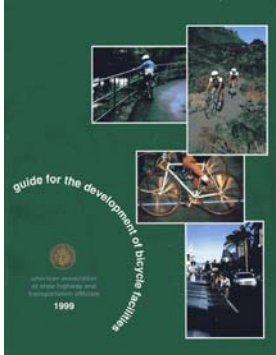


GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES



American Association of State Highway and Transportation Officials (AASHTO), Task Force on Geometric Design (1999). *Guide for the Development of Bicycle Facilities*. Washington, DC.

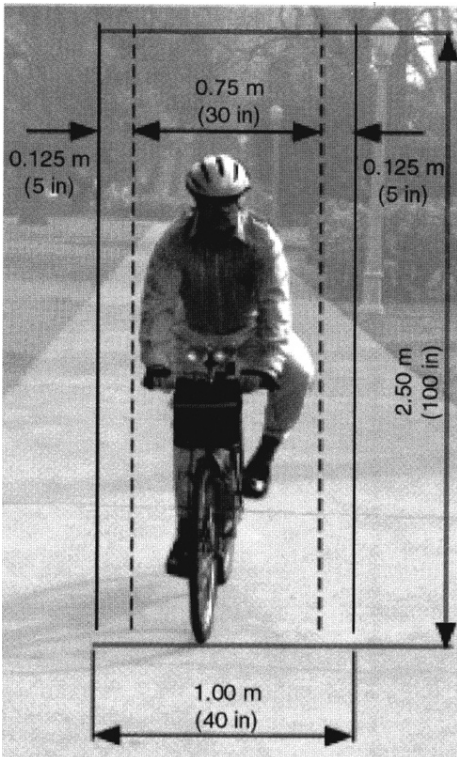
ABSTRACT

Introduction. The bicycle is a viable transportation mode. Since the early 1970s, bicycle use for commuting, as well as recreation, has been increasing and the federal, state and local agencies are responding to that need. The emphasis now being placed on bicycle transportation, and how to integrate it into the overall transportation system, requires an understanding of bicycles, bicyclists, and bicycle facilities which this guide addresses.

Chapter 1: Planning. Planning for existing and potential bicycle use should be integrated into the overall transportation planning process during the initial phases of highway projects. It is an opportunity for a community to set the goals and objectives for biking as an alternative transportation mode.

The first step is to define how much space is needed for the bicyclist dependent on their basic profile and the type of traffic in which they will be riding. The facility should be planned for the type of users anticipated. The general categories are Advanced or experienced riders, Basic or less confident adult riders, and Children. The A-B-C types are helpful, but no one type of bicycle facility or highway design suits every bicyclist and no designated bicycle facility can overcome a lack of bicycle operator skill. Bicycle facilities should be planned for continuity and consistency for all users. The selection of a bicycle facility type is dependent on many factors: the ability of the users, corridor conditions and facility cost. The chapter goes on to describe different facility types and their general design.

In the planning phase, an inventory of the existing bicycling environment to determine suitability for bicycling, taking into consideration: obstructions and impediments to bicycle travel, bicycle traffic generators, access, and bicycle parking. This is a good time to involve the public in developing the foundation for improvement plans and the selection of an appropriate bicycle facility. The chapter ends with a discussion of how bicyclist and motorist education programs are key ingredients to building a successful bicycle transportation system.





Chapter 2: Design focuses on the design of various classifications of bikeways including Shared Roadways, Signed Shared Roadways, Bike Lanes, Shared Use Paths and Other Design Considerations.

Shared Roadways. Width is the most critical variable affecting the ability of a roadway to accommodate bicycle traffic. Paved shoulders are a good way to accommodate bicyclists in rural areas and also benefit vehicle traffic. Safety should be paramount when designing for shared roadways. Paved shoulders should be a minimum of four feet wide and in more heavily traveled areas should be increased to at least five feet. Rumble strips are unsafe where bicyclists use the paved shoulder. Wide curb lanes that are 12 feet wide are preferred in restrictive urban areas and can accommodate both bicycles and vehicles. On-street parking is a hazard for bicyclists. Pavement surfaces should be smooth and uniform in width. Bicycle-safe drainage inlet grates should be used.

Signed Shared Roadways indicate that these are preferred bike routes providing continuity among bicycle facilities, this is a high demand corridor or low vehicle traffic volume, and the responsible agency ensures maintenance of the route. A number of criteria are listed for consideration before signing a route and typical bike route signs and location are defined.



Bike Lanes indicate preferential use by bicyclists and should be one-way in the same direction as motor vehicle traffic. This section describes the preferred width of bike lanes for different types of roadway configurations. Where Bike Lanes are in use, intersections and turn lanes are problematic for both the bicyclist and motorist. There are a number of striping examples given to address conflicts at intersections as well as typical bike lane symbols.

Shared Use Paths are on exclusive right-of-way designed for two-way travel by non-motorized users such as bicyclists, walkers, and joggers. They are good for motorized wheel chairs. Separation between Shared Use Paths and Roadways is recommended. A number of operational problems may occur when different modes are adjacent to one another, as outlined in this guide. This section gives very specific guidelines, formulas and diagrams for width and clearance, design speed, horizontal alignment, grades, sight distance and curves. Careful design is important at the intersections between paths and roadways and a number of examples are given.



Other Design Considerations include railroad crossings, bicycles on freeways, through interchange areas, and at modern roundabouts. Designing bicycle detector pavement marking for traffic signals, and obstruction markings should also be considered. Bicycle parking facilities help to promote bicycling and are grouped into two classes: long-term and short-term parking. Other bicycle amenities include providing an interface with public transit such as bike racks on buses and providing bikeway maps. In addition, it is important to design for accessibility to comply with the Americans with Disabilities Act (ADA) of 1990.

Chapter 3: Operation and Maintenance. The jurisdictions responsible for the operation, maintenance, and policing of bicycle facilities should be established prior to construction. Operating and maintenance costs should be considered

and included in the overall budget for the facility. In addition, there should be a central contact number for the reporting of maintenance needs. Routine maintenance will provide good riding conditions.

SUMMARY This guide gives a comprehensive look at the key elements in developing bicycle facilities.

KEY WORDS *Applicable Project Delivery Stages:* Administration, Scoping, Planning, Design, Construction

Applicable Transportation Professionals: Administrators, Highway Engineers, Planners, Landscape Architects, Architects

Applicable Transportation Modes: Vehicular, Bicycle, Pedestrian, Transit

Transportation Topics: Bicycle, Bicycle Facilities, Bicycle (Bike) Lane, Bicycle Route System, Bikeway, Highway, Rail-Trail, Right-of-Way, Rights, Roadway, Rumble Strips, Shared Roadway, Shared Use (Bicycle, Bike) Path, Shoulder, Sidewalks, Signed Shared Roadway, Traveled Way, Unpaved Path