

guide for the development of bicycle facilities



american association  
of state highway and  
transportation officials

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# Introduction

Bicycle travel has played an historic role in transportation. Even before the invention of the automobile, the League of American Wheelmen promoted improved traveled ways.

Increasingly, transportation officials throughout the United States are recognizing the bicycle as a viable transportation mode. While recreational cycling is still the primary use of bicycles in this country, the number of people using bicycles for commuting and other travel purposes has been increasing since the early 1970s. Nationwide, people are recognizing the energy efficiency, cost effectiveness, health benefits and environmental advantages of bicycling.

Local, state and federal agencies are responding to the increased use of bicycles by implementing a wide variety of bicycle-related projects and programs. The emphasis now being placed on bicycle transportation requires an understanding of bicycles, bicyclists and bicycle facilities. This manual addresses these issues and clarifies the elements needed to make bicycling a viable transportation alternative.

All highways, except those where cyclists are legally prohibited, should be designed and constructed under the assumption that they will be used by cyclists. Therefore, bicycles should be considered in all phases of transportation planning, new roadway design, roadway reconstruction, and capacity improvement and transit projects.

Research continues to provide additional criteria for the design of appropriate bicycle facilities. The selection of a bicycle facility may depend on many factors, including vehicular and bicycle traffic characteristics, adjacent land use and expected growth patterns.

Chapter 1 provides an overview of planning considerations for bicycles, a discussion of types of facility improvements and a description of factors to consider when locating a facility. Chapter 2, which is organized around the various types of bicycle facilities, provides guidelines to follow when constructing or improving highways and designing and constructing bicycle facilities. Chapter 3 provides recommendations for the operation and maintenance of bicycle facilities. The Appendix reviews the legal status of bicycles under the *Uniform Vehicle Code (UVC<sup>3</sup>)*.

## Purpose

Safe, convenient and well-designed facilities are essential to encourage bicycle use. This guide is designed to provide information on the development of facilities to enhance and encourage safe bicycle travel. The majority of bicycling will take place on ordinary roads with no dedicated space for bicyclists. Bicyclists can be expected to ride on almost all road-



ways, as well as separated shared use paths and even sidewalks, where permitted to meet special conditions.

This guide provides information to help accommodate bicycle traffic in most riding environments. It is not intended to set forth strict standards, but, rather, to present sound guidelines that will be valuable in attaining good design sensitive to the needs of both bicyclists and other highway users. However, in some sections of this guide, design criteria include suggested minimum guidelines. These are recommended only where further deviation from desirable values could result in unacceptable safety compromises.

## Scope

This book provides part of the information necessary for a safe bicycling environment. Facilities are only one of several elements essential to a community's overall bicycle program. Bicycle safety education and training, encouraging bicycle use, and the application and enforcement of the rules of the road as they pertain to bicyclists and motorists should be combined with facilities to form a comprehensive community approach to bicycle use. This guide provides information on facilities. Information on other elements of an overall bicycle program can be obtained from state or local bicycle coordinators and other publications. (See References at the end of this Guide.)

The provisions for bicycle travel are consistent with, and similar to, normal highway engineering practices. Signs, signals and pavement markings for bicycle facilities which are presented in the *Manual on Uniform Traffic Control Devices (MUTCD<sup>2</sup>)* should be used in conjunction with this guide. For construction of bicycle facilities, state and local construction specifications should be used.

## Definitions

**BICYCLE**—Every vehicle propelled solely by human power upon which any person may ride, having two tandem wheels, except scooters and similar devices. The term "bicycle" for this publication also includes three- and four-wheeled human-powered vehicles, but not tricycles for children.

**BICYCLE FACILITIES**—A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically designated for bicycle use.

**BICYCLE LANE or BIKE LANE**—A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

**BICYCLE PATH or BIKE PATH**—See *Shared Use Path*.

**BICYCLE ROUTE SYSTEM**—A system of bikeways designated by the jurisdiction having authority with appropriate directional and informa-



tional route markers, with or without specific bicycle route numbers. Bike routes should establish a continuous routing, but may be a combination of any and all types of bikeways.

**BIKEWAY**—A generic term for any road, street, path or way which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

**HIGHWAY**—A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

**RAIL-TRAIL**—A shared use path, either paved or unpaved, built within the right-of-way of an existing or former railroad.

**RIGHT-OF-WAY**—A general term denoting land, property or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

**RIGHT OF WAY**—The right of one vehicle or pedestrian to proceed in a lawful manner in preference to another vehicle or pedestrian.

**ROADWAY**—The portion of the highway, including shoulders, intended for vehicular use.

**RUMBLE STRIPS**—A textured or grooved pavement sometimes used on or along shoulders of highways to alert motorists who stray onto the shoulder.

**SHARED ROADWAY**—A roadway which is open to both bicycle and motor vehicle travel. This may be an existing roadway, street with wide curb lanes, or road with paved shoulders.

**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.

**SHOULDER**—The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base and surface courses.

**SIDEWALK**—The portion of a street or highway right-of-way designed for preferential or exclusive use by pedestrians.

**SIGNED SHARED ROADWAY (SIGNED BIKE ROUTE)**—A shared roadway which has been designated by signing as a preferred route for bicycle use.

**TRAVELED WAY**—The portion of the roadway for the movement of vehicles, exclusive of shoulders.

**UNPAVED PATH**—Paths not surfaced with asphalt or Portland cement concrete.

