

INTRODUCTION TO THE NATIONAL BICYCLE SAFETY EDUCATION CURRICULUM

Welcome to the National Bicycle Safety Education Curriculum, developed by the Federal Highway Administration, U.S. Department of Transportation. This Introduction will help you understand the Curriculum, how and why it originated, and how it may be useful to you. After you read this, link to the *Resource Database Guide* to help you find bicycle safety education resources that fit your target audience.

This Curriculum Introduction consists of four parts:

- Background information about bicycle safety and governmental response
- How the Curriculum was developed
- Overview of the Curriculum structure
- Placing the Curriculum in context

BACKGROUND**The Bicycle Safety Problem**

Bicycle safety problems have a long history in the United States, dating back to 1896 when a motor vehicle collided with a bicycle on a New York City Street -- the first recorded automobile crash. Since then, more than 46,000 bicyclists have been killed in traffic crashes. The National Highway Traffic Safety Administration (NHTSA), the agency that maintains data on all motor vehicle-related crashes, reports that in 1999, the latest year for which data are available, 750 cyclists were killed and an additional 51,000 were injured in traffic crashes.

While motor vehicle crashes account for the vast majority of bicyclist fatalities they represent only a small percentage of the total number of bicyclist injuries. The Consumer Product Safety Commission estimates that every year as many as 500,000 bicyclists are treated for bicycle-related injuries in hospital emergency rooms. These injuries result from falls and collisions with objects other than motor vehicles. More children aged five to 14 are treated for bicycle injuries than for any other sport.

The statistics on bicycle fatalities have been changing over the past ten years as have motor vehicle crash statistics. The 750 bicyclists killed in 1999 represent a ten-percent reduction in the total number of bicyclist fatalities since 1989. The average age of victims of bicycle fatalities has increased from 24.4 years of age in 1989 to 32.4 years of age in 1999, illustrating the increasing involvement of adults in bicycling. However, children are still over-represented in bicycling fatalities. The fatality rate for cyclists aged 5-15 is 4.8 per million population, which is nearly double the fatality rate for the entire population.

Governmental Response

The U.S. Department of Transportation has been involved in bicycle safety programs since the early 1970's when a boom in bicycle sales prompted concerns that bicyclist fatalities would soar. In fact, the highest number of bicyclist fatalities, 1,003, did occur in 1975. A wide range of research studies have been conducted, program materials developed, and funding programs implemented to improve the safety of bicyclists and to promote bicycling as an energy-efficient, environmentally-friendly form of transportation. These efforts, coupled with significant commitments by other Federal agencies, state and local governments, and private sector organizations, have led to an overall reduction in bicyclist fatalities and significant increases in the use of the bicycle for transportation as well as recreation. Progress has been made in establishing design standards for bicycle facilities and in integrating bicyclists' needs in the planning of highway projects.

In June 1998, the U.S. Congress passed TEA-21, the Transportation Equity Act for the 21st Century, the legislative authorization for the Federal Highway Administration and the Federal Transit Administration. Section 1202 of TEA-21, *Bicycle Transportation and Pedestrian Walkways*, includes a variety of initiatives to provide for the needs of bicyclists. Section 1202 (e) added a new requirement for the DOT to develop a National Bicycle Safety Education Curriculum. The Federal Highway Administration's FY 1998 Appropriation legislation contains similar language.

There has been interest in developing a National Bicycle Safety Education Curriculum since at least 1977, when DOT co-sponsored with the Consumer Product Safety Commission *Bike-Ed '77*, the first national symposium on bicyclist education. A principal recommendation to come out of that conference was a call for the development of a national curriculum to teach bicyclists of all ages the skills and knowledge required to ride a bicycle safely.

In 1977, the assumption was that a national curriculum would contain instructor guides, student materials and any other resources that would be needed to actually teach a course on bicycle safety to a variety of audiences. Very little had been done to provide formal instruction on bicycle safety concepts, so it would be necessary to create materials from scratch. Since 1977, however, a great deal of effort has been put into developing and delivering comprehensive bicycle safety training materials for children and adults. Programs have been developed by State Departments of Education, local school districts, non-profit bicycling organizations, and commercial educational publishing companies.

In the midst of this proliferation of training materials, the challenge to bicycle safety advocates is how to determine which existing materials could be used to meet the training needs of their communities.

To respond to this challenge, FHWA determined that the Curriculum would best serve the needs of State and local bicycle safety programs by identifying the skills and knowledge that bicyclists of different ages need to have and by matching those needs to existing resources.

HOW THE CURRICULUM WAS DEVELOPED

The Federal Highway Administration awarded a contract for the development of the Curriculum to the U.S. Office of Personnel Management (OPM) and OPM's subcontractor, PerformTech Inc., Alexandria, Virginia. A Steering Committee was formed to provide technical input to the design and development of the curriculum. The Steering Committee was composed of Federal, State and local bicycle safety specialists who have been active in bicycle safety education. The members of the Steering Committee are:

- John Allen, Bicycle Consultant, Boston, MA
- Carol Tan Esse, Office of Research, FHWA, Washington, DC
- John Fegan, Bicycle and Pedestrian Program Manager, FHWA, Washington, DC
- Patricia Hines, Safe Moves, Inc, Los Angeles, CA
- Jane Metrik, Evaluation Researcher, Seattle, WA
- Jody Newman, League of American Bicyclists, Washington, DC
- Genny O'Donnell, National Safe Kids Campaign, Washington, D.C.
- Gay Page, Bicycle Coordinator, Colorado DOT. Denver, CO
- Cindy Porteous, National Association of Governors' Councils on Physical Fitness, Indianapolis, IN
- Arthur Ross, City of Madison Transportation Department, Madison, WI
- Richard Schieber, MD, Centers for Disease Control, Atlanta, GA
- Dennis Scott, Bicycle Coordinator, Missouri Department of Transportation, Jefferson City, MO
- Preston Tyree, Texas Bicycle Coalition, Austin, TX
- Maria Vegega, Safety Countermeasures Division, National Highway Traffic Safety Administration, Washington, DC
- William Wilkinson, Bicycle Federation of America
- Marietta Bowen, National Highway Traffic Safety Administration, Washington, DC

At the outset of the development effort, the Steering Committee defined the structure of the curriculum and identified the target audiences whose needs should be addressed. During the course of the development effort, the Steering Committee reviewed all draft products, including this Final Curriculum. In April 2001, this Resource Database was updated to include new and revised bicycle safety education programs.

OVERVIEW OF CURRICULUM STRUCTURE

The Curriculum consists of two primary components:

- Curriculum Matrix
- Bicycle Safety Education Resource Database

Curriculum Matrix (located in the *Database Resource Guide*)

The Curriculum Matrix, which is located in the *Database Resource Guide*, identifies the target audiences that should be the focus of bicyclist training programs. For each audience, the matrix identifies the major topics, sub-topics and content areas that should be included in any training program for that audience. Priorities are assigned to topics to help local program sponsors concentrate on the most important topics for any given audience. Finally, the matrix references existing training programs that address the identified topic areas. These references to existing materials should provide at least a starting point for anyone in search of an appropriate training program for a particular audience. Training materials are identified by Resource Database item number which identifies the order in which training materials are listed in the Resource Database, making it easy to locate any material of interest.

The target audiences and topics and sub-topics included in the Curriculum Matrix were identified through an iterative process involving the members of the Steering Committee and the contractor responsible for developing the Curriculum. Initially, the Steering Committee laid out a detailed structure that linked specific target audiences with critical information they needed to operate a bicycle safely. This structure was refined and expanded and then submitted to the Steering Committee for review and comment.

Resource Catalogue (Database)

The Resource Database is designed to assist the user in identifying a selection of bicycle safety education training materials that address the recommended topics and sub-topics for each of the target audiences. The listing of resources is not exhaustive. It does represent those materials that are easily accessible and that clearly focus on the more critical content areas for the various audiences. The database was developed by reviewing existing catalogues of bicycle safety training courses and soliciting information about additional programs from the members of the Steering Committee and other bicycle related organizations.

In order to be included in the database a bicycle safety resource has to meet a broad instructional criterion. That is, a resource must be intended to be used in a training setting, involving an instructor, students and interaction between the two. This criterion was applied to differentiate between an actual training course and the hundreds of bicycle safety information brochures that are merely intended to be distributed to a particular target audience without any actual training taking place. While these brochures

may contain very valuable information, they cannot take the place of an interactive training program that contains specific training objectives, learning activities and feedback.

For each Database listing, the following information is provided:

- Primary and Secondary Target Audiences
- Title
- Topics and Sub-topics
- Description of What the Resource Provides
- Summary of any Evaluation Information That is Available on the Resource
- Date of Creation
- Delivery Format
- Recommended Delivery Agent
- Length of training
- Cost
- Materials Provided
- Contact Information

A separate index of materials by target audience helps the user to locate all materials that target a particular age group.

Evaluation information about a resource is summarized in the database entry. It becomes readily apparent, however, that very few of the existing bicycle safety education resources have been subjected to a scientific evaluation of effectiveness. While lack of evaluation information does not mean that a training program is not effective, it might be advisable to conduct a limited pilot test of any training program before investing in widespread implementation.

PLACING THE CURRICULUM IN CONTEXT

A critical concern of the Steering Committee was that the National Bicycle Safety Education Curriculum, while focusing important national attention on the training needs of bicyclists, would also divert attention from other critical bicycle safety programs needs. It is important to emphasize, therefore, that implementation of even the most comprehensive and effective training program for bicyclists will not create an environment that is safe and bicycle-friendly on its own. Specifically, the Steering Committee wants to emphasize two points.

- 1) Bicycle safety involves more than just education.
- 2) Bicycle safety education should target more than just bicyclists.

Bicycle Safety Involves More than Education

Bicycle safety education is a critical component of any comprehensive effort to reduce bicyclist fatalities and injuries. Any efforts to better prepare bicyclists to control their vehicle and to share the road with motorists, pedestrians and other bicyclists contribute to their personal safety. However, education is just one component of a dynamic mix of programmatic strategies that must all work in concert to provide a safe bicycling experience. The traditional motor vehicle transportation concept of providing for the *Three E's* applies equally well to bicycle transportation. A comprehensive bicycle safety program must include the following components:

- **Education** for the bicyclist and for the motorist on how to share the road
- **Enforcement** of traffic laws
- **Engineering** solutions that enhance the safety of bicyclists without compromising their mobility.

Several organizations and agencies have expanded this list to Four E's. Since the Department of Transportation's policy is to encourage bicycling as a transportation mode, **Encouragement** programs are considered to be an important part of any comprehensive program. This is particularly important to counteract any efforts to provide for bicycle safety by making it more difficult to ride, such as banning bicycles from operating on the roadway rather than providing a roadway design that can safely accommodate bicycle use.

A major concern of the Steering Committee is that a national focus on Bicyclist Safety Education might create the erroneous impression that if bicyclists are well-trained, there is less need for more costly programs to re-design highways, bridges and bicycle facilities. It might also shift attention from the importance of enforcing traffic laws such as speeding and red-light running that protect bicyclists. A well-trained bicyclist is still at the mercy of an aggressive driver, particularly if the road he or she is riding on has narrow lanes and is poorly maintained with broken pavement and glass. While every effort should be made to encourage States and communities to embrace more focused comprehensive bicyclist safety education programs, there should be no let up on the impetus to provide better facilities for all road users, to enforce all traffic laws and to encourage bicycling as a viable mode of transportation.

Bicycle safety education should target more than just bicyclists.

A primary responsibility of the Steering Committee on this project was to identify the target audiences that should be addressed in the National Bicyclist Safety Education Curriculum. A concern quickly emerged concerning the education needs of people who have an impact on bicycling but are not bicyclists themselves. The clear mandate from Congress was to develop a curriculum for child and adult bicyclists. The time allotted for development of the curriculum was consistent with this mandate. However, the Steering Committee has emphasized that unless information about bicyclists' needs and operating characteristics is provided to the individuals who have a direct impact on the environment in

which the bicycle is operated, very little real change in bicycle safety should be anticipated.

The Steering Committee determined that the following audiences must be included in the National Bicyclist Safety Education Curriculum:

- Child Bicyclists
 - Pre-school (under 5 years)
 - Beginner (5-8 years)
 - Young (9-12 years)
 - Teenage (13+ years)
- Adult Bicyclists
- Senior Bicyclists
- Motorists
- Adults Teaching Children (Parents, teachers and anyone else involved in teaching bicyclist safety education)

While "Adults Teaching Children" and "Motorists" may not be bicyclists themselves, they are so critical to the safety of bicyclists, particularly young bicyclists, that they cannot be omitted from a bicyclist safety curriculum.

The Steering Committee also identified several other audiences which do not logically belong in a bicyclist safety education curriculum but who have significant training needs that should not be ignored. These audiences all fall under the category of *Professionals Who Impact Bicycling*. They include the following audiences:

- Community Planners
- Traffic Engineers
- Law Enforcement Officers
- Judges and Prosecutors
- Bicycle Equipment Manufacturers
- Health Care Providers
- Real Estate Developers

Each of these groups has its own unique training requirements and channels for distributing training. The Steering Committee recommends that attention be paid at the national level to identifying the specific topics and sub-topics that should be included in training for each of these groups and developing a plan for developing and delivering this training.