

CHAPTER 5 BICYCLE NETWORK AND PRIORITIES

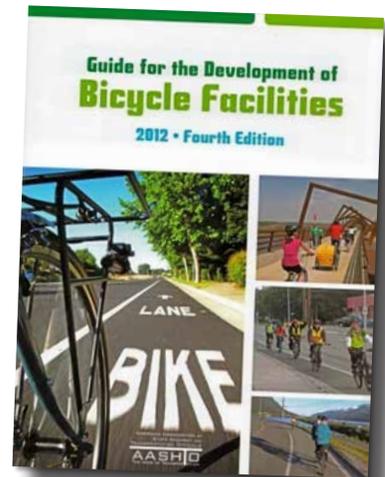


This Plan recommends a network of fully connected bicycle facilities that provide access to all neighborhoods and activity centers in the city; and connects the city to the region. The proposed bicycle network includes both on- and off-street facilities. All recommendations in this Plan follow the guidelines and standards as set forth in the 2009 Manual on Uniform Traffic Control Devices (MUTCD) and the 2012 revised AASHTO Guide for the Development of Bicycle Facilities (AASHTO Bike Guide). In some cases, additional guidelines supplement the MUTCD and Bike AASHTO Guide (see Appendix E). However, they are not design standards and should not be used as such. Application of guidance provided in this document requires the use of professional engineering judgment when installing bicycle lanes, shared lane markings, bicycle boulevards and other bicycle facilities.

AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES

The AASHTO Bike Guide (Guide) is recognized and accepted throughout the United States as the national guidelines for bicycle facility planning and design. It has evolved over time – the 1981 edition of the Guide was 31 pages long and had only four pages of guidance on designing on-road bicycle facilities. By the time the 1999 edition was published, the Guide had more than doubled in length, with considerably more information on planning, on-road bicycle facility design, shared use path design, and guidance for operations and facility maintenance.

Usage of the Guide has grown rapidly as nationwide spending on bicycle facilities has increased. In 2004, the NCHRP Task 187 Report entitled Updating the AASHTO Guide for the Development of Bicycle Facilities made recommendations for numerous changes to the 1999 Guide. The new 2012 publication of the Guide incorporates these recommendations, along with new guidance and research, and practical experience gained through the design and construction of bikeways throughout the United States.



2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

The 2009 MUTCD is a document issued by the Federal Highway Administration (FHWA) of the United States Department of Transportation (USDOT) to specify the standards by which traffic signs, roadway surface



markings, and signals are designed, installed, and used. These specifications include the shapes, colors, and fonts used in road markings and signs. In the United States, all traffic control devices must generally conform to these standards. The manual is used by state and local agencies as well as private construction firms to ensure that the traffic control devices they use conform to the national standards. While some state agencies, including the Kansas Department of Transportation (KDOT) have developed their own sets of standards, including their own MUTCD, these must substantially conform to the federal MUTCD.

The National Committee on Uniform Traffic Control

Devices (NCUTCD) advises the FHWA on additions, revisions, and changes to the MUTCD.

BICYCLE FACILITY DEFINITIONS

The following facility types and their definitions are taken from the 2012 AASHTO Bike Guide. They are used throughout this Plan and on the recommended bicycle network maps.

Glossary of Terms

BICYCLE NETWORK: A system of bikeways designated by the jurisdiction having authority. This system may include bike lanes, bicycle routes, shared use paths, and other identifiable bicycle facilities.

BICYCLE ROUTE: A roadway or bikeway designated by the jurisdiction having authority, either with a unique route designation or with BIKE ROUTE signs, along which bicycle guide signs may provide directional and distance information. Signs that provide directional, distance, and destination information for cyclists do not necessarily establish a bicycle route. Note: For purposes of this Plan, consistent with the above, a SIGNED BICYCLE ROUTE is defined as roadway or bikeway designated by the jurisdiction having authority with BIKE ROUTE signs, along which bicycle guide signs may provide directional and distance information.

BICYCLE LANE OR BIKE LANE: A portion of a roadway which has been designated by pavement markings and, if used, signs, for the preferential or exclusive use of bicyclists.

SHARED LANE (wide curb/outside lanes): A lane of a traveled way that is open to bicycle travel and vehicular use.

SHARED LANE MARKINGS (sharrow): A pavement-marking symbol that indicates the appropriate position for a bicycle in a shared lane.

SHOULDER: The portion of the roadway contiguous with the traveled way, for accommodation of stopped vehicles, emergency use and lateral support of sub-base, base and surface courses, often used by cyclists where paved.

SHARED USE PATH: A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users.

SIDEPATH: A shared use path located immediately adjacent and parallel to a roadway.

RAIL-TRAIL: A shared use path, either paved or unpaved, built within the right-of-way of a former railroad.

RAIL-WITH-TRAIL: A shared use path, either paved or unpaved, built within the right-of-way of an active railroad.

BICYCLE BOULEVARD: A street segment, or series of contiguous street segments, that has been modified to accommodate through bicycle traffic but discourage through motor traffic.

BICYCLE RACK or BIKE RACK: A stationary fixture to which a bicycle can be securely attached.

CONTRA-FLOW BICYCLE LANE: Bicycle lane separated by a yellow centerline marking on a street with one-way motor vehicle traffic, to allow contra-flow bicycle traffic. Note – contra-flow bike lanes are addressed in Chapter 4 of the AASHTO Bike Guide though no definition is provided.

Definition used in this Plan that is not in the AASHTO Bike Guide:

CYCLE TRACK: A portion of a right-of-way contiguous with the traveled way, which has been designated by pavement markings and, if used, signs, for the exclusive use of bicyclists. Cycle tracks are typically one-way (not always), may or may not be raised above the roadway and are separated from the motor vehicle lane by a barrier or buffer such as a rolled curb, cross-hatched paint, planting strip or parked cars. Note – this definition represents current best practice; definition is evolving and will likely change in the future.



THE BICYCLE NETWORK

The bicycle network and project priorities recommended in this Plan were developed through a six phase process.

Phase 1. Develop a Study Network

A study network was developed to identify the streets and paths within Wichita and the 2030 Urban Growth Area that would be evaluated. This evaluation was conducted to determine potential improvements and inclusion in the final bicycle network. The study network was put on a GIS based map and was developed using the following inputs:

- Existing facilities
 - 54 miles of existing bike paths within the City
 - 9 miles of existing bike lanes within the City
- 220 miles of previously recommended bicycle facilities
- Streets and paths identified by the project Steering and Technical Advisory Committees for inclusion in the study network.
- Locations identified through a public survey and community walk survey (see Appendix F)
- Locations identified through a series of focus groups
- Streets and paths identified via criteria developed by Project Steering Committee
- Streets and Locations identified by Open House Meeting participants.



The first Open House was attended by 178 people and provided an opportunity for the public to share additional ideas for streets and paths to include in the study network. Additionally, participants at the Open House were given “sticky dots” and were asked to indicate their preferences for prioritizing projects. There was overwhelming support for completing the existing trail system, providing parallel routes to roads with high traffic volumes; and providing connections to shopping and employment centers, schools and the downtown area. Priorities identified by the Open House participants included:

- Missing links in the existing trail system
- Parallel routes to roads with high traffic volumes
- Connectivity to shopping, employment areas and other destinations
- Bicycle facilities along major street corridors
- Connections to schools



- Barriers (e.g. challenging intersections, lack of bicycle facilities on bridges etc.)
- On-street connections between trails
- Regional connections to areas outside Wichita
- High crash intersections and corridors
- Access to parks and recreation centers
- Bike share
- Bicycle parking
- Access to transit stops/stations
- Maintenance/improvements to existing paths

Using the criteria developed by the project Steering Committee, the project team identified streets and paths to add and remove from the study network. The final study network included 635.5 miles of streets and paths that would be evaluated to determine potential improvements and inclusion in the final bicycle network.

Phase 2. Complete Field Work

Field teams assessed 635.5 miles of streets and paths identified in the bicycle network to determine potential improvements. For each section of roadway in the study network, field data sheets were completed to record: the existing roadway conditions, a recommendation for whether to include the section of roadway in the bicycle network, and if yes, the facility type. This information was coded onto a GIS based map.

Phase 3. Draft Bicycle Network

A draft bicycle network map was developed that contains the following:

- A feasible network of connected bicycle facilities that serves all parts of the City and the 2030 Urban Growth Area.
- Identification of proposed streets and paths to remove from the study network
- A specific design solution for each roadway segment in the network (i.e. bike lanes, shared lane markings, bicycle boulevards, cycle tracks, wide curb lanes etc.)
- A proposed method of accomplishing the recommended design treatment and a proposed roadway cross section (i.e. lane narrowing or removal, parking adjustments etc.)
- Identification of spot locations where specific improvements are needed to address barriers and create



a connected system (i.e. locations for new/upgraded signals, bridges, transit access points, street/trail transitions etc.)

The draft bicycle network maps were reviewed by the Steering and TAC Committees and then revised.

Phase 4. Final Bicycle Network

The final recommended bicycle network was developed based on feedback from the Steering and TAC Committees, input from a second public open house where the draft network was presented, and includes over 800 miles of on- and off-street facilities. This represents the complete, ideal system that provides an interconnected system of on- and off-street facilities that connects all areas of the City and meets all project goals and objectives. The bicycle network is represented on a facilities maps on pages 66-69. Because of the complexity and size of the map, it has been divided into four maps, each representing one quadrant of the City.

	Total Network Miles
Bike lanes	117
Buffered Bike Lanes	5.4
Shared lane markings	72
Side path	50
Shared use pathway	237
Bicycle boulevard	124
Paved shoulder	51
Study	114
TOTAL	770.4

Phase 5. Priority Bicycle Network

The project Steering and TAC Committees, in approving the bicycle network, recognized that completing the network within the initial target period of ten years was beyond what realistically could be accomplished. The Planning Team, with input and direction from the Steering and TAC Committees, developed a scaled down version of the bicycle network (Priority Bicycle Network) that still meets most of the goals and objectives of the network but is something that can realistically be completed in ten years or less, given potential resources. The following is a summary of the mileage for each of the facility types in the Priority Bicycle Network. Planning level costs estimates for the Priority Bicycle Network are included in Appendix B.

	Priority Network Miles	Priority Network Costs
Bike lanes	30.0	\$435,000
Buffered Bike Lanes	2.3	\$54,648
Shared lane markings	41.0	\$270,600
Shared use pathway	4.5	\$2,34,900
Bicycle boulevard	57.2	\$6,211,920
Paved shoulder	1.7	\$359,200
Sidepath	11.6	\$2,939,440
TOTAL	148.3	\$12,611,708

In addition to the above, there are 196 intersections identified as needing additional study for crossing improvements, about 70 of which may need a signal. Within the Priority Bicycle Network, there are 88 intersections identified as needing further study for possible improvements, 38 of which may need a signal. The costs for intersection improvements are included in the planning level cost estimates for the bicycle facilities; improvements to intersections should be made in conjunction with the installation of new facilities. The Priority Bicycle Network is represented on a facilities maps below.

Phase 6. Priority On- and Off-Street Projects

In order to help ensure the maximum benefit from the development of new City of Wichita bicycle facilities as

stand-alone projects, the Steering Committee recommended that the Plan should include a prioritized list of recommended on-street and side path facilities; and off-street (shared use paths). The Planning Team, in collaboration with Steering Committee and TAC, developed the draft lists of projects. The list of priority on-street and side path facilities includes 10 projects, while the list of priority off-street facilities identifies one facility. In addition to the Plan goals and objectives, the draft prioritized rankings were based on safety, earlier public input, and geographic balance (a significant portion of the City needs to be accessible from the bicycle network).



The public was asked to prioritize the projects at the May 1st, 2012 Open House. Based on the public input, the list of priority projects was revised and presented to the Steering Committee and TAC for approval. During the approval process, the Steering Committee determined that the top priority on-street and side path facilities should not be assigned any rank order, because the Bicycle Advisory Board will be providing input regarding the top priority new facility on an annual basis and/or when specific funding opportunities are available.

TABLE 5-1: *Top Ten Recommended Priority On-street and Side Path Bicycle Facilities (arranged alphabetically)*

Name	Description
1st and 2nd Street Bike Lanes	Extend existing bike lanes from I-135 to the Arkansas River (east/west)
2nd Street Bike Lane and Shared Lane Markings	Install mix of bike lanes and shared lane markings from the Arkansas River to Hoover (east/west)
Armour Ave Bicycle Boulevard	Install bicycle boulevard from Douglas Ave to K-96 (north/south)
Douglas Avenue Shared Lane Markings	Install shared lane markings from St. Paul Ave to Edgemoor Ave (east/west)
I-235 East/West Crossing: Central Ave or Maple St	Pending further study, install a side path connection under I-235 and across the "Big Ditch" (east/west)
Market St & Topeka Ave Bike Lanes	Install bike lanes from 21st St to Mt Vernon Rd (north/south)
Mt Vernon Bike Lanes	Install bike lanes from Broadway Ave to Woodlawn Blvd (east/west)
Pedestrian Crossing Signal & Bicycle Boulevard	Install signal to cross Ridge Road and Westport Ave to provide access to Sedgwick County Park; install bicycle boulevard starting at Ridge and going west to Glenhurst Street; then south along Holland Ln/ Country Acres Ave/Woodchuck to University Ave (north/south)
Perry Ave Bicycle Boulevard + 17th / 18th St Shared Lane Markings	Install bicycle boulevard starting at Perry Ave & 13th St., and going north to via Perry/Porter/20th/Coolidge to 21st Street (north/south) + Install shared lane markings on 17th, then 18th St from I-135 to Perry Ave (east/west)
Sycamore St Bicycle Boulevard	Install bicycle boulevard starting at Sycamore and Douglas and going south to Glenn St via Dayton, Osage, McCormick, Dodge and Orient. (north/south)

TABLE 5-2: *Top Priority Off-Street (Shared Use Path) Bicycle Facility*

Name	Description
Redbud Path – Oliver to K-96	Construct path on former railroad right-of-way between Oliver and K-96

The planning level costs for the top ten (10) recommended priority on-street and sidepath bicycle facilities is 2.1 million dollars, the proposed costs for the top recommended priority (shared use path) facility is approximately \$2.5 million. The priority projects represent about 74 percent of the Priority Bicycle Network facility miles.

Maps showing the priority on- and off-street projects are on the following pages. Strategies for implementing the Bicycle Network are covered in Chapter 4. Strategies and Actions.