

Washington Traffic Safety Commission  
Harborview Injury Prevention and Research Center

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# Training Programs for Bicycle Safety

September 3, 1998

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## Overview

Each year approximately 800 bicyclists are killed and as many as 500,000 require emergency room care for injuries. More than one third of all bicyclist deaths occur among youth ages five to 20, and 41% of non-fatal injuries occur to children under the age of 15 years (National Highway Traffic Safety Administration, 1997). Nationally, bicyclists ages 14 and under are at five times greater risk for injury than older cyclists (NHTSA, State Legislative Fact Sheet, 1998). Fatality rates (per million population) for ages 10 to 15 were the highest at 6.46, followed by ages 5 to 9 at 4.58. Similarly with injury rates, children 10 to 15 years old are by far the most vulnerable age category of all age groups (Fatality Analysis Reporting System, NHTSA, 1996). In recent years, injuries to older teens and young adults have accounted for a larger portion of the total. The proportion of pedalcyclists between the ages 25 to 64 involved in crashes that resulted in fatalities was nearly twice as high in 1996 as in 1986 (46% and 25%, respectively).

Washington State was estimated to have 712 total traffic fatalities in 1996, which included 14 (2%) pedalcyclist fatalities (Fatality Analysis Reporting System, NHTSA, 1996). In Washington state, there are approximately 1700 police reported bicycle injuries involving collisions with motorists each year. Over 60 percent of these injuries involve bicyclists who are 15 years or older. Bicycle injuries are nearly as frequent in the state as pedestrian injuries.

While the majority of bicycle injuries do not involve motor vehicles (MV), collision with vehicles markedly increases the likelihood of serious injury. In the largest study of bicycle injuries conducted to date, investigators at the Harborview Injury Prevention and Research Center (HIPRC) found that MV accounted for 17 percent of all bicycle-related injuries, but increased the likelihood of severe injury by nine fold (Thompson et al, 1996).

Prevention of bicycle injuries can be approached through the use of bicycle helmets, educational programs to improve riding behavior and safety, educational programs aimed at motor vehicle drivers, and environmental changes to decrease the likelihood of bicycle-motor vehicle collisions.

### Helmets

Head injuries account for one-third of emergency room visits, two-thirds of hospitalizations, and three-fourths of deaths involving bicycles. Helmets have been shown to be extremely effective in decreasing the risk of head injuries. Rigorous studies indicate that they reduce the risk of head injuries by 85%, and brain injuries by 88% (Thompson, Rivara, and Thompson, 1989). All types of helmets appear to be effective, and they appear to work as well in collisions which involve motor vehicles as they do in falls or other crashes without MV involvement. They work at all ages. In addition, they decrease the risk of injuries to the upper and mid-face by as much as two-thirds.

Although helmets have been determined to be the single most effective way of reducing head injuries and fatalities resulting from bicycle crashes, only 18 percent of all bicyclists wear bicycle helmets (Traffic Safety Fact Sheet, NHTSA, 1998). Thus, there is a need for an education program that will increase the knowledge about helmet use and effectiveness. The program developed by the HIPRC has been successful in increasing helmet use from 2% in 1986 to over 50% in 1996. However, use is low among teens and may have decreased in all age groups in the last 2 years.

Other community based bicycle helmet programs have been successful. A common thread to all of them is that they are community-wide, multi-faceted and long term. Nevertheless, many of these educational programs appear to reach a plateau in their effect at about 50% helmet use. Another type of intervention, not mutually exclusive with educational programs, is legislation. NHTSA (1997, p.2) maintains that, "...the enactment of laws requiring the use of bicycle helmets, along with education and visible enforcement, is likely to be the most promising way to increase bicycle

helmet usage.” Unfortunately, attempts at getting legislation passed in the state have been unsuccessful over the last 5 years.

### **Educational Programs to Improve Rider Safety and Behavior**

Bicycle safety training programs are based on the premise that behavior by cyclists contributes to risk of crashes and injuries, and that this behavior can be changed through training programs. Several studies have shown that most crashes were primarily due to some form of human error and very few were due to environmental conditions (Bicycle Safety-Related Research Synthesis, 1995). Nationally, bicycle errors have contributed to almost 65 percent of the bicycle-motor vehicle fatalities in 1991. NHTSA’s 1993 report indicates that the most common crashes were due to bicyclist’s failure to yield (21.8%), improper crossing of roadway or intersection (12.6%), and failure to obey traffic signs, signals, or a police officer (8.6%) (Bicycle Safety-Related Research Synthesis, 1995). Reports on a state level have similar data suggesting that the five top contributing factors attributed to bicyclists in bicycle/motor-vehicle crashes were: 1) driver inattention/distraction; 2) failure to yield right of way; 3) improper/unsafe lane use; 4) disregard for traffic control devices; 5) bike rider inexperience (Minnesota Year End Report, 1997, p. 20).

The most comprehensive programs have incorporated all of these elements, particularly those programs aimed at children. The length of these programs is highly variable, ranging from one hour to 40 or more hours. Many programs are strictly classroom based, while others utilize extensive riding experiences.

Two common themes have emerged from the overview of various bicycle safety education programs. First, it is the opinion of many researchers that bicycle safety education curriculum for youth should be institutionalized in a school environment to reach more children more consistently (Stutts and Hunter, 1990). Second, several experts feel that bicycle education curriculum should be presented as part of a continuum of traffic safety education that begins in elementary school and ends in high school where children previously trained in bicycle safety transfer their knowledge and skills to motor vehicle driving skills and safety (Stutts and Hunter, 1990; McArthur, 1998, personal communication). Another reason for implementing bicycle education in schools is that schools are more likely to administer a bicycle education course for a time period that will be sufficient for children to learn. Illustrating this point, a Canadian study that evaluated a two-hour bicycle skills training program found that their brief skills training program (*The Kids CAN-BIKE Festival*) was not effective in improving safe cycling behavior, knowledge, or attitudes among fourth grade children due to its inadequate time frame (MacArthur, Parkin, Sidky, & Wallace, 1998). However, it is perhaps unrealistic to expect schools to devote a sizable amount of time out of their curriculum for bike safety training.

For older youth and adults, the optimal length of a training program is unclear. While a longer training program might impart more skills, few except the most dedicated bike rider will spend a substantial amount of time (and money) on bike training.

Finally, the importance of program evaluation must be taken into consideration. Program effectiveness can be assessed by measuring participants’ progress in a pre- and post- program implementation tests, a knowledge quiz, and skills/behavior demonstrations. The second way for assessing program’s external effectiveness is to survey the number and/or types of crashes, the number and/or severity of injuries, the level of helmet use, and the number of bicyclists in the area (Bicycle Safety-Related Research Synthesis, 1995). An ideal assessment should also measure the extent to which the learned program skills are retained correctly and for the long term. A few programs have been evaluated, although few have data on the impact of the program on crashes and injuries. Most evaluations are based on before-after questionnaires; some are based on demonstration of riding skills in controlled settings such as playgrounds. Unfortunately, other studies of injury programs have shown that there is little correlation between changes in

knowledge and reported behavior on the one hand, and actual changes in observed behavior and risk of injuries on the other.

One of the few reasonable evaluation studies which has been conducted is that done by Jane Stutts at the University of North Carolina Highway Safety Research Center of the *Basics of Bicycling* course (for full description of *Basics of Bicycling* see below). Stutts and Hunter (1990) compared 195 fourth and fifth graders at two elementary schools where intervention took place to 117 children from two control elementary schools. Results showed that children in “experimental” schools outperformed children in “control” schools on displays of correct traffic behavior, knowledge of bicycle safety and traffic rules, and riding skills. Data concerning the effectiveness of the curriculum in reducing the number of crashes and injuries showed that children who were exposed to *Basics of Bicycling* were less likely to be injured. However, the sample size and follow-up period were too small to make any definitive conclusions.

Very few bicycle education programs have been thoroughly evaluated before their implementation. In some cases, substantial investments have been made into programs that may not be effective and may even prove to be detrimental to the participants. Thus, an Australian study of school based bicycle safety education program (*Bike Ed*) conducted sixteen years after program implementation showed that the program did not reduce the risk of bicycle injury in children and in some children produced harmful effects presumably due to inadvertent encouragement of risk taking bicycling behavior (Carlin, Taylor, & Nolan, 1998).

### **Types of training programs**

Not surprisingly, the majority of education programs in bicycle safety have targeted youth. Some of the most comprehensive programs, like *Effective Cycling*, *Basics of Bicycling*, *Safe Moves*, *Elementary Traffic Education Program*, *Florida Traffic Education Program*, *Pedal Power Camp*, *Bike LA Safety Training*, and *Bike-Ed Hawaii* have all incorporated helmet education, traffic rules, safety guidelines, and on-bike training into their curricula. Six out of eight of these programs have also been evaluated and proven effective. Furthermore, programs like *Effective Cycling*, *Basics of Bicycling*, *Safe Moves*, and *Elementary Traffic Education Program* have been nationally renowned for their efficacy, comprehensive education, and creative format. In addition to standard bicycle safety topics like helmet use and road rules, children are exposed to safe bicycling practice through either an outdoor active environment of a summer camp (*Pedal Power Camp*) or diverse learning experience of a traffic-simulated course (*Safe Moves* and *Basics of Bicycling*). The majority of these programs have institutionalized their curricula into a school-environment making bicycle safety education either a part of a long-term traffic education or an extensive separate course.

Many factors must be taken into account when considering a bicycle safety program. For example, social strata of the participants might direct the applicability of a particular program to a certain area. To illustrate, NHTSA along with the League of American Bicyclists is planning to implement an 18-month pilot program to reach at-risk urban youth across the country with an education message of helmet use and bicycle safety. The project will include new materials focused on the urban youth audience, along with an instructor’s guide with community specific components to allow it to be tailored as appropriate. *Bike LA Safety Training* is the type of program that takes into consideration the needs of the urban lower social-economic class.

Bicycle safety programs for the very young (ages 0 to 5) are not as representative. Perhaps, the best comprehensive program is *Safe Moves* and the least promising is *Bucklebear* material produced by the Center for Injury Prevention. The problem with this age group, of course, is the cognitive limitation of very young children who may not be able to comprehend the complexity of traffic regulations or their role as bicyclists. Despite these restrictions, several programs

have attempted to incorporate children five and under into their training, the focus for these participants being on helmet use (e.g., *Heads Up Helmets On, Helmets on Wheels, Colorado Rodeo*).

Because of the increase in crashes among older youth and adults, several programs have specifically targeted adults in training bicycle safety. *Effective Cycling*, *Basics of Safe Bicycling* (Minnesota), and *Safe Moves* are the most prominent programs that offer the comprehensive training that aims at reducing the mortality and morbidity surrounding bicycle practice. 1995 data show that 300 bicyclists, mainly adults, were killed in crashes with motor vehicles between the hours of 6:00 p.m. and midnight and another 17,000 were injured. Past research reported that in many of these crashes the driver was not able to see the cyclist until it was too late to stop or maneuver to avoid a crash. In May of 1998, a jointly produced video news release for Bike Safety month was released to educate riders about nighttime bicycling (NHTSA, *Safety Countermeasures*, Vol. 2, Winter 1997, p. 6). However, such ephemeral measures as Bike Safety month are only the beginning and conspicuity education needs to be incorporated into adult bicycle safety course on a consistent basis. Thus, because conspicuity education is a part of *Effective Cycling* course, *Effective Cycling* is offering a unique education opportunity for adults.

Another type of bicycle training program is aimed at educating adult trainers to become teachers for children in either their classrooms, community organizations, or rodeo events. The most effective programs of this kind are the *Elementary Traffic Education Program* and *Florida Traffic Education Program*. *Bicycle Safety Instructor Training* in Maine and *Teaching Safe Bicycling* in Wisconsin are also good programs that believe that the key to successful bicycle safety education is the competency and expertise of the instructor. A program that also targets adults but the objective of which is focused on bicyclists' rights on the road is the newly implemented *Motorists-Ed* in Hawaii. Developed in collaboration with the League of American Cyclists, *Motorists-Ed* is a unique approach to educate motorists about the legal rights, traffic roles, and safety accommodations of bicyclists. Sharing the road in a competent and safe manner is the premise of this training program.

## **Environmental Changes**

One of the central premises for injury control is that environmental changes aimed at decreasing collision with motor vehicles will likely be more effective than interventions aimed at changing behavior. For bicyclists, these changes include bicycle paths and bicycle lanes. In 1994, the University of North Carolina Highway Safety Research Center developed an inventory of bicycling and walking facilities that was mailed to the city managers of 294 communities with population of at least 1,000. The most frequent responses as obstacles to bicycling in North Carolina were: 1) lack of facilities, 2) safety concerns, 3) narrow streets, 4) lack of dedicated funding for facilities, 5) lack of interest or demand, and 6) lack of safe crossings (*Bicycling and Walking in North Carolina: A Long-Range Transportation Plan*, 1996, p. 35). As the survey shows, bicycle facilities are viewed as essential means for non-motorized transportation. Unfortunately, no decent evaluations have been conducted on the effectiveness of paths and separate bike lanes.

**Off Road Facilities:** The provider of one of the largest trail systems in the United States is King County, Washington (Miller, *Improving Conditions for Bicycling and Walking*, 1998). Currently comprised of nearly 320 km (200 miles) of improved multi-purpose trails, the system is planned to have a total of nearly 650 km (400 miles) of facilities serving bicyclists, walkers, runners, equestrians, and others after the improvement and acquisition of additional trails. Some of the highlights of this trail system are the paved Gilman and Sammamish River Trails, which extend from the Fremont neighborhood of Seattle to Marymoor Park in Redmond offering 45 km (28 miles) of spectacular water views.

Another trail of similar length (300 km or 185 miles) in Missouri represents the longest rails to trails conversion in the United States. The Katy Trail runs through nine counties uniting 35 primarily rural towns and features a scenic landscape, packed limestone surface, and easy grade appealing to 200,000-300,000 users. As part of the trail management, trail operations were supported through the Adopt-a-Section program by allowing enthusiasts to 'adopt' up to 2 miles of the trail in exchange for \$100 (Stewart, *Improving Conditions for Bicycling and Walking*, 1998).

Other examples of successful off-road facilities include the Glenwood Canyon I-70 Recreational Trail in Colorado, which runs for 88 km (55 miles) and Cowboy Trail in Nebraska, which consists of 550 km (321 miles) with 22 km (14 miles) available for usage, and the 18 km (11 miles) Capital Crescent Trail connecting downtown Washington, D.C. with the Montgomery County, MD suburbs of Bethesda and Silver Spring (*Improving Conditions for Bicycling and Walking*, 1998).

***On-Road Facilities:*** Bicycle safety depends on road maintenance to a great extent. The goal of Seattle's Bike Spot Safety Program is to increase the number and frequency of bicyclists and to reduce the number of crashes involving bicyclists. The program solely relies on citizens who can fill out a form distributed through bike shops, community centers, and newsletter to report problem areas on the road. Some complaints require a field check followed by either maintenance work, sign installation, or small construction projects. The citizens are contacted about the status of their request and, more importantly, maintenance concerns are quickly addressed (Lagerwey, *Improving Conditions for Bicycling and Walking*, 1998). Similar programs are implemented in other states (e.g., 'Spot Me' in Maine).

Another interesting undertaking directed towards bicycle safety is the construction of paved shoulders in East Central Illinois. Paved shoulders are known to provide safer areas for various non-motorized means of transportation. Thus, the 40 km (24 miles) of paved shoulder roads centered around the large Amish populated area now provide safe riding conditions for bicyclists (Williams, *Improving Conditions for Bicycling and Walking*, 1998). Paved shoulders were found to be the number one desired facility by over 80 percent of bicyclists in a survey conducted by the Maine Department of Transportation. Paved shoulders are Maine's first priority in accommodating bicyclists with safe and easy to maintain facilities (Bicycle Coalition of Maine, *Improving Roads and Bicycle Access*, 1998).

Bicycle lanes have been found to make both bicyclists and motorists more predictable and overall safer in each other's presence. In addition, utilizing 1.2 meter (4 feet) to 1.5 meter (five feet) wide bicycle lanes helps increase the number of bicyclists on the roads. For example, because over 90 percent of the collector and arterial streets have striped bike lanes in Corvallis, Oregon, eight percent of work trips are made by bike. Similarly, Eugene, Oregon, and Madison, Wisconsin, have extensive on-street bicycle lane networks and in both cities constitute bicycle travel levels close to 10 percent of all trips. After the 1996 study in Santa-Barbara, California, which reported a 47 percent increase of bicyclists for streets with bike lanes, other larger cities have also found a noticeable increase in bicycle use on streets with bike-lanes. Several experiments with bicycle lanes were undertaken including counter-flow bike lanes (two-ways for bicyclists and one-way for motorists) in Eugene, Oregon; left-side bike lanes in Madison, Wisconsin; advanced stop lines in Cambridge, Massachusetts; and painted blue bike lanes in Portland, Oregon. All of these projects were proven to be successful (Clarke, *Improving Conditions for Bicycling and Walking*, 1998).

A unique approach to bicycle safety is a bicycle boulevard utilized by the city of Palo Alto, California. Bryant Street was converted to a 5 km (three miles) bicycle boulevard by prohibiting motorists to use it as a thoroughfare, while improving the speed of bicycle travel. As a result, over 600 bicyclists use the boulevard on a typical day (Snyder, *Improving Conditions for Bicycling and Walking*, 1998).

## Methods

The Washington Traffic Safety Commission contracted with the Harborview Injury Prevention and Research Center to conduct a survey of bicycle safety programs around the country. The purpose was to determine which were the most effective or potentially effective programs so that the WTSC could decide which programs to initiate in the state of Washington.

The HIPRC conducted an extensive critical review of materials, manuals, and literature related to the research topic. Information was obtained by literature review, world wide web searches, telephone, email, and in-person interviews obtained over three months of research. Individuals contacted included state, regional, and/or city bicycle/pedestrian coordinators, public officials, traffic engineers, education promoters, school instructors, bicycle experts, and program coordinators. Every individual contacted was asked to provide further possible sources of information on training programs and those referrals were thoroughly followed up.

Among the Washington state experts and program directors contacted were Peter Lagerwey, Seattle Transportation; Michael Dornfeld, WA DOT; Bill Moritz, University of Washington; Diane Thompson and Luann D'Ambrosio, HIPRC; Susie Stevens, Now Bike of Washington; Barbara Culp, the Cascade Club; Carla Gramlich, Tacoma Wheelmen Club; Eileen Hyatt, the Mead School District, Spokane, WA; Free Ride Zone, the International Bicycle Fund in Seattle.

In order to locate the most representative bicycle safety training programs in each state, state bicycle/pedestrian coordinators were contacted by email and by phone. The list with all bicycle-pedestrian coordinators and their contact numbers was provided by John Fegan, Federal Highway Administration, US DOT. Initially, 37 emails were sent to every coordinator who had email address and two weeks later 25 emails were sent to those who did not respond. As a result, 26 out of 37 people responded (70%) with 23 coordinators providing effective information and further contacts.

A standard survey instrument was developed to organize the information on each program and administered to every contact person with a program of interest. This information was entered into an MS Access database and updated on as needed basis. The data collected through the survey included the following information:

1. Name of the program and contact person
2. Target age group
3. Length of the program
4. Goals and objectives targeted
5. Type of training and behavior targeted
6. Evaluation of the program (when applicable):
  - Effects on riding skills
  - Effects on crash skills
  - Effects on injuries
  - Effects on knowledge of covered material.

Finally, the information obtained in the process of phone interviews, email networking, and review of sent materials was synthesized in this report and summarized in a table on p. 11. Program descriptions in this report are organized in order of interest, the primary criterion of which is the extent of program comprehensiveness. Thus, reporting begins with programs that teach the skills and knowledge needed to ride a bike safely and aim at reducing the number of bicycle-related crashes and injuries. Most of these programs have proven to be effective in their evaluations and some

have been honored with various local, state, and national awards (e.g., *Safe Moves*). Less comprehensive or less extensive programs are also included in the report in order to represent various bicycle safety education projects. Bicycle rodeos and presentations to a classroom or a school-based assembly (e.g., *SprocketHero* program in Seattle) might not have the same impact as an institutionalized school program but are included in the report to show the diversity of education programs. The particular programs (rodeos and presentations) described in the report do not by any means represent an inclusive list of all undertakings of this kind in every state or community. Instead, the content of these projects is comparable to other similar programs in the country. Brochures, hand-outs, and other literature on bicycle safety available for users are not included in this report because of their abundance and evident weakness when used in isolation.



## Outline

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## Summary Table

Program Name	Age Group*						Evaluation	Skills/Safety			
	<i>(In order of interest)</i>	0-5	K-3	K4-6	K7-8	K9-12		18+	Helmet	Traffic /safety Rules	On-Bike
Effective Cycling			✓	✓	✓	✓		✓	✓	✓	
Basics of Bicycling			✓				✓	✓	✓	✓	
Safe Moves (California)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Elementary Traffic Education Program		✓	✓			✓	✓	✓	✓	✓	✓
Florida Traffic/Bicycle Safety Education		✓	✓			✓	✓	✓	✓	✓	✓
<i>Pedal Power</i> Camp, programs (Minnesota)			✓	✓	✓			✓	✓	✓	✓
Basics of Safe Bicycling (Minnesota)					✓	✓		✓	✓	✓	
BLAST (Bike LA Safety Training)			✓	✓	✓	✓	✓	✓	✓	✓	✓
Bike-Ed Hawaii			✓				✓	✓	✓	✓	
Riley Riders Bike Safety Smart Program	✓	✓						✓	✓	✓	
Bike Star (Arizona)		✓	✓	✓	✓		Some	✓	✓		
Travis County SuperCyclist Project(Texas)		✓	✓	✓			✓	✓	✓	✓	
Heads Up, Helmets On (Connecticut)	✓	✓	✓					✓	✓	✓	
Bicycle Safety Instructor Training (Maine)	✓	✓	✓	✓		✓		✓	✓	✓	
Teaching Safe Bicycling (Wisconsin)		✓	✓			✓		✓	✓	✓	✓
Motorists-Ed (Hawaii)						✓		✓	✓		✓
Ride Right, Ride On; Breaking Away (OK)		✓	✓					✓	some		✓
Oklahoma Comprehensive Elementary		✓	✓				✓	✓	✓		
Cascade Club Programs (Washington)		✓	✓	✓	✓	✓		✓	✓	✓	
Helmets on Wheels (Washington)	✓	✓	✓	✓	✓	✓		✓	✓		
Free Ride Zone (Washington)		✓	✓	✓	✓			✓	some	✓	✓
Ride Right Cycle Right Rodeo (Iowa)		✓	✓	✓				✓	✓	✓	
The Bicycle Project (New York)			✓			✓		✓	✓	✓	
American Automobile Association (AAA)		✓	✓	✓				✓	✓		
Colorado Programs (Colorado)	✓	✓	✓			✓		✓	✓	✓	
Bucklebear (Center for Injury Prevention)	✓	✓						✓	✓		✓
Risk Watch	✓	✓	✓	✓			✓	✓	✓		✓

\*

Age Category	School Grade	Age
Preschool		0-5
Early Elementary	K-3	6-9
Older Elementary	K4-6	10-12
Middle School	K7-8	13-14
High School	K9-12	15-18
Adults		18+

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The underlying premise of *Effective Cycling* is that, “Cyclists fare best when they act and are treated as drivers of vehicles.” All *Effective Cycling* courses are taught by experienced cyclists trained through the only national instructor certification program. A state-by-state list of instructors is available at the League of American Bicyclists’ website: [www.bikeleague.org](http://www.bikeleague.org).

*Effective Cycling* currently offers the following courses: ***Kids I, II, Road I, Road II, and Commuter Course***. Upon completion of program development, *Effective Cycling* will offer a total of 11 courses.

**KIDS I:**

Target Age Group: Parents of children in grades K-3; reached over 200.

Length of Program: 1-3 hour course suitable for PTA or service club setting.

Objectives:

- To set a good example of safe riding skills
- To become aware of the most common causes of children’s bicycling accidents
- To always wear a helmet
- To stop and look before entering a road or a street
- To ride with traffic on the right side of the street
- To ride in a straight line, look before turning
- To ride only during daylight hours

Type of training:

*Effective Cycling Kids I* is the foundation of *Effective Cycling Kids* courses. It is designed for parents who usually are the child’s first bicycle educator. On-bike activities for children enrolled in this course are accomplished with parental involvement and do not include highway riding. Instead, the on-bike component of the course takes place in an auto-free parking lot.

Training covers bike fit and safety checks, basic bike handling, helmet use, identifying the safest places to ride. Materials include a video “Kids’ Eye View” (See p. 35 under *Teaching Safe Bicycling* program).

Evaluation: None

## **KIDS II:**

Target Age Group: Grades 4-5 (9 and 10 year olds); reached over 100 children

Length of Program: 7.5 hour program spread over 10 sessions (45 min. sessions) in a school setting.

### Objectives:

- To understand the importance of wearing a helmet and demonstrate proper helmet fit
- To discuss the importance of maintaining a safe bicycle and identify a properly sized bicycle
- To conduct a basic bicycle safety check
- To identify key traffic signs and meanings
- To enter and cross traffic safely
- To negotiate around surface obstacles, rock-dodge
- Left turns

### Type of training:

On-bike practice takes place in either a parking lot, quiet residential streets, minor arterials, or simple intersection. It is suggested that if the on-road situations are not realistic, simulated traffic environment should be used in a parking lot.

Covers bike fit and safety checks, basic bike handling, helmet use, identifying the safest places to ride. All of the objectives above have to be covered by the course instructor.

Evaluation: Pretest and post-test included in the manual.

## **ROAD-I, ROAD-II, Commuting Class**

### Target Age Group:

12-16 y.o. with parental participation; 16 with parental permission; and adults 16+

About a 100 adults in Road-I

About a 100 adults in *Commuting Class*

### Length of Program:

Road I: 9 hours

Road II: 12 hours (5 h. in-class instruction and 7 h. hands-on instruction and practice)

*Commuting class:* 3 hours.

*Note: Until 1995 this used to be a 30 hour course with no standardized instruction/curriculum*

### Objectives:

How to safely, legally, and efficiently use bicycles as a means of transportation.

### Training:

For *Road I*, topics include identification of various types of bicycles available on the market today and understanding the language of cycling. Furthermore, participants demonstrate the acquired knowledge of proper bicycle and helmet fitting, perform a pre-ride safety check, and know the procedures of bicycle maintenance. *Road I*

training teaches how to correctly mount, dismount the bicycle, how to start and stop in traffic, how to maintain a straight line when riding, steer smoothly, look over the shoulder for traffic without wobbling, and use appropriate hand-signals. The final part of the course teaches the principles of traffic laws, understanding and demonstrating correct road position, and various emergency techniques for instant stopping, swerving, and dodging. On-road training is conducted under wide variety of conditions.

Road II: continues to build on the basic traffic situations of Road I and other tips of increased rider conditioning and comfort. Also, Road II adds student diagnosis of mechanical problems and instructor demonstration of the most frequent bicycle maintenance procedures. Road I is the prerequisite for Road II course.

*Commuting Class*: This course provides efficient answers to the challenges facing the novice commuter. The course covers a variety of bicycle-related issues including the rider's nutrition and hydration, hygiene, riding in the dark with lights, riding in the rain, and other conditions.

Evaluation:

Bill Moritz at the University of Washington is conducting an evaluation of the *Road I* course only. He has collected baseline data only, because no funding is available to collect follow-up data. Survey addresses effects on riding skills, crash risks, and effects on injuries but no data are currently available.

Note:

*Effective Cycling* is targeting all 50 states with Maine, Massachusetts, Connecticut, Florida, Illinois, Michigan, Wisconsin, Virginia, Washington, Arizona, California being the main focus with most instruction, 6-8 states having no instruction, and the rest having about 1-2 instructors per state.

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*or for evaluation:*

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The curriculum was developed jointly by the N.C. Department of Transportation Bicycle Program and the Bicycle Federation of America.

Target Age Group: Grades 4-5

Length of Program: 7 lessons (2 classroom, 5 on-bike)

Training:

*Basics of Bicycling* packet includes Instructor's manual, 50-minute videotape (with 24-minute teacher-training segment) and a three-ring binder with seven lessons—including two classroom and five on-bike lessons. The Basics of Bicycling is an introductory course in the basic knowledge and skills for safe bicycling. The scope of the curriculum is limited to those aspects of bicycling that have been identified as most critical to children's safety when riding on the streets in their neighborhoods and communities.

Training consists of:

- Use of appropriate bicycling equipment, especially helmets
- Checking the fit and mechanical condition of a bike before riding
- Knowledge of traffic laws and traffic signs
- Identifying and reacting to potentially hazardous roadway situations
- Riding cooperatively and communicating with other road users; and
- Developing bike handling skills important for safety.

On-bike lessons taught on a school playground or parking lot give practice in bicycle handling and traffic skills in a simulated roadway environment. The curriculum guide provides instructions for creating the needed props and laying out the various courses.



### Evaluation:

Jane C. Stutts and William H. Hunter, University of North Carolina Highway Safety Research Center, conducted an evaluation study of the *Basics of Bicycling* program (1990). Approximately 300 fourth and fifth grade students attending two North Carolina elementary schools chosen for the intervention.

Baseline data (N=404):

Totals:

96% of the children owned or had use of a bike

13% owned a helmet

14% needed to see a doctor for bike-related injury

28% fallen from bike and hit head and none were wearing a helmet at the time.

No statistically significant differences between the two experimental and the two control schools at baseline.

On-bike evaluations consisted of one-on-one interviewing and observation of children's riding skills. The percentage of children who were able to correctly size and **fit a helmet** on their head was approximately 90 percent after exposure to *Basics of Bicycling*. In comparison, 94 percent of students in control schools noted that an instructor was not wearing the helmet properly. These data are not comparable because the design of this assignment was different for experimental schools where participants practiced themselves in correct helmet fit and control schools where children had to make a note of somebody improperly wearing a helmet. Results from the **turn signal check** show that less than 50 percent could demonstrate correct left-hand and less than 20 percent could show a correct right-hand turn in control group. In contrast, almost all of the children exposed to the *Basics of Bicycling* could successfully perform these tasks. Approximately 30 percent of "control" children could correctly identify four or more **parts of the bike that should be checked** before riding and over 90 percent of experimental group correctly identified four or more items. About 64 percent of control children **stopped at the posted stop signs** and 60 percent **rode on the correct side** of the roadway. **Scanning behavior** for this group was less consistent—40 percent never scanned and 41 percent scanned part of the time. By contrast, children exposed to the *Basics of Bicycling* course performed consistently on all riding maneuvers.

A six-month follow-up survey was mailed to both groups of students, the results of which reported frequency of riding significantly higher ( $p < .001$ ) for the experimental students ( $n=195$ ) than for the control group ( $n=117$ ). Moreover, students previously exposed to the *Basics of Bicycling* were less likely to be injured in a bike crash in the six months of follow-up period (72% of experimental vs. 60.3% of control students reporting no injuries).

To summarize, the results of the evaluation showed that *Basics of Bicycling* curriculum significantly increased children's knowledge of bicycle safety issues and improved their safe practices. The data supported the hypothesis that children who were exposed to *Basics of Bicycling* curriculum were less likely to be injured while riding than children who were not exposed to the curriculum. In addition, children exposed to *Basics of Bicycling* performed significantly better on the simulated road environment course than children not exposed to it.

## Pros and Cons of *Basics of Bicycling* vs. *Effective Cycling Kids II*

Some educators feel that *Basics of Bicycling (B.O.B.)* is not a good training program because its design is a simulated course situated in a parking lot away from traffic. Gay Page, the Colorado Bike/Ped coordinator, prefers another program, the *Elementary Traffic Education Program* by the Seidler Productions to *Basics of Bicycling* because *B.O.B.* is too simplistic and not very realistic. *Basics of Bicycling* opponents feel that children do not transfer the skills learned on such a simulated course to the real road environment. The opponents of *Basics of Bicycling* are often the advocates for *Effective Cycling Kids II*. For example, Lois Chaplin with *The Bicycle Project* (New York, referred to by John Fegan) feels that *Effective Cycling Kids II* is the preferred bicycle training program for children.

However, opponents of *Effective Cycling (EC) Kids II* dislike the program because they think it is unsafe (or inappropriate) for children to be learning on roads with traffic. Ron Reilly, an *EC* instructor in Hawaii, comments that he finds *B.O.B.* more appropriate for younger children because *Effective Cycling Kids II* does not foster independent decision-making process in children. He explains that when young children are taken to the streets, they are led and followed by two *EC* instructors to minimize the potential risk of traffic incidents. Thus, although protection is maximized, children are limited in their advancement of independent learning skills.

Outside of limited learning opportunities on the road, general opinion is that it is hard to get either teachers or parents or both to permit their children to cycle on the roads. Often, teachers do not have any options but teaching children in a simulated environment if they want to do any bicycling training. In addition, some educators like Eileen Hyatt in Spokane, WA, mention that they do not find the presentation of *Effective Cycling Kids II* useful. In comparison, *Basics of Bicycling* is a more appealing model. *Basics of Bicycling* is very popular among professionals with a background in education. Thus, school systems in many states (including Wisconsin) use *B.O.B.* as a statewide bicycle education program\*.

Another problem with *Effective Cycling* concerns instructor training. The guidelines of League of American Bicyclists (developers of *EC*) dictate that in order to obtain the *Effective Cycling* certification, candidates need to graduate from the *EC Road I* course (9 hours) and take a three-day instructor training class. Educators and *EC* licensed instructors, like Lois Chaplin or Eileen Hyatt mentioned above are running into problems of motivating adults to complete these lengthy requirements in order for them to teach children. Although with some disapprobation from the L.A.B., Lois Chaplin is trying to find a compromise by pilot-testing a one-day training course for adults based on *EC Road I* course. She will have data on its effectiveness pertaining to adult instruction and child training.

Proposed solutions:

- possibly taking some components of *Basics of Bicycling* and modifying them to make it a more realistic course (as in the case of Gay Page in Colorado or Eileen Hyatt in Washington); and/or
- shortening the length of *Effective Cycling* certification requirements to motivate instructors to acquire competency prior to teaching children.

\*Wisconsin is using *B.O.B.*, however, they are currently piloting *EC* and they are the ones who sent us the *Kid's Eye View* video, which is a part of *EC* curriculum for parents.

**CONTACT**

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Program Implemented: 1983  
Target Age Group: 1-17 years  
Length of Program: The length of a rodeo/workshop  
Objectives:

Safety education and training to prevent injuries associated with bicycle traffic use.

Training:

*Safe Moves* educates children, parents, and the community on pedestrian, bicycle, motor vehicle, train, bus, and recreational safety. *Safe Moves* conducts student and parent workshops, traffic simulation rodeos, and community outreach campaigns.

The workshops consist of a *Safe Moves* educator discussing the different elements of safety in a 'step-by-step' format for easy comprehension and implementation. All workshops have flexible format that fit the specific needs of each age category. Discussions incorporate safety exhibits, demonstrations, and audience participation to accomplish the educational goals. Moreover, workshops often involve a bicycle crash survivor, a peer-speaker, share their experience of survival due to helmet use. Prizes and safety literature are distributed to all participants. The goal of the training is to generate enthusiasm in a non-traditional way by involving the audience in all safety discussions.

Traffic Safety Simulation Training (rodeos) is designed to educate children about rules and regulations through 'hands-on' experience. The training course features sidewalks, streets, crosswalk signals, traffic signs, driveways, buses, houses with driveways, and business districts. The course challenges the student's ability to recognize and react to traffic hazards. Each participant receives a one-on-one training from the instructor. All necessary equipment including bicycles, helmets, consent forms, prizes, and literature are provided by *Safe Moves*.

In addition, *Safe Moves* is involved in educating parents, adult programs, senior citizen programs, pre-school programs, community and public awareness programs including print and media campaigns.

The curriculum for bicycle component of *Safe Moves* consists of helmet use (fit and maintenance), choosing the right bike, proper cycling clothing, recognition and avoidance of common bicycle accidents, bicycle maintenance and repair, rules and ordinances that govern bicyclists, bike commuting, using safe bike routes and maps, use of bicycle facilities, and consequences of unsafe bicycle use. Other forms of transportation (pedestrian, bus, etc) are supplemented with equally extensive curricula.

Evaluation:

Between 1993 and 1996 a population of 1,000,000 school-aged children enrolled in *Safe Moves*. Los Angeles County Department of Public Works reported the following results for this population\*:

- 25% reduction in bicycle-related deaths
- 34% reduction in bicycle-related injuries

- 30% reduction in pedestrian-related deaths
- 19% reduction in pedestrian-related injuries

Currently, traffic collision data from several control sites from California and Oregon are being evaluated. The report will be available by January 1999.

*Safe Moves* has been acclaimed as the most successful program of its kind in the United States and has received the following awards:

- 1) "1998 Best Practice" by the Association of Bicycle and Pedestrian Professionals
- 2) "1996 Secretary of Transportation Child Transportation Safety Award" from the US DOT
- 3) 1996 California Office of Traffic Safety 'Program of the Year' Award
- 4) Three more awards in California

\*Pat Hines will be sending us the report from the Los Angeles County Department of Public Works, which verifies and explains the data cited above.

Note: Pat Hines will be presenting *Safe Moves* at the ProBike '98 conference in Santa-Barbara this September.

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Target Age Group: Adult educators to teach K-5  
Length of Program: Lessons are 20 to 40 minutes each, two lessons a week for 4 to 6 weeks.  
Two days of training for teachers/instructors.

Objectives:  
To provide children an opportunity to become competent, predictable, and confident in traffic as pedestrians or bicyclists.

Training:  
The six individual components of this program were designed to educate kindergarten through fifth grade students and can be used alone or in combination. Each grade level component has one video tape with an accompanying teacher's guide. They contain developmentally appropriate activities that teach decision making and behavioral skills aimed at specific age groups. To ensure children retain the correct habits and skills, it is recommended the series begin with the kindergarten program and continue sequentially through grade five. Presently, *Seidler Productions* is developing and field testing a middle school component.

To be effective, traffic education needs to change unconscious behaviors that put children at risk. This program is founded on the results of research and involve strategies to develop safe behaviors for traveling in traffic. The lessons most readily lend themselves to the Physical Education/Health Education area of the curriculum, but are not limited to them. Each session begins with a physical activity that sets the stage for the main lesson and incorporates techniques that empower children. The videos (or laser discs) use a stop-and-start format which allows the teacher to lead discussions at key points throughout the lesson.

The interactive style of these programs stress cooperative learning, peer coaching and discovery. As children progress from playground activities to crossing a street to bicycling in the school neighborhood, a foundation of knowledge is being built and carried through adulthood.

### **Teacher Training:**

Trainers and teachers are mandated to be competent as pedestrians and bicyclists prior to educating children. For this purpose, they have to first cover a two-day training curriculum with the intense on-bike component. Thus, there are two separate curricula available, one for children and one for teachers.

The twenty hour teacher training workshop addresses childhood injury and child development. It focuses on future transportation trends, current research, accident analysis, effective education techniques, legal liability, enforcement guidelines, program implementation, and evaluation. Community involvement is encouraged, with an open invitation for parents, police officers and administrators to participate with the teachers. College credit and/or renewable units are available in some states.

This is a comprehensive skills and attitude enrichment curriculum that can be easily customized to fit any state/community needs. It is the opinion of the producers that the key to success in bicycle safety education is teacher knowledge and involvement.

### Note:

Nevada and Montana are using this program statewide. Nevada has currently 200-250 teachers in 17 counties trained and implementing this curriculum. Nevada's contact is *Bruce Mackey, Nevada Office of Traffic Safety, 555 Wright Way, Carson City, NV 89711, (702) 687-5720, email: suncyctour@aol.com.*

### Evaluation:

This program, known as the *Florida Traffic and Bicycle Safety Education Program*, was adapted by the state of Florida and slightly modified by Linda Crider, Ph.D. A study conducted as part of the Duval County Traffic, Bicycle and Pedestrian Safety Education Project evaluated the effectiveness of this curriculum (Kinney and McCloskey, 1997).

As part of the project, Duval County school board modified their safety curriculum goal stating that in five years all students by the end of fifth grade will have participated in a bicycle safety program. During the 1996-97 school year, 3,128 elementary age children were trained in Duval County schools. In addition, 75 percent of the elementary school student population received 50,000 bicycle helmets purchased with the raised fund of \$222,739. Finally, a bike helmet law was activated in January of 1997 mandating all children 16 years and under to wear a bicycle helmet when riding where traffic passes. The results of the study (n=621) indicated an increase in helmet use from 19 percent in 1996 to 47 percent in 1997; an 80 percent decrease in the bicycle-related mortality and a 68 percent decrease in the bicycle-related morbidity from 1996 to 1997. The cost-benefit analysis realized for the decreased injuries for 1997 is \$22.85 million. The 1997 data concerning riding behavior represent 6.9 percent of all participants observed demonstrating scanning skills, .6 percent using hand signals, and 10.6 percent demonstrating conspicuity behavior. The preliminary findings from 1998 observations showed nearly 55 percent of the participants wearing helmets and a 25 percent increase in helmet use from 1997 to 1998 for the target 0-12 age group (McClosky, 1998, personal communication).

**CONTACT**

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Program Implemented: Statewide

Target Age Group: Schools teachers (and community trainers) to serve as instructors for K-2 and grades 3-5

Length of Program:

10-hour (1 1/2 day) workshop for school teachers and an 8-hour workshop for community trainers.

3-5 hours of classroom instruction each year in K-5 grades and 3-5 hours of on-bike training each year in grades 3-5 and pedestrian training in K-2.

Objectives:

For adults: to teach bicycle and traffic safety skills and rules of the road;  
For children: to be predictable and competent in traffic.

Training:

Every program instructor is a certified *Effective Cycling* Instructor by the League of American Bicyclists. This certification along with other training requirements qualifies them to teach the curriculum to teachers and community leaders. School teachers learn how to train their students in progressive acquisition of bicycle and traffic safety skills; development of decision making skills; development of balance; increased awareness of neighborhood and surroundings; increased awareness of conservation issues and earth friendly habits; and independent mobility, health, and exercise.

Traffic education for grades K-2 focuses on pedestrian safety, while grades 3-5 receive bicycle safety training. Lessons include outside on-bike practice and inside instruction with interactive video components and activity sheets. The curriculum emphasizes safe traffic behavior such as stopping at the edge, searching left-right-left, scanning to the rear, signaling, avoiding hazards, and importance of wearing a helmet. Many schools have implemented this curriculum within their physical education program instruction.

Fourteen-foot trailers have been designed to accommodate all the necessary equipment to replicate traffic environments on school property. Each trailer is equipped with bicycles, helmets, stop signs, tool kits, rope for lane markers, traffic cones, bicycle bumps, visual barrier props, truck props, car props, teacher's manuals, videos, curriculum materials. The on-bike component of the training is designed to put children in replicated traffic scenarios that have resulted in death and injuries to their age group due to unsafe pedestrian and bicycle behaviors.

\*Note: According to Robert Seidler of *Seidler Productions*, the Florida program is a less comprehensive version of the *Elementary Traffic Education Program K-5* described above (personal communication, August, 1998).

Evaluation:

A study conducted as part of the Duval County Traffic, Bicycle and Pedestrian Safety Education Project evaluated the effectiveness of this curriculum (Kinney and McCloskey, 1997).

As part of the project, Duval County school board modified their safety curriculum goal stating that in five years all students by the end of fifth grade will have participated in a bicycle safety program. During the 1996-97 school year, 3,128 elementary age children were trained in Duval County schools. In addition, 75 percent of the elementary school student population received 50,000 bicycle helmets purchased with the raised fund of \$222,739. Finally, a bike helmet law was activated in January of 1997 mandating all children 16 years and under to wear a bicycle helmet when riding where traffic passes. The results of the study (n=621) indicated an increase in helmet use from 19 percent in 1996 to 47 percent in 1997; an 80 percent decrease in the bicycle-related mortality and a 68 percent decrease in the bicycle-related morbidity from 1996 to 1997. The cost-benefit analysis realized for the decreased injuries for 1997 is \$22.85 million. The 1997 data concerning riding behavior represent 6.9 percent of all participants observed demonstrating scanning skills, .6 percent using hand signals, and 10.6 percent demonstrating conspicuity behavior. The preliminary findings from 1998 observations showed nearly 55 percent of the participants wearing helmets and a 25 percent increase in helmet use from 1997 to 1998 for the target 0-12 age group (McClosky, 1998, personal communication).



**Pedal Power Camp**  
**Minnesota**  
**Basics of Safe Bicycling**  
**Pedal Programs curriculum**

**CONTACT**

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Target Age Group: 11-17 or junior high and high-school\*

Length of Program: 5-day residential camp

Objectives:

The main purpose of the camp is to equip the participants with the skills, knowledge, resources, and confidence necessary to be safe bicycle drivers. Another goal is to help young people learn to organize and conduct bicycle safety events and biking activities in their communities. The overall goal is to help young people make bicycling a life long activity. The comprehensive training is focused on the bicycle as a vehicle and a medium.

Training:

The outdoor camp setting is conducive to an informal active program. Principles of experiential education are implemented, based on the belief that people learn best when they are actively involved. The teens participate in sessions where interaction with instructors and peers is encouraged. Hands-on activities include bike riding, bike repair, and community bike event design and implementation.

Workshops, activities, events and rides develop the skills of bicycle drivers and community bicycle instructors. Teens at *Pedal Power* are instructed in bicycle maintenance by expert bike mechanics, in bicycle touring by trip leaders, and in safe bicycling techniques by experienced bike commuters. Police officers teach bicycle traffic laws and youth educators instruct teens in how to teach others. Resource people teach participants how to work with civic groups, establish bike clubs, promote safe bicycling, and design activities in their communities. Workshops can vary from year to year including topics like nutrition education and basics of legislature. Camp counselors provide teens with continual on-bike instruction, support, friendship, and assistance in planning their activities.

Riding skills are learned by bicycling on early morning bike rides, day trips, bike rallies, short and long bike trips throughout the week. In small groups, the campers select routes for their bike trips and help each other repair bikes. Counselors help them choose workshops that are relevant to their interests and to the needs of their communities. Community leadership roles include serving on the citywide advocacy board; conducting bike-rodeos with police departments; designing a bike-fair to raise money for cancer research; safety demonstrations with helmets in classrooms; Boy Scout/ Girl Scout projects; conducting research in the community surveying crash rates and problem areas.

On the last day, teens demonstrate the skills and knowledge of bicycling and team work by participating in a bike rally, an event that involves the whole camp. In addition to these extensive bicycling activities, campers can participate in a variety of recreational activities at *Pedal Power*.

The fee is \$200 (some kids get scholarship based on willingness to do community service.)

#### Evaluation:

Participants were given pre and post written tests to assess their understanding of basic safety rules and concepts. Results for 1997 were (total n=44) mean scores increased from 72.5 percent pretest to 75 percent posttest. Specifically, for first year campers (n=25) mean scores increased from 65 percent pretest to 72.5 percent posttest. For returning campers (n=19) mean scores increased from 77.5 percent pretest to 85 percent posttest. Evaluation results also include ranking of activities on a five-point scale. Anecdotal reports conclude that *Pedal Power* Camp is very popular and attracts many returning participants.

\*Note 1: Director's commentary is that this age group is neglected by bicycle educators because most people do not want to deal with high-school age group. She thinks it is the best time to intervene because these kids are willing to learn and think and are not limited in cognitive abilities the way younger age groups may be.

#### **Basics of Safe Bicycling:**

Target Age Group: Adults 15 years of age and older (new or upgrading bicycle purchasers)

Length of Program: 3 hours

#### Objectives:

Program teaches bicyclists' rights to the roads; how and where to ride in traffic; urban street and intersection skills; bike lanes, routes, and pathways.

#### Training:

Program consists of a brief classroom presentation followed by a two-and-one-half hour on-road guided ride that focuses on learning and practicing safe bicycling skills. The classroom presentation focuses on the three E's of bicycle safety: engineering, enforcement, and education. The engineering component helps explain the wide variety of riding facilities such as bike routes, bike lanes, and bike paths. The enforcement section includes a review of Minnesota statutes as they apply to bicyclists, basic traffic laws, and registration. The education component, which consists of two-and-one-half hours of on-road bicycling skills practice, includes the following: bicycle inspection, riding behavior, maintenance, and safety issues. No fee is required for the course. In 1997, 100 participants in 32 classes completed the course. Participants were recruited from bike shops, community centers, and group homes.

Evaluation: None

#### **Pedal Programs:**

*Pedal Programs* is a comprehensive, how-to manual, which provides easy, step-by-step instructions for dozens of creative activities and programs aimed at children of all ages, from early elementary to high-school, depending on a particular program. Contents include information on bike rides, rallies, and rodeos, school programs, handouts, safety camps, clip art, evaluation tools, helmet promotions, coalition building, fund-raising tips, and many other valuable programming ideas. Developed by the Minnesota Safety Council, in conjunction with the Minnesota Community Bicycle Safety Project, *Pedal Programs* is a useful tool for anyone interested in bicycle safety activities.

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Program Implemented: 1996

Target Age Group:

Middle and high-school students (10-18 y.o.), parents, and school administrators. They reach about 350,000 children in one year.

Objectives:

To inform, to educate, and train bicycle safety concepts and techniques for commuting, recreating, exercising, and racing.

Training:

*BLAST* is available not only to middle and high schools, but to clubs, various agencies, and organizations as well. The accompanying *BLAST* Tutorial is designed for the use of an instructor who is organizing the *BLAST* program. The Tutorial contains detailed, well-organized instructions for program organization and promotion. The latter part provides guidelines on contacting media and law enforcement agencies, writing media releases, and planning meetings with various participating organizations.

*BLAST* program is first presented at an assembly where a 28-minute video, *The Bike Channel*, is shown followed by interactive discussion with students on what they have learned and the *BLAST Fun Quiz*, which covers information presented in the video. The video is composed of three parts: 1) road survival skills; 2) smart bicycling skills; and 3) interesting bicycle facts. Instructors are encouraged to present these three parts on separate occasions to allow for more open and extensive discussion after each segment. During the assembly, students also fill out a demographic survey with their information and receive a parent permission slip to attend a bicycle rodeo to be held in a week after the assembly.

At the *BLAST* Bicycle Rodeo/Track students bicycles and helmets are available for the participants unless they came with their own equipment. Each student receives a score card to record their scores for each safety point/skill covered in the rodeo (e.g., helmet check, shoulder check). Incentives, such as a coupon for Universal Studios Hollywood, are provided to all of the participants and certificates of completion of the *BLAST* Bicycle Rodeo are given out at the end of the event. The instructions on how to organize, conduct, and evaluate the rodeo are included in the Tutorial. Students who have completed the *BLAST* Bicycle Rodeo qualify for the participation in a racing track set up by the *BLAST* program (instruction provided in the Tutorial). In addition to various guidelines, instructions, and hand-out materials synthesized in the Tutorial, explanations of importance of proper nutrition, effective exercise, and overall safety of the participants are included in the manual.

The unique approach of this program is their presentation of bicycle training as a first class of driver's education. Thus, instructors present the *BLAST* curriculum in the following manner, "If you use the bike like a car, you must ride

your bike like a car and follow all the rules of the road....You buckle-on a seat belt while riding a car, buckle-on a helmet when you ride your bike” (*The BLAST Tutorial*, p. 8).

Furthermore, the *BLAST* program offers continuous participation in bicycle safety training beyond its immediate activities described above. After schools have participated in assemblies and bicycle rodeos, they may choose to join the *BLAST* Youth Cycling League by forming a school cycling club. It is a year round program with bicycle riding field trips, special events (i.e., marathons, tours), and continuous education in traffic skills, safety maintenance, and advanced riding skills. Bicycles can be earned by members of the club by maintaining good grades, regularly attending club events, and completing certain number of rides. The program also attempts to raise children’s self-esteem and targets students from lower social-economic class.

#### Evaluation:

*BLAST* is currently gathering baseline data on bicycle injury and collision rates among children ages 10 to 18 in the City of Los Angeles using LAPD traffic incident report data. *BLAST* will evaluate the injury and collision rates at intersections near schools at which *BLAST* has presented its program. Due to its recent implementation, no crash data is available for evaluation yet. It is known, though, that since the program implementation, no crashes were recorded in all of the middle schools where it is active.

In addition, a cross-sectional analysis evaluating *BLAST*’s impact on helmet use and riding behavior was conducted (*BLAST* Evaluation, 1998). Observations were done at eight schools that participated in the *BLAST* program and at six control schools matched by geographic location. The mean age of bicyclists observed was 12 years old and most of the riders were boys (81 %). Of all children observed riding bicycles, 38% were observed with helmets and 61 percent without. Of children observed with helmets, 69 percent were actually wearing them and 29 percent were not. A majority of children wearing helmets wore them correctly (69 percent). The study found that a larger proportion of children observed riding bicycles near *BLAST* schools had helmets than at non-*BLAST* schools (41% vs. 35%, respectively). A greater percentage of children at non-*BLAST* schools with helmets actually wore them than kids at *BLAST* schools (76% vs. 64%, respectively). The proportion of children who wore helmets correctly (63%) was very similar between the control and experimental schools. Due to small sizes and difficulties inherent to observation, no statistically significant differences regarding correct riding behavior were found between the schools. Future evaluation studies would require better design and bigger sample size to measure the effect of this intervention program.

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Program Implemented: 1989

Target Age Group: Grade 4; has reached over 52,000 students.

Length of Program: Five one-hour lessons

Training:

The course is designed for youngsters who already ride bikes. Five classes consist of on-bike training on the quiet secondary streets surrounding children's school. *Bike Ed* developers prefer street training as opposed to the simulated environment because their experience has shown that on-street education is more effective. Children ride a total of six miles during the training. Students are given individual instruction for each skill taught in *Bike Ed*. On-bike training consist of learning safe driveway exits, safe positioning on the road, road sign recognition, U-turns, and turning at intersections. Participants also learn how to check their bikes for safety and learn about the safety equipment like helmets.

*Bike Ed* program comes with a fully equipped van, which carries 30 bicycles, 30 helmets, 30 safety vests, and other materials.

Evaluation:

A study by *Bike Ed Hawaii* published in Pro Bike News (1992) reported long-term behavioral change in participants. Parents of the previous year's students reported a 15 percent increase in the number of children riding on the right side of the road, a 30 percent increase in the number of children with no accidents in the year following the course, and a 100 percent increase in helmet use (Bicycle Safety-Related Research Synthesis, 1995).

In 1993, program evaluation indicated that children who had participated in bicycle education dramatically improved their riding behavior (from League of American Bicyclists, *Effective Cycling Kids I*, p. 9):

- Right side riding improved by 7%
- Helmet usage among children increased by 13%
- Sidewalk riding decreased by 47%
- Crashes decreased by 77%

HIPRC did not review the actual report with the data cited above. This information was taken from the sources indicated (i.e., Bicycle Safety-Related Research Synthesis, 1995, and the League of American Bicyclists, *Effective Cycling Kids I*, p. 9).

**Riley Riders Bike Safety Smart Program  
Indiana**

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Clarian Health  
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Riley Hospital for Children  
575 West Drive, Room 008  
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(317) 278-0506

Program Implemented: 1995

Target Age Group: K-3

Length of Program: A one time 2-hour training

Objectives:

The goal of the program is to educate young bicyclists throughout the state in riding skills and traffic safety with the focus on traffic rules and helmet use.

Training:

The Riley Hospital for Children, operating within the structure of their Children's Safety Smart campaign, developed a new topic-specific project to address bicycle safety education needs for children in the state. The hospital formed a collaborative partnership with the Indiana District of Kiwanis International, the Indiana Bicycle Coalition, the Think First Program at Methodist Children's Hospital, a local motor club, the Bicycle Action Project, the Indiana Chapter of the American Academy of Pediatrics, the Indiana State Department of Health and the Indiana University School of Nursing to develop a bicycle safety course (rodeo), training guide with a sample press release, and supporting materials.

A 13 year-old Eagle Scout candidate was added to the team in order to obtain input and direction from the user group. The youth also co-taught the first bicycle safety course. A training manual was developed by the partnership. Five portable, reusable safety course "kits" were designed for shipping to locations throughout the state. Each kit contained ten traffic safety signs and as many activity books, brochures, information flyers and bicycle reflectors as would be necessary for a particular training. In addition, guidelines for setting up the simulated bicycle course are included. The flexible components of the course are intended to be used either as a whole or in selective parts depending on the need of the user.

In 1995, the bicycle safety course was piloted from June through November at four events that reached 619 children. In 1996, the course "kits" were loaned for use from March through October at 34 events across the state, serving 18 cities and more than 2,000 children. In 1997, the course training "kits" were loaned from April through July at 29 events in 16 cities and reached 2,428 children.

Evaluation: None

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Program Implemented: 1993

Target Age Group: K-3, 4-6, middle-school, high-school

Length of Program: 20 minutes, 30 minutes, or 1-hour depending on age group. A one-time annual training.

Objective: To promote bike and helmet safety, to help children bike safely by following basic safety rules, to reduce bicycle related injuries.

Training:

*Bike Star* program can be arranged by schools, PTSAs, churches, civic organizations, service clubs, youth organizations, and so on. The supplemental materials include an individual interactive “*Be a BikeStar*” booklet in different formats for program leaders and program participants, colorful brochures, coloring book, handouts, and a sample of a *Bike Star* personal I.D. Program covers helmet safety and proper fit, rules for riding in the streets and sidewalks, basic bicycle maintenance, proper dress, hand-signals, traffic signs, signals, and laws, and choosing bicycle route appropriate for personal skills. The curriculum suggests possible activities that participants may choose to do, including creating a bike/helmet safety “mini-play,” creating a bicycle “commercial,” making a poster/calendar, making flash cards of traffic signs, or writing a safety poem. Upon completion of the program, participants can write a group letter to *Bike Star*, which will be answered by program originators. *Bike Star* also offers individual or class *BikeStar’s Stars* certificates filled and signed by the sponsoring agency’s officials. Materials are available in two languages: English and Spanish.

For teenagers there is an accompanying video that presents basic bicycling safety tips, situations, and rules in an amusing fashion. Two peer-actors, Sammi and Zakes, and their talking dog Max demonstrate on- and off-bike safety rules, conspicuity riding, choosing bicycle routes, and typical places where bike crashes happen. Helmet safety is displayed via the “melon-drop” presentation (a melon ‘survives’ the crash in a helmet) and “brain- jello” demonstration (similar to the melon, gelatin in the shape of a human brain remains intact in a helmet).

Evaluation: is expected from Susan Bookspan.

**Travis County SuperCyclist Project  
Texas**

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Travis Co. SuperCyclist Project  
Austin/Travis County Health & Human  
Ser.  
55 N. IH-35, Ste. 235  
Austin, TX 78702  
(512) 708-0513

Program implemented: 1996

Target Age Group: 5-8 and 9-14 y.o.

Length of Program:

Age: 5-8 45 min-1 hour class

Age: 9-14 5 classes (45min.-1h.each) for 5 consecutive days in one week

Objectives: To teach safe bicycling with special emphasis on helmet use;  
To reduce deaths and injuries in children ages 5 to14 in Travis County, Texas

Training:

Travis County *SuperCyclist Project* targets primarily children ages 9 to 14 in the City and County's low-income neighborhoods. This age group is trained with the *Neighborhood Adventures in Bicycle Safety* comprehensive curriculum developed by Texas DOT. Each day is devoted to a separate topic in bicycle safety from bicycle safety laws to vehicle safety inspection to recognizing dangerous locations and situations to avoid injury to proper helmet use. The final component is an on-bike training situated on a simulated course.

*The SuperCyclist Project* also offers a shorter class, where children ages 5 to 8 review a 20 minute *Bicycle Safety Camp* video, produced in cooperation with the American Academy of Pediatrics by David Lewine of *Broad Street Productions*, which includes entertaining presentation of bicycle safety concepts in the form of singing and dancing. Helmet use and sidewalk riding are focused upon for this age group as they do not yet have the cognitive ability to deal with complex traffic situations. A presentation to parents is also available utilizing a community awareness video, which is part of the *Neighborhood Adventures in Bicycle Safety* curriculum. Having reviewed the video, children learn about helmet effectiveness through the "egg" demonstration, where an egg encased in a helmet remains intact after an impact and an egg without a helmet is crushed after an impact. This type of demonstration is effective because it is very realistic and interactive.

Since September 1996, *Neighborhood Adventures in Bicycle Safety* curriculum was taught to over 10,000 fourth and fifth graders in 50 elementary schools and seven districts. The short course offered by *The SuperCyclist Project* was taught to over 5,000 K-3 graders. Over 4,000 free bicycle helmets were distributed in the past two years. In addition, *The SuperCyclist Project* produced two PSAs with local FOX television affiliate. Other organizations that were exposed to the project include neighborhood theaters, which received theater slides on bicycle safety tips, local



companies that sponsored bicycle maintenance services and promotional equipment, and many more local organizations that contributed to the project.

Evaluation:

Evaluation includes survey of helmet use, pretest and posttest of acquired knowledge from the *Neighborhood Adventures in Bicycle Safety* curriculum, and monitoring number of bicycle crashes with motor-vehicles. The number of crashes involving children ages 5-14 has decreased by 88 percent in the entire county since the program implementation and the main attributing factor (according to Doug) responsible for this effect is bicycle education. Participants' competence of bicycle safety assessed through the pre- and post-test surveys showed an 18 percent increase in knowledge of bicycle traffic laws and rules of the road. Surveys of helmet usage in the targeted 5-14 year old population, show a 61 percent usage rate, one of the highest in the United States.

The HIPRC has not had a chance to review the method of the documentation cited above.

Note 1: Travis County has helmet use ordinance active since 1996.

Note 2: Doug Ballew will be presenting at the ProBike '98 conference in Santa-Barbara.

## Heads-Up, Helmets-On Connecticut

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Community Traffic Safety Coordinator  
Waterford Police Department  
Waterford, Connecticut

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*Heads-Up, Helmets-On* is a joint effort of Connecticut DOT, Police Department, and Fire Department, developed by Liz Beals, M.A. in Education—so focus is on education.

Program implemented: 1994, administered to over 500 children.

Target Age Group: Any age of elementary school children, some preschoolers.

Length of Program: 1 day (4 hours); administered annually in May or June before schools get out.

### Training:

The program was originally based on *Basics of Bicycling* and the idea that children had to get on the bikes and prove that they learned the skills. The setting consists of a series of booths, which target different bicycle safety issues. For example, one station teaches children about traffic rules and signs related to bicycling, another booth is set up to distribute helmets for \$5 for those kids who do not have any, other booths are set to check the mechanical condition of bicycles. Since Connecticut is a state where a bicycle helmet law has been implemented, helmet use is strongly emphasized in a game-like fashion. Children are being taught such cycling skills as ability to ride on a straight line, stopping at a stop-sign, and avoiding the obstacles on the course. At the end of the program, children take a verbal test on bicycle safety. Participants are rewarded with inexpensive souvenirs like key chains, pencils, and more importantly “bicycle driver licenses” developed specifically for this program by the Connecticut Police Department. The “license” is given at the end of the program and children receive the message that they have to earn the “license” by demonstrating that they have learned the skills of the program. This innovative “licensing” approach has been very successful and popular among the kids and parents.

The program is developed from the cognitive-developmental perspective taking into consideration the capabilities and limitations of elementary-school children.

Evaluation: None

**CONTACT**

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Bicycle Coalition of Maine  
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Augusta, ME 04332

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Target Age Group: Adults to instruct youth of all ages.

Length of Program: Full day classroom and on-bike training.

Objectives: To educate volunteers (adults) to become competent, safe, and experienced bicycle instructors for the youth.

Training:

Training begins with the “Bike IQ” test that assesses participants’ knowledge of traffic rules, safe riding places, bicyclist’s responsibilities on the road, bicycle signals, turns, specific riding situations, night riding, bicycle accidents, and helmet safety. Program covers the following sections in order: child development and the bicycle; bicycle nomenclature, fit, and safety check; helmets and other safety equipment; rules of the road; bike handling skills; bicycle safety rodeos (from *Basics of Bicycling*); prep and present; and final evaluation. Each section is supplemented with corresponding handouts, cue cards, and quizzes that outline the topic of discussion.

Developed by the Bicycle Coalition of Maine, *Bicycle Safety Instructor Training* as well as other courses like “Share the Road” adhere to the principle of “Same roads, same rules, same rights” for both motorists and bicyclists.

\*Fee is \$10 for club members and \$35 for non-members (includes membership fee).

Evaluation: None

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Email: [jpruitt@mail.state.wi.us](mailto:jpruitt@mail.state.wi.us)

Target Age Group: Adults to become trainers for all age groups

Length of Program: A full-day training conducted 3 times a year

Objectives:

To educate teachers, community activists, school employers about instruction of safe bicycling to their students and community members.

Training:

*Teaching Safe Bicycling* was developed by Wisconsin DOT Bureau of Transportation Safety Bike/Ped program in consultation with City of Madison DOT, UW-Madison Agriculture Extension, and the Wisconsin Department of Health and Family Services.

The program begins with the introduction of differences between children and adults as bicycle riders and strategies that are helpful in teaching these age groups. The training helps to develop and organize a successful child rider community training event. Participants learn various ways of working with service organizations, schools, community leaders, media and law enforcement to assure safe riding in communities. The workshop encourages working with children of different developmental, cognitive, and emotional abilities. In addition, it offers a hands-on hazard identification in bicycle riding areas and knowing the sources that help eliminate or correct these hazards. The goal of the training is to convey the most efficient ways for future instructors to teach children safe bicycling skills and hazard avoidance. It is a one-day training course on bike safety that is conducted three times a year mostly during the spring.

As part of the training, participants receive a videotape for parents, *Kid's Eye View* (1994). This video demonstrates bike fitting, helmet use and fitting, helmet safety (egg demonstration), rules of traffic, differences between adult and child competency in traffic, hand-signals, riding on sidewalks and on the streets. The message of the video is that, "Your children are watching from *Kid's Eye View*," referring to the role of adults as models for children in proper safety behavior. This material provides concrete examples of children riding in traffic displaying both correct and incorrect riding behavior. The viewers are then shown violations of safe riding behaviors by focusing on mistakes of children actors. Parents and other adult educators are urged to understand that children may be limited cognitively or developmentally in acting with full expertise in traffic.

Evaluation: None

Note: No written curriculum is available.

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1612 K St. NW, Suite 401,  
Washington, D.C. 20006-2802 (717) 560-3636  
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Program Implemented: 1998

Target Age Group:

Adults (Court-mandated participants and potentially adult groups of interest like truck-drivers, tour-bus companies, etc.). So far, two participants have completed the course.

Length of Program: 3 hours

Objectives:

Teaching motorists how to share the road with bicyclists. Teaching legal responsibilities of driving in the presence of bicyclists and bicyclists' rights under law.

Training:

The basis of training comes from *Effective Cycling* curriculum now viewed from the motorist's perspective. Participants start by taking 5 minutes to write down their thoughts on bicyclists riding on the roads. The instructor then provides feedback with the emphasis on traffic rules that dictate bicyclists' rights. Using motivational interviewing when appropriate, the goal of such discussion is to change the negative mindset of a motorist to a positive framework of thinking about bicyclists as equals on the road. Training begins with the discussion about traffic laws and ends with the demonstration of how the law applies to concrete hypothetical situations. Specifically, the emphasis is on practical application of motorists/bicyclists sharing the road in a local community. The training is designed to be conducted in a classroom setting without any on-bike component.

Evaluation: None.

Note: The impetus to *Motorists Ed* was the tragic accident resulting in the death of the founder of People's Advocacy for Trails Hawaii (PATH), a bicyclist hit by a motorist. The motorist was mandated by court to take the *Motorists Ed* course as part of her court-sentence.

## Oklahoma Ride Right, Ride On and Breaking Away Oklahoma

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(405) 271-3430  
1-800-522-0204

RIDE RIGHT, RIDE ON Guide to Bicycle Helmet Projects and a companion injury prevention guide *Breaking Away* were developed by the Injury Prevention Service, Southwest Regional Brain Injury Rehabilitation and Prevention Center (Houston, Texas).

Target Age Group: K-6

Length of the Program: Two 45-minute lessons

Objectives: To decrease bicycle-related injuries by means of education about helmet use and bicycle safety.

Training:

RIDE RIGHT, RIDE ON is a guide for community organizations to start their own safety program. It is a curriculum, not a program in itself—thus, users are free to adapt the parts that they found useful into their own programs. RIDE RIGHT, RIDE ON has been used by various Oklahoma community organizations. Administrators of every county Health Department were contacted and community organizations that were awarded grants from the Oklahoma State Department of Health, Injury Control Division received this curriculum. Currently, about 80 organizations like Oklahoma SAFE KIDS Coalition, Oklahoma PTA, and other community organizations are using this curriculum, distributed at various promotion events together with 75,000 free helmets.

*Breaking Away*, a bicycle safety curriculum, consists of two 45-minute lesson plans to be used as part of a safety program. Thus, instead of arbitrarily selecting pieces from RIDE RIGHT, RIDE ON, users have an option of simply using *Breaking Away* manual, which is grade specific K-6. In 1996, all elementary school principals received flyers about the availability of these curricula. *Breaking Away* begins with kindergarten appropriate material, two lessons of 15-20 minutes teaching basic location and function of the human brain and correct helmet fit. It includes educational activity and coloring sheets and a message for parents about bicycle safety. The curriculum gets progressively more complex to match the cognitive abilities of K-6. In sixth grade, students learn about specific function of the brain (e.g., function of the cerebellum). Students also demonstrate their understanding of the reasons behind wearing a helmet and watch a *Bicycle Safety Camp* video. Furthermore, lessons include solving a bicycle safety crossword puzzle, practicing creative writing about helmet use and injuries and other interactive games.

They keep track of who is using the curriculum but most teachers use it selectively (take arbitrary pieces and adopt them into their own safety-education curricula). During the RIDE RIGHT, RIDE ON project, two project communities and one military base passed helmet ordinances and 7 school districts adopted helmet policies.

Evaluation: None

## Oklahoma Elementary School Injury Prevention Education Oklahoma

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OSDH Injury Prevention Service  
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Oklahoma City, OK 73117-1299

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Program Implemented: 1993

Target Age Group: Grades 1-5, grade-specific curriculum

Length of Program: One school year (9 months)

Objectives:

- 1) To ease instruction by integrating injury prevention messages into teachers' subject material;
- 2) To help students form safety habits for life, which will reduce the number and severity of injuries among children and youth in Oklahoma.

Training:

The curriculum was developed by the Injury and Disability Prevention Service of the Oklahoma State Department of Health. The curriculum includes teachers' guide to the curriculum; lesson plans, injury-related to bicycle crashes, car safety restraints, intersections, pedestrians, and firearms in schools; list of audio and video tapes available, and suggestions for additional activities.

Training consists of 25 lessons, six or seven of which target bicycle safety. Developed from the education perspective, the curriculum was adopted by the Department of Education at the end of 1996. Now it is on the list of Approved text-books (not required) but if teachers want to obtain it for their classes, they have that option. They keep track of who is using the curriculum but most teachers use it selectively.

Evaluation:

In 1993 a pilot study was conducted on the curriculum with 6 elementary schools as controls and 6 schools as program groups. Results showed a 15% increase in overall safety and 10% increase in bike helmet use. The curriculum was then modified to be grade-specific, subject-integrated, and focused on creative problem-solving. No evaluations have been done after the pilot study.

Note: Curriculum is available for ordering for a fee.

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### **SprocketHero Assembly Program:**

Target Age Group: K-2 and grades 3-5

Length of Program: 25-30 minute assembly

Objectives:

1. The importance of wearing a helmet
2. Which side of the street to ride on
3. To stop and look both ways before entering the street from a driveway
4. To stop at stop signs, yield signs, and stop lights
5. Hand signals and when to use them\*
6. To use lights at night\*

\*K3-6 only.

Training:

*SprocketHero* is the name of the masked bicycle safety crusader who speaks to groups of children about the necessity of wearing a helmet and other safety issues. Training is conducted in a form of a dialogue where the *SprocketHero* is leading the discussion and encouraging interaction from children. Participants receive written materials about bicycle and helmet safety to share with their parents and a coloring book with six safety tips.

Evaluation: None

### **“RIDE RIGHT” Middle School Curriculum and Kit:**

The “*Ride Right*” *Middle School Curriculum and Kit* was developed for middle school aged children. These comprehensive kits are available for loan to middle schools and youth groups. Each kit contains a variety of hands-on activities, and can be taught by a non-cyclist.

### **Bicycle Skills Course “Train the Trainer” Workshops:**

These free workshops teach participants how to plan and conduct bicycle skills courses (bike rodeos). Upon completion, participants will know: how to conduct a bicycle skills course from start to finish, understand basic bicycle safety principals and concepts, be able to conduct at least four bicycle skills course learning stations, know what equipment is needed, and know what resources are available to support a bicycle skills course. Four fundamental learning stations simulate riding situations, as well as traffic signs and signals. These courses emphasize identifying hazards to help prevent injury, and building safe riding skills.



**Bicycle Skills Course (Bicycle Rodeos):**

Education Program volunteers who have received the Skills Course training are available (depending on schedules) to help coordinate weekend rodeos for schools, civic groups, and community activities. They are scheduled through the Education Program Office.

Carla Gramlich  
Tacoma Wheelmen Club  
Tacoma, WA

(253) 752-4038

Program Implemented: 1993

Target Age Group: Children of any age and adults

Objective: Helmet distribution

Training:

Helmets are made available for a nominal cost of \$5. Helmet ordinance has been implemented in Pierce County. *Helmet on Wheels* organizes helmet distribution, helmet demonstration of proper fitting, bicycle safety literature distribution (brochures from Safeco). A press release is printed in a local newspaper a week prior to event. One hundred helmets are sold out at each location within an hour.

*Tacoma Wheelmen Club* also conducts bicycle rodeos.

Evaluation: None

**CONTACT**

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(206) 725-9408

or

David Mozer (206) 767-0848  
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Program Implemented: 1997. No standardized curriculum is available.

Target Age Group: 8-18 year olds  
25 participants in 1997 and 28 participants in 1998. Six participants earned a bike and one is projected to receive a bicycle.

Length of Program:

8 weeks (4 weeks in the summer), meet once a week +3 optional times for those who want to earn a bike.

Objectives:

- Focus is on mechanics of bike-repair
- Bicycle riding skills
- Safety including road rules, traffic situations, helmets, hand signaling
- Social skills—working for a goal

Training:

*The Free Ride Zone* is a nonprofit bike shop in Columbia City, Southeast Seattle. Young people learn how to fix bikes and are rewarded with their own bicycles in the *Earn-a-Bike program*. Participants also acquire knowledge in safety. Community members can get affordable bike repairs and buy reconditioned bicycles.

Vocational Education component of the *Free Ride Zone* program teaches young adults how to run a small bicycle repair shop. Neighborhood rides are organized for all participants to ride their new bikes after reviewing riding safety with emphasis on maintenance checks. The *Free Ride Zone* also organizes YMCA bike rides with review of safety rules, choosing bike routes, and mandatory use of helmets.

Evaluation: None

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(515) 239-1306

Target Age Group: K-6  
Length of Program: A one-time rodeo

Objectives:

Help interested community volunteers provide a method to improve the bicycle safety within the community of the pre-teen student. Emphasize helmet use and bicyclists rights and duties. Determine whether the program is successful by program evaluation.

Training:

*Ride Right Cycle Right Rodeo* manual provides detailed background, instructions, explanations, and supplemental materials for conducting a community/school bicycle rodeo. Among the objectives of the program mentioned above is the goal to evoke a positive attitude from the community towards bicycling and sharing the road with bicyclists. The manual instructs in advertising the event by using press release; finding sponsors and partners in the community; appointment of program representative responsible for such separate components of conducting a rodeo as promotion, registration, prize, inspection, activities, and administrative.

The Iowa curriculum stands out among other rodeo manuals because it gives equal weight to classroom instruction. Realizing that the time spent in a more structured environment like a classroom setting, the authors of the manual suggest covering such topics as bicycle safety (“Street Survival Skills”) and conducting a pre-test survey before the outdoor component of the rodeo. *Ride Right Cycle Right Rodeo* curriculum gives the necessary knowledge on bicycle maintenance, safety facts, and safe cycling tips. In addition, sample handouts and consent forms for rodeo participants, school officials, and parents are available in the manual.

The critical component of the *Ride Right Cycle Right Rodeo* program is its emphasis on the importance of rodeo evaluation. The manual provides the rationale and training on measuring the effect of bicycle safety rodeo. Pre-event and post-event surveys are designed to assess numbers of helmet wearers as a percentage of cyclists.

Evaluation: No reference of the manual’s effectiveness is available. The rodeo curriculum does emphasize conducting rodeo evaluation, so users have means for determining its effectiveness in their communities.

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Ref. by John Fegan

Target Age Group: 9-12 year olds and adult instructors

Length of Program: 4 one-hour lessons and one two- or three-hour ride; after school or school program

Objective: To provide an opportunity for a small group of young bicyclists to develop skills necessary for safe bicycling.

Training:

. Training takes place in a parking lot and is focused on cycling skill development. Based on *Effective Cycling* program, the *Bicycle Project* curriculum consists of 4 lessons, a final two- or three-hour bicycle ride, and supplementary activities. The first lesson covers bicycle sizing, equipment, and basic skills check. The second lesson teaches scanning, signaling, and turning. The third lesson focuses on hazards and rock dodging and the fourth lesson covers bike route planning. Finally, a tour of the neighborhood is conducted during the last lesson where participants demonstrate riding proficiency in traffic under supervised conditions. At the end of the tutorial are two bicycle games ('Spokes' and 'Parts Identification') aimed at increasing knowledge of road signs and bicycle parts, respectively.

Adult instructors have to be qualified in cycling skills prior to teaching children; however, mandatory two-day course established by *Effective Cycling* is not very convenient because of its length. Currently, Lois Chaplin is curtailing the two-day course material to a one-day course, which is still based on *Effective Cycling Road I* course.

Evaluation: Both children and adults will be tested starting in 1998. No data are available yet.

**CONTACT**

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AAA  
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Bellevue, Washington 98004-6930

(425) 646-2058  
(800) 562-2582 x002058  
Email: janray@aaawa.com

Target Age Group: K-3, grades 4-6, and junior high/middle school

Length of Program: The materials offered by the AAA have flexible formats and may be incorporated into other areas of the curricula. There is no set length for the activities.

Objective:

To help students understand and deal with their traffic environment in order to reduce the risk of death and injury.

Training:

*Traffic Safety Teacher's Guide for Grades K-3:*

This booklet is a collection of 10 monthly traffic safety topics and activities:

- Help Your Safety Patrol
- Walk Facing Traffic
- Buckle Your Safety Belt
- The Green Will Show When It's Time to Go
- Be Seen After Dark
- Be Aware and Cross Carefully at Corners
- Curb the Urge To Dash Across
- Look All Ways Before Crossing
- Use Your Head, Wear a Helmet
- Play Away From Traffic

Each unit contains student learning objectives, a brief overview, creative suggestions for reinforcing the monthly safety slogan, student activities and reproducible student activity page, vocabulary words, and a list of optional supplemental materials.

*Traffic Safety Teacher's Guide for Grades 4-6:*

The teacher's guide for grades 4-6 builds on the material introduced in grades K-3. It introduces the same topics but the content is modified to be compatible with the increased intellectual capacity of older students. The bicycle component is focused on understanding the importance of wearing a helmet for bicycling, skating in line, and skateboarding. Students have to demonstrate their knowledge of safe bicycling procedures by making posters and practicing riding with their families.

*Traffic Safety Teacher's Guide for Junior High/Middle School:*

Each year teachers cover two topics from a list of subjects that includes safety restrains, alcohol awareness, bicycling, pedestrian behavior, and pre-driving skills. The bicycle component is focused entirely on helmet use and proper helmet fit. The booklet contains detailed instructions for teachers to conduct an "egg-drop" demonstration of the effectiveness of helmet protection from head and brain injuries. Helmet-related activities for students are suggested in the guide.

Other educational materials produced by the AAA include *My Own Safety Activity Booklet* for Grades K-3, *Otto the Auto Traffic Safety Stories for K-3*, and *Traffic Safety Educational Posters for grades K-6*.

Evaluation: None

**CONTACT**

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Transportation Demand Team  
Transportation Services  
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(970) 224-6126

ref. by Gay Page, Colorado DOT

**Rodeos:**

Target Age Group: children between 4 and 12 and their parents

Length of Program: 3 hours per rodeo; each school takes 3 full days to train all (700 children)

Training:

Helmet use and proper fit are the mandatory components of the rodeo. Children are walked through the simulated course one by one. Skills taught include driveway exiting, stop sign handling, turning, and so on. Competition was eliminated from this rodeo course because the trainers wanted each child to receive quality instruction at their own pace.

Evaluation: None

**Strap and Snap:**

“Strap and Snap” is a helmet program for 7-8 year old children from low income families. Sponsored with a \$10,000 grant, this program is designed to give out free helmets through child clinics.

Center for Injury Prevention  
5009 Coye Drive  
Stevens Point, WI 54481

1-800-344-7580  
www.bucklebear.org  
Email: elaine@cipsafe.org

Target Age Group: Preschool and K-1 children

Objectives of the Center for Injury Prevention:

Developing and conducting programs that reduce or eliminate unintentional injuries and deaths to children.

Providing educational materials for injury prevention.

Supplying the latest breaking news on injury prevention.

Providing a resource for parents, professionals, and groups to obtain products at discounted prices.

Products:

***Bucklebear Gets Ready To Go Kit:***

This three-part comprehensive curriculum is designed for extended use in classroom of a day care, head start, or kindergarten facility. Part One introduces young children 2.5 to 4 years of age to the concepts of helmet use and tricycle safety basics. Other parts cover pedestrian skills, socialization, and recycling. As a supplemental material, children receive *Biking with Bucklebear* storybook. The fee for the packet is \$99.00. In addition, an enhanced packet, which includes a helmet, a *Bucklebear* Lap Puppet, bicycling and pedestrian rules, training video/presenter's guide, and complete scripts for educators to make a 30-minute presentation, is available for \$299.00. Individual components of this and other programs are listed in the catalogue separately at lower prices.

Evaluation: None



## Risk Watch

*Risk Watch* is a comprehensive injury prevention curriculum for children in preschool through eighth grade. Its development is co-founded by the National Fire Protection Association and Lowe's Home Safety Council. Injury prevention topics covered by the curriculum are motor-vehicle safety; fire and burn prevention; choking, suffocation, and strangulation prevention; poisoning prevention; falls prevention; firearms injury prevention; bike and pedestrian safety; and water safety. The curriculum is designed for use by schools, educational programs in fire departments, hospitals, and other community agencies. Students are actively involved in exercises such as creating a safety trade show, analyzing risky behaviors through story telling, role-playing, songs, etc. *Risk Watch* is a sequential program of instruction presented in five teaching modules. Each module addresses all eight risk areas and builds on lessons in prior modules, allowing for an increasing level of comprehension and complexity from preschool through eighth grade. *Risk Watch* has undergone two comprehensive field tests. The first was conducted in Durham and Pitt counties in North Carolina during the 1996-97 academic year. The second field test was conducted in Brockville, Ontario, Canada, and Winston-Salem and Concord, North Carolina. The results of the second field test, compiled by Robert Smith, M.D., Duke University Medical Center, are the following:

Participants: 51 teachers and 923 students from five learning levels and control group of students was matched for each learning level.

### Pre-test and Post-test comparison:

Preschool: Knowledge gain—31%, Control group knowledge gain--23%;

Kindergarten: Knowledge gain—24%, Control group knowledge gain—2.6%;

Grade 1: Knowledge gain—14%, Control group knowledge gain--4%;

Grade 2: Knowledge gain—28%, Control group knowledge gain--0%;

Grade 3: Knowledge gain—7%, Control group knowledge gain--0%;

Grade 4: Knowledge gain—8%, Control group knowledge gain--1%;

Grade 5: Knowledge gain—14%, Control group knowledge gain--0%;

Grade 6: Knowledge gain—7%, Control group knowledge gain--2%;

Grade 7: Knowledge gain—6%, Control group knowledge gain--1%;

Evaluation also includes teachers observations for each grade level on curriculum structure, learning model, curriculum content, character roles, and curriculum guide.

Although, *Risk Watch* is a very comprehensive, well-researched, and well-presented curriculum, its content is too broad for the purposes of our survey. The bicycle component is presented as only one of eight risk areas and, consequently, bicycle safety training provided by this program is less comprehensive than other programs. However, this curriculum should definitely be considered for the implementation of a comprehensive injury prevention program.