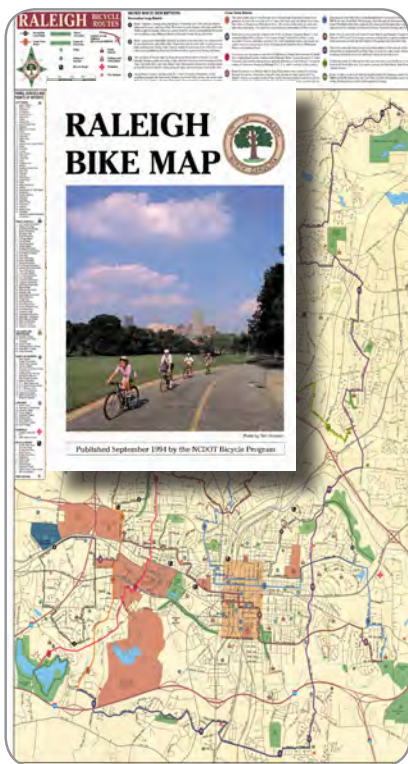


# Bicycle Routes and Wayfinding

This chapter describes a comprehensive wayfinding strategy that builds on existing wayfinding efforts and complements the bicycle facilities recommended in the previous chapters. For bicycling, wayfinding is an important education and encouragement tool that can identify an All Ages and Abilities network while also informing all users of a street about nearby destinations.



*The Raleigh bike route map above was published in the 1990s. The streets chosen for bicycle routes generally had less automobile traffic and were wide enough for easier travel. The speed limit on the majority of roadways was 35 mph with no route posted higher than 45 mph.*

## EXISTING BICYCLE ROUTES

The City of Raleigh first developed bicycle routes in the 1970s in response to the 1973 Oil Crisis. Over the years, the system was refined and recreational-focused loop routes were added; now there are remnant numbered bike route signs in many places in Raleigh. Routes were selected and signed because they connected destinations along mostly calmer roadways. However, the character of many of those streets has changed over time. The route system is not well known, except by experienced Raleigh bicyclists who make use of portions of the routes today. Because of this, and other reasons, the 2009 Bicycle Transportation Plan recommended discarding the route system as new bicycle infrastructure was being developed. This plan update also recommends discarding the old system but recommends replacing it with a new wayfinding system. The new system will not have specifically named or numbered routes. Rather, the recommended wayfinding strategy should be implemented along key corridors that connect cyclists to destinations and will serve as an education and encouragement tool.

## **CORE WAYFINDING PRINCIPLES**

Wayfinding signage has proven effective in major US cities that have implemented them, especially along neighborhood bikeways.

Logical wayfinding means an individual is capable of easily and successfully finding their way to their destination, able to understand where they are with respect to other key locations, and can orient themselves with little effort or stress. In addition, an effective wayfinding system presents opportunities to discover new places and services and includes a consistent approach to placement and design, working within local, state, and federal guidelines.

Wayfinding is a natural extension of existing efforts to encourage more bicycling by creating a clear and attractive system that is easy to navigate. Whether advertising directly to people bicycling or indirectly to passing vehicles, the can should encourage use by being both attractive and effortless to use and understand.

### **WAYFINDING CAN HELP TO:**

**PROMOTE BICYCLING**

**FAMILIARIZE USERS WITH THE BIKEWAY SYSTEM**

**IDENTIFY THE BEST ROUTES TO KEY DESTINATIONS**

**DIRECT BICYCLISTS TO PREFERRED ROUTES**

**ADDRESS MISCONCEPTIONS ABOUT TIME AND DISTANCE**

**ENCOURAGE AND INFORM NEW RIDERS**

**IMPROVE ACCESSIBILITY OF THE BIKEWAY SYSTEM FOR ALL USERS**

**PROVIDE A VISUAL CUE FOR MOTORISTS TO EXPECT BICYCLE TRAFFIC**

**OVERCOME NAVIGATION CHALLENGES PRESENTED BY NON-GRID STREET NETWORK**

## EXISTING RALEIGH WAYFINDING EFFORTS



### DOWNTOWN WAYFINDING SYSTEM

In 2009, a network of signs and maps were installed to help Raleigh's visitors in their arrival downtown and direct them to their destination. Signs were developed, targeting both motorists and pedestrians. The system is in need of an update as there are several new destinations downtown to be featured.



### HISTORIC OVERLAY DISTRICTS

In 2014, the Raleigh Historic Development Commission replaced blue-and-white oval sign toppers with white-on-brown street identification sign blades with the name of the district at street intersections located within Historic Overlay Districts.



### CAPITAL AREA GREENWAY WAYFINDING

In 2006, a Master Sign Program was developed to provide a sense of identity and utility for the existing greenway trail network. Signage types include informational, directional, regulatory, confidence markers, access identification, and interpretive panels. An action item in the Parks, Recreation and Cultural Resources System Plan identified the need to update the Master Sign Program.



### WALKRALEIGH SIGN PROGRAM

Partnering with Walk[Your City] and Blue Cross Blue Shield of North Carolina, the City is currently in the process of installing signage highlighting local amenities and destinations of interest. The signs are color-coded to indicate which type of destination they feature. A QR code can be scanned to provide walking and biking directions and a map to a given destination. The signs use minutes, rather than miles, as a unit of measure.

## BICYCLE WAYFINDING STRATEGY

In order to achieve a more navigable bicycle network, five core principles define the goals of the proposed BikeRaleigh Wayfinding Program. These principles are based on best practices for creating a clear wayfinding experience.

### GOALS FOR THE BIKERALEIGH WAYFINDING PROGRAM

**CONNECT PLACES** - *SIGNAGE WILL GUIDE USERS TO KEY DESTINATIONS.*

**PROMOTE ACTIVE TRAVEL** - *SIGNAGE WILL EDUCATE AND ENCOURAGE RIDERSHIP.*

**MAINTAIN MOTION** - *SIGNAGE WILL BE CLEAR AND VISIBLE FOR BICYCLISTS ON THE "GO."*

**BE PREDICTABLE** - *SIGNAGE PLACEMENT AND DESTINATIONS WILL BE CONSISTENT.*

**KEEP INFORMATION SIMPLE** - *SIGNAGE CONTENT WILL BE SIMPLE AND STRAIGHTFORWARD.*

## WAYFINDING ELEMENTS

Based on field reconnaissance, best practices review, and discussions with the steering committee and City staff, the following wayfinding elements are recommended for the bikeway network. A combination of sign types and supplemental wayfinding elements should be used to designate a route. A small study should be conducted to determine appropriate amount and placement of the wayfinding elements.

While greenways are an essential component of an overall All ages and Abilities network, they are maintained by the Parks, Recreation, and Cultural Resources Department and already have an established wayfinding program as described on page 5-3. The following recommendations are aimed at on-road bicycle routes, including connections to and from greenway trails. In cases of roadside sidepaths, wayfinding signage recommended in this chapter would still be used.



Concept confirmation plaque for wayfinding signage system (with street name above; without street name below - which may be less expensive to fabricate).



Concept for a decision sign plus a confirmation plaque.

### WAYFINDING SIGNS

Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes. It is recommended that bikeway signs be posted at a height most visible to bicyclists and pedestrians.

### CONFIRMATION SIGNAGE/PLAQUE

The purpose of confirmation signage is to indicate to cyclists and drivers that the roadway is a designated bikeway. Directional arrows should not be included on this type of signage. Placement should be every  $\frac{1}{4}$  to  $\frac{1}{2}$  mile on off-street facilities and every 2 to 3 blocks along on-street bicycle facilities, unless superseded by other types of signs which provide confirmation. Confirmation signage should also be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route.

Confirmation signs may be as simple as a standard “Bike Route” Sign or they may include a program brand or graphic. Images here are concepts for branded BikeRaleigh confirmation signs.

### DECISION SIGN

Decision signs clarify route options at junctions. Decision signs include system branding elements, distances to destinations in miles and/or time (based on 10 mph or 6 minute per mile travel speed) and may include a route or path name. Decision signs should be located in advance of junctions between bicycle routes and along a route to indicate nearby destinations.



Example of an existing decision sign installed along the Art to Heart corridor in Raleigh.

## SUPPLEMENTAL WAYFINDING ELEMENTS

### PAVEMENT MARKINGS

Directional pavement markings indicate confirmation of bicyclist presence on a designated route and where bicyclists should turn. Especially in urban settings, pavement markings can often be more visible and can help supplement or reinforce signage. The images below show different types of pavement markings that have been used for wayfinding purposes. While the shared lane marking, or “sharrow”, is currently the only MUTCD approved pavement markings shown, cities across the country have experimented with other options. Sharrows may also be used to show a turn in advance.

St. Louis, MO, is currently conducting an FHWA approved experiment regarding the use of small wayfinding medallions (bottom left image) on both on-and-off street bikeways.



*St. Louis, MO is currently studying the impact of a small bike wayfinding medallion pavement marking.*



*Raleigh has been installing shared lane markings since 2010. Sharrow arrows like this one can also be used to inform bicyclists of an upcoming turn.*



*Portland, OR has created a bicycle boulevard pavement marking stencil.*

## SIGN ENHANCEMENTS

MUTCD standard street name sign blades have been enhanced by a wide number of municipalities around the nation to provide additional recognition of bikeways. Enhancements have been achieved either in the form of supplemental signs and sign toppers added to existing signs or via graphic embellishments integrated into the new sign blade.

Green, blue, and brown are all accepted colors for street name blades according to the MUTCD, as long as colors are used consistently across the City. Currently, Raleigh has a standard green street blade sign and brown blade for Historic Overlay Districts.



Emeryville, CA has included their bicycle route logo into a green street name blade.



Vancouver, BC uses the bicycle symbol in the street name blades along key bike routes.

## MAP KIOSKS

Kiosks with area maps can provide helpful navigation information, especially where bicyclists may be stopping long enough to digest more information (i.e. transit stations or stops, busy intersections, trail heads, etc.). They could be particularly beneficial at a destination, bike share station, or the intersection of a greenway and neighborhood bikeway.



Seattle, WA incorporates public art into their wayfinding kiosks.



Arlington, VA added a bike map kiosk to their bike share stations.

### WAYFINDING SIGNAGE PLACEMENT

The following network components have been identified as the locations to place wayfinding signage. There should be flexibility in how and where the signage is implemented based on further coordination with other City departments regarding downtown and greenway signage. However, as the separated and neighborhood bikeway system is implemented, signage should be considered a key component.

### “ALL AGES AND ABILITIES” NETWORK

Implementation of the bicycle wayfinding program should focus on neighborhood and separated bikeways. These facilities are an on-street extension of the greenway system, and when combined, form the “All Ages and Abilities” network described in Chapter 3. It should be noted that many of the recommended neighborhood bikeways were derived from a combination of the original bicycle routes, “preferred routes” on the Raleigh bicycle map, and the Level of Traffic Stress (LTS) analysis. As the network is developed, wayfinding elements should be incorporated into implementation.

### EXISTING FACILITIES

Presently, existing bicycle facilities and pavement markings exist but seldom have associated bicycle wayfinding signs or elements. With such a large network of marked on-street bicycle facilities, there is an opportunity to connect people to key destinations. Additionally, many neighborhood connections to trails are not signed, making it difficult for users to find their way. Vice versa, guidance from the trail system to on-street facilities or key destinations is needed. When a facility ends abruptly, wayfinding presents an important opportunity to indicate to the user the distance to key destinations or nearby facilities.

### BRANDED ROUTES AND CORRIDORS

Wayfinding elements should also be focused on branded routes, such as the Art to Heart. Incorporating the Art to Heart logo into pavement markings or map kiosks could further enhance the corridor. In addition, the City should look for opportunities to brand future major bikeways to attract commuters and tourists. For example, a Downtown Loop Trail could be branded to make it more identifiable and appealing.



*As the “All Ages and Abilities” network is developed, it should be incorporated into the BikeRaleigh map, including the on-line, mobile application, and paper versions.*



*The Art to Heart logo should be incorporated into any future wayfinding efforts along the corridor.*



## WAYFINDING SYSTEM CONSIDERATIONS

### *DESTINATION SELECTION*

Following the first principle, “connect places,” this section describes an approach for selecting the potential destinations to which cyclists may want to travel. Bicycle signs only allow for three slots of information or destinations per sign. Thus, a consistent approach to selecting destinations to be included on wayfinding elements is necessary. The following categories were developed incorporating recommendations from the Downtown Wayfinding Plan, the steering committee, and lessons learned from the “WalkRaleigh” program.

#### DESTINATION CATEGORIES

##### BUSINESS AND SERVICES

- Medical Facility - Hospitals, veterans services, and clinics
- Shopping Center - Group of shops, retails stores, and/or restaurants
- Visitor Center

##### EDUCATION

- School, College/University

##### ENTERTAINMENT AND CULTURE

- Historic Site
- Public Landmark
- Museum
- Performing Arts Venue

##### PUBLIC FACILITY

- Recreation or Community Center
- Park/Open Space or Greenway Trail
- Library
- Multi-modal Transit Hub

##### SPORTS FACILITY

- Stadium or Arena

##### CRITICAL RESOURCES

- Shelter and Food Bank
- Employment Center

### COHESIVENESS OF MULTIPLE WAYFINDING SYSTEMS

As described previously, the City has implemented wayfinding signage for its Downtown and its greenway systems. This must be taken into account when implementing this bikeway wayfinding system. Any new implementation of Downtown, greenway, and bikeway signage related to design and placement should be discussed and vetted between the City of Raleigh departments that plan for, manage, and maintain them. The bikeway signage should not supercede existing signage and should be developed to build upon and complement the existing signage. In many cases, bikeway signage would be added on roadways that connect Downtown to the greenway system, where existing signage is not present (for example, Bloodworth Street).

In situations where destination signs are already in place (such as Downtown roadways), it is recommended that bikeway signage not be added. This will help to avoid sign clutter because destination information is already being provided to both motorists and bicyclists. Too much signage creates confusion and lessens the impact of the system.



*Concept confirmation plaque for wayfinding signage system with a more common font (Arial). The City may decide to move forward with this concept or a variation of it.*



*Existing Downtown destination signage is already adequate for bicyclists. Bicycle wayfinding signage should not be added to these roadways but could be added to connecting roadways and recommended neighborhood bikeways.*

## TECHNICAL GUIDANCE

A variety of standards and guidelines influence both the sign designs and placement of wayfinding elements in Raleigh. The following section highlights national standards for wayfinding signage. The City will need to thoroughly evaluate these standards before implementing the proposed wayfinding program.

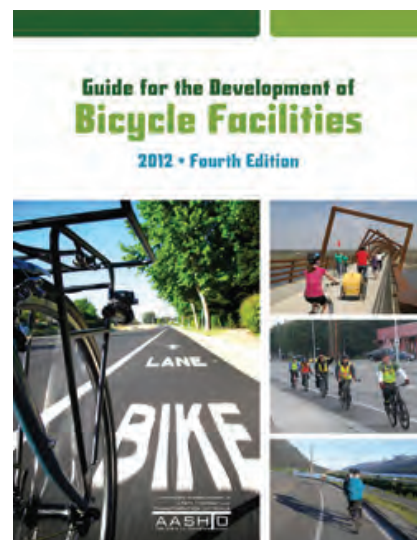
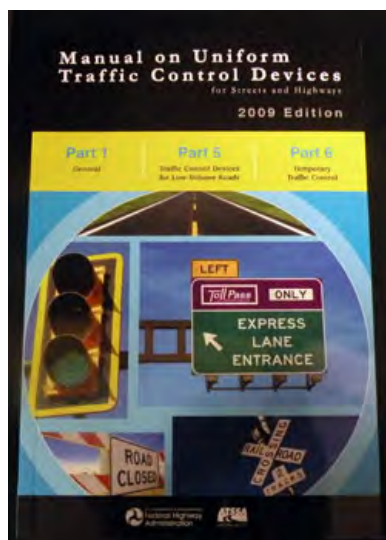
### NATIONAL STANDARDS FOR WAYFINDING

AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

NATIONAL COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES

AMERICAN WITH DISABILITIES ACT (ADA) GUIDANCE



National Committee on Uniform Traffic Laws and Ordinances

## **RESOURCES**

"Manual on Uniform Traffic Control Devices." Manual on Uniform Traffic Control Devices. Department of Transportation, 2009. <http://mutcd.fhwa.dot.gov/index.htm>

"Guide for the Development of Bicycle Facilities, Fourth Edition." American Association of State Highway Transportation Officials, 2012.

"Wayfinding Signs for Shared-Use Paths." National Committee on Uniform Traffic Control Devices, Spring 2014. <http://www.ncutcdbtc.org/sponsors.html>

"United States Access Board." About the ADA Standards. <https://www.access-board.gov/guidelines-and-standards>