

Bike KC Master Plan

CITY OF KANSAS CITY, MISSOURI



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KANSAS CITY,
MISSOURI



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INTRODUCTION

Executive Summary



"I like biking because it's fun and it's a better way of getting around than riding in the car every day. I usually ride back and forth from school."

/ IRENE



BIKE KC MASTER PLAN VISION STATEMENT

"Kansas City is a vibrant community where all modes of transportation, including the bicycle, are valid, equalizing, and supported. All users are safely accommodated on well-connected networks to destinations which facilitate a culture of cycling and access to economic development opportunities."

The update to the bicycle plan for the City of Kansas City, Missouri, Bike KC, comes at a time when Kansas City is making significant investment its future. Installation of the City's first streetcar line since the 1950s, the passage of an \$800 million General Obligation Bond, the vote to build a new single terminal international airport, and the passage of a strong Complete Streets ordinance are all indicative of the shifting dynamics in transportation and infrastructure in Kansas City, Missouri. The Bike KC Master Plan looks to continue this momentum by recommending progressive approaches to bicycling infrastructure improvements and programs, while also acknowledging the pragmatic realities of fiscal constraint, maintenance needs, and the size of the City.

The Bike KC Master Plan is a starting point and steering document. The Plan should function as a guidepost to help city staff and the community make decisions related to bicycling infrastructure, programs, and policies. A full buildout of the network will take decades and assumes that the City's Major Street Plan network will be established as land

is developed. Beyond fiscal constraints, there are many factors that will influence how the full system develops. This plan should not be viewed as a static document. Rather, it must act as a living article that provides specific starting points from which to approach public infrastructure projects, policy creation, and outreach efforts.

The need for a focused path forward related to active modes of transportation such as the bicycle was reinforced greatly during the summer of 2018 with the introduction of dockless scooters into the transportation ecosystem of Kansas City. In just a few months of operation, thousands of residents have ridden hundreds of thousands of miles on dockless scooters throughout the City. The prevalence of these scooters highlights the need to accelerate infrastructure and programs that invite people of all ages and abilities to explore the City by a variety of transportation modes while keeping everyone safe. This plan will act as a main resource for such an effort.

Chapter One, BACKGROUND & VISION

In December 2016, the City Auditor's Office released the results of an in-depth audit of the existing Bike KC program and found that the existing 2001 Bike KC plan was not sufficient to meet stated City policies and goals. The Bike KC Master Plan is a direct response to the audit and provides a specific path forward to help the City become more bicycle friendly. Other elements in this Chapter include the discussion of the benefits of bicycling, how bicycling fits into existing City policies and goals, and the vision and goals of this Plan.

KEY HIGHLIGHTS

- The need for an updated plan
- Expanding the pool of regular bicycle riders in Kansas City to include the "interested but concerned"
- Bicycling's relationship to other City policies and plans
- The Bike KC Master Plan vision statement and goals (below)

GOAL THEME	GOAL
ACTION ORIENTED	Projects and programs are prioritized, coordinated, funded, implemented, and maintained.
	Bike KC is an economic development driver in Kansas City.
INTEGRATED	Bicycling is integrated into the overall transportation system.
	Bike KC is well integrated into and with existing and future policies, regulations, and plans adopted by the City.
EQUITABLE	Bicycling connects all people to destinations.
	Equity is a component of bicycling programs and project prioritization.
SAFE & SUPPORTED	Appropriate and well-designed streets create safe and appealing cycling conditions.
	Kansas City supports positive health outcomes, clean environments, and smart technologies through the use and integration of bicycles.
ENTICING	People are drawn to bicycling as a means of transportation and recreation.
	Bicycling networks create a sense of place in Kansas City.



Chapter Two, OUTREACH & INPUT

Public outreach and input were the most critical elements in creating the Plan's vision and recommendations. Over the course of nearly two years, thousands of residents contributed their thoughts and comments to the Plan and the issue of bicycling in Kansas City. This feedback set the foundation for this project and is reflected in its vision, recommendations, and implementation approach.

KEY HIGHLIGHTS

- An official project and steering committee comprised of community members, business leaders, advocates, and technical experts guided the planning process and content creation
- Over 1,500 people throughout the City participated in surveys, mapping exercises, and public meetings
- Student focus groups, rolling bike meetings, demonstration events, and participation at citywide special events helped the public participate in unique ways to the planning process
- Public feedback indicates a strong preference for bike infrastructure that separates them from moving traffic

Chapter Three, STATE OF BICYCLING IN KANSAS CITY

Kansas City has come a long way since the early 2000s, but there is much improvement

to be made. Over the past two decades the bicycle has grown to be recognized as a valid component of the transportation system, and City policies help reflect that. However, the City must continue to catch up with other cities throughout the country by installing additional infrastructure to support bicyclists and users of other methods of active transportation.

KEY HIGHLIGHTS

- Kansas City installed its first protected bikeway in Summer 2018 along Armour Boulevard
- Over 24 centerline miles of dedicated on-street bike lanes or buffered bike lanes currently support bicyclists throughout the City
- Kansas City has been ranked a Bike Friendly Community at the Bronze level since 2011
- Many pieces of infrastructure throughout the City are representative of the successes and lessons learned about supporting bicycling in Kansas City

Chapter Four, BIKE KC ROUTES & FACILITY REFERENCE GUIDE

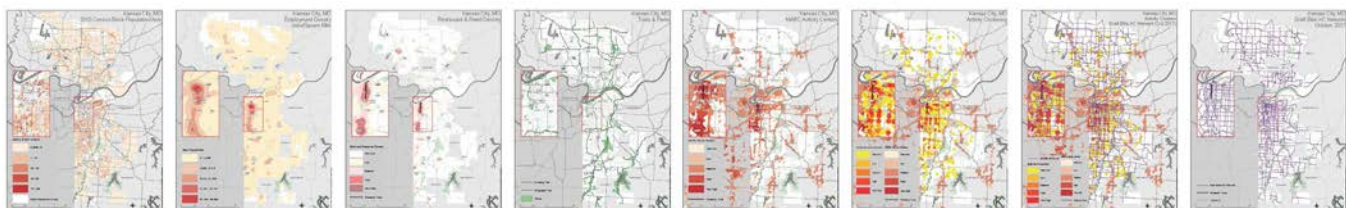
Multi-layered technical analysis informed updates to the City's bike network. A useful, direct, connected, and safe network appealing to bicyclists of all abilities is foundational in this updated plan.

	EXISTING NETWORK	EXISTING NETWORK THAT MEETS BIKE KC MASTER PLAN RECOMMENDED BY FACILITY TYPE	PROPOSED ADDITIONS OR UPGRADES TO THE NETWORK			TOTAL BIKE KC MASTER PLAN NETWORK	PERCENT OF TOTAL NETWORK
			UPGRADES TO EXISTING NETWORK	NEW FACILITIES	TOTAL NEW OR UPGRADED FACILITIES		
Major Separation	25	25	0	365	365	386	59%
Minor Separation	24	14	10	134	144	157	24%
Shared Street	154	49	0	66	66	115	17%
Total	203	88	10	565	575	658	100%

BIKEKC MASTER PLAN NETWORK BY FACILITY TYPE

KEY HIGHLIGHTS

- Items included in network analysis included crash/dangerous location information, equity components including life-expectancy and households without access to a vehicle, topography, centers of population, activity centers, and more
- A Level of Traffic Stress analysis helped inform route adjustments and facility type recommendations. A Level of Traffic Stress analysis puts roadway conditions into context as it relates to bicyclist comfort
- The updated Bike KC Master Plan network contains approximately 658 centerline miles of roadway
- Three categories of facility types are recommended in the updated network: **major separation**, **minor separation**, and **shared streets**
- A facility reference guide is provided highlighting example infrastructure for each facility type category



COMPONENTS OF NETWORK ANALYSIS



Chapter Five, NETWORK IMPLEMENTATION

Implementation of the Bike KC Master Plan network will take many years and will require significant resources to accomplish. To ensure the Plan functions as a guidepost for the community, strategies and action steps are highlighted for proactive implementation over the next five years.

KEY HIGHLIGHTS

- A 5-Year Priority Network is defined through a three phased approach. The 5-Year Priority Network and the Plan's contents should be updated every five years to ensure the Plan continues to represent community goals and ever-evolving best practices
- As an alternative or additive approach to building the bike network, a "quick build" methodology is noted. Cities such as Seville, Spain and Calgary, Alberta, Canada have recently seen success in growing bicycle ridership through quickly building complete and connected networks of low-stress bikeways
- The planning-level cost estimate for the Bike KC Master Plan network ranges from \$387 to \$418 million. The 5-Year Priority Network ranges in cost from \$23 to \$100 million. Specific funding mechanisms are discussed in this chapter that will help the City build this network
- Maintenance and operations considerations will ensure continued success of implemented bicycle infrastructure Implementation of the City's bike program will be led by formal inter-departmental collaboration, annual project prioritization, and the creation of two Bike Program/Active Transportation Program Coordinators – one overseeing infrastructure implementation and one responsible for leading planning, policy, and programmatic activities



Chapter Six, END OF TRIP FACILITIES, PROGRAMS, & POLICIES

To grow as a bicycle friendly community, this chapter describes supporting bicyclists through the end of their journey ensuring citywide policies prioritize active transportation and the safety of vulnerable road users, and carrying out programs that educate, engage, and excite citizens about bicycling.

KEY HIGHLIGHTS

- Creation of a citywide “request a rack” program and the implementation of on-street bicycle and scooter parking will assist users of active transportation in responsibly ending their journey at predictable locations
- Programs such as the development of “Bicycling 101” materials, coordination of bicycle education and access through efforts including Safe Routes to Schools, and special events such as temporary street demonstration projects, among others, will grow the community’s understanding of and enthusiasm for bicycling
- Policies such as the creation of a comprehensive transportation and mobility plan, bicycle wayfinding, vision zero efforts, and the use of new and innovative technologies’ data will push the City forward as a bicycling community that prioritizes safety and efficiency in program delivery

Chapter Seven, MEASURING SUCCESS

The City’s bicycle program must be regularly monitored and understood. Performance targets and trends are recommended to ensure that the Bike KC Master Plan continues to assist City staff and the community at large in making Kansas City a welcoming place for bicycling.

KEY HIGHLIGHTS

- Become a League of American Bicyclists Bicycle Friendly Community at the Silver level by 2024
- Increase annual citizen satisfaction of on-street bicycle infrastructure
- Annually track centerline miles of implemented infrastructure and expenditures on Bike KC programs





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CHAPTER ONE

Background + Vision



"I just love biking. It's fun, it's a good way to hang out with people, to get to know people, socialize, and get exercise too. You get to see where you're living in a different way, and it's stress off your shoulders to be completely separated from traffic."

/ ANNIE



BIKE KC MASTER PLAN VISION STATEMENT

"Kansas City is a vibrant community where all modes of transportation, including the bicycle, are valid, equalizing, and supported. All users are safely accommodated on well-connected networks to destinations which facilitate a culture of cycling and access to economic development opportunities."

Transportation is a key issue that defines the growth of communities. The movement of people and goods impact the livelihood, functionality, form, and economic competitiveness of a city. People across the country increasingly seek options and versatility in their everyday transportation. Over the past two decades bicycling networks

have grown in many cities as a key component of well-functioning transportation systems. Bicycling provides a wide array of benefits to public health, the environment, the local economy, a city's sense of place, and is more than a popular trend or recreational activity – it is a legitimate form of transportation that shapes and sustains strong, vibrant communities.

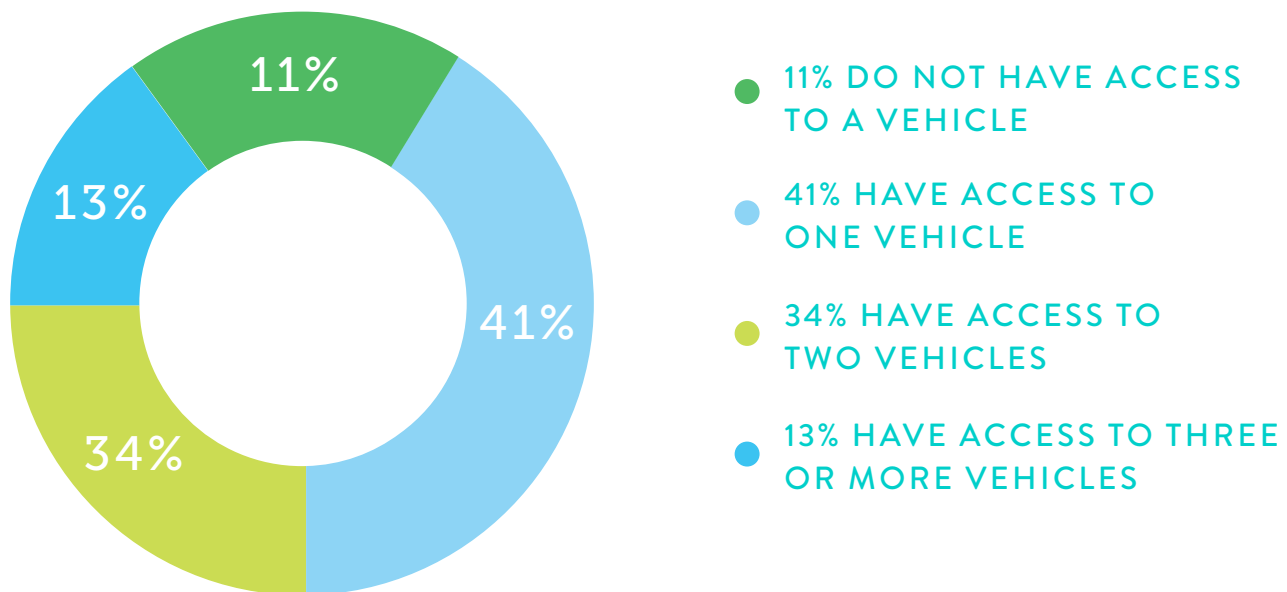
Echoing this national push, Kansas Citians increasingly demand a more complete, safe, and accessible transportation system. The successful launch of the Kansas City Streetcar starter line in May 2016 provided evidence that with a strategic approach and community support the streets of Kansas City can support a variety of transportation modes. The Bike KC Master Plan is an update to Bike KC – the city's first bicycle plan – and seeks to help the City move forward in a proactive and guided manner to support bicycling and to further the implementation of complete streets throughout the city.



PURPOSE OF THE PLAN

The 2018 Bike KC Master Plan informs and educates the public, elected leaders, and city staff on the potential of bicycling to help meet the goals of the community. This plan provides a path forward to help Kansas City become a regional leader in bicycle programming and seeks to achieve rapid progress in bicycling through implementation of the network, vision, and goals set forth by the community.

PERCENTAGE OF KANSAS CITY HOUSEHOLDS WITH ACCESS TO VEHICLES



WHY BICYCLING MATTERS

There are people in our community who must get around the city without a car.

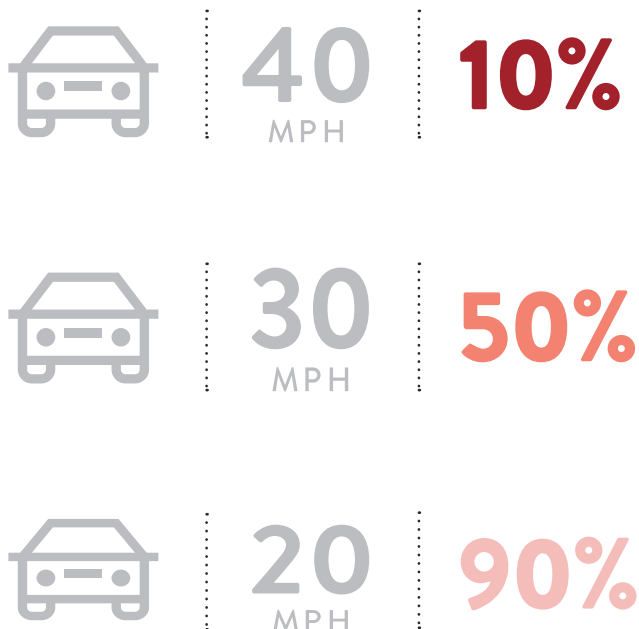
According to the 2011-2015 American Community Survey approximately 11% of Kansas City households do not have access to a vehicle and 41% have access to just one vehicle. Furthermore, many residents, workers, and city visitors are unable to drive due to age, disability, or illness; are unable or unwilling to drive; or cannot – or are unwilling to – afford the costs of owning and operating a vehicle. A safe and meaningful bicycle network is a critical element in providing transportation choices for all people, especially when paired with transit to provide first mile/last mile solutions.



Having a safe and predictable environment for cyclists and pedestrians helps save lives.

Between 2013-2016, four bicyclists and 16 pedestrians were killed and 656 were injured in collisions with motor vehicles in Kansas City, Missouri. Pedestrians, bicyclists, and those with physical impairments are the most exposed to physical harm when traveling. Protecting these vulnerable road users must be a top priority. The FHWA (2008) notes that providing bike lanes has a crash reduction factor of 36% ⁱ. When a street is safe for those that are walking and biking it is safer for everyone, and cities that install and maintain bicycle and pedestrian facilities increase the safety for all road users.

CHANCE FOR PEDESTRIAN SURVIVAL WHEN HIT AT DIFFERENT SPEEDS BY A TRAVELLING VEHICLE ⁱⁱ



Bicycling benefits the economic competitiveness of a city.

A community's bicycle friendliness is a key component to a community's vitality and is quickly becoming acknowledged as a critical factor in cities' economic success and sense of place. Updated in 2012, the League of American Bicyclists and the Alliance for Biking & Walking released a report entitled, "Bicycling Means Business: The Economic Benefits of Bicycling Infrastructure," ⁱⁱⁱ which summarizes studies from throughout the United States and Canada that explore the economic impact of bicycling infrastructure. These studies have indicated several general findings, including:

- The bicycle industry contributes significantly to local and state economies through jobs and health care savings
- Those traveling by bicycle make more frequent trips per month to local businesses than those in automobiles and spend more money each month supporting local establishments
- Businesses have benefited from corridor improvements that include bicycle infrastructure
- Bicycle tourism adds money to the economy. Missouri's Katy Trail is a notable example of this as visitors to Katy Trail State Park have a total economic impact of \$18.5 million annually ^{iv}

The importance of bicycling and its contribution to a city's competitiveness

“THE CITY OF CHICAGO MOVED FROM TENTH TO FIFTH OF MOST BIKE-FRIENDLY CITIES IN THE COUNTRY [ACCORDING TO BICYCLING MAGAZINE] IN ONE YEAR. [...] IN THE SAME YEAR THE CITY OF CHICAGO MOVED FROM FIFTEENTH TO TENTH WORLDWIDE IN STARTUP ECONOMY...YOU CANNOT BE FOR A STARTUP, HIGH-TECH ECONOMY AND NOT BE PRO-BIKE.”

/ Mayor Rahm Emanuel, Chicago, IL ^v

hit home most vividly throughout North America in the 2017 Amazon request for proposals for its second headquarters, HQ2 ^{vi}: “Include connectivity options: sidewalks, bike lanes, trams, metro, bus, light rail, train, and additional creative options to foster connectivity between buildings/facilities....For each proposed site in your region, identify all transit options, including bike lanes and pedestrian access to the site(s).” Of the 20 cities selected as finalists 14 had a League of American Bicyclists’ Bike Friendly Community Program ranking, eight of which were Silver or Gold. To continue to be competitive in today’s economy and attract a talented workforce, bicycling and its supportive infrastructure must be a priority.

The benefits of active lifestyles are well documented.

Controlling one’s weight, strengthening

bones and muscles, improving mental health, reducing risk of cardiovascular disease and type 2 diabetes, and other health improvements are attributed to regular physical activity. A study released in 2017 on the economic impacts of active transportation cited research that noted the financial impact of health inactivity resulted in nearly \$25 billion in direct health care expenditures and \$3 billion in reduced productivity ^{vii}. The Centers for Disease Control and Prevention recommends 150 minutes of moderate-intensity or 75 minutes a week of vigorous-intensity aerobic activity each week for substantial health benefits for adults, and 60 minutes each day for children and adolescents. Streets that are safe and appealing for bicycling can play a role in improving community health.

2014 LOCAL VERSUS NATIONAL OBESITY RATES



68%

2014 Kansas City,
Missouri rate | 68%
obese or overweight



65%

2014 National
rate | 65% obese
or overweight

1972 | **MAJOR STREET PLAN** | Defined the ultimate arterial roadway network and the needed right-of-way to support its full build out. The Major Street Plan was updated in 2011 and again in 2016 to include updated design standards for boulevards and parkways.

1980 | **KANSAS CITY BIKEWAYS** | Completed by the Kansas City Parks Department, it was the first citywide document to establish formal on-street bicycle and trail recommendations and acknowledged the parkway system as an appropriate contributor to promoting cycling in the city. ♦ Proposed that a "bikeway will occur within 2 miles of every resident in Kansas City, Missouri, providing a safe, city-wide network to any destination in the city a cyclist chooses."

1997 | **FOCUS KANSAS CITY COMPREHENSIVE PLAN** | Kansas City's comprehensive land use plan discussed the need for multimodal transportation options. Recommended the development of plans to accommodate pedestrians, bicyclists, and transit riders. ♦ Led to the creation of the Bike KC plan and the KC Walkability Plan, among others.

2001 | **BIKE KC** | Adopted as an amendment to the Major Street Plan, Bike KC defined 600 miles of on-street bike routes throughout the city, amended typical cross sections in the Major Street Plan to accommodate four and five-foot bike lanes, and provided general phasing recommendations. ♦ Has resulted in the installation of bike friendly drainage grates on every Bike KC route and 204 centerline miles of bicycle infrastructure, including 25 miles of major separated bikeways, including shared use paths that supplement Trails KC routes and the City's first parking protected

bikeway on Armour Blvd, 24 centerline miles of painted conventional or buffered bike lanes, and 154 centerline miles of shared lane markings and bike route signs.

2003 | **KC WALKABILITY PLAN** | Discussed walkability demand and facilities, establish a level of service criteria for non-automotive travel, and provided guidance on development impacts on walkability. Elements such as directness, continuity, street crossings, visual interest and amenities, and security are key points of analysis.

2007 | **RESOLUTION NO. 070830** | City's Green Solutions Position Paper ♦ Promoted use of bicycle/pedestrian options to help achieve city greenhouse gas reduction goals.

2007-2018 | **AREA PLANS** | Working to enhance FOCUS Kansas City, the 18 Area Plans throughout Kansas City serve as the long-range plans of record for the city. Nearly every plan notes the importance of walkable, bikeable environments, and many plans identify on-street bike and off-street trail routes that should be considered when amending or updating the bike and trails master plans. ♦ Resulted in the identification of additional corridors for bicycling throughout Kansas City, including many commercial corridors and arterial roadways.

2008 | **COMMITTEE SUBSTITUTE FOR ORDINANCE NO. 080515** | Established the City's Bicycle Pedestrian Advisory Committee. ♦ Resulted in two important directives, among others. First, proposed policies to achieve Platinum designation by the League of American Bicyclists Bicycle Friendly Communities Program by the year 2020. Second, recommended increasing bicycle



ridership and pedestrian traffic by developing an integrated bikeway system for commuter and recreational use.

2008 | **RESOLUTION NO. 080754** | Adoption of the Climate Protection Plan | Stated climate protection and greenhouse gas reduction should be key factors in all decisions and actions by the City. ♦ Recommended that bicycling in Kansas City increase from 0.4% of all trips to 5.4% of all trips and that 1% of all transportation infrastructure expenditures be for bicycling.

2008 | **TRAILS KC** | Kansas City's first comprehensive plan for the establishment of 230 miles of an off-street trail system. ♦ Has resulted in approximately 100 miles of off-street trails built throughout the city. Also resulted in the creation of Kansas City's first full-time Bike/Ped Coordinator staff position.

2009 | **COMMITTEE SUBSTITUTE FOR RESOLUTION NO. 090348** | Approved the Bicycle/Pedestrian Friendly Community Action Plan as a guide for annual bicycle and pedestrian facility and program development.

2011 | **RESOLUTION NO. 110069** | Establishment of City Council's support for the concept of "Livable Streets" to promote great neighborhoods, healthy and active people, and a thriving community. ♦ Promoted walking and bicycling for transportation, recreation, and physical activity.

2011 | **RESOLUTION NO. 110371** | Reaffirming the goal of becoming a Platinum Level Bicycle Friendly Community by 2020.

2014 | **COMMITTEE SUBSTITUTE FOR RESOLUTION NO. 140982** | Directed the City

Manager to conduct a high-level road diet analysis of existing undivided four or more lane streets. Analysis indicated 56 streets' peak hour volumes that could allow a road diet. ♦ Has resulted in 5 road diets that added conventional and buffered bike lanes through the City's annual resurfacing program.

2015 | **KCMO BIKEWAY DESIGN TOOLKIT** | Public outreach conducted on how to approach bikeway design.

2015 | **GREATER KANSAS CITY REGIONAL BIKEWAY PLAN** | Regional bikeway plan for Greater Kansas City.

2016 | **KCMO OFFICE OF THE CITY AUDITOR PERFORMANCE AUDIT: "BIKE KC INADEQUATE TO ACHIEVE CITY GOALS"** | Evaluated 2001 Bike KC plan against national and local plans (Portland, OR; Denver, CO; Overland Park, KS). ♦ Resulted in the directive of the City Manager and Council to update the City's comprehensive bike plan.

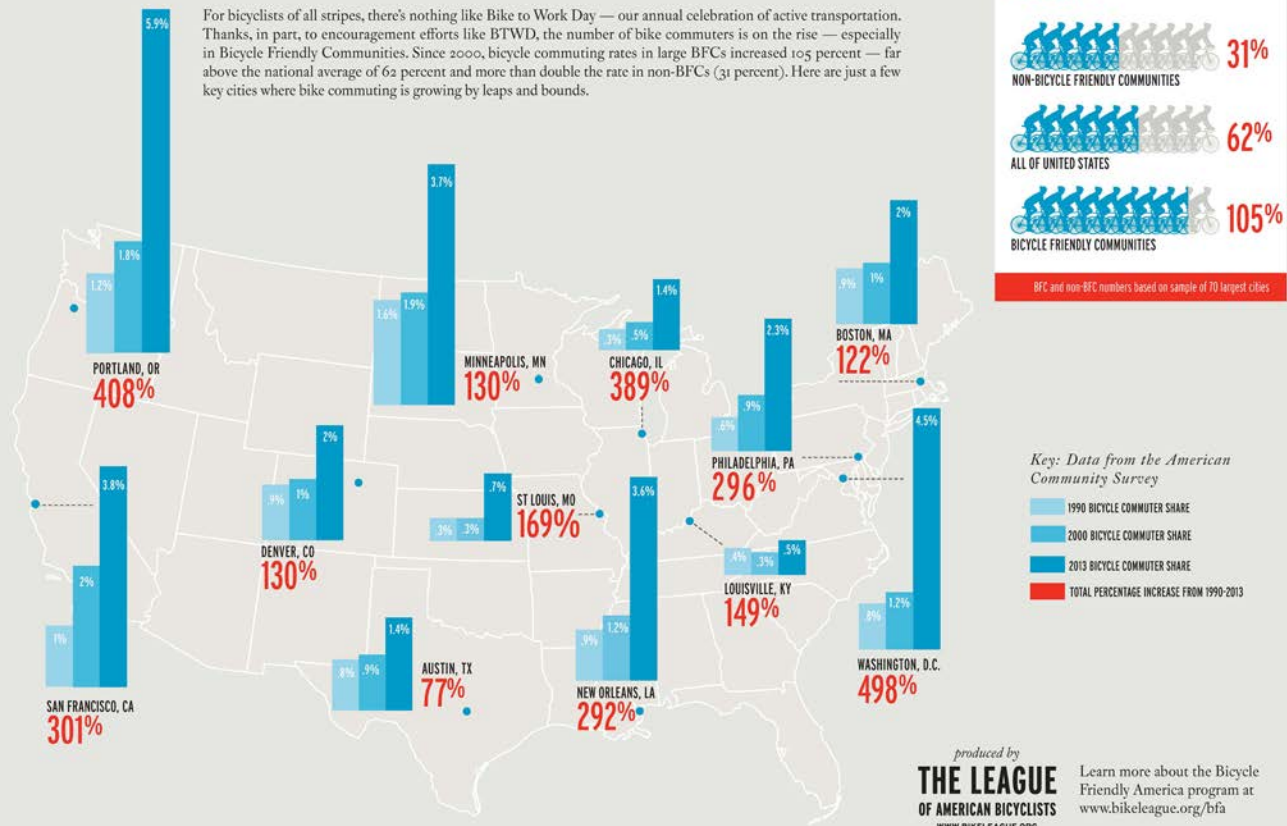
2017 | **TRANSIT-ORIENTED DEVELOPMENT POLICY** | Policy that sets guidance for transportation and land use development patterns to facilitate multimodal transportation. ♦ Specific guidance included incorporating transit with bicycling and pedestrian infrastructure and uses.

2017 | **COMMITTEE SUBSTITUTE FOR ORDINANCE NO. 170949** | Complete Streets ordinance ♦ Resulted in formal policies related to construction of roadways that are safe and desirable for all users and modes of transportation. Set expectation that recommendations in relevant multimodal transportation plans – including the Bike KC Master Plan – will be implemented.



THE GROWTH OF BIKE COMMUTING

For bicyclists of all stripes, there's nothing like Bike to Work Day — our annual celebration of active transportation. Thanks, in part, to encouragement efforts like BTWD, the number of bike commuters is on the rise — especially in Bicycle Friendly Communities. Since 2000, bicycle commuting rates in large BFCs increased 105 percent — far above the national average of 62 percent and more than double the rate in non-BFCs (31 percent). Here are just a few key cities where bike commuting is growing by leaps and bounds.



NEED TO UPDATE THE CITY'S BIKE PLAN

Cities across the country are seeing an increase in bicycle ridership. In response to this, many cities have created bicycle plans with specific guidance for on-street infrastructure that attract a wide audience of bicycle riders and make recommendations for policies and programs to support those riders.

While responsive to community input and forward thinking at its time of adoption in 2001, Bike KC has not been updated since that time and no longer reflects standard best practices. Subsequently, Kansas City has lagged in bicycle planning and delivery as other cities across the country expand the pool of bicycle riders and increase mode shift to reap the many rewards of a bicycle friendly community.

As a result, in 2016, the Kansas City Auditor released the results of an audit of Bike KC and found that the plan did not provide enough guidance to staff and the community to help the City achieve its expressed goals of becoming a more bicycle friendly city.

Through its acceptance of the audit, the City Council and staff agreed that a proactive comprehensive plan must take the successes and lessons learned in other cities and trends in the bicycling industry at large into account. The audit directed the updated Bike KC Master Plan to address thirteen specific points:

13 ELEMENTS of a BICYCLE MASTER PLAN as recommended by CITY AUDITOR'S REPORT





EXPANDING THE POOL OF RIDERS

National research in recent years has provided insight into people's overall attitudes towards bicycling and how that relates to bicycle planning and infrastructure delivery. There are four general types of cyclists and attitudes towards cycling [VIII, IX](#):



THE STRONG AND FEARLESS

Those cyclists who are very comfortable operating in the roadway and act comparably to a vehicle. This accounts for anywhere between 1-4% of the population.

THE ENTHUSED AND CONFIDENT

Those cyclists who are comfortable riding in most roadways but would prefer bicycle facilities to separate them from motor vehicle traffic. This accounts for anywhere from 7-9% of the population.



INTERESTED BUT CONCERNED

Those who would like to ride more for both transportation and recreation but have safety concerns that prevent them from doing so. This is the largest group and accounts for anywhere from 56-60% of the population.

NO WAY NO HOW

Those who have no interest in or ability to ride a bicycle for transportation. This accounts for approximately 31-33% of the population.



People identifying as “interested but concerned” represent the largest potential pool of bicyclists, and bike plans across the country seek to attract this population. The recommendations in this plan will benefit all cyclists but are specifically geared towards those that are interested in riding a bicycle more frequently but are concerned about their ability to do so safely.

To attract this target audience, the Bike KC Master Plan utilizes the sentiment of the National Safe Routes to School Partnership’s “6 E’s” as core elements to frame the planning process and recommendations. The “6 E’s” and this plan’s understanding of them are:

Engineering | Creative, safe, and purpose driven engineering is required to deliver infrastructure that will accommodate and attract the interested but concerned bicyclist.

Evaluation | Critical and practical evaluation of data – both technical and observed behavior – related to projects and programs are needed to understand the impact of infrastructure and programs. Data collection and analysis for both infrastructure and programmatic activities is needed before and after implementation.

Education | Essential to changing the norms and attitudes of bicycling, educational programs and information about new roadway designs must be a large part of the City’s approach to becoming more bicycle friendly.

Encouragement | Policies, programmed activities, and other events help encourage residents, visitors, and workers to bicycle.

Enforcement | Law enforcement agencies are key to creating a bicycle friendly community. Motorists and cyclists alike must abide by the rules of the road and know how to interact with new infrastructure and one another.

Equity | The most vulnerable in our community – including children and those with limited means – are supported and prioritized.

“WE HEAR IT AGAIN AND AGAIN FROM TECH COMPANIES: THEY DON’T ASK FOR TAX BREAKS. THEY DON’T ASK FOR FREE PARKING [...] THEY ASK FOR SAFE STREETS AND TO BE ABLE TO RIDE A BIKE TO WORK. TWENTY-FIRST-CENTURY CITIES ARE BEING DESIGNED SO THAT PEOPLE DON’T HAVE TO OWN A CAR TO BE ABLE TO LIVE AND WORK IN A CITY.”

/ Mayor William Peduto, Pittsburgh, PA ^x



PLAN VISION

Kansas City is a vibrant community where all modes of transportation, including the bicycle, are valid, equalizing, and supported. All users are safely accommodated on well-connected networks to destinations which facilitate a culture of cycling and access to economic development opportunities.

The vision for bicycling in Kansas City is a broad, high level policy statement that is intended to communicate an overarching intent for the plan and describe future outcomes. The vision is further refined and supported by the goals of the plan.

BIKE KC MASTER PLAN GOALS

GOAL THEME	GOAL
ACTION ORIENTED	Projects and programs are prioritized, coordinated, funded, implemented, and maintained.
	Bike KC is an economic development driver in Kansas City.
INTEGRATED	Bicycling is integrated into the overall transportation system.
	Bike KC is well integrated into and with existing and future policies, regulations, and plans adopted by the City.
EQUITABLE	Bicycling connects all people to destinations.
	Equity is a component of bicycling programs and project prioritization.
SAFE & SUPPORTED	Appropriate and well-designed streets create safe and appealing cycling conditions.
	Kansas City supports positive health outcomes, clean environments, and smart technologies through the use and integration of bicycles.
ENTICING	People are drawn to bicycling as a means of transportation and recreation.
	Bicycling networks create a sense of place in Kansas City.

Outreach + Input



"I like the exercise. I was overweight, so I started biking to work...I've lost like 50 pounds and am doing better health-wise. Some of the routes are scary to ride on...cars are travelling 45 mph six inches from you."

"I can go faster than a shark!"

/ MARK AND BRODIE



2017

BACKGROUND & VISIONING

2017/18

SYSTEM ANALYSIS

2018

PRIORITIZATION & IMPLEMENTATION

2019

PLAN ADOPTION

THE PLANNING PROCESS

A collaborative public and technical effort spanning nearly two years anchored the Bike KC Master Plan planning process. Public participation was essential in preparing the plan. The vision, goals, guiding principles, and strategies are the result of a unique, extensive, and inclusive public process. Traditional public outreach, special meetings and events, focus groups, interactive tools, and other methods were consistently used to collect feedback from residents, workers, visitors, advocates, and others throughout the city. Engagement for the bike plan began in early 2017 and extended through 2018.



This extensive outreach ensures that the Bike KC Master Plan is responsive to the concerns and desires of the community. Key outreach activities included:

Steering and technical committee meetings

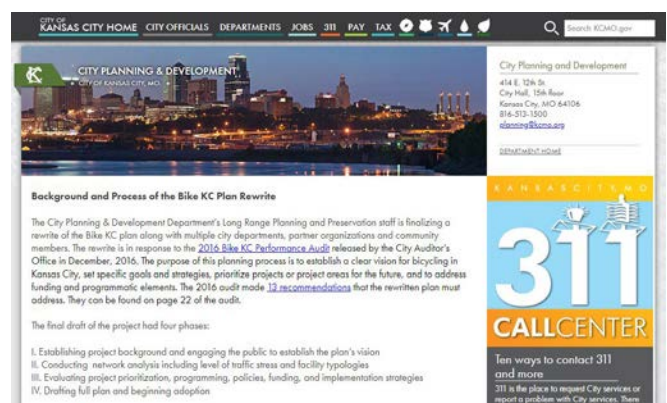
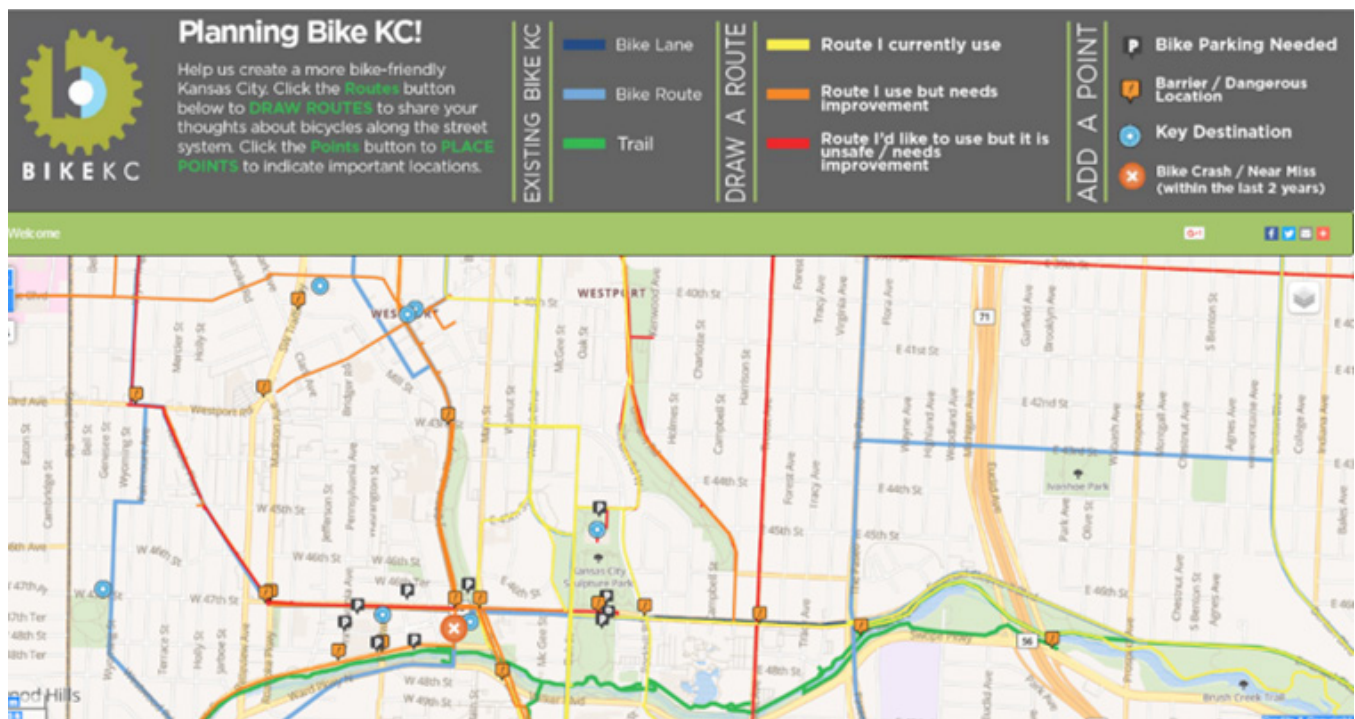
An online and in-person survey (more than 1,500 respondents)

Student focus groups

Interactive mapping and KC Momentum

Interactive public meetings throughout the city

Facebook Live event with nearly 300 views (in Fall 2017)





Special event participation:

- Temporary cycle track demonstration at Spring 2017 public meeting
- East high school bike to city hall & bike month declarations – May 2017 & 2018
- Bike to Boulevard 2017 & 2018 – a “rolling focus group”
- Attendance and feedback at: 2017 Jazz Fest and 2017 KC Symphony’s Celebration at the Station
- 2017 & 2018 BikeWalkKC Tour de Bier
- KC-APA’s Bicycle and Transit Integration Symposium
- KC Chamber’s Centurions May Transportation Task Force



Photo: Chris Campbell Photography





- Monthly updates to the City's Bicycle Pedestrian Advisory Committee
- Biweekly internal project staff meetings





Survey Results

Through our engagement the project team heard a variety of perspectives and many common themes emerged.

1,533

Total number of respondents



40%

Female

58%

Male

2% preferred not to answer

FIVE ZIP CODES WITH HIGHEST RESPONSE RATES:

64111, 64113, 64114, 64110, 64155



10%

10% OF RESPONDENTS BICYCLE AS A PRIMARY MODE OF TRANSPORTATION (with 4% walking, 4% transit, 1% carpool/rideshare, and 81% personal vehicle)



7%

7% DON'T OWN A VEHICLE (3% do not have access to a vehicle even if needed)

42%

INTERESTED IN BICYCLING MORE, BUT CONCERNED ABOUT THEIR SAFETY

78%

DISAGREE OR STRONGLY DISAGREE THAT BICYCLING IS SAFE, CONVENIENT, AND PRACTICAL IN KANSAS CITY

21%

NOT COMFORTABLE RIDING ON MOST ROADS IN KANSAS CITY, BUT COMFORT LEVELS INCREASE AS SEPARATION FROM VEHICULAR TRAFFIC INCREASES

TOP FIVE MOST FREQUENTLY CITED HIGH CONCERNS

that prevent people from bicycling more:

- 1) Lack of dedicated bicycle facilities
- 2) aggressive/speeding drivers, physical roadway
- 3) conditions (such as potholes, inlet grates, debris, etc.)
- 4) insufficient connectivity of bicycle facilities
- 5) not enough bicycle facilities near transit

Public Meeting Feedback

HOW WOULD YOU DESCRIBE BICYCLING IN KANSAS CITY TODAY?

Challenging. Not nearly enough
dedicated bike lanes, share the road
signage or wider shoulders to ride a
bike on

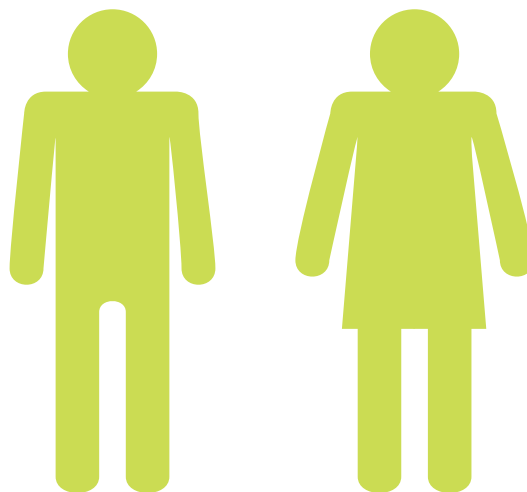
Growing in popularity

Lagging nationally;
some positives

Getting better, but not
inclusive for interested but
concerned

Difficult as a mode of
transportation

Scary and intense





Public Meeting Feedback

I WOULD BIKE MORE IF...

There were more routes mapped out that were approved by the city

More and better low-stress routes

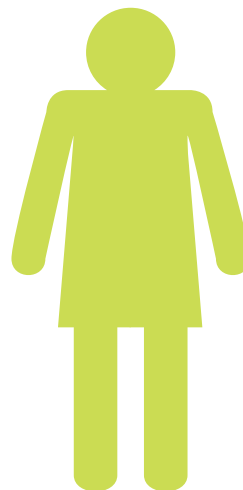
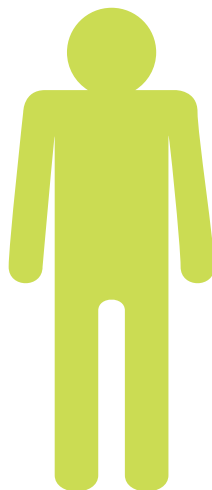
There were more dedicated bike lanes or trails

My employer or the city offered incentives

I knew a safe way to get from home to work daily

Kansas City had protected bike lanes

I had protection between myself and traffic



Public Meeting Feedback

WHERE WOULD YOU LIKE TO SEE MORE IMPROVEMENTS?



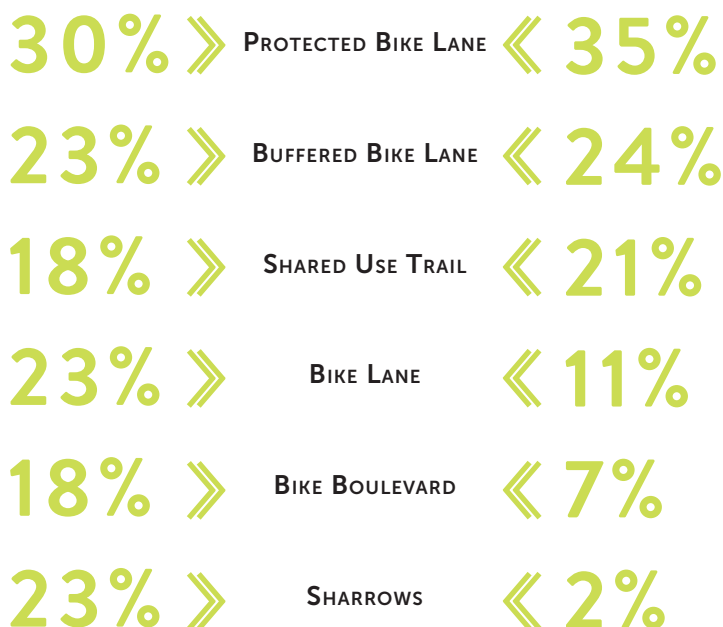


Public Meeting Feedback

MATCHING FACILITY TYPES TO ATTITUDES TOWARDS BICYCLING

To facilitate the creation of a safe and useful bicycling network, **THE BIKE KC MASTER PLAN SEEKS TO ACCOMMODATE THE INTERESTED BUT CONCERNED CYCLIST.** To help inform bicycle facility type recommendations, public meeting attendees participated in an exercise that described several types of bicycle facilities and asked them to rank the two facilities that they would feel the most comfortable riding. Generally, facilities that proved more separation from traffic were more preferred by the public.

ALL SURVEY PARTICIPANTS



SURVEY PARTICIPANTS IDENTIFYING AS INTERESTED BUT CONCERNED

TOP DESTINATION TYPES



Grocery Stores



Work



Restaurants
&
Retail



Schools
&
Colleges

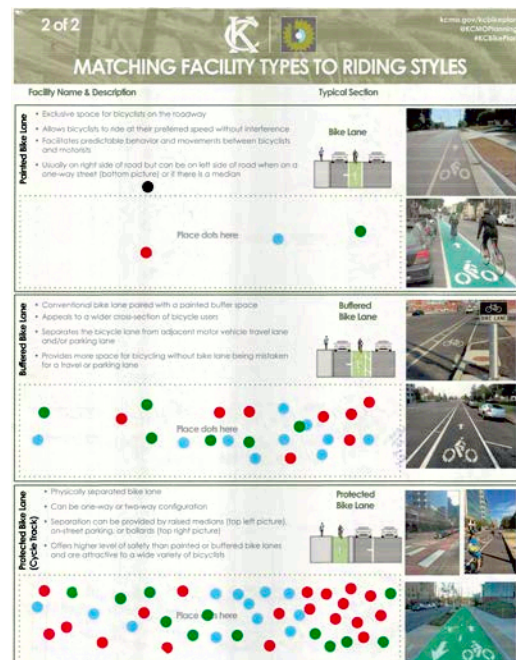


Transit Stops



Trails
&
Parks

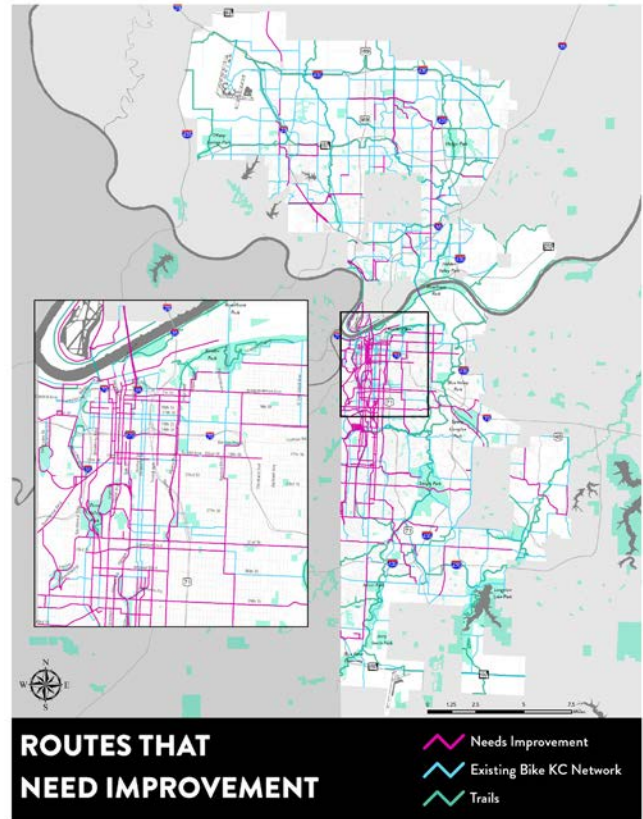
PUBLIC MEETING FEEDBACK FACILITY PREFERENCES:



The Bike KC Master Plan assigns each street on the network with a facility type that targets accommodating the *interested but concerned* rider once implemented. Example descriptions and images of bike facilities are found in the Bicycle Facility Guide in chapter four.

OTHER KEY THEMES EXPRESSED BY THE PUBLIC

- The bike plan must be implemented – this document should not “sit on a shelf”
- Resources will be required to implement this plan – regular and predictable funding for infrastructure, maintenance, programs, and additional staffing will be necessary
- The plan must be both bold and realistic
- The plan must function both strategically and as a visionary/opportunistic document
Understand and respect bicyclists rights to the road, and that bicyclists obey traffic safety laws
- The plan should be updated regularly as best practices evolve and the community grows
- The network must be logical – its connectedness, directness, navigability, approachability, and where it leads to and from are critical to its success
- Educational components are critical to bicycling’s success in Kansas City. As new infrastructure is installed, cyclists and motorists alike must learn how to interact with new roadway treatments



PUBLIC INPUT ON ROUTES WHICH NEED IMPROVEMENT



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State of Bicycling in Kansas City



"It's a good way to see the City that you normally don't see via car or even public transit sometimes. Prioritizing the people that need to get around via bike is important and adds to the equity of the City."

/ DAN



NW BARRY RD. THE FIRST BIKE LANE IN KCMO

BUILT IN 2004



BICYCLING IN KANSAS CITY | THE NUMBERS & ACCOMPLISHMENTS

Since the adoption of Bike KC in 2001 Kansas City has made progress in bike infrastructure and programming, beginning with the installation of the City's first dedicated bike lane in 2004, NW Barry Rd. The completion of a comprehensive Trails KC plan four years later and the creation of a dedicated bicycle and pedestrian program coordinator that same year continued the progress.

As of 2018 the state of bicycling in Kansas City can be summarized through the following measurements – some attributable directly to progress made by the City, and others made by community partners:

- The Kansas City metro area's first on-street parking protected bike lanes (1.2 miles)
- 24 centerline miles of on-street bike lanes

ARMOUR BLVD. RIBBON CUTTING, SUMMER 2018

THE FIRST PARKING
PROTECTED BIKE LANE IN
KANSAS CITY, MO





- 154 centerline miles of Shared Lane Markings, Signed Routes or Shared the Road Markers
- Approximately 100 miles of off-road shared use trails
- Bicycle Friendly Community – Bronze Level since 2011
- 0.3% (<800 individuals) commuter mode share - up from 0.1 in 200
- One dedicated full-time Bike/Ped Coordinator position since 2008
- Ordinance #140777 - Anti-street harassment ordinance protecting bicyclists from aggressive motor vehicle operators
- Two community-based bike shops - Revolve KC and the 816 Bicycle Collective - and numerous traditional bike shops
- One regional dedicated bicycle/pedestrian/active living advocacy nonprofit - BikeWalkKC



- Privately operated station-based bike share system - Kansas City BCycle - supported by the City since 2012
- 41 stations
- 240 bicycles in the fleet
- 16,606 rides in 2017 accounting for:

94,000 miles ridden

100,000 pounds of carbon offset

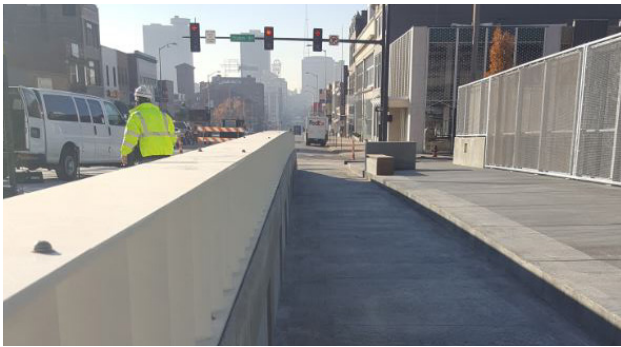
3.8 million calories burned



BICYCLING IN KANSAS CITY | PROGRESS, LIMITATIONS, AND PERCEPTION

While these measurements serve as evidence of progress made since 2001, how bicycling infrastructure is perceived every day is important. Each type of bicycle facility in the City is illustrated below to provide an example of infrastructure found throughout the City, along with an explanation of how the facility type supports bicycling in Kansas City and the limitations of that progress.

PROTECTED BIKE LANES (MAJOR SEPARATION)



GRAND BLVD

Progress: Measuring 150 feet, the East side of Grand Blvd over I-670 was Kansas City, Missouri's first barrier separated bike lane and was a collaborative venture between the City and MoDOT. Armour Blvd.'s parking protected bike lane – completed in summer 2018 – is the Kansas City metropolitan area's first parking protected bike lane and was the result of a community driven design process.



ARMOUR BLVD

Limitation: Until recently, Grand Blvd.'s barrier separated bike lane was Kansas City's only protected bike lane, which is considered a national best practice. Armour Blvd.'s parking protected bike lane has moved Kansas City forward in bikeway design but connecting other low-stress facilities to Armour Blvd. must occur to create a fully usable low-stress network.

SHARED USE PATHS (MAJOR SEPARATION)



RED BRIDGE RD

Progress: Installation of safe, attractive shared use paths along key roadways in neighborhoods outside of the commercial core.

Limitation: Installation has defaulted to new roadway construction projects in areas where there is less population concentration and less latent bicycling demand (see BikeWalkKC Bicycle Demand Model Map in Appendix A, page 147.)

RECREATIONAL TRAILS (MAJOR SEPARATION)



LINE CREEK TRAIL

Progress: Approximately 100 miles of the proposed 230-mile citywide trails system has been built. These facilities provide the highest level of separation and safety from motor vehicle traffic and are generally viewed positively by the community. This network works in tandem with the on-street Bike KC network.

Limitations: While these facilities assist in creating an overall bike network, their origins, destinations, and trip purpose often fit more of a recreational need. They are usually costlier than other on-road bicycle treatments.

ROAD DIETS WITH BIKE FACILITIES (MINOR SEPARATION)



20TH ST

Progress: Implementation of road diets and the installation of bike lanes in Kansas City through capital projects and regular resurfacing program.

Limitation: While positive, this approach is indicative of a sporadic implementation of quality bike facilities and the lack of specific implementation prioritization in the original Bike KC.

CONVENTIONAL BIKE LANES (MINOR SEPARATION)



N. OAK ST

Progress: Dedicated bike facilities on key roadways in Kansas City that contribute to the connectivity, directness, and ease of bicycling in the city.

Limitation: Conventional bike lanes on fast-speed and high-volume roadways are not conducive to attracting the interested but concerned bicyclist. Unable to attract a new audience of cyclists, many motor vehicle operators view these lanes as unused wasted space.



BUFFERED BIKE LANES (MINOR SEPARATION)



GRAND BLVD

Progress: Completed in 2017, Grand Blvd.'s buffered bike lane is the first iterative step in implementing the Parks Department's "Making Grand, Grand" plan which envisions a dedicated protected bike path from the River Market through Crown Center.

Limitation: This first step in adding dedicated bike space on Grand Blvd was reliant on Federal funding which resulted in years of stalled implementation and public frustration as the City worked with MoDOT to address contract issues, lack of bid responses, and the need for supplemental City funding. Furthermore, painted bike lanes in higher intensity commercial areas can be frequently blocked by vehicles.

SHARED LANE MARKINGS/SHARROWS (SHARED STREETS)



ARMOUR BLVD, PRE-SUMMER 2018

Progress: Installation of shared lane markings have enhanced wayfinding for cyclists and have contributed to the normalization of bicycles on city roadways.

Limitation: Shared lane markings installed on roadways where high traffic volumes and speeds are common do not make cyclists feel safe and often confuse motor vehicle operators who do not know if they can drive in that travel lane. Shared lane markings and signed bike routes are not encouraged on these types of high-speed/high-volume roadways in this updated plan.

SIGNED BIKE ROUTES AND SHARE THE ROAD SIGNS (SHARED STREETS)



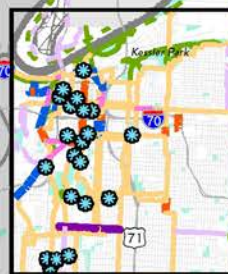
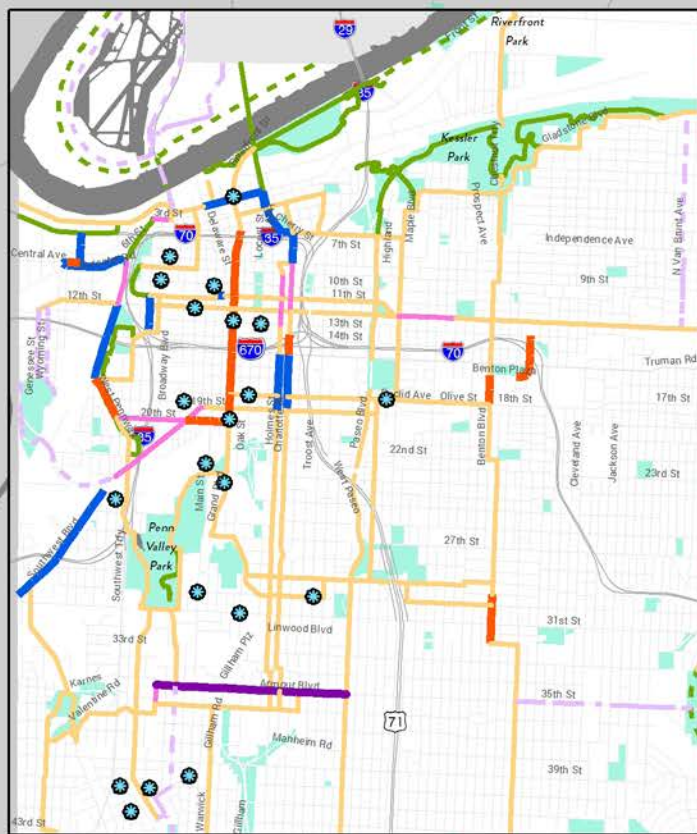
OAK ST

Progress: Bike routes signs throughout the city have assisted bicyclists find their way on the Bike KC network. On low-volume, slow-speed neighborhood streets these are effective wayfinding elements that contribute to the usefulness of the bike network.

Limitations: When applied to arterial roadways such as Bannister Rd. that have high-speeds and high-motor vehicle traffic this treatment adds no protection for cyclists and may lead cyclists to having a false sense of safety. Signed bike routes and shared lane markings are not encouraged on these types of high-speed/high-volume roadways in this updated plan.



BANNISTER RD



EXISTING BICYCLE INFRASTRUCTURE, 2018

2001 Bike KC Network

- Existing Protected Bike Lane
- Existing Buffered Bike Lane
- Existing Bike Lane
- Existing Sharrow
- Existing Signed Bike Route/Shared Road Route
- Future Bike Facility

Trails KC Network

- Existing Trail
- Future Trail
- Rock Island Corridor

Bike Share Locations



Bike Routes, and Facility Reference Guide



"Biking is an easy way to find friends, and it's a good way to stay fit. I save money a lot with my biking too."

"I like the connection I get with the City. As a community health aspect, biking is a very important activity."

/ SARAH AND JOE



Factors Considered When Re-Examining the Bike KC Network

In addition to public feedback, a wide variety of factors were considered when re-examining the Bike KC network:



POPULATION

Trip origin concentration



Employment centers



Schools & colleges



Transit stops & MARC Mobility Hubs



Restaurants & retail locations



Trails and parks



Grocery stores



Regional bikeway plans



LEVEL OF TRAFFIC STRESS

Comfort of bicyclists based on road-way characteristics



BIKEWALKKC DEMAND ANALYSIS

Areas indicative of potential latent demand for bicycle infrastructure



EQUITY, LIFE EXPECTANCY AND NEED

Areas with lower life expectancy and less access to vehicles



CRASH AND DANGEROUS LOCATION IDENTIFICATION

Recent collision locations and routes perceived as dangerous



TOPOGRAPHY

Routes' ease of use

The City's leadership through its acceptance of the 2016 Bike KC Audit Report and subsequent directive to immediately begin updating the city's bike plan made two things clear. First, to change how Kansas City grows into a community where bicycling is a normal part of the transportation culture the Plan must set bold goals and challenge the status quo. Secondly, the Bike KC Master Plan, its recommendations, and its subsequent implementation must accommodate an average audience – those **interested but concerned riders** – and incorporate national best practices of protected bikeway that connect to meaningful destinations on direct routes.

SYSTEM ANALYSIS

Over 481,000 residents live in Kansas City, Missouri within 319 square miles containing approximately 2,400 centerline miles of public roadways that serve a variety of land-use patterns, including urban mixed-use and dense residential areas, industrial work centers, and suburban and rural neighborhood typologies. Roughly 40% of Kansas City's land area remains undeveloped. Within this context, many variables were used to analyze the use, need, safety, and functionality of the City's roadway system. Key information included in the analysis reflect safety, equity, origin and destination information, and other points of interest expressed by the community through public meetings, online mapping, survey results, and other forums. Details on the analysis can be found in Appendix A.

LEVEL OF TRAFFIC STRESS

In the City Auditor's report, "Bike KC Inadequate to Meet City Goals," a Bicycle Level of Service (BLOS) rating was reported for the existing Bike KC network using information provided by the City. The BLOS scores illustrated that only 47% of the network was rated a Bicycle Level of Service of C (acceptable to most average adult cyclists) or better. Over half of the network, in other words, was identified as not accommodating the average cyclist.

While the findings of the BLOS were indicative of the need to update the Bike KC network to attract more people to bicycling as a means of transportation and recreation, the BLOS criteria focuses only on physical roadway conditions. Nationally, there is a trend to focus on the rider and his or her perceived level of comfort while bicycling on a given roadway. This trend in analysis is based on research conducted by the Mineta Transportation Institute in 2012 ^{[xi](#)} that measures road segments' level of stress – known as Level of Traffic Stress (LTS) – and has been used in bicycle plans around the country.



BICYCLE LEVEL OF SERVICE RATINGS FOR BIKE KC NETWORK, BIKE KC AUDIT REPORT

LEVEL OF SERVICE	DESCRIPTION	PERCENT OF LANE MILES
A	Good for all	18.8%
B	Good for all with possible exception of inexperienced children	11.4%
C	Acceptable to most average adult cyclists	16.4%
D	Maybe acceptable to experienced adults	26.3%
E	Bearable by some experienced adult cyclists	26.8%
F	Not suited for cycling	0.3%

SOURCES: *Best Practices: Local Bikeway Planning and Design Guide*, Mid-America Regional Council and the Kansas City Metro Chapter of the American Public Works Association, 2012; *Safe Bicycle Outreach Project*, Overland Park, Kansas; Bike KC; Kansas City, Missouri, Public Works data for roadway and bicycling conditions; and the City Auditor's Office analysis.

The Level of Traffic Stress analysis associates bicycle rider types and attitudes with roadway traffic characteristics. Basic traffic and roadway condition information, including:

- Street width (through lanes per direction)
- Posted speed limit
- Annual Average Daily Traffic Volumes
- Presence and characteristics of bike lanes:

Is the bikeway physically separated from vehicular traffic?

Presence of painted bike lane, its location related to vehicle parking, and its width

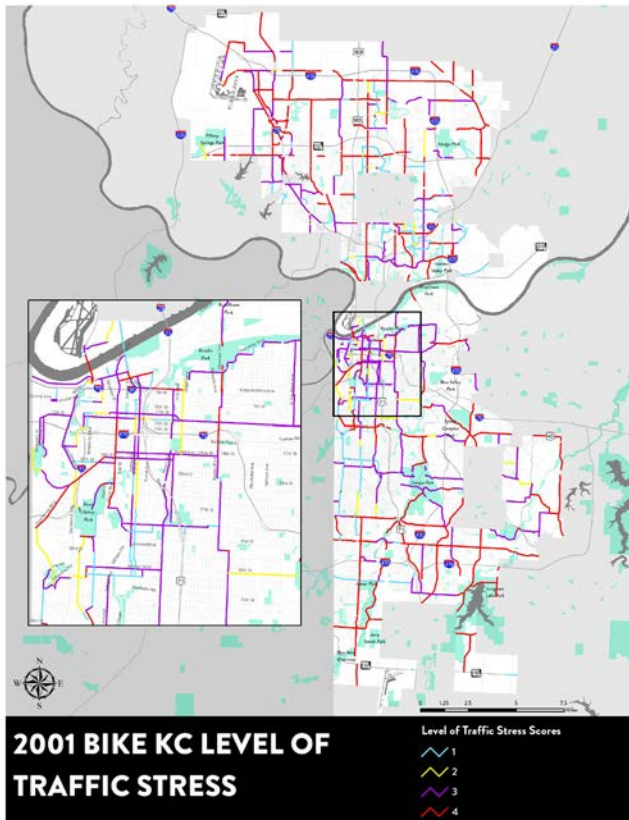
Frequency of bike lane blockage (rare or frequent)

Roadways are then assigned one of the following scores:

LTS 1 | A roadway that is suitable for nearly all cyclists, including children that are trained to safely cross intersections. This score is also assigned to shared use paths that are physically separated from motor vehicle traffic.

LTS 2 | A roadway that is suitable for most adult cyclists but would be more demanding for children. This score is associated with adults indicating their attitude towards bicycling as, **"interested but concerned."**

LTS 3 | A roadway that has more traffic stress and would primarily only appeal to cyclists already comfortable riding in most cities in the US. This score is associated with adults indicating their attitude towards bicycling as, **"enthused and confident."**



LTS 4 | A roadway that has a traffic stress level which is high for nearly all adults. This score is associated with adults indicating their attitude towards bicycling as, “strong and fearless,” or indicates a roadway too stressful to ride on.

Only 27% of the original Bike KC network by summer 2017 had roadway traffic conditions that would correspond to an LTS of 1 or 2 – the scores needed to indicate roadways that are comfortable for the “interested but concerned” bicyclist – approximately half of the 47% with a Bicycle Level of Service of C or better.

The bicycle facility types in this plan target the interested but concerned rider and hope to create bicycling infrastructure to facilitate and

encourage bicycling by people of all ages and abilities. With little exception, the facility types recommended in this plan are ideal to attract those riders.

BIKE KC MASTER PLAN NETWORK

Approximately 658 centerline miles of roadway are recommended on the updated Bike KC Master Plan network. All references to system length and cost in this document are per centerline mile. The updated network sets a long-term vision for bicycling in Kansas City – much like the city’s Major Street Plan does for arterial roadways – and will take many years to fully build out.

Three types of facility categories are recommended in the network:

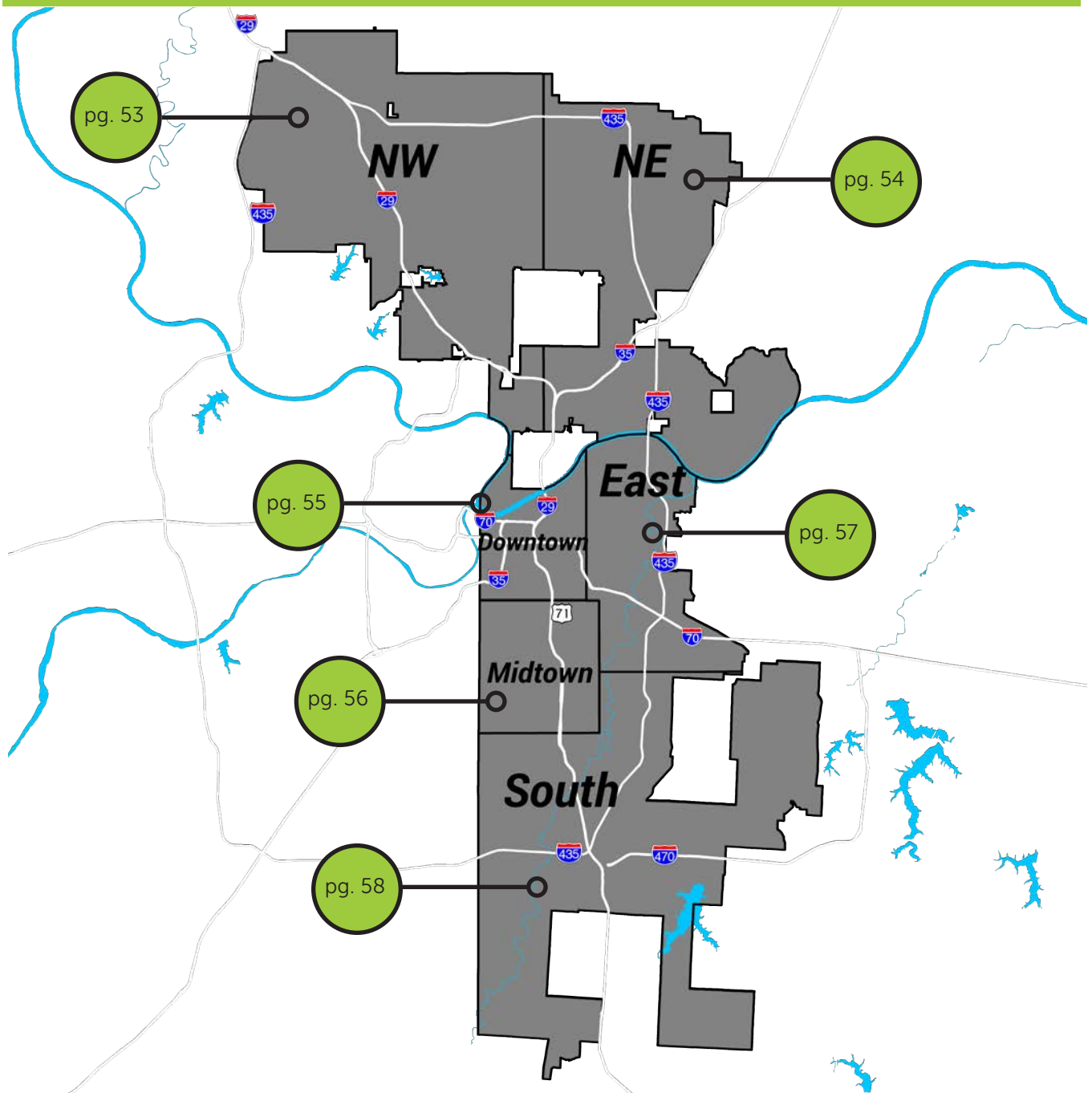
Major Separation | Protected bike lanes (also known as cycle tracks – either one-way or two-way) or trails/shared use paths adjacent to the roadway. Major separated facilities on arterial roadways identified on the Major Street Plan play a significant role in the updated network in large part due to their overall usefulness, adjacency/proximity to important destinations, connectivity and directness, and topography.

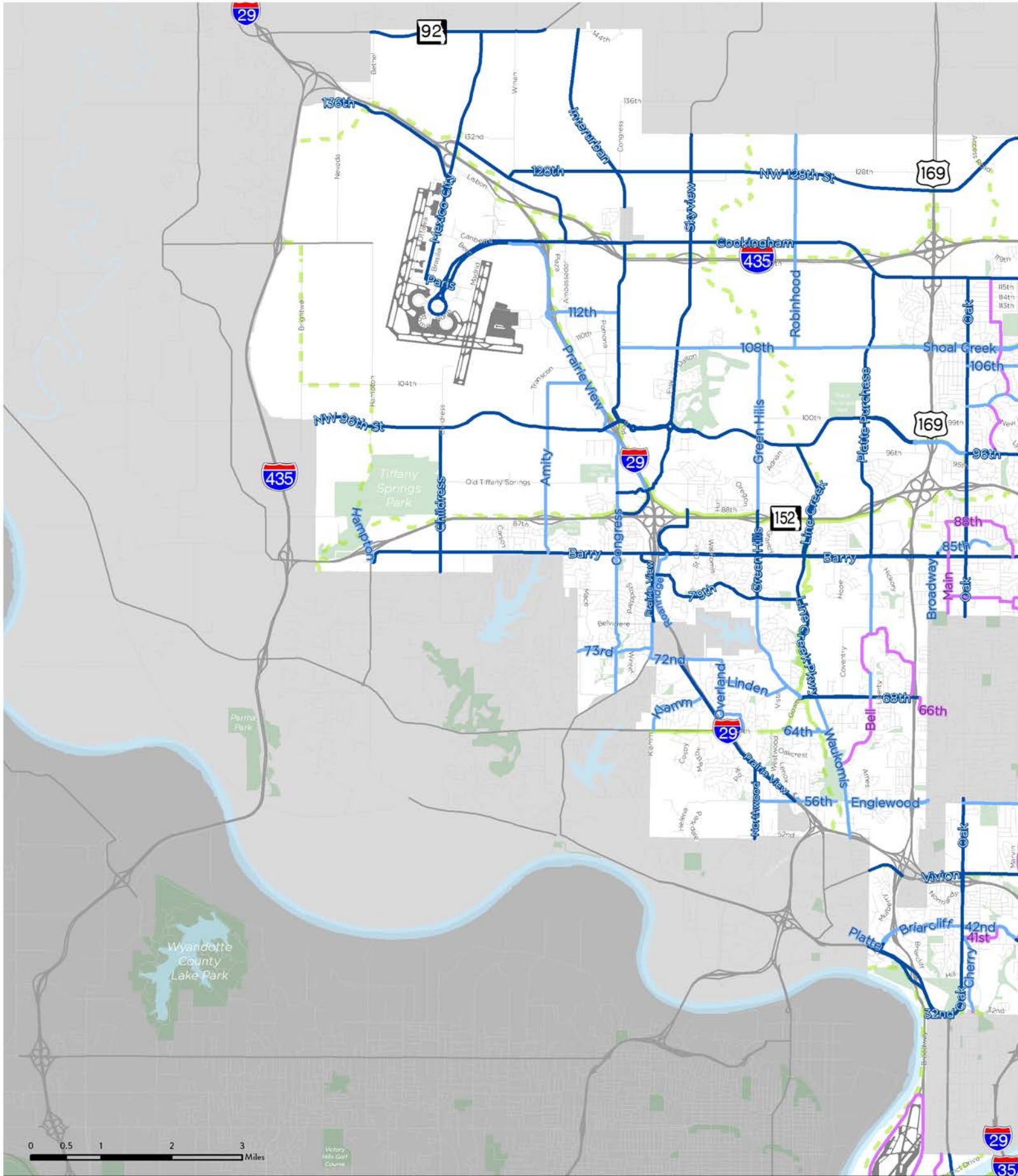
Minor Separation | Conventional paint only bike lanes or painted buffered bike lanes. Minor separation facilities are generally applied appropriately on roadways with lower speeds and traffic volumes.



Shared Streets | Calm/neighborhood streets where traffic calming will be encouraged and should be prioritized. Shared streets are ones that are useful in the completion of the overall bicycle network. In some cases, shared streets represent existing roadways in developed areas where major or minor separation is not feasible, but the route is a useful or represents a critical connection. Traffic calming, diversion, and safe arterial street crossing improvements should be prioritized along these shared streets.

PAGES 53-58 DETAIL THE BIKE KC MASTER PLAN NETWORK



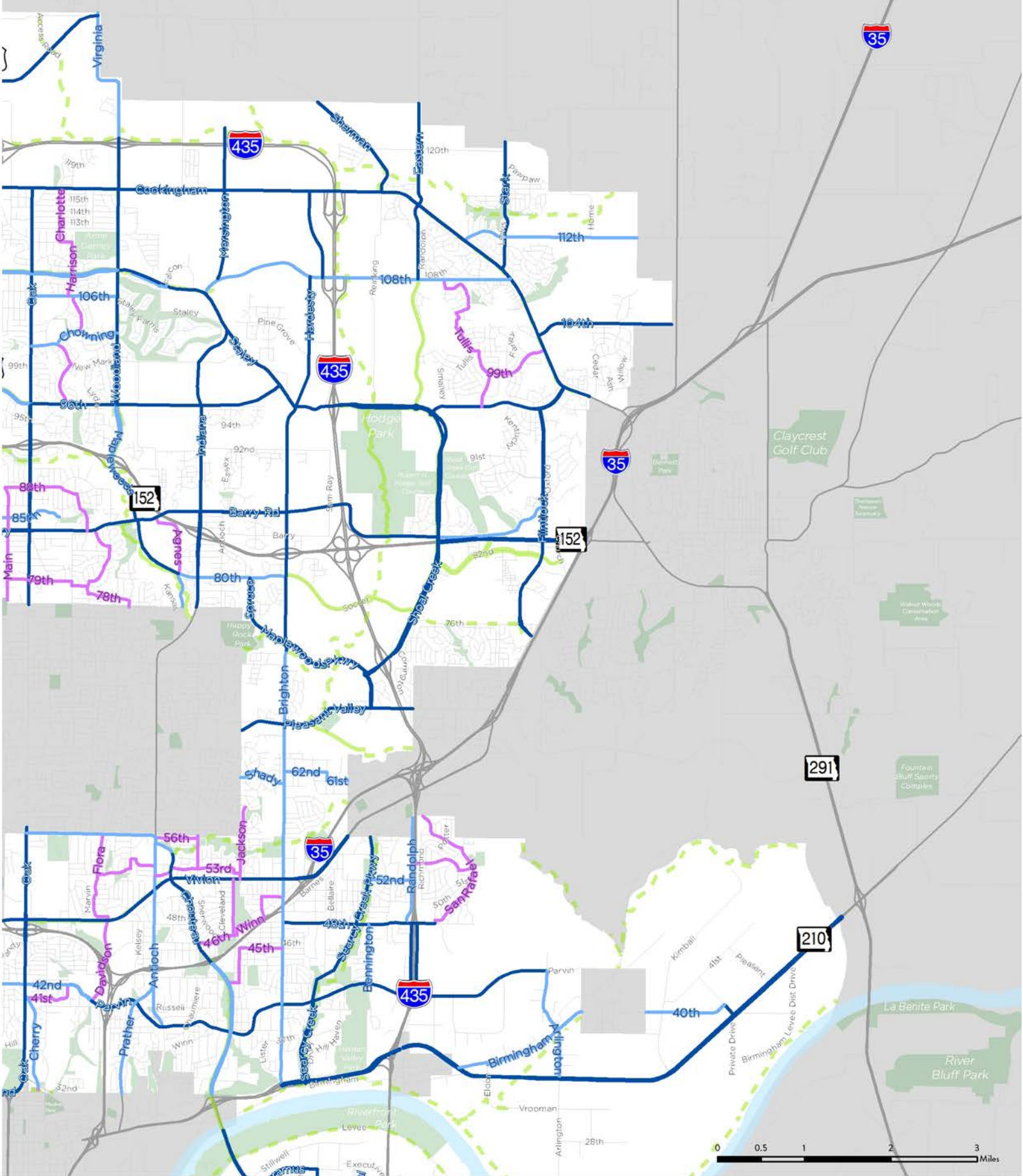


BIKE KC NETWORK NORTHWEST

- 2018 Bike KC Network**
- Major Separation
 - Minor Separation
 - Shared Streets

- Trails KC Network**
- Existing Trail
 - Future Trail





BIKE KC NETWORK NORTHEAST

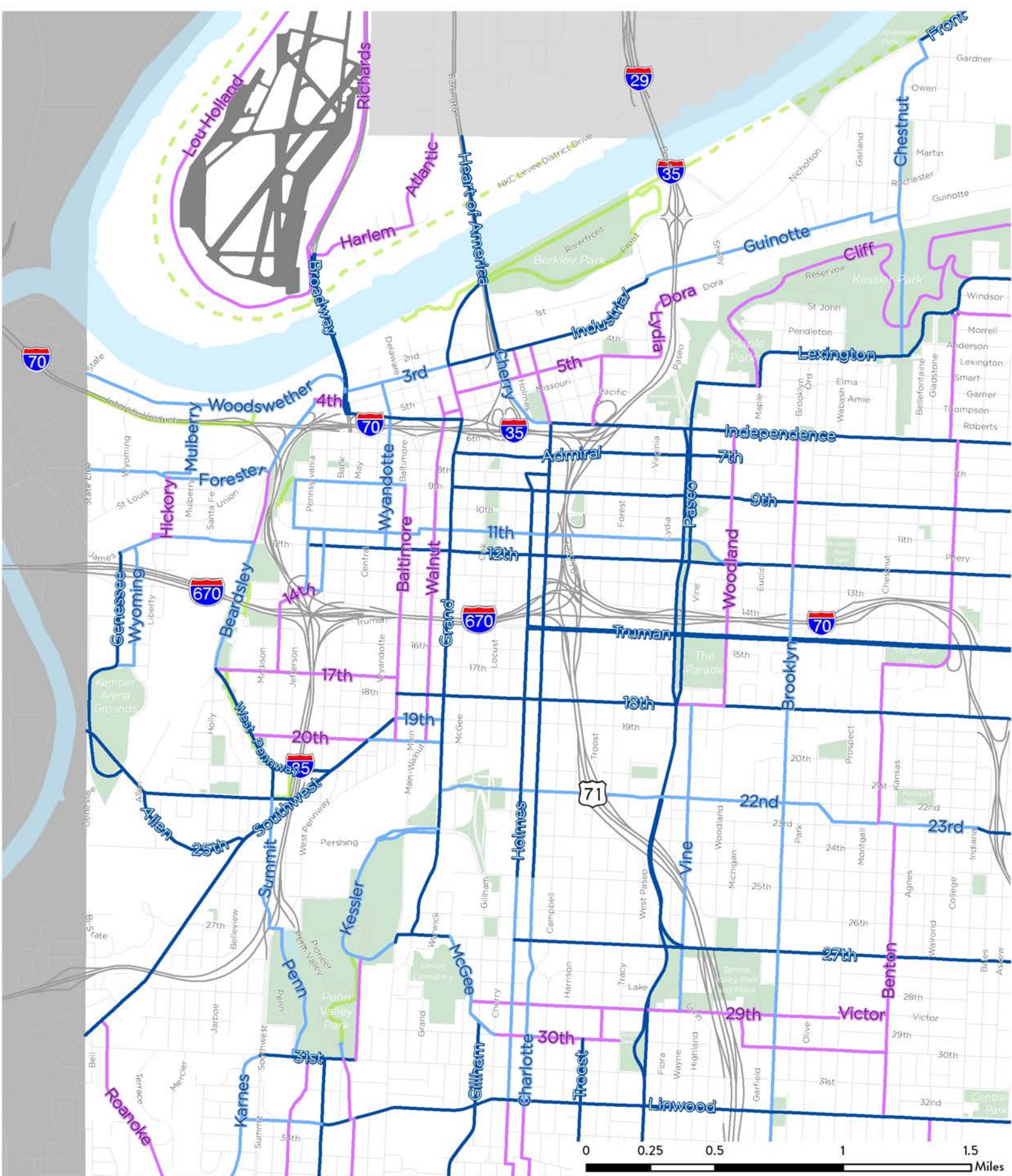
2018 Bike KC Network

- Major Separation
- Minor Separation
- Shared Streets

Trails KC Network

- Existing Trail
- Future Trail





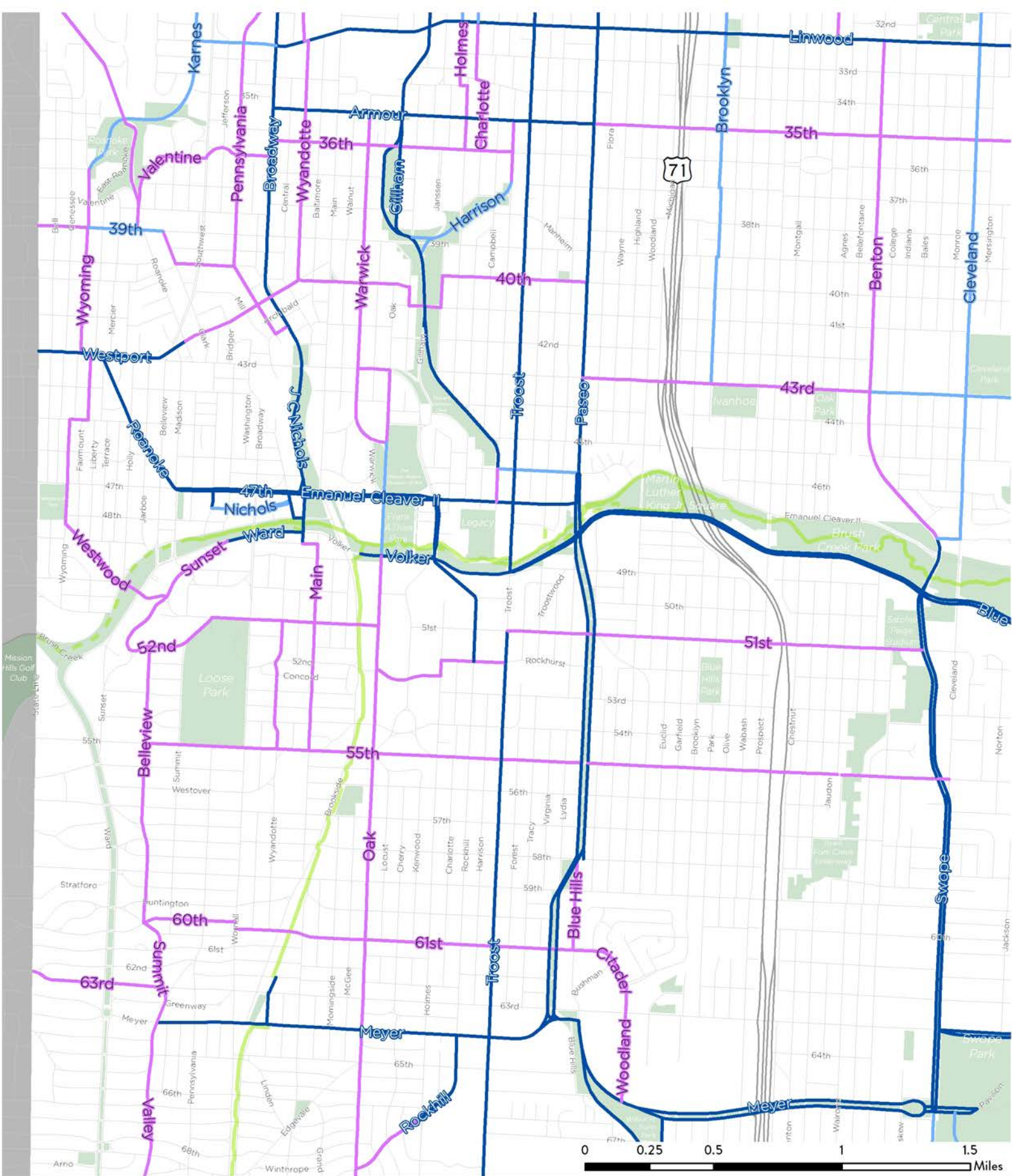
BIKE KC NETWORK

DOWNTOWN

- 2018 Bike KC Network**
- Major Separation
 - Minor Separation
 - Shared Streets

- Trails KC Network**
- Existing Trail
 - Future Trail





BIKE KC NETWORK

MIDTOWN

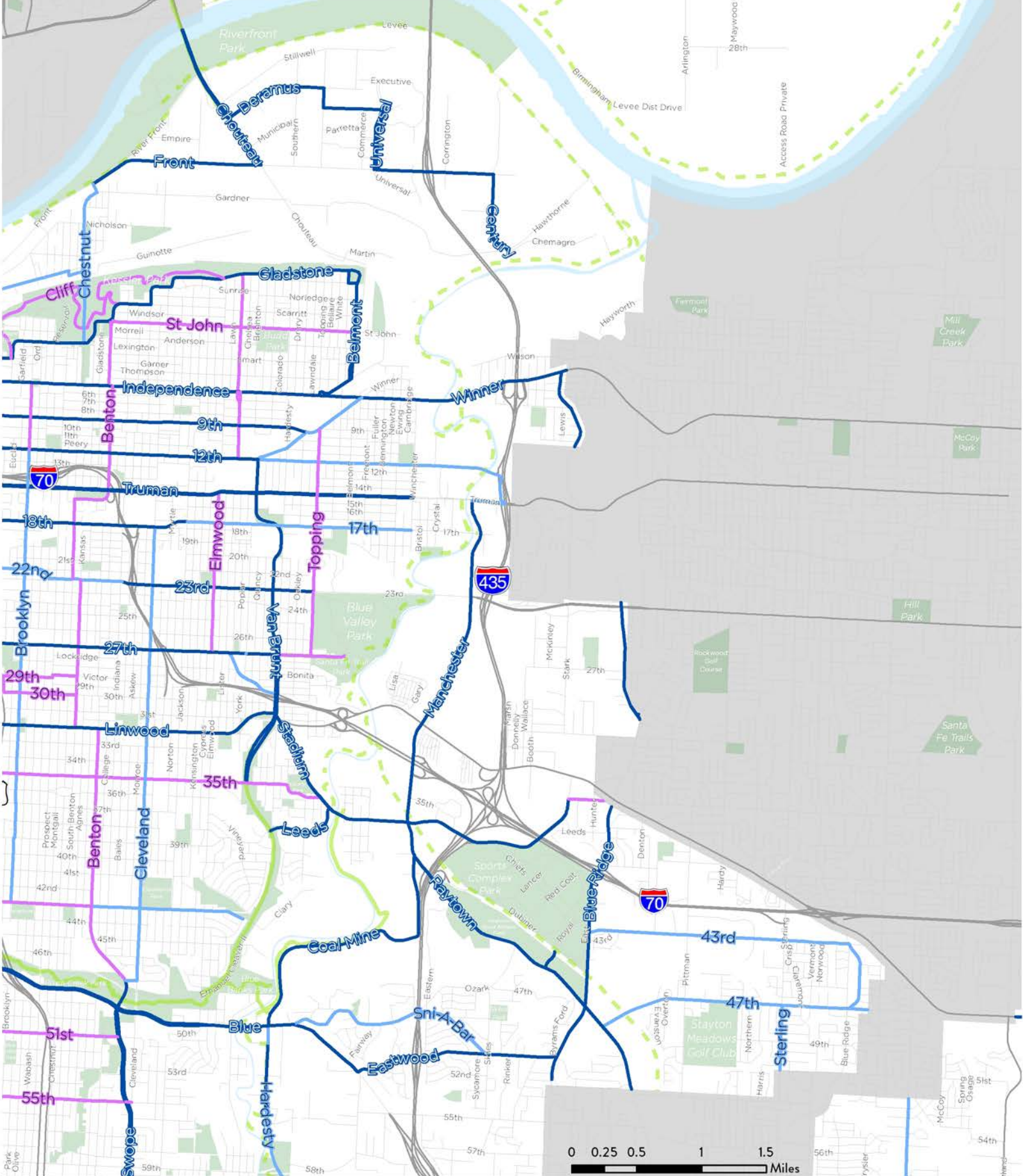
2018 Bike KC Network

- Major Separation
- Minor Separation
- Shared Streets

Trails KC Network

- Existing Trail
- Future Trail





BIKE KC NETWORK EAST

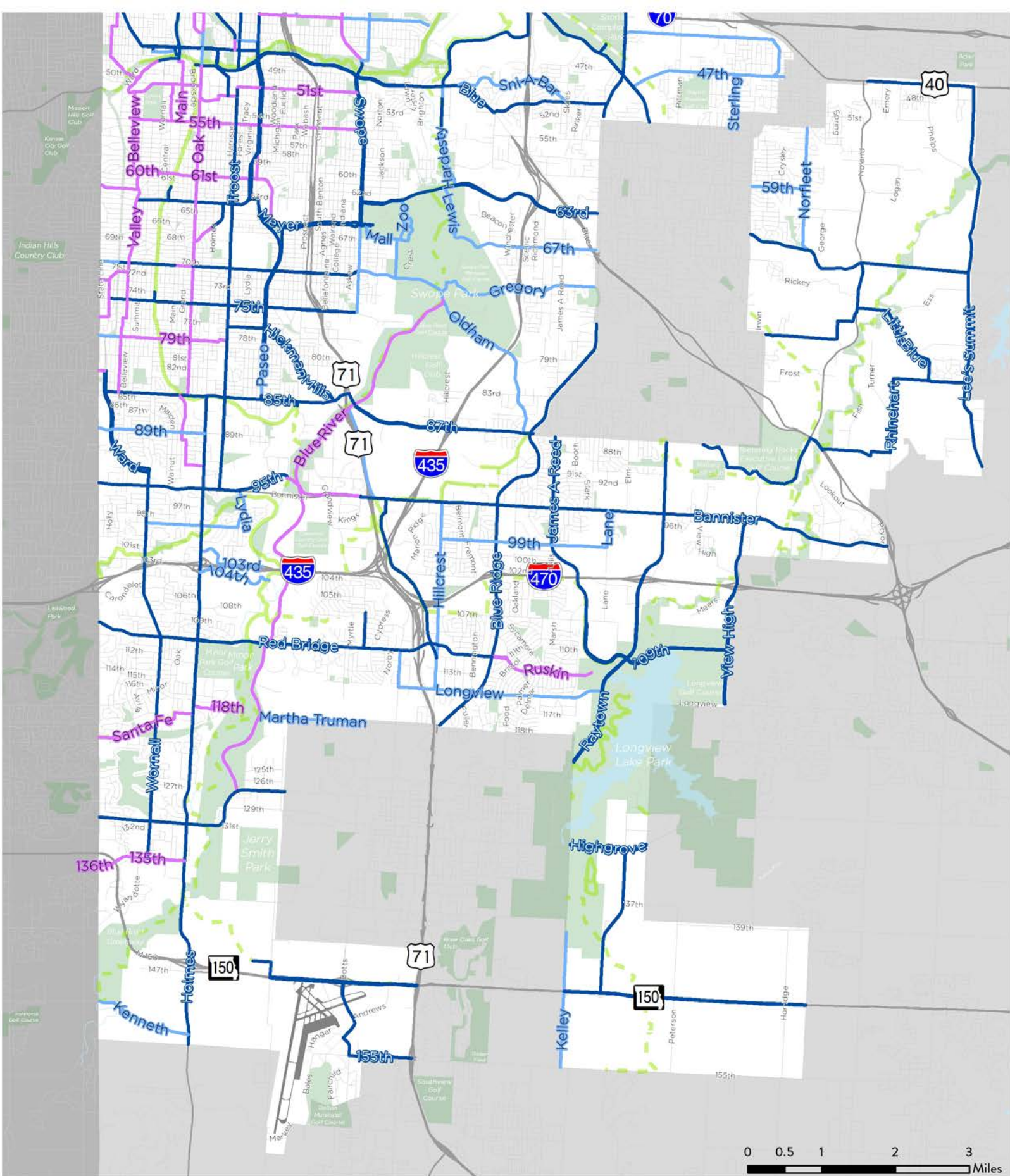
2018 Bike KC Network

- Major Separation
- Minor Separation
- Shared Streets

Trails KC Network

- Existing Trail
- Future Trail





BIKE KC NETWORK

SOUTH

2018 Bike KC Network

- Major Separation
- Minor Separation
- Shared Streets

Trails KC Network

- Existing Trail
- Future Trail



	EXISTING NETWORK	EXISTING NETWORK THAT MEETS BIKE KC MASTER PLAN RECOMMENDED BY FACILITY TYPE	PROPOSED ADDITIONS OR UPGRADES TO THE NETWORK			TOTAL BIKE KC MASTER PLAN NETWORK	PERCENT OF TOTAL NETWORK
			UPGRADES TO EXISTING NETWORK	NEW FACILITIES	TOTAL NEW OR UPGRADED FACILITIES		
Major Separation	25	25	0	365	365	386	59%
Minor Separation	24	14	10	134	144	157	24%
Shared Street	154	49	0	66	66	115	17%
Total	203	88	10	565	575	658	100%

BIKE KC MASTER PLAN NETWORK BY FACILITY TYPE

ROUTE NOTES

During the development of the Bike KC network two routes were discussed in detail – 11th/12th Street couplet and the Holmes/Charlotte couplet – both in the greater downtown area.

- In 2018, BPAC recommended 12th Street be designated a 2-way cycle track with the removal of 11th Street from the updated network. This plan supports that recommendation, however 11th Street remains on the network map in the event that design, or local community support, does not allow a 2-way cycle track when project design occurs.
- In 2018 the KCATA and the City began discussions with MoDOT about use of the Charlotte and Holmes bridges over I-670 in downtown. In addition, KCATA and the City also discussed traffic realignment on Charlotte (converting from one-way to two-way traffic) in Hospital Hill as a part of Truman Medical Center’s master planning

efforts. Both efforts would influence the ability to provide the recommended facility type on Charlotte and Holmes, therefore staff supports the designation of Holmes as a two-way cycle track and the removal of Charlotte Street from I-670 to 25th Street. However, both Charlotte and Holmes remain on the 2018 Bike KC network map until design and community support for this recommendation occur.

- As major roadway projects or redevelopment activity occurs, examine the appropriateness of linking any remaining gaps in the Bike KC Master Plan network.



BICYCLE FACILITY TYPE REFERENCE GUIDE

The following bicycle facility reference guide is intended to provide clarity on the types of facilities recommended in each facility category and serves as a visual reference for each facility. This guide should not be used for any purpose other than general reference, does not denote design standards, and does not represent the totality of bicycle facilities that exist now or may exist in the future.

ONE-WAY CYCLE TRACK / PROTECTED BIKE LANE

One-way protected bike lanes are on-street facilities that provide physical separation from motor vehicles traveling in the same direction as bicyclists by using vertical barriers. Vertical elements can include curbs, raised medians, planters, flexible delineator posts, parked cars, etc. When elevated above street level it is called a raised cycle track and is distinct from the sidewalk.

The National Association of City Transportation Officials (NACTO) lists the main benefits of this facility type as:

- Combines the user experience of a separated path with the on-street convenience of a conventional bike lane
- Provides dedicated and protected space for bicyclists, improving both comfort and safety
- Reduces risks for collisions and doorings
- Prevents double parking
- Reduces implementation costs by making use of existing pavement and drainage when feasible
- More attractive for bicyclists of all ages and abilities



INDIANAPOLIS, IN



KANSAS CITY, MO

NACTO's typical applications include:

- Along streets with high motor vehicle speeds and volumes
- Along streets with high bicycle demand and ridership
- Along streets where other painted bicycle facilities would cause bicyclists to feel stress due to such factors as high traffic volumes and speeds, multiple lanes, high parking turnover, and demand for double parking

TWO-WAY CYCLE TRACK

Two-way protected bike lanes are on-street facilities that provide physical separation from motor vehicles and allow bicycle movement in both directions on one side of a roadway. Vertical elements can include curbs, raised medians, planters, flexible delineator posts, parked cars, etc. When elevated above street level it is called a raised cycle track and is distinct from the sidewalk. Additional care at street crossings and at driveways is necessary.

NACTO lists the main benefits of this facility type as:

- Combines the user experience of a separated path with the on-street convenience of a conventional bike lane and provides dedicated and protected space for bicyclists, improving both comfort and safety
- Reduces out of direction travel by cyclists on one-way streets by providing contraflow movement and reduces implementation costs by making use of existing pavement and drainage when feasible
- More attractive for bicyclists of all ages and abilities

NACTO's typical applications include:

- On streets with few conflicts such as driveways or cross-streets on one side of the street
- On streets with limited room and one-way cycle tracks do not fit on both sides of the street
- On streets where contra-flow bicycle travel is desired
- On streets where a greater number of destinations are on one side of a street and therefore would reduce the need to cross the street
- On streets with extra right-of-way on one side



MEMPHIS, TN



NEW YORK, NY



SHARED USE PATH

A shared use path – also called a trail, multi-use trail, or side path – is an off-street facility which is fully separated from the roadway and is open to bicyclists and pedestrians traveling in both directions. Shared use paths that are part of the Bike KC Master Plan should be located adjacent to the roadway and used in areas where fewer conflicts with motorized vehicles exist, especially in more suburban or rural areas. On Bike KC Master Plan routes that overlap with Trails KC routes, shared use paths are the recommended major separation facility type. A minor separation facility, such as a conventional or buffered bike lane, should also be considered on these overlapping corridors to provide space for more confident cyclists traveling at higher speeds.

To ensure shared use paths remain low stress use raised medians, curb extensions, button-activated warning beacons, or signals at major roadway crossings. Finally, if a shared use path is designed along a roadway with less than four lanes, a minor separation facility must be considered in conjunction with any future roadway design/construction project.



KANSAS CITY, MO

PROTECTED FACILITY ON UPHILL CLIMB OR DOWNHILL DESCENTS



Uphill Climb

On constrained streets an uphill climbing lane should be utilized. Climbing lanes provide dedicated space for cyclists who are slower and are more likely to weave when climbing a hill. This dedicated space provides predictability and improves safety for both cyclists and motor vehicle drivers.

Protected bike lanes should be designed to allow for weaving and parallel passing by faster cyclists.



Downhill Descents

On constrained roadways where only an uphill climbing facility can be accommodated, cyclist speeds are more comparable to motor vehicle travel during downhill travel. In this scenario, cyclists are expected to travel in the same lane as vehicles and should be denoted with shared lane markings.

Where a protected bike lane is present on a downhill decent, the protected bicycle facility should be designed to allow for more confident cyclists to leave the protected facility before the descent and travel in the adjacent general travel lane.



PROTECTED BIKE LANE/CYCLE TRACK AT TRANSIT STOPS



Green Lane Project, Seattle, WA

Floating Bus Stop/Transit Island

Oftentimes protected bike lanes will share the same roadway with transit vehicles. When space is available, a floating bus stop – also known as a transit island – in the buffer area between the cycle track and general travel lane is the preferred design. Floating bus stops provide a designated platform for transit passengers to board and alight from and reduce conflict and increase predictability for all road users. A minimum 5-foot by 8-foot (perpendicular to the street) level landing area aligned with the front door of the bus shall be provided per, FHWA, and cyclists are expected to yield to passengers crossing the cycle track. Floating bus stops are preferred for all protected bike lanes but are required for two-way cycle tracks per FHWA.



KANSAS CITY, MO

Mixing Zones

On one-way bicycle facilities where cyclists are traveling the same direction as transit vehicles, buses may merge into or across the bikeway to access the curb. Vertical separation is removed at transit stop locations and the bikeway becomes shared space with transit vehicles. Bus stop mixing zones are only recommended where bus service is infrequent (four buses per hour or fewer) or where a bicycle facility would not fit under other circumstances.

CONVENTIONAL BIKE LANES

Conventional bike lanes provide dedicated space for bicyclists, facilitate predictable behavior between bicyclists and motor vehicle operators, and allow bicyclists to ride at their preferred speed without interference from prevailing traffic conditions. Bicycle lanes are located adjacent to motor vehicle travel lanes and bicyclists travel in the same direction as vehicles. While usually located on the right side of the road adjacent to the curb, road edge or on-street parking, bike lanes can also be positioned on the left side of the road on a one-way street or on a two-way street with a divided median. On streets where high traffic volume, regular truck traffic, high parking turnover, or where speed limits greater than 35 miles per hour are present other facilities that provide greater separation between bicyclists and motor vehicle traffic should be considered and promoted.



KANSAS CITY, MO

BUFFERED BIKE LANES

Buffered bike lanes are conventional bike lanes paired with designated painted buffer space that separates the bicycle lane from adjacent motor vehicle travel lane and/or parking lane. Buffered bike lanes provide more space between the motor vehicle travel lane and bicyclists and could potentially be converted to protected bike lanes. Buffered bike lanes appeal to a wider cross-section of bicycle users than conventional bike lanes.



KANSAS CITY, MO



Photo: NACTO

CONTRA-FLOW BIKE LANES

Contra-flow bike lanes help provide direct access and connectivity for bicyclists by allowing bicyclists to ride in the opposite direction of motor vehicle traffic. Contra-flow bike lanes are separated with yellow center lane striping. Benefits include the reduction of dangerous wrong-way riding, decreases sidewalk riding, and allow bicyclists to use safer, less trafficked streets. Typical applications include installation of contra-flow lanes on streets where higher levels of wrong way riding occur, on corridors where alternate routes require excessive out-of-direction travel, and work best on low-speed, low-volume streets, unless buffer separation or physical protection is provided.



KANSAS CITY, MO

CLIMBING BIKE LANES

On constrained streets an uphill climbing lane should be utilized. Climbing lanes provide dedicated space for cyclists who are slower and are more likely to weave when climbing a hill. The bicycle lane should be marked in the uphill direction and a shared lane marking should be utilized in the downhill direction.

SHARED STREETS are calm/neighborhood streets where motor vehicle traffic calming and diversion are encouraged and should be prioritized. At a minimum, signage and shared lane markings should be utilized on these routes as wayfinding for bicyclists and to draw motorists' attention.



KANSAS CITY, MO

SIGNS AND PAVEMENT MARKINGS

Signs (signed bicycle routes) and pavement markings (shared lane markings, sharrows) are the most basic elements of a shared street. Signs and pavement markings indicate that the road is intended as a shared, slow street, with bicyclist priority. These are common elements for bicycle boulevards. Signs and pavement markings alone should not be a substitute for minor or major separated facilities where these types of facilities are warranted or space permits.



OVERLAND PARK, KS



TRAFFIC CALMING ELEMENTS

Traffic calming elements help reduce motor vehicle through traffic, speeds, and volumes. This helps prioritize these corridors for bicyclists, brings vehicle speeds closer to those of bicyclists, allows motor vehicle operators more time to react to bicyclists, and reduces the severity of crashes if they occur. Speed and traffic volume management require significant public outreach. Among a variety of treatments, some common traffic calming elements include the following examples recommended by NACTO for the implementation of bicycle boulevards:



KANSAS CITY, MO



PHILADELPHIA, PA



OVERLAND PARK, KS

Speed Management

Speed humps: Reduces typical vehicle speeds to 15-20 miles per hour.

Speed cushions: Speed humps with wheel cutouts that allow large vehicles (such as emergency response vehicles) to pass unaffected.

Speed table: Longer than speed humps and result in typical vehicle speeds of 25-35 miles per hour. Applications can include collector streets, transit, and emergency response routes.

Raised crosswalk: A speed table marked and signed for pedestrian crossing and extends across the street.

Neighborhood traffic circles: Street crossing treatments that reduce vehicle speeds via narrowing the turning radii the travel lane.



OVERLAND PARK, KS

Edge islands: Curb extensions with drainage gap.



KANSAS CITY, MO

Chicanes: Forcing motor vehicles to shift laterally through narrowed travel lanes, chicanes form an S-shaped travel way through a series of raised curb extensions, edge islands, etc.



KANSAS CITY, MO

Neckdown: Pinch points at intersections using curb extensions or edge islands



KANSAS CITY, MO



OVERLAND PARK, KS



LAWRENCE, KS



One lane slow point: Reduces travel lane width to make only one vehicle passable at one time.

Traffic Volume Management

Forced turn at intersection: Restricts through movement for motor vehicles.

Channelized right-in/right-out island: Forces motor vehicles to turn and allows bicyclists to continue forward through the intersection.

Median islands/diverters: Restricts through movement of motor vehicles and allows bicyclists to continue forward while providing refuge for bicyclists during the crossing movement. Also benefits pedestrians if a crosswalk is present and has less impact on the cross street.

Full diverters: Creating a "T," blocks motor vehicle through movement which allows bicycles to continue forward unrestricted.

Diagonal diverters: Forces all motor vehicles to turn at a four-way intersection while allowing bicyclists forward movement through an intersection.



BICYCLE BOULEVARDS

Bicycle boulevards are low-stress (often residential) streets parallel to major thoroughfares with low motor vehicle volumes (ideally less than 1,500 vehicles per day) and speeds and minimal diversions that are designed to prioritize bicycle travel. Bicycle boulevards are typically 2-5 miles in length, and elements of bicycle boulevards include wayfinding/signage and pavement markings, motor vehicle volume and speed management, controlled and enhanced intersection treatments, and can include green infrastructure.

Bicycle boulevards attract riders of all ages and abilities, and can have benefits for pedestrians through street crossing improvements, wayfinding, resident vehicle speed reduction, and less through traffic. Bicycle boulevards should complement – not substitute for – major and minor separation facilities on main roads that provide direct access to businesses, jobs, and other key destinations. As access management, emergency vehicle response, and other local neighborhood considerations can be significant factors along bicycle boulevards additional outreach with neighborhoods and emergency responders is necessary.



WAYFINDING

Wayfinding elements help bicyclists understand where bike facilities lead, how they relate to the overall system, and when and where to make decisions on their trip.



PHILADELPHIA, PA

Bike Route Wayfinding

Critical to the overall bicycle network and to individual corridors, bicycle wayfinding consists of comprehensive signage and pavement markings to assist bicyclists to their destinations. There are numerous types of wayfinding signs – confirmation signs, turn signs, decision signs, destination signs – elements should include local branding for bike system (such as a bike symbol or system name), destination name/information, directional assistance, mileage, and travel time. Signs are generally placed at decision points along bicycle routes typically at the intersection of two or more bikeway routes and at other key locations leading to and along bicycle routes.

INTERSECTIONS

Intersections are the locations where bicyclists are the most vulnerable and care must be made to provide safe crossings. There are a variety of ways to increase bicyclists safety at intersections.



Protected intersection: Applicable to both signalized and stop controlled intersections, protected intersections utilize many elements to assist both cyclists and pedestrians navigate safe passage often where two protected bike lane routes intersect. Design considerations and elements may include corner safety islands, pedestrian safety islands, bicycle forward stop bars, bicycle signal operations, setback bicycle crossing, and others.

Bicycle forward stop bar: Decreases crossing distance and improves bicyclists' view of cross traffic by placing a bicycle stop bar closer to the intersection than the motor vehicle stop bar and is used in conjunction with a curb extension.



Active warning beacons: Used to help alert motor vehicle operators of bicyclist and pedestrian crossings at an unsignalized intersection.



Bike boxes: Allows bicyclists to get ahead of vehicles queued at intersections and helps increase visibility to drivers.



KANSAS CITY, MO

Colored bike facilities: Increases visibility of the bike facility, reinforces bicycle priority, and identifies potential conflict areas. Can be used along the entirety of the bicycle facility or through intersections or conflict points.



KANSAS CITY, MO



FT. COLLINS, CO



Bicycle center turn lane: On streets with one travel lane for vehicles or where motor vehicle volumes and speeds are low, this center turn lane is specifically designed to allow bicyclists to turn left.

Signal detection and actuation: To avoid bicyclists having to wait for motor vehicles to trip a signal, signalized intersections detect the metallic mass of a bicycle. Pavement markings inform bicyclists where to stop.

Leading bicycle/pedestrian interval: A signalized intersection where a bicycle signal displays a green signal for bicyclists and walk sign for pedestrians for a few seconds prior to the green display for motor vehicles.



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMMUNITY ORGANIZATION	BUSINESS/NEIGHBORHOODS		
DESIGN & CONSTRUCT LOW-STRESS BICYCLE FACILITIES	Install the recommended facility type on Bike KC network routes	X	X			ONGOING	HIGH
	Implement the lowest stress bicycle facility type	X	X			ONGOING	HIGH
	Implement major separated bike lanes as part of the Bike KC network	X	X			SHORT-TERM/ONGOING	HIGH
	Implement minor separated bike lanes as part of the Bike KC network	X	X			SHORT-TERM/ONGOING	MEDIUM
	Implement shared streets as part of the Bike KC network	X	X			SHORT-TERM/ONGOING	LOW
	Install traffic calming on shared streets	X		X	X	MID-TERM	MEDIUM
	Identify shared street routes appropriate for implementation of bike boulevards	X		X	X	MID-TERM	MEDIUM
	Implement bike boulevards on shared street routes	X		X	X	MID-TERM/ONGOING	MEDIUM
	Take detailed analysis, local context, and community feedback into account during project planning and design	X	X	X	X	ONGOING	HIGH



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
DESIGN & CONSTRUCT LOW-STRESS BICYCLE FACILITIES (CONT'D)	Retrofit/upgrade existing bike infrastructure that does not meet the Bike KC Master Plan recommendations, focusing on the 5-Year Priority Network first	X	X			MID-TERM	MEDIUM
	Involve the city's BPAC and Parks & Recreation Board of Commissioners in project design approval	X	X	X		ONGOING	N/A
	Prioritize intersection treatments to help mitigate conflict points	X	X			ONGOING	HIGH
	Install wayfinding as part of each project, noting decision points, destination information, and travel distance/time	X			X	ONGOING	MEDIUM
	Design all bicycle facilities to meet or exceed the latest federal, state, and local guidelines	X	X			ONGOING	HIGH
	Discourage new curb cuts and remove redundant curb cuts adjacent to major and minor separated facilities to decrease potential motor vehicle/bicycle conflict. Move private and commercial vehicle access to alleys or side streets	X	X		X	ONGOING	LOW



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
IMPLEMENT TRAILS KC NETWORK	Ensure there is an up to date inventory of Trails KC facilities Identify key network gaps & update Trails KC priority projects regularly	X	X	X	X	ONGOING	HIGH
	On routes that are identified on both Bike KC and Trails KC networks, shared use paths are the preferred major separated facility. These shared use paths should be as direct and adjacent to the roadway as possible.	X	X			ONGOING	MEDIUM
	Incorporate best practice street crossing design treatments	X	X			ONGOING	HIGH



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Network Implementation



*"I bike 15-40 miles a day – Troost and Independence Avenue is all I ride.
More people out biking makes you feel good."*

"We just need more bike lanes all around Kansas City. [When people] ride off from Hope Faith they leave with a smile on their face because they have a type of transportation and they feel good about it."

/ JOHN AND RAYFORD (SKITTLES)



The Bike KC Plan Master provides a long-range vision for the development of bicycle facilities as a key part of the City's overall transportation network. Route and facility recommendations are based on high level planning principles, broad analysis of roadways' usability and function, public input, adopted city policy recommendations, and professional staff opinion. This plan functions as a starting point for analysis as some recommendations may be retrofitted to existing streets with relatively

few impacts while others will require more extensive analysis and community outreach.

PROJECT CONSIDERATIONS

To aid in network development, project criteria and considerations were developed. Throughout the implementation of individual planning and capital projects, these criteria and considerations should continue to be referenced to aid in project prioritization.

PROJECT CRITERIA & CONSIDERATIONS	EVALUATION NOTES
Residential Density	Does the project serve a large number of residents?
Employment Density	Does the project serve a large number of employees or help connect to employment centers?
Grocery Stores, Restaurants, & Retail	Does the project serve many destinations?
MARC Activity Center Density & Mobility Hubs	Does the project intersect with or connect to MARC Activity Centers or Mobility Hubs?
Transit & Ridership	Will the project help close the first/last mile problem by connecting people to transit and their ultimate destinations?
Shared Active Transportation Data	How is this project informed by data collected from the use of Shared Active Transportation devices and users?
Within a 1/4 mile of major park or trail	Does the project help connect people to parks and trails?
Within a 1/4 mile of school or university	Does the project help connect students & the community to educational institutions?

Within a 1/4 mile of cultural or community destinations	Does the project help residents and visitors reach community attractions?
Fulfills recommendations in Bike KC Master Plan	Does the project advance the goals of and recommendations in the Bike KC Master Plan?
Fulfills recommendations in other adopted plans	Does the project help meet recommendations in other adopted plans or City policies?
Addressing location with recorded safety concern	Does the project increase the safety of bicyclists?
Connects to other bike facilities	Will existing or planned routes become more connected with the project?
Equity (Low Life Expectancy Zip Code/Households with Access to Vehicle)	Will the project help provide more transportation choice?
Part of larger or multimodal project	Is the project a standalone project or part of a larger one?
Multimodal conflict	Do a variety of systems rely on this project's route (e.g. bicycles, transit, freight, etc.) and is this the only nearby route available for bicyclists?
Level of Traffic Stress	Will the project help provide a lower level of traffic stress and aid in attracting the average bicyclist?
Community Support	Is there express community support for the project or is there/will there be objections to the project?
Leverage/Opportunity	Are there funds or other activities to capitalize upon for this project?
Topography	Is the route along easy, moderate, or difficult terrain?



FIVE-YEAR PRIORITY NETWORK

The complete Bike KC Master Plan network represents an ultimate buildout. To help the City focus its proactive implementation measures, the Plan identifies 137 miles of priority bikeways to direct planning and construction efforts on over the next five years. This 5-Year network helps establish core connectivity and spinal arteries for the system. To ensure Bike KC remains relevant and up to date with ever evolving best-practices and community priorities, **the Plan should be updated every five years to establish new priorities and track overall plan progress.**

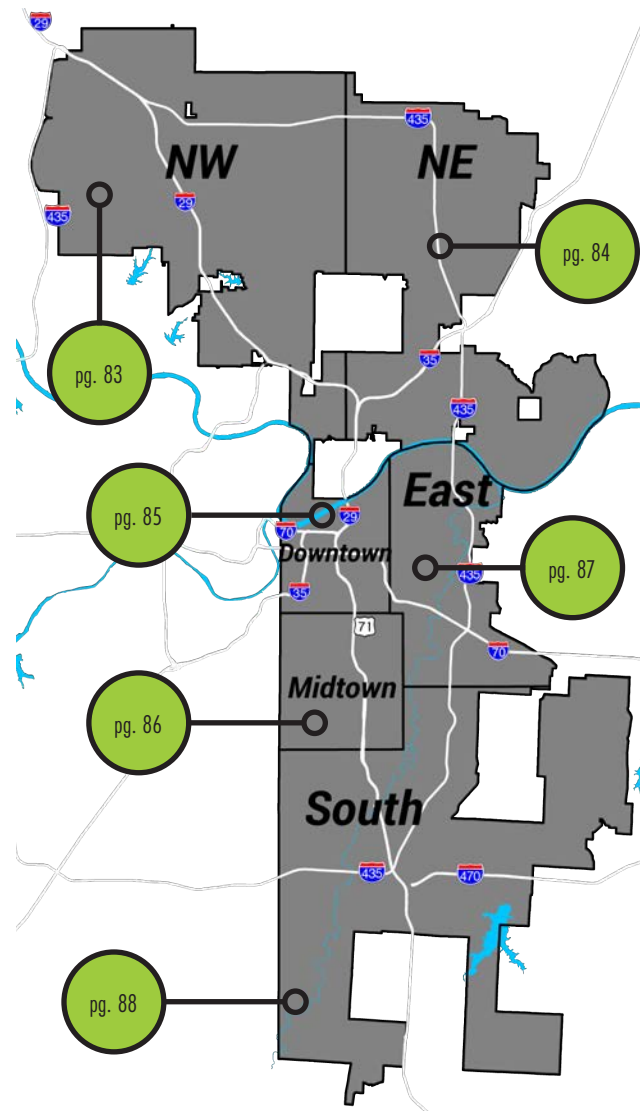
The 5-Year Priority Network has three phases:

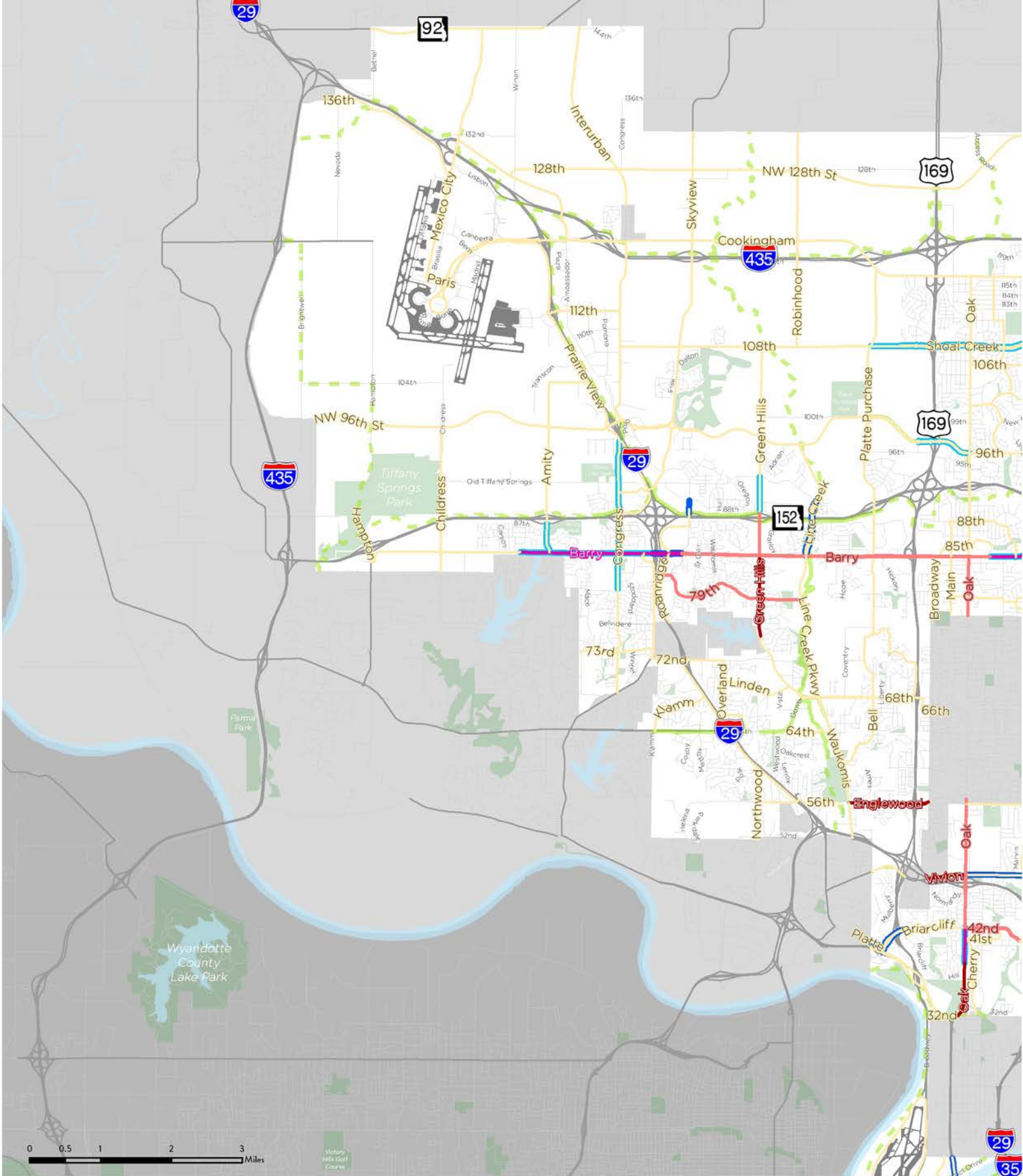
Phase 1: Streets where current capital improvements are planned or where studies have occurred. Capital projects include FY 2018-19 PIAC and 2018-23 General Obligation Bond projects. Studies include Planning Sustainable Places concept plans or work underway by City departments.

Phase 2: Connections that should be made between phase 1 completed projects and existing infrastructure such as built trails or bike lanes.

Phase 3: Upgrades to existing on-street infrastructure from minor separation to major separation to support the low-stress network.

PAGES 83-88 DETAIL THE 5-YEAR BIKE KC PRIORITY NETWORK





5-YEAR PRIORITY NETWORK NORTHWEST

2018 Bike KC 5-Year Priority Network

Phasing

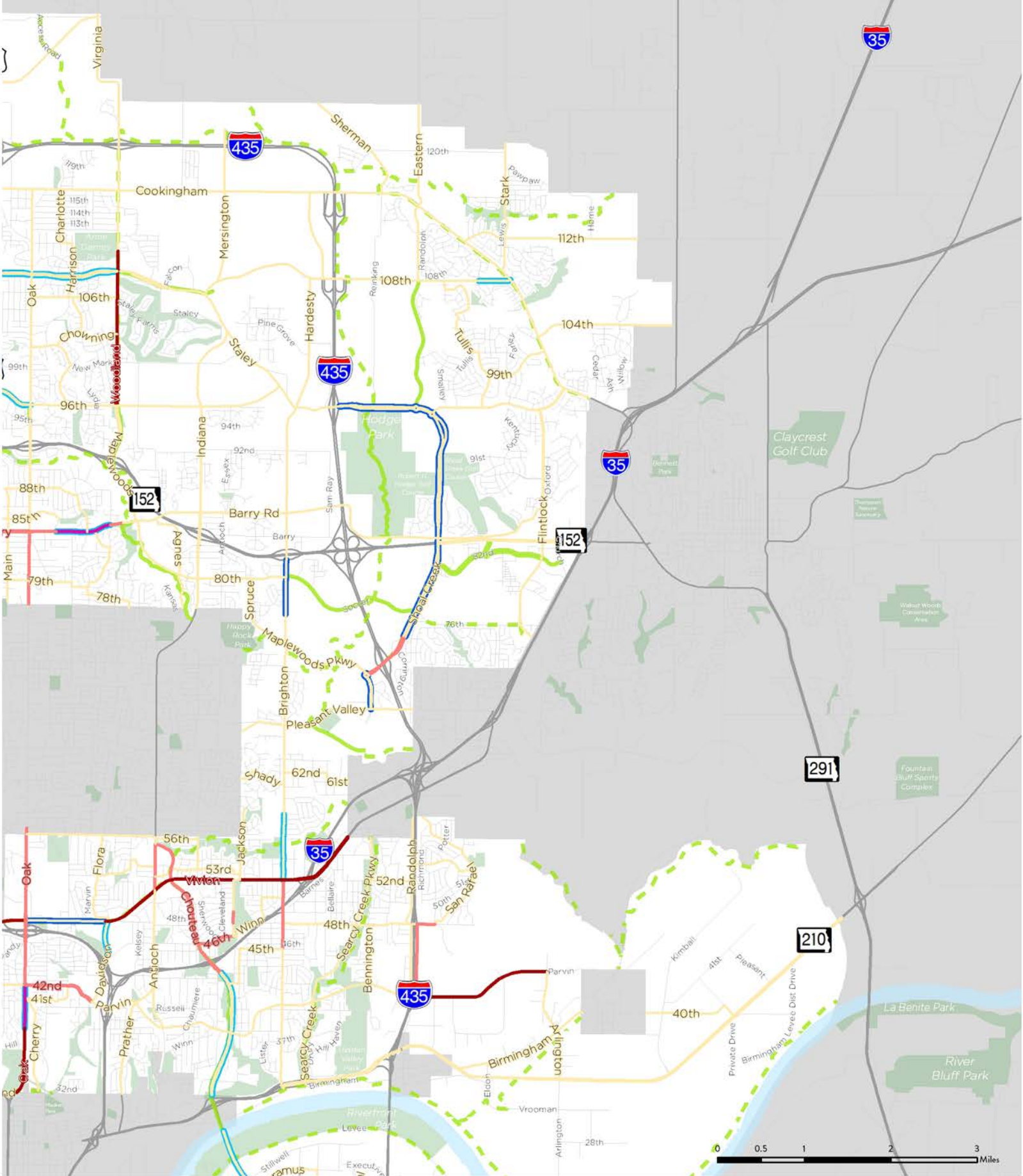
- Phase 1
- Phase 2
- Phase 3
- Future Phases

Existing Separated Infrastructure

- Minor Separation
- Major Separation

Trails KC Network

- Existing Trail
- Future Trail



5-YEAR PRIORITY NETWORK NORTHEAST

2018 Bike KC 5-Year Priority Network

Phasing

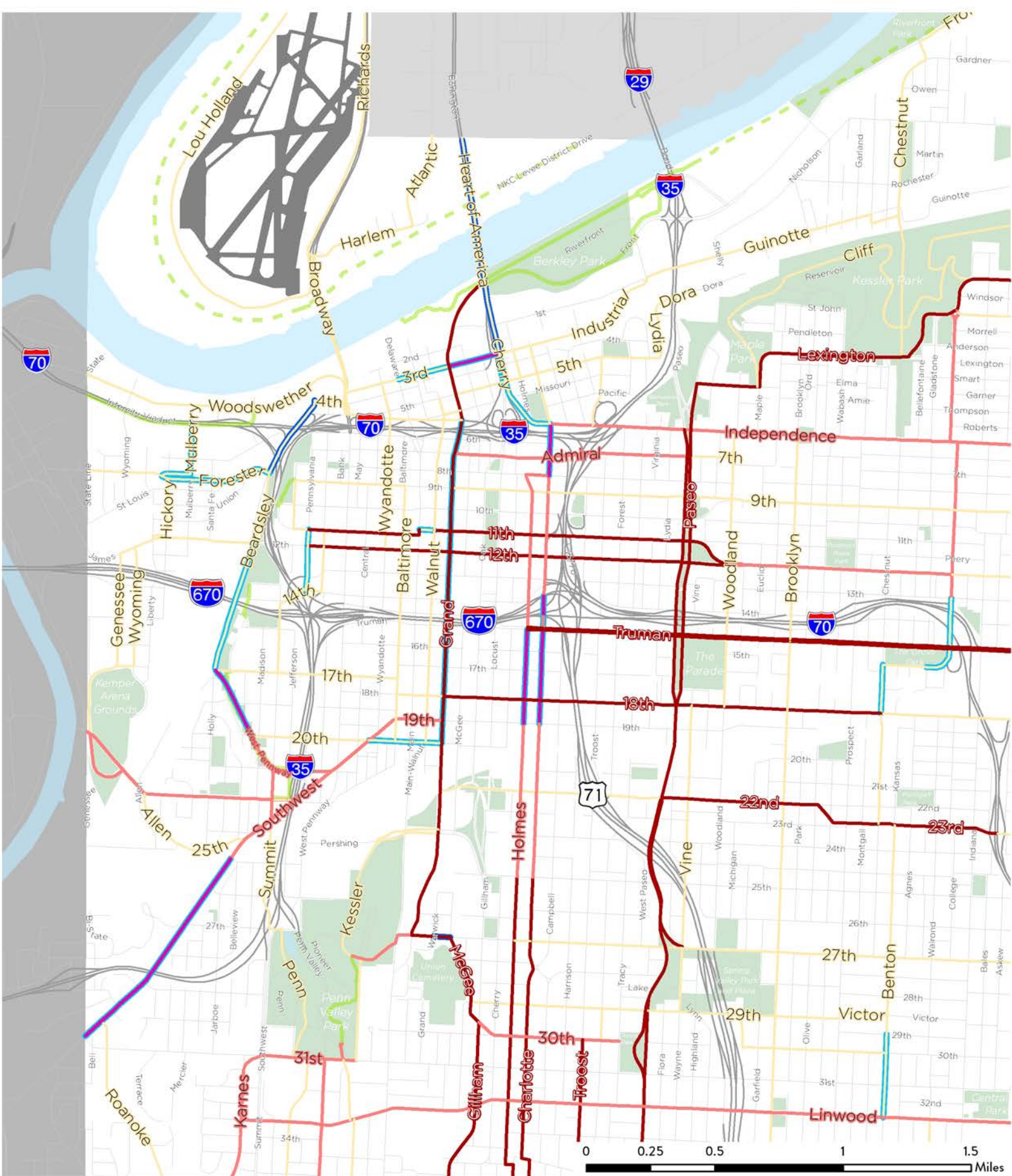
- Phase 1
- Phase 2
- Phase 3
- Future Phases

Existing Separated Infrastructure

- Minor Separation
- Major Separation

Trails KC Network

- Existing Trail
- Future Trail



5-YEAR PRIORITY NETWORK DOWNTOWN

2018 Bike KC 5-Year Priority Network

Phasing

- Phase 1
- Phase 2
- Phase 3
- Future Phases

Existing Separated Infrastructure

- Minor Separation
- Major Separation

Trails KC Network

- Existing Trail
- Future Trail

5-YEAR PRIORITY NETWORK MIDTOWN

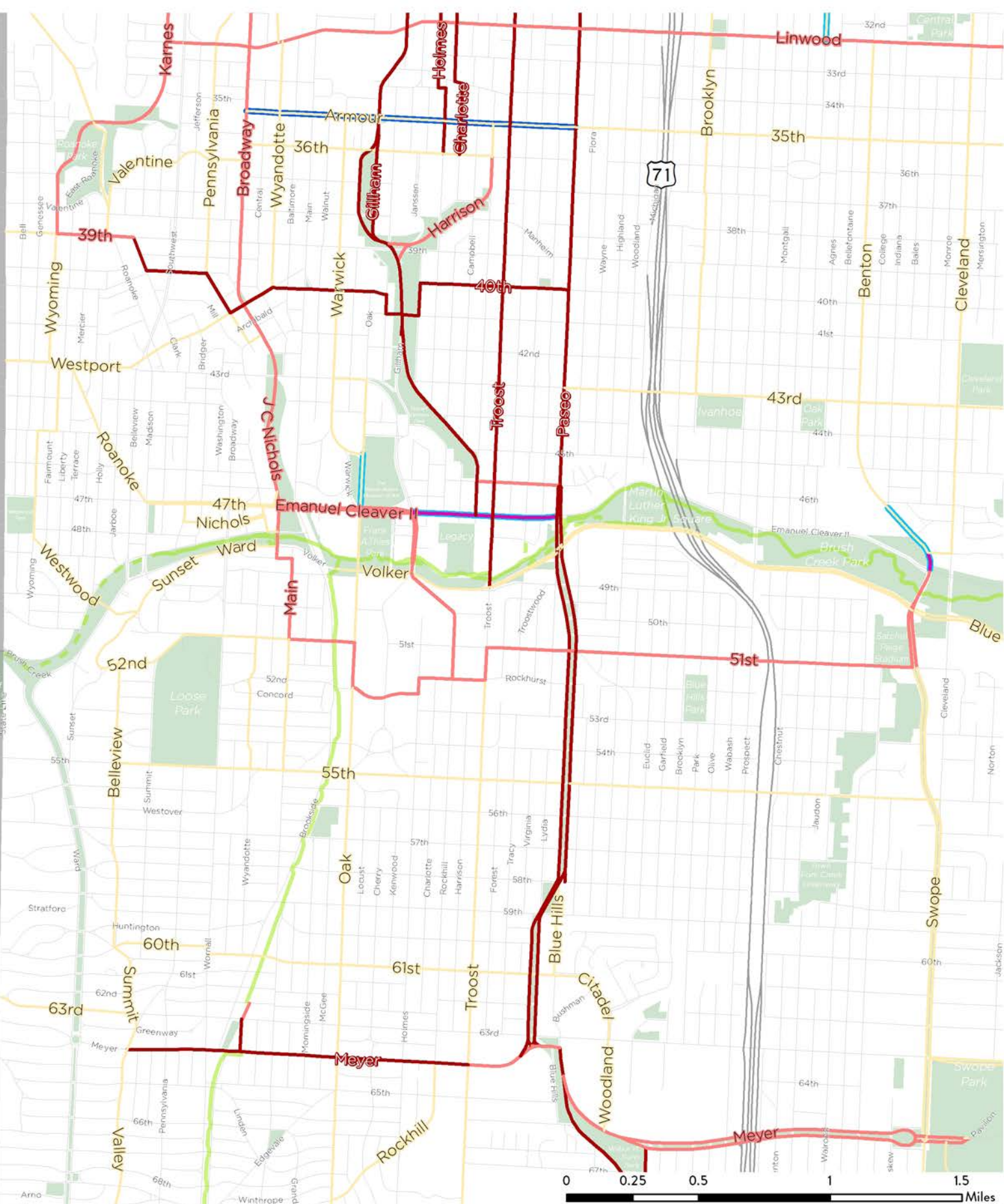
2018 Bike KC 5-Year Priority Network

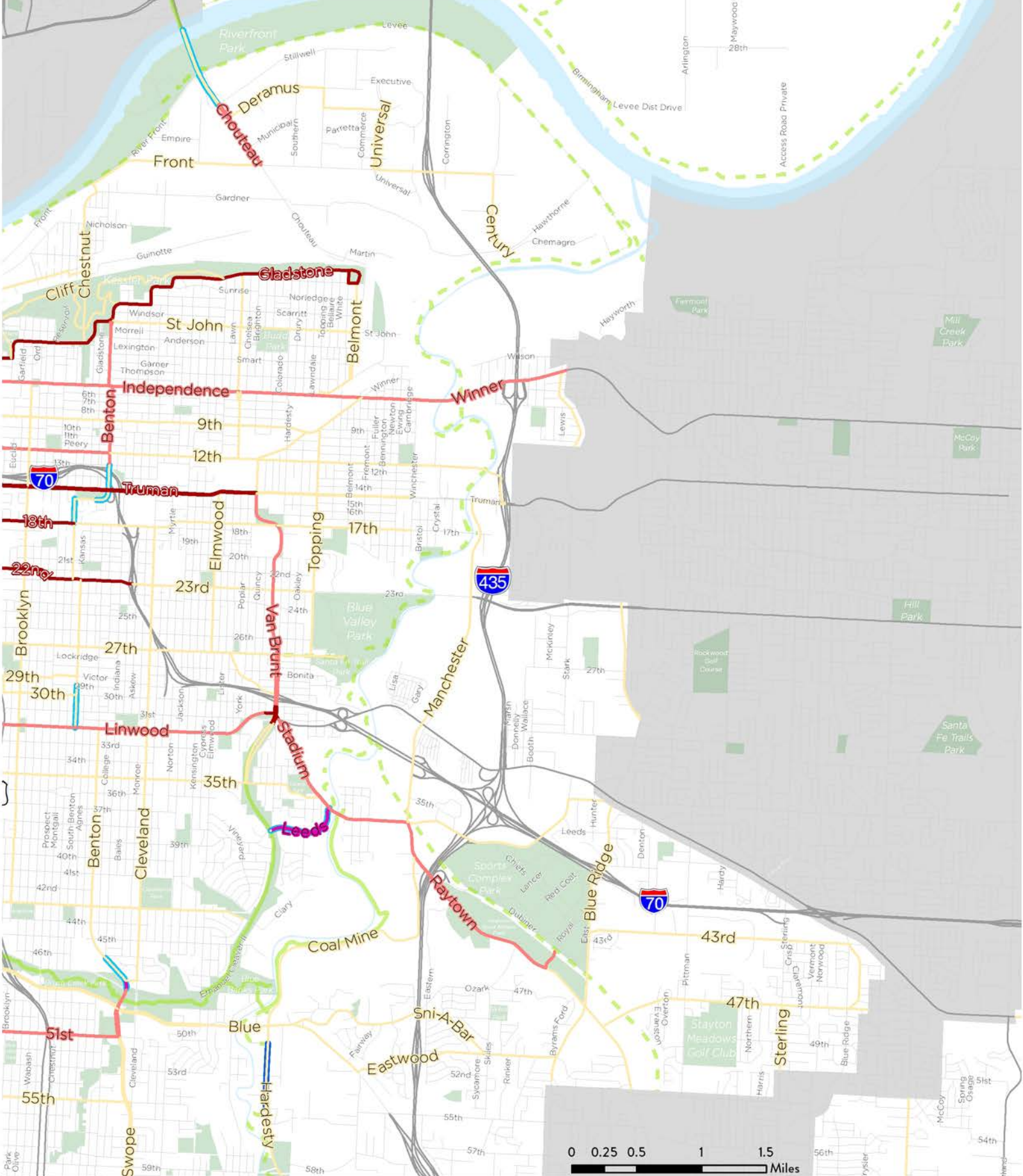
Phasing

- Phase 1
- Phase 2
- Phase 3
- Future Phases

Existing Separated Infrastructure

- Minor Separation
- Major Separation
- Trails KC Network
- Existing Trail
- Future Trail





5-YEAR PRIORITY NETWORK EAST

2018 Bike KC 5-Year Priority Network Phasing

- Phase 1
- Phase 2
- Phase 3
- Future Phases

Existing Separated Infrastructure

- Minor Separation
- Major Separation

Trails KC Network

- Existing Trail
- Future Trail

5-YEAR PRIORITY NETWORK SOUTH

2018 Bike KC 5-Year Priority Network

Phasing

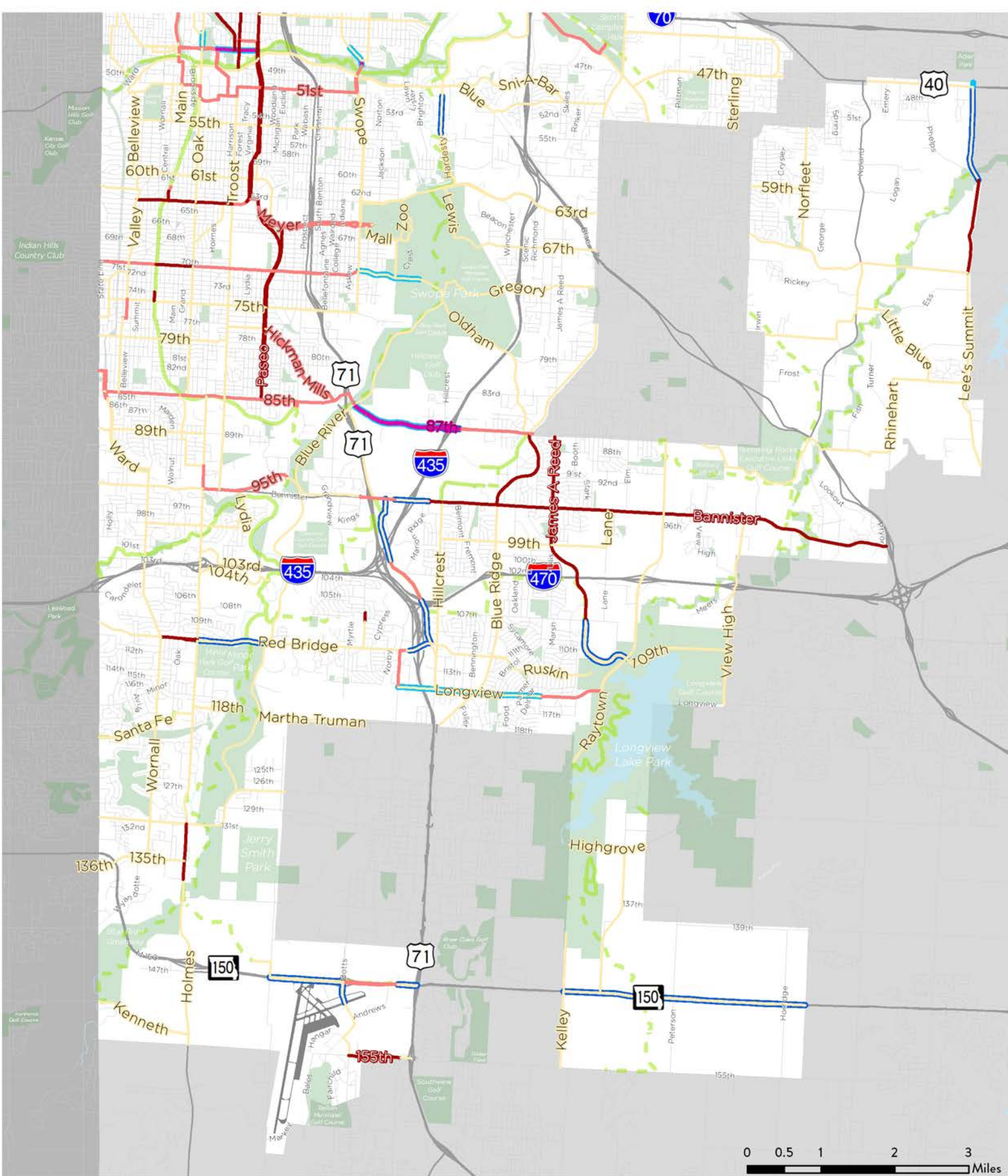
- Phase 1
- Phase 2
- Phase 3
- Future Phases

Existing Separated Infrastructure

- Minor Separation
- Major Separation

Trails KC Network

- Existing Trail
- Future Trail



This more traditional implementation approach results in a core network of bicycle facilities in areas of high demand and need and will connect key areas throughout the city. Based on standard practices in other communities, Kansas City should approach network implementation through the coordination of four basic tactics:

Large capital projects/roadway reconstruction

Strategic coordination with the annual resurfacing program

General opportunities including excessively wide streets, where community support exists, and through quick-build/pilot projects

Separate/dedicated funding for protected bicycle infrastructure, intersection improvements, and maintenance

QUICK-BUILD APPROACH

A relatively new way cities approach bicycle infrastructure implementation is through a strategy that quickly implements a critical network of high-quality bikeways in central areas where latent demand may exist. This approach streamlines the planning, design, construction, and evaluation process by focusing efforts on one large project rather than a more traditional corridor by corridor approach. While this tactic may require a more extensive commitment of capital expenditures at one time and would necessitate a more focused planning effort prior to implementation, the impacts of this completed network would help the community better evaluate the successes and limitations of bicycle infrastructure and programming. Many quick build projects use creative design and materials to help reduce costs of projects, often significantly.



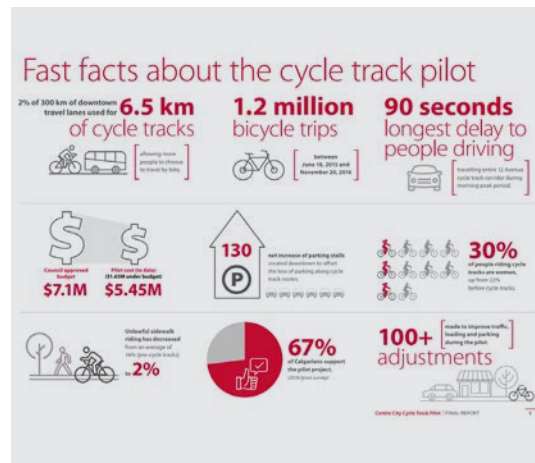
EXISTING INFRASTRUCTURE



INFRASTRUCTURE AFTER
PHASE 1



INFRASTRUCTURE AFTER
PHASES 2 & 3



ELEMENTS FROM THE "CENTRE CITY CYCLE TRACK PILOT" EVALUATION REPORT

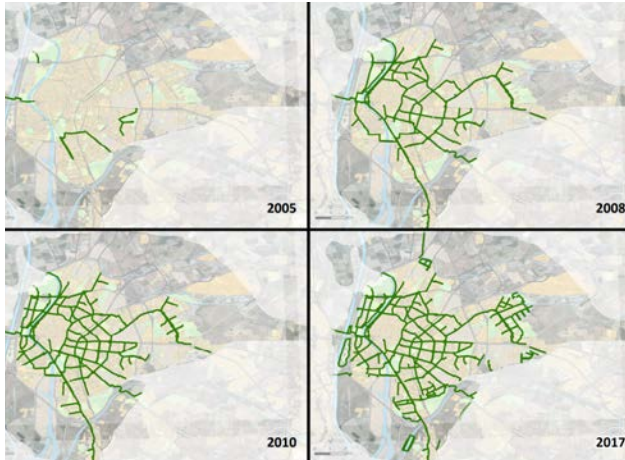
CALGARY, ALBERTA, CANADA

One successful example of this new implementation approach took place over an 18-month period in the city of Calgary, Canada – the “Centre City Cycle Track Pilot.” After the adoption of the city’s strategic bikeway plan, “Cycling Strategy,” in 2011 city officials worked extensively with its downtown stakeholders to plan and execute a critical minimum network of protected on-street bicycle infrastructure. Between fall 2011 and spring 2014 the city held 90 engagement sessions, including meetings with its Centre City Bicycle Projects Committee, open houses, information sessions, and one-on-one meetings to help determine the proposed network. In April 2014 the Calgary Council approved a 6.5-kilometer network with a maximum budget of \$7.1 million. That following year, city officials worked with stakeholders to design each corridor and develop a comprehensive evaluation program. In spring 2015 the network was constructed and opened in mid-June 2015 for a cost of \$5.45 million. The evaluation period of the project ended in December 2016

and the final report ^{xii} noted that “while not every target was met, the objectives of the pilot have been achieved:

- “People cycling can safely access more destinations.
- “The number of people cycling on cycle tracks and downtown has increased [tripled].
- “The impacts to people walking or driving have been modest.”

The report also noted that over 100 design adjustments were made throughout the pilot to improve traffic, loading, and parking. Data collected for the pilot project through automated, manual and survey tools included satisfaction, safety, bicycle volumes, peak period travel times for automobiles, unlawful riding on sidewalks and one-way streets, economic vitality, and demographics including age and gender.



SEVILLE, SPAIN'S BICYCLE NETWORK, BY YEAR

SEVILLE, SPAIN

Kansas City's Sister City – Seville, Spain – has also drawn notoriety for its rapid deployment of a connected network of low-stress separated bikeways. Between 2005 and 2008 Seville implemented 50 miles of separated bikeways – much of which was built and completed in a single project after significant coordination and public outreach. Most of the network was on repurposed roadways, including the elimination of thousands of on-street parking stalls. Goals of implementation of the network included continuity, directness, bikeways along main avenues, and the creation of a homogeneous and recognizable bikeway. The network has continued to expand throughout the city.



12-MONTH DEMONSTRATION PROJECT, MEMPHIS, TN

MEMPHIS, TN

The city of Memphis, TN conducted a 12-month demonstration as part of a larger "Great Streets" demonstration project that narrowed and repurposed existing travel lanes on Peabody Place in downtown Memphis to accommodate a 2-way protected cycle track and pedestrian promenade. The installation of the project was completed through the procurement of grant and local business sponsorship funds. In-kind donations were also received, including local artists painting the pedestrian promenade and the local IKEA providing tables and chairs. Self-watering planters and parked vehicles were used as the protecting elements. Upon completion of the demonstration period in late Spring 2018 the City decided to remove the pedestrian promenade and 2-way cycle track on Peabody Street but retain the pedestrian bump-outs at intersections. The City is exploring installation of a bikeway on neighboring MLK Jr. Drive as an alternative to the 2-way cycle track on Peabody Place.



BETTER BLOCK KC OAK STREET DEMONSTRATION PROJECT, OCTOBER 2018

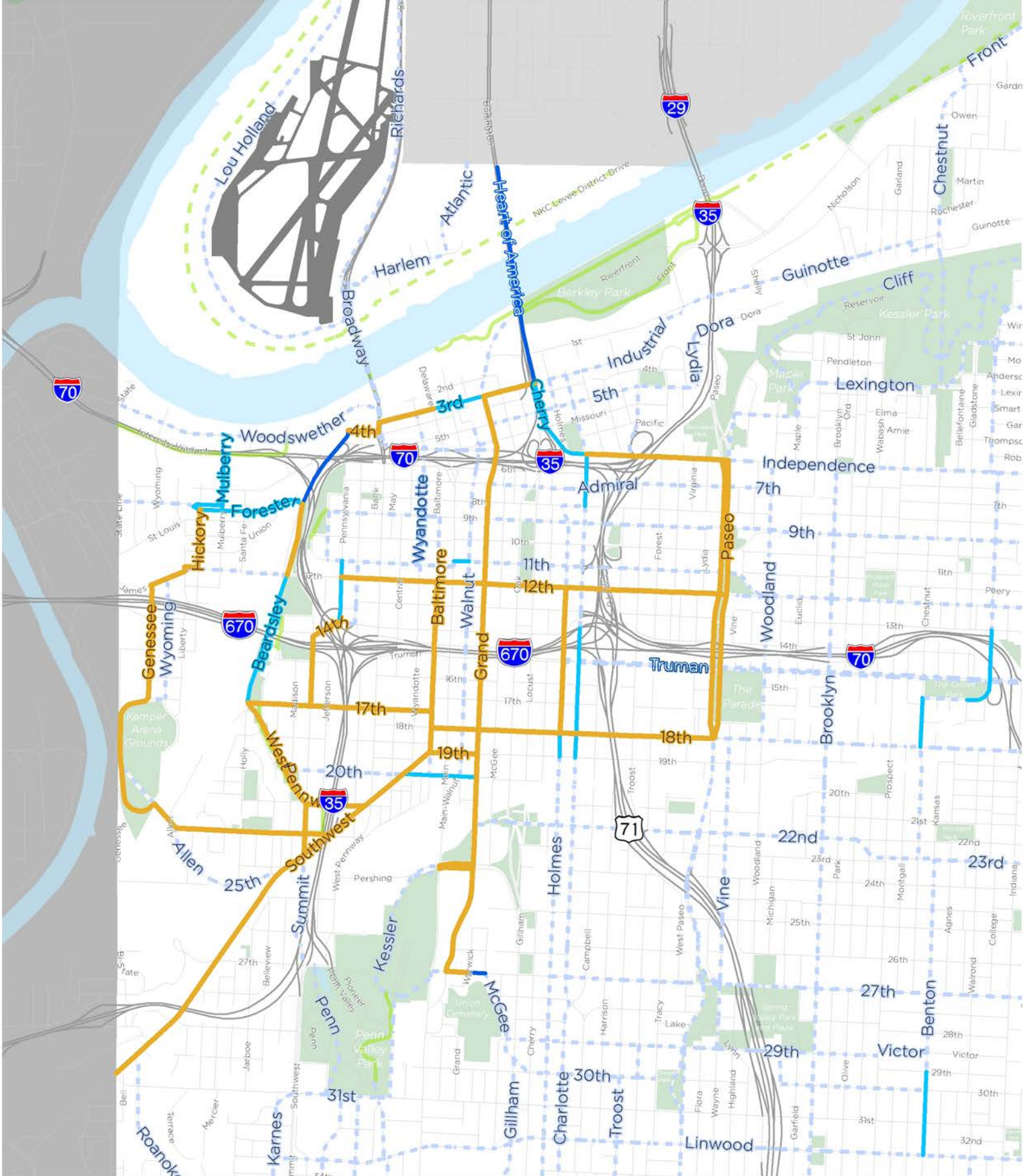
KANSAS CITY, MO

Kansas City has not implemented long-term demonstration projects, however short-term demonstration projects have been permitted by the City and led by organizations such as Better Block KC. The most recent project occurred during the month of October 2018 along Oak Street in the Crossroads neighborhood which evaluated the installation of a two-way projected cycle track (referred to as a “mobility lane” during the project) through the implementation of a road diet. On-street bike corral parking, painted scooter parking, and the incorporation of potted plants, on-street vehicle parking, and delineator post provided the vertical elements to separate moving traffic from active transportation users. Additionally, traffic signals along Oak were adjusted to flashing red stops to test vehicle flow along the corridor and its impact on pedestrian ease of use.

This type of innovative and quick project implementation should be considered for implementation of the Bike KC Master Plan

network in lieu of solely relying on traditional project prioritization and implementation.

Engaging the community and stakeholders in a large-scale pilot program could be a more effective way to approach project delivery as opposed to a street by street process. As bicycling and scooter use grows, downtown Kansas City could serve as a quick-build delivery area ripe with demand and evaluation possibilities. As an example, the routes highlighted in the suggested Quick-Build map would connect activity centers in the Greater Downtown Area through a network of quickly implemented protected and low-stress bike facilities. As in Calgary, a more focused planning and design process with local stakeholders would have to take place, funding would need to be allocated (between \$12-15 million), and the project continually evaluated. This network and approach would result in over 15 miles of low-stress bikeways, and creative design and materials could significantly reduce cost.



QUICK-BUILD ROUTE SCENARIO

Quick Build Scenario Routes

Existing Separated Infrastructure

Minor Separation

Major Separation

Future 2018 Bike KC Phases

Trails KC Network

Existing Trail

Future Trail



	Total network mileage	Total mileage to construct	Cost for network construction at full recommended facility type	5-year priority network mileage	Cost for 5-year priority network at full recommended facility type
Major Separation (City Only)	345	330	\$341,159,210	102	\$88,425,031
Minor Separation (City Only)	153	140	\$42,861,189	16	\$2,628,515
Shared Use (City Only)	115	66	\$2,640,000	10	\$400,000
Grand Total (City roadways only)	612	536	\$386,660,399	128	\$91,453,546
Major Separation (Total System)	386	365	\$372,740,812	112	\$96,558,901
Minor Separation (Total System)	157	144	\$42,863,244	16	\$2,561,065
Shared Use (Total System)	115	66	\$2,640,000	10	\$400,000
Grand Total	658	574	\$418,244,055	137	\$99,519,966

FACILITY TYPE	ESTIMATED COST PER MILE
Cost per mile average Major Separated Retrofit	\$813,387
Cost per mile average Major Separated New Construction	\$1,400,012
Cost per mile average Minor Separated Retrofit	\$134,901
Cost per mile average Minor Separated New Construction	\$605,000
Cost per mile average Shared Use Street	\$40,000

5-year priority network Paint only treatment	Phase 1 projects only mileage	Phase 1 projects only cost	Phase 2 projects only mileage	Phase 2 projects only cost	Phase 3 projects only mileage	Phase 3 projects only cost
\$18,393,442	47	\$43,508,814	47	\$38,815,814	8	\$6,507,096
\$2,628,515	8	\$1,079,208	8	\$1,549,307	0	\$0
\$400,000	4	\$160,000	6	\$240,000	0	\$0
\$21,421,957	59	\$44,748,022	61	\$40,605,212	8	\$6,507,096
\$19,742,452	49	\$45,135,588	54	\$44,509,523	8	\$6,507,096
\$2,561,065	8	\$1,079,208	8	\$1,549,307	0	\$0
\$400,000	4	\$160,000	6	\$240,000	0	\$0
\$22,703,517	61	\$46,374,796	68	\$46,298,830	8	\$6,507,096

BIKE KC MASTER PLAN NETWORK IMPLEMENTATION COST ESTIMATES

ESTIMATED COST

Using local project examples, the planning level cost estimate for the full buildout of the Bike KC Master Plan network ranges from \$387 to \$418 million. All cost estimates include design, construction, inspection, staff time, and contingency estimates. Estimates were based on implementation of:

- 22nd/23rd Street's new construction costs
- Average cost of shared use path construction since 2009 as outlined in the 2018 Trail Facilities Nexus Study
- Armour Boulevard's parking protected bike lanes
- Grand Boulevard's buffered bike lanes
- N. Davidson Road's conventional bike lane
- Costs for signage and shared lane markings as reported by city staff



Individual project costs will be influenced by scale, material, design, inflation, etc. Furthermore, costs associated with implementation of Major Street Plan routes that do not exist or are currently on unimproved roadways only account for the additive costs of providing space for bicycle infrastructure and not the full cost of improvements to those roadways.

The 5-Year Priority Network's cost of \$100 million is based on installation of the recommended facility type and the achievement of a Level of Traffic Stress score of 1 or 2 whereby the average bicyclist would feel safe and comfortable. If implementation only included paint-only treatments, the cost of building out the 5-Year Priority Network would drop significantly to just under \$23 million. However, the use of paint-only treatments alone would not achieve a bikeway network that has the lowest levels of stress.

FUNDING & RESOURCES

Time and again throughout the Bike KC Master Plan planning process the community, city leaders, and elected officials stressed the critical nature of securing resources to fund the implementation of this plan. Reliance on federal funding and opportunistic road diet installations have not enabled the city to grow its bicycle infrastructure at a pace to keep up with national trends and local demands. The use of both existing and new resources must be strategically incorporated into any implementation program.

CURRENT TOOLS TO UTILIZE

2017 GO KC General Obligation Bond: In spring 2017 Kansas City voters passed a 20-year \$800 million bond package. \$450 million in bonds are dedicated to street and bridge work, and \$150 million to sidewalk investments. As roadways are constructed or reconstructed, complete street improvements will be made, including building Bike KC Master Plan recommendations. GO KC projects already planned and slated for construction that overlap with Plan recommendations are included in the 5-Year Priority Network. As future GO KC bond projects are planned, the City should prioritize roadway improvement projects to overlap with Bike KC and Trails KC routes over roadways that are not identified on those plans whenever possible.

1% Citywide Sales Tax: The "third leg" of funding city operations which generates over \$83 million per year for infrastructure maintenance and replacement was renewed in April 2018. In anticipation of needing additional resources for the implementation of the Bike KC Master Plan and other infrastructure needs, ballot language incorporated in the vote stated that of the total sales tax collected, "65% [shall go towards] capital improvements with at least 25% for street resurfacing, repair, and the construction of complete street facilities" which will become available after the existing debt tied to the tax is paid off.

Annual Street Resurfacing Program: A subset of the Citywide Sales Tax, over the past 10 years the annual street resurfacing program has received approximately \$11 million per year and has resurfaced roughly 218 lane miles citywide. Streets for resurfacing are currently selected based on the overall physical condition of a street and further refined based on conflicts with other projects or utility work. Information such as motor vehicle volumes or overlap with bike plan routes are not formally considered. The City's street resurfacing program can be a significant avenue for bike facility implementation if coordinated strategically.

Streets identified on the Bike KC Master Plan network should be formally considered as a selection criterion when creating the annual street resurfacing program. The annual resurfacing program should focus on installation of paint treatments, and vertical elements for major separation routes will most likely need to be supplemental to the annual resurfacing program.

In-District PIAC (Public Improvements Advisory Committee): Funded as a subset of the 1% Citywide Sales Tax, in-district PIAC funds provide each of the six council districts approximately \$4-6 million per year for capital improvements. This funding resource should be used for planning and design projects, the completion of less costly capital projects, temporary/demonstration installations, and to support the installation of vertical elements on major separated bikeways.

General Fund: Annually allocate funds for the development of the Bike KC Master Plan network and supportive programs. This resource should focus on capital investments, maintenance expenditures, and staffing needs.

Existing Federal Funding Resources (STP, CMAQ): Should continue to be utilized and sought after, however, they should not be relied upon as the primary source of funds to implement the network due to the complexities of its use for bicycle only infrastructure projects. When federal funds are utilized, ensure that local funds are available for required matches and for any contingencies that arise.

Congestion Mitigation Air Quality (CMAQ): Funds used to pay for transportation projects – including bicycle and pedestrian improvements – that improve air quality through the reduction of emissions in motor vehicles.

Surface Transportation Program (STP): Used to fund a variety of multimodal and roadway projects including alternative mode and safety projects.

Transpiration Alternatives Set-Aside (formerly TAP): A set-aside of the Surface Transportation Block Grant program, projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, and others are eligible.



Development Funds: Tax Increment Financing (TIF) Plan areas, Transportation Development Districts (TDD), & Community Improvement Districts (CID) capture tax increment or additional taxes for the benefit of a project area. Infrastructure improvements including wayfinding elements and on-road and end-of-trip facilities could utilize these development funds.

National or Local Grants: National organizations like People for Bikes and the Robert Wood Johnson Foundation and local organizations including the Health Forward Foundation and the Hall Family Foundation offer opportunities to support programmatic and built-environment change. These organizations and others should be routinely examined for opportunities to support the City's bike program.

Public Mass Transportation Fund: Approximately 95% of this fund currently goes towards the Kansas City Area Transportation Authority and the Kansas City Streetcar Authority. This fund is used for transportation purposes and is limited by statutory restrictions to support the public mass transportation system, construction and maintenance of streets, roads and bridges, acquisition of land and rights-of-way, and related planning and feasibility studies. This fund has annually contributed funds to Kansas City BCycle operations since 2012 and should continue to support active transportation activities throughout the City.

Neighborhood Tourist Development

Fund (NTDF): The Neighborhood Tourist Development Fund program provides support to non-profit organizations. Applications are accepted on an annual and quarterly basis. The City should encourage qualifying organizations whose events help promote the City's overall bike program to apply for these funds and should work with the NTDF Committee to provide feedback on applications.

NEW TOOLS TO PURSUE

In-lieu funds: Payments in lieu of certain development requirements such as vehicular and bicycle parking requirements could be used to help support a citywide bicycle parking program as further explained on pg. 114.

Shared Active Transportation Operations

Fund: Since mid-July 2018 dockless shared active transportation device companies have operated in the City under Operating Agreements which stipulate that they pay fees to operate their vehicles. As the City moves forward with Shared Active Transportation companies and operations, the fees collected through this fund should be used to support active transportation through the planning, design, and installation of on-street bike infrastructure including bike lanes and active transportation (bike/scooter) parking.



KANSAS CITY, MO



FORD GOBIKE, SAN FRANCISCO BAY AREA

Public/private in-kind partnerships and/or sponsorships: Corporate sponsorships to bike share systems are a commonplace occurrence. Notable examples of corporate sponsorships include New York City’s bike share system, CitiBike sponsored by CitiBank and the San Francisco Bay Area’s Ford GoBike sponsored by the Ford Motor Company. These types of sponsorships/partnerships should be expanded into other bicycle program efforts, especially end of trip facility and programmatic partnerships/sponsorships.

Impact Fees: Currently, impact fees are assessed on new development to assist in paying for additional roadway capacity required to accommodate development (Arterial Street Impact Fees). Developers also dedicate land for parks or pay a fee in-lieu of dedication (Parkland Dedication). A similar approach for assessing fees for the implementation of bicycle infrastructure based on the impact of development should also be studied and implemented if feasible.

1% of Transportation Infrastructure Costs for Bicycling: Inspired by the Municipal Art Commission’s 1% for Art, the 2008 Climate Action Plan suggested 1% of transportation infrastructure costs be dedicated for bicycle infrastructure. Upon discussion with the primary authors of the Climate Action Plan, two sources of recurring funds were identified to target the 1% allocation from moving forward. First, the citywide sales tax projects that are transportation related should contribute a minimum of 1% of their project costs (design and construction) to a pool of funds dedicated towards bicycle improvements. Secondly, the Public Mass Transportation Fund should annually dedicate 1% of its allotment to the same pool of funds towards bicycle improvements. This pool of funds can be utilized for both design and infrastructure improvements. Discussion of how to define this 1% and the use of its expenses is still needed.

ROLES AND RESPONSIBILITIES

ROLE: PROJECT LEVEL MANAGERS

Duties: Provide project level engagement and delivery



ROLE: BIKE PROGRAM/ACTIVE TRANSPORTATION CORE WORK TEAM COMPRISED OF MEMBERS OF THE CITY MANAGER'S OFFICE, PUBLIC WORKS, PARKS, AND PLANNING DEPARTMENTS

Duties: Provide input to the Bike Program/Active Transportation Coordinators and helps to oversee current and future project planning and delivery



ROLE: BIKE PROGRAM/ACTIVE TRANSPORTATION INFRASTRUCTURE COORDINATOR

Duties: Coordinate project prioritization and delivery across departments, assist in setting Council infrastructure priorities, and pursuing funding and delivery of projects. Co-coordinates BPAC



ROLE: BIKE PROGRAM/ACTIVE TRANSPORTATION PLANNING, POLICIES, AND PROGRAMS COORDINATOR

Duties: Participate in citywide long-range planning efforts, policy review/creation, bike plan and other active transportation oversight and program implementation, and coordinate citizen requests and planning level studies. Co-coordinates BPAC



ROLE: BPAC & PARKS BOARD

Duties: Ensures annual project & program delivery priorities are compatible with the priorities listed in the Bike KC Master Plan. BPAC should make an annual submission of bicycle projects and program priorities to staff and PIAC prior to the submission of the annual budget



ROLE: CITY COUNCIL

Duties: Provides oversight of annual bike program/active transportation budget requests

IMPLEMENTATION ROLES & RESPONSIBILITIES

For the Bike KC Master Plan to effectively move forward there must be efficient and clear collaboration between city departments, the city's Bicycle Pedestrian Advisory Committee (BPAC), and the community. No one single primary point of contact should bear the full weight of implementing infrastructure projects, policy goals, and other programmatic elements in the plan. This plan recommends formalizing three key action steps:

1. Official collaboration through an inter-departmental Memorandum of Understanding formalizing the creation of a Core Work Team, its work flow, authority, coordinating activities, and reporting duties
2. Development of a project prioritization processes and oversight, including coordination by Core Work Team with City Departments, City Council, BPAC & Parks Board to coordinate annual project priorities and budget requests
3. Formalization/Creation of Bike Program/ Active Transportation Planning Coordinator positions

COORDINATION

Many entities have influence over the development of the transportation network in Kansas City. MoDOT, MARC, KCATA, KC Streetcar Authority, and private developers all influence the look and usefulness of roadways in the City. As projects are developed, coordination of individual efforts is critical.

- Coordinate projects with the Core Work Team, especially on or intersecting Bike KC Master Plan Routes.
- Consider bicycle/active transportation improvements on all major transit projects, including streetcar expansion, even if not identified on the Bike KC Master Plan network.
- Approach the Bike KC Master Plan network strategically. Two implementation approaches are outlined in this plan – a Traditional 5-Year Priority Network and the Quick-Build approach – which are not mutually exclusive. BPAC and the Core Work Team should work together with the City Council on the benefits and drawbacks of each implementation strategy.
- Some corridors on the Bike KC Master Plan Network are important to regional plans (such as the Greater Kansas City Bikeway Plan, Metro Green, and the Kansas City Metro Area conceptual strategy for development at the Santa Fe, Oregon, and California National Historic Trails, etc.) and may have national and statewide significance. As these plans are updated periodically, coordinate with MARC to reflect changes and track progress.



MAINTENANCE AND OPERATION

Routine maintenance of bicycle facilities is important to its overall usability and success and will require additional funding and personnel over time. Bicyclists are particularly sensitive to roadway conditions, and the maintenance of bicycle facilities influence the rider's comfort. Proactive maintenance strategies and facility lifecycle planning must be a part of the overall bicycle program to ensure added success. Particularly, issues including but not limited to sweeping, snow and leaf removal, sign, paint, asphalt conditions, and replacement of key vertical barriers. Furthermore, as development, special events, and routine street maintenance activities often impact regular street operations through lane or road closures, accommodating bicyclists through temporary means is also necessary.

General Recommendations:

- Integrate bicycle facility maintenance into project development. (*Ongoing*)
- Ensure that proper drain gates are included

in the design of new bicycle facilities. (*Ongoing*)

- Regularly/Annually check for and repair potholes within bicycle facilities. (*Short-term*)
- When crack seal preservation treatments are completed on bicycle routes ensure tar is minimally raised above the pavement since raised and hardened crack seal negatively impacts cyclists' ability to comfortably ride on the roadway. (*Ongoing*)
- Explore formal agreements with CIDs and large property owners to regularly sweep debris and clear snow from bicycle facilities. (*Mid-term*)
- Develop requirements for construction activities along Bike KC network routes to ensure safe bicycle use in the area continues. Steel plates, constrained roadway conditions, and construction debris that negatively impact bicyclists' safety. (*Mid-term*)



COVERED BIKEWAY IN NEW YORK CITY



GRAND BLVD, KANSAS CITY, MO

- Special events across the city are routine and help make Kansas City a special place for residents and visitors alike. Bicycle facilities are travel lanes and should require lane closure permits, detour plans and signage for bicycle routes when organizers obtain the traffic control permits. Cyclists must dismount their bicycle when walking through temporary pedestrian walkways if dedicated bicycle areas are not able to be accommodated. (*Long-term*)
- Require and promote secured/monitored short term bicycle parking at large special events through the permitting process. (*Long-term*)

Shared Streets & Minor Separation

- Since Shared Streets and Minor Separation routes do not use any vertical elements in the roadway, traditional roadway maintenance strategies may generally be employed on these routes. (*Ongoing*)

Major Separation

- Prior to the installation of Shared Use Path facilities outside of the curb line, ensure funding and maintenance agreements are in place with appropriate entities. (*Ongoing*)
- As more miles of major separated facilities are installed, purchase equipment to sweep and plow protected facilities. (*Near-term*)
- Develop a plan to routinely clear major separated facilities of debris. (*Near-term*)
- For emergency snow operations, create a plan of action for clearing a priority bikeway network as part of overall roadway

clearing operations. (*Near-term*)

- Whenever possible, design facilities to accommodate a truck plow (8'). (*Ongoing*)
- Budget for the maintenance and replacement of vertical protected barrier elements. (*Medium term*)
- Ensure that traffic signals along the Bike KC network accommodate bicyclists, especially as facilities are planned and installed and adjust detection zones as necessary. (*Ongoing*)

311 Action Center

- Bicyclists and other road users should file maintenance and repair requests or report hazardous conditions to the city's 3-1-1 system. Specific locations, explanations of condition, and photographs help expedite responses. (*Near-term*)
- Train 3-1-1 representatives on bicycle related issues to assist and ensure proper routing of calls. (*Near term*)
- Track and annually report on 3-1-1 bicycle related calls. (*Ongoing*)



ARMOUR BLVD, KANSAS CITY, MO



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMMUNITY ORGANIZATION	BUSINESS/ NEIGHBORHOODS		
IMPLEMENT THE 5-YEAR PRIORITY BICYCLE NETWORK	Study and implement the recommended bicycle infrastructure as recommended in the 5-Year Priority Network	X	X			ONGOING	HIGH
	Annually work with BPAC and the Parks Board to create a project priority list each year and approve through resolution	X	X			ONGOING	HIGH
	Develop project implementation workflow	X	X	X		SHORT-TERM	HIGH
	Continually learn from project implementation and evaluation	X	X	X		ONGOING	N/A
	Coordinate with the Parks Department on Historic Parkways & Boulevards to ensure the historic designation is not compromised	X	X			ONGOING	N/A
	Take local community considerations into account and considered against the goals, objectives, and desired outcomes of the plan during project development	X	X	X	X	ONGOING	N/A
	Prioritize funding for concept & design studies strategically, as led by the Core Work Team in consultation with BPAC	X		X		SHORT-TERM/ ONGOING	N/A
	Large capital projects (GO Bond projects) should prioritize Bike KC Master Plan network routes - especially the 5-Year Priority Network	X		X	X	ONGOING	HIGH



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
(CONT'D)	Coordinate the annual resurfacing program with the bike program/active transportation infrastructure coordinator to help prioritize bike network routes. The City's resurfacing program should consider as a prioritization criterion resurfacing of roadways that overlap with the bicycle plan whenever possible. The resurfacing program will accommodate paint-only treatments; vertical elements or more intense design will need to be funded through a variety of sources	X				SHORT-TERM/ONGOING	LOW
	Unimproved or non-existent roadways are not priorities of the Bike KC Master Plan network but are included to ensure proper guidance is provided if opportunities for constructing those roadways arise	X	X	X	X	LONG-TERM	LOW
	Strategically coordinate project prioritization, funding, and maintenance on roadways overseen by MoDOT or that lead into or through adjacent communities	X	X			ONGOING	MEDIUM
	Utilize design/build contracts as a tool for quicker implementation	X				SHORT-TERM/ONGOING	MEDIUM



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMMUNITY ORGANIZATION	BUSINESS/NEIGHBORHOODS		
(CONT'D)	For bicycle facilities in commercial areas and mixed-use neighborhoods, account for delivery vehicle parking needs during the design process	X			X	ONGOING	N/A
	Ensure developments do not front motor vehicle parking entrances and service/delivery entrances onto Bike KC routes whenever possible. If constrained conditions exist that require fronting of motor vehicle parking onto a bike route, ensure entrance/exit locations are consolidated	X			X	ONGOING	N/A
	Use on-street parking as a cost-effective buffer for major separated facilities where appropriate. Supplement with low-cost delineators as needed	X	X		X	ONGOING	MEDIUM
	Install bicycle detection at traffic signals in new bikeway projects and as a part of all major street repair/replacement projects	X	X			ONGOING	LOW
	Work with emergency service responders to plan and design bicycle infrastructure	X	X		X	ONGOING	N/A

STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMMUNITY ORGANIZATION	BUSINESS/ NEIGHBORHOODS		
(CONT'D)	Consider the quick-build approach in lieu of (or in addition to) the traditional 5-Year priority network implementation approach	X	X	X	X	MID-TERM	HIGH
TEST ROADWAY DESIGN CONDITIONS ON DIFFICULT CORRIDORS	Partner with local organizations and community groups to conduct tactical urbanism/ demonstration projects and test and evaluate new roadway conditions and bicycle facilities	X	X	X	X	SHORT-TERM/ ONGOING	HIGH
	Test traffic conditions (volume, speed, etc.) during peak travel times to understand impact of proposed roadway designs	X	X			SHORT-TERM/ ONGOING	MEDIUM
	Collect data from tactical urbanism/demonstration projects and peak time lane closures	X	X			SHORT-TERM/ ONGOING	HIGH
	Use collected data to inform community conversation and facility design	X	X			SHORT-TERM/ ONGOING	LOW
	Use innovative bikeway/ roadway/intersection designs and study their impact and effects	X	X			ONGOING	MEDIUM



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMMUNITY ORGANIZATION	BUSINESS/NEIGHBORHOODS		
ENSURE THAT THE BIKE KC MASTER PLAN REMAINS USEFUL	Update the Plan every five years, including adjusting the network based on buildout and analysis of the 5-Year Priority Network, overall community goals, lessons learned, and programs/policies that have been implemented or are needed	X				MID-TERM	MEDIUM
	Bikeway design, technology, and policy issues are quickly evolving. Ensure that industry changes and best-practices are reflected in the bike program even if not referenced in the Bike KC Master Plan	X	X	X	X	ONGOING	LOW
	Consult the Bike KC Master Plan when preparing to build new roadways or conduct major upgrades/expansions to city streets that are not at city standards	X	X			ONGOING	HIGH
UTILIZE THE RESURFACING PROGRAM TO IMPLEMENT THE BIKE KC NETWORK	Use the resurfacing program as a tool to implement the network through road diets and installation of minor separated facilities and pavement markings. On routes identified as major separated facilities, the resurfacing program should install paint only treatments	X				SHORT-TERM/ONGOING	HIGH



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMMUNITY ORGANIZATION	BUSINESS/NEIGHBORHOODS		
(CONT'D)	The resurfacing program should prioritize work on Bike KC network routes, particularly the 5-year priority network	X				SHORT-TERM/ONGOING	HIGH
	Funding for more complicated design, signal upgrades, and vertical elements should come from additional sources to help supplement the resurfacing program's budget	X				SHORT-TERM/ONGOING	HIGH
	The street resurfacing program should include the bike program/active transportation infrastructure coordinator in the annual resurfacing prioritization	X				ONGOING	HIGH
RECOGNIZE THAT STREETS HAVE A VARIETY OF NEEDS	A comprehensive mobility plan should be completed to identify network priorities, efficiencies, and all system connections	X	X	X	X	MID-TERM	MEDIUM
	Develop a multimodal corridor decision making process through the development of the comprehensive mobility plan	X	X	X	X	MID-TERM	MEDIUM
	Evaluate the inclusion of safe bicycle accommodations on arterial roadways	X	X			ONGOING	MEDIUM
	Bikeway recommendations on Parkways and Boulevards must be approved by the Parks Board in addition to BPAC, especially as it relates to the historic parkway and boulevard system	X	X			ONGOING	LOW



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
FUND BICYCLE INFRA-STRUCTURE PLANNING, DESIGN, AND CON-STRUCTION	Allocate funds annually for the implementation of bicycle infrastructure	X				ONGOING	HIGH
	Use tools such as Planning Sustainable Places grants and PIAC to conduct concept studies and design work	X		X	X	SHORT-TERM/ ONGOING	MEDIUM
	Use existing and new funding resources to plan, design, and build infrastructure	X	X	X	X	ONGOING	HIGH
	Work with appropriate departments to define and implement the 1% of transportation funding for bicycle facilities funding mechanism as recommended in the Climate Action Plan	X				MID-TERM	MEDIUM
ESTABLISH APPROPRI-ATE BIKE PROGRAM STAFFING	Designate formal bike planning and programming duties, including the formalization of bike program coordinator positions as recommended in pg. 100	X				SHORT-TERM	HIGH
	Execute an inter-department memorandum of understanding formalizing the creation of the Core Work Team	X				SHORT-TERM	HIGH
	Codify the roles and responsibilities workflow	X				SHORT-TERM	HIGH



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
COOR-DINATE BICYCLE NETWORK IMPLEMENTATION WITH PARTNERS	Provide BPAC with regular project updates	X	X	X	X	ONGOING	HIGH
	Utilize the project criteria and consideration components when planning bicycle projects	X	X			ONGOING	LOW
	Develop a standard bicycle project delivery process	X				SHORT-TERM	HIGH
	Work with the KCATA to develop standard bicycle/bus interactions and bike parking at stops	X	X			MID-TERM	MEDIUM
	Emergency vehicle response personnel should be a part of the design of bicycle facilities, particularly on bicycle boulevard candidate street designs as access management is a significant contributor to the success of a bicycle boulevard	X	X			ONGOING	LOW
	Work with KCATA and other large-equipment operators on information and training related to the planning and implementation of new infrastructure	X	X		X	MID-TERM	LOW



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
MAINTENANCE & OPERATIONS	Conduct routine maintenance of bicycle facilities to ensure bicyclists can safely operate within them	X	X			SHORT-TERM ONGOING	HIGH
	Develop comprehensive maintenance strategy	X	X			SHORT-TERM ONGOING	HIGH
	Purchase equipment to sweep and plow protected bike lanes	X				SHORT-TERM	HIGH
	Explore maintenance agreements with CIDs and large property owners to conduct sweeping and clearing activities	X	X	X	X	SHORT-TERM ONGOING	MEDIUM
	Develop a standard practice for street closure detours and construction activity along Bike KC routes	X	X		X	SHORT-TERM ONGOING	MEDIUM
	Annually budget for ongoing maintenance issues with bicycle facilities	X	X			ONGOING	MEDIUM
	Train 311 representatives on bicycle related complaints and service routing	X				SHORT-TERM	HIGH
	Require and promote secured short term bicycle parking at large events. Develop permitting process	X	X	X		MID-TERM/ ONGOING	LOW

End of Trip Facilities, Programs, and Policies



"I am really excited about the momentum our region is taking and it's starting to change so that we are considering alternative forms of transportation."

"There are a lot of people who rely on bikes to get around and I think the bike plan is a great way to coalesce a bigger vision, a bigger strategy about how to solidify KC as a bicycling city."

/ MAGGIE AND KAREN



PALO ALTO, CA



KANSAS CITY, MO



KANSAS CITY, MO

To more fully support bicycling in Kansas City, investments in end-of-trip facilities, programs, and policies that help to educate and encourage the public are needed. This chapter provides an overview of end-of-trip infrastructure that supports a bicyclist's journey to completion and programs and policy recommendations that support bicycling in the community.

END OF TRIP SUPPORT

Bike Parking

Easily accessible and plentiful bicycle parking is necessary to assist in growing bicycle ridership citywide. Providing parking near popular destinations including employment, retail and other commercial areas, and community destinations ensure bicycling is a viable mode. Secure bicycle parking should not be considered an amenity, but a critical part of the City's transportation network. Furthermore, as shared active transportation devices such as dockless scooters and e-bicycles become

more prevalent in Kansas City, the need to manage parking for those devices is important. The following strategies and action steps will continue to support bicyclists and shared active transportation device users through the completion of their trip:

- Create a citywide "request a rack" program. Annually, the City should purchase and install bicycle racks based on property owner and business requests. The establishment of an in-lieu fee option for certain bicycle parking or vehicle parking spaces could help fund this citywide "request a rack" program. The City of Austin's Bicycle Rack Program, for example, was established to help retroactively-install bicycle parking serving businesses and buildings built prior to the City Code bicycle parking requirements and have resulted in roughly 4,000 bicycle racks installed throughout the City of Austin according to the 2014 Austin Bicycle Plan.



KANSAS CITY, MO



AUSTIN, TX



FT. COLLINS, CO



KANSAS CITY, MO

- Examine the City's development code to ensure it reflects best practices as they relate to bicycle parking requirements and incentives in development projects based on use, surrounding land use context, and anticipated bicycle demand.
- Consider adding shared active transportation device parking to contribute to city code specifications that allow vehicular parking reductions (88-420-16-K).
- Consider implementing vehicular parking maximums in developments along implemented low-stress Bike KC master Plan network routes and high capacity transit routes.
- Require attended bicycle and shared active transportation device parking at special events through the special event permitting process. Guidelines for organizers and thresholds for requiring special event parking must be developed.
- Promote the installation and use of on-street bike parking and shared active transportation device parking. Bike corrals can accommodate up to ten bicycles or scooters in the same space required for one motor vehicle. The City should support the installation and maintenance of bike and scooter parking and should ensure that proper application process, fees, and maintenance agreements are established. The use of shared active transportation



ridership data and proximity to Bike KC routes should inform the placement of bike and scooter parking.

- Use the Association of Pedestrian and Bicycle Professionals “Bicycle Parking Guidelines” and “Essentials of Bike Parking” to develop appropriate standards for in-street bike and scooter parking.
- Develop a community application for bike corrals. Denver, Los Angeles, and Philadelphia provide good examples for this.
- Coordinate review and approval of bike or scooter parking facilities located along streetcar corridors with the KC Streetcar Safety and Security Review Committee.

Showers and Changing Facilities

Showers and changing/dressing facilities, especially at/near centers of employment are important to support bicycling as a means of everyday transportation and help to both reduce the barrier encountered by people who may be concerned with personal hygiene at the end of a bicycle trip and can help benefit employees who wish to exercise during break periods. Currently, the City Planning and Development Director can authorize a 15% reduction in the number of required off-street vehicle parking spaces for developments or uses that make special provisions to accommodate bicyclists, such as the inclusion of enclosed bicycle lockers, employee shower facilities, and dressing areas for employees

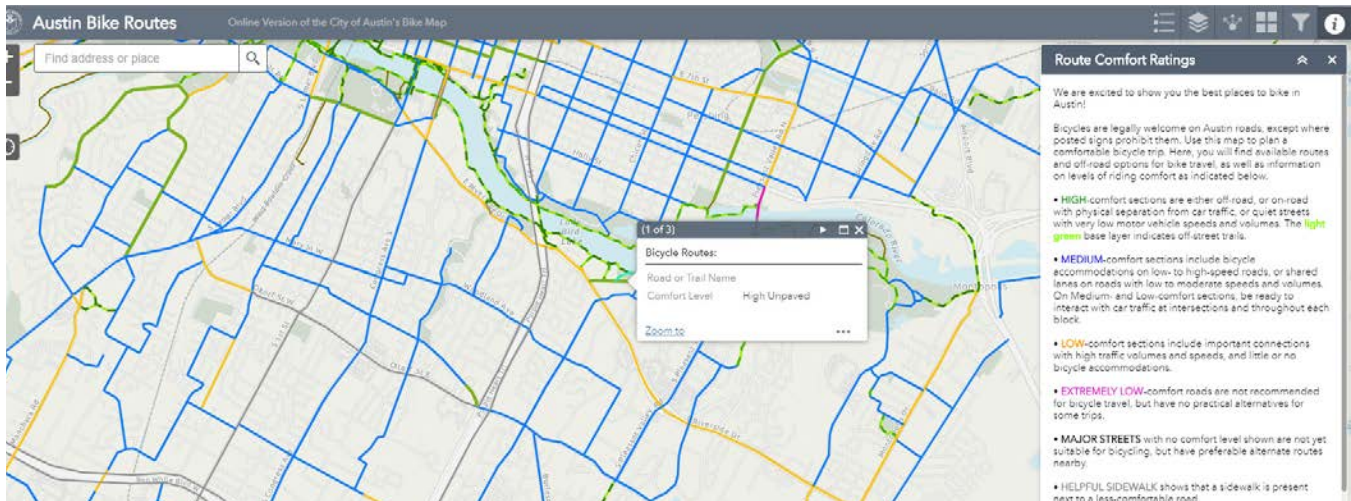


BENTONVILLE, AR BICYCLE REPAIR STATION

(88-420-16-K). The City should encourage developments to take advantage of this provision and look at other ways to incentivize and/or require shower and changing facilities in future developments. **The City should also act as a model employer by retrofitting City buildings to include shower and changing facilities to support active transportation and healthy lifestyles for employees.**

Bicycle Repair Stations

Publicly available bicycle repair stations empower bicyclists and provide support in the event a minor repair is needed along a trip. The Kansas City Parks and Recreation Department has installed bicycle repair stations on many Trails KC routes and should continue to do so. As major bikeway projects are planned, designed, and implemented on the Bike KC network, bicycle repair stations should be considered for project inclusion and installation.



AUSTIN, TX ONLINE NETWORK MAP

PROGRAMS

As more bicycle infrastructure is introduced into the City's fabric, educational, encouragement, enforcement, and other activities that promote bicycling will help boost Kansas City as a bicycling community. These types of programs benefit not only bicyclists but will help all members of the community understand bicycling's place in the City. The following are suggestions of programs that broadly support bicycle use.

Create and distribute physical Bike KC Master Plan network maps

Maps should include information on safe riding practices, rules of the road, network information, and other relevant facts. Many good examples exist, including the 2013 Bike KC map, Bike St. Louis Map, and the New York City bike map. Work with MARC, KCATA, local institutions and advocacy groups, and local bicycle shops for distribution.

Develop and launch digital Bike KC network map and mobile app

These interactive online platforms should provide information on trip planning, routes' level of comfort, planned and constructed infrastructure, closures/detours, etc. The city of Austin, TX serves as a good example.



NYC BIKE MAP COVER



Educate both the community and professionals about new bicycle infrastructure throughout the planning and installation process

- Develop “Bicycling 101” materials to educate the community on a wide variety of bicycle related issues, including new routes, technologies, and policies.
- As bicycle facilities are planned and developed, create and distribute educational materials and conduct safety campaigns to communicate information on new infrastructure and bike network usage to local community including residents, workers, and commuters.
- Work with City departments, the KCATA, and utility companies on large equipment operator educational materials, demonstrations, and trainings.

- Ensure that emergency services responders are part of the planning and development process for new bicycle facilities.
- As the City looks to the Bicycle Pedestrian Advisory Committee for advisement, BPAC should regularly help to educate citizens on the City bike program, industry best practices and supportive programs.

Work with the KCPD to create a voluntary bicycle registry

In case of theft or reclamation of abandoned property, KCPD should create a voluntary bicycle registry that records the make, model, and serial number of bicycles to use as proof of ownership in case of theft or reclamation of abandoned property.

Coordinate and provide bicycle education for both school-aged students and adults who are interested in bicycling

Work with local organizations such as BikeWalkKC, Cycling Kansas City, Revolve KC, and others who already offer extensive education & access programs. Specific programs to help coordinate delivery include:

Safe Routes to School Program (SRTS): Safe Routes to School is a national program focusing on improving the health and safety of students and communities through activities, programs, and infrastructure investments that facilitate walking and bicycling to school. Partnerships with city departments, the police department, local school districts, students, parents, and community members can help



ARMOUR BLVD EDUCATIONAL MATERIAL

prioritize infrastructure and program delivery. The City should actively participate in Safe Routes to School projects.

International Bike to School Day and Walk to School Day: Bike to School Day occurs in May and International Walk to School Day occurs in October.

BLAST (Bicycle Lessons and Safety Training): Partner with local elementary school for in-school safe bicycle riding and handling skills. In 2017, more than 4,800 students in 33 school received training through BikeWalkKC's program ^{xiii}.

Earn-A-Bike and Bike Club Programs: Teaches basic bicycle maintenance and mechanical skills, and upon completion of the program students receive a bicycle and helmet.

RiDE & Confident City Cycling: Programs aimed at teaching bicycling basics including rules of the road and bicycle maneuvering to adults.



Photo: BikeWalkKC

BIKEWALKKC BLAST PROGRAM

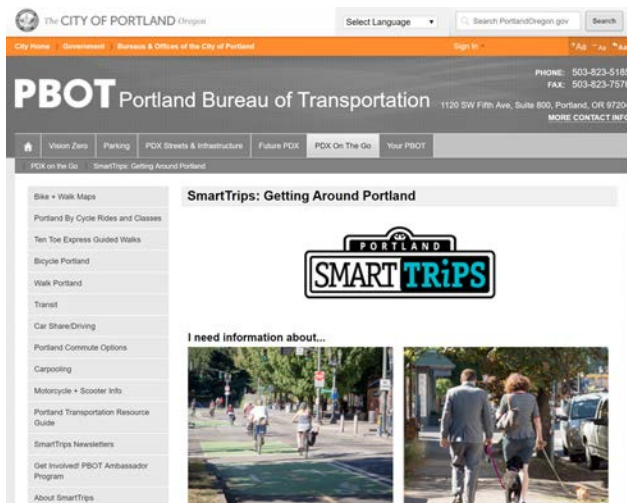
Establish a Smart Trips pilot program

Smart Trips programs reduce the number of drive-alone trips and encourage residents to walk, bike, and take transit in various target neighborhoods through an individualized marketing and education program. Resources such as maps and toolkit tote bags, events like bike and transit rides and walking tours, and individualized trip planning are key components to the program. Smart Trip programs work specifically with populations who are **interested but concerned** and



Photo: BikeWalkKC

2015 BIKE TO SCHOOL DAY - WHITTIER ELEMENTARY



PORTLAND SMART TRIPS WEBSITE

help the city maximize its investments in bicycling and other infrastructure by helping local residents understand their available transportation options in local context. Dedicated program staff and resources – along with partnerships from other agencies and non-profit groups – would be necessary to implement this hands-on program. A training curriculum for developing a Smart Trips program has been developed by the Association of Pedestrian and Bicycling Professionals and could be a valuable starting point resource.

The city of Portland, Oregon serves as a model Smart Trip program. Annually, \$250,000 of public money since 2005 has been invested in the Portland Bureau of Transportation's SmartTrips program, and has leveraged \$200,000 in grants, sponsorships, and donations. In target neighborhoods, drive-alone trips have reduced between 7-21% per year ^{xiv}.



OAK ST BETTER BLOCK KC DEMONSTRATION

Participate in the League of American Bicyclists Bicycle Friendly Communities program

This program provides feedback on communities' bike friendliness based on evaluation of infrastructure policies. The last ranking achieved by the City was Bronze in 2016, and the report card provided suggested steps to take to achieve a Silver designation, including strengthening the City's complete streets policy, creating a bicycle count program, hiring a Safe Routes to School coordinator, and updating the bike plan. While the City should continue to work towards Platinum designation ultimately, the City should achieve Silver status by 2024. Applications are due every three years - so the next application to submit is Fall 2019.



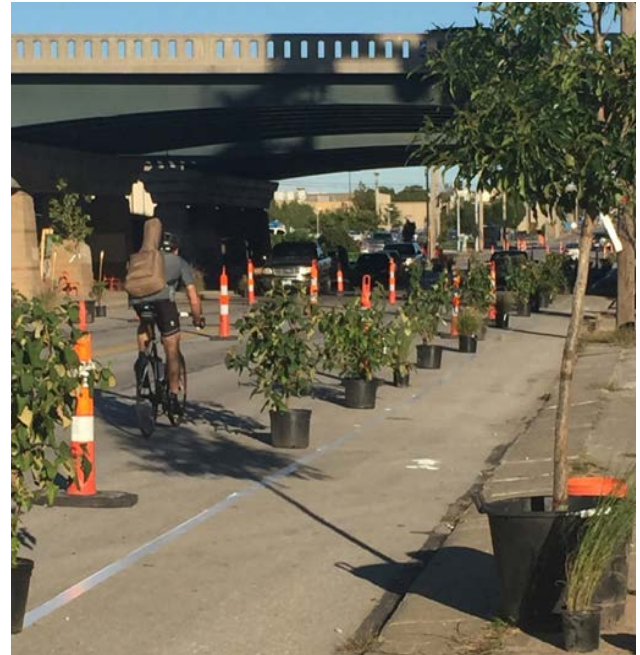
BIKE KC MASTER PLAN
DEMONSTRATION EVENT

Participate in the League of American Bicyclists Bicycle Friendly Business program

Encourage League of American Bicyclists Bicycle Friendly Business program participation by local businesses. Through this program, local businesses and corporations are evaluated and recognized on their ability to accommodate and promote a culture and climate of bicycling. Like the Bicycle Friendly Communities program, businesses are provided technical assistance on how to become more bicycle friendly with the goal of improving a business's bicycling accessibility, promotion and awareness.

Promote and facilitate special events and campaigns

Special events and campaigns should excite people about bicycling and inform the community at large about its place in the City.



18TH ST BETTER BLOCK KC
DEMONSTRATION

Consider including:

Street Demonstration/Closure Events: Partner with Better Block KC and other organizations to conduct regular street closure events for non-automobile use. Events should include temporary demonstration projects highlighting potential roadway changes through enhanced bikeway and pedestrian accommodation. Recent example demonstration events in Kansas City over the past year include:

- Better Block KC Oak Street Mobility Lane Demonstration
- KCMO Bike Plan Demonstration Cycle track
- Better Block KC/Troost Coalition/ KCMO Troost Bikeway Demonstration

Car-free street events/open street events, "ciKClovía": Inspired by La Ciclovía in Bogota,



Colombia which has closed many of the city's busiest streets to automobile traffic each Sunday for four decades to promote activation of streets as public space for active use (walking, bicycling, etc.), many cities – including Kansas City, Missouri's Ward Parkway Open Streets event in 2015 – have held regular open streets events. Many cities conduct these open streets events on a regular basis each year, including example events:

- New York City Summer Streets: This event closes seven miles of streets in Manhattan from the Brooklyn Bridge to Central Park to automobile traffic for three consecutive Sundays in August each year. Activities are coordinated along the entire route and are free of charge to residents and visitors alike. The Summer Streets are coordinated by the New York City Department of Transportation and celebrated its tenth anniversary in 2017.



NYC SUMMER STREETS EVENT

- CicLAvia: CicLAvia is a non-profit 501(c)3 organization that has been conducting open street events throughout Los Angeles since 2010. Nearly 160 miles of streets through 24 events have temporary closed streets to car traffic and allowed the space to be used as a public park to create safe walking, biking, dancing, etc.

Bike Month events: Annually partner with MARC and other organizations for Bike Month



CicLAVIA EVENT

ell Photography



RIDEKC E-BIKE

(May) events and programs, including Bike to Work Day and Bike to School Day events.

POLICIES

In addition to programs that encourage and support bicycling in Kansas City, policies influence how the City will grow as a bicycling community. Policies should seek to prioritize mode shift, protect vulnerable road users, and create a framework that supports active transportation decision making.

Enforcement

An effective enforcement strategy will help ensure the continued safety of bicyclists and the usability of new infrastructure. Bike program staff and project managers should work with KCPD and other law enforcement on the following:

- Develop a standard three phased enforcement strategy – education, warning, and penalization – for new infrastructure or policies.
- Reduce bike lane blockages by private vehicles and delivery vehicles.

- Target traffic enforcement on Bike KC routes where infrastructure is newly installed and where high collision areas exist.
- Create diversion program or mandatory awareness/educational course for motorists that receive citations involving bicyclists.

Support new technologies and shared active transportation systems expansion and ridership in Kansas City

While the Bike KC Master Plan was under development, shared active transportation companies Bird and Lime entered the Kansas City market with free-floating, dockless small vehicles (scooters). Additionally, KCATA and BikeWalkKC partnered in Fall 2018 to launch smart (dockless) electric bikes, RideKC e-bikes. These new technologies and transportation models have injected enthusiasm into the Kansas City community for new modes of transportation and has heightened the need for safe, supportive infrastructure. The City should learn from this rapidly evolving field and welcome its presence in Kansas City.

- Launch a year-long shared active transportation pilot program to evaluate its impact and effectiveness. At the end of the pilot program, a comprehensive framework for the rules, regulations, and operations of shared active transportation small vehicles should be established.
- Utilize shared active transportation data in citywide capital project planning and policy creation.



- Annually provide funds for maintenance and expansion of traditional dock-based bike share operations from the Public Mass Transportation Fund. While dockless technologies are transformative to the mobility landscape, the City must ensure greater access to bike share through supporting traditional dock-based infrastructure.
- Coordinate with shared active transportation providers on service delivery and community outreach.
- Work with the Law Department and BPAC to develop regulations for the use of Electric Bikes on citywide bicycling infrastructure. Electric Bikes (E-Bikes) are a type of bike with a low-speed electric motor that can make climbing hills and going longer distances easier for cyclists. E-bikes look and function comparably to traditional bicycles. There are three classes of e-bikes:

Class 1 e-bikes (also referred to as pedal assist) have a motor that assists the bicyclist as they pedal. Top speeds are generally 20 mph and are generally comparable to edal bike speeds.

Class 2 e-bikes have a throttle-assisted motor and cap the assistance provided to the cyclist at 20 mph.

Class 3 e-bikes have a motor that assists the bicyclist as they pedal. Top speeds are generally 28 mph and should only be used in shared vehicle travel lanes.

Data

Data collection, use, and communication is an ever-evolving field much in the same way that shared active transportation is. For active transportation planning and programming data is necessary to help understand the impact of the infrastructure and initiatives.

- Make all city bicycle-related GIS data publicly available, and publish other relevant data (usage counts, crashes, etc.).
- Utilize new technologies' data in citywide capital project planning and policy creation, including the use of mobile phone data and shared active transportation vendor data.
- Use smart-city infrastructure to collect data and for project evaluation.



BICYCLE COUNTER IN FT. COLLINS, CO

- Develop and implement an annual comprehensive bicycle and pedestrian count program as recommended by the FHWA, the Association of Pedestrian and Bicycle Professionals, and MARC.
- Work with the Public Works and Parks and Recreation Departments, BPAC, and MARC to identify locations for permanent/continuous short-duration data collection. Purchase counter equipment as necessary.
- Collect short-duration data before and after installation of bicycle facilities.
- Work with partner agencies including the KCATA and the Kansas City Streetcar Authority to regularly collect and utilize bicycle usage data.
- Use temporary road closures and special events (including festivals and temporary roadway demonstration projects) as opportunities to collect additional bicycle and pedestrian count data and behavior.
- Work with local advocacy organizations and volunteers to hold bicycle and pedestrian count workshops to assist with short-term data collection.

Comprehensive Plans

As the City seeks to further develop transportation and mobility a comprehensive mobility plan should be conducted. The development of a comprehensive mobility plan should both influence and be influenced by any updates to the City's comprehensive plan,

FOCUS, and should involve partner agencies such as the KCATA, KC Streetcar Authority, MARC, and MoDOT among others. Items to consider in both efforts include:

- Establishment of an overall vision for mobility
- Development of a multimodal decision-making process
- Identification of key corridors for all modes
- Curb lane management strategies
- Comprehensive parking strategies
- Identification of catalytic projects
- Transportation equity and developing technologies

Create a Complete Streets Design Manual

In 2017 the City passed a comprehensive Complete Streets ordinance, which included a directive that the City must develop and update on a decennial basis a context sensitive comprehensive complete street design manual. This design manual will translate the intent of the Complete Street ordinance into specific design guidance and should inform updates to any adopted design standards utilized by the city's Public Works, Parks & Recreation and Water Services Departments. As more bicycle facilities are developed in the coming years, this context sensitive design manual will be a useful tool in how bicycle facilities are designed in the city.



WAYFINDING IN FT. COLLINS, CO



CULTURAL TRAIL WAYFINDING IN INDIANAPOLIS, IN

Develop Comprehensive Bicycle Wayfinding

Wayfinding elements help bicyclists understand where bike facilities lead (destinations), and when and where to make decisions on their trip. The City should work with MARC, BPAC, and the community to:

- Develop a comprehensive strategy for bicycle wayfinding, including the development of signage that includes distance and direction to major destinations
- Enhance existing wayfinding to include new destinations and route connections
- Coordinate with major institutions, MARC, KCATA, and the KC Streetcar to encourage cohesive signage and information sharing
- Ensure that wayfinding is a component of each active transportation project

Become a Vision Zero City

Approximately 40,000 people are killed in traffic deaths on US roadways annually. To address this, cities across the country have adopted Vision Zero policies that aim to eliminate all traffic related fatalities through roadway design, policies, educational, and enforcement strategies. Vision Zero efforts set specific timelines and strategies to eliminate traffic deaths. Key elements of Vision Zero's philosophy include:

- Traffic deaths and severe injuries are preventable and basic safety is a right for all people as they travel throughout the city.
- A collaborative, multidisciplinary approach to addressing traffic safety issues is necessary. Engineers, planners, police officers, policy makers, public health

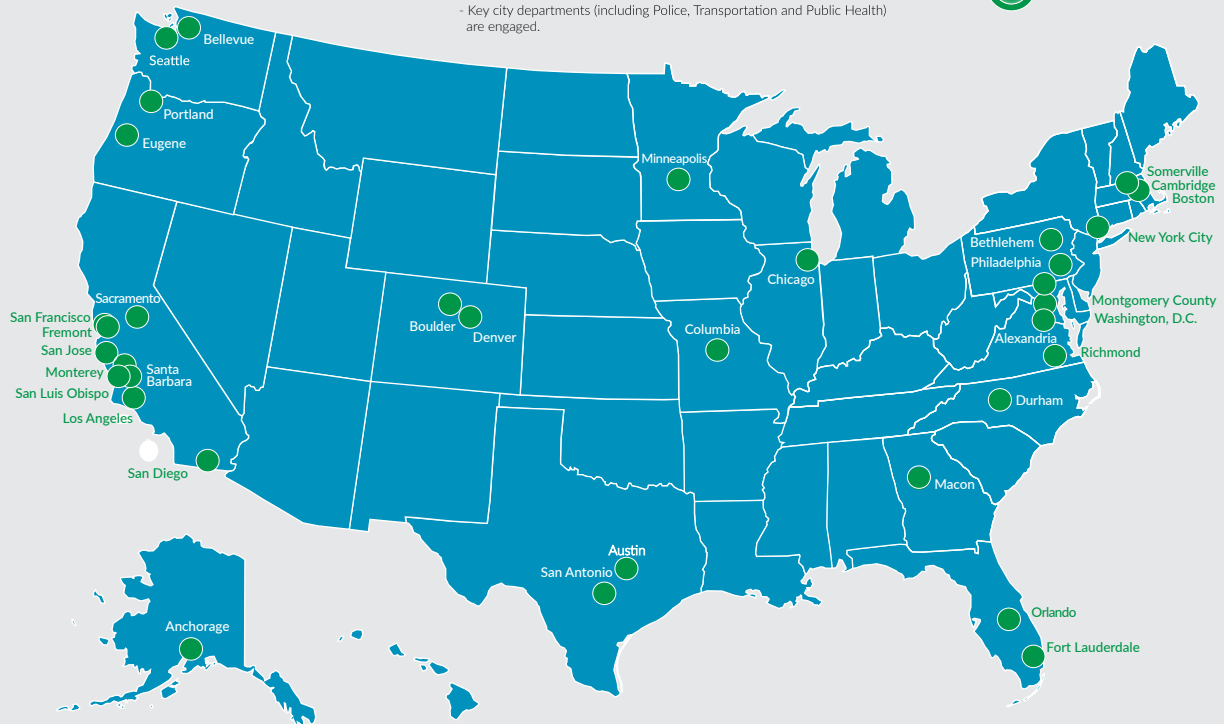
Vision Zero Cities

A Vision Zero City meets the following minimum standards:

- Sets clear goal of eliminating traffic fatalities and severe injuries
- Mayor has publicly, officially committed to Vision Zero
- Vision Zero plan or strategy is in place, or Mayor has committed to doing so in clear time frame
- Key city departments (including Police, Transportation and Public Health) are engaged.



Vision Zero City



Source: Vision Zero Network, visionzeronetwork.org/resources/vision-zero-cities

professionals, advocates, and community members all have important and valid perspective on this complex topic.

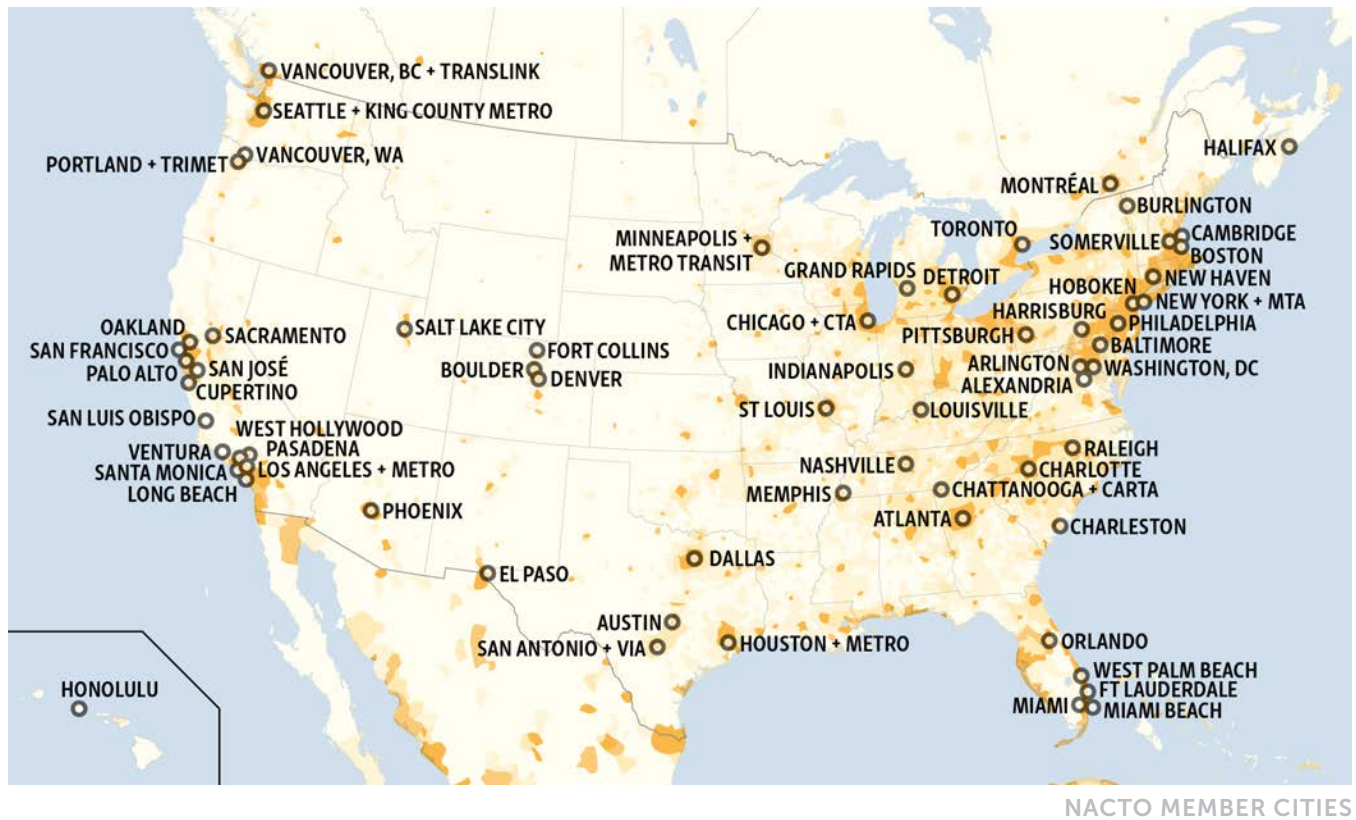
According to the Vision Zero Network and National Coalition for Safer Roads, Kansas City was ranked 10th in the country for the most speed-related fatal crashes between 2010-2015 based on National Highway Traffic Safety Administration data ^{xv}. Traffic fatalities and serious injuries should not be accepted as the norm. To become a Vision Zero City, the following minimum criteria must be met:

- A clear goal of eliminating traffic fatalities and severe injuries has been set.

- The Mayor has publicly, officially committed to Vision Zero.
- A Vision Zero plan or strategy is in place, or the Mayor has committed to doing so in clear time frame.
- Key city departments (including police, transportation, and public health) are engaged.

The City should become an official NACTO full member city

NACTO: the National Association of City Transportation Officials is made up of more than 60 major cities in North America who's



mission is to “build cities as places for people, with safe, sustainable, accessible and equitable transportation choices that support a strong economy and vibrant quality of life^{xvi}.”

NACTO’s practice prioritizes street design that emphasizes people walking, biking, and taking transit. While current membership costs \$17,500 per year (as of 2018) for a city of Kansas City’s size there are a multitude of benefits that NACTO membership provides. Some of the benefits of membership include:

- Regular technical assistance and peer city learning opportunities. While writing this plan, conversations with officials from peer cities such as Austin, TX indicated this is an exceptional resource. As Kansas City begins building new and unique infrastructure

that will challenge our current practices, this peer network will be a critical resource for city staff when technical and policy questions arise.

- Membership on review committees including those for NACTO design guides.
- Travel support for NACTO events and project-related travel.
- Participation in NACTO’s standing policy committee on national transportation issues

Note: Kansas City could become a NACTO affiliate member city for \$10,000 (cost as of 2018) but would not have the benefit of participation in review committees.

Ensure staff is up to date on active transportation best-practices

Bike program staff and project managers must be aware of current best-practices in active transportation planning to efficiently execute the recommendations in this plan. Staff should:

- Regularly attend industry conferences and take part in other educational opportunities (such as webinars or lectures) offered by organizations such as the Association of Pedestrian and Bicycle Professionals
- Retain annual membership in professional active transportation organizations such as the APBP. Membership benefits include professional networking and participation in topic-focused listservs, access to regular webinars and publications, and reduced cost for professional meetings and conferences.



KANSAS CITY, MO, KANSAS CITY, KS AND BIKEWALKKC STAFF AT THE 2018 PLACES FOR BIKES CONFERENCE, INDIANAPOLIS, IN



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMMUNITY ORGANIZATION	BUSINESS/NEIGHBORHOODS		
SUPPORT BICYCLISTS AT THE END OF TRIP	Develop a citywide "request a rack" program	X		X		SHORT-TERM	MEDIUM
	Create a process to allow the use of on-street space for bike and scooter parking, and develop a community application for on-street bike and scooter parking	X	X	X		SHORT-TERM	MEDIUM
	Require new developments to show bicycle parking locations on building permits and train inspectors to look for proper installation of bicycle racks	X			X	SHORT-TERM	LOW
	Research national best practices and update the city's development code related to required bicycle parking amounts, incentivizing vehicular parking reductions, implementing parking maximums, and requirements for installation of changing/showering facilities in certain types of new developments	X	X	X		MID-TERM	LOW
	Develop illustrated design guidelines for developers as it relates to the installation of well-designed bicycle parking	X	X			MID-TERM	LOW



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
(CONT'D)	Encourage self-service bicycle repair facilities as part of long-term bicycle parking based on development use and national best practices research	X		X		SHORT-TERM	LOW
	Incorporate bicycle repair stands into bikeway projects as they are planned, designed, and implemented	X	X			ONGOING	LOW
	Incorporate shared active transportation device accommodations into relevant development codes	X				SHORT-TERM	MEDIUM
	Require attended bicycle parking at large special events. Develop process for event organizers to follow	X		X	X	LONG-TERM	LOW
IMPLEMENT SUPPORTIVE PROGRAMMING	Update and distribute physical Bike KC network maps	X				SHORT-TERM	MEDIUM
	Develop and launch digital Bike KC network map and mobile application	X				SHORT-TERM	MEDIUM



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
(CONT'D)	Educate the community and professionals about new bicycle infrastructure through the development of "Bicycling 101" materials and large-equipment operator trainings	X	X	X	X	ONGOING	HIGH
	Create and provide educational materials for adjacent property owners and neighborhood organizations during the installation of bicycle facilities	X				SHORT-TERM/ONGOING	HIGH
	Create a voluntary bicycle registry	X				MID-TERM	LOW
	Coordinate with local entities and city agencies such as the Health Department to deliver educational and supportive programming for children and adults	X	X	X		SHORT-TERM/ONGOING	HIGH
	Establish a Smart Trips pilot program	X		X		MID-TERM	LOW
	Continue to participate in the League of American Bicyclists Bicycle Friendly Program	X		X		SHORT-TERM/ONGOING	LOW



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
(CONT'D)	Encourage businesses to participate in the League of American Bicyclists Bicycle Friendly Business program	X			X	MID-TERM/ONGOING	LOW
	Promote and facilitate special events and campaigns, such as annual street closure and tactical urbanism events	X	X	X	X	SHORT-TERM/ONGOING	MEDIUM
	Provide educational programs targeting motorists	X	X			MID-TERM	LOW
	Coordinate educational outreach and enforcement efforts with the KCPD	X	X			SHORT-TERM	LOW
	Consider hiring additional staff to deliver educational and supportive programming. Dedicate positions each summer via the Hire KC Youth program for this purpose reporting to the Core work team staff	X		X		MID-TERM	LOW



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
RESEARCH AND IMPLEMENT POLICIES THAT SUPPORT BICYCLING IN KANSAS CITY	Develop a three phased enforcement strategy of educate, warn, penalize	X	X			SHORT-TERM	MEDIUM
	Reduce bike lane blockages and target traffic enforcement along Bike KC routes	X	X			ONGOING	HIGH
	Create diversion program or mandatory awareness program for motorists who receive citations involving bicyclists	X	X			LONG-TERM	LOW
	Complete a comprehensive mobility plan to identify mobility priorities, efficiencies, etc.	X	X	X	X	MID-TERM	MEDIUM
	Develop a multimodal corridor decision making process through the development of the comprehensive mobility plan	X	X	X	X	MID-TERM	MEDIUM
	Create a complete streets design manual	X	X			SHORT-TERM	MEDIUM
	Develop and implement comprehensive bicycle wayfinding	X	X			MID-TERM	HIGH
	Become a Vision Zero city	X				SHORT-TERM	MEDIUM



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMMUNITY ORGANIZATION	BUSINESS/NEIGHBORHOODS		
(CONT'D)	Become a NACTO member city	X				SHORT-TERM/ONGOING	MEDIUM
	Ensure staff is up to date on best-practices	X		X		ONGOING	HIGH
SUPPORT NEW TECHNOLOGIES AND SHARED ACTIVE TRANSPORTATION SYSTEMS	Launch a year-long Shared Active Transportation Pilot Program	X				SHORT-TERM	HIGH
	Utilize shared active transportation data in planning and policy creation	X	X			ONGOING	LOW
	Annually support dock-based bike share operations	X	X			ONGOING	MEDIUM
	Coordinate service delivery and public communications with shared active transportation providers	X			X	ONGOING	LOW
	Develop guidance/regulations for the use of E-Bikes	X	X	X		SHORT-TERM	LOW
USE DATA TO INFORM ACTIVE TRANSPORTATION	Make city-controlled bicycle related data publicly available	X				SHORT-TERM	LOW
	Use new technologies' data in citywide capital planning and policy creation	X	X		X	SHORT-TERM/ONGOING	LOW



STRATEGY	ACTION	RESPONSIBLE ENTITY				TIME-FRAME	FUNDING PRIORITY
		CITY AGENCY	PARTNER GOV'T AGENCY	COMM-UNITY ORGAN-IZATION	BUSI-NESS/ NEIGHBOR-HOODS		
(CONT'D)	Use smart-city infrastructure to collect data and evaluate projects	X	X			MID-TERM	LOW
	Develop and implement an annual comprehensive bicycle count program to inform decision making and evaluate projects	X	X	X		SHORT-TERM	HIGH
FUND SUPPORTIVE PROGRAMS AND POLICY WORK	Allocate funds annually for the delivery of supportive programs and policy work	X		X		ONGOING	MEDIUM
	Seek grant funding to support the delivery of supportive programs and policy work	X	X	X		ONGOING	MEDIUM

Measuring Success



"Make as many bike lanes that are designated to bike only, I feel a lot safer on those than trying to share with cars."

/ JACINTA



Performance goals and metrics are needed to help understand how the Bike KC Master Plan is meeting its goals over time. These performance measures were selected based on the themes of the 10 plan goals and are reflective of the ability of the City to collect data or establish baseline datasets.

Performance measures will be evaluated through trends and targets. To monitor the impact and effectiveness of the Bike KC Master Plan as it is implemented, the following performance measures should regularly look at the following performance measures:

GOAL THEME	PERFORMANCE MEASURE	BASIS OF MEASUREMENT	BASELINE MEASUREMENT	PERFORMANCE TARGET OR TREND
ACTION-ORIENTED	Total centerline miles of bicycle infrastructure implemented	Completed roadway projects	April 2018 mileage	Additional centerline miles annually through 2024
ACTION-ORIENTED	Bicycle Friendly Community Status	League of American Cyclists Bicycle Friendly Community Program	2016 ranking - Bronze	Silver status by 2024
ACTION-ORIENTED	Programs that support bicycling	Bike KC Master Plan; Annual Expenditures of funds that support partner organizations' programs & city-led programs	Baseline needed	Increase
INTEGRATED	Annual expenditures on network and program implementation	Annual budget tracking; GO Bond project tracking	2017 number	Minimum 1% of total infrastructure projects annually
INTEGRATED	Implementation of network through annual resurfacing program	Centerline miles of bicycle facilities implemented	2017 number	Increase

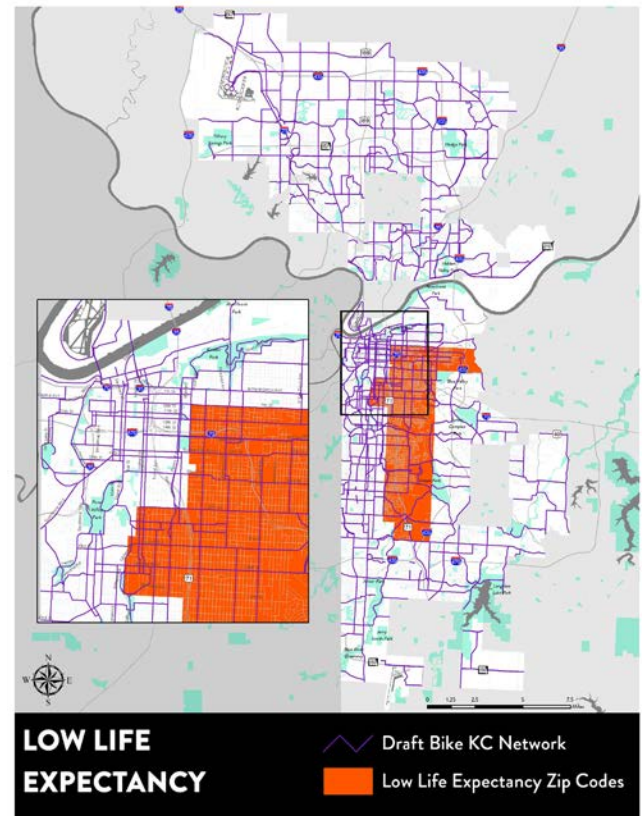
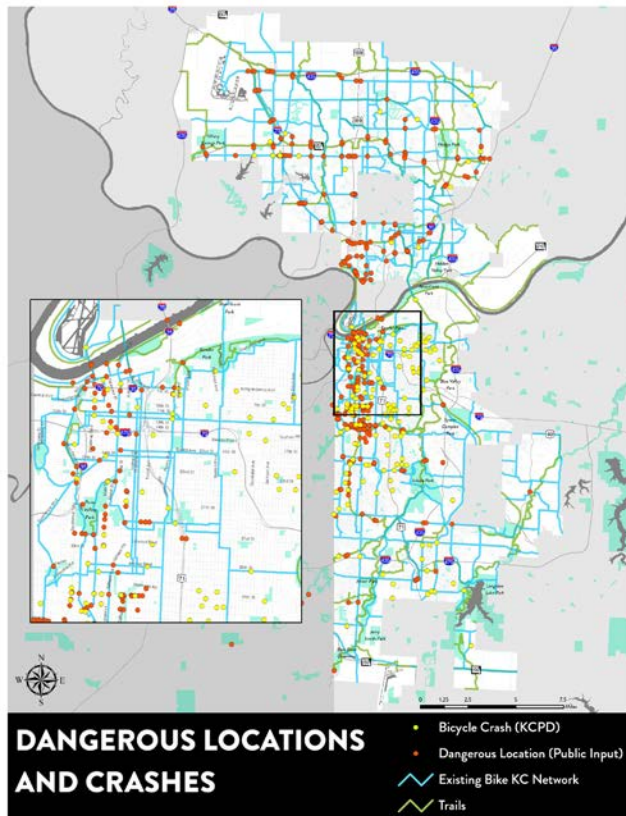


GOAL THEME	PERFORMANCE MEASURE	BASIS OF MEASUREMENT	BASELINE MEASURE-MENT	PERFOR-MANCE TARGET OR TREND
INTEGRATED	Number of infrastructure and development projects accommodating bicycling	Annual Complete Street Ordinance Report	Baseline needed	Increase
INTEGRATED	Policies that support bicycling	Bike KC Master Plan	City Policies as of 2018	Increase
EQUITABLE	Centerline miles of completed network meeting Bike KC network facility type recommendations	Completed roadway projects	April 2018 mileage - 76 centerline miles	Increase annually through 2024
EQUITABLE	Percentage of females, older adults, and persons of color who ride regularly	Need to establish measurement - annual survey	Need to establish measurement - annual survey	Establish baseline & Increase thereafter
EQUITABLE	Areas lacking bicycle facilities	Centerline miles of bicycle facilities implemented	2017 number	Decrease
SAFE	Bicycle collision rate	KCPD crash reports	2017 rate	Decrease
SAFE	Number of serious injuries and fatalities	KCPD crash reports	2017 number	Zero fatalities by 2024
ENTICING	Growth in shared active transportation ridership	Shared active transportation provider	2017 number	Increase
ENTICING	Number of recorded bicyclists	Short- and long-duration counts	Baseline count prior to project installation	Increase



GOAL THEME	PERFORMANCE MEASURE	BASIS OF MEASUREMENT	BASELINE MEASURE-MENT	PERFOR-MANCE TARGET OR TREND
ENTICING	Percent of residents reporting satisfaction with on-street bicycle infrastructure	Annual Citizens Satisfaction Survey	2017 percentage	Increase
ENTICING	Commute mode share	Census data (American Community Survey)	2016 ACS rate - 0.3%	Increase to 1.5% by 2024 & 5.5% by 2034
ENTICING	Bike rack inventory & usage rates	Annual survey	Need to establish baseline	Establish baseline & Increase thereafter
SUPPORTED	Students served by local bicycle education programs	Partner Agencies' Information	2017 number	Increase
SUPPORTED	Number of people participating in education and encouragement programs and events	City & Partner agency information	2017	Increase

Technical Analysis

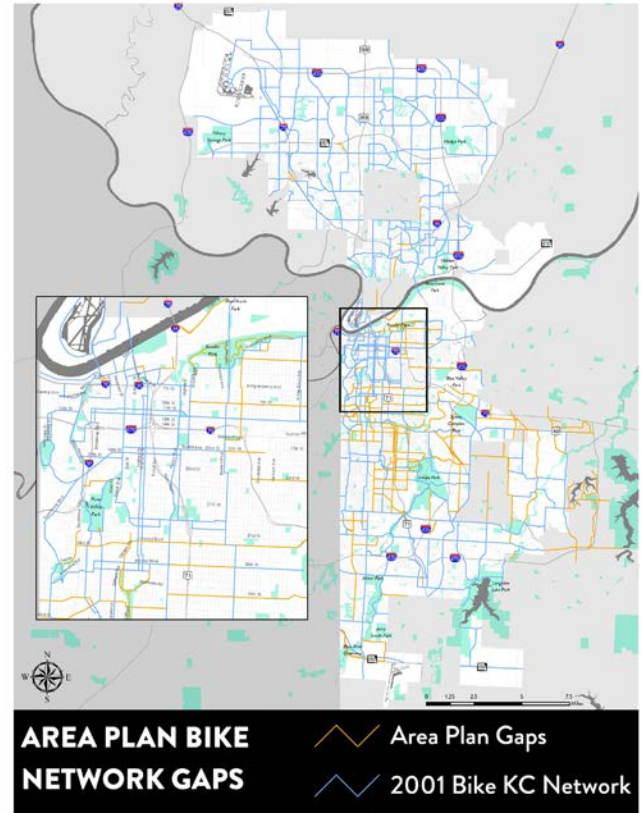
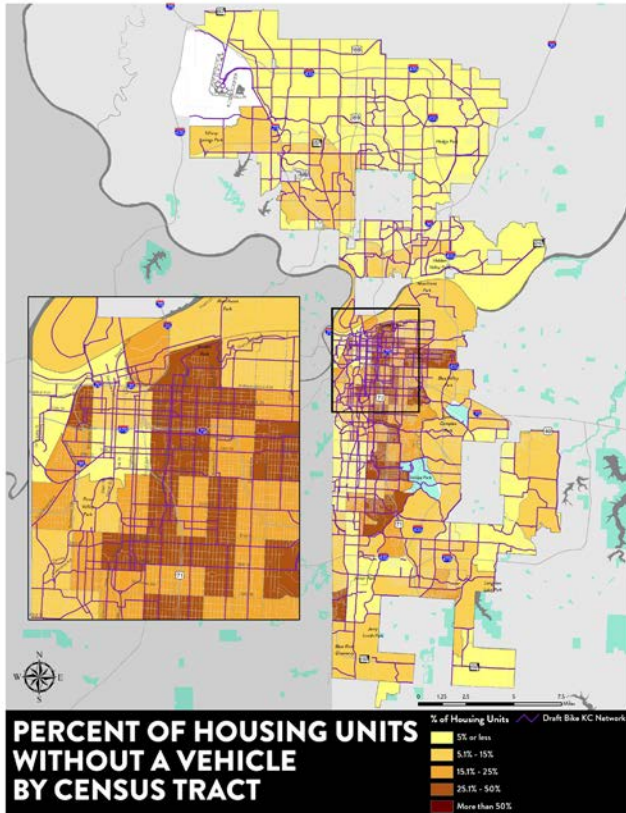


EQUITY, SAFETY, HEALTH & NEED

While everyone who is on a roadway faces safety risks, the seriousness of a collision between a motor vehicle and more vulnerable road users – pedestrians, bicyclists, transit users, and those with physical impairments – is a critical consideration. Between 2013-2016, 192 crashes occurred between automobiles and bicyclists. These numbers only reflect crashes that were reported to the police.

- 66% resulted in injury
- 4 cyclists killed

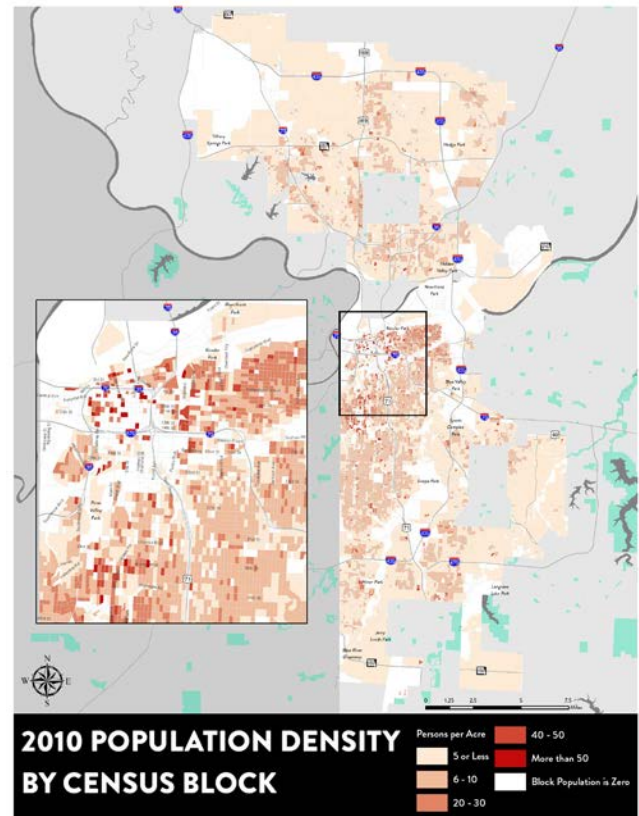
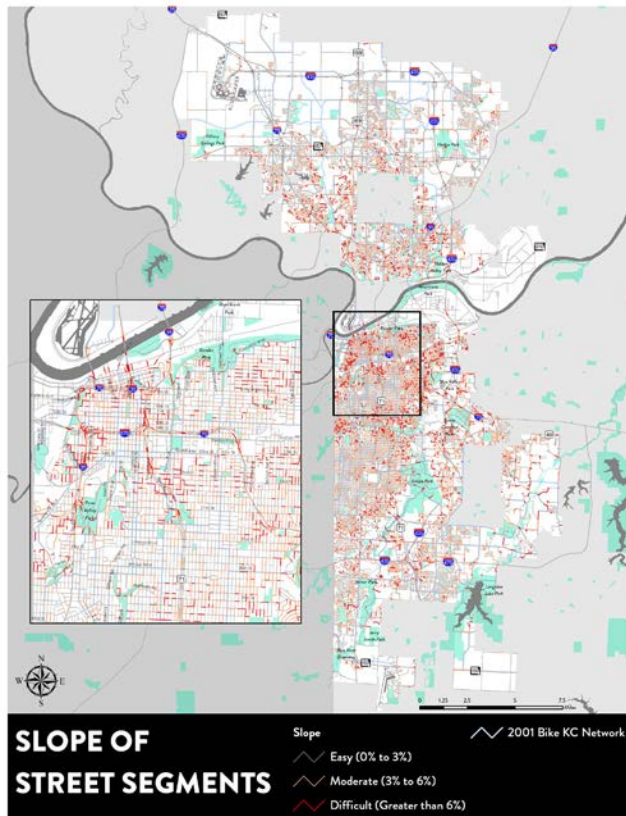
Throughout the public outreach portion of this project, individuals were afforded the opportunity to note locations where they had encountered a bike crash or near miss within the last two years, or locations they believed needed safety improvements. Both crashes that were reported to the Kansas City Police Department and public input were analyzed and mapped.



The concept of equity (e.g. the need for fairness and progress oftentimes unrelated to equality) in planning processes can have a variety of interpretations. Throughout the planning process equity consistently emerged as a top priority for the community and city staff. Two measurements that aided in the quantifiable analysis of equity included health outcomes measured in low-life expectancy and need measured in households with limited access to automobiles.

BIKE NETWORK GAPS IDENTIFIED IN THE CITY'S AREA PLANS

Over the past decade through the City's local area planning process, many plans have identified roadways that should be considered for addition to the Bike KC network. These gaps were mapped and are reflective of community input received throughout the city in previous planning efforts.

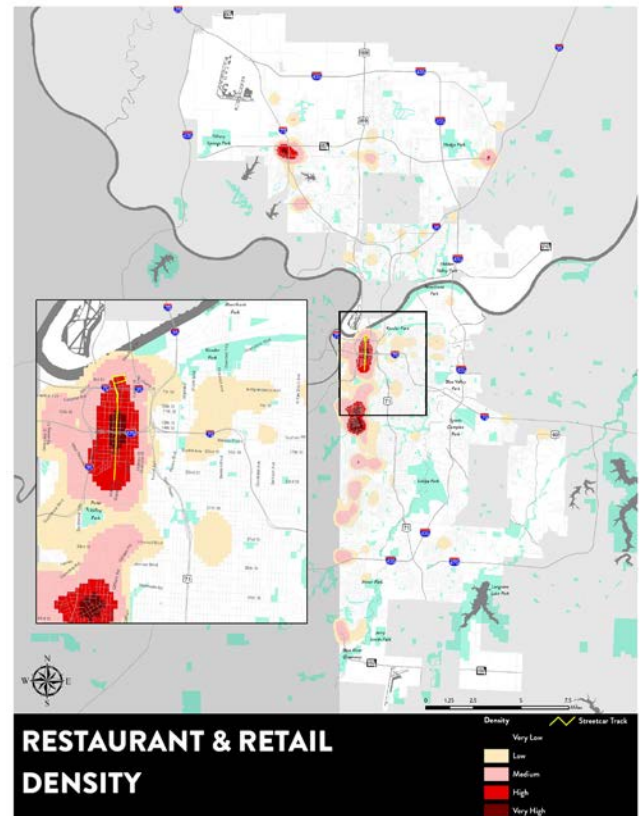
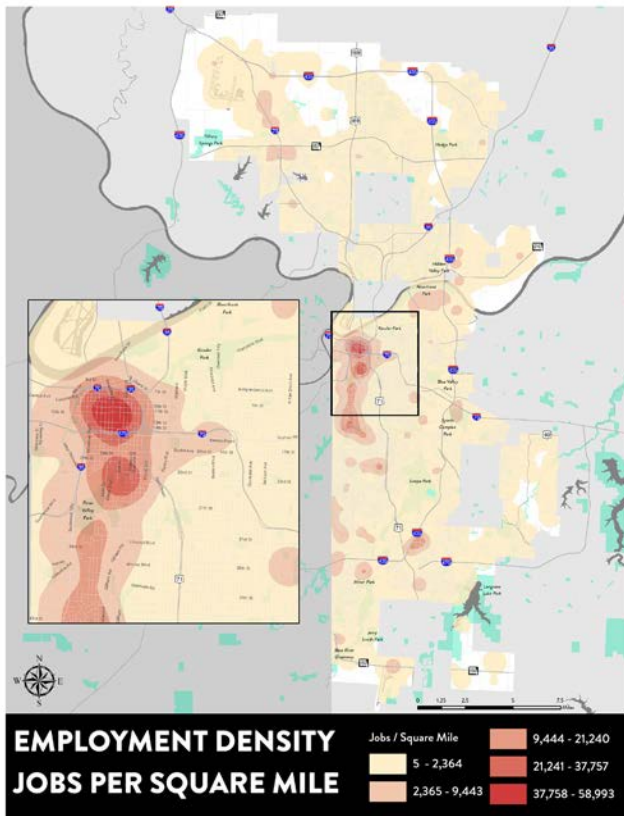


LAND TOPOGRAPHY | SLOPES

Kansas City has many rolling hills that make riding a bicycle challenging in areas. Particularly challenging are areas that have steep changes in topography. Hills cannot be avoided in Kansas City, but this information was examined to try and assist in identifying routes to assist ease of riding. Each street segment was classified as easy (0-3% grade), moderate (3-6% grade) or difficult (greater than 6% grade). Because the change in slope was measured by each break in the street centerline file the slope classification reflects smaller block to block changes rather than a longer change of topography over the course of many street segments.

POPULATION DENSITY

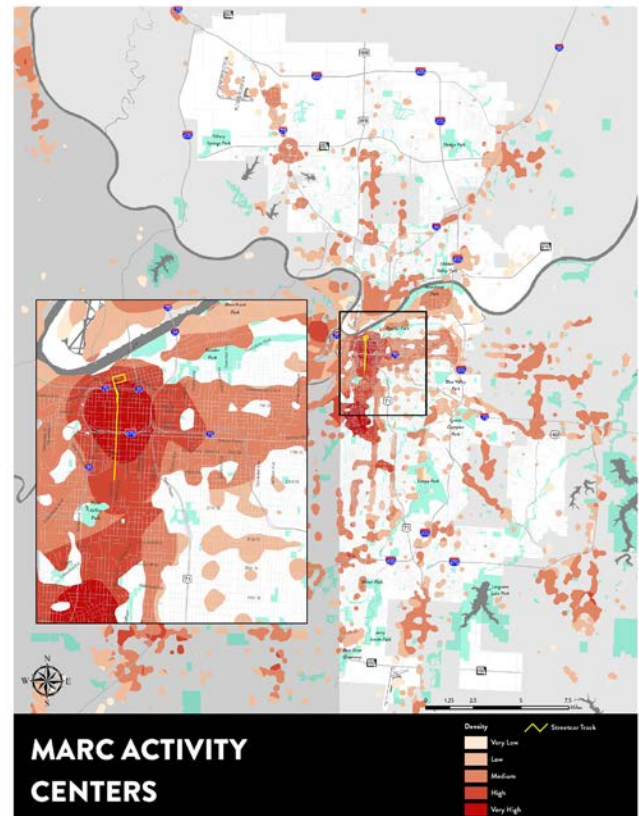
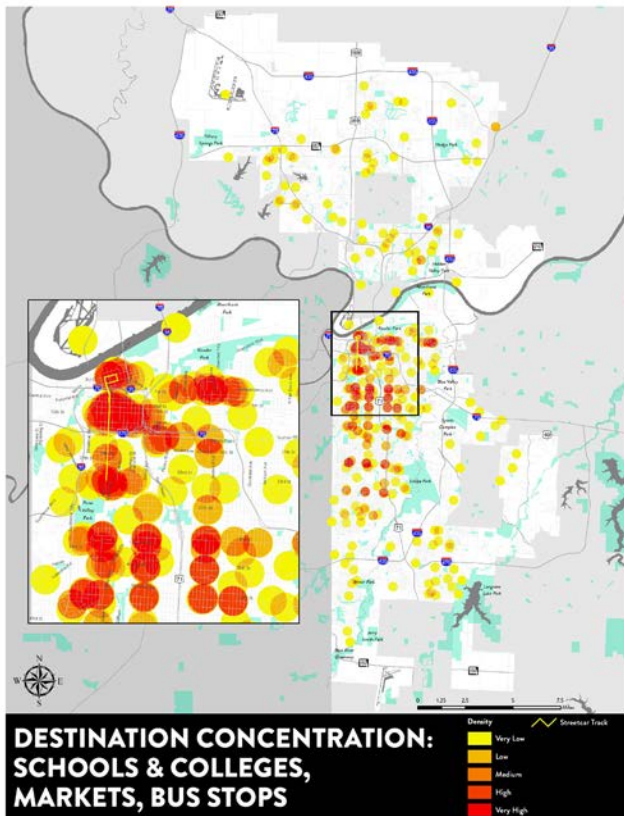
Using 2010 Census Block information population densities throughout the city were mapped. This foundational information has many implications, including trip origination, need for areas of network concentration, and key linkages.



EMPLOYMENT DENSITY & RESTAURANT/RETAIL DENSITY

To better understand destination concentrations, 2014 Longitudinal Employer Household Dynamics data was used to map the amount of jobs per acre in Kansas City. This information displayed similar patterns as population density, with the highest concentration of employment in the central city – from the River Market through the Plaza – and less concentrated pockets scattered throughout.

Restaurant and retail density – which utilized 2016 Infogroup data – reflects similar patterns.

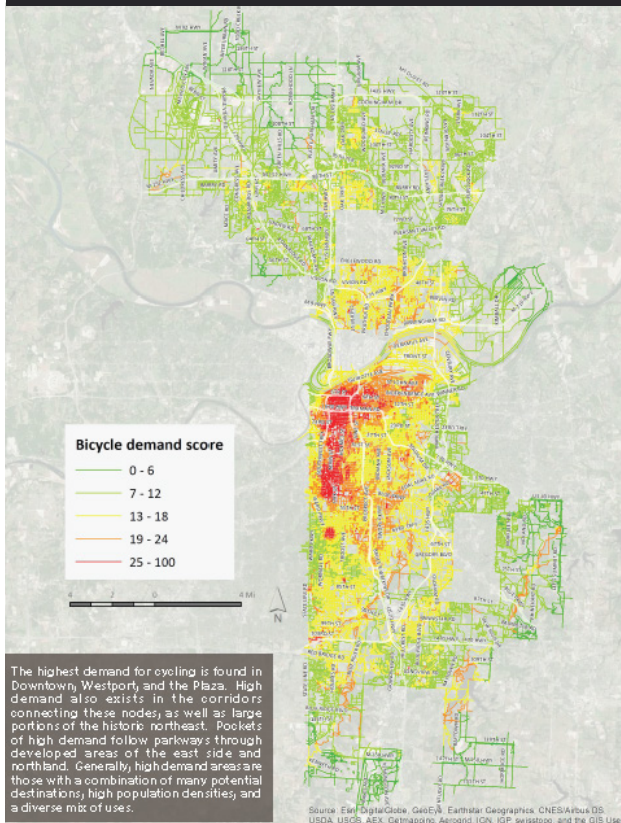


KEY DESTINATIONS & ACTIVITY CENTERS

In addition to employment centers, restaurants and retail venues there were also identified as important destinations. Most people consider $\frac{1}{4}$ mile to be a reasonable walking distance to get to one's destination as it equates to a 3 to 5-minute walk (generally, most people can walk a mile between 15-20 minutes). Using available data and a $\frac{1}{4}$ mile buffer, schools and universities, markets/grocery stores, and significant transit stops (bus stops with over 96 daily passengers) were mapped. Each individual buffered point was then dissolved into each other to visualize overlap and density clusters as seen in the map above.

This map was then compared to the regional activity center information compiled by the Mid-America Regional Council (MARC) – Kansas City's regional metropolitan planning organization. The regional activity centers are based on key areas of non-residential land uses throughout the region (e.g. significant destination areas).

BIKEWALKKC DEMAND ANALYSIS



The bicycle demand analysis utilized a variety of information to illustrate where people would ride if the proper bicycling facilities were made conveniently available and comfortable. The report stated:

“THE HIGHEST DEMAND FOR CYCLING IS FOUND IN DOWNTOWN, WESTPORT, AND THE PLAZA. HIGH DEMAND ALSO EXISTS IN THE CORRIDORS CONNECTING THESE NODES, AS WELL AS LARGE PORTIONS OF THE HISTORIC NORTHEAST. POCKETS OF HIGH DEMAND FOLLOW PARKWAYS THROUGH DEVELOPED AREAS OF THE EAST SIDE AND NORTHLAND. GENERALLY, HIGH DEMAND AREAS ARE THOSE WITH A COMBINATION OF MANY POTENTIAL DESTINATIONS, THE HIGHEST POPULATION DENSITIES, AND A DIVERSE MIX OF USES”

DEMAND ANALYSIS: BIKEWALKKC

In November 2016 – two months prior to the kick-off of the Bike KC comprehensive update – the local advocacy organization BikeWalkKC completed a Bicycle Network Demand Analysis for the City of Kansas City, Missouri. This analysis was presented to the Bike KC Master Plan steering and technical committees and was utilized by city staff in implementation recommendations.

LEVEL OF TRAFFIC STRESS

Of the existing streets in the original Bike KC plan that exist and had consistent data available, 525 centerline miles were analyzed, and received the following LTS scores:

- LTS 1 – 116 miles (22% of system)
- LTS 2 – 24 miles (5% of system)
- LTS 3 – 153 miles (29% of system)
- LTS 4 – 231 miles (44% of system)



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Glossary + Endnotes



ACTIVE TRANSPORTATION: means of traveling using human-powered mobility, primarily walking and biking.

ACTIVITY CENTER: Areas with a concentration of attractions and activities, which may include any combination of offices, manufacturing facilities, retail stores, residences, institutions, entertainment, and recreation.

AREA PLAN: A broadly focused planning document that takes a long-term view of a defined geographic area and formalizes the community's recommendations of how future land use, housing, transportation and infrastructure issues are decided and prioritized. Currently, Kansas City is divided into 18 planning areas.

ARTERIAL STREET: A roadway designed for large traffic volumes and moderate to high-speed travel, providing access through and around cities and regions and/or linking major activity centers within the City.

BICYCLE FRIENDLY COMMUNITIES

PROGRAM: A Program of the League of the American Bicyclists

BIKE FACILITY: A general term denoting infrastructure and provisions to accommodate or encourage bicycling, including parking and storage facilities and shared roadways specifically designated for bicycle use.

BIKE LANE: A portion of a road striped and signed for the preferential or exclusive use of the bicyclist.

CAPITAL IMPROVEMENT PLAN (CIP):

The Kansas City, Missouri Five-Year Capital Improvements Plan (CIP) attempts to balance the City's resources among previous commitments, reconstruction and maintenance needs, and the demand for new construction.

CENTERLINE: One mile of a single roadway, regardless of the number of lanes.

CITY: Refers to the City of Kansas City, Missouri

COLLECTOR STREETS: A roadway designed to carry moderate volumes of traffic, funneling them to arterial streets. These streets also provide connections between arterial streets.

COMPLETE STREETS: Streets and street networks that are designed and operated to enable safe access for all users, in that pedestrians, wheelchair users, bicyclists, public transportation users, and motorists, regardless of age or ability, are able to safely move along and across a street. Complete streets aid in providing access to employment and activity centers for citizens with limited mobility or lack of access to automobiles.

CONFRAFLOW BIKE LANES: Bicycle lanes designed to allow bicyclists to ride in the opposite direction of motor vehicle traffic.



DOOR ZONE: A common term for the space that an open vehicle door extends beyond a car parked at the curb.

DOORING: A traffic collision in which a bicyclist is struck by a vehicle door as it is being opened.

FHWA: Federal Highway Administration

FIRST MILE / LAST MILE: A term describing passenger travel in the context of getting to/ from transit stops.

GO BOND: An \$800 million comprehensive capital improvements program to use revenue created by issuing general obligation bonds each year for 20 years.

KCATA: Kansas City Area Transportation Authority

MAJOR SEPARATION: Protected bike lanes (also known as cycle tracks that may be either one-way or two-way) or trails/shared use paths adjacent to the roadway.

MARC: Mid-America Regional Council. A nonprofit association of city and county governments and the metropolitan planning organization for the bistate Kansas City region.

MINOR SEPARATION: Conventional paint only bike lanes or painted buffered bike lanes.

MODE: A single type of transportation referring to pedestrian, bicycling, transit use, vehicle movements, etc.

MODE SHIFT: Less private automobile trips in favor of more bicycling, walking, and public transit trips.

MODOT: Missouri Department of Transportation

NACTO: National Association of City Transportation Officials

PIAC: The primary function of the Public Improvements Advisory Committee (PIAC) is to solicit resident input and make recommendations regarding both the citywide and neighborhood portions of the capital budget.

PLANNING SUSTAINABLE PLACES (PSP): A federally funded grant program administered by the Mid-America Regional Council that promotes sustainable activity centers through site and corridor specific concept plans.

RIGHT-OF-WAY (ROW): An area of land used for a road and the public areas (sidewalks, etc.) along both sides of the roadway. The area is owned and maintained by a public agency (City, State, etc.) not the adjacent property owners. Improvements and modifications may be made to the right-of-way area by the owning agency without the consent of the adjacent property owners.



ROAD DIET: Also called a lane reduction or road rechannelization, is a technique in transportation planning whereby the width of or number of vehicular travel lanes of a roadway is reduced in order to achieve systemic improvements or to better accommodate other modes of transportation (pedestrian, bikes, transit, etc.) or to repurpose the space for some other use (e.g. landscaping).

SAFE ROUTES TO SCHOOL: An initiative to develop safe walking and biking routes to and from school that promotes healthy lifestyles and community connectivity.

SHARED ACTIVE TRANSPORTATION:

Dockless network or system of Small Vehicles (scooters, bicycles, e-bikes, etc.), placed in public right-of-way and for rent in short term increments, that provides increased mobility options over short distances.

SHARED STREETS: Calm/neighborhood streets where traffic calming will be encouraged and should be prioritized.

SHARED USE PATH/TRAIL: A trail that allows multiple users and uses, such as walking, biking, jogging, commuting, and recreation (non-motorized).

TRAFFIC CALMING: Is a system of design and management strategies that aim to balance traffic on streets with other uses. It is founded on the idea that streets should help create and preserve a sense of place, that their purpose is for people to walk, stroll, look, gaze, meet, play, shop and even work alongside cars - but not dominated by them.

TRAILS KC: Adopted by ordinance, Trails KC is a document that maps regional trails within Kansas City and is a guide for future shared-use trail development and corridor preservation within the City. Some of these trails are located adjacent to streets (including major streets), and some follow other natural features, such as streams.

VISION ZERO NETWORK: The Vision Zero Network is a collaborative campaign helping communities reach their goals of Vision Zero - eliminating all traffic fatalities and severe injuries - while increasing safe, healthy, equitable mobility for all.

WAYFINDING: As it relates to bicycles, is comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes. Signs are typically placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.

ENDNOTES

I | Source: Federal Highway Administration. (2008). "Desktop reference for crash reduction factors."

II | Source: FHWA. Pedestrian Safety Strategic Plan: Background Report. 2010

III | Flusche, Darren. "Bicycling Means Business: the Economic Benefits of Bicycle Infrastructure." Advocacy Advance – a Partnership of the League of American Bicyclists and the Alliance for Biking & Walking. July 2012. Accessed: https://bikeleague.org/sites/default/files/Bicycling_and_the_Economy-Econ_Impact_Studies_web.pdf

IV | "Katy Trail Economic Impact Report: Visitors and MGM2 Economic Impact Analysis." July 2012. Accessed: https://mostateparks.com/sites/mostateparks/files/Katy_Trail_Economic_Impact_Report_Final.pdf

V | [Source: Andersen, Michael. "Want Amazon's New HQ In Your Town? Must Have Bike Lanes, Says Amazon." People for Bikes. September 19, 2017.

VI | [Source: Amazon HQ2 RFP, pg. 6]

VII | "Economic Impacts of Active Transportation: Utah Active Transportation Benefits Study." March 2017. Accessed: <https://bikeutah.org/wp-content/uploads/2017/03/Utah-Active-Transportation-Benefits-Study-Final-Report.pdf>

VIII | Dill, Jennifer, and Nathan McNeil. "Four

Types of Cyclists?." Transportation Research Record: Journal of the Transportation Research Board 2387.1 (2013): 129-138.

IX | Geller, Roger. "Four Types of Cyclists." Available: <https://www.portlandoregon.gov/transportation/44597?a=237507>

X | [Source: Smeltz, Adam. "Despite 'bikelash,' Pittsburgh mayor stands behind bike lane vision," Pittsburgh Post-Gazette. March 4, 2017.]

XI | Mekuria, Maaza, and Peter Furth, Hillary Nixon. Mineta Transportation Institute, Report 11-19. Low-Stress Bicycling and Network Connectivity. May 2012

XII | "Centre City Cycle Track Pilot Summary Report." December, 2016. Accessed: <http://www.calgary.ca/Transportation/TP/Documents/cycling/City%20Centre%20cycle%20track/cycle-track-summary-report-nov-2016.pdf>

XIII | BikeWalkKC Annual Report, 2017. Accessed: bikewalkkc.org/wp-content/uploads/2018/04/FINAL-2017-Annual-Report.pdf

XIV | Portland Bureau of Transportation. "About SmartTrips." Accessed: <https://www.portlandoregon.gov/transportation/article/625239>

XV | Vision Zero Network. "National Speed Fatality Map Highlights Tragic Losses," Accessed: <https://visionzeronetwork.org/resources/speed-fatality-map/>

XVI | <https://nacto.org/about/>

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BIKE KC



CITY OF
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