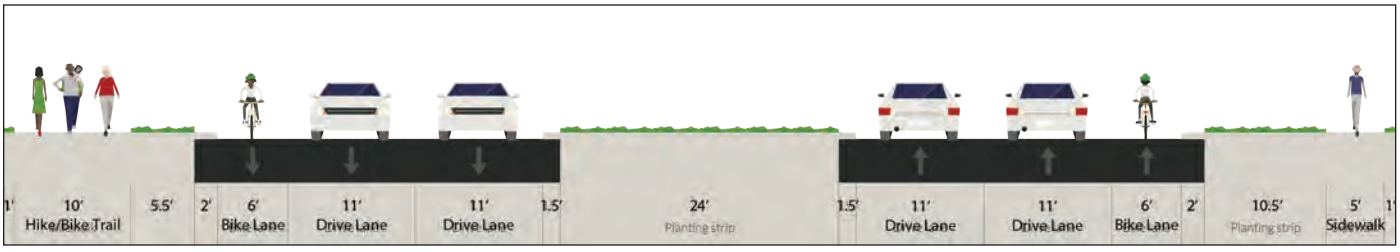
Typical B-2: Two lane divided roadway



Typical B-3: Two lane undivided roadway



Typical C: Four lane divided roadway



APPENDIX G

G | Maps

The following pages contain maps that are referenced in the body of this report. The maps that are included are:

- Map A: WikiMap Low Stress Routes & Current Bicycle Destinations
- Map B: WikiMap High Stress Routes & Barriers to Bicycling
- Map C: WikiMap Desired Routes & Destinations

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City of Overland Park

Safe Bicycle Use Outreach Project
Map: WikiMap Low Stress Routes

Map Description

This map depicts input from the Overland Park WikiMap. This interactive tool allows users to map points and routes and provide comments on each route or point. This map displays routes that users designated as "Low Stress" routes that they bicycle and points that they currently bicycle to. Darker lines indicate routes that more people marked on the WikiMap.

Legend

Streets/Transportation

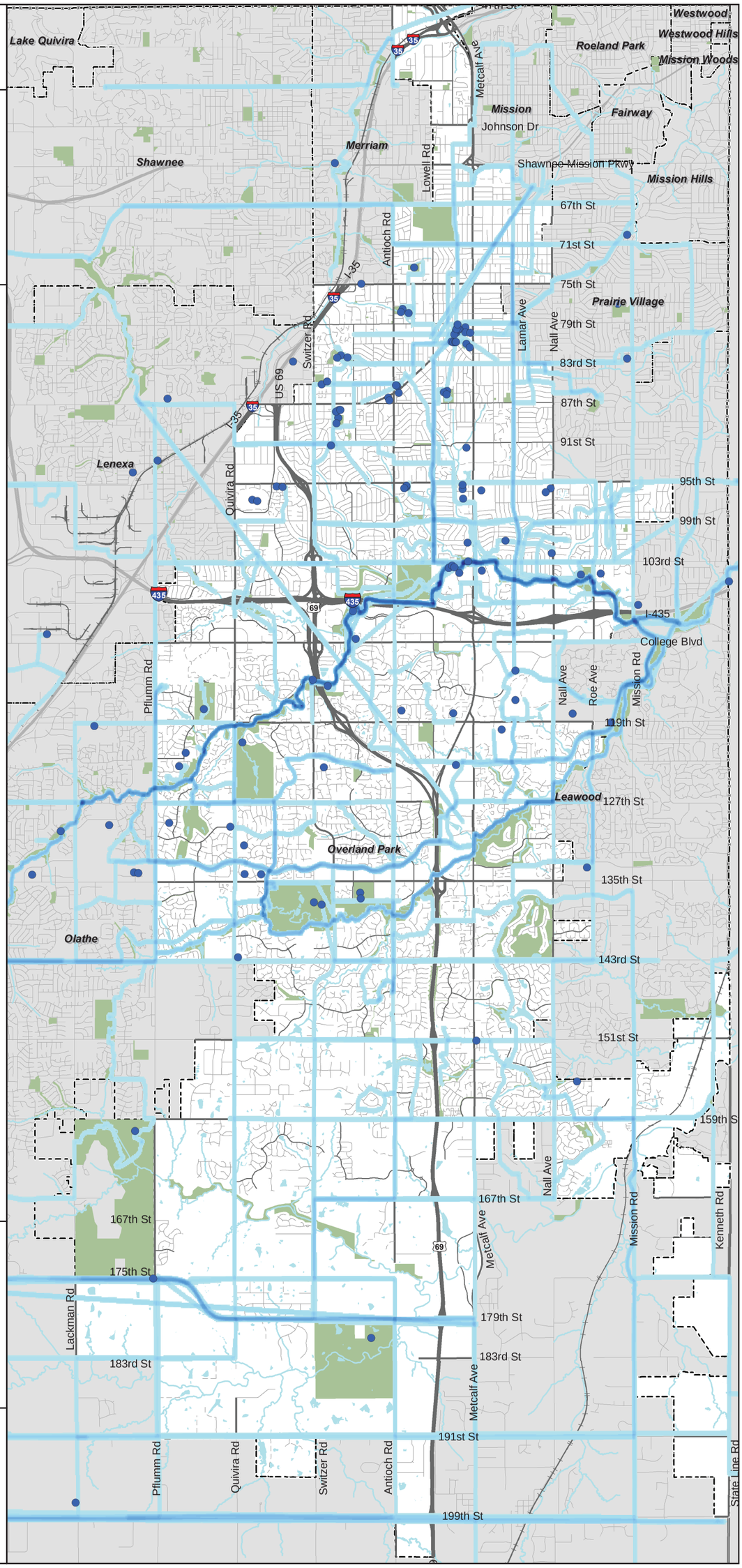
- Highways
- Thoroughfares
- Collectors
- Local Streets
- Local Private Streets
- Railroad

Land Use

- City of Overland Park
- Water
- Park - Existing

WikiMap

- Low Stress Route
- Current Bicycle Destination



N

Miles
0 0.5 1 2

Map data provided by the City of Overland Park, MARC, and the U.S. Census Bureau. Map is provided "as-is" for informational purposes, and no guarantee is made as to the accuracy of the map or data. Plot date: 6/29/2014

OVERLAND PARK
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City of Overland Park

Safe Bicycle Use Outreach Project
Map: WikiMap High Stress Routes

Map Description

This map depicts input from the Overland Park WikiMap. This interactive tool allows users to map points and routes and provide comments on each route or point. This map displays routes that users designated as "High Stress" routes that they bicycle and points that are barriers to bicycling. Darker lines indicate routes that more people marked on the WikiMap.

Legend

Streets/Transportation

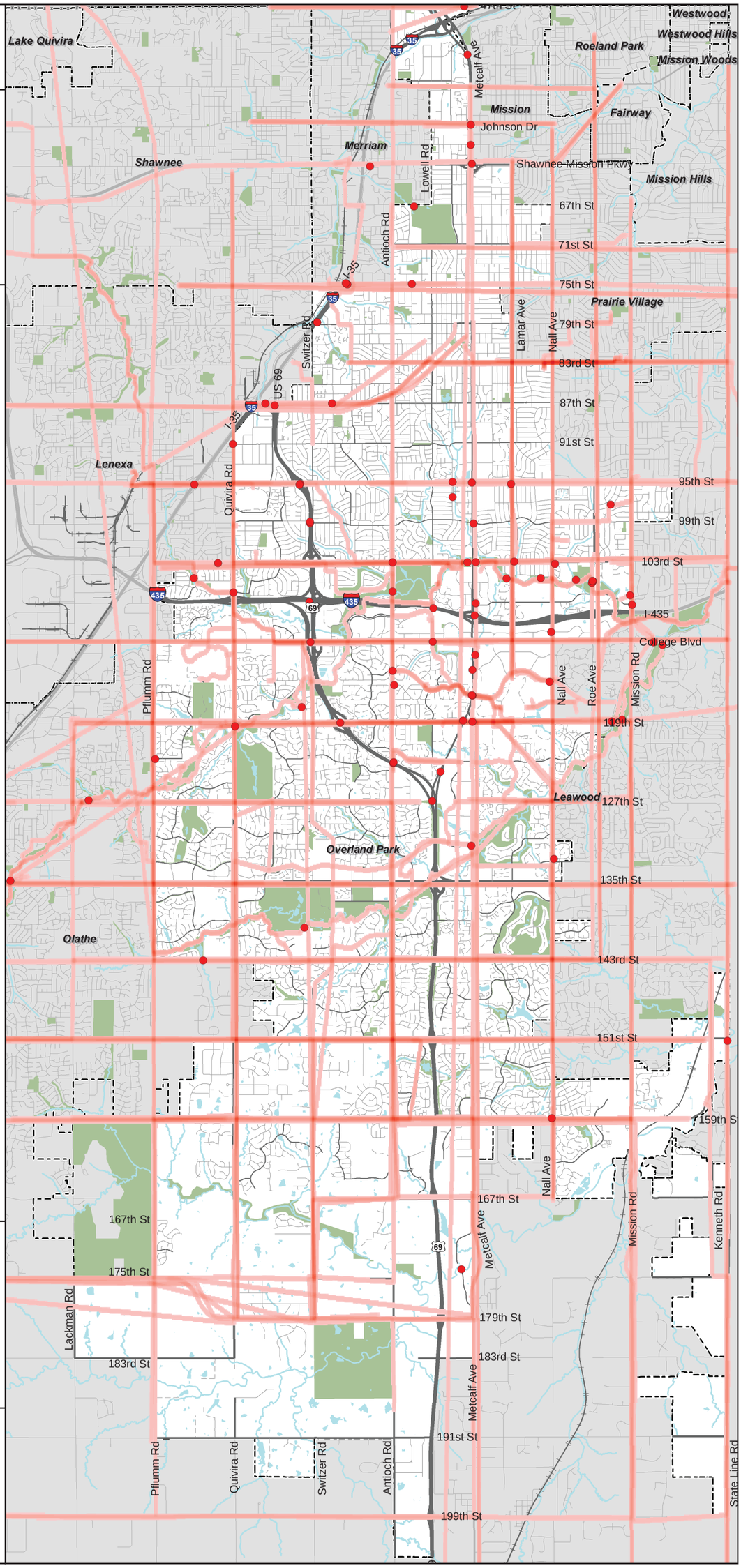
- Highways
- Thoroughfares
- Collectors
- Local Streets
- Local Private Streets
- Railroad

Land Use

- City of Overland Park
- Water
- Park - Existing

WikiMap

- High Stress Route
- Barrier to Bicycling



N

Miles
0 0.5 1 2

Map data provided by the City of Overland Park, MARC, and the U.S. Census Bureau. Map is provided "as-is" for informational purposes, and no guarantee is made as to the accuracy of the map or data. Plot date: 6/29/2014

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City of Overland Park

Safe Bicycle Use Outreach Project
Map: WikiMap Desired Routes

Map Description

This map depicts input from the Overland Park WikiMap. This interactive tool allows users to map points and routes and provide comments on each route or point. This map displays routes that users designated as desired routes that they would like to bicycle and points that they would like to bicycle to. Darker lines indicate routes that more people marked on the WikiMap.

Legend

Streets/Transportation

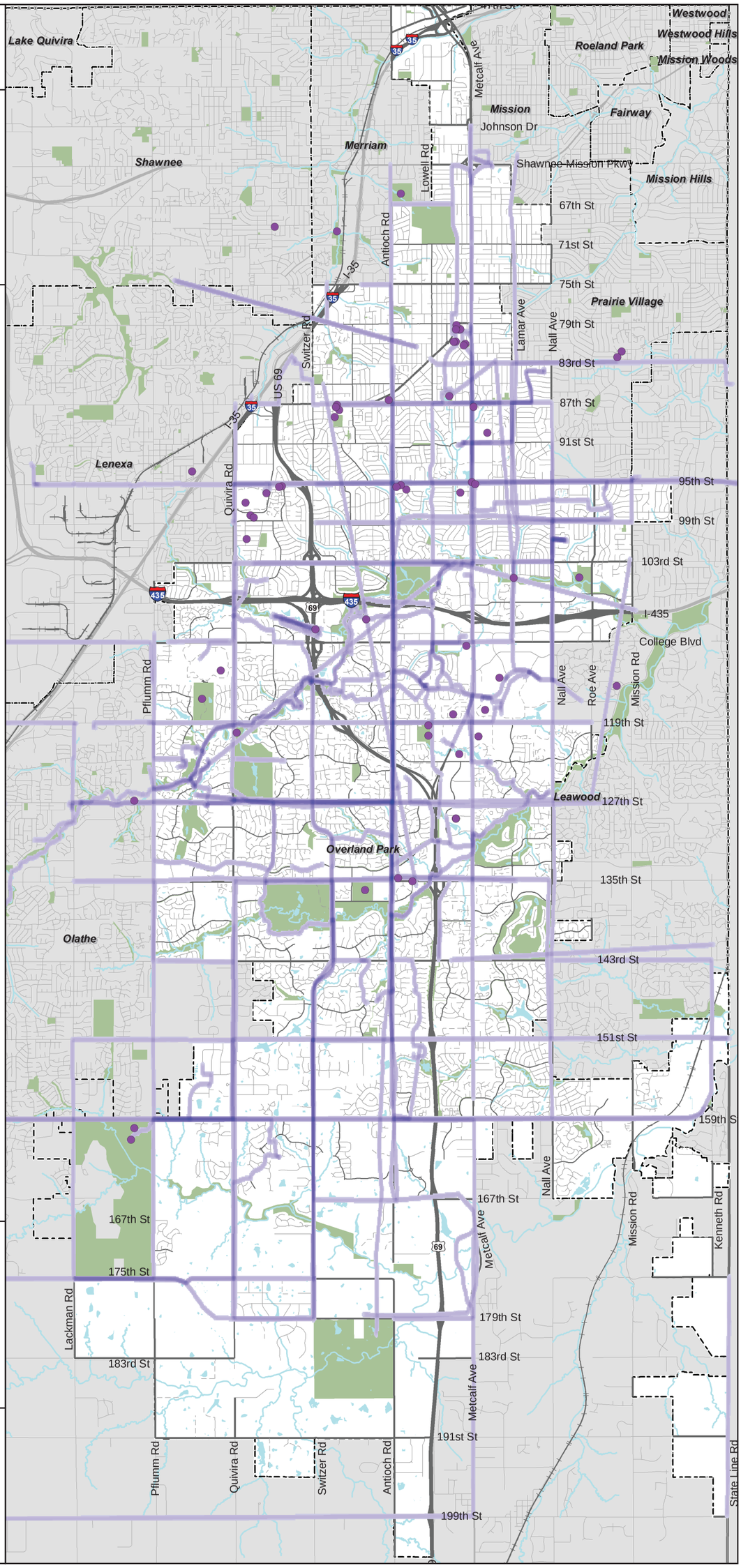
- Highways
- Thoroughfares
- Collectors
- Local Streets
- Local Private Streets
- Railroad

Land Use

- City of Overland Park
- Water
- Park - Existing

WikiMap

- Desired Route
- Desired Bicycle Destination



N

Miles
0 0.5 1 2

Map data provided by the City of Overland Park, MARC, and the U.S. Census Bureau. Map is provided "as-is" for informational purposes, and no guarantee is made as to the accuracy of the map or data. Plot date: 6/29/2014

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Street