



# **Performance Audit Bike KC Inadequate to Achieve City Goals**

December 2016



**Office of the City Auditor**

**City of Kansas City, Missouri**

15-2016



CITY OF FOUNTAINS  
HEART OF THE NATION



## Office of the City Auditor

21<sup>st</sup> Floor, City Hall  
414 East 12<sup>th</sup> Street  
Kansas City, Missouri 64106

(816) 513-3300  
Fax: (816) 513-3305

December 22, 2016

Honorable Mayor and Members of the City Council:

This audit of the city's on-street bike plan, Bike KC, focuses on whether Bike KC is adequate to guide staff in the implementation of on-street bike infrastructure to achieve city goals. We determined that Bike KC is not adequate to guide city staff to achieve the city's multi-modal transportation goal or to become a platinum level bike friendly city by 2020.

Bike KC lacks most of the recommended elements of a bicycle master plan. Comparison city bike plans we reviewed contained nearly all of the recommended elements. The core elements of a master bike plan recommend a network of bicycle facilities that provide direct, safe routes to destinations for the average bicyclist and a plan for implementing those recommendations. The purpose of a stand-alone bicycle plan is to identify the projects, policies, and programs needed to fully integrate bicycling as a viable mode of transportation within a community.

The Bicycle and Pedestrian Advisory Committee's (BPAC) recommendations have not been adequately incorporated in the development of an update to Bike KC. The City Council established BPAC to provide public input and oversight on bike-related issues and to create a bikeway plan that integrated Bike KC with the city's trails plan. Although BPAC recommended that any update to Bike KC include recommended elements of a master bicycle plan, the proposed update to Bike KC does not include the recommended elements and is not adequate to achieve city goals.

Kansas City's constructed bicycle infrastructure will not achieve the city's goal of becoming a platinum level bicycle friendly city by 2020. Currently, fifty-three percent of the city's identified bicycle routes in Bike KC are not suitable for the average bicyclist. Ninety-one percent of bike facilities built to date do not include a separate, dedicated space to accommodate a bicyclist. Bike KC's routes were not selected or evaluated for transportation purposes and do not provide direct routes to destinations.

The city is not efficiently expanding the city's bicycle infrastructure. Opportunities to expand the network in capital improvement projects and ongoing, routine resurfacing projects may be missed without an implementation plan. Federally funded projects have faced delays and increased costs.

We make recommendations to improve Bike KC's guidance to staff to better meet city biking goals and improve public input.

The draft report was sent to the city manager on November 10, 2016, for review and comment. His response is appended. We wish to thank Public Works and BPAC staff for their cooperation during this audit. The audit team for this project was Nany Hunt and Jonathan Lecuyer.

A handwritten signature in blue ink, appearing to read "Douglas Jones", is positioned above the printed name and title.

Douglas Jones  
City Auditor

---

# **Bike KC Inadequate to Achieve City Goals**

---

## **Table of Contents**

Introduction	1
Objectives	1
Scope and Methodology	1
Criteria Used to Evaluate Bicycle Plans	2
Selected Comparison Cities	2
Background	3
Becoming a Platinum Bicycle Friendly Community	3
Bicycle and Pedestrian Advisory Committee	4
Other Adopted City Bike Policy Goals	4
Findings and Recommendations	7
Bike KC Does Not Provide Adequate Guidance to Be a Bike Friendly City	7
Established Public Process Should Shape Bike KC	10
Bike KC Needs to Identify Existing Context and Biking Status in the Community	12
Bike KC Needs Vision, Goals, and Objectives for Progress and Accountability	12
Performance Indicators Needed to Track Progress	13
Bicycle Facility Design Guidance Needs More Options, Flexibility, Detail	13
Bicycle Facility Network Does Not Meet All User Needs	14
City Policies Need Updating to Support Bicycle Friendly Goals	18
Implementation Plan Should Improve Project Efficiency	19
Encouragement, Education, and Enforcement Programs Should Support City Efforts	21
Recommendations	22
Appendix A	23
Committee Substitute for Ordinance 080515	23
Appendix B	27
City Manager's Response	27

---

## **Bike KC Inadequate to Achieve City Goals**

---

### **List of Exhibits**

Exhibit 1.	Recommended Bike Plan Elements in Selected City Bike Plans	7
Exhibit 2.	Bike KC	8
Exhibit 3.	Bicycle Level of Service Ratings For Bike KC Network	16
Exhibit 4.	Comparison of Bicycle Facility Types by Plan	18

---

## Introduction

---

### Objectives

We conducted this audit of Bike KC, the city’s on-street bike plan, under the authority of Article II, Section 216 of the Charter of Kansas City, Missouri, which establishes the Office of the City Auditor and outlines the city auditor’s primary duties.

A performance audit provides “findings or conclusions based on an evaluation of sufficient, appropriate evidence against criteria. Performance audits provide objective analysis to assist management and those charged with governance and oversight in using the information to improve program performance and operations, reduce costs, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability.”<sup>1</sup>

This report is designed to answer the following question:

- Does the Bike KC plan adequately guide the implementation of on-street bike infrastructure to achieve adopted city goals?

---

### Scope and Methodology

Our review focuses on whether the city’s adopted bike plan provides adequate guidance to meet the city’s adopted bike-related goals. Our audit methods included:

- Identifying bike policies and goals in the five-year citywide business plan, adopted area plans, ordinances, and resolutions to identify city policies and goals related to biking.
- Reviewing audits of selected cities’ bike plans to identify potential criteria related to bike plans.

---

<sup>1</sup> Comptroller General of the United States, *Government Auditing Standards* (Washington, DC: U.S. Government Printing Office, 2011), p. 17.

- Interviewing city staff and external partners to understand how Bike KC was developed, past issues, and current implementation projects and practices.
- Comparing Bike KC to identified city goals, bike plans of selected cities, and recommended standards and practices to evaluate the adequacy of Bike KC.
- Comparing relevant departments' policies and practices to the city's adopted bike goals and objectives to evaluate their implementation.

### **Criteria Used to Evaluate Bicycle Plans**

The Federal Highway Administration has made policy statements to clarify its support of bicycle infrastructure and to increase the flexibility in design approaches. It cites the *Guide for the Development of Bicycle Facilities* by the American Association of State Highway and Transportation Officials as the primary resource for bicycle facility planning and design. It also notes acceptable additional resources as the *Urban Bikeway Design Guide* by the National Association of City Transportation Officials and the *Designing Urban Walkable Thoroughfare: A Context Sensitive Approach* by the Institute of Transportation Engineers.<sup>2</sup>

This report uses these resources as the primary source of criteria in assessing Bike KC.

### **Selected Comparison Cities**

We selected the Portland, Denver, and Overland Park bike plans to compare to Kansas City's plan and AASHTO's recommended plan elements. We selected these cities because they provided a range of achievement within the bicycle friendly spectrum. Portland has accomplished Kansas City's goal of being ranked as a platinum bicycle friendly community by the League of American Bicyclists. Denver has obtained a silver ranking and Overland Park holds no ranking at this time. These cities provide a good range of comparison to understand Bike KC's use of recommended planning practices.

---

<sup>2</sup> Memorandum from Gloria Shepherd, Associate Administrator for Planning, Environment and Realty; Walter C. Waidelich, Jr, Associate Administrator for Infrastructure; Jeffrey A. Lindley, Associate Administrator for Operations; Tony T. Furst, Associate Administrator for Safety to Division Administrators and Directors of Field Services for the Federal Highway Administration, August 20, 2013.



We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. No information was omitted from this report because it was deemed privileged or confidential.

In conducting our audit work, we identified an issue related to Appendix B of the Major Street Plan and an issue related to BPAC annual reports that were not directly related to the scope of this audit. We communicated this information to the director of city planning and development and the chairperson of BPAC, respectively, in separate memoranda.

---

## Background

### **Becoming a Platinum Bicycle Friendly Community**

In 2008, the City Council stated its goal of Kansas City becoming a League of American Bicyclists' Platinum level Bicycle Friendly Community by 2020.<sup>3</sup> In 2011, the City Council reaffirmed that goal.<sup>4</sup>

The League of American Bicyclists is an advocacy organization that created the Bicycle Friendly America (BFA) program to assist, assess, and recognize communities and organizations that make bicycling a real transportation and recreation option for all people. The BFA program describes a bicycle-friendly place as one that makes bicycling safe, comfortable, and convenient for people of all ages and abilities. The program uses a variety of metrics to award rankings to participating communities and organizations. The ranking includes bronze, silver, gold, platinum, and diamond. Kansas City received an initial ranking of bronze in 2011. The city's bronze status was reaffirmed in November 2016.

The League of American Bicyclists released a manual in 2011 to guide communities in the development of bicycle friendly communities. The manual outlines the recommended practices for a bicycle friendly community. Included are the 5 E's - Engineering, Education,

---

<sup>3</sup> Committee Substitute for Ordinance 080515, June 5, 2008.

<sup>4</sup> Resolution 110371, May 12, 2011.

Encouragement, Enforcement, and Evaluation - along with three key outcomes including bike commuting ridership levels, crash data, and fatality data.

A bicycle master plan is the foundation of a successful bicycle friendly community. A bicycle friendly community's plan should consider all types of bicyclists and creates a network that is accessible to all. A network should provide direct, safe prioritized bicycle travel on major roads. The League of America Bicyclists states, "trying to create a more bicycle friendly community without these elements, or by only providing trails or wide outside lanes, simply doesn't work – or at least won't get you more than a bronze designation."<sup>5</sup>

### **Bicycle and Pedestrian Advisory Committee**

The City Council established the Bicycle and Pedestrian Advisory Committee (BPAC) in 2008 to oversee and provide ongoing public input to the city's goal of becoming a platinum bike friendly city.<sup>6</sup> BPAC is responsible for overseeing implementation of the city's bike plans; researching best practices for education, enforcement, and engineering strategies for bicycle safety; developing an integrated bikeway system for commuter and recreational use; prioritizing bicycle related projects; creating a plan to integrate Bike KC and Trails KC<sup>7</sup>; recommending standards and guidelines for bicycle amenities; and any other bicycle issues deemed appropriate by BPAC. BPAC also has responsibility for pedestrian issues that are not within the scope of this audit.

Each council person appoints one member of BPAC and the Mayor appoints the chairperson. Designated staff from six city departments<sup>8</sup> and the Police Department are required to serve the BPAC committee in an advisory capacity. The active transportation coordinator, from Public Works, has been the main facilitator of Bike KC and BPAC.

### **Other Adopted City Bike Policy Goals**

Since the adoption of the FOCUS<sup>9</sup> comprehensive plan in 1997, the city has maintained a clear policy goal to develop a bicycle network accessible to residents as a means of transportation and recreation. Since

---

<sup>5</sup> *Bicycle Friendly America: The Blueprint*, League of American Bicyclists, 2013, p. 15.

<sup>6</sup> Committee Substitute for Ordinance 080515.

<sup>7</sup> Trails KC is the city's off-street and trails plan for bikes and other transportation modes.

<sup>8</sup> The six departments are City Planning and Development, Public Works, Parks and Recreation, Water Services, Health, and Neighborhoods and Housing Services.

<sup>9</sup> Resolution 971268, October 30, 1997.

that time, the city has expanded, strengthened, reinforced, and specified that goal through numerous area plans, resolutions, and ordinances. The 2016-2021 Citywide Business Plan includes a goal to develop and increase access to multi-modal transportation options including bicycle lanes.



---

## Findings and Recommendations

---

### Bike KC Does Not Provide Adequate Guidance to Be a Bike Friendly City

Bike KC, the city's master bike plan, does not contain most of the recommended elements of a bike plan. The American Association of State Highway and Transportation Officials (AASHTO) identifies elements a master bicycle plan should contain to become a bicycle friendly community. Bike KC does not include goals and objectives, benchmarks, policies, design guidelines, recommendations for the types of bicycle facilities to include on road segments, or an implementation plan. Each bike plan we reviewed from other cities contained nearly all of the recommended elements. (See Exhibit 1.)

Exhibit 1: Recommended Bike Plan Elements in Selected City Bike Plans

AASHTO Recommended Elements	Bike KC	Denver	Portland	Overland Park
Public Process to Shape Plan	Partially	Yes	Yes	Yes
Plan Context and Current Status of Biking	No	Yes	Yes	Yes
Vision, Goals, and Objectives	No	Yes	Yes	Yes
Benchmarks or Performance Indicators	No	Yes	Yes	Yes
Design Guidelines and Policies	No	Yes	Yes	Yes
Network of Bicycle Facilities	No	Yes	Yes	Yes
Implementation Plan	No	Yes	Yes	Yes
Education and Encouragement Programs	No	No	Yes	Yes
Enforcement Programs	No	No	Yes	No

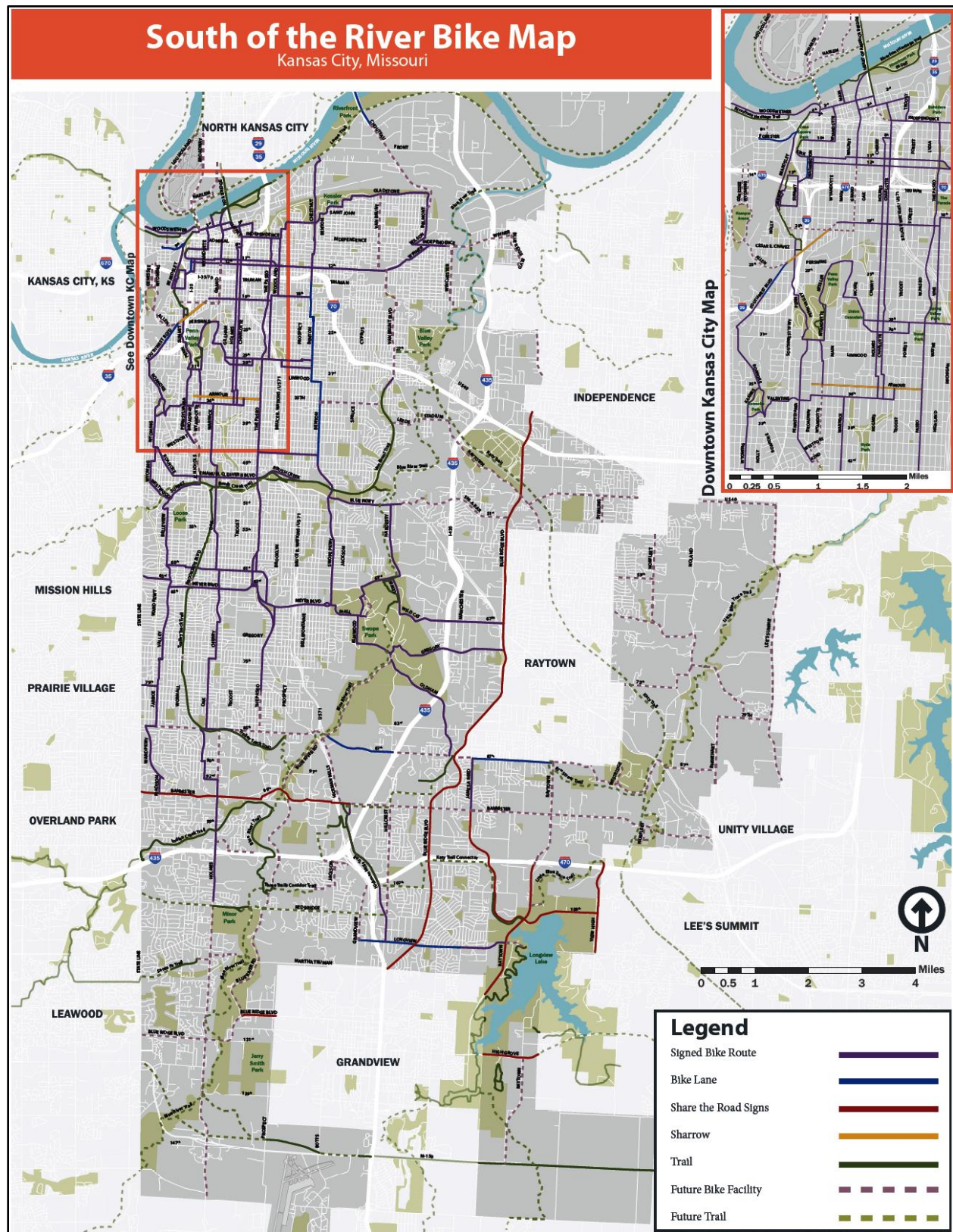
Sources: *Guide for the Development of Bicycle Facilities*, American Association of State and Highway Transportation Officials; *Bike KC*, Kansas City, Missouri ; *Denver Moves: Making Bicycle and Multi-Use Connections*, Denver, Colorado; *Denver Moves: Enhanced Bikeways*, Denver, Colorado; *Portland Bicycle Plan for 2030*, Portland, Oregon; and *Safe Bicycle Outreach Project*, Overland Park, Kansas.

Bike KC is only lines on a map to delineate bike routes. (See Exhibit 2.) The Bike KC maps, however, do not accurately reflect existing or contemplated bike facilities.<sup>10</sup>

---

<sup>10</sup> A bike facility is a roadway treatment designed to accommodate or encourage bicycling.

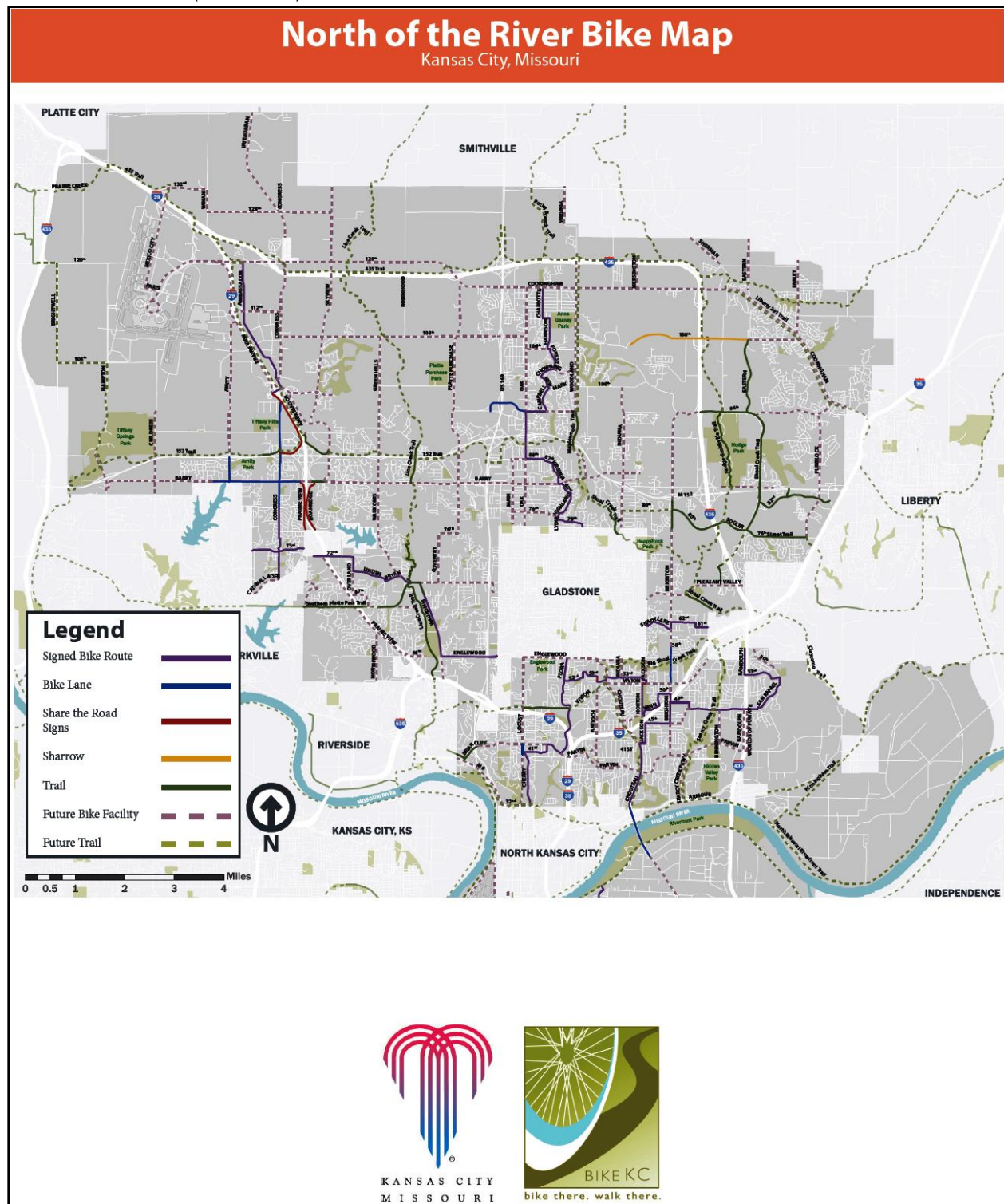
Exhibit 2: Bike KC



Source: Kansas City, Missouri, website.



Exhibit 2: Bike KC (Continued)



Source: Kansas City, Missouri, website.

In 2008, the City Council stated its goal of Kansas City becoming a platinum level Bicycle Friendly Community by 2020.<sup>11</sup> According to AASHTO and the League of American Bicyclists, an adequate bike plan is the foundation of becoming a bicycle friendly city. The purpose of a stand-alone bicycle plan is to identify the projects, policies, and programs needed to fully integrate bicycling as a viable mode of transportation within a community. City bicycle plans should focus on bicycle network planning, as well as policies and design practices that support bicycling.<sup>12</sup> The core element of a bicycle plan is providing recommendations for bicycle facility projects in sufficient detail such that their implementation can be applied in routine, ongoing city capital improvement projects.<sup>13</sup>

The field of transportation planning has evolved over the past 20 years to reflect a growing body of experience.<sup>14</sup> Bike KC was created before most of this experience became incorporated into guiding documents. Because the Bike KC plan does not contain the basic elements of a bike plan, staff has not been provided with adequate guidance. This has resulted in a fragmented decision making approach that will not achieve the city's goal of becoming a platinum level bicycle friendly city by 2020.

A master bicycle plan sufficient to meet the goals of the city may require a multi-disciplinary team of planners and engineers from various city departments. This multi-disciplinary team may still require the services of an outside bicycle planning consultant with the skills, expertise, and experience to create a bicycle plan with the depth and detail to adequately guide staff in its implementation.

In order to adequately guide staff in the implementation of bicycle infrastructure to become a platinum level bicycle friendly city, the city manager should ensure Bike KC contains the recommended elements of a master bicycle plan crafted to meet city goals.

### **Established Public Process Should Shape Bike KC**

BPAC recommendations have not been adequately incorporated in the development of an update to Bike KC. AASHTO recommends a public process and the formation of a bicycle advisory committee as a way to obtain input and community support for a bicycle plan and its

---

<sup>11</sup> Committee Substitute for Ordinance 080515.

<sup>12</sup> American Association of State Highway and Transportation Officials. *Guide for the Development of Bicycle Facilities* (Washington, D.C.: AASHTO), 2012, p. 2-6.

<sup>13</sup> *Guide for the Development of Bicycle Facilities*, p. 2-12.

<sup>14</sup> *Guide for the Development of Bicycle Facilities*, p. 2-6.



implementation. A public process can help obtain input for crafting a bicycle plan's goals, policies, routes, and bike facilities. Creating a bike plan using an established public process and a bike advisory committee can create an open and transparent process that helps build consensus and community support.

The City Council created BPAC as the formal means for ongoing public oversight and input as well as a mechanism for providing the Mayor and City Council with advice on bicycle policy and implementation issues.<sup>15</sup> (See Appendix A for the ordinance establishing BPAC.) BPAC's duties include all things bike related, including the creation and oversight of a bikeway plan that integrates Bike KC and Trails KC. City staff is assigned to support BPAC in an advisory capacity.

In 2011, BPAC recommended updating Bike KC, including steps to assess the adequacy of the plan's routes for all users, recommend bicycle facilities, update design standards, and generally improve the details of the plan to meet city goals. In May of 2013, Public Works Department staff began a process to create a comprehensive bike plan for the city to update Bike KC. BPAC was involved in steering committee meetings for the first several months. In addition, two public meetings were held to obtain broader public input for the bicycle plan. These meetings were used to identify priority corridors and projects. A draft design of a bicycle facility selection tool was presented to BPAC in May 2014. No more meetings were held with BPAC after May 2014 as staff worked to fine tune the tool and add other recommended elements to the plan.

As of July 2016, the work of city staff and a consultant resulted in a draft update that focuses on a Bike KC Toolkit as a supplement to assist staff with the implementation of the existing Bike KC plan. Although the bike facility design tool could be useful for planning, the toolkit on its own is not sufficient as a master bicycle plan. The proposed update does not include all of the recommended elements of a master bicycle plan, fully address BPAC's 2011 recommendation to create a master bicycle plan, or provide staff with adequate guidance to achieve the city's goal of being a bike friendly city. The elements it does include do not adequately reflect city goals or are not adequately developed.

Because the draft update does not incorporate BPAC recommendations to replace the existing Bike KC with a master bicycle plan and all its elements, it does not have sufficient depth, detail, or overall quality to provide city staff with the guidance necessary to achieve city goals. Without an adequate master bike plan, BPAC cannot fulfill the duties

---

<sup>15</sup> Committee Substitute for Ordinance 080515, June 5, 2008.

assigned to it by the City Council and the city will likely continue to struggle to implement its multi-modal transportation goals.

In order to ensure established public processes shape the city's bicycle plan, the city manager should incorporate BPAC's recommendations into policy, plan, project, or other bike related updates for council consideration.

### **Bike KC Needs to Identify Existing Context and Biking Status in the Community**

Bike KC does not provide any background, context, or explanation for bicycling in Kansas City. AASHTO recommends creating a foundation for a plan by first explaining how bicycling impacts a community, existing planning efforts, current bicycling trends, why a new plan is needed, how the new plan will integrate with past planning efforts, and a framework for the plan's use. This context is important so that future users of the plan can understand the intent and purpose of the plan when making amendments or changes. The current Bike KC plan does not reflect existing bicycle facilities; describe how the plan integrates with the broader metropolitan area bike plans, current and past city area plans or bike plans; or provide bicycling statistics and trends for the city.

Bike KC should identify the existing context and status of bicycling in Kansas City.

### **Bike KC Needs Vision, Goals, and Objectives for Progress and Accountability**

Bike KC does not include the City Council's vision of developing a bicycle transportation network accessible to the average resident,<sup>16</sup> the City Council's goal of becoming a platinum level Bicycle Friendly Community by 2020,<sup>17</sup> or any objectives. AASHTO recommends that a bike plan include a section outlining the community's vision, goals, and objectives to establish what the plan hopes to accomplish.

The bike plans we reviewed from other cities included vision statements that generally call for the creation of a dense network of low-stress bicycle facilities that connect people to destinations. Each of the plans contained goals and objectives linked to their vision.

A plan's vision, goals, and objectives should be linked. There should be a logical and easily understood connection between these elements that

---

<sup>16</sup> Resolution 150793, October 29, 2015.

<sup>17</sup> Ordinance 081052, June 5, 2008; and Resolution 110371, May 12, 2011.

provide direct actions to accomplish plan goals and achieve plan visions. Because Bike KC does not identify or include the city's established vision and goals or develop objectives to achieve the identified vision and goals, staff cannot use Bike KC to guide planning or project decisions. Without goals or objectives, it is difficult to evaluate whether staff is making progress towards achieving city goals or establish accountability for whether staff is following the plan.

Bike KC should contain goals and objectives that demonstrate how it will achieve the city's vision for a bicycle friendly community.

### **Performance Indicators Needed to Track Progress**

Bike KC does not contain any performance indicators. AASHTO recommends using performance indicators and benchmarks to track plan progress. The Denver and Portland plans both include clearly defined performance indicators that tie to their city's goals.

Performance indicators should be simple, practical, and fairly easy to measure using existing or known data sources when possible. Examples of bike performance indicators include items such as the number of bikeway miles implemented, mode share percentages,<sup>18</sup> and the rate of bicycle-motor vehicle crashes as compared to the number of bicycle trips.

Performance indicators permit the reporting of progress in achieving the city's goals. The lack of performance indicators in Bike KC has resulted in inconsistent reporting and use of measures that do not demonstrate progress towards achieving a city goal. A 2014 annual report for Bike KC identifies established performance measures, however it does not provide any targets or goals for those measures. Additionally, these measures have not been consistently reported or documented. Without stated goals, objectives, or recommendations it is difficult to report meaningful performance measures and track progress towards achieving desired goals.

Bike KC should include performance indicators that are tied to the achievement of stated goals and objectives.

### **Bicycle Facility Design Guidance Needs More Options, Flexibility, Detail**

Bike KC does not contain design guidance for bike facilities and their use. Some bike facility design and policy guidance are included in the

---

<sup>18</sup> Mode share is the total number of bicycle trips as a percentage of all trips in a city.

Major Street Plan. Currently, the city has design guidance for one type of traditional bike lane and shared lanes with no guidance on how to mitigate conflicts with existing uses such as parking, vehicular speeds, driveways, or travel lane widths.

AASHTO recommends including design guidelines in a bike plan. NACTO, ASHTO, and FHWA have expanded the number of facility types available for use and now offer increased guidance on how to mitigate conflicts that may arise when adding bike facilities to existing roads. Increased design options provide planners and engineers greater flexibility when selecting bike facility types and designing roadways. Improved design guidance can help staff adapt bike facilities to complex urban environments that have many competing uses.

Bike plans for the cities we reviewed incorporated many new design practices, but more importantly, evaluated how to apply the designs in the local context. The plans also specified how each facility type affected a user's comfort on a roadway and how the city plans to employ that facility type to meet its goal of creating a bike network that is accessible to the average bicyclist. In general, these plans identified separated in-roadway bicycle facilities and shared use side paths as having the highest ease of use most likely to attract the average bicyclist.

Without sufficient guidance, the ability for projects to adapt bicycle facilities to existing roads is limited to design exceptions granted by the city engineer. This limits bike facility use on existing roads and can slow project design. Updating bicycle facility designs with a wider array of options, evaluating how the options will be used in Kansas City, and including guidance to mitigate conflicts with existing roadway uses can provide staff guidance and flexibility to implement bicycle facilities that will achieve city goals.

Bike KC should include additional bicycle facility designs and guidance for their use in Kansas City to meet biking goals.

### **Bicycle Facility Network Does Not Meet All User Needs**

Bike KC does not provide recommendations for a network of bicycle facilities to meet all user needs. AASHTO considers the recommendation of a network of bicycle facilities to be the core component of a master bicycle plan. Planning for the needs and abilities of all users is important for designing a successful network. To become a platinum level bicycle friendly city, the bicycle facility network should be aimed at providing a suitable riding environment for the largest number of users. This is accomplished by identifying destinations where

people want to ride; evaluating existing roads on those routes for current ease of use for the average bicyclist; and where current ease of use is not adequate for the average bicyclist, recommending bicycle facilities to improve the on-street bicycling condition to a minimum level to meet the needs of an average bicyclist. Bike KC did not follow this methodology. As a result, routes do not provide direct transportation options for destinations and the average bicyclist will not feel comfortable riding on most of the city's current routes.

**Bike KC routes do not provide direct transportation options based on destinations.** The original staff report acknowledges bicycle routes are a component of the city's transportation system, however staff and outside individuals involved at that time have stated the routes were selected based on where experienced club riders typically enjoyed riding. Those routes did not consider the location of schools, retail centers, neighborhood amenities, and entertainment centers. Additionally, routes have not been updated since they were selected in 2002.

AASHTO provides guidance for developing a method to assist in planning bike network routes to meet all users' needs. Critical to the planning method is consideration of the cyclist's trip purpose, which is broadly defined in as recreational or utilitarian/transportation. Trip purpose will affect a rider's behavior and expectations for a bike network. For example, a person riding for transportation purposes is generally going to a destination and wants a direct, flat route, while a recreational rider may travel in a loop on varied topography with visually interesting surroundings.

The bike plans we reviewed from other cities outlined a methodology for selecting bicycle routes that included parameters identified by AASHTO, such as directness of route, destinations, continuity of route, topography, connections to public transportation, existing road conditions, and adjacent land uses. Some cities considered bike network density by establishing bicycle routes within a quarter mile of every resident or by creating a route approximately every six city blocks. From these parameters, the selected city plans developed a bicycle network to accommodate all bicyclist trip types.

Bike KC routes do not adequately connect people to destinations. Many areas of the city are served by routes that do not provide direct access to major retail, job, or destination corridors. For example, Independence Avenue is a major commercial and retail corridor with no direct bicycle access for most of the corridor. The surrounding meandering bike routes may be ideal for recreational riding, however they do not support a bicyclist trying to get to a destination in a direct, safe manner.

Bike KC should include bike routes that meet transportation and recreation needs.

**Bike KC does not evaluate existing conditions for bicyclists on its routes.** No comprehensive review of biking conditions exists in Bike KC. AASHTO recommends evaluating the existing conditions of a bicycle network in the bike plan document. Each of the bike plans for the cities we reviewed assessed existing ease of use conditions for their bicycle network.

One way to evaluate existing conditions is by conducting an analysis of the Bicycle Level of Service (BLOS). This method assigns a rating to each street segment based on the ease of use for potential riders. Ratings range from A (good for all) to F (not suitable for bicyclists). Although Public Works has the data to evaluate the existing condition of the city's bike network, it has not done so. Using the data, we determined that 53 percent of the lane miles in the Bike KC plan receive a rating of D or lower. Since most of the general population is made up of casual, less confident bicyclists, they would not use most Bike KC routes. (See Exhibit 3.)

Exhibit 3: Bicycle Level of Service Ratings for Bike KC Network

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	May be acceptable to experienced adults	26.3%
E	Bearable by some experienced adults 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 City Auditor's Office analysis.

In addition, some of the bikeways that may be considered comfortable for the average rider are interrupted by sections of low comfort roadway, offering a level of service of D or lower. These interruptions create barriers that may deter a casual, less confident rider in accessing an entire bikeway that would otherwise be considered a comfortable bike route.

A rating of D or lower does not mean that a route should not be used for bicycles. It means that planners should determine what bicycle facility should be used on this route to improve the conditions for the average

bicyclist. Without evaluating the existing conditions of the entire Bike KC network for areas that need improvement, the bike plan cannot recommend where bicycle facilities are needed to improve the ease of use for the average bicyclist.

Bike KC should evaluate Bike KC routes' existing ease of use conditions.

**Bike KC makes no recommendations for bicycle facilities.<sup>19</sup>** Bike KC only identifies bike routes. The plan does not identify or recommend a specific bicycle facility for each route segment nor does it provide criteria or a proposed bike level of service to guide staff as they decide which facility type should be used on each segment of the route. Because Bike KC does not make bike facility recommendations for its approximately 850 lane miles of identified bike routes, project managers have no overarching guidance on which facility type to select.

According to AASHTO, bicycle facilities should be selected to meet the goals of a city's bike plan. This is accomplished by evaluating the existing conditions on routes and using adopted design guidance to select a bicycle facility that achieves an ease of use level for the average bicyclist. Bicycle facility recommendations should be developed in sufficient detail to identify specific projects to implement and include, at a minimum, roadway name, beginning and end points, improvement type, a description of the work needed, and the estimated cost.<sup>20</sup>

**Less than 10 percent of Kansas City's built on-street bike network provides a dedicated travel space for bicyclists.** Each of the selected city plans we analyzed anticipates that 55 to 86 percent of their bike network will be composed of bicycle facilities that accommodate the average bicyclist by providing bicyclists their own dedicated space in which to operate such as separated on roadway bicycle facilities. Ninety-one percent of Kansas City's on-street bike network built to date consists of pavement markings or signed bicycle routes. These are routes where bicyclists are not given priority or provided a dedicated space for bicycle travel. This proportion of facilities does not match those planned by the cities we examined and is not in line with bicycle networks in bicycle friendly cities described by AASHTO. (See Exhibit 4.)

---

<sup>19</sup> A bike facility is a roadway treatment designed to accommodate or encourage bicycling.

<sup>20</sup> *Guide for the Development of Bicycle Facilities*, p. 2-10.

Exhibit 4: Comparison of Bicycle Plans' Recommend Bicycle Facility Types

Facility Type	Built Network <sup>21</sup>	Proposed Network		
	Bike KC	Denver	Portland	Overland Park
Signage or Pavement Marking	91%	0%	0%	14%
Enhanced Shared Roadway <sup>22</sup>	0%	25%	6%	0%
Bike Boulevard/Advisory Bike Lanes	0%	20%	35%	0%
Separated in-roadway	9%	55%	60%	86%

Sources: *Denver Moves*; *Portland Bike Plan 2030*; *Safe Bicycle Outreach Project*; and BPAC annual update.

Most riders are casual, less experienced riders, who are most comfortable with their own separated space on a roadway or on low speed streets. Because less than 9 percent of Kansas City's built bicycle network was designed to prioritize a space on the roadway for a bicyclist, Bike KC implementation is not achieving the city's goal of developing bicycling as a multi-modal transportation option. AASHTO states that "...urban centers in the United States that have seen the highest levels of bicycle use are those that have built a network of bike lanes and shared use paths as the backbone of their system."<sup>23</sup>

Bike KC should include recommendations for a network of bicycle facility types that will accommodate the average bicyclist.

### City Policies Need Updating to Support Bicycle Friendly Goals

Bike KC does not recommend policy changes to support bicycle-related goals. AASHTO states that providing recommendations for policy changes is a standard component of most bicycle plans. Changes can include updating zoning and land development policies that support bicycling. The Overland Park and Portland bicycle plans both suggest changes to existing policy to support their efforts to become a bicycle friendly community.

Some existing city policies conflict with the city's goal of becoming a bicycle friendly community and need to be updated. New developments are not required to build bicycle routes; they are only required to set aside rights of way for future city construction of bike facilities.<sup>24</sup>

<sup>21</sup> Because Bike KC does not provide recommendations for bicycle facility types we can only assess the reported 400 lane miles of built bicycle facilities.

<sup>22</sup> Enhanced shared roadways are roadways where bicyclists are not given priority but bikeway signage and markings are used to increase driver awareness of bicycles on the roadway, but the signage and pavement markings are enhanced by adding traffic calming devices and/or intersection crossing treatments to improve bicycle travel.

<sup>23</sup> *Guide for the Development of Bicycle Facilities*, p. 2-16.

<sup>24</sup> Ordinance 011288.



Additionally, existing code states that traffic studies must evaluate a development's impact on contemplated bike routes.<sup>25</sup> The term "contemplated bike routes" does not provide any guidance for developers or staff when evaluating a traffic study. The code does not require a minimum level of service for bicyclists on the contemplated bike routes and no bicycle facilities have been recommended. Because there is no effective guidance, neither staff nor developers have a basis for making decisions or reports regarding a development's impact on bicycle usage. The current code is not effective in promoting a bike friendly community.

When on-street bike facilities are not constructed during the initial development or redevelopment of an area, it is unlikely another opportunity to construct a bicycle facility will arise in the near future. Coordinating the installation of bicycle facilities during development or redevelopment should expedite the completion of the city's bicycle goals.

Bike KC should recommend updates to relevant zoning and development codes to support the city's bicycle goals.

### **Implementation Plan Should Improve Project Efficiency**

Bike KC does not include an implementation plan. AASHTO states that a master bicycle plan should include an implementation plan. Identified bicycle facility projects should be sufficiently developed to provide initial cost estimates. Projects should then be prioritized into a phased plan so that they can be aligned with identified funding sources and included in routine maintenance projects. When more than one department or agency is involved in a project, it is helpful to identify which department or agency is responsible for each project's implementation.<sup>26</sup>

Each bike plan for the cities we reviewed had an implementation plan. Drawing directly from their recommended bicycle facilities, the plans provided detailed segment level project descriptions and planning level cost estimates. Some plans prioritized projects by including criteria such as proximity to schools and parks, mitigation of bicycle and vehicle conflicts, and connections to existing bicycle facilities and neighborhood destinations. Identification of funding sources and strategies was also a part of some plans.

---

<sup>25</sup> Zoning and Development Code, Kansas City Missouri, Sec. 88-440.

<sup>26</sup> *Guide for the Development of Bicycle Facilities*, 2012, p. 2-11.

Because no assessment of current conditions exists in Bike KC, there are no recommended bicycle facilities from which to identify projects. Without identified projects there are no cost estimates. It is not possible to prioritize projects into a phased plan without information about their relative impact, importance, cost, and possible coordination with future projects or effectively align those projects with funding sources. These conditions cause uncertainty in the decision making process and cause delays in the implementation of projects even when funding is provided.

#### **Armour Boulevard Project Reflects Bike KC Inadequacies**

The efforts to install a bicycle facility on Armour Boulevard over the past four years encapsulate many of the planning issues the city has faced in its implementation efforts.

The city received a federal grant in 2012 to install a bicycle facility on Armour Boulevard from Broadway Boulevard to The Paseo. A lack of progress on construction could put the city in jeopardy of losing those grant funds. Neighborhood groups requested the city move forward. Without a recommendation or guidance from a master bicycle plan, city staff determined that bicycle lanes could not fit with existing uses and recommended sharrows. Although identified as a bike route, Armour Boulevard currently has a “D” bicycle level of service score for its entire length and thus is unlikely to be ridden by average bicyclists. Adding a sharrow does not improve a bicycle level of service score. Additionally, there was disagreement between two city departments over who had the authority to make the final design decisions because the roadway is within the city’s Parkway and Boulevard system.

Significant neighborhood concerns about and requests for protected bicycle lanes led the city to expend additional funds to hire a consultant. When neighborhood leaders were not satisfied with the consultant’s original design, the neighborhood leaders hired their own consultant to provide designs to demonstrate how a protected bicycle facility could be accommodated on Armour. After some discussion, the city’s initial consultant reconfigured the design to accommodate the protected bicycle lanes desired by the neighborhood.

Bike KC should identify the departments and agencies responsible for bikeway projects.

**Funding Opportunities and Prioritization.** Bike KC does not identify local, state, or federal funding sources. Different funding sources may be more appropriate for some projects than others. Sorting out which projects would be best for which funding sources and then identifying funding cycle timelines will allow the city to more quickly accomplish plan goals.

Since 2012, \$1.6 million in federal grants have been obligated towards four on-street bike projects in the city’s core. None of the projects have been completed and some have faced additional costs. Federal funding

obligated towards a project that has not made reasonable progress in the fiscal year it is programmed is at risk of being reallocated or forfeited.

Bike KC should include an implementation plan with initial cost estimates, project prioritization, and phasing.

In 2008, the City Council adopted a climate action protection plan which states that one percent of “all transportation funding” should be set aside for the development of bicycle facilities.<sup>27</sup> It is not clear what “all transportation funding” means or how it should be calculated, but some funds should have been available for bike infrastructure since the climate action protection plan was adopted. Public Works Department management, however, has told us that they have no dedicated funding for bike infrastructure.

Bike KC should identify potential funding sources, including defining the climate action plan’s policy that one percent of transportation funding be spent on bike lanes.

**Implementation Planning.** Without an implementation plan, the city may miss opportunities to leverage ongoing routine resurfacing programs with the installation of bicycle facilities. AASHTO recommends creating an implementation plan that can be incorporated into regular resurfacing, restoration, rehabilitation, or capital improvements programs. Supporting these efforts with a restriping program can help prevent these resurfaced portions of bike facilities from being disconnected from other completed portions of the bike network.

Bike KC should incorporate the implementation plan into resurfacing, restoration, rehabilitation, and capital improvement projects.

### **Encouragement, Education, and Enforcement Programs Should Support City Efforts**

Bike KC does not include bicycle education, encouragement, or enforcement programs. AASHTO notes that an important aspect for improving bicycling is improving bicyclists’ behavior and understanding. This can be accomplished through outreach campaigns; outreach promotional programs to increase bicycling awareness; educational programs at schools or conducted by neighborhood groups; or any other number of avenues. Enforcement programs can include the training of law enforcement personnel to increase their understanding of the rights and responsibilities of bicyclists and motorists.

---

<sup>27</sup> Resolution 080754, July 24, 2008.

Bike KC should include descriptions of educational, encouragement, and enforcement initiatives.

---

## **Recommendations**

1. The city manager should ensure Bike KC contains the recommended elements of a master bicycle plan crafted to meet city goals, including:
  - Existing context and status of bicycling in Kansas City.
  - Goals and objectives that demonstrate how it will achieve the city's vision for a bicycle friendly community.
  - Performance indicators that are tied to the achievement of stated goals and objectives.
  - Additional bicycle facility designs and guidance for their use in Kansas City to meet biking goals.
  - Bike routes that meet transportation and recreation needs.
  - Evaluation of Bike KC routes' existing ease of use conditions.
  - Recommendations for a network of bicycle facility types that will accommodate the average bicyclist.
  - Recommend updates to relevant zoning and development codes to support the city's bicycle goals.
  - Identification of the departments and agencies responsible for various bikeway projects.
  - Initial cost estimates, project prioritization, and phasing.
  - Identification of potential funding sources, including defining the climate action plan's policy that one (1)% of transportation funding be spent on bike lanes.
  - Incorporate the implementation plan into resurfacing, restoration, rehabilitation, and capital improvement projects.
  - Descriptions of educational, encouragement, and enforcement initiatives.
2. The city manager should incorporate BPAC's recommendations into policy, plan, project, or other bike related updates for council consideration.

---

## **Appendix A**

---

### **Committee Substitute for Ordinance 080515**



COMMITTEE SUBSTITUTE FOR ORDINANCE NO. 080515

Amending Chapter 2, Code of Ordinances, by enacting Division 14 of Article VI, which establishes the Bicycle and Pedestrian Advisory Committee.

BE IT ORDAINED BY THE COUNCIL OF KANSAS CITY:

Section 1. That Chapter 2, Code of Ordinances of the City of Kansas City, Missouri, is hereby amended by enacting Division 14 of Article VI which establishes the Bicycle and Pedestrian Advisory Committee, to read as follows:

ARTICLE VI. BOARDS, COMMISSIONS AND COMMITTEES

Division 14. Bicycle and Pedestrian Advisory Committee.

**Sec. 2-980. Committee established; membership; officers.**

There is hereby created and established a committee to be known as the Bicycle and Pedestrian Advisory Committee. The committee shall be composed of thirteen members. Each councilperson (other than the Mayor) shall recommend one member, and upon these recommendations, twelve committee members shall be appointed by the mayor to serve two-year terms,. The mayor shall appoint one additional committee member to serve as chairperson of the committee.. The mayor shall fill any vacancy on the committee by appointing a new member, in the same manner as the original appointment, to serve a two-year term. Regardless of the length of service, all committee members' terms shall end on the day that the councilmanic terms end, provided that each member shall serve until his or her successor has been appointed. The members of the committee shall serve without compensation and shall be subject to removal by the mayor. The following departments shall each designate one employee to serve the committee in an advisory capacity: City Development, Public Works, Parks and Recreation, Water Services, Health, Neighborhood and Community Services, and Police.

**Sec. 2-981. Duties of the committee.**

(a) The Committee is charged with recommending to the Mayor and City Council ways to make Kansas City more bicycle and pedestrian friendly. The Committee will be the formal means through which active citizen participation is provided to advise the Mayor and City Council on policy and implementation for bicycle and pedestrian issues, such as the following:

- (1) Proposing policies to achieve Platinum designation by the League of American Bicyclists by the year 2020.
- (2) Providing oversight of the implementation of the Citywide Trails Plan through an annual review of its progress


COMMITTEE SUBSTITUTE FOR ORDINANCE NO. 080515

- (3) Researching best practices for an integrated approach of education, enforcement, and engineering strategies to improve bicycle and pedestrian safety.
  - (4) Increasing bicycle ridership and pedestrian traffic by developing an integrated bikeway system for commuter and recreational use.
  - (5) Prioritizing bicycle and pedestrian related projects to be completed by City departments.
  - (6) Creating a bikeway plan that integrates the current Bike KC and Citywide Trails Plans.
  - (7) Integrating best practicing and recommending standards and guidelines for bicycle amenities and pedestrian facilities.
  - (8) Partnering with local agencies and organizations to enhance the safety of Kansas City's streets for all modes of transportation by providing education and enforcement events and activities.
  - (9) Other bicycle and pedestrian issues deemed appropriate by the Committee.
- (b) The committee will meet at least eight times per year. The Chairperson shall set the time and place for the first meeting, and the schedule for subsequent, regular meetings shall be set at the first meeting.
- (c) The committee shall make an annual report of its recommendations to the City Council. The committee may make additional reports to the Council as it determines to be necessary.

Approved as to form and legality:

  
M. Margaret Sheahan Moran  
Assistant City Attorney

Authenticated as Passed

  
Mark Funkhouser, Mayor  
Millie M. Cressland, City Clerk  
JUN 05 2008  
Date Passed



---

## **Appendix B**

---

### **City Manager's Response**





# Inter-Departmental Communication

## Office of the City Manager

RECEIVED

DEC 09 2016

CITY AUDITOR'S OFFICE

**Date:** December 9, 2016

**To:** Douglas Jones, City Auditor

**From:** Troy M. Schulte, City Manager

**Subject:** Response to Performance Audit: *Bike KC Inadequate to Achieve City Goals*

**1. The city manager should ensure Bike KC contains the recommended elements of a master bicycle plan crafted to meet city goals, including:**

- Existing context and status of bicycling in Kansas City.
- Goals and objectives that demonstrate how it will achieve the city's vision for a bicycle friendly community.
- Performance indicators that are tied to the achievement of stated goals and objectives.
- Additional bicycle facility designs and guidance for their use in Kansas City to meet biking goals.
- Bike routes that meet transportation and recreation needs.
- Evaluation of Bike KC routes' existing ease of use conditions.
- Recommendations for a network of bicycle facility types that will accommodate the average bicyclist.
- Recommend updates to relevant zoning and development codes to support the city's bicycle goals.
- Identification of the departments and agencies responsible for various bikeway projects.
- Initial cost estimates, project prioritization, and phasing.
- Identification of potential funding sources, including defining the climate action plan's policy that one (1)% of transportation funding be spent on bike lanes.
- Incorporate the implementation plan into resurfacing, restoration, rehabilitation, and capital improvement projects.
- Descriptions of educational, encouragement, and enforcement initiatives.

Agree. In response to this audit, I have directed the City Planning and Development Department to begin the process of rewriting the City's Bike KC Plan. Simply put the current plan does not assist the City in achieving the objective of making Kansas City a platinum-level city for bicycle mobility. Since the initial drafting of the Bike KC plan, the primary goal of bicycling in the community has shifted from a purely recreational goal to a broader goal of cycling as a critical component of a multi-modal transportation system. The plan must be rewritten to achieve the modern goals of the community. It is apparent that the City will not achieve platinum status as a Bicycle friendly community by 2020. A new date must be set as a result of this planning process where this platinum-level standard can be achieved.

***2. The city manager should incorporate BPAC's recommendations into policy, plan, project, or other bike related updates for council consideration.***

Agree. As the City creates a new Bike KC plan, staff from the City Manager's Office will assume the responsibility from Public Works for providing staff assistance to the City's Bicycle Pedestrian Advisory Committee. It is hoped that this change in staff support while the plan is rewritten will ease the adaptation and incorporation of the goals and objectives of the BPAC into City policy recommendations.