

# 6 Bicycle Routes



## Introduction

One of the most common questions that new bicyclists ask is where to ride. A person who has done very little bicycling as an adult may find the main roads too challenging but may not know how to find alternative routes. Similarly, someone who is new to town may wish to try out the local scenic backroads but may not be able to find them, given a standard road map. Solving these problems are functions of the bicycle route.

A bicycle route is a suggested way to get somewhere. In a community, a bicycle route may consist of a set of signs designating a preferred way to get from a residential area to a park or to a shopping area. A network of such routes may show bicyclists how to get to many destinations throughout the community. In some cases, looped systems of scenic routes have been created to provide users with a series of recreational experiences.

A bicycle route may include stretches of road with marked bicycle lanes, but in general the bicycle route concept does not require that

the road include any such special bicycle facilities.

In rural areas, signed touring routes may help long-distance bicyclists ride across the state on a network of carefully-chosen, quiet country roads. Often, such bicycle routes are keyed to a user map.

## Overall planning

Planning a bicycle route, or a network of such routes, begins with development of the statement of purpose. Choosing the appropriate purpose requires consideration of an agency's goals and objectives. For example, within the scope of its overall transportation plan, a transportation agency's purpose may be to encourage utilitarian bicycle use along a network of quiet through streets.

On the other hand, a recreation agency may see part of its mission as encouraging recreational bicycling by identifying a series of loop rides. The following are typical uses of the bicycle route concept.

**Bicycle route networks:** In deciding to designate a local network of bicycle routes, the first step is to develop a list of common destinations. Such destinations might include, for example, local shopping areas, schools and universities, sports and recreation complexes, parks and discontinuous segments of bicycle paths.

Each destination will have a reasonable capture area from which it may attract bicyclists. In general, the average bicyclist will travel between 3 km to 6 km (2 mi to 4 mi) per trip. As a result, a capture radius of 6 km (4 mi) will be appropriate for most bicycling destinations.

Schools often have specific districts; maps of these may be obtained from the local school district offices. Universities and colleges are often adjacent to student housing neighborhoods which help identify logical bicycle transportation corridors.

Placing the common destinations and their likely capture areas on a map will begin to suggest potential bicycle route corridors. Since a bicycle route goes both directions, it is useful to identify two end points for each route. With the potential corridors chosen, the next step is to identify alternative routes. This step is discussed in "Selecting bike routes."

**Looped routes:** In developing a series of looped routes, the first step is to identify scenic areas of interest. Such areas might include large parks, scenic farm country, areas around lakes or other bodies of water or pristine woodlands. Place these general locations on a map of the area.

Within these areas, identify points of interest that a route should pass by. Historic sites, scenic overlooks, picnic areas and other such attractions should be located on the map. Once these sites have been identified, look for potential loop routes approximately 16 km to 64 km (10 mi to 40 mi) in circumference. Longer routes with challenging hills will be popular with more experienced riders while casual family riders will prefer the shorter, flatter and less challenging routes.

**Touring routes:** Long-distance bicycle touring routes are a specialized application of the

bicycle route concept. The North Carolina Department of Transportation Office of Bicycle and Pedestrian Transportation has been active in the development of such routes over a period of more than ten years. For this reason, it is important to contact the office and work closely with its staff on the development of such routes. A detailed pamphlet on the subject has been published which should be consulted.

## Selecting bike routes

Overall, the decision to select one road over another for a bicycle route should be based on the advisability of encouraging bicycle use on that particular road. While the roads chosen for bike routes may not be completely free of problems, they should offer the best balance of safety and convenience of the available alternatives. In general, the most important considerations fall into three main categories: (1) geometrics, (2) traffic conditions, and (3) appropriateness for the intended purpose.

**Geometrics:** The most important geometric considerations include roadway width, pavement quality, intersections, curves and hills. Chapter 4 of this guide explains how to make bicycle-related roadway improvements. To some extent, low motor vehicle traffic volumes can compensate for less desirable roadway conditions.

*Roadway width:* On lower speed roadways, widened curb lanes are beneficial for bicyclists. On high speed roads, smoothly paved shoulders are desirable. If a route is generally suitable but includes a short stretch of narrow road, consideration should be given to use of the "Share the Road" warning sign on that segment (see Appendices for details).

*Pavement quality:* Smooth roads are far preferable to roughly paved ones. Perhaps more than any other geometric consideration, pavement quality will determine how popular a bicycle route will be.

*Intersections:* Intersections should be relatively simple and should include few complex features, like multiple turn lanes. Points where

bicyclists will be expected to turn left should be carefully evaluated for their safety. Traffic lights should be responsive to bicycle traffic. And the presence of high numbers of stop signs on the route will discourage bicycle users.

*Curves:* While curved stretches of roadway provide variety, a road with serious sight distance problems and many no-passing zones may not be an appropriate bicycle route.

*Hills:* Bicyclists' perception of the steepness of hills will vary with their fitness levels, cycling skills, trip purposes and expectations. While most utilitarian bicyclists will choose the flattest route, fit and skillful recreational riders may enjoy the challenge of a climb and the thrill of a descent.

**Traffic conditions:** Traffic conditions that affect the desirability of a potential bicycle route include traffic volume, traffic speed and percentage of truck and RV traffic.

*Traffic volume:* In general, the route with the least motor vehicle traffic will be the one many bicyclists will prefer. Experienced bicyclists, who have learned to cope with traffic, will be least concerned with this variable; for new bicyclists, however, it will be the overriding concern.

*Traffic speed:* For experienced riders, high speed traffic offers few concerns. However, most bicyclists fear high traffic speeds.

*Percentage of truck and RV traffic:* On high speed routes, the percentage of truck and RV traffic is a particular concern due to the buffeting that bicyclists experience when passed by heavy vehicles. When combined with narrow road conditions, a significant percentage of heavy vehicle traffic will make a route undesirable.

**Appropriateness:** Factors used to determine how appropriate a particular road is for a bicycle route include directness, scenery and available services.

*Directness:* For utilitarian riders, directness is important, and a route that wanders too much will see little use. For recreational riders, this factor is not as important.

*Scenery:* For utilitarian riders, scenery is relatively unimportant. For recreational bicyclists, on the other hand, varied and attractive scenery is one of the most important factors.

*Services:* Recreational riders, particularly those riding more than a few miles, will be particularly interested in services (food, water, restrooms). A route without such services will be less desirable than one with occasional stopping places.

## Designating bike routes

When setting up a bicycle route, the placement and spacing of signs should be based on Part IX of the MUTCD, found in Appendix 4.

For Bike Route signs to be functional, supplemental plates may be placed beneath them when located along routes leading to high demand destinations (e.g., "To Downtown," "To State College," etc. See Figure 6-1 for typical signing).

Since bicycle route continuity is important, directional changes should be signed with appropriate arrow subplaques. Also, signing should not end at a barrier. Information directing the bicyclist around the barrier should be provided.

According to the MUTCD (Part 2A-6), "Care should be taken not to install too many signs. A conservative use of regulatory and warning signs is recommended as these signs, if used to excess, tend to lose their effectiveness. On the other hand, a frequent display of route markers and directional signs to keep the driver informed of his location and his course will not lessen their value."

**Bike route:** The Bike Route sign (see Figure 6-1) is intended for use where no unique designation of routes is desired. However, when used alone, this sign conveys very little information. It should be used in conjunction with supplemental plaques giving destinations and distances. See Part 9B-22 of the MUTCD for specific information on subplate options.

**Numbered bike route:** The numbered bike route sign (see Figure 6-2) is used to establish a unique identification for a state or local bicycle route. The sign may be combined with directional arrow subplates (M7-1 through M7-7).

One use of this type of sign is for long touring bicycle routes. The number may, for example, correspond to a parallel highway, indicating the route is a preferred alternate route for bicyclists. This sign also is used in communities with multiple bicycle routes.

Such signs are often used in conjunction with user maps, which tell the bicyclist where each route goes.

### Mapping

Bicycle users often want to know the extent of a network of bike routes, just what areas certain routes serve. Yet few bicyclists will follow a route just to see where it goes. Therefore, mapping bicycle routes can improve the utility of the system.

Depending on the budget available, a bike route map can consist of anything from a small one-color schematic to a large full-color production. While the former would require relatively few of an agency's resources, the latter could be time-consuming and demand significant support in terms of money and professional staffing. For more information on bicycle mapping, see Chapter 8, or contact the NCDOT Office of Bicycle and Pedestrian Transportation.

