DOCUMENT RESUME

ED 147 609 CE 014 066

TITLE Bike Ed '77: A Conference Report (Washington, D.C., May 4-6, 1977).

INSTITUTION Johnson (Lawrence) and Associates, Inc., Washington, D.C.

SPONS AGENCY Consumer Product Safety Commission, Washington, D.C.; Department of Transportation, Washington, D.C.

PUB DATE Jun 77

CONTRACT CPSC-C-77-0027

NOTE 116p.; Several photographs of participants may not reproduce well. For a related document see CE 014 067

EDRS PRICE MF-$0.83 HC-$6.01 Plus Postage.

DESCRIPTORS *Bicycling; Community Involvement; Conferences; *Educational Coordination; Educational Strategies; Motor Vehicles; National Programs; Program Descriptions; Program Development; *Program Planning; Research; *Safety Education; Traffic Accidents; *Traffic Safety

ABSTRACT

As a result of intensified need for sound safety education programs for both young and mature bicyclists due to the dramatic increase in bicycling as a form of transportation and recreation, the first national conference on bicyclist safety education was held--Bike Ed '77. Major purposes of the conference were to stimulate communication among people involved in bicyclist safety education, to develop specific directions for future bicyclist safety education efforts, and to develop a national strategy for future safety education efforts. In this report, the first section outlines recommendations made by conference participants and suggests those individuals and groups who might be involved in the implementation of the recommendations. This is followed by bicycling actions now being considered by sponsoring agencies to support bicycling and bicycling safety. The remainder of the report includes abbreviated versions of all speeches and presentations made at the conference. Titles of some of the presentations are "How To Generate Community Support," "Bicycle/Motor Vehicle Accident Types," "Planning Model for Bicycle Safety Education," and "Effective Traffic Safe Cycling." Where appropriate, explanations to supplement the texts of presentations have been added. The names and addresses of conference participants are listed to facilitate the exchange of information begun at the conference. Included in the appendix are concepts to be considered in community bicycling programs. (A resource guide also prepared in conjunction with the conference is available separately.) (SH)

BIKE-ED '77

A CONFERENCE REPORT

MAY 4-6, 1977
WASHINGTON, D. C.

A National Bicycle Safety Education Conference
Jointly Sponsored By:
United States Consumer Product Safety Commission
United States Department of Transportation

Prepared by Lawrence Johnson & Associates, Inc., Washington, D.C.

Contract No. CPSC-C-77-0027

CONTENTS

INTRODUCTION

The dramatic increase in bicycling as a form of transportation and recreation has intensified the need for sound safety education programs for both the young and mature bicyclist. In response to this need, the U.S. Consumer Product Safety Commission and the U.S. Department of Transportation co-sponsored the first national conference on bicyclist safety education--Bike-Ed '77.

Through the conference, the sponsoring agencies hoped to stimulate communication among people involved in bicyclist safety education and to provide better direction for future safety education efforts. The limited focus of the conference was not intended to diminish the importance of other aspects of bicycling safety, such as engineering and enforcement. Each has a role to play in the total area of bicycling safety. However, at this time, major emphasis on safety education efforts was deemed essential.

In the view of the sponsoring agencies, a lack of communication among people involved in bicycling safety has fostered a duplication and fragmentation of safety efforts and, in some cases, contributed to the continuation of programs and activities based on misinformation and misunderstandings. It was hoped that Bike-Ed '77 could reverse this trend and serve as a vehicle for promoting increased communication in order to make the most efficient use of limited energies and resources. By stimulating necessary communication, the sponsoring agencies hoped also to develop specific directions for future bicyclist safety education efforts.

On May 4-6, 1977, approximately 215 State and Federal Government leaders, bicyclist safety education specialists, bicyclists, law enforcement officers, and researchers met at the Sheraton Park Hotel in Washington, D.C., to learn more about bicyclist safety education and to develop a national strategy for future safety education efforts.

The conference was a blend of learning and brainstorming sessions. Speakers provided information on current research, a planning model for bicyclist safety education programs and a presentation of sample safety programs. Workshop leaders provided guidance on specific aspects of bicycle programs. Perhaps even more importantly, conference participants were able to talk in small groups about their problems and needs and to make specific recommendations on future programs.

Ambitious goals were set for Bike-Ed '77 and their attainment required a wider perspective and involvement than that of the two sponsoring agencies. As a result, DOT and CPSC enlisted the aid of representative groups involved in bicycling safety to provide guidance on the conference program, people to be invited and follow-up activities. The Planning Committee, cited on page 16 of this report, met in November 1976 and February 1977 to provide input on the conference focus and to recommend appropriate speakers. A final meeting of the Planning Committee was held on June 10, 1977, to discuss conference recommendations and follow-up activities.

The Department of Transportation and the Consumer Product Safety Commission view Bike-Ed '77 as a beginning. In fact, the success of the conference should not be measured by what went on at the conference, but by what happens as a result of the conference. Our pre-conference materials stressed the goal of developing a national strategy for bicyclist safety education. While many hailed this goal, others dismissed it as being premature and unrealistic. Some questioned what a national strategy might be and what it should encompass. In light of this controversy, it was not surprising that a national strategy for bicyclist safety education did not evolve from the conference. However, what the conference did produce was a series of recommendations which could provide better coordination and impetus to safety education. The recommendations may be the nucleus of a national strategy, but much more work is needed to develop a truly comprehensive plan of action. Thus the report of Bike-Ed '77 is not a final product. It is the raw material for improved efforts in bicyclist safety education.

The first section of this report outlines recommendations made by conference participants and suggests those individuals and groups who might be involved in the implementation of the recommendations. This is followed by bicycling actions now being considered by the sponsoring agencies to support bicycling and bicycling safety. The remainder of the report includes abbreviated versions of all speeches and presentations made at the conference. Where appropriate, the editors have added explanations to supplement the texts of presentations. These explanations appear in *italics*. The names and addresses of conference participants are listed to facilitate the exchange of information begun at the conference.

Included in the appendix of this report are concepts to be considered in community bicycling programs. This material was prepared by conference staff from the ideas voiced by conference participants. As a companion to this report, we also have published a resource guide to bicyclist safety education materials, curricula and programs. For further information about the conference or follow-up activities contact: Katie Moran, National Highway Traffic Safety Administration, DOT, Washington, D.C. 20590, 202/426-4910 or Ken Giles, U. S. Consumer Product Safety Commission, Washington, D.C. 20207, 301/492-6593.

SUMMARY OF CONFERENCE RECOMMENDATIONS AND FOLLOW-UP ACTIVITIES

Bike-Ed '77 was designed to allow substantial interaction among conference participants. Twice during the conference, participants were divided into small groups and were asked to share their problems, define their needs and present their recommendations on how bicyclist safety education might be improved and expanded. These sessions were most productive. This section of the Conference Report contains the recommendations made by Bike-Ed '77 participants and actions now being considered by the sponsoring agencies.

Recommendations Implementation Matrix (RIM)

A Recommendations Implementation Matrix (RIM) has been developed by the Conference Staff and Planning Committee as a means of highlighting the various recommendations proposed at the Bike-Ed '77 Conference. It is generally acknowledged that no single individual or organization is in a position to coordinate and direct the development and implementation of a comprehensive bicycle safety program on a nationwide basis. The primary purpose of the RIM, therefore, is to suggest the appropriate roles for the different sectors of our society involved in the complex area of bicycling safety. The RIM also serves to indicate the important interactions which must take place if the conference recommendations are to be effectively carried out.

The RIM does not address all areas of bicycle safety - rather it confines itself to those issues and recommendations expressed by the Conference participants. This presentation, therefore, should be considered as a illustration of the initial effort to coordinate bicycle safety activities. Additional needs and recommendations will be developed as more input is received from the bicycle safety community. Similarly, the RIM attempts to identify only "primary" roles and responsibilities. Any one group can and should function in a variety of roles in the implementation of the Conference recommendations. It is also expected that these roles may change as different problems are addressed.

This document is intended to serve as a tool to facilitate coordination and communication in the development and implementation of bicycle safety programs. It will only be effective if it is considered by those with an interest in or responsibility for bicycling safety, and then expanded, localized, and most importantly, acted upon.

(Narrative description follows the matrix)

BIKE-ED '77 -- RECOMMENDATIONS IMPLEMENTATION MATRIX

D = Development
R = Resource
I = Implementation
U = User
T = Target

	Communication and Coordination			Recognition of need for bicycle safety education		Program Development				Resource Materials		Improve Enforcement	K-12 Traffic Safety Ed.
	Uniform Message	Clearinghouse	Workshop	Media Campaign	Mobilize groups with potential to impact bicycle safety	Demonstration Programs	Research	Counter Measures	Evaluation	Program Guidelines	Local Procedures Manual	Develop state and local policies and procedures; judicial support	
NATIONAL													
Federal Goverment	D	R/I	R/I	R	R	R	R/D	R/D		R/D	R/D	R	R
Bicycle Industry	D	R/U	R	I	I	R	R	I					R
General Industry	U		D/R/I		T	R							
Bicycle Organizations	D	R/I	R	R	R		R/U	I				R	R
Safety Organizations	D	I	R	I	I		U	I		I		R	R
Civic/Consumer Groups	D	U	R	I	I		U	I					R
Clearinghouse	D	D/I	R	R	R	R	R	R		R		R	R

STATE													
Dept. of Transportation/ Highway Safety	I	U				D/I	U			I	U	D/I	R
Department of Education	I	U	I			D/I	U	I		I	U		D/I
Consumer Agencies	I	U	T		T	D/I	U			I			R
Enforcement Associations	I	U	T		T					I		D/I	
Safety Council	I	U	T	I	T		U						R
Civic/Consumer Groups	I	U	T		T		U					R	
LOCAL									ESSENTIAL ELEMENT OF ALL PROGRAM ACTIVITIES				
Transportation Agency	I	U	T			D/I	U	I		I	U	R	R
Planning/Engineering		U	T			D/I	U	I		I			
Education Community	I	U	T		T	D/I	U	I		I			D/I
Police Department	I	U	T		T	D/I	U	I		I	U	D/I	R/I
Court System	T		T							I		I	
Safety Council	I	U	T	I	T	R	U	R		I		R/D	R
Bicycle Clubs	I/T	U	T	T	T			R				R	R
Civic/Consumer Groups	I	U	T	T	T	R		R				R	R
GENERAL PUBLIC													
Bicyclists	T	U		T		T		T		T		T	T
Motorists	T			T	T	T		T		T		T	T
Parents	I/T			T	T	T		T		T		T	

(Narrative description follows the matrix)

BIKE-ED '77 -- RECOMMENDATIONS IMPLEMENTATION MATRIX

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	Uniform Message	Clearinghouse	Workshop	Media Campaign	Mobilize groups with potential to impact bicycle safety	Demonstration Programs	Research	Counter Measures	Evaluation	Program Guidelines	Local Procedures Manual	Develop state and local policies and procedures; judicial support		
NATIONAL														
Federal Government	D	R/I	R/I	R	R	R	R/D	R/D	R/D	R/D	R/D	R	R	R
Bicycle Industry	D	R/U	R	I	I	R	R	I						R
General Industry	U		D/R/I		T	R								
Bicycle Organizations	D	P/I	R	R	R		R/U	I				R		R
Safety Organizations	D	I	R	I	I		U	I		I		R		R
Civic/Consumer Groups	I	U	R	I	T		U	I						R
Clearinghouse	D	D/I	R	R	R	R	R	R		R		R		R

ESSENTIAL ELEMENT OF ALL PROGRAM ACTIVITIES

STATE													
Dept. of Transportation/ Highway Safety	I	U	T				D/I	U	I		I	U		D/I	R
Department of Education	I	U	T				D/I	U	I		I	U			D/I
Consumer Agencies	I	U	T			T	D/I	U			I				R
Enforcement Associations	I	U	T			T					I			D/I	
Safety Council	I	U	T	I		T		U							R
Civic/Consumer Groups	I	U	T			T		U						R	
LOCAL															
Transportation Agency	I	U	T				D/I	U	I		I	U		R	R
Planning/Engineering		U	T				D/I	U	I		I				
Education Community	I	U	T			T	D/I	U	I		I				D/I
Police Department	I	U	T			T	D/I	U	I		I	U		D/I	R/I
Court System	T		T								I			I	
Safety Council	I	U	T	I		T	R	U	R		I			R/D	
Bicycle Clubs	I/T	U	T	T		T			R					R	R
Civic/Consumer Groups	I	U	T	T		T	R		R					R	R
GENERAL PUBLIC															
Bicyclists	T	U		T			T		T		T			T	T
Motorists	T			T		T	T		T		T			T	T
Parents	I/T			T		T	T		T		T			T	

Clarification of Conference Recommendations

A. Communication and Coordination

Communication and coordination were consistent concerns throughout the Conference. Recommendations in this area included:

- o Uniform Safety Message. Development and dissemination of a uniform safety message as an integral part of a consistent approach to bicyclist safety education. Parents, civic organizations and law enforcement personnel must deliver accurate and consistent safety information on bicycling. Such information should be available from a central source.

- o Clearinghouse. Establish a clearinghouse to serve as the central information source about bicycling and to facilitate communication and coordination among people responsible for bicycling programs and facilities and between experts and novices. The clearinghouse would be an integral force in implementing many of the other Conference recommendations.

- o Workshops. Participants called for another Conference or series of workshops to refine many of the ideas discussed at Bike-Ed '77 and to provide more detailed assistance to States and communities in analyzing and improving their bicycle safety education programs.

B. Recognition of Need for Bicyclist Safety Education

Conference participants stressed the importance of developing greater recognition of the need for bicyclist safety education and recommended two possible approaches.

- o National Media Campaign--to reach the general public, including bicyclists and motorists, on safe traffic rules and procedures. Messages would stress rules of the road which have the greatest potential of reducing accidents, e.g., riding on the right side. Industry support and involvement would be essential to any major media effort.

- o Reaching out to groups which have a potential to affect bicycling safety. Persons knowledgeable in bicycling safety should: (1) present workshops at national and State conventions of professional and civic groups which should be concerned with bicycling safety; (2) write articles for law enforcement journals, parents' magazines and other specialized periodicals to get the message across.

C. Program Development

Ways of improving current safety education were explored by conference participants. Program development might be enhanced through:

- o Demonstration programs to test innovative educational approaches and techniques;
- o Further research into the causes of bicycle accidents;
- o Development of possible countermeasures targeted to specific accident problems;
- o Evaluation of current programs;
- o More positive educational approaches (e.g., stressing the enjoyment that can be obtained through safe riding practices rather than instilling a fear of bicycling).

D. Resource Materials

The development of two resource documents was recommended by Conference participants:

- o Program guidelines to be used by State governments in the development of curriculum. Guidelines would suggest critical elements of safety education programs targeted to specific age levels and audiences.
- o Local procedures manual to provide guidance to communities in developing accident data and identifying other local bicycling problems and possible program limitations.

E. Enforcement

Improving enforcement of bicycling rules was viewed as an essential complement to safety education efforts. While the Federal Government is supportive of stronger enforcement, efforts in this area must emanate from the State and local levels to be reasonably effective.

F. K-12 Traffic Safety Education

Conference participants expressed a desire to require traffic safety education from kindergarten through senior high school. This would require legislation and funding to be implemented on the national level. Such programs might be implemented on a State or local level by working with State or local legislators and curriculum developers.

CPSC/DOT Actions

Recognizing that efforts to achieve the goal of increasing the use, safety, and efficiency of bicycling constitute a very complex and extensive system of participants, resources and programs, this section considers the activities of two Federal Government agencies, the Consumer Product Safety Commission (CPSC) and the Department of Transportation (DOT), in support of attaining this goal.

CPSC and DOT co-sponsored the Bike Ed '77 Conference as a part of their bicycle programs. Both agencies have other ongoing bicycle-related activities. The following discussion identifies many of these current efforts. It also details actions being considered by the two agencies to respond specifically to points raised by participants in the Conference. It should be noted that these actions are in the early stages of conceptualization and development. (A great deal of refinement is still to come. Some of these ideas may evolve into somewhat different types of activities than herein described.) Further, the budgetary requirements for these projects are not all confirmed. With these important caveats noted, "CPSC/DOT Actions" are as follows:

I. Current Programs

A. Identification of Specific Problems and Countermeasure Approaches to Enhance Bicycle Safety (Anacapa Sciences)

During this National Highway Traffic Safety Administration (NHTSA) project, a Bicycle/Motor Vehicle Accident typology was developed based on in-depth investigations of 919 bike/car collisions in four sites around the country. This accident typology identifies the common behavioral errors which led to the bicycle accident and recommends potential counter-measures aimed at these function failures. Final report due - Fall 1977.

B. Bicycle Safety/Highway Users Information Report (Bikecentennial)

This report, prepared by Bikecentennial for NHTSA, analyzes accident experience of the 4300 cyclists who rode all or part of the 4500-mile Trans-America Trail during the summer of 1976. A profile of the accident-involved and the non-accident-involved cyclist was developed, as well as a series of recommendations targeted at a variety of audiences (i.e., educators, engineers, enforcement persons, highway safety officials). Information on the availability of the final report can be obtained from the Pedestrian/Cyclist Branch, NHTSA, DOT, Washington, D. C. 20590.

C. Demand Incentives for Nonmotorized Transportation (Barton-Aschman)

This is a two-year study jointly coordinated by the Federal Highway Administration (FHWA) and the Office of the Secretary (OST). Objectives are to identify factors affecting the use of non-motorized modes (bicycles and walking) for travel and the most cost-effective means of promoting use of these modes. Study should be completed by October, 1979.

D. Bikeway Demonstration Program

Coordinated by FHWA, this program has allocated $6 million to 41 demonstration projects throughout the country. The objective is to implement and evaluate a variety of approaches to serving the needs of bicyclists.

E. Bicycle and Pedestrian Considerations in Urban Areas (A training course)

FHWA has contracted with Northwestern University to develop a one-week training course for planners, engineers, etc. A pilot session of the course was presented in Washington, D. C. in June and will be followed by presentations in each of the ten FHWA regions.

II. Programmed Activities

A. Bicycle/Motor Vehicle Countermeasure Development and Test

NHTSA will conduct research during FY 78-80 to develop and test countermeasures based on the accident typology developed by Anacapa Sciences. These countermeasures will be in the form of educational programs, public information messages, and model ordinances.

B. Community Bicycle Programs

DOT intends to have a study conducted to develop guidelines and a resource directory for community bicycle programs. The underlying goal is to facilitate the development of more comprehensive coordinated local programs.

III. Activities Under Consideration

A. Clearinghouse

DOT is investigating how a "Clearinghouse" operation might be developed, what it should attempt to do, who might do it, what resources are available for it (in DOT, other agencies, and other organizations), and how to get it underway.

B. Regional Workshops

As a follow-up to the Bike Ed '77 Conference, CPSC and DOT are considering the possibility of sponsoring ten regional workshops. These would provide for increased participation by state and local people. Also, the focus of the workshops would be more specific than that of the National Conference, dealing with the actual development and implementation of community programs.

C. Community Demonstration Programs

CPSC is considering sponsoring pilot programs in several communities to develop, test, and evaluate various means of implementing bicyclist safety education programs.

D. Bicycle Safety Education "Sampler"

DOT is considering the development of a package or "sampler" of bicycle safety education materials. The collection will include highlights of films and an assortment of other materials representing the various approaches available to a community planning a bicycle safety education program. The "samplers" would circulate between communities to provide for a more effective local review, evaluation, and selection of an appropriate plan.

E. Media Program

CPSC hopes to enlist the support of one or more corporations to develop and sponsor a "media campaign" on bicyclist safety education.

F. Local Procedures Manual

NHTSA is considering developing a local procedures manual to provide some assistance to states and communities in making the transition from national data (Anacapa Study) to local bicycle accident problems. This manual could take the form of a monograph on the need for improved accident reporting procedures, so that sufficient information is obtained to type bicycle accidents.

G. Bicycle Education Program Planning for State School Systems

CPSC is considering providing relatively small amounts of money to many state school systems to fund program planning for statewide bicycle safety education. These small contracts would stimulate school systems at the state level to consider the bicycle safety issue, the types of curricula available, and the resources needed to start statewide programs. After this initial stimulation, the state school systems could seek funding from other sources to implement their plans.

CONFERENCE PROGRAM

WEDNESDAY, MAY 4, 1977

GENERAL SESSION (8:30 A.M. - 11:00 A.M.)

Presiding: William V. White, Acting Associate Director for Communications, U. S. Consumer Product Safety Commission

Welcoming Addresses: S. John Byington, Chairman U. S. Consumer Product Safety Commission

Martin Convisser, Acting Assistant Secretary for Environment, Safety and Consumer Affairs, U. S. Department of Transportation

Conference Focus - William V. White

Overview Of The Bicycle Safety Problem - Edward Kearney, National Committee on Uniform Traffic Laws and Ordinances

Education: A Viable Approach To Bicycle Safety - Thomas J. Decker, National Safety Council

BREAK-OUT SESSION (11:00 A.M. - 12:00 Noon)

LUNCHEON

The Role of the Federal Government in Bicycle Safety - Honorable Ralph S. Regula, U. S. House of Representatives

WORKSHOP SESSIONS I (1:30 P.M. - 3:30 P.M.)

WORKSHOP SESSIONS II (3:45 P.M. - 5:30 P.M.)

A. *Funding* - Bobbi Farrell, California Association of Women Highway Safety Leaders
Ronald Thompson, Wisconsin Highway Safety Office

B. *HOW TO GENERATE COMMUNITY SUPPORT*
Larry Wuellner, Auto Club of Missouri
Donald Rector, Los Angeles City Unified School District

C. *TRAINING BICYCLE SAFETY INSTRUCTORS*
Joseph G. Gardiner, Baltimore County Public School System, Harold Heldreth and Donna Volatile, National Safety Council

D. *EFFECTIVE TRAFFIC SAFE CYCLING*
John Forester, Author and Consultant

E. *NATIONAL STRATEGY*
Dan Burden, Bikecentennial

F. *EVALUATION - MAKE IT WORK FOR YOU*
Gene Fax and Robert Erickson
Abt Associates

G. *COMMUNITY LEADER AWARENESS*
Barbara Garner and Robert Bennett, Baltimore County Bikeways Task Force

THURSDAY, MAY 6, 1977

GENERAL SESSION (8:30 A.M. - 12 NOON)

Presiding: Fred W. Vetter, Jr., Associate Administrator for Traffic Safety Programs, National Highway Traffic Safety Administration, U.S. Department of Transportation

Bicycle/Motor Vehicle Accident Types -
Kenneth Cross
Anacapa Sciences

Planning Model For Bicycle Safety Education -
Donald LaFond, Maryland Department of Education

Presentation Of Program Examples

Unit School District #5 Bicycle Safety Education Program, Terry Tamblyn, Sterling Illinois School System

Teaching Effective Traffic Safe Cycling (Adult Program)
John Forester, Author and Consultant

LUNCHEON

The Role of Industry
James J. Hayes, Bicycle Manufacturers Association

GENERAL SESSION (1:30 P.M. - 2:30 P.M.)

Presentation Of Program Examples (Con't)
A 4-H Bicycle Safety Education Program,
Edward O. Eaton, Cornell University

Los Angeles Bicycle Safety Education Program -
Donald W. Rector, Los Angeles City Unified School
District

BREAK-OUT SESSION (2:45 P.M. - 5:00 P.M.)

FRIDAY, MAY 6, 1977

GENERAL SESSION (8:30 A.M. - 12 NOON)

Presiding: Martin Convisser, Acting Assistant Secretary
for Environment, Safety and Consumer Affairs,
U.S. Department of Transportation

Recognizing The Problem (Summary of Day 1
Break-Out Sessions) Betty Drake, City of Tempe,
Arizona

Highlights of National Strategy Workshop -
Dan Burden, Bikecentennial

Implications For Education (Summary of Day 2
Break-Out Sessions) Ken Giles, U.S. Consumer
Product Safety Commission

Question And Answer Session

Implications for Action - Curtis B. Yates, North
Carolina Department of Transportation

Adjournment

CONFERENCE PLANNERS AND FACILITATORS

Facilitators

Phil Burke
Bicycle Manufacturers Association

Walter Clancy
University of Arkansas

Dave Davis
Federal Highway Administration
U.S. Department of Transportation

Betty Drake
City of Tempe, Arizona

John English
National Committee on Uniform Traffic Laws
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Thomas Gawley
Edwards and Kelcey, Inc.

Ken Giles
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Eileen Kadesh
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Jeanne Priester
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Dan Burden	Bikecentennial
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Katie Moran*	U.S. Department of Transportation
Shereen Remez*	U.S. Consumer Product Safety Commission
Curtis Yates	North Carolina Department of Transportation

Planning Committee

Robert Calvin
Highway Users Federation for Safety and Mobility

Benton Clifton
American Alliance for Health, Physical Education and Recreation

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Ralph Haller
American Association of Motor Vehicle Administrators

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League of American Wheelmen

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*Conference Staff.

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National Conference of Governors' Highway Safety Representatives

Arthur Smith
International Association of Chiefs of Police

Frances West
Delaware State Department of Community Affairs and Economic Development

Antonina Uccello
U.S. Department of Transportation

William White
U.S. Consumer Product Safety Commission

Conference Manager

Lawrence Johnson & Associates, Inc.

GENERAL SESSION - MAY 4, 1977

Presiding — *William White*
Associate Director for Communications
U. S. Consumer Product Safety Commission

WELCOMING ADDRESS: - *S. John Byington*
Chairman
U. S. Consumer Product Safety Commission

As far as consumer safety in products is concerned, bicycles are the number one product in terms of injuries and death to the consumer. It is a serious problem, and I am glad to see such a wide range of representation here today. As you go through the workshops, try to share not only your successes and your great ideas for the future, but be willing to share also some of the things in your experience that didn't work out quite as well as you had hoped. Education is a long-term effort. And I think that we might very well learn by discussing failures as well as successes.

We hope that we are creating an influence group that will affect bicycle safety back home.

I am particularly glad to see people from the bicycle industry here today at this conference, because I feel that they can contribute much in the way of educating the people who use their product. Developing and implementing a safety education program requires the combined resources and efforts of all of us.

So where do we go from here? Let me sketch for you my vision of a National Bicycle Safety Program. Here are a few ideas:

- We need detailed, precise, informative messages. We need to look at accident patterns; select language carefully; get at the real problems (visibility, helmets, lighting); and educate both motorist and bicyclist.

- We need to target program content and delivery systems to specific age groups. We need research to understand risk taking behavior.

- We need to marshall our resources to implement a national safety program for bicycle education--resources such as the bicycle industry, the schools, community groups and clubs, and government. You at the local level, however, are where the action is, where the teaching and learning take place.

William White, Associate Director for Communications, U.S. Consumer Product Safety Commission

WELCOMING ADDRESS: *Martin Convisser*
Acting Assistant Secretary for Environment, Safety, and Consumer Affairs
U.S. Department of Transportation

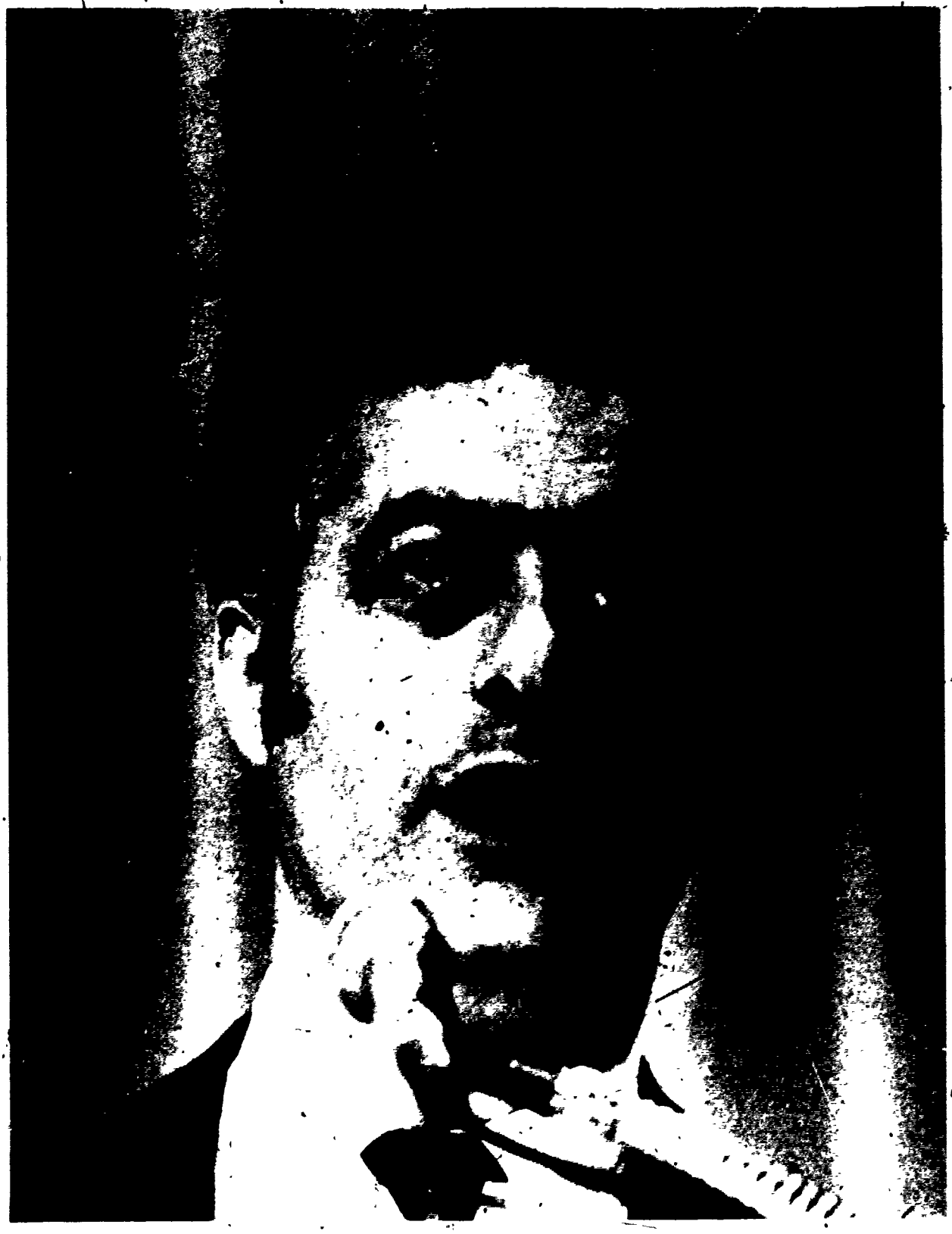
The bicycle is one form of transportation that supports both our environmental concerns and our energy conservation goals. The bicycle has the potential for reducing traffic congestion and fuel consumption. But like other forms of transportation, the bicycle, too, has its problems. There are too many deaths and injuries from bicycle-related accidents. As with any mode of transportation, it is complex to try to analyze the causes of those various kinds of accidents. But there are three things that can be said to contribute--the bicycle, the driver, and the environment. The DOT's interest focuses on the bicyclist and his environment. The Consumer Product Safety Commission has responsibility for the bicycle itself, and shares our concern for the proper use of the vehicle.

I thought that by way of an introduction and to give you some background, I might review for you some of the key programs of DOT that relate to the bicycle. We have stressed the need for comprehensive planning, which includes all modes of transportation. Planning, however, must have a solid data base. The Federal Highway Administration has under way research related to bicycle design and construction as well as training programs for engineers and planners to help them improve the safety of the bicycle environment. As I am sure most of you know, the agency responsible for providing grants and technical assistance is FHWA. They are responsible for improving the safety of all the users of our highways, including bicyclists. Perhaps their most publicized bicycle program is the Bikeway Demonstration Program.

The National Highway Traffic Safety Administration (NHTSA) conducts studies on the operation of the bicycle and the interaction of the bicycle with other elements in the total traffic mix. They have sponsored research into the causes of bicycle accidents, and the identification and testing of possible counter-measures. Tomorrow you will hear the results of some research sponsored by NHTSA.

The Office of Consumer Affairs in DOT has long recognized the need for consumer education in bicycle safety. We have developed curriculum materials from the Kindergarten level through adult education classes.

We hope that this conference will mark the beginning of an exchange of information on the bicycle safety program which can continue to grow long after the close of this conference.



Martin Convisser, Acting Assistant Secretary for Environment, Safety, and Consumer Affairs, U.S. Department of Transportation

OVERVIEW OF THE BICYCLE SAFETY PROBLEM

Edward Kearney
Executive Director
National Committee on Uniform Traffic Laws and Ordinances

I don't relate to the bicycle as a problem; I see it as a solution. If more people would ride bicycles, we would save more energy, our people would be healthier, our cities would be cleaner and quieter and less congested. When you consider 30,000 deaths a year from motor vehicles, as compared to 1,000 deaths from bicycles, bicycles would go a long way towards solving the highway safety problem.

There is a tremendous need for education so the bicycle can fulfill its role in our transportation system. If people knew how good and efficient bicycling was, bicycles would be used more as a means of transportation.

While the bicycle may be an ideal vehicle, its use does create some problems. In 1976, 800 to 1100 bicyclists were killed. Thousands more were injured.

One solution to the bicycle safety problem is to reduce the use of motor vehicles and to impose strict speed limits.

Education has a tremendous role to play in this area. As a minimum, education ought to tell people how to survive on the highway. But it is crucial that the education that is given be accurate and meaningful. There is much misinformation that is peddled in this field--more misinformation for the cyclist than in any other area of highway safety.

It seems to me, also, that any bicycle education program is going to fail miserably unless there is a distinction made as to the target groups who need to be educated. I find that young children respond to correction very well. And there are differences in adult groups, too. Among the masses out there who are into cycling, there is a fairly large number of what I will charitably call "wobblers." You need a different level and type of education for the wobbler than for the experienced biker who wants to increase his knowledge.

Society owes cyclists a safe trip. And I think that the place to start is within the State legislatures. They have simply got to clean up the laws on the books. The bicycle must be regarded as a vehicle. And the legislators have got to provide us with the funds to carry out meaningful driver education programs.

There are other people who need to be educated, too: the police, judges, the traffic engineers, teachers, parents, educators and the safety community.

In conclusion, I will restate my three major points--(1) bicycles have a lot going for them, (2) what this nation needs is more bicycles, and (3) bicycles will help save energy. President Carter didn't say it the other night because he knew I was going to.

EDUCATION: A VIABLE APPROACH TO BICYCLE SAFETY

Thomas J. Decker
Secretary
National Safety Council

There were 15 million bicycles in use in 1950. Today there is well in excess of 100 million. With the focus on energy conservation, it can be anticipated that millions of these bicycles will be used for more than recreation.

As the number of bicyclists increases, so also has the death and injury from accidents. The statistics are by no means firm, but it is estimated that there are about 1,100 deaths a year. Serious injuries are estimated at over 460,000.

So where do we stand in bicycle safety today? We need accurate data with which to study the problem. The University of California is conducting one such traffic safety study, funded by the Department of Transportation. A National Safety Council study in 1967 led to the National Safety Council's "All About Bikes" Program that is now taught in 50 states and 9 foreign countries.

"Youth Instruction Seminars" in turn evolved from the "All About Bikes" program. These seminars, which certify bicycle safety instructor trainers, appeal to many adults, including police officers.

In addition to the National Safety Council's program, there is a 4-H Bicycle Safety Education Program. Over 527,000 young people of the Department of Agriculture 4-H Extension Program participated in the Bike Safety Program in 1976. Two million Cub Scouts had the opportunity to participate in the Bike Safety Program in 55,000 packs across the country last May. These programs are fine, but there is also a need for a continuing and expanding bicycle safety education program. Both the bicyclist and the motorist need such education.

We must not be content with one-time efforts. The message has to be kept before the public. Obviously the time for action is NOW.

LUNCHEON - MAY 4, 1977

THE ROLE OF THE FEDERAL GOVERNMENT IN BICYCLE SAFETY

Honorable Ralph S. Regula
U. S. House of Representatives

I realize full well that you are all devoted bicyclist enthusiasts who are present here today. There is no question about your commitment. But I think that our job is to reach out across America and try to get others involved. So your responsibility in this regard is two-fold--not only are you delegates to this convention--you must also bear the responsibility of going out and being missionaries. I have long had a love affair with bicycles and I am sponsoring legislation which would provide for a network of bike trails all across these United States.

In the Ohio Senate, I sponsored a bill to evaluate all of the trail possibilities in Ohio. That was a beginning. But evaluating the trails is meaningless unless we do something about it. It starts with safety. We can do a lot of work in developing bike trails and getting people in the area interested, but if there is one bad accident, that has the effect of setting those programs back. So safety is one very important facet. Public relations is another vital part in getting bike trails developed. All of the emphasis on energy conservation and on health contributes to an excellent political environment for getting the bike trails. Now may be the time--the best time to develop a system of bike trails throughout this Nation.

One of the things that is needed to make the dream of bike trails in this country a reality, is lobbyists. And everyone here is a lobbyist. I had a call just the other day from a member who wanted to sponsor a bill which would authorize $45,000,000 to lend communities on an 80/20 matching funds ratio to develop bike trails. The Federal Government would put up 80% and the community would pick up the other 20%. I think we need that interest at the local community level--it is their basic responsibility, and the matching aspect of the financing shows their interest.

In 1973, the Highway Safety Act appropriated six million dollars and there were 580 applications received for bike trails (41 programs were funded). We also have the 1973 Federal Aid for Highways Act which provides funds for states for bike trails. This has not been a great success, however, because the program is administered through Highway people, and it is very difficult to get highway-oriented people to have any substantial interest in bike trails.

The Railroad Revitalization Act, Section 809, authorizes 7.5 million dollars to be made available to local communities to develop railroad rights of way for bike trails. It was never covered by an appropriation, since it was struck out in the Senate in conference. I serve on the Interior Subcommittee on Appropriations, and I am going to take another try at getting

this out of committee. It is critical that potential rights of way be nailed down, even if they can't be developed immediately. That first step should be taken so that at least they will be preserved.

It is going to take a lot of interest and lobbying on the part of local citizenry to accomplish this. Somehow we have to overcome the substantial distaste among some highway builders for anything having to do with bicycles. They look upon the bicycle as a nuisance and a potential safety hazard for people who use highways.

It is important for every one of you to get to know the people who represent you in Congress. And get to know your state representatives and senators. Tell them that you think your state should participate in the program that allows Federal highway money to be used for bicycle trails. But in order to get that Federal money, the state has to first decide whether they will be able to appropriate the other 20 percent and whether the money will be used for the stated purpose.

Most people who have tried cycling, enjoy it. But the greatest limitation is on the lack of availability of a safe place to ride. I have a bill in that would establish bike trails from Coast to Coast--the old Lincoln Highway (Route 30). But you have to get the state and local communities to participate in building their particular segment of it--something like what has been done with the Appalachian Trail.

Comments from the Floor: John Forester

Since this is a conference on bicycle safety, I want to make the point that bike trails are fine for recreational purposes. However, if you look at the statistics, there are 2½ more accidents on bike trails than from the average bike rider on the road. The idea that bike trails are for the purpose of safety is simply wrong; they are for fun and those who are willing to take the increased risk of riding on them. So I would submit that the very best thing that can be done is what we are here today to discuss, and that is improving and creating BETTER CYCLIST BEHAVIOR. The accidents that are caused from poor design are very small--1, 2, 3 percent--something like that. So we need to educate the cyclist to avoid motorists' mistakes. That will effect something like an 80 percent reduction in bicycle-related accidents.

Legislatively I believe that a comprehensive program of instruction in highway use which starts with walking, and progresses through cycling and ends up with motor vehicle riding would result in fewer accidents.

Response of Mr. Regula:

As a legislator involved in the subject of bicycles, I am very receptive to ideas from those groups who are affected by related legislation. I would encourage you to contact me with any views you have on what type of legislation we need in this area, or how we can improve on that already in existence.

Congressman Ralph S. Regula, U.S. House of Representatives

BIKE-ED '77 WORKSHOPS

Most of the workshops were led by two instructors. In those instances where each leader conducted a separate section of the workshop we have included a summary of each leader's presentation.

BICYCLE EDUCATION FUNDING: Federal, State, Local, Private

Bobbi Farrell
California Association of
Women Highway Safety Leaders

Funding sources are as essential to a bicycle program as the bicycle itself. In spite of the spectacular increase in the popularity of the bicycle, any related activities have an extremely low priority for funding from school districts or city and state agencies.

The funding of bicycle safety education programs in Los Angeles was discussed in the workshop. This school district is responsible for the education of 620,000 students, of which 24,300 use the bicycle as transportation. To sell the bicycle as a viable mode of transportation in need of strong educational guidelines, and deserving of its share of the pie, has been a frustrating, challenging, albeit successful fight that has taken the better part of eight years. Contributing to that success were concerned citizens, PTAs, women's groups, community leaders, businesses, local, state, and national bicycle clubs, manufacturers, and dealers, school personnel, and government agencies and legislators. The most powerful group is the Los Angeles Citywide Citizens Bicycle Advisory Committee (BAC). The BAC has helped secure funding through local and private sources as well as government agencies. Knowing where to go, whom to see, what to say - enables them to slash through the bureaucratic red tape to where the money is.

Ronald Thompson
Division of Highway Traffic
Safety Coordination
Wisconsin

The major portion of the workshop identified potential funding sources for bicycle safety education programs. This was discussed from the aspects of the small rural community as well as the large urban areas.

Also included in the program was the identification of various agencies and organizations that could be involved in a bicycle safety

education program. Some time was spent discussing bicycle safety programs that Wisconsin has implemented.

HOW TO GENERATE COMMUNITY SUPPORT

Larry Wuellner
The Auto Club of Missouri

How do we get the enforcement, education and community support for establishing a successful traffic-mix system? What organizations, agencies and officials must be involved in such programs? Do we know where the bicyclist belongs in the system? Do we understand the modern bicyclist? What is a "comprehensive" bicycling education program? What are the most critical issues? What types of data can we use? From what sources are data available? What programs and tools have been developed to assist in the establishment of cycling awareness and education programs? What barriers and culs-de-sac are commonly met in the process of developing these programs? What kind of experimentation is possible?

Approaches to finding solutions and answers to these questions are suggested by the experience and information collected by the Auto Club of Missouri Cycling Activities Program. Since 1972, the Auto Club has experimented with a broad range of active programs involving thousands of cyclists on hundreds of occasions in a wide variety of cycling situations throughout the U.S. and abroad. The Cycling Activities Programs have been directly involved with the cycling public, various levels of government and an assortment of agencies, officials, media sources and other concerned groups. The programs have been most concerned with gaining first-hand experience and acting as the in-between (or catalyst) to explain the nature, character and more subtle aspects of the cyclist's problems to the public.

Donald Rector
School Traffic and Safety
Education Sector
Los Angeles, California

Mobilizing the community is a key to a successful program. The workshop leaders discussed "everything you want to know" about PR techniques, mass media, and how to approach community leaders. Topics included:

1. Program content
2. Awareness
3. Involvement
4. Communication
5. Resources
6. Agency cooperation
7. Public and private group activities
8. Accident data
9. In-service training
10. Evaluation

TRAINING BICYCLE SAFETY INSTRUCTORS

Joe Gardiner
Baltimore County Public School System

The workshop was divided into four phases. The first phase explored the backgrounds of conference attendees in the field of bicycle safety education. This was accomplished by having participants complete survey cards at the beginning of the workshop. Phase two was a presentation of standard bicycling safety and what is wrong (and right) about it. Highlights of standard training in schools, police activities, recreation centers, and community programs were presented. Phase three was a discussion of the causes of bicycle collisions by age and locale, using police accident statistics and other official records to determine central accident types and to demonstrate that dangerous behavior patterns begin among cyclists at an early age. Phase four summarized the Santa Clara Elementary School Program. The closing activity was a brief summary of theories developed by John Forester and presented in his book, Effective Cycling.

Harold Heldreth
National Safety Council

Donna Volatile
National Safety Council

The details of the National Safety Council's Youth Safety Instructor Program were presented during the workshop. The program is designed to create a corps of youth and/or adult instructors certified to teach Defensive Driving, Bicycle Safety, as well as other courses. The basic text of the Bicycle Instructor Program, All About Bikes, was presented and discussed.

EFFECTIVE TRAFFIC SAFE CYCLING

John Forester
Author and Consultant

John Forester, author of Effective Cycling and of Cycling Transportation Engineering, gave instruction in traffic-safe effective cycling technique, starting with classroom instruction and progressing to practice in traffic on the streets surrounding the hotel. The object of the instruction was to demonstrate the emotional attitudes and teaching methods that make traffic-safe effective cycling as easy to learn and as comfortable to perform as driving a car. The instruction concentrated upon left turns in traffic, the maneuver that epitomizes the supposed difficulties and dangers of urban cycling. Students discovered that the difficulties and dangers were both far less and entirely

different than anticipated. The result of proper instruction and supervised practice and experience was a new confidence in the ability to learn, to perform, and to teach traffic-safe effective cycling, and a new concept of the proper content of bicycle safety education.

EVALUATION - MAKE IT WORK FOR YOU

Gene Fax
Abt Associates

Robert Erickson
Abt Associates

This session examined some key points often overlooked when safety programs are evaluated. Participants examined specific cases drawn from their own experiences, and from the experiences of the workshop organizers. The discussion helped participants answer the following questions:

- Why should I conduct an evaluation?
- How can evaluation help me in planning?
- How can I insure that the evaluation effort meets but does not exceed my needs and those of the program?

NATIONAL STRATEGY

Dan Burden
Bikecentennial

The approach of this workshop was to offer an informal, free-wheeling, participatory, and nonjudgmental work session to allow new ideas to be explored. In this session, major problems, solutions, and concerns on bicyclist safety education were tackled. The session covered the recent past, present, and future of bicycle safety education. It was the intent of this session to formulate a national strategy to advance the state of the art of safety education. The results of this workshop were shared with the entire conference during a final presentation on the last day of the program. (See p. 81.)

COMMUNITY LEADER TRAINING

Robert Bennett
Baltimore County Bikeways Task Force

Barbara Garner
Baltimore County Bikeways Task Force

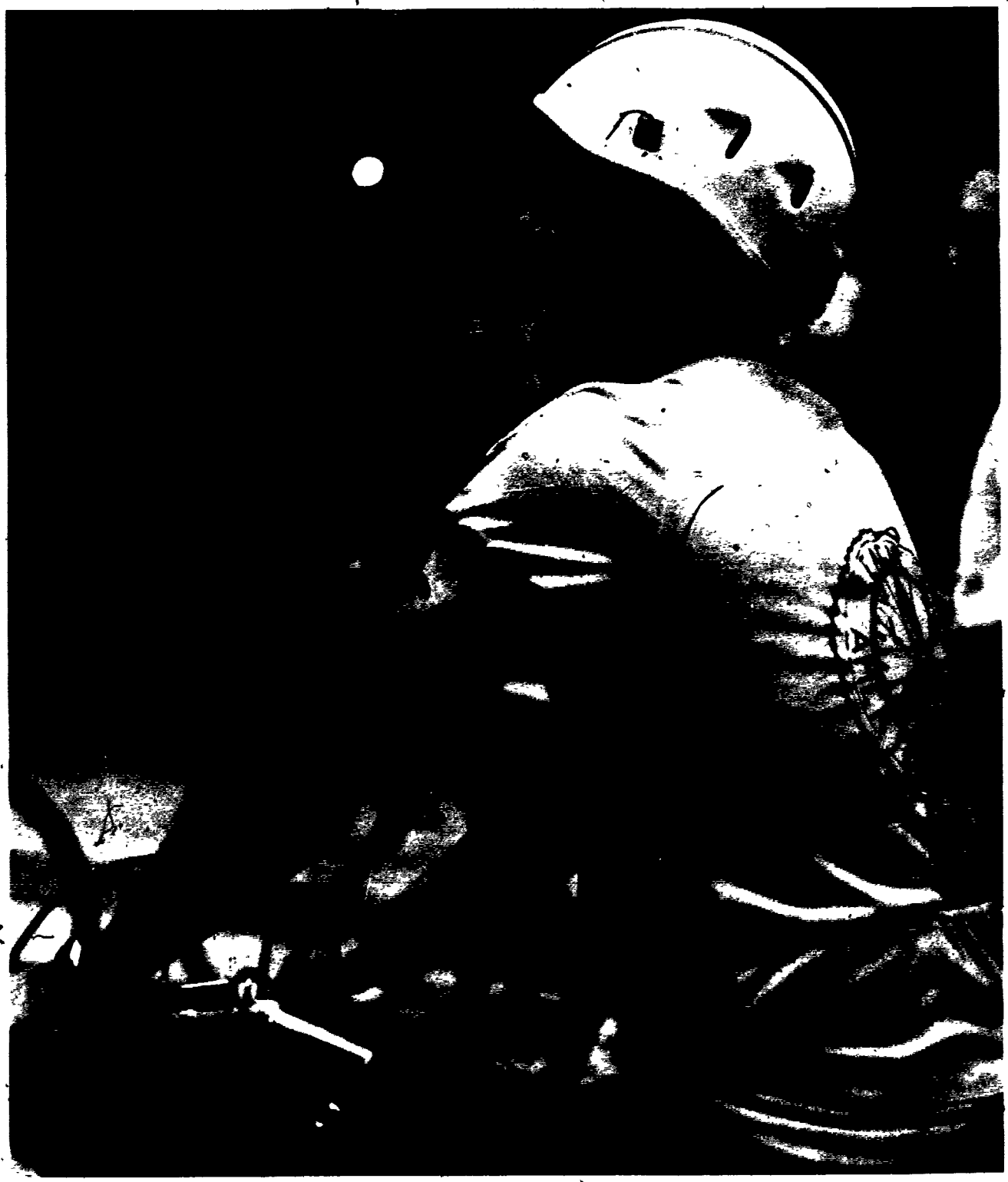
How do bicyclists gain access to, credibility with, and successes from bureaucratic agencies? That is the question!

Proponents of bicycling are frequently stymied in their efforts to gain meaningful support from key decision makers for programs and facilities which would make bicycling more safe and convenient. Excellent plans are too frequently not implemented.

This workshop described how one group of "concerned citizens" (Bikeways Task Force) has educated a local government (Baltimore County, Maryland) to plan for and implement a wide range of bicycling facilities and programs involving not one, but several, governmental agencies. The structure, function and strategies of the Task Force plus three main programs (namely: basic road improvements, public awareness, and safety-education-law) were presented.

The process by which each County agency has become involved in meeting goals set by the Task Force were discussed, as well as the specific work programs now being carried out by the following departments: Executive Office, Planning, Recreation and Parks, Public Works, Traffic Engineering, Revenue Authority (parking garages), Schools, and Police.

The use of innovative designs such as caution signs in place of bike route signs, wider curb lanes on multi-lane roads, a bike-safe grate program, edge lines, smoother shoulders, demonstration bike parking sites at libraries, pilot educational programs, and a warning citation enforcement program were presented.



John Forester, Author and Consultant

GENERAL SESSION - MAY 5, 1977

Presiding: *Fred W. Vetter, Jr.*
Associate Administrator for Traffic Safety Programs, National Highway Traffic Safety Administration
U.S. Department of Transportation

BICYCLE/MOTOR VEHICLE ACCIDENT TYPES

Kenneth Cross
Anacapa Sciences, Inc.

My main purpose today is to review the findings of a recent study of bicycle/motor-vehicle accidents that was funded by the Office of Driver and Pedestrian Research, National Highway Traffic Safety Administration. The study dealt with accidents that involved a bicycle and any type of motor vehicle; hereafter, I'll simply use the abbreviated term car-bike accidents.

Most everyone present at this forum today would agree that car-bike accidents represent an important part of the total bicycle accident problem, but there is no one here who knows exactly how many car-bike accidents occur in the United States each year or the aggregate costs associated with this kind of accident. The data reported by the National Safety Council are most often used to signify the importance of car-bike accidents; the National Safety Council reports that car-bike accidents have resulted in about 1,000 fatalities and about 40,000 disabling injuries each year for the past six years. The National Safety Council's data are based only on *police reported* accidents and clearly represent a highly conservative estimate of the magnitude of the problem.

The National Safety Council's estimate of fatalities is undoubtedly quite reliable because most fatal accidents are reported to the police. But what about non-fatal accidents? We have located data from four independent survey studies which suggest that no more than 37% of all car-bike accidents are reported to the police--and this value may be as low as 25% in some areas. Although we have been unable to locate any definitive data on the severity of unreported car-bike accidents, one study of accidents among elementary school children indicated that about one-half of the unreported accidents were severe enough to require some form of medical treatment.

Another source of information about the magnitude of the car-bike accident problem is the data compiled through the National Electronic Injury Surveillance System. This system was developed by the Consumer Product Safety Commission (CPSC) to compile data on product-related injuries that are treated in the emergency room of a selected sample of hospitals throughout the country. CPSC reports that about 82% of all bicycle-related fatalities and at least 5.5% of all bicycle-related injuries are the result of a car-bike accident. These statistics are very impressive in view of the fact that car-bike accidents account for only a fraction of 1% of all bicycle-related accidents.

Although we don't have the data that we need to make an accurate estimate of the nationwide incidence and consequence of car-bike accidents, we certainly know enough to confidently conclude that no bicycle-safety education program would be truly comprehensive if it did not address the problem of car-bike accidents.

The research findings of our study are based on an in-depth study of 753 non-fatal accidents and 166 fatal accidents. This sample was drawn from accidents that occurred in prescribed sampling areas located in the states of Florida, Michigan, Colorado, and California. The sample includes accidents that occurred in each month of calendar year 1976, and includes both urban and rural accidents.

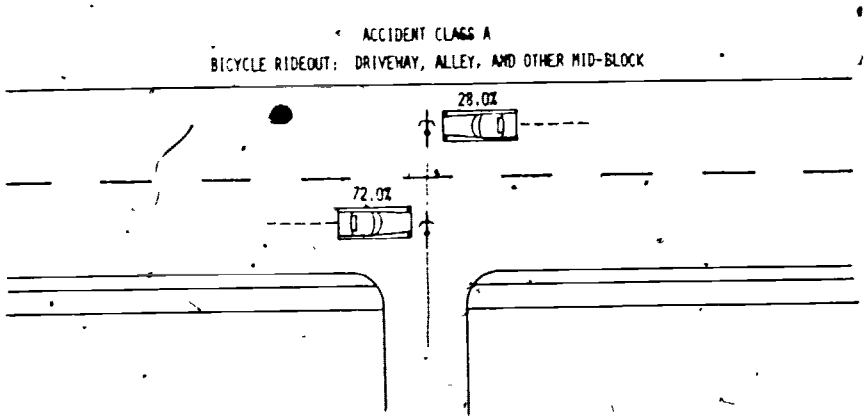
Data on each accident were obtained from several sources. The primary source was detailed and highly structured interviews with the operators of the accident vehicles--the bicyclist and motorist. In addition, we obtained data from inspections of the accident site, interviews with reliable witnesses, and traffic-accident reports completed by the investigating officer. We included accident cases in the sample only if it was possible to interview at least one of the vehicle operators and at least one reliable witness. The interviews and site inspections were designed to identify the traffic context in which the accident occurred, the pre-crash path of both vehicles, and the combination of factors that contributed directly or indirectly to the accident. In this study we were interested in all types of contributing factors, including: operator factors, environmental factors, and vehicular factors.

Once the data were in hand, we developed a formal classification procedure for grouping cases into a set of mutually-exclusive "accident types". Accident cases were classified into the same accident type when it was found that they exhibited a high degree of commonality in the traffic context in which they occurred, and a high degree of commonality in the factors that contributed to the accident. In principle, accidents of the same type should be amenable to the same specific countermeasures; so, each accident type represents a well defined problem for which countermeasures can be specifically tailored.

The classification procedure revealed a total of 37 different accident types. As you might expect, there were large differences in the

number of cases that were classified into the various accident types. For instance, we found that more than 25% of the non-fatal cases could be classified into only 7 accident types; and we found that 26 accident types accounted for more than 94% of the non-fatal cases. We also found that a small number of accident types accounted for a large proportion of the fatal cases, but the fatal cases were not distributed in the same way as the non-fatal cases.

For the presentation, I have organized 24 accident types into 6 broad classes such that all the accident types in a given class have a number of common attributes. I will illustrate and describe in some detail only one or two accident types from each class, and then I will list and describe in only a couple of sentences the remaining accident types in the same class.



TYPE 1--BICYCLE RIDEOUT: RESIDENTIAL DRIVEWAY/ALLEY, PRE-CRASH PATH PERPENDICULAR TO ROADWAY

FATAL = 6.7%
NON-FATAL = 5.7%

Please note that the accident-type number and a generic title for the accident type is shown at the top of the illustration. The percentage values at the bottom show the proportion of the fatal sample and the proportion of the non-fatal sample that was classified into this accident type. Most of the accidents of type 1 occur at the junction of a roadway and a residential driveway, and a few occur at the junction of a roadway and a residential alley. The roadway is nearly always a 2-lane residential street that carries light traffic. In the typical case, the bicyclist rides straight out of the driveway or alley and collides with a motor vehicle approaching from the left in the near lane, or from the right in the far lane. Seventy-two percent of the accidents

occur in the near lane, while only 28% occur in the far lane. This difference is due to the differences in preview time available to the motorist once the bicyclists enters the roadway, or emerges from behind a visual obstruction.

Visual obstructions are often a predisposing factor for this accident type and the obstructing object is usually a motor vehicle that is parked close to the driveway junction. However, the operator's view is also frequently obstructed by structures or vegetation located close to the junction. Whether or not a visual obstruction is present, the bicyclist almost never scans in the direction of the motor vehicle until the accident is imminent. The bicyclist's failure to search may be due to a variety of reasons, but the most common are distractions by riding companions, pedestrians, or game-playing.

If education is to be effective in curtailing this type of accident, it must be introduced at a very early age. The median age of the bicyclists involved in this type accident is 10 years, and about 10% of the bicyclists are younger than 5-1/2 years old.

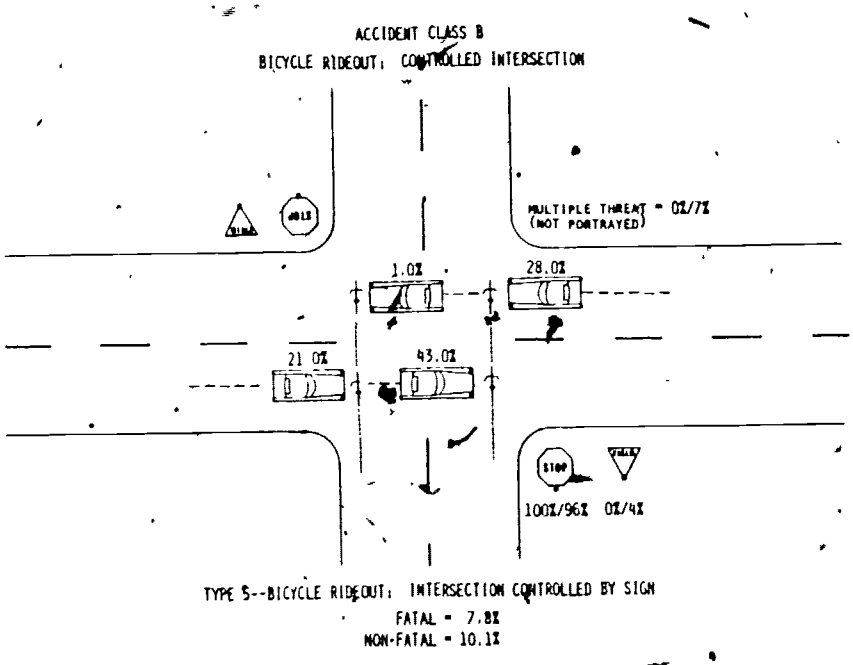
ACCIDENT CLASS A

BICYCLE RIDEOUT: DRIVEWAY, ALLEY, AND OTHER MID-BLOCK

	FATAL (N=25)	NON-FATAL (N=106)
1 RESIDENTIAL DRIVEWAY/ALLEY, PRE-CRASH PATH PERPENDICULAR TO ROADWAY	6 7%	5 7%
2 COMMERCIAL DRIVEWAY/ALLEY, PRE-CRASH PATH PERPENDICULAR TO ROADWAY	2 4%	3 2%
3 DRIVEWAY/ALLEY APRON, PRE-CRASH PATH PARALLEL TO ROADWAY	2 4%	2 6%
4 ENTRY OVER SHOULDER/CURB	3 6%	2 5%
TOTAL CLASS	15 1%	14 0%

This slide lists three other accident types that are similar in many respects to Accident Type 1, which I just described. The distinguishing characteristic of all four accident types is that the bicyclist enters the traffic flow in a manner that severely limits the motorist's preview time. The motorist simply doesn't have enough time to avoid the accident once he observes the bicyclist and makes a correct assessment of the bicyclist's intention. Visual obstructions and the bicyclist's failure to search effectively are factors in each of these accident types, and all of them involved a very young population of bicyclists. The main difference among the accident types is where and how the bicyclist entered the roadway.

The differences among these four accident types are important when considering engineering countermeasures, but an educational countermeasure developed for one of the accident types may be equally applicable and effective for the other three accident types. If this is true, the educational countermeasures for the class of accidents has the potential for reducing fatal accidents by 15% and non-fatal accidents by 14%. So this class of accidents is clearly an important one.



This slide shows that 7.8% of the fatal accidents and 10.1% of the non-fatal accidents occurred when a bicyclist failed to slow or stop at an intersection controlled by a stop sign. This type of accident usually occurs at the intersection of two roadways that carry only light traffic.

The diagram shows that 22% of the bicyclists were riding facing traffic prior to the accident. Riding facing traffic probably decreases the likelihood that the bicyclist will be detected by the motorist in this situation, but the factor that precipitated the accident was the bicyclist's failure to slow or stop at the junction. It is interesting to note that almost two-thirds of the accidents occurred in the first half of the roadway. This finding is undoubtedly due to the fact that motorists approaching from the left have very little time to initiate evasive action once it becomes apparent that the bicyclist does not intend to stop. Motorists approaching from the right have more time to respond because the bicyclist must travel across an entire traffic lane before he intersects the motor vehicle's path.

Our interview data clearly showed that the bicyclist's failure to stop in this situation is not the result of his failure to observe the stop sign. It is also clear that this accident is not the result of ignorance of the law. We found that the bicyclist's failure to stop and search for traffic must be explained in terms of competing needs and distractions. Racing with a friend, communicating with a pedestrian, hurrying to school, and fleeing from a hostile animal are examples of some of the contributory factors that were revealed by our interviews.

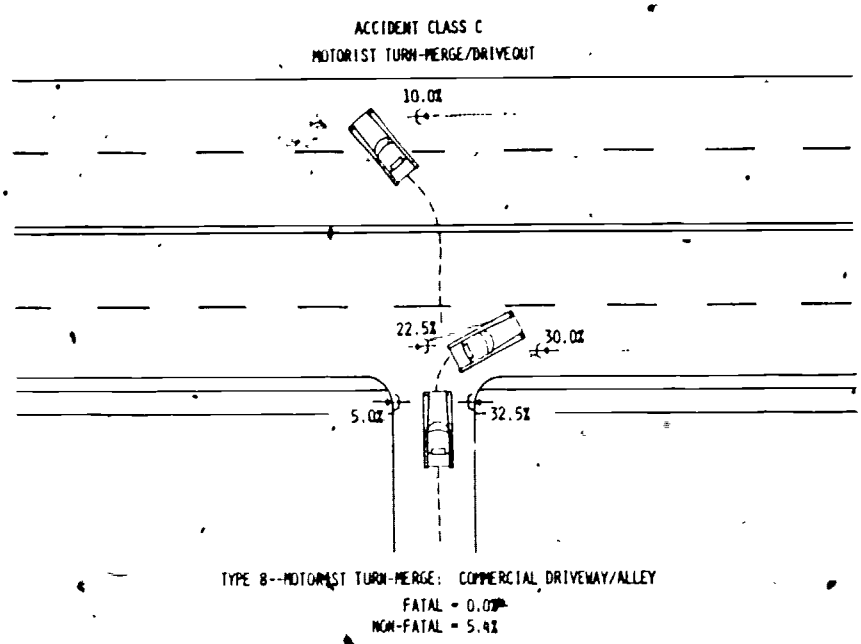
Almost all of us know that teenage and adult bicyclists often fail to stop for stop signs, and yet Accident Type 5 almost always involves a very young bicyclist. Of the bicyclists involved in this type of accident, 10% are 7 years of age or younger, 50% are 12 or younger, and 90% are less than 16 years of age. We found only 1 or 2 cases in which the bicyclist made a legal stop and then proceeded into the path of a motorist. So, it seems safe to assume that even the youngest bicyclists have the fundamental capacity to avoid this type of accident if they can be taught to stop or slow their speed significantly, and taught to search for approaching traffic.

ACCIDENT CLASS "B"

BICYCLE RIDEOUT: CONTR[redacted] INTERSECTION

	FATAL (N=20)	NON-FATAL (N=128)
5 INTERSECTION CONTROLLED BY SIGN	7 0%	10 1%
6 INTERSECTION CONTROLLED BY SIGNAL, SIGNAL PHASE CHANGE	6%	2 4%
7 INTERSECTION CONTROLLED BY SIGNAL, MULTIPLE THREAT	2 4%	2 0%
-- INTERSECTION CONTROLLED BY SIGNAL, OTHER	1 2%	1 7%
TOTAL CLASS	12 0%	17 0%

This slide shows that Bicycle Rideout accidents also occur at intersections controlled by a signal. Accident Type 6 occurs when the bicyclist enters the intersection as the signal phase is changing and fails to clear the intersection before the signal turns red. Accident Type 7 also occurs at a signal phase change, but has an additional distinguishing characteristic. In these cases, the motorist's view of the bicyclist was obstructed by another vehicle that was stopped in an adjacent traffic lane. The motorist in the stopped vehicle observed the bicyclist approaching and was waiting for him to pass. In some instances, the motorist in the stopped vehicle motioned the bicyclist to proceed across the roadway without realizing that motorists in the adjacent traffic lane could not see the bicyclist. All of us have seen bicyclists ride through an intersection when the signal is clearly red. Although this appears to be an extremely dangerous thing to do, we found only a few accidents that resulted from the bicyclist's failure to stop for a red light. As the data on this slide indicate, most of the accidents that occur at signalized intersections are the result of the bicyclist's attempt to get through the intersection before the light turns red.



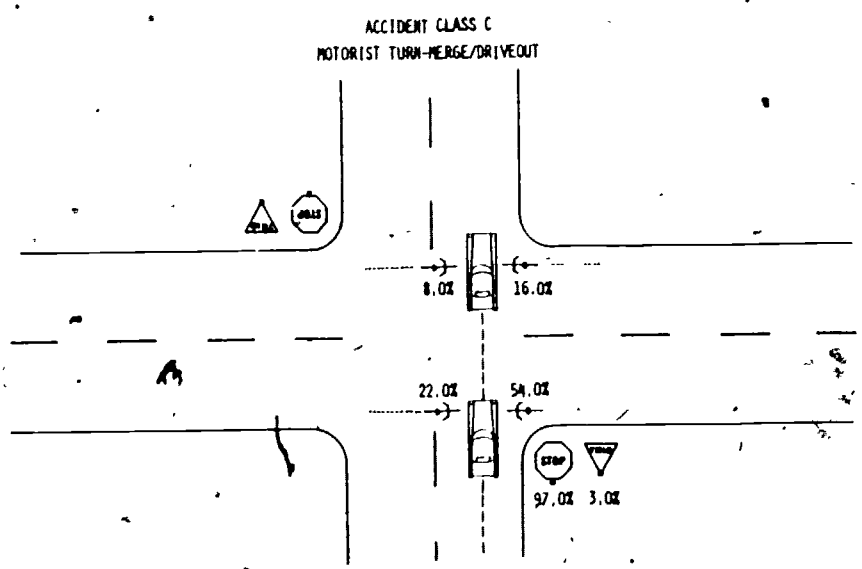
Over 5% of the non-fatal cases occurred as a motorist exited a commercial driveway travelling in a forward direction, but not a single fatal accident was classified into this accident type. We found that this accident type most often occurred at the junction of a commercial driveway and a roadway with four or more lanes. Cases in which the motorist failed to slow or stop at the junction were classified into a different accident type. So in every case of this type, the motorist stopped at the driveway junction and scanned for traffic, but nevertheless failed to detect the bicyclist before entering the roadway. In 63% of the cases, the bicyclist was approaching from the motorist's right, either riding on the sidewalk or riding in the street facing traffic. In these cases, the motorist entered the roadway without scanning in the bicyclist's direction because he simply didn't expect a hazard to be approaching from that direction. This pattern was found to be particularly prevalent when the motorist was intending to make a right-hand turn.

When the bicyclist was riding in the street and was travelling with traffic, it was found that the motorist's detection failure was often due to visual obstructions. However, in a surprising number of cases, it was found that the motorist failed to detect the bicyclist even though the bicyclist was clearly visible and the motorist *did* scan in the bicyclist's direction. In these cases, the bicyclist apparently was not

conspicuous enough to attract the motorist's attention in the circumstances that prevailed at the time.

In the vast majority of cases, the bicyclist observed the motorist early enough to have easily avoided the accident. The bicyclist proceeded through the junction because of a general assumption that all traffic would yield, or because of the specific assumption that he had in fact been detected by the motorist. Time after time, the bicyclists who were interviewed reported that they observed the motorist scanning in their direction and therefore assumed that they had been observed by the motorist.

The bicyclists who are involved in this type accident are considerably older than those involved in any of the accident types discussed previously. More than 90% of the bicyclists are older than 10 years of age, and more than half are older than 15 years of age.

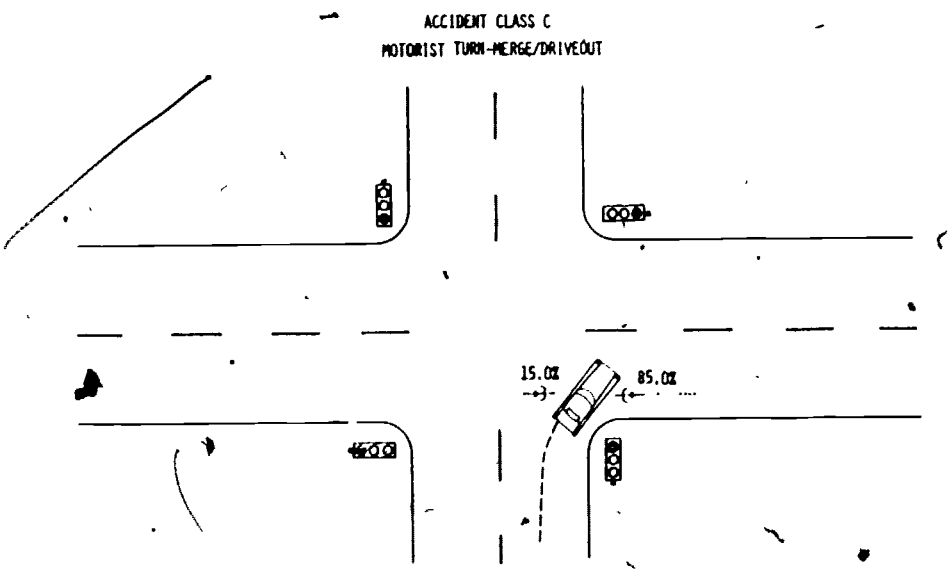


A similar type of accident occurs at an intersection controlled by a stop sign. The motorists who are involved in this type accident always made a legal stop before entering the intersection, and always failed to detect the bicyclist until an instant before the crash. Otherwise, the accident was classified into a different type.

In these accidents, the motorist doesn't detect the bicyclist because the bicyclist is riding in an unexpected location, or because the

bicycle's conspicuity is not great enough to attract the motorist's attention. It can be seen that accidents of this type most often occur in the near lane of traffic, shortly after the motor vehicle has entered the intersection. Fifty-four percent of the cases occurred in the near lane and involved a bicyclist who was riding against traffic, while only twenty-two percent of the cases occurred in the near lane and involved a legally-riding bicyclist. Twenty-four percent of the cases occurred in the far lane, just as the motorist was clearing the intersection. As was true of the near-lane accidents, many of the far-lane accidents involved a bicyclist riding against traffic.

Few very young bicyclists are involved in this type of accident. More than 90% of the bicyclists were older than 10 years, and more than one-half were older than 16 years of age.



Although this type of accident does not occur frequently, it is worth mentioning briefly. The accident occurs when a motorist makes a right-turn-on-red without observing the approaching bicyclist. In 85% of the cases, the bicyclist was riding against traffic and the motorist did not scan in the bicyclist's direction before initiating his turn.

The remaining 15% of the cases were due to the motorist's failure to search effectively. So, the right-turn-on-red law results in some car-bike accidents, but mainly because bicyclists ride their bikes on the wrong side of the street.

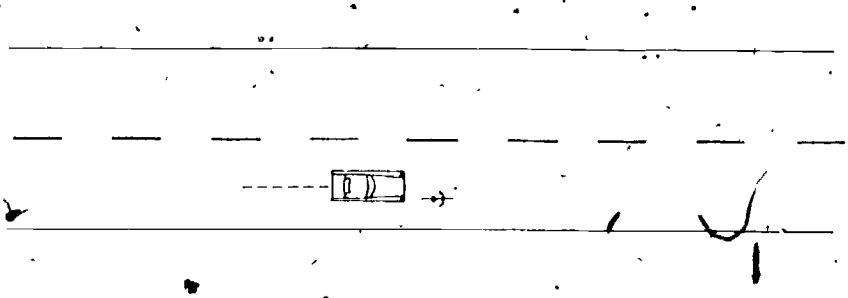
ACCIDENT CLASS C
MOTORIST DRIVEOUT

	FATAL (N=4)	NON FATAL (N=142)
8 TURN MERGE COMMERCIAL DRIVEWAY/ALLEY	---	5 4%
9 TURN MERGE/CROSSING INTERSECTION CONTROLLED BY SIGN	1 2%	10 1%
10 TURN MERGE INTERSECTION CONTROLLED BY SIGNAL	---	1 7%
11 BACKING FROM RESIDENTIAL DRIVEWAY	---	8%
12 NO-STOP DRIVEOUT COMMERCIAL DRIVEWAY/CONTROLLED INTERSECTION	1 2%	1 0%
TOTAL CLASS	2 4%	19 0%

I have discussed accident types 8, 9, and 10 which together account for most of the accidents in this class. The other two accident types were listed only to illustrate how infrequently they occur. You can see that less than 1% of the accidents occurred as the motorist was backing from a residential driveway, and only about 1% of the accidents were the result of the motorist's failure to stop before entering the street from a driveway or before entering a controlled intersection.

You have probably noted by now that accidents of this class account for 19% of the non-fatal cases but only 2.4% of the fatal cases. The large difference between the relative proportion of fatal and non-fatal accidents is undoubtedly due to low impact velocity for accidents occurring in this manner.

ACCIDENT CLASS D
MOTORIST OVERTAKING/OVERTAKING-THREAT



TYPE 13--MOTORIST OVERTAKING. BICYCLIST NOT DETECTED
FATAL = 24 6%
NON-FATAL = 5.1%

This accident type occurs when a motor-vehicle overtakes and collides with a bicyclist who is travelling in the same direction as the motor-vehicle. The distinguishing characteristic is that the motorist failed to detect the bicyclist until it was too late to avoid the accident. This accident type is extremely important because it accounted for nearly one-fourth of the fatal accidents in our sample, and a significant number--over 5%--of the non-fatal accidents as well.

The accident most often occurs on a narrow, rural-type roadway, and nearly 80% of the cases occur during darkness. The motorist was usually travelling at a fairly high rate of speed but seldom in excess of the posted limit. In a few of the cases, the motorist's attention was momentarily diverted and he was scanning someplace other than the roadway ahead just prior to the accident. But in the majority of cases, the motorist reported that he *was* scanning the road ahead, but still didn't detect the bicyclist soon enough to initiate successful evasive action.

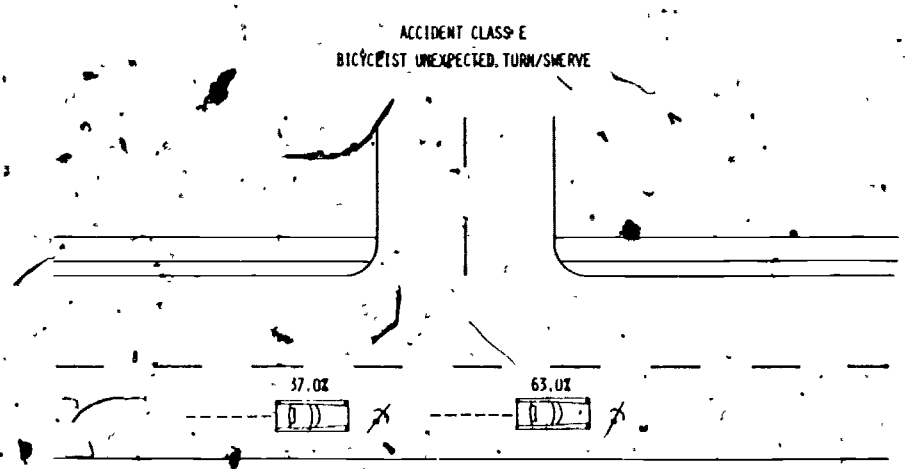
The set of factors that most often contributed to the motorist's detection failure include: the motor vehicle's relatively high speed, darkness, motorist intoxication, and inadequate bicycle lighting. It was found that the motorist had been drinking in nearly one-third of the cases. With respect to bicycle lighting, it was found that only 12% of the bicycles involved in night accidents were equipped with a legal headlight, but that nearly 70% of the bicycles were equipped with a legal rear reflector.

The bicyclists involved in this type accident are younger than might be expected. About 10% of the bicyclists were 8 years of age or younger, and one-half of the bicyclists were 12 years of age or younger. Although one might think that most of the night riding is done by young adults, it was found that less than 10% of the bicyclists involved in this type accident were older than 15 years of age.

ACCIDENT CLASS D
MOTORIST OVERTAKING/OVERTAKING-THREAT

	FATAL (N 63)	NON FATAL (N-89)
13 BICYCLIST NOT DETECTED	24 6%	5 1%
14 MOTOR VEHICLE OUT OF CONTROL	6 2%	0%
15 COUNTERACTIVE EVASIVE ACTION	2 4%	1 7%
16 MOTORIST MISJUDGES SPACE REQUIRED TO PASS	1 8%	0 0%
17 BICYCLIST'S PATH OBSTRUCTED	6%	2 0%
-- TYPE UNKNOWN	6 2%	1%
TOTAL CLASS	37 0%	11 7%

This table lists four types of overtaking accidents other than the one I just discussed. Accident Type 14 is precipitated by the motorist losing control of his vehicle; but the motorist's loss of control had nothing at all to do with the bicyclist's presence. Accident Type 15, entitled, counteractive evasive action, is due to the motorist's misjudgment of the direction of the bicyclist's evasive action. In the typical case, the motorist observes the bicyclist ahead riding close to the center of a two-way, two-lane roadway. As the motorist approaches the bicyclist from the rear, he honks his horn and swerves left to pass the bicyclist. The bicyclist hears the horn and evades to the left, assuming that the motor vehicle is going to pass on the right. Accident Type 16 is precipitated by the motorist's misjudgment of the space required to overtake and pass the bicyclist safely. In a small but significant number of cases the bicyclist is struck by the extended side mirror mounted on a truck or recreational vehicle. Accident Type 16 is the type of accident that bicyclists fear most; and yet, it accounts for only 1.8% of the fatal cases, and 2% of the non-fatal cases. The distinguishing characteristic of Accident Type 17 is that the bicyclist is confronted simultaneously with the threat of an overtaking vehicle and an object that obstructs the path that he would otherwise follow. In some instances, the bicyclist collides with the overtaking motor-vehicle and in some instances he collides with the obstructing object. Collisions with parked motor vehicles and with opening car doors are classified into this accident type.



TYPE 18--BICYCLIST UNEXPECTED LEFT TURN: PARALLEL PATHS, SAME DIRECTION

FATAL = 8.4%
NON-FATAL = 8.4%

More than 8% of both the fatal and non-fatal cases occurred when a bicyclist suddenly turned left into the path of an overtaking motor vehicle. This accident type does *not* include accidents in which the bicyclist lost control of his bicycle and inadvertently swerved left. This type accident most often occurs on a two-way, two-lane residential roadway, but also occurs on a variety of other roadway types, including rural roadways. The bicyclist was turning at the junction of a roadway or driveway in only 40% of the cases. In the remaining cases, there was no junction of any type in close proximity to the point at which the bicyclist initiated his left-hand turn.

In nearly every case of this type, the motorist reported that he observed the bicyclist well in advance, but had no idea that the bicyclist intended to turn. The motorists who were interviewed were confident that the bicyclist did not scan to the rear before initiating his turn, and this fact was confirmed by the bicyclist in almost every case.

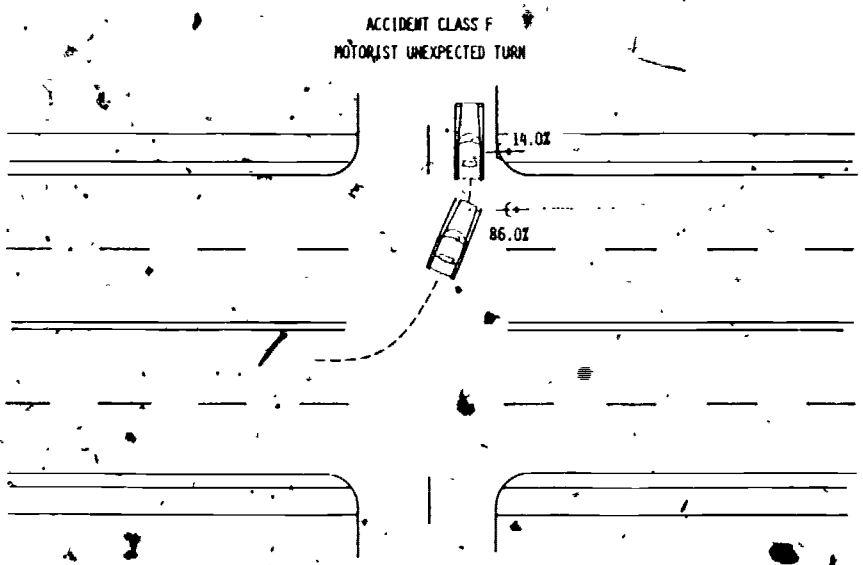
We knew from our initial studies that this was a frequently-occurring accident type, so we instructed our field investigators to make a special attempt to determine *why* bicyclists fail to scan behind before turning left. In most cases, the bicyclists were unable to provide a truly meaningful explanation for their failure to scan. The bicyclists reported that they were fully aware that it is dangerous to turn without scanning to the rear, and insisted that they nearly always do scan behind before turning. However, most of the bicyclists simply could not recall why they failed to scan behind on the day of the accident. Of the bicyclists who *were* able to provide a meaningful explanation, most reported that they failed to scan because they assumed that they could hear an overtaking motor vehicle if one was nearby.

The bicyclists involved in this type of accident cover a fairly wide age range. About 10% of the bicyclists were 8 years of age or younger, and about 10% of the bicyclists were older than 18 years of age. The median age was 13 years.

ACCIDENT CLASS E
BICYCLIST UNEXPECTED TURN/SWERVE

	FATAL (N=27)	NON-FATAL (N=106)
18 LEFT TURN - PARALLEL PATHS, SAME DIRECTION	8.4%	8.4%
19 LEFT TURN - PARALLEL PATHS, FACING APPROACH	3.0%	3.1%
20 SWERVE - PARALLEL PATHS, SAME DIRECTION (UNOBSTRUCTED PATH)	3.6%	1.5%
21 WRONG-WAY BICYCLIST TURNS RIGHT - PARALLEL PATHS	1.2%	.3 2%
TOTAL CLASS	16.2%	14.2%

This slide shows other accident types that are the result of an unexpected turn or swerve by the bicyclist. Accident Type 19 occurs when the bicyclist turns left into the path of a motor vehicle that is approaching from the opposite direction. This accident type includes only bicyclists that were riding legally. Accident type 20 occurs when the bicyclist inadvertently swerves or falls into the path of an overtaking motor vehicle. This accident type does not include cases in which the bicyclist was riding around an object that was obstructing his path, such as a parked car. Type 21 includes only accidents that occurred when the bicyclist was riding against traffic and made a right-hand turn into the path of a motor vehicle approaching from the front. Although these four accident types differ in many important respects, all of them involve a sudden turn or swerve by the bicyclist that is altogether unexpected by the approaching motorist.

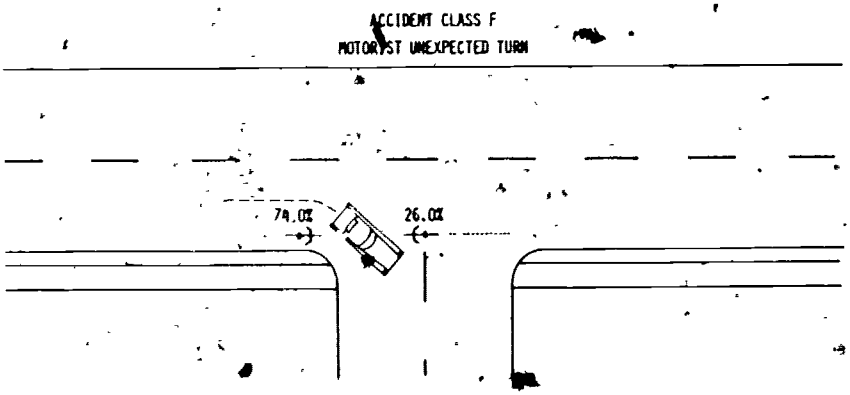


TYPE 23--MOTORIST UNEXPECTED LEFT TURN: PARALLEL PATHS, FACING APPROACH
FATAL = 0.0%
NON-FATAL = 7.6%

This accident type occurs when a motorist turns left into the path of a legally riding bicyclist approaching from the opposite direction, and it accounts for 7.6% of the non-fatal cases. None of the fatal cases were classified into this type. Like other types discussed previously, the reason for the discrepancy between the proportion of fatal and non-fatal cases is because the impact velocity is primarily a function of the bicycle speed.

In some cases, the motorist was turning onto another roadway, while in other cases, the motorist was turning into a private or commercial driveway. This type of accident often occurs at an intersection that is controlled by a traffic signal, and often occurs on a roadway with four or more lanes. In 86 percent of the cases, the bicyclist was riding legally in the street. In the remaining cases, the bicyclist had been riding on a sidewalk just before entering the junction.

In the typical case, the motorist was travelling at a slow rate of speed or was stopped waiting for a gap in oncoming traffic. When the motorist felt it was safe to do so, he accelerated into a left-hand turn and collided with the bicyclist. Nearly every motorist reported that he scanned in the bicyclist's direction one or more times before turning, but did not observe the bicyclist until it was too late to initiate successful evasive action. About 25 percent of the cases occurred at night and involved an unlighted bicycle. But in the majority of cases, the motorist failed to detect the bicyclist even though the visibility conditions were good. In nearly every case, the bicyclist detected the motorist, recognized that the motorist was planning to turn left, but assumed the motor vehicle would remain stationery until the bicyclist had cleared the intersection.



TYPE 24--MOTORIST UNEXPECTED RIGHT TURN
FATAL = 1.8%
NON-FATAL = 5.6%

This slide illustrates the classical right-turn accident and shows that it accounts for 1.8 percent of the fatal cases and 5.6 percent of the non-fatal cases. This accident type includes cases in which the motorist turns right at either a roadway or a driveway junction, but does not include accidents in which the motorist turns right to enter an on-street parking space.

More than one-fourth of the cases involved a wrong-way bicyclist, and these accidents typically occur because the motorist is scanning for traffic approaching from the left, or is scanning the roadway to his right, where he intends to turn. The motorist does not expect a hazard to be approaching from directly ahead, so does not scan in that direction.

Almost three-fourths of the accidents occur when the motorist turns right into the path of a bicyclist approaching from the right rear. In some instances, the motorist distinctly recalled overtaking and passing the bicyclist, but assumed the bicyclist was far behind when he initiated his right-hand turn. In other instances, the motorist passed the bicyclist but did not recall having done so. In still other instances, the motorist was in a line of slow-moving traffic, and the bicyclist was overtaking and passing on the right when the motorist initiated his right-hand turn.

In a few cases, it was found that the bicyclist was not scanning ahead when the motorist initiated his turn. In most cases, however, the bicyclist observed the motor vehicle well in advance, recognized that it was slowing, but still failed to infer that the motor vehicle was preparing to turn right.

This accident type almost always involved a teenage or adult bicyclist. Over 90 percent of the bicyclists were older than 13 years of age, and half were older than 18.

We found that these accident types occurred with about the same frequency in each of the four sampling areas where we compiled data. For this reason, we believe these same accident types represent important problems in most communities throughout the country.

What needs to be done now is to examine each accident type in turn, and to define potential educational solutions for that accident type. We must define the specific knowledge that must be imparted and the skills that must be enhanced, and we must define cost-effective methods for achieving these specific educational objectives. Since the age of the bicyclist target group varies greatly from one accident type to another, we must be careful to develop education and training methods that are effective for the relevant age group.

We certainly should take full advantage of existing educational programs if it is found that they impart the knowledge and develop the skills that bicyclists need to avoid the types of accidents discussed today. If, after careful evaluation, it is found that existing educational programs are not suitable, we must modify them or create new ones.

Ken Giles, U. S. Consumer Product Safety Commission

PLANNING MODEL FOR BICYCLE SAFETY EDUCATION

Donald LaFond
Maryland Department of Education

The Planning Model, which appears on pages 52 through 66 of this report, was developed by Donald LaFond and presented to conference participants on May 5. The model is designed as a tool to identify content areas for bicycle safety education programs that are based upon specific safety needs. The resulting programs should be considered countermeasures aimed at the prevention of bicycle-related accidents.

In developing this Planning Model, Mr. LaFond conducted a comprehensive review of existing bicycle safety education programs to determine the general content areas they include. As a second step, research on bicycle-related accidents (see summary of Ken Cross presentation, page 34) was reviewed to determine the frequency of accidents related to each content area by the age of the bicyclist. The resulting matrix appears in the model, on page 54.

The Bicycle Safety Education Priorities matrix is useful in planning new programs or in evaluating the countermeasure potential of existing programs. For example, the matrix shows that accidents caused by a lack of coordination skills are frequent among five to seven year olds, but infrequent among bicyclists nine and older. Bicycle safety education programs for young children should focus on these skills; programs for older bicyclists should focus instead on visual search and detection, hazard recognition, risk assessment, decision making and evasive techniques and maneuvers.

The Planning Model also includes a more detailed description of each content area. The critical elements to be considered in planning programs that include these content areas are summarized according to the age level of the target population. General guidelines on learning activities and program evaluation are also included.

The following Model To Develop A Bicycle Safety Education Program is preliminary. Conference participants and other readers are urged to adapt the model so that it is of maximum use in their program planning.

A MODEL TO DEVELOP A BICYCLE SAFETY EDUCATION PROGRAM

Introduction

The tremendous recent increase in bicycle use and even more recent research into bicycle accidents has prompted the need for a closer look at the content of bicycle safety education programs in terms of emphasis or focal points. In effect we are at a stage where we must evaluate our current educational efforts in relation to greatest potential payoff.

This presentation is an effort to put the various traditional content elements (and some not so traditional) into a proper perspective relative to the accident problem. To a large extent content emphasis in the past has been determined by cursory research and a lot of times by personal biases. It must be realized that most programs today do not contain every content area listed in the following presentation. This is not to imply that all programs should contain all content areas. This model is merely a tool that can be used in identifying specific program content based upon specific safety needs.

EDUCATIONAL APPROACHES*

1. COGNITIVE -- KNOWLEDGE ACCUMULATION, INTERPRETATION, UNDERSTANDING
2. AFFECTIVE -- ATTITUDE, VALUES
3. SENSORY MOTOR -- BALANCE, AGILITY, VISUAL AND SOUND PERCEPTION, AND COORDINATION

*AN EFFECTIVE PROGRAM MUST INCLUDE ALL APPROACHES

PLANNING MODEL FOR SPECIFIC EDUCATIONAL COUNTERMEASURE

STEP I

IDENTIFY ACCIDENT PROBLEMS AS TO:

-AGE LEVELS INVOLVED
-SPECIFIC ACCIDENT SITUATIONS OR LOCATION
-FUNCTION FAILURES

STEP II

SELECT APPROPRIATE EDUCATIONAL APPROACHES FOR SPECIFIC PRIORITY CONTENT AREAS IN TERMS OF THE PROBLEM.

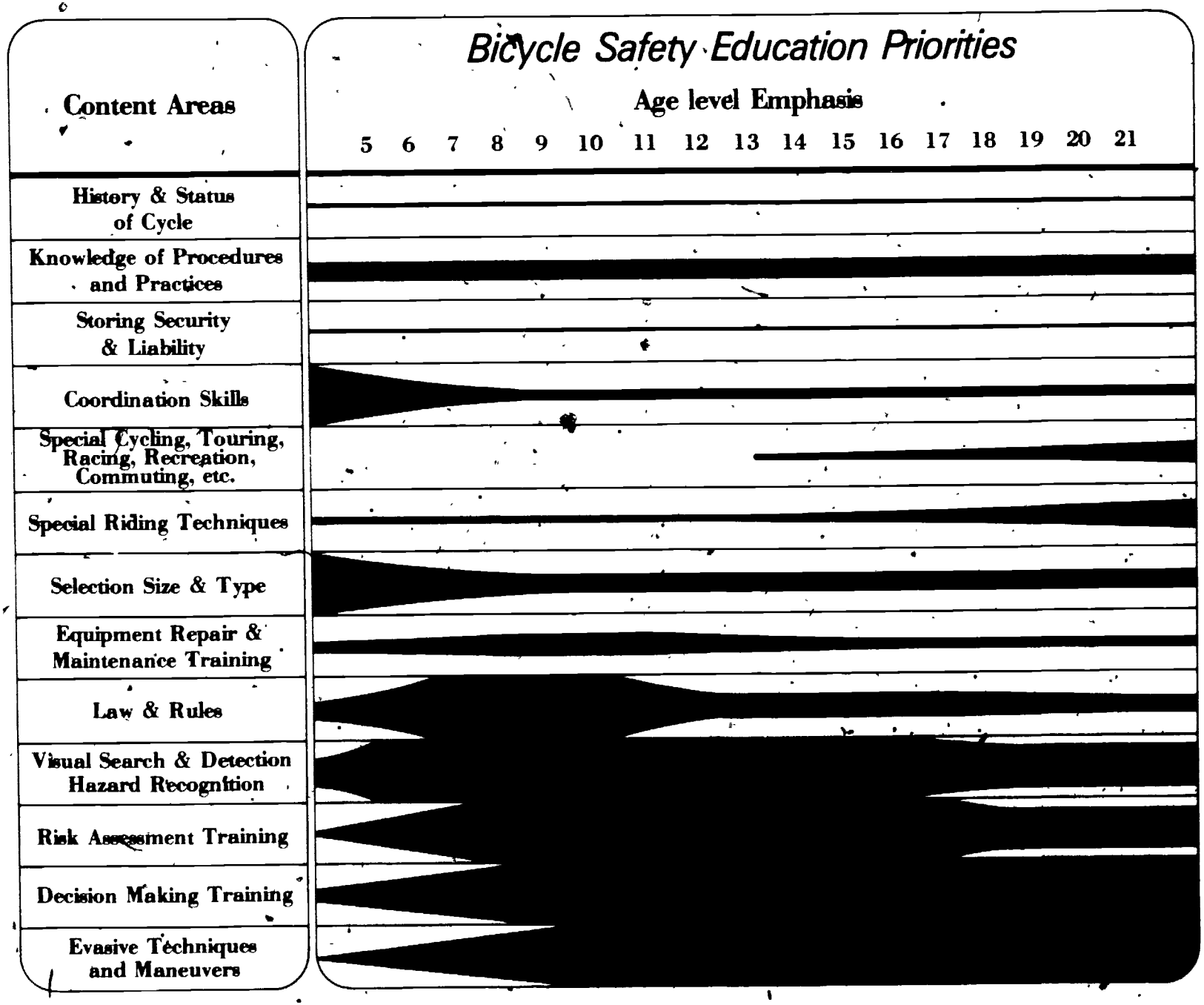
-DELINEATE SPECIFIC TRAINING OBJECTIVES
-IDENTIFY SUITABLE TRAINING TECHNIQUES
-DETERMINE DELIVERY SYSTEM

STEP III

DEVELOP AN EVALUATION SCHEME THAT ALLOWS FOR DETERMINING PROGRAM EFFECTIVENESS FOR:

-DESIRED PERFORMANCE
-FURTHER DELINEATION OF THE PROBLEM

SOURCES OF INFORMATION
-NATIONAL STUDIES AND RESEARCH
-STATE AND LOCAL ACCIDENT REPORTS
-LOCAL EMPHASIS AND PROBLEMS
-PERSONAL OBSERVATIONS


Bicycle Safety Education Priorities
Content Areas
Age level Emphasis
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
History & Status of Cycle
Knowledge of Procedures and Practices
Storing Security & Liability
Coordination Skills
Special Cycling, Touring, Racing, Recreation, Commuting, etc.
Special Riding Techniques
Selection Size & Type
Equipment Repair & Maintenance Training
Law & Rules
Visual Search & Detection Hazard Recognition
Risk Assessment Training
Decision Making Training
Evasive Techniques and Maneuvers

CONTENT AREA HISTORY AND STATUS OF THE CYCLE

Description

An appreciation for the present status of the cycle from an historical point of view, the present and potential role of the bicycle in the transportation system.

5-10 Age level emphasis

Critical Elements to be Considered

-Brief history of the cycle for an interest factor
-A brief overview of the bicycling world in terms of the advantages and problems involved
-Emphasis on the bicycle status as a vehicle in relation to various state laws

11-adult Age level emphasis

Critical Elements to be Considered

-Emphasis should correspond to the attitude and interests of the specific age level being trained

CONTENT AREA KNOWLEDGE OF PROCEDURES AND PRACTICES

Description

The practices that involve the "safe way." Generally these would change with the extent of bicycle riding and the territorial expansion.

5-6 Age level emphasis

Critical Elements to be Considered

-Identification of play boundaries
-Sidewalks and driveways
-Negotiating driveways with cars parked

7-9 Age level emphasis

Critical Elements to be Considered

-Crossing streets
-Identification of riding areas
-Beginning turning signals and procedures
-Beginning lane positioning in street, etc.
-Group riding procedures

10-adult Age level emphasis

Critical Elements to be Considered

-Signaling procedures
-Strong emphasis on turning procedures light and heavy traffic
-Lane positioning in all types of traffic
-Group riding procedures and practices
-Bike lane maneuvering procedures
-Bike path etiquette
-Overtaking procedures
-One way streets
-Night riding, etc.

CONTENT AREA STORING, SECURITY AND LIABILITY

Description

This area would include proper storage of cycle--parking, theft prevention, insurance and registration.

5-9 Age level emphasis

Critical Elements to be Considered

-Proper storage home and play
-Need for and process of registration

10-adult Age level emphasis

Critical Elements to be Considered

-Value of registration and options available
-Theft prevention and the options available
-Insurance needs and possibilities available

CONTENT AREA COORDINATION SKILLS

Description

Those skills that enable the cyclist to physically maneuver the cycle effectively.

5-7 Age level emphasis

Critical Elements to be Considered

-Strong emphasis on those basic learning to ride skills including balance and agility (offstreet training)
-Basic psychomotor training

9-11 Age level emphasis

Critical Elements to be Considered

-Emphasize skill and agility
-Mounting, dismounting, braking skills
-Turning maneuvers and hand-signals
-Head checks and balance

12-adult Age level emphasis

Critical Elements to be Considered

-Emphasis on timing
-Cornering, braking
-Ten speed - shifting, etc.

CONTENT AREA SPECIAL CYCLING, TOURING, RACING, COMMUTING

Description

Those unique skills, tips, and knowledge that are very specialized for the experienced cyclists.

14-adult Age level emphasis

Critical Elements to be Considered

-Special gear configuration and selection
-Gear mechanics
-Special equipment
-Special pedaling techniques
-Mountain riding techniques
-Cross country touring techniques
-Bicycle racing techniques
-Problem in cycle-commuting

CONTENT AREA SPECIAL RIDING TECHNIQUES

Description

This area would include those techniques that would generally be in the realm of the more experienced cyclists.

5-10 Age level emphasis

Critical Elements to be Considered

-Group riding
-Basic maneuvers

11-adult Age level emphasis

Critical Elements to be Considered

-Basic posture and pedaling techniques for efficiency
-Pedaling techniques and cycling style
-Inclement weather cycling
-Overtaking and lane change in heavy high speed traffic
-Breaking techniques
-Night riding
-Ascending and descending hills/curves
-Cycle-commuting techniques
-Group riding

CONTENT AREA SELECTION, SIZE AND TYPE

Description

This area includes the selection of the correct size bicycle and the selection of the type for the desired purpose. It would also include the selection of necessary safety equipment for the cycle and cyclists.

5-13 Age level emphasis

Critical Elements to be Considered

-Emphasis on proper size
-Emphasis on type in respect to skills and coordination needed
-Emphasis on potentials and limitations of types
-Emphasis on necessary safety equipment
-Emphasis on tools

14-adult Age level emphasis

Critical Elements to be Considered

-Emphasis on bicycle fit for safety and efficiency
-Emphasis on styles
-Emphasis on budget/quality and desired use
-Emphasis on safety equipment
-Emphasis on other equipment and tools

CONTENT AREA EQUIPMENT, REPAIR, AND MAINTENANCE

Description

The recognition of needed adjustments, repair and maintenance and the ability to carry out those repairs and maintenance when needed.

5-7 Age level emphasis

Critical Elements to be considered

-Recognition of loose parts
-Recognition of those items that need periodical maintenance
-Identification of who to go to for repairs

8-14 Age level emphasis

Critical Elements to be Considered

-Maintenance checks
-Basic training on bicycle maintenance and opportunities (step by step)
-Basic bicycle repair training

15-adult Age level emphasis

Critical Elements to be Considered

-Advanced training on maintenance
-Advanced training on repairs

CONTENT AREA LAWS AND RULES

Description

The knowledge of and the ability to interpret the laws that relate to the bicycle as well as the rules that are a natural outgrowth of the laws.

5-6 Age level emphasis

Critical Elements to be Considered

-Basic law understanding commensurate with child's capabilities
-Child's play environment
-Full understanding of "safety rules"
-Emphasis on laws
-Begin basic understanding of the street system
-Safe riding/driving areas

7-10 Age level emphasis

Critical Elements to be Considered

-Major treatment of laws, rules and interpretation
-Understanding of basic law principles
-Presentation of laws and rules and their rationale and purpose
-Specific reference to child's cycling environment

-Emphasis on signs, signals and pavement markings and their meaning
-Major emphasis on nature of the street system
-Begin affective approach to law compliance

11-adult Age level emphasis

Critical Elements to be Considered

-Strong affective approach
-Emphasis on specific laws and accident types that relate to the age group
-Analysis of accident situations and possible law infractions
-Emphasis on specific maneuvers that are accident causing and the laws involved

CONTENT AREA SEARCH AND DETECTION -- HAZARD RECOGNITION

Description

The visual skills that involve the gross eye movements (and head) in selectively searching and spotting those items or events that have danger potential in relation to specific space and time frames.

5-6 Age level emphasis

Critical Elements to be Considered

-Hazard identification
-Basic training in visual scan and search
-Emphasis on dangers or hazards to children of this age level
-Understanding of why certain items are dangerous

7-adult Age level emphasis

Critical Elements to be Considered

-The nature of vision as related to search and scanning skills
-Knowledge of accident types and situations
-Increase memory bank of potential hazards in specific situations as indicated by type of situation encountered

-Include accident types specific to age level
-Emphasis on training to reduce time needed to search and detect hazards
-Emphasis on training to search and detect hazards under stress
-Strong sensory motor training emphasis
-Progressional training to increase search and detection skills

CONTENT AREA RISK ASSESSMENT

Description

Risk assessment training includes the recognition of one's own capabilities in relation to a reasonable level of risk acceptance. This area should also include such assessments as speed, gap, distance and space judgment.

5-7 Age level emphasis

Critical Elements to be Considered

-Definition of specific acceptable risks in specific situations this age child will encounter
-Training in recognition of those risks involved
-Begin training in speed, time and distance components

8-Adult Age level emphasis

Critical Elements to be Considered

-Assessment of one's capabilities as they relate to reaction, coordination and speed of action, strong affective approach
-Intense training in speed, time, distance, judgments for risk involved in relation to collision potential
-Include a wide variety of risk assessment situations as indicated by the specific accident types

CONTENT AREA DECISION MAKING

Description

Decision making is the process that involves hazard recognition and risk assessment and judgments that a cyclist needs to select his course of action in specific traffic situations that have accident or collision potential. In essence it is the action selection process that minimizes accident potential after considering all the variables in a relatively short time span.

5-8 Age level emphasis

Critical Elements to be Considered

-Basic training in selection of the best course of action in a variety of traffic situations as indicated by the accident types

9-adult Age level emphasis

Critical Elements to be Considered

-Strong emphasis on selection of best possible maneuvers for accident avoidance in specific situations as indicated by the accident types
-Strong emphasis on decision making training, under st ss
-Strong training emphasis on decreasing time needed to decide upon a specific action

CONTENT AREA EVASIVE TECHNIQUES AND MANEUVERING

Description

The type of training that identifies evasive techniques and maneuvering and an illustration of their execution.

5-9 Age level emphasis

Critical Elements to be Considered

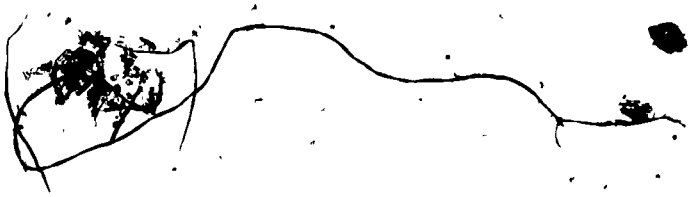
-Basic identification of the techniques to get out of potential accident situations as indicated by the accident types

-Procedural practice for execution--must be commensurate with child's capabilities

10-adult Age level emphasis

Critical Elements to be Considered

-Identification of evasive maneuvering as related to the accident types.
-Strong emphasis on practicing the techniques of getting out of potential accident situations
-Strong emphasis on training for evasive reaction capabilities
-Instant turns
-Panic stops and track stops
-Special braking techniques



LEARNING ACTIVITIES

Rationale

Teachers get the best results when--

- o The objective of instruction is active involvement by the student.
- o Experience is recognized as the key factor in learning.
- o Arranging of learning environments and providing guidance for learning are the major teacher tasks.

Students learn best if they--

- o Are actively involved.
- o Receive guidance with reinforcement.
- o Have a wide variety of experiences in rich and varied environments.
- o Have experiences which are organized around purposes they will accept.
- o Have opportunities to learn from each other.

Criteria

1. Does the activity take into account what the students can already do or are ready to do?
2. Does the activity provide students an opportunity to fulfill the intent of the objective?
3. Can there be active learner involvement?
4. Is adequate, appropriate and continuing practice provided?

5. Can there be immediate knowledge of results?

6. Does the activity provide for sequential development of learning?

7. Is the result of the activity observable or measurable?

ELEMENTS OF BICYCLE SAFETY PROGRAMS EVALUATION

1. MATCHING TARGET AUDIENCE WITH PROBLEM (INITIAL)

2. DETERMINING SUCCESS OF OBJECTIVES (SHORT RANGE)

3. ASSESSMENT OF COST EFFECTIVENESS (INTERMEDIATE)

4. ACCIDENT REDUCTION (LONG TERM)

Betty Drake, Willban Associates

PRESENTATION OF PROGRAM EXAMPLES
UNIT SCHOOL DISTRICT #5 BICYCLE SAFETY EDUCATION

Terry Tamblyn
Sterling Illinois School System

Project S.A.F.E. is located in Community Unit #5 School District in Sterling, Illinois. The entire project involves over six thousand students plus adults in this community.

Seventy-eight representatives of local business, industry, and service groups have made commitments of time, money, and materials which have made construction of the one-and-one-half acre Sterling Safety Park possible. All buildings, facilities and equipment included in the Safety Park were funded by donations. On July 1, 1975, Federal funds were obtained for staffing and materials.

Safety Attitude Formation Education (SAFE) is a Title III, ESEA innovative project. The survival, safety, and success of children depends not so much on knowing a set of rules or regulations about safety, but on a systematic process of identifying, predicting, deciding, and executing a specific behavior when confronted with potentially dangerous situations. S.A.F.E. presents concepts from the earliest possible age (pre-school), has a positive effect upon students' self-esteem, improves teacher and student communication techniques, evaluates effectiveness of safety programs, and stimulates community and parent involvement.

The objectives of S.A.F.E. fall under two groups: one being those objectives which deal directly with safety, and two, those objectives which deal directly with attitude formation (Affective Education). One of the premises underlying S.A.F.E. is that you can teach a child rules on how to be safe, but you must also instill positive safety attitudes in a child.

Our program in Sterling, Illinois involves the whole community: we begin with pre-schoolers (and involve their parents) and continue through adults. The program is well funded. Three years ago, when I was first hired, we managed to raise $75,000. The school district gave us $10,000 the first year and is still giving us $6-8,000 per year. During the three years that this program has been in operation, we have received HEW grant funds totalling $98,000, $94,000 and $95,000.

Our approach is a unified safety program. Every teacher in the school district receives curriculum materials. Skills are taught in the classroom. They are then tested in a specially constructed safety park. We also have an adult center where we hold administrative meetings,

a bus for transportation, and a bike maintenance and repair workshop for fifth and sixth graders.

The program involves school teachers, police officers, safety officers and ambulance drivers as instructors. Among our many activities are bike rodeos for different school districts.

Evaluation is an important component of our program. We have developed a short, nonverbal test of bicycle skills. During the program's first year, we had an experimental and a control group of schools that included urban, rural and suburban settings. We administered an adapted version of the Cooper Smith Test of self-esteem as a pre- and post-test. We found a significant difference between the experimental and control groups on the post-test; the students in schools receiving training scored significantly higher on the test.

We also distributed a Parent Survey Questionnaire with student report cards (we got a 93 percent return). The questionnaire asked parents about the number, type, location and seriousness of bicycle accidents their children had. The students receiving training in our program showed a greater decrease in accidents than the control group.

Next year we will try to implement our program in another school district that does not have a safety park.

PRESENTATION OF PROGRAM EXAMPLES
TEACHING EFFECTIVE TRAFFIC SAFE CYCLING

John Forester
Author and Consultant

Effective Cycling is taught at Foothill Community College to students who are at least 18 years old and can maneuver a bicycle. The course teaches the craft of cycling; the expectation is that graduates will be able to commute daily to work or school, ride on day or night trips, and be prepared to join a cycling club.

Effective Cycling meets three hours per week for 11 weeks (one period per course extends beyond the normal time to provide for a one-day ride). Course content includes:

1) The Bicycle: Choosing a bicycle suitable for your needs and performing all maintenance necessary to keep it operating over its normal life.

2) The Cyclist: learning the proper posture and pedalling technique; cycling sufficiently to develop the motor skills for smooth supple action; learning the theory of physical conditioning for an endurance sport and developing the reflexes for instant emergency turns and stops.

3) The Cycling Environment and Traffic Safety: Learning the basic types of car/bike collisions and the principles of the traffic rules that prevent them; studying the basic types of highway design, road surface hazards, and emergency traffic maneuvers.

4) Cycling Enjoyment: Learning the technique of utility and commuter cycling; learning and practicing individual racing and organized group cycling.

Riding properly is the way to avoid accidents. The biggest problem in cycling traffic safety is to convince people to do what they already know is safe to do. Little kids are often subjected to misinformation about riding their bikes. MISINFORMATION IS THE KILLER. Further, most of the bicycle safety education programs that I have seen are primarily concerned, not with bicycle safety, but with "car danger," being scared of people with cars. Bicycle safety should not be taught as some kind of magic.

So how do you ride properly? By riding where you are supposed to ride. You avoid the right-hand turn motorist by riding far enough out so that if he comes up to you, you can either speed up or slow down. The motorist who is making a left-hand turn--he is seeing a place where he can go. So go there, get there first. For a motorist who is coming out through a stop sign, you see him and you have the right-of-way. Don't ride over there on the curb lane. Ride close to the cars. And if he comes out, zig to the left. That is what has evolved over 50 years of riding--the rules that the cyclists should follow.

So how do you teach this to people? At the present time there is no market that I can see for volunteer bicycle safety education. You are not going to get people to come in and do this kind of thing just because it is the right thing to do. You have to PERSUADE them. And the best way to do this is to teach them the sport and the fun of cycling. One reason they don't ride in the first place is because they are afraid. But you have to teach them to enjoy it. And when you can accomplish the change in attitude from one of fear to one of enjoyment, then you are going to have a reduction in the accident rate. Similarly, you have to teach things like maintenance--not because poor maintenance causes accidents--but because you want bicyclists to have fun.

My course is 30 hours and I use the book Effective Cycling. An instructor's manual has been prepared in draft and will be out in the fall. The course is presently designed for those 14 years of age and older, although it can be used to teach younger children.

Dan Burden, Bikecentennial

PRESENTATION OF PROGRAM EXAMPLES
A 4-H BICYCLE SAFETY EDUCATION PROGRAM

Edward O. Eaton
Cornell University

Cooperative Extension has conducted a youth bicycle safety education program for a number of years. One such program began at least 25 years ago in New York State. Today, the program is national in scope and has been developed by a committee made up of representatives from the National Safety Council, Goodyear Tire and Rubber Company, the National 4-H Council, the Federal Extension Service and State Extension Specialists.

Program materials and teaching aids have been developed for use on a national level and many individual states have developed materials for use in their own states.

Considerable interest has been expressed in the program's teaching aids, in particular the "talking bicycle" which is used extensively in New York State. This has proven to be an excellent, innovative teaching device to promote bicycle safety education.

We have 56 counties and approximately 30,000 teachers working with 4-H programs. Approximately 200,000 people are enrolled in these programs. Program leadership comes from college-based personnel. The typical content of a school program begins with a general assembly. Then about two weeks of classroom activities emphasize the rules of the road, a review of technique and knowledge, and finally the testing period (checking out the bike, sizing it, etc.). We recommend that they get outside in the "play periods" to practice their skills. The entire program is followed up by another assembly where the children receive their certificates.

As for materials, we have an instructor's handbook, guidelines, a worksheet, a test sheet, a bicycle inspection sheet, a set of handouts, two slide sets and two sets of films. In addition, we have an innovative teaching device called the "talking bicycle." We now have 40 of them operational in New York State.

PRESENTATION OF PROGRAM EXAMPLES
LOS ANGELES BICYCLE SAFETY EDUCATION PROGRAM

Donald W. Rector
Los Angeles City Unified School District

Factors inhibiting the development of bicycle safety education programs include: lack of coordination, too strong an emphasis on "conceptual" aspects, insufficient attention to the real causes of bicycle accidents, under-estimation of the peculiar problems of the bicyclist, and public apathy to the need for bicycle safety education. The development of good programs requires an understanding of the specific abilities and needs of the bicyclist. A successful program must include:

1) A relationship to a comprehensive safety education program;

2) A graduated approach which matches student education, and

- *the age and physical ability of the riders,*
- *the driving and transportation environment,*
- *attitude and behavior patterns;*

3) Teacher preparation;

4) Education for parental and public awareness.

Mr. Rector presented information on how the Los Angeles City School District is developing a program to meet these requirements. A visual presentation of the Los Angeles School demonstration project "SPOKE" was also made. "SPOKE" includes peer groups participating in the teaching of bicycle safety as well as community awareness and involvement activities.

In Los Angeles City Schools, the bicycle education program is based on a revised edition of a nine volume curriculum guide, the Safety Instructional System. This backbone safety education system was developed by Don LaFond and the Maryland State Department of Education. At the second grade level, a supplementary booklet, Bike Basics, is used with the curriculum guides. The guides emphasize skill, knowledge, and attitudes. In the lower grades, skill and knowledge improvement dominate; in the upper grades, attitude is emphasized. In addition, we have tried to coordinate community agencies into the program. In our 15 jurisdictions within the district there are 112 public service groups like the Automobile Club to provide bicycle safety programs. Last year we had meetings with

each of these agencies. Our basic thrust in these meetings was: What can we do with our materials and teachers to make your program more effective? While we have not achieved a full integration of these programs, we are coming closer to a coordination of services and an understanding of what those services are. The programs are school centered and coordinated by the School Traffic and Safety Education staff of the Los Angeles City Schools.

Second, the program should concentrate on the realities. Scanning, hazard detection, evasion skills, and intensive work in developing "realistic" prediction skills should receive more emphasis than mechanical knowledge, rote learning of rules, and fear-related cautionary advice. The realities should relate to the situation, the context in which the student drives a bicycle. In the Los Angeles programs we try to concentrate more on local needs. Where possible, we provide visuals of the area around the particular school.

A good bicycle safety education program has to make adequate provision for teacher and parent in-service training. The teacher or parent who feels unsure about safe bicycling and rules of the road will either avoid the subject or give incorrect information. Either way the safety education program suffers. In Los Angeles, we give each of the teachers in the program the same handbook and go over it with them. They are given an overview of the "realities" of bicycle riding and specific instructions on the use of the materials in the program. Parents are more difficult to reach. We try to reach them through handouts taken home by the children and presentations at PTA and community advisory council meetings.

Another way in which we reach the community is through responses to traffic service requests. These normally relate to the routes that children use on the way to and from school. Community concern generates many of the requests. The sometimes emotional community meetings about such problems offer an excellent forum to promote all types of safety education. The Traffic Department of the City of Los Angeles is also beginning to supply "Safest Bicycle Routes" for junior high schools. These maps are distributed to all the students at a school. They are another tool to increase parent awareness of the needs of bicycle safety programs.

LUNCHEON - MAY 5, 1977

THE ROLE OF INDUSTRY

James J. Hayes
Bicycle Manufacturers Association

The Consumer Product Safety Commission, the National Highway Traffic Safety Administration, the Federal Highway Administration, the Bicycle Manufacturers Association, the National Committee on Uniform Traffic Laws, the League of American Wheelmen, the National Safety Council... what a plethora of people and agencies trying to help the cyclist. In spite of our best efforts, he may well feel that with friends like us, he doesn't need any enemies.

Part of the problem, I suspect, is that there is no such thing as a typical cyclist. To the degree that each of us here identifies with the singular characteristics of our own constituent breed of cyclists, to that degree will we impede progress in working out commonly acceptable programs.

The safety education program of the Bicycle Manufacturers Association (BMA) goes back many years, and has brought many honors to the industry. The BMA has created a wide variety of safety education materials: posters, pamphlets, films, guidebooks, and giveaway materials, all of them made available at reasonable cost. It has flooded schools, PTA's, police, civic and service organizations and veterans groups with these materials, distributing as many as 10 million pieces of safety literature in a year.

The simple fact is that the bicycle has grown up. It is no longer valid to consider the bicycle as merely a child's toy; although it remains very much a primary toy for millions of children (and their thinking of it as a toy is a good part of the safety problem), but it has also become a major means of outdoor recreation for many millions of adults, and a primary means of cheap, ecologically clean, fuel-free, short-haul transportation for millions more. It is this use of the bicycle for the express purpose of getting someplace in particular that poses the greatest problem for the safety community.

The Bicycle Manufacturers Association of America supports the view that there are three primary factors to be considered in any accident-prevention situation: the host, the vehicle, and the environment...in this case, the bicyclist, the bike, and the traffic environment in which he travels.

With the promulgation of the Consumer Product Safety Commission Standard, which contains much of the BMA/6 specification, millions more bicycles were brought into the sphere of consumer safety oriented manufacture, because all bicycles, whether manufactured here or abroad, now

have to conform to the Federal specification if they are to be sold in the American market. Thus, the vehicle is being designed and manufactured to protect the consumer from unreasonable risk of hazard due to product failure.

In dealing with the host and the environment, it is perhaps the confusion in the minds of many over the status of both host and vehicle that is a growing cause of concern. Technically, at least, the bicycle is obviously a vehicle. It is not a motorized vehicle, to be sure, but a vehicle nonetheless.

But how about the law, which does not necessarily concern itself with things as they are, but rather as a duly constituted concensus thinks they should be.

Here the picture is somewhat confusing, the substance of it is that while the bicycle really is a vehicle, most states do not consider it so in a legal sense. They do, however, require its use on the road to be regulated by applicable rules of vehicular traffic.

The point is that when cars and bikes are operated on the same roads, they must be operated under the same rules for acceptable behavior. Obviously, all rules of vehicular traffic do not apply to bicyclists, and the key here is in determining on educational, law-making, and law enforcement levels, which rules are or should be applicable to bicyclists. Once this is determined and codified, as Mr. Kearney's National Committee is trying to do, the course becomes quite clear: cyclists must be educated about their legal responsibilities to the vehicular society in which they want to operate, and law enforcement officials must enforce the law whether it makes them uncomfortable or not. Motorists too, must be educated about their responsibilities to cyclists.

Certainly, the voluntary efforts of thousands of civic and service organizations, PTA's, police, insurance companies, and youth-serving groups have provided a commendable service to our young people over the years. The Bicycle Manufacturers Association of America has been pleased to cooperate with thousands of these groups over the past 30 years, providing posters, films, leaflets and how-to-do-it materials needed to put on community rodeos, field days, inspections and bike safety events of all kinds. This is no longer totally sufficient nor educationally effective enough.

Bicycle safety education must be taught on the same basis as algebra, history, or any other subject; a daily, progressive course of study that begins in the elementary grades and carries through to junior or even senior high schools. Such programs have already been instituted by the departments of education in Illinois, Maryland, and New York, and are being considered by several others. It is my earnest recommendation

that the next Federal Highway Act be amended to include mandated and funded pedestrian and bicycle safety education in any school system currently operating a Federally subsidized driver training program...

As for "the environment," a safer vehicle and a better educated cycling and driving public will contribute a great deal to a less hostile environment for the cyclist. What remains are the physical aspects of the cyclists' environment...the roads, paths, trails, bikeways, overpasses, parking and locking facilities, turning and signalling devices and a hundred considerations. Passage of the Federal Highway Act of 1973 marked a turning point in the affairs of American bicyclists, for it provided for the expenditure of up to $120 million for the construction of safe cycling facilities in the states.

As these facilities are built, allowing bicycles and motor vehicles to travel together where they are compatible, separating them where they are not, the physical environment for the bicycle should become significantly less dangerous.

It is the view of the Bicycle Manufacturers Association that only when the three separate factors: host, vehicle and environment have been taken into consideration by all responsible parties, will the bicycle accident picture improve to any large degree. It is also our view that unless direct, concerted and well considered action is taken by the federal and state governments, the regulatory agencies, highway planners, and most particularly the safety and education communities, the result will be, quite literally, a bloody mess. The country's bicycle population is growing by geometric proportions. It will not go away. It is here to stay and is growing larger every day. Its safety must be our primary concern.

Curtis Yates, North Carolina Department of Transportation

GENERAL SESSION - MAY 6, 1977

Presiding: *Martin Convisser*
Acting Assistant Secretary for
Environment, Safety and Consumer Affairs
U. S. Department of Transportation

BREAK-OUT SESSIONS - MAY 4 AND 5, 1977

The Break-Out Sessions on May 4 and 5 offered participants the opportunity to comment upon, expand and/or critique information presented by speakers and workshop leaders. During the first session, participants discussed the scope of bicycle safety education and problems of formulating local strategies in this area.

During the second Break-Out Session, participants analyzed the four sample bicycle safety education programs presented in the General Session (May 5) in terms of the proposed planning model, presented in the same session by Donald LaFond. Each Break-Out group concentrated on one of the sample programs. The planning model itself was closely examined and refinements were suggested. Finally, participants were asked to begin to define their own roles in formulating a national strategy for bicycle safety education.

In the General Session on May 6, the results of each day's Break-Out Sessions were presented. A summary of the Day 1 Sessions, titled RECOGNIZING THE PROBLEM, follows; IMPLICATIONS FOR EDUCATION, a summary of the Day 2 Break-Out Sessions is also included in this section.

RECOGNIZING THE PROBLEM

Betty Drake
Planner, Tempe, Arizona
Editor, Bicycle Pedestrian News

The Break-Out Sessions on Wednesday were concerned with defining what bike safety education is and what it is not, and then defining what some of the problems have been at the local level in implementing bicycle safety strategies.

Bicycle safety education was defined on two different levels. On the one hand it was defined in a very broad sense in terms of general objectives and characteristics; on the other hand it was defined in terms of components of what must be learned in order to ride a bicycle safely.

The most common, general characteristics of bicycle safety education that were mentioned in the groups were:

1. Bicycle education must be directed at motorists and bicyclists of all ages and should be packaged separately for each type of target group.

2. Bicycle education should be taught on a bicycle.

3. Bicycle education is a means of modifying the behavior of all roadway users.

4. Bike safety is a means of reducing accidents.

5. Bike safety education is most effective if it uses a positive, non-threatening approach.

Secondly, bike safety was defined in terms of components, what should be learned in order to improve safety. The most often mentioned of these was the development of riding skills and coordination, followed by hazard identification; maintenance and repair; developing knowledge of a roadway system; teaching responsibility to the bicyclist. Some of the other topics mentioned were bicycle etiquette, decisionmaking, choosing the right equipment, communication among roadway users, and predictability.

These topics are generally consistent with the planning model presented at this conference. The groups did give maintenance and bicycle repair more importance than did the model. Perhaps this is because these topics make an indirect contribution to safety by increasing the rider's confidence.

Now, what is <u>not</u> bicycle safety? Group participants agreed that bicycle safety education is not a one-shot affair; it is not just questioning rules and statistics; it is not just bikeways and engineering design; it is not just classroom teaching nor history. Currently, bike safety education is not taught by a positive approach and it does not reach all target groups.

Now, a great many problems were mentioned in terms of implementing bicycle education on the local level. The one that came out loud and clear was the problem of unqualified teachers who don't know the bicyclists' problems and don't ride bicycles. Another problem is lack of coordination and follow-up. Enforcement programs should back up educational programs. Secondary school programs must follow through on

concepts taught in elementary grades. There must be ongoing commitment of time and money.

Additional problems mentioned by group participants include:

1. Public apathy.

2. Lack of reliable and consistent research and uniform safety standards.

3. Inattention to certain target groups (e.g., senior citizens) and disagreement as to where the emphasis should be and what messages should be conveyed.

4. Difficulty in convincing local groups to conduct programs; difficulty involving enforcement and judicial people in the bike safety education process.

5. Lack of a central clearinghouse, newsletter, etc. to promote information exchange.

6. The view that the bicyclist is not a legitimate road user.

7. Conflict among different groups who think they know what is best for bicyclists.

8. Problems with getting on-road bicycle training because of liability insurance problems.

9. Emphasis on fear in current bike safety education.

10. The macho bicyclist who is offended by the idea of riding safely and using safety aids.

HIGHLIGHTS OF NATIONAL STRATEGY WORKSHOP

Dan Burden
Executive Director, Bikecentennial

I would like to report on the major points raised in the two national strategy workshops that I conducted at the conference.

1: We need a unified, consistent and accurate message concerning bicycle safety education. No matter whom we represent, we should deliver the same basic messages (e.g., ride your bicycle on the right side of the road). One group or agency should become the source of correct bicycle safety information.

2. We need program guidelines that are available as messages to different age and user groups. We need some materials for these different groups. These guidelines should be developed on a national scale.

3. We need a central source or clearinghouse of information on bicycle safety and bike safety materials. These materials should be available from a single source.

4. Existing bicycle safety education materials must be repackaged using modern graphics and aimed at specific target groups. We must discover and use more effective and exciting delivery systems.

5. We should select certain critical messages (i.e., ride on the right) and create a total information system, a media blitz.

6. We should take advantage of Congressman Regula's interest and develop an effective legislative package. This should also be done on the state level.

7. We must make the most effective use of existing funding. One way to do this is to use seed money for demonstration projects and then to get continuation funding from local sources who are impressed with the program.

8. We need to develop a long range plan that specifies strategies over the next five or ten years.

IMPLICATIONS FOR EDUCATION

Ken Giles
Supervisory Public Information Specialist
Consumer Product Safety Commission

The Break-Out sessions Thursday afternoon were really very productive: here are some of the generalizations that I pulled out of the masses of paper that came out of those sessions.

Almost everyone agreed with the conference focus on education as a countermeasure to reduce accidents. There continued to be concern about engineering and enforcement as complements to education, but people seemed to focus on the specifics of education programs. Many people recommended that the Federal government help coordinate the exchange of information for state and local groups, although there was a large segment of the conference which urged the Feds not to develop more curriculum materials. Money, yes; curriculum, no. Some people did suggest that the Federal government develop guidelines for curricula.

Many folks recommended that the Federal agencies help facilitate state or regional conferences to do the same thing which we have done at a national level, but in smaller groups. There could then be more focus on actual implementation of programs. There was also some feeling that we might need another national conference in a couple of years to assess our progress since this one.

There was also a recommendation that the Federal government fund research to determine which countermeasures are effective. It was felt that financial backing for sophisticated scientific studies such as the Ken Cross research is only available at the Federal level.

Many people recommended that bike safety education be made part of driver training courses and driver licensing examinations. It was also suggested that all bicycles be registered, which would provide a method of reaching and perhaps teaching all bicyclists.

Many people recommended that skilled cyclists must be actively involved at all levels and at all phases of the bicycle safety education.

I would like to review some of the general conclusions made by the Break-Out groups about implementing the four bicycle safety education programs that we heard about yesterday on a national level.

While many people thought that John Forester's program was good in terms of its content and approach, there were questions about how it could be implemented on a national scale. Where would we find sufficient teachers to teach it, especially if it had to be taught in schools? How could it be extended to children under the age of 14? There was, however, general agreement that Forester's program combined the content areas and approaches suggested by the planning model and that on-bike practice was appropriately emphasized in John's program.

Many people felt that the safety part of the Sterling, Illinois, program could have been done much more cheaply on a vacant parking lot. There was some criticism of the 4-H program for its emphasis on laws and rules only, although others acknowledged some value in the attention-getting capability of the talking bicycle. The L.A. school system's program seemed good to many people, but some said they did not have enough information about its content to judge it.

In fact, the general comment about the whole day was that it was so packed with events that there was insufficient time to discuss anything thoroughly. Some people felt that maintenance and repair should have been given more emphasis in the LaFond model since occasionally knowledge of maintenance and repair could help you survive.

Someone suggested that a bicycle safety education program should be extended to include or reach the elderly and handicapped. Another person wanted to see Mopeds addressed in safety education. Another person suggested we make arrangements to participate in next year's national PTA convention to put bicycle safety education on their agenda.

Many people were commenting that they were eager to do on-bike training practice through their schools, but they were constrained by insurance liability regulations. I think that a future workshop or task force should look into this problem.

One final recommendation was that bicycle safety education be set in the total traffic safety context. Such a setting provides a new context and broader understanding of hazards and countermeasures.

One of the most significant developments I heard yesterday was that most of us agreed with Don LaFond's basic contention that traditional programs have emphasized aspects of cycling that don't really relate to accidents. In fact, many of us readily admitted that our existing materials emphasized things such as history, wheel size and type, and laws and rules, which really have less to do with deaths and injuries than other things. And most of us seemed to agree that hazard recognition and decision making, along with the skills of how to evade hazards, are really the most important contents of an effective, safe cycling program.

What this implies is that many of us are going to have to revise our programs if we want to focus on accident reduction, and I think this general conclusion is one of the most helpful positions to be made at this conference. We seem to agree that it is not ignorance of the laws and rules that causes accidents; it is failure to practice them in specific hazardous circumstances. People know the laws and rules already, but because they are distracted or angry or inexperienced with certain hazards, they do not apply the rules appropriately.

We agree that there are at least three hazards which we need to teach people to recognize: wrong-way riding by bicyclists; inadequate visibility, especially at night on rural roads; and failure to scan in alleys, driveways, and intersections. We also have a job to do in teaching evasive actions. This content area was voted second most popular by the Break-Out groups yesterday (after hazard recognition and decision making).

IMPLICATIONS FOR ACTION

Curtis Yates
Bicycle Coordinator, State of North Carolina

No one individual can accomplish wonders in bicycle safety education. It must be a collective and concerted effort from all of us. It will take motivators; by your presence here and your active interest, you have become motivators.

We have heard and learned a great deal at this conference: about misinformation, lack of coordination, accident data, skill training and legislative lobbying. But where does this all lead? I see two major problem areas. First, bicycle safety programs are very fragmented. This happens at all levels of government and also in the private sector. This is why we have programs pulling against each other to reach the same goal.

Well, what is wrong? I think it is commitment. That is the second problem. There is a lack of commitment for bicycle safety education at all levels of government. The greatest way to test for commitment that I have found is to ask for funding. And so often, the great words, the great plans, the great programs are pushed aside. Bicycle safety is low in the priority of things. We must raise its standing, make it more visible, make others aware. This is your responsibility.

Although they are general, the following directives for action have emerged from the conference and should be pursued:

1. Recognize at all levels the need for bicycle safety education and commit necessary resources such as time, manpower and funding to establish and maintain these programs.

2. Require that all driver education programs be expanded to involve grades K through 12 and include pedestrian-bicycle safety training.

3. Create an all-inclusive bicycle safety education clearinghouse at the Federal level.

4. Conduct research to achieve a consensus of what bicycle safety problems are and to eliminate misinformation.

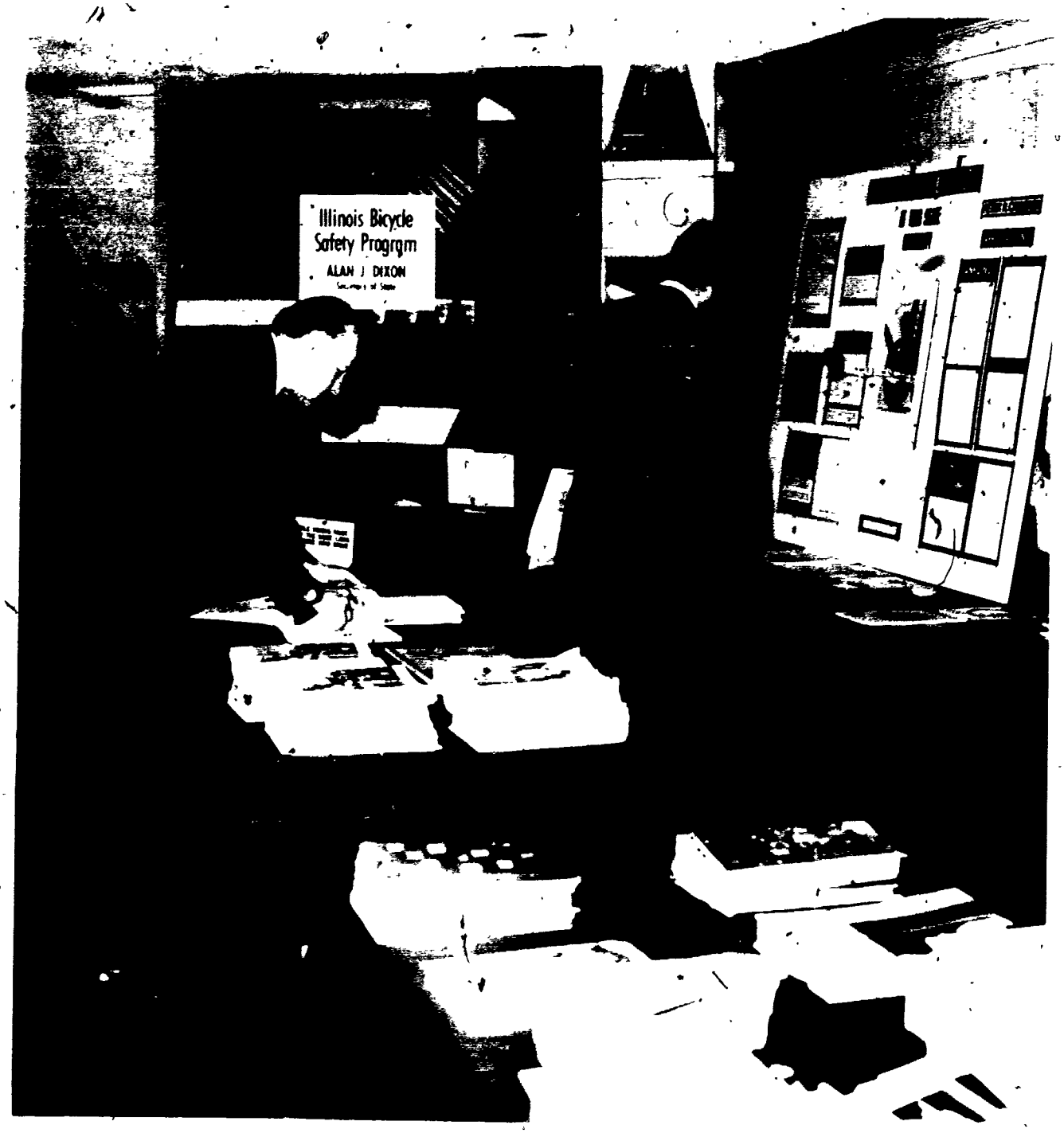
5. Develop (based upon the Ken Cross data and other related work) a local procedures manual to provide guidelines for states and communities to identify their own bicycle safety problems and program limitations.

6. Continue the process begun at this conference by conducting regional workshops; notifying governors of this conference and your interest to be a motivator in your state; and assuring bicycle safety education representation at future meetings of related professional groups.

Three of these directives may require legislation and should be referred to Congressman Regula for his consideration. These are the directives that relate to the clearinghouse; the expansion of drivers'

education to include K-9 bicycle and pedestrian safety; and the universal recognition of the need for bicycle safety education. All of these actions require special funding.

ADJOURNMENT



Conference Participants in Exhibit Area

APPENDICES

Appendix A

Community Bicycle Programs: An Approach

Some conference participants voiced the fear that because of Bike-Ed '77, communities would focus on bicyclist education to the exclusion of other program elements such as enforcement and engineering. On a broader scale, the concern was also expressed that too many communities deal only with bicycle safety to the possible detriment of other goals which should be part of a comprehensive bicycling program. It was felt that these concerns were valid, and that some attention should be paid to them in the proceedings of Bike-Ed '77. What follows is an attempt to identify some of the ideal characteristics of a comprehensive community bicycle program and to describe a process a community could follow to develop such a program.

Most communities today view bicycles as a source of accident statistics--a safety problem to be solved. If, however, bicycling is to be accepted as a viable mode of transportation within a community, a more positive attitude must be taken to encourage the use of bicycles by the general public. Communities should not focus exclusively on safety, but rather they must expand their program efforts to promote the use and efficiency of bicycling as well. This broader objective will then provide criteria for assessing a particular program element. For example, a safety countermeasure relying heavily on fear tactics should not be introduced as part of a comprehensive program since it would probably have a negative impact on use.

The principal characteristic of a community bicycle program, therefore, would be that it have a comprehensive goal: the promotion of the use, safety, and mobility of bicycling. The program should, also:

- be based on an assessment of local needs;
- be supported by community leaders;
- utilize all the resources available within the community, e.g., media, civic organizations;
- coordinate the activities of all groups and agencies involved in bicycling;
- be conducted on an on-going basis rather than sporadically;
- acknowledge the diversity of needs and capabilities among cyclists;
- address a multitude of audiences, not just cyclists;

- be multi-faceted in its approach and not rely on a single response, such as engineering, to a problem;
- provide a consistent, accurate message;
- have an effective delivery system; and
- have an evaluation mechanism.

The characteristics are the main ones identified by the attendees at Bike-Ed '77. One reason so few community programs would fit this description is that they evolved from a loosely-defined initiative that "something should be done with the bicycles in town."

The environment within which program planning is to be carried out will vary widely from town to town depending on political structure, socio-economic levels, and other characteristics. The outline which follows highlights the key points that should be covered in the development of a comprehensive community bicycle program:

1. Commitment to Goal

   - Secure high level commitment from elected official(s) and community leader(s) to the overall goal of promoting the use, safety, and mobility of bicycling.

2. Fact Finding

   - Identify relevant characteristics of the community.
   - Inventory current programs and activities related to bicycling.
   - Identify potential resources and participants.
   - Survey adjoining communities for related activities.
   - Secure authoritative information on effective programs.
   - Analyze current bicycling situation (users, characteristics of use, safety problem, level of community support, etc.).

3. Establishment of Objectives

   - Specific, measurable objectives should be identified and prioritized, based on local needs, in terms of overall goal. (e.g., reduce the incidence of wrong-way riding by 50% within one year).

4. Program Development

- Select individual program elements which will facilitate meeting each objective (a combined education/enforcement effort to reduce wrong-way riding).
- Identify resource requirements.
- Solicit active support and involvement of appropriate groups.
- Establish coordination mechanism.
- Develop evaluation criteria and process.
- Implementation.

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